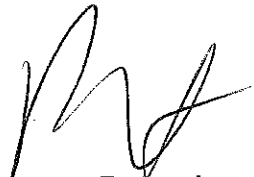


**MANUAL OF OPERATIONS  
AIR TRAFFIC SERVICES  
MO-ATS**

Pursuant to § 25 of the "Verordnung über die Durchführung der Flugsicherung (FSDurchführungsV)" we enact this Manual of Operations for the provision of air traffic services.

Director Business Unit Tower



Andreas Pötzsch

Director Business Unit Control Centre



Robert Schickling

Edition November 2011  
English

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No.                      Effective Date :                      Entered at :                      Initials :

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1	18.11.2010		
2	17.11.2011		

If the last amendment was entered more than one year ago, the validity of this particular Manual of Operations shall be checked.

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**110 GENERAL REGULATIONS**

Each staff member shall act in such a way that safety and order in air traffic are ensured and no airspace user is endangered, harmed, impeded or otherwise disturbed more than is unavoidable under the prevailing circumstances.

**111 MANUALS OF OPERATIONS**

- 111.1 The Manuals of Operations MO-ATS (BA-FVD) and MO-AIS (BA-FB) apply to all employees of the respective operational air navigation services of DFS Deutsche Flugsicherung GmbH as well as to the personnel of the Federal Aviation Office (LBA) working for DFS.
- 111.2 The Manual of Operations for the Air Traffic Service (MO-ATS) and the Manual of Operations for the Aeronautical Information Service (MO-AIS) govern the air traffic services and the aeronautical information services of DFS Deutsche Flugsicherung GmbH. Some parts of the MO-AIS that are relevant to the provision of air traffic services are contained in the MO-ATS.
- 111.3 The manuals contain the regulations to be applied by operational staff. Any deviations from the regulations shall be subject to special written approval by the Headquarters of DFS Deutsche Flugsicherung GmbH (DFS/UZ), departments AIM/FP (MO-AIS), TWR/MO or, as appropriate, CC/FDO (MO-ATS).
- 111.4 In the event of different interpretations of the German and English versions, the German text shall prevail.
- 111.5 Operational staff shall be familiar with all regulations of the manuals, as far as applicable.
- 111.6 Operational staff are expected to exercise their best judgement if they encounter situations which are not covered by the regulations of the manuals.
- 111.7 If necessary, supplementary regulations to these manuals shall be defined by DFS/UZ departments AIM/FP, TWR/MO or, as appropriate, CC/FDO.
- 111.8 At least one copy of the relevant Manuals of Operations MO-AIS or MO-ATS shall be available in the operations room.
- 111.9 The Manual of Operations for Aeronautical Information Services (MO-AIS) and the Manual of Operations Air Traffic Services (MO-ATS) are distributed by departments AIM/FP (MO-AIS), TWR/MO and CC/FDO (MO-ATS) four weeks before they come into effect. The Manual of Operations for Aeronautical Information Services (MO-AIS) is distributed in printed form; the Manual of Operations Air Traffic Services (MO-ATS) is distributed in printed or digital form.

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**112 AMENDMENT SERVICE**

112.1 Amendments will be supplied with a cover sheet specifying the following:

- .11 serial number of amendment;
- .12 effective date;
- .13 summary of the most important amendments;
- .14 details concerning the amendments to be implemented.

112.2 The effective date shall be indicated on each page. Changes shall be marked by a vertical line in the margins.

112.3 The incorporation of amendments shall be entered in the "Record of amendments".

**113 WORDING**

113.1 The status of the regulations laid down in the manuals depends on the wording used in the appropriate context. The verb construction formed with a modal verb determines the status of the relevant regulation.

113.2 Whenever a regulation is **mandatory**, no deviation from the regulation is permitted.

- .21 "Shall", followed by a verb, designates that the regulation is mandatory.

113.3 Whenever a regulation is **recommended**, deviations from the regulation are permitted, if required in specific cases.

- .31 "Should", followed by a verb, designates that a regulation is recommended.

113.4 Whenever a regulation is **optional**, it may be applied if it is deemed useful or appropriate in specific situations.

- .41 "May" or "need not", followed by a verb, designates that a regulation is optional.

113.5 Other terms frequently used in this context have the following meaning:

.51 "Aircraft" refers to an aircraft or a pilot;

.52 "Mile" or "NM" means nautical mile.

.53 If regulations are explained, the explanations are preceded by the word "Note".

## 114 TIME SYSTEM / UNITS OF MEASUREMENT

114.1 For flight operations, **Coordinated Universal Time** (UTC) shall be used. The times given in UTC refer to the winter period. During the Central European Summer Time, the times given in brackets shall apply. Central European Time [CET (UTC + 1 hour)] applies during the winter period, Central European Summer Time [CEST (UTC + 2 hours)] during the summer period.

Note: The Central European (Summer) Time shall be used when preparing the duty roster.

.11 0000 hours indicates the beginning of the day and 2359 hours marks the end of the day.

.12 An hour starts with minute 00 and ends with minute 59.

.13 A minute starts with second 00 and ends with second 59.

114.2 In a six-digit date-time group (DTG), the first two digits indicate the day of the month and the remaining four digits indicate the time in UTC.

114.3 In an eight-digit date-time group, the first two digits indicate the month, the third and fourth digit indicate the day and the remaining four digits indicate the time in UTC.

.31 Eight-digit date-time groups shall only be used for the text part of a message.

114.4 In a ten-digit date-time group, the first two digits indicate the year, the third and fourth digit indicate the month, the fifth and sixth digit indicate the day and the remaining four digits indicate the time in UTC.

114.5 For flight operations, the following **units of measurement** shall be used:

a) for navigational purposes:  
nautical miles and tenths of nautical miles (NM);

b) for indicating short distances, particularly distances at aerodromes:  
metres (m);

- 114.5
- c) for indicating altitudes, elevations and heights:  
feet (FT);
  - d) for indicating horizontal speed:  
knots or Mach number (KT or M);
  - e) for indicating wind speed:  
knots (KT);
  - f) for indicating vertical speed:  
feet per minute (ft/min);
  - g) for indicating wind direction:  
degrees (DEG or °);
  - h) for indicating flight visibility, ground visibility and runway visual range:  
kilometres or metres (km or m);
  - i) for indicating the atmospheric pressure to be used for setting barometric altimeters:  
hectopascal (hPa);
- Note: If requested by the pilot, the atmospheric pressure to be used for setting barometric altimeters shall also be transmitted in inches.
- j) for indicating temperatures:  
degrees Celsius (C or °);
  - k) for indicating the mass:  
kilogramme (kg).

## 115 GENERAL DUTIES

115.1 Valid ratings, rating endorsements and unit endorsements are required for the independent performance of tasks at the working positions of the aeronautical information service, flight data handling and air traffic control services. A valid certificate shall also be mandatory for FMP working position.

.11 An exception shall be made if the head of an air traffic control unit, for compelling reasons, instructs controllers to perform flight data handling functions in ATC, if the ability for the fulfilment of these tasks can be presupposed.

115.2 It is strictly forbidden for air traffic service staff to work under the influence of alcohol, drugs or medicine impairing their ability to work.

- 115.3 Air traffic service staff shall keep their professional knowledge up-to-date.
- 115.4 Staffmembers holding a valid instructor endorsement shall be obliged to provide training as instructed by their superiors. The instructor shall be responsible for the provision of air traffic services during the training period.
- 115.5 When performing on-the-job training (OJT) at a working position, the instructor shall be in charge of only one trainee at a time.
- 115.6 When conducting OJT at a working position, the instructor shall be exclusively in charge of the tasks of this particular working position. The instructor shall conduct OJT with one trainee only and shall not carry out any other tasks simultaneously.

## 116 WORKING POSITIONS

- 116.1 It may be possible to perform several air traffic services functions at one working position. Likewise, several working positions can be adapted to perform functions of the air traffic services.
- 116.2 Several working positions may be combined if required by the staffing situation or permitted by the traffic volume.
- 116.3 When working positions are combined, the staff member who is responsible for the combined working positions shall take over all functions of the relevant working positions.

## 117 TAKE-OVER / HAND-OVER OF A WORKING POSITION

- 117.1 Prior to taking over responsibility for a working position, staff members shall ensure that they are fully acquainted with the current operational situation and shall obtain all relevant information to this end.
- 117.2 Prior to handing over responsibility for a working position, it shall be ensured that the member of staff taking over has obtained comprehensive information about the current situation.
- 117.3 If activities concerning emergencies, accidents or other exceptional situations have not been completed at the time of relief, responsibility may be handed over only with the express consent of the supervisor on duty or, during his absence, his deputy.

- 117.4 Staff members may only leave their working positions if:
- .41 they are relieved by a co-worker;  
or
  - .42 the working position is closed;  
or
  - .43 the supervisor on duty or, during his absence, his deputy orders the consolidation with other working positions.
  - .44 in the case of double staffed sectors, the staff members responsible for the working positions decide by mutual agreement and at their own responsibility that, in view of the traffic situation / workload, a short-term absence of one staff member is possible. The staff member present shall assume responsibility for both working positions. Such absences shall not exceed a period of five minutes.
- 117.5 Take-over and hand-over of a position shall be logged into the electronic position log or be entered in the position log form ("Arbeitsplatznachweis") by indicating the exact hour and minutes (UTC). This also applies to short absences from the working position. If the electronic position log is not available, the paper version shall be used.

**118 - 119 NOT ALLOCATED**

**120 OPERATIONAL REGULATIONS****121 GENERAL**

121.1 The following regulations and documents shall be observed in addition to this Manual of Operations:

- .11 National air traffic regulations, in particular:
  - Aviation Act (LuftVG),
  - Aviation Regulation (LuftVO), including the associated implementing ordinance (DVO).
- .12 Other regulations, in particular:
  - Decrees and orders of the former Federal Administration of Air Navigation Services (BFS);
  - Instructions and orders by the Headquarter of DFS (DFS/HV and DFS/UZ);
  - Instructions of the air traffic services;
  - Letters of Agreement, Operational Directives and Operational Orders;
  - NOTAM;
  - Aeronautical Information Publication (AIP) Germany;
  - Military AIP Germany (Mil-AIP).
- .13 ICAO publications, for example:
  - Doc 7910, Location Indicators;
  - Doc 8400, Abbreviations and Codes;
  - Doc 8585, Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services;
  - Doc 8643, Aircraft Type Designators;
- .14 Other publications:
  - Publications concerning arrival and departure routes to / from military aerodromes in the relevant area of responsibility;
  - EUROCONTROL CFMU Handbook.

**122 LETTERS OF AGREEMENT**

122.1 Letters of Agreement (LoA) are concluded:

- .11 between units of the air navigation services of DFS (internally),  
or
- .12 between DFS and non-DFS parties (externally), with the aim of laying down the regulations for operational procedures.

122.2 Whenever the DFS/UZ departments AIM/FP, TWR/M and CC/FD conclude Letters of Agreement, they shall transmit a copy for further action to the air navigation services units concerned.

122.3 The following shall apply to Letters of Agreement concluded between units of the air navigation services of DFS:

- .31 The units of the air navigation services shall conduct the necessary negotiations until the Letter of Agreement is ready to be signed and an effective date has been agreed upon.
- .32 The Letter of Agreement shall be submitted to the heads of the air navigation services units for examination and subsequent signing and dating.

122.4 The following shall apply when Letter of Agreements are concluded with externally parties:

- .41 The unit of the air navigation services shall conduct the necessary negotiations until the Letter of Agreement is ready to be signed and an effective date has been agreed upon.
- .411 Before the Letter of Agreement is signed, it shall be submitted for examination to the responsible DFS/UZ department AIM/FP, TWR/M or CC/FD, as appropriate.
- .412 After the relevant DFS/UZ department have examined and approved the Letter of Agreement, it shall first be signed and dated by the head of the air navigation services unit and then by the head of the pertinent DFS/UZ department AIM/FP, TWR/M or CC/FD.
- .413 The respective parties must be clearly ascertainable from the layout of the signature blocks. If non-DFS parties are involved besides DFS, the signature(s) of the authorised representative(s) of DFS shall be on the same line as the signature(s) of the non-DFS party(ies). The DFS signing regulations shall be applied in connection with the signatures to be provided by DFS representatives.



- 122.5 Letters of Agreement may be written in German or in English.
- 122.6 Letters of Agreement shall be filed in folders; these folders shall be labelled accordingly, shall include a table of contents and shall be kept in the operations room. Alternatively, they may be made available in an electronic briefing system.
- .61 One copy shall be made available in the reading file and in an electronic briefing system, for a period of at least 2 weeks prior to the effective date and 4 weeks thereafter, but not longer than the period of validity.
- 122.7 Any amendment to a Letter of Agreement without annexes requires the written consent of all parties. The LoA shall be provided with a record of amendments.
- .71 In the case of permanent amendments made to the annexes of a LoA, one of the parties shall sign a written confirmation to this effect. This written confirmation shall be retained.
- .72 Changes shall be marked by vertical lines in the margins.

## 123 OPERATIONAL DIRECTIVES

### **ATTENTION: Regulation concerning item 123:**

With immediate effect, operational directives shall no longer be issued. Existing operational directives shall be transposed into an appropriate alternative form of regulation (e.g. Letter of Agreement) no later than by 15 December 2012. If existing operational directives are to be amended during the transition period until 15 December 2012, the occasion shall be seized to transpose the regulation contents into an appropriate alternative form of regulation.

- 123.1 Operational Directives and amendments thereto shall be issued by the units of the air traffic services for parties using airspace under the conditions specified by air traffic control, for example:
- flying groups of the Deutschen Aero Club or other sport flying associations;
  - flying schools;
  - model aircraft flying clubs.
- 123.2 Operational Directives may be written in English.

- 123.3 Operational Directives shall be signed by the head of the relevant air traffic services unit and one additional member of staff. The party to which the Operational Directive applies shall confirm the receipt of the Operational Directive in writing.
- 123.4 Operational Directives shall be filed in folders; these folders shall be labelled accordingly, shall include a table of contents and shall be retained. Alternatively, they may be made available in an electronic briefing system.
- 123.5 Operational Directives shall be provided in summarised form for the operations personnel and promulgated by means of an Operational Order.
- 123.6 Operational Orders shall be numbered successively during the year. The number shall be followed by the last two digits of the year of publication.

## 124 OPERATIONAL ORDERS

- 124.1 Operational orders shall be issued on behalf of the head of an air navigation services unit, in order to:
- .11 establish additional or local procedures on the basis of the MO-AIS or MO-ATS or other instructions / orders by DFS/UZ or the responsible air navigation services unit;
  - .12 define regulations applying exclusively to internal matters of the air navigation services unit; such as the duty roster or provisions concerning training;
  - .13 present and / or promulgate internal orders concerning Letters of Agreement and Operational Directives.
- 124.2 Operational Orders may be written in English.
- 124.3 Reference shall be made to the relevant document in Operational Orders that are based on provisions or other guidelines, instructions or orders by DFS/UZ or the competent air navigation services unit.
- 124.4 Operational Orders shall be numbered successively during the year, as separate series for the sections AIS-C, FDS and ATC. The number shall be followed by the last two digits of the year of publication.
- 124.5 The effective date shall be indicated. The period of validity shall be indicated in temporary Operational Orders.
- 124.6 Operational Orders shall be filed in folders; these folders shall be labelled accordingly, shall include a table of contents and shall be kept in the operations room. Alternatively, they may be made available in an electronic briefing system.

124.61 As a rule, one copy shall be made available in the reading file and in an electronic briefing system, for a period of at least 2 weeks prior to the effective date and 4 weeks thereafter, but not longer than the period of validity. If an Operational Order is prepared or changed at short notice and cannot be published and/or made available at least 2 weeks prior to the effective date, the person in charge shall ensure by appropriate means that all staff members concerned are informed about the contents of the Operational Order.

124.7 Changes shall be marked by vertical lines in the margins.

## 125 READING FILE / ELECTRONIC BRIEFING SYSTEM

125.1 For the periods of time mentioned above, Letters of Agreement and Operational Orders shall be made available in the Reading File and in an electronic briefing system to inform the staff.

125.2 The following documents shall also be included in the Reading File and in an electronic briefing system, as far as relevant:

- Aeronautical Information Circulars (AIC);
- Operational instructions / orders issued by the DFS/UZ;
- Supplements to the Manuals of Operations;
- Announcements and notices;
- Administrative announcements;
- Other information material.

.21 The above-mentioned documents shall be removed from the Reading File and in an electronic briefing system after a certain period to be determined by the head of the air navigation services unit.

125.3 The staff members shall take note of the documents included in the Reading File or in an electronic briefing system. If no electronic briefing system is available, the supervisor shall inform the staff about documents which have recently been included in the Reading File.

- 125.4 The supervisor shall annotate on documents which have recently been added to the Reading File when the staff members were informed about the new documents. The staff member shall confirm that he has taken duly note of the newly included document if such a confirmation mechanism is provided in an electronic briefing system of the relevant air navigation services unit. If certain aspects still have to be clarified, the staff member is responsible for obtaining further information themselves. The supervisor shall check at least every two weeks that the staff member has taken note about documents which have recently been added. Further details shall be regulated locally.

Note: A supervisor Reading File should be used to facilitate this task.

**126 SECTOR MANUAL**

- 126.1 Operational regulations and other documents that are relevant for the sector / working position (e.g. arrival / departure routes) shall be included in the sector manual for quick reference.
- 126.2 A sector manual is not necessary if the working positions are placed close together or there are only a small number of sectors.

**127- 129 NOT ALLOCATED**

**130 FLEXIBLE USE OF AIRSPACE****131 AIRSPACE USE PLAN (AUP)**

131.1 The AUP is an airspace use plan which is prepared by the Airspace Management Cell (AMC) for the next day. If necessary, it is updated by an updated airspace use plan (UUP).

131.2 The AUP shall contain the following information :

.21 opening hours CDR2;

.22 closing hours CDR1;

.23 use of the military training areas (e.g. TRA, ED-R);

.24 other special military missions (e.g. air refuelling, large-scale exercises).

131.3 The CDR2 requirements for the next day shall be reported to AMC by 1100 (1000) UTC. They can be submitted as an individual requirement for one day or in the form of weekly or monthly plans.

131.4 The AMC will publish the AUP no later than 1500 (1400) UTC. It shall be distributed to the relevant working positions.

131.5 The CFMU will analyse the AUPs of all European States and compile a daily consolidated message listing all available CDR2 and closed CDR1 for the next day. This European Airspace Use Plan (EAUP) will be published by the CFMU before 1600 (1500) UTC. It can be retrieved at the CFMU terminal.

**132 - 139 NOT ALLOCATED**

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**140 SPECIAL USE OF AIRSPACE****141 SPECIAL USE OF CONTROLLED AIRSPACE**

141.1 Flight activities which require the special use of airspace include, in particular:

.11 parachute descents and dropping of parachute-equipped objects;

.12 ascents of model aircraft and uncontrolled self-propelled flying objects;

.13 ascents of balloon-like glowing objects as well as mass ascents of children's balloons and ascents of bundled children's balloons;

.14 ascents of unmanned free balloons (in particular, weather balloons) with a total mass of balloon cover and ballast of more than 0.5 kg;

.15 ascents of unmanned aircraft systems which can be operated at levels of more than 30 m above ground or water.

141.2 The ATC unit in whose area of responsibility the flight activities take place shall be responsible for coordinating, handling, commenting on and, if necessary, approving these activities. If several ATC units are affected, these activities shall be subject to coordination by DFS/UZ department CC/FDO.

Note: Requests for ascents of balloon-like glowing objects and mass ascents of children's balloons shall be handled by the AIS-C.

141.3 The issue of clearances on the day of operation depends on the traffic situation and may be subject to certain conditions (e.g. transponder equipment, level or time restriction).

141.4 The responsible ATC unit or DFS/UZ department CC/FDO or TWR/MO shall initiate the relevant aeronautical publications.

**142 SPECIAL ACTIVITY AREAS**

- 142.1 A special activity area (SAA) is an airspace of defined dimensions within which unusual VFR activities require special alertness by pilots for the safe conduct of the flight.
- .11 The dimensions of this airspace depend on the type and scope of the planned activity and shall be determined locally upon prior coordination with the organiser.
- 142.2 A SAA may be established and published for the following events:
- .21 military exercises;
- .22 air shows;
- .23 glider competitions (only for the departure phase);
- .24 cloud flights with gliders;
- .25 acrobatic flights within controlled airspace and over aerodromes with air traffic control service;
- .26 other activities, if deemed necessary.
- 142.3 For flights for which there is an obligation to provide separation, distances from SAA shall be observed according to MO-ATS chapter 430.
- 142.4 A clearance to enter a SAA shall only be issued to controlled flights if the aircraft concerned take part in the activities or if the pilot insists on a clearance after being informed about the activities.
- Note: VFR flights should, as far as possible, avoid SAA.
- 142.5 SAA shall be published in NfL / NOTAM.

**143 - 149 NOT ALLOCATED**



**150 DOCUMENTATION AND STATISTICS****151 GENERAL**

151.1 In the air traffic services, documentation shall be filed and data shall be recorded for the purpose of preparing statistical reports.

.11 The appropriate forms shall be used.

.12 The forms shall be completed, distributed and retained.

.13 Individual or general regulations governing the type of recording, form and distribution of data applicable to data recorded for statistical purposes shall be laid down and promulgated by DFS/UZ (business units CC, TWR or AIM).

.14 The data for statistical reports shall be retained for 6 years.

**152 DAILY LOG**

152.1 The daily log can be provided in electronic form or by means of the paper version of the daily log form. If the electronic daily log is out of order, the paper version of the daily log shall be completed.

152.2 The daily log shall be commenced daily on a new page at 0000 hrs (UTC). For the paper version of the daily log, subsequent pages of the same day shall be numbered consecutively.

152.3 A separate daily log may be kept for each individual domain. If required locally, separate daily logs may be kept for each sector family (EBG).

152.4 Use of the numbered columns:

.41 Column 1: working position of the staff member making the entry;

.42 Column 2: time (of the beginning) of the occurrence (UTC);

.43 Column 3: ending time of the occurrence (UTC), if required;

.44 Column 4: initials of the staff member making the entry;

.45 Column 5: time of entry; entry of important operational occurrences.

152.5 All relevant information, such as safety-related occurrences, irregularities, delays, beginning/end of operations, functional status of systems, shall be recorded in the daily log. Further details shall be specified locally.

- 152.6 Entries may be made by any staff member and shall include the initials of the person making the entry. Indelible pens shall be used to complete the paper version of the daily log.
- .61 Entries shall only contain facts; comments or evaluations are not allowed.
- .62 Corrections in the daily log shall only be made by the staff member who made the original entry. The entry to be corrected shall be documented electronically or crossed out by hand and initialled by the staff member. The time of the correction shall also be specified.
- 152.7 The original of the hand-written daily log shall be forwarded to the head of the DFS branch / AIS-C. The daily logs shall be retained or stored on data carriers for a period of 1 year. A hand-written copy of the daily log shall be made available in the operations room for at least one week. The electronic version shall be available for retrieval in the operations room for at least one week.

### 153 POSITION LOG

- 153.1 The position log can be maintained in electronic form or by means of the paper version. If the electronic position log is out of order, the paper position log form shall be used.
- 153.2 The daily position log shall commence at 0000 hrs (UTC). When using the paper version of the position log, subsequent pages of the same day shall be numbered consecutively.
- 153.3 When using the electronic position log, the working position shall be taken over and transferred by signing in or out of the recording system. This also applies to short interruptions.
- 153.4 The designation of the working position, the time (UTC) of take-over and hand-over of the working position as well as the initials (in capital block letters) and the personal signature shall be entered in the position log form. The same shall apply to short interruptions.

153.5 If staff members are responsible for several working positions, the initials for the second and third and all other working positions shall be entered in square brackets and the personal signature shall be added.

.51 If staff members are working under the supervision of an instructor, a circle shall be drawn around the initials and the personal signature shall be entered.

153.6 The position logs shall be forwarded to the head of the DFS branch/AIS-C and shall be retained for a period of 3 years.

153.7 The electronic position logs shall be stored on data carriers and retained for a period of 3 years.

## **154 VOICE RECORDING**

154.1 Aeronautical telecommunications shall be recorded.

.11 In the event of a total failure of recording facilities, the functioning of such facilities shall be restored as quickly as possible. Operations shall not be discontinued because of a failure of the recording systems.

154.2 Voice recordings shall be retained for a minimum period of 30 days.

.21 Voice Recordings which are required for investigating safety-related occurrences shall be requested by the head of the branch or, for the AIS-C, by the head of the AIS-C and shall be kept under lock and key until the DFS/UZ department VY has approved their reuse.

.22 All recordings retained for investigation purposes shall be entered in the voice recordings inventory. This inventory shall be forwarded to the head of branch, DFS/UZ department CC/FC or TWR/M at the middle and the end of each year.

154.3 Recordings may only be played back if approved by the head of branch or AIS-C. The works agreement concluded between DFS and the central staff council (GBR) shall be observed.

.31 Recordings shall not be played back in the presence of non-DFS parties unless approved accordingly by DFS/UZ (department CC/FC or TWR/M) or, as appropriate, the head of branch / AIS-C. This regulation shall not apply to representatives of the following institutions if aircraft accident investigations are being carried out:

- 154.311 investigating authorities;
- .312 the Federal Bureau of Aircraft Accidents Investigation (BFU);
- .313 armed forces, if applicable.
- .32 If approved by a representative of the BFU, representatives of aircraft operators may be given permission to listen to the recordings.
- 154.4 Transcripts required for incident investigation shall contain the following details:
- reference;
  - date;
  - recording channel;
  - frequency / channel, if applicable;
  - working position;
  - time of the beginning of telecommunications in hours, minutes and seconds;
  - participants in telecommunications;
  - verbatim transcript of all communications between the parties involved; if parts of the telecommunications are not intelligible, such parts shall be marked by adding comments in brackets;
  - confirmation of the fact that the transcript is complete and correct ("The verbatim transcript of the text from the recording is confirmed."):
    - \* signature of the staff member who has prepared the transcript of the recordings;  
as well as
    - \* for the branch, the signature of the head of branch;  
or
    - \* for the AIS-C, the signature of the head of the AIS-C.
  - on the footer of each page of the transcript, the following shall be added:
    - \* signature of the staff member who has prepared the transcript of the recordings;  
as well as
    - \* the stamp of the branch.

154.41 Numbers shall only be used in the text of the transcripts as far as they match the phonetic reading of the recording.

.42 Transcripts or recordings shall not be made available to non-DFS parties unless approved accordingly by DFS/UZ department CC/FC or, as appropriate, TWR/M or the head of the branch / AIS-C.

## 155 RADAR DATA RECORDING

155.1 Radar data recordings shall be used for evaluation purposes, if:

- it is possible to gain operational or technical information from these recordings;
- DFS has been instructed accordingly;
- recordings are required to support SAR services in the fulfilment of their tasks;
- safety-related occurrences render investigations necessary.

.11 In the event of a total failure of recording facilities, the functioning of such facilities shall be restored as quickly as possible. Operations shall not be discontinued because of a failure of the recording systems.

155.2 Radar data recordings shall be retained together with the corresponding "Recording of code / call sign pairing" for a minimum period of 30 days.

.21 Recordings which are required for investigating safety-related occurrences shall be requested by the head of the branch and shall be kept under lock and key until the DFS/UZ department VY has approved their reuse.

.22 Every 6 months, the control centres shall submit reports on retained radar data recordings to the head of the control centre branch; the heads of the tower branches shall submit these reports to DFS/UZ department TWR/M.

- 155.3 Radar data recordings may only be played back if approved accordingly by the head of the DFS branch. The works agreement concluded between DFS and the central staff council (GBR) shall be observed.
- .31 Recordings shall not be played back in the presence of non-DFS parties unless approved accordingly by DFS/UZ department CC/FC or TWR/M or the head of the DFS branch. This regulation shall not apply to representatives of the following institutions if aircraft accident investigations are being carried out:
- .311 investigating authorities;
- .312 the Federal Bureau of Aircraft Accidents Investigation (BFU);
- .313 armed forces, if applicable.
- .32 Copies of radar data recordings shall not be made available to non-DFS parties unless approved accordingly by DFS/UZ department CC/FC or TWR/M or the head of the DFS branch. The works agreement concluded between DFS and the central staff council (GBR) shall be observed.

## 156 DOCUMENTATION

- 156.1 Written records of aeronautical telecommunications as well as original documents shall be retained for a minimum period of 90 days, electromagnetic recordings for a minimum period of 30 days, starting on the day of the recording.
- .11 This rule shall not apply to flight progress strips, electronic flight plan data and other information output by flight data processing systems. Such data shall be retained for a period of 1 year. In the case of the P1/VAFORIT system, the electronic recordings of flight plan data shall be retained for 30 days.
- .12 This rule shall not apply either to the communications of the aeronautical telecommunication station in the NOTAM Office. This station shall retain all documents and written records, for a period of 90 days.
- 156.2 All recordings and documents whose contents are subject to an administrative or judicial investigation shall be retained until the investigation has been concluded.
- 156.3 Any local regulations going beyond these requirements shall remain unaffected.
- 156.4 In the case of a recording of data, it is not necessary to retain the written records (print-outs by protocol printers, for example).

**157 STATISTICS**

157.1 It is not necessary to keep daily statistics in AIS.

157.2 Specific statistical surveys may be conducted, as required, for a limited period of time.

**158-159 NOT ALLOCATED**

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**160 INTERFERENCE REPORTS****161 INTERFERENCE OF FREQUENCIES / CHANNELS**

161.1 If interferences of frequencies or channels in the mobile aeronautical radio service or aeronautical radio navigation service are noted or reported to an air traffic control unit, the system control and monitoring unit (SSÜ) shall be informed about such interferences without delay.

.11 The report shall contain the following details:

a) level of interference (QRM 1 - 3);

Note 1: The individual interference levels are defined as follows:

QRM 1: The interference is noticeable but has no substantial negative effects on operations;

QRM 2: Operations are difficult;

QRM 3: The interference is severe to the extent that the facility or the frequency / channel can no longer be used;

Note 2: Internationally, 5 different QRM levels are used (1 = nil; 2 = slight; 3 = moderate; 4 = severe; 5 = extreme);

b) call sign or identification of the interfering station, including the call sign of the other station, if known;

c) interfered frequency / channel;

d) type of interference;

e) approximate position of the interfering station, if possible;

f) area of interference and level of the aircraft, if the interference is reported by an aircraft; pilots shall be consulted to determine the duration or any change of the interference;

g) time and duration of the interference.

161.2 The SSÜ shall notify the responsible monitoring station of the Federal Network Agency.

161.3 These regulations shall not apply to interferences caused by "Music". Such interferences shall be handled in line with the appropriate regulations.

.31 Interferences in radiotelephony communications noted or reported outside the defined operational coverage as well as restricted use of navigation facilities outside the published operational range and level shall be exempt from this reporting procedure. If operations are strongly or repeatedly impeded or interfered by voice communication performed outside the frequency / channel protection areas, DFS/UZ department SIS/MF shall be notified accordingly. The SSÜ shall be informed about this as well.

.32 The DFS/UZ department SIS/MF shall be informed in writing about radio coverage problems (e.g. insufficient ranges, disturbed frequencies / channels, problems with aeronautical ground stations).

161.4 The operational coverage for radiotelephony frequencies / channels is defined as follows:

Air traffic for	Acronym	Usable distance (NM)	Usable level max
Ground control	PG	Aerodrome boundaries	Ground
Aerodrome control	TWR	25	4000 FT GND
Approach control (lower region)	APP/L	25	FL 100
Approach control (intermediate region)	APP/I	40	FL 150
Terminal area	TMA	40	FL 150
Approach control (upper region)	APP/H	60	FL 250
Area control	ACC/L	within a designated sector	FL 250
Flight information service (lower airspace)	FIS	within the flight information region	FL 200

161.4	Air traffic for	Acronym	Usable distance (NM)	Usable level max	
	Area control (upper airspace)	UAC	within a designated FL 500 sector		
	VOLMET	VOLMET	largest possible Area (260 NM)	FL 450	
	ATIS	ATIS	60	FL 500	

## 162 RADAR INTERFERENCE

- 162.1 The supervisor shall inform the SSÜ about this without delay if radar interferences or outages occur.
- .11 If such interferences result in substantial operational impediments, the supervisor shall inform the adjacent ATC units about this and the FMP without delay in order to initiate ATFCM in consultation with the chief of section / senior supervisor, if necessary.
- 162.2 Radar interferences of civil radar facilities may also be caused by radar jamming operations aimed at military stations.
- .21 Radar jamming operations may be carried out 24 hours a day between Monday to Friday. The corresponding timetables are available from the Airspace Management Cell (AMC).
- .22 In the case of slight interferences, the termination and / or suspension of radar jamming operations shall be initiated :
- .221 either by the supervising TACCS unit;  
or
- .222 via the AMC by submitting the following data :
- a) kind of interference perceived;
  - b) call sign of the ATC unit requesting the termination of the radar jamming operations;
  - c) jammed frequencies / channels (by stating the appropriate letter / number codes);
  - d) main direction of interference, if known.

162.23 The frequency bands are designated according to the following letter / number codes :

a) ASR 910, ASR 2000, ASR S

ECHO	eight	nine	ten
	2700-2800	2800-2900	2900-3000 MHz

b) AVIA-D

DELTA	four	five
	1300-1400	1400-1500 MHz

c) FPS 67, FPS 117

DELTA	three	four	five
	1200-1300	1300-1400	1400-1500 MHz

d) SSR

CHARLIE	ten	DELTA one
	1030-1090 MHz	

.24 In emergency situations or if the measures under MO-ATS item 162.22 are not sufficient or if the immediate termination / suspension of the jamming operations becomes necessary, direct contact with the aircraft performing the jamming operations shall be established without delay. If the jamming aircraft is unknown, an aeronautical broadcast using the call sign HOOTER for unknown jamming aircraft shall be emitted twice on the emergency frequency 243.0 MHz. The following phraseology shall be used in this context :

EMERGENCY STRANGLE MUSIC

= Cease non-communication electronic jamming only.

EMERGENCY STRANGLE STREAM

= Cease dispensing of chaff only.

EMERGENCY STRANGLE CHATTER

= Cease communication jamming only.

162.24 EMERGENCY STRANGLE MUSIC CHATTER STREAM

= Cease all active electronic counter measures.

.241 The responsible CAOC (Combined Air Operation Centre) shall be notified.

.25 If the traffic situation permits the resumption of jamming operations, the responsible CAOC shall be informed accordingly.

**163 - 169 NOT ALLOCATED**

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170      **ENCYCLOPEDIA**

171      **ABBREVIATIONS**

## **A**

A-CDM	Airport Collaborative Decision Making
A-SMGCS	Advanced Surface Movement Guidance and Control System
AAR	Air to air refueling Luft / Luft Betankung
AB	Afterburner (reheater) Nachbrenner
AC	Aircraft Controller
ACAS	Airborne collision avoidance system Bodenunabhängiges Kollisionsverhütungssystem (ICAO)
ACC	Area control centre Bezirkskontrollzentrale
ACCO	Aircraft Control Coordinator
ACFT	Aircraft Luftfahrzeug
ACT	Air combat tactics Luftkampf zwischen gleichen Luftfahrzeugen
AD	Aerodrome Flugplatz
ADE	Air defence element Luftverteidigungsstelle
ADEXA	Air defence exercise area Luftverteidigungs-Übungs(luft)raum
ADEXP	ATS data exchange presentation
ADP	ATFCM Daily Plan
ADS	Automatic dependent surveillance Automatische bordabhängige Flugüberwachung
AFIL	Air-filed flight plan Im Fluge aufgebener Flugplan

171 ctd.

**A**

AFIS	Aerodrome flight information service Flugplatz-Fluginformationsdienst
AFNORTH	Allied Forces Northern Europe Alliierte Streitkräfte Nordeuropa
AFSBw	Amt für Flugsicherung der Bundeswehr Bundeswehr Air Traffic Services Office
AFTN	Aeronautical fixed telecommunication network Festes Flugfernmeldenetz
A / G	Air to ground Bord / Boden
AGL	Above ground level Über Grund
AIC	Aeronautical Information Circular Luftfahrtinformationsrundschriften
AIM	ATFCM information message
AIP	Aeronautical Information Publication Luftfahrthandbuch
AIREP	Air report Flugmeldung
AIRMET	Information concerning short term changes of en-route weather phenomena which may effect the safety of low- level operations Informationen, die kurzfristige Änderungen der Streckenwettererscheinungen betreffen, die einen Einfluss auf die Sicherheit von niedrigen Flügen haben können
AIS	Aeronautical information service Flugberatungsdienst
AIS-C	Aeronautical Information Service Centre
ALTN	Alternate aerodrome Ausweichflugplatz
AMC	Airspace Management Cell



171 ctd.

**A**

ANBAS	Alphanumeric category indication system Alphanumerisches Betriebsstufenanzeigesystem
ANBLF	Alpha numeric category and runway selection remote control system Alphanumerisches Betriebsstufenanzeige- und Pistenanwahlfernwirkssystem
ANDRA	Advanced node for data relay in the ATN
ANM	ATFCM notification message
ANS	Air navigation services Flugsicherungsdienste
AO	Aircraft operator Luftfahrzeughalter
AoR	Area of responsibility
APH	Approach lighting - high intensity Anflugbefeuerung - hohe Intensität
APL	Approach lighting - low intensity Anflugbefeuerung - niedrige Intensität
APP	Approach control (unit) Anflugkontrolle
APV-BARO-VNAV	RNAV(GPS)-Approach Procedure with Vertical Guidance based on barometric input RNAV(GPS)-Anflugverfahren mit vertikaler Führung basierend auf barometrischen Daten
APV-SBAS	RNAV(GPS)-Approach Procedure with Vertical Guidance based on a Space (or Satellite) Based Augmentation System RNAV(GPS)-Anflugverfahren mit vertikaler Führung eines satellitengestützten Ergänzungssystems
ARA	Airborne radar approach Anflug mit Bordradar
ARP	Aerodrome reference point Flugplatzbezugspunkt
ASDA	Accelerate-stop distance available Verfügbare Startabbruchstrecke

171

ctd.

**A**

ASDE	Airport surface detection equipment Rollfeldüberwachungsradaranlage
ASM	Airspace Management
ASMI	Airport surface movement indicator Rollfeldüberwachungsradaranlage
ATA	Actual time of arrival Tatsächliche Ankunftszeit
ATAF	Allied Tactical Air Force Alliierte Taktische Luftflotte
ATC	Air traffic control Flugverkehrskontrolle
ATCISS	Air traffic control information support system Anzeige- und Informationssystem
ATD	Actual time of departure Tatsächliche Abflugzeit
ATFM	Air Traffic Flow Management Verkehrsflussregelung
ATFCM	Air Traffic Flow and Capacity Management Verkehrsfluss- und Kapazitätsregelung
ATIS	Automatic terminal information service Automatische Ausstrahlung von Lande- und Startinformationen
ATM	Air Traffic Management Flugverkehrsmanagement
ATN	Aeronautical telecommunication network Flugfernmeldenetzwerk
ATS	Air traffic services Flugverkehrsdienste
AUP	Airspace Use Plan
AUW	All-up weight Gesamt(flug)gewicht

171

ctd.

**B**

BAF Bundesaufsichtsamt für Flugsicherung  
Federal Supervisory Authority for Air Navigation Services

Base Home base  
Heimatflugplatz

BesAnMilFS Special Directive Military Air Traffic Control Service  
Besondere Anweisung für die militärische Flugsicherung

BFU Federal Bureau of Aircraft Accidents Investigation  
Bundesstelle für Flugunfalluntersuchung

BLF Category and runway selection remote control system  
Betriebsstufen- und Pistenanwahl-Fernwirksystem

**C**

CAP Combat air patrol  
Bewaffnete Luftraumüberwachung

CASA Computer-assisted slot allocation

CBA Cross Border Area

CDA Continuous descent approach  
Anflug mit kontinuierlichem Sinkflug

CDR Conditional route  
Bedingt nutzbare Strecke

CFIT Controlled flight into terrain  
Kontrollierter Flug ins Gelände

CFL Cleared flight level  
Freigegebene Flugfläche

CFMU Central Flow Management Unit

CIDIN Common ICAO Data Interchange Network

COS Chief of Section

COSA Coordinating and Scheduling Agency

CPDLC Controller-pilot data link communications  
Lotse-Luftfahrzeugführer-Data Link-Kommunikation

171 ctd.

**C**

I

CTOT            Calculated take-off time  
Kalkulierte Startzeit

CTR            Control zone  
Kontrollzone

**D**

DACT           Dissimilar air combat tactics  
Luftkampf zwischen unterschiedlichen Luftfahrzeugen

DA / H          Decision altitude / height  
Entscheidungshöhe über NN / Pistenschwelle

I

DIAS           DFS Integrated AIS System

DME            Distance measuring equipment  
Entfernungsmeßgerät

DOF            Date of flight  
Tag des Flugs

DSG            Datensichtgerät

DTG            Date-time-group

DUPE           This is a duplicate message  
Dies ist eine Zweitschrift

DVO            Implementing Regulation  
Durchführungsverordnung

**E**

EAT            Expected approach time  
Voraussichtlicher Anflugzeitpunkt

I

EAUP           European Airspace Use Plan

EBG            Sector family  
Einsatzberechtigungsguppe

ECAC           European Civil Aviation Conference

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171 ctd.

**E**

ECCM	Electronic counter-counter measures Elektronische Schutzmaßnahmen
ECM	Electronic counter measures Elektronische Gegenmaßnahmen
ED-D	Danger area Gefahrengebiet
ED-R	Restricted area Flugbeschränkungsgebiet
EET	Estimated elapsed time Voraussichtliche Flugdauer
EFAS	Electronic flash approach lighting system Elektronenblitz-Anflugbefeuerungssystem
ELT	Emergency locator transmitter Selbsttätiger Notsender im Luftfahrzeug
EMER	Flight in state of emergency Flug mit Notlage
EOBT	Estimated off-block time Voraussichtliche Abblockzeit
EST	Estimated time over (message category) Voraussichtliche Überflugzeit-Meldung
ETA	Estimated time of arrival Voraussichtliche Ankunftszeit
ETD	Estimated time of departure Voraussichtliche Abflugzeit
ETFMS	Enhanced Tactical Flow Management System
ETO	Estimated time over significant point Voraussichtliche Überflugzeit über einem signifikanten Punkt
ETOPS	Extended range operations by aircraft with two turbine power units
Eurocontrol	European Organisation for the Safety of Air Navigation

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171 ctd.

**F**

FA Fighter allocator  
Chefradarleitoffizier

FAM Flight activation message

FC Forecast centre  
Beratungszentrale

FDB Flight data handling  
Flugdatenbearbeitung

FDPS Flight data processing system  
Flugdatenverarbeitungssystem

**I**

FFA Free flight airspace

FFZ Aeronautical telecommunication centre  
Flugfernmeldezentrale

FIR Flight information region  
Fluginformationsgebiet

FIS Flight information service  
Fluginformationsdienst

FL Flight level  
Flugfläche

FLIP Flight Information Publication  
Fluginformationsveröffentlichung

FM From  
Von

FMA Flow management area

FMP Flow Management Position

FMS Flight management system

FPL Filed flight plan  
Aufgegebener Flugplan

FRA Free route airspace

FSInfoSysBw Computer-based ATS information system of the  
Bundeswehr  
Informationssystem Flugsicherung der Bundeswehr

171 ctd.

**F**

FST	Technical air navigation service Flugsicherungstechnik
FT	Feet (dimensional unit) Fuß (Maßeinheit)
FüZNatLV	National Air Policing Centre Führungszentrale Nationale Luftverteidigung
FVD	Flugverkehrsdienste Air traffic services
FVK	Flugverkehrskontrolle Air traffic control

**G**

GAF	German Air Force Deutsche Luftwaffe
GAM	German Army Deutsches Heer
GAMET	Information concerning en-route weather phenomena which may effect the safety of low-level operations. Informationen, die Streckenwettererscheinungen betreffen, die einen Einfluss auf die Sicherheit von niedrigen Flügen haben können.
GAT	General air traffic Allgemeiner Luftverkehr
GBAS	Ground Based Augmentation System Bodengestütztes Ergänzungssystem
GCI	Ground controlled interception Bodengeführte Abfangjagd
GEADGE	German Air Defence Ground Environment Deutsches Radarsystem für die Luftverteidigung
GEOREF	Geographical Reference System Geographisches Bezugssystem
GLS	GBAS landing system
GND	Ground Grund

171 ctd.

**G**

GNSS Global Navigation Satellite System  
Globales Satellitennavigationssystem

GNY German Navy  
Deutsche Marine

GP Glide path  
Gleitweg

GP Glide path transmitter  
Gleitwegsender

GPR Glide path reserve transmitter  
Gleitwegreservesender

GPS Global Positioning System  
Satellitennavigationssystem

GS Ground speed  
Geschwindigkeit über Grund

**H**

H24 Continuous day and night service  
Ununterbrochener Betrieb bei Tag und Nacht

HEAD Flights with head of state status  
Flug mit Staatsoberhauptstatus

HIRTA High-intensity radio transmission area  
Gebiet hoher elektromagnetischer Feldstärke

HOSP Medical flights specifically declared by the medical  
authorities  
Durch medizinische Behörden autorisierte medizinische  
Flüge

Hot cargo Sensitive cargo  
(Sicherheits)empfindliche Fracht

HPa Hectopascal  
Hektopascal

HPOX High pressure oxygen  
Hochdrucksauerstoff

HUM Flight operating for humanitarian reasons  
Humanitäre Hilfsflüge



171 ctd.

**H**

HX No specific working hours  
Keine festgelegte Betriebszeit

**I**

IAA Internal aids approach  
Anflug mit Bordmitteln

IAF Initial approach fix  
Anfangsanflugfix

IAS Indicated airspeed  
Angezeigte Fluggeschwindigkeit

ICAO International Civil Aviation Organisation  
Internationale Zivilluftfahrtorganisation

ID Identifier or identify  
Kennung oder identifizieren

ID Run Identification run  
Anflug zur Sichtidentifizierung

IDO Identification Officer  
Identifikationsoffizier

IDVS Informationsdatenverarbeitungssystem

IFF Identification friend or foe  
Freund / Feind-Kennung

IFPS Integrated Initial Flight Plan Processing System

IFPZ IFPS zone

IFPU IFPS Unit

IFR Instrument flight rules  
Instrumentenflugregeln

IL Information controller  
Informationslotse

ILS Instrument landing system  
Instrumentenlandesystem

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171 ctd.

**I**

IMC Instrument meteorological conditions  
Instrumentenwetterbedingungen

INFO BLF BLF outage  
BLF-Ausfall

IP Initial or intercept point  
Ausgangs-, Ablauf- oder Abfangpunkt

**K**

km Kilometres  
Kilometer

KT Knot(s)  
Knoten

**L**

LANIA Low-altitude night intercept area  
Gebiet für Abfangeinsätze bei Nacht in niedrigen Höhen

LDA Landing distance available  
Verfügbare Landestrecke

Lfz Aircraft  
Luftfahrzeug

LNAV Lateral Navigation [RNAV (GPS)]

LoA Letter of Agreement  
Betriebsabsprache

LOC Localizer  
Landekurssender

Loop Intercom  
Gegensprechanlage

LOP Local operating procedure(s)  
Örtliche(s) Betriebsverfahren

LuftBO Betriebsordnung für Luftfahrtgerät  
Regulation on the Operation of Aircraft and Aeronautical  
Equipment

171 ctd.

**L**

LuftVG	Luftverkehrsgesetz Aviation Act
LuftVO	Luftverkehrs-Ordnung Aviation Regulation
LVTO	Low-visibility take-off Start bei geringer Sicht
LZ GP	Redundancy of power supply disturbed Redundanz der Stromversorgung gestört oder / or Calibration for CAT II/III overdue for more than two months Flugvermessungsintervall für CAT II/III um mehr als zwei Monate überschritten
LZR	Localizer reserve transmitter Landekursreservesender oder / or Calibration interval for course alignment along runway centreline overdue for more than two days Frist für Messung der Kursstruktur entlang der Pistenmittellinie um mehr als zwei Tage überschritten
LZR GPR	Calibration for CAT III overdue for more than one but less than two months Flugvermessungsintervall für CAT III um mehr als einen, jedoch nicht mehr als zwei Monate überschritten

**M**

MADAP	Maastricht Automatic Data Processing
MAPt	Missed approach point Fehlanflugpunkt
MC	Master controller
MCA	Master controller assistant
MDA	Minimum descent altitude Sinkflugmindesthöhe
MEA	Minimum enroute altitude Mindeststreckenflughöhe über NN

171 ctd.

**M**

MET	Transmission of MET data disturbed Übermittlung der Wetterdaten gestört
Mil	Military Militärisch
MIN	Minutes Minuten
MIS	Missing Fehlend
MM	Middle marker Haupteinflugzeichen
MO-AIS	Manual of Operations for the Aeronautical Information Service Betriebsanweisung Flugberatung (BA-FB)
MO-ATS	Manual of Operations Air Traffic Services Betriebsanweisung Flugverkehrsdienste (BA-FVD)
MRVA	Minimum radar vectoring altitude Radarführungsmindesthöhe
MSA	Minimum sector altitude Sektormindesthöhe über NN
MSCC	Mode S Conspicuity Code
MSL	Mean sea level Mittlerer Meeresspiegel (NN)
MSR	Misrouted Fehlgeleitet
MTOM	Maximum take-off mass Maximale Startmasse
MVPA	Military Variable Profile Area

171 ctd.

**N**

NAEW	NATO Airborne Early Warning System Luftgestütztes Frühwarnsystem der NATO
NAPC	National Air Policing Centre Führungszentrale Nationale Luftverteidigung
NDB	Non-directional radio beacon Ungerichtetes Funkfeuer
NET	Power supply Netzstromversorgung
NfL	German-language publication for aviation Nachrichten für Luftfahrer
NIL	None / I have nothing for you Nichts / ich habe nichts für Sie
NKZ	Aeronautical Telecommunication Centre Netzwerkkontrollzentrale
NLFS	Night low flying system Nachttiefflugsystem
NM	Nautical mile Nautische Meile
NMC	Network Management Cell
NOD	Network Operations Division
NOF	NOTAM Office
NOP	Network Operations Plan
NPA	Non Precision Approach
NTZ	No transgression zone

**O**

O/R	On request Auf Anforderung
OAT	Operational air traffic Operationeller Luftverkehr

171 ctd.

<b>O</b>	OCA / H	Obstacle clearance altitude / height Hindernisfreihöhe über Meeresspiegel/Flugplatz bzw. Schwelle
	OCL	Obstacle clearance limit Hindernisfreigrenze
	ODI	Opposite-directional ILS transmission ILS für die Gegenrichtung eingeschaltet
	OID	Operational instrument departure Einsatzorientierter Instrumentenabflug
	OLDI	Online data interchange Online-Datenaustausch
	OM	Outer marker Voreinflugzeichen
	OPR	Operator / operate / operative Betreiber / betreiben / in Betrieb
	OPS	Operations Betrieb
	ORM	Operational reply message Betriebliche Antwortmeldung von IFPS
<b>P</b>	PAPI	Precision approach path indicator Präzisionsgleitwinkelbefeuerung
	PPR	Prior permission required Vorherige Genehmigung erforderlich
	PREDICT	Pre-Tactical System
	PSR	Primary surveillance radar Rundsicht-Primärradar
	PTA	Protection area Schutzzone
	P1/VAFORIT	P1/ Very Advanced Flight Data Processing Operational Requirement Implementation

171 ctd.

**R**

RA	Resolution advisory ACAS / TCAS-Ausweichempfehlung
RAD	Route Availability Document
RAFIS	Radar-assisted flight information service Radarunterstützter Fluginformationsdienst
RALT	En-route alternate Streckenausweichflugplatz
RAPCON	Radar approach control centre Radaranflugkontrolle
RCC	Rescue coordination centre SAR-Leitstelle
RCF	Radio communication failure Funkausfall
RCFL	Radar-controlled forced landing Radarkontrollierte Zwangslandung
RCL	Runway centreline lighting Pistenmittellinienbefeuerung
RDAZ	Radar data recording system Radardatenaufzeichnungssystem
RDQC	Radar data quality control Radardatenqualitätskontrolle
REC	Receiver Empfänger
RECOVERY	Recovery of the interceptors Rückführung der Abfangjäger
REH	Runway edge lighting - high intensity Pistenrandbefeuerung - hohe Intensität
REL	Runway edge lighting - low intensity Pistenrandbefeuerung - niedrige Intensität
REQ	Request Anfrage

171 ctd.

**R**

RL	Report leaving ... Melden Sie das Verlassen von ...
RNAV	Area navigation Flächennavigation
RNP	Required Navigation Performance Erforderliche Navigationsleistung
RPI	Radar position indication Radarstandortzielanzeige
RPL	Repetitive flight plan Dauerflugplan
RPS	Radar position symbol Radarzielstandortsymbol
RPT	Repeat Wiederholen
RQ	Message request Meldungsanforderung
RSYD	Released subject to your discretion Freigegeben nach Ihrem Ermessen
RTB	Return to base Rückkehr zum Heimatflugplatz
RTF	Radiotelephony Sprechfunk
RVR	Runway visual range Pistensichtweite
RVSM	Reduced vertical separation minima Reduzierte Vertikalstaffelung
RWY	Runway Piste

**S**

SAA	Special activity area Gebiet mit besonderen Aktivitäten
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171 ctd.

**S**

SAR	(Flights engaged in) search and rescue (missions) (Flüge im aktiven) Such- und Rettungsdienst
SATCO	Senior air traffic control officer Einsatz(stabs)offizier / FS-(Stabs)offizier
SFA	Single frequency approach Anflug ohne Frequenzwechsel
SID	Standard instrument departure Standard-Instrumentenabflugstrecke
SIF	Selective identification feature Selektives Freund/Feind-Kennungssystem
SIGMET	Significant meteorological conditions Signifikante Wettererscheinungen
SL	Selected level within the aircraft Eingewählte Flughöhe im Luftfahrzeug
SMR	Surface movement radar Bodenradar
SOP	Standing operating procedure(s) Ständige(s) Betriebsverfahren
SPS	Secondary power supply Notstromversorgung
SRA	Surveillance radar approach Rundstrahlradaranflug
SSR	Secondary surveillance radar Rundstrahl-Sekundärradar
STAR	Standard instrument arrival Standard-Instrumentenanflugstrecke
STATE	State aircraft means any aircraft used for military, customs and police Luftfahrzeug, das im Militär-, Zoll- und Polizeidienst eingesetzt wird
STCA	Short-term Conflict Alert Bodengestütztes Kollisionswarnsystem

171 ctd.

**S**

STS Status

SVC Service  
DienstSysKontrZ-  
MilFS System control centre for military ATS  
Systemkontrollzentrum mil. FS**T**TA Transition altitude  
Übergangshöhe über NNTACAN UHF tactical air navigation system  
UHF taktische FlugnavigationshilfeTACCS Tactical Air Command and Control Services  
EinsatzführungsdienstTAS True airspeed  
Wahre Eigengeschwindigkeit

TBN To be notified

TCAS Traffic Alert and Collision Avoidance System  
Bodenunabhängiges KollisionsverhütungssystemTCTP Tactical combat training programme  
Taktisches Ausbildungsprogramm für RadarführungspersonalTDZ Touchdown zone  
AufsetzzoneTHR Threshold  
SchwelleTMZ Transponder mandatory zone  
Luftraum mit vorgeschriebener TransponderschaltungTOBT Target off-block time  
Ziel AbblockzeitTODA Take-off distance available  
Verfügbare StartstreckeTORA Take-off run available  
Verfügbare Startlaufstrecke

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**T**

TRA	Temporary reserved airspace Zeitweilig reservierter Luftraum
TRAMON	TRA Monitoring TRA-Überwachung
TRL	Transition level Übergangsfläche
TSAT	Target start-up approval time Ziel Anlassfreigabezeit
TVOR	Terminal VOR Platz-UKW-Drehfunkfeuer
TWR	Aerodrome control tower Flugplatzkontrolle
TWY	Taxiway Rollbahn
TXC	Taxiway centreline lighting Rollbahnmittellinienbefeuerung
TXE	Taxiway edge lighting Rollbahnrandbefeuerung

**U**

UA	Unmanned aircraft Unbemanntes Luftfahrzeug
UAC	Upper area control centre Bezirkskontrolle für den oberen Luftraum
UAS	Unmanned aircraft system
UFN	Until further notice Bis auf weiteres
UHF	Ultra-high frequency Dezimeterwellen (300 - 3000 MHz)
UIR	Upper flight information region Oberes Fluginformationsgebiet
U / S	Unserviceable Gestört, gesperrt

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**U**

USAFE US Air Force Europe

USAREUR US Army Europe

UTC Coordinated Universal Time  
Koordinierte Weltzeit

UUP Updated Airspace Use Plan

**V**

VAD Visual approach and departure (procedures)  
Sichtanflug- und -abflug(verfahren)

VAN Value added network

VAS Visual approach lighting system  
Gleitwinkelbefeuerungssystem

VFR Visual flight rules  
Sichtflugregeln

VFRM Air traffic flow management measures  
Verkehrsflussregelungsmaßnahmen

VHF Very high frequency  
Ultrakurzwellen (UKW) (30 - 300 MHz)

VL Liaison controller  
Verbindungslotse

VMC Visual meteorological conditions  
Sichtwetterbedingungen

VNAV Vertical Navigation [RNAV (GPS)]

VOR VHF omnidirectional radio range  
UKW-Drehfunkfeuer

VORTAC VOR and TACAN combination  
VOR- und TACAN-Kombination

**W**

WD Transmission of wind direction data disturbed  
Übermittlung der Windrichtungsdaten gestört

WEF With effect from ...  
Mit Wirkung von/vom ...

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**W**

WI	Transmission of meteorological data disturbed Übermittlung von Wetterdaten gestört
WIE	With immediate effect Mit sofortiger Wirkung
WIP	Work in progress Bauarbeiten
WS	Transmission of wind speed data disturbed Übermittlung der Windgeschwindigkeitsdaten gestört
WX	Weather Wetter

**X**

XFL	Exit level Sektorausflughöhe
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**Z**

ZFL	Flight level coordinated by FDPS Durch FDPS koordinierte Flugfläche
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I

## 172 DEFINITIONS

The definitions used in the encyclopaedia are based on ICAO publications, European and national law as well as DFS-internal determinations.

**A**  
**Accepting controller**  
**Übernehmender Lotse**

Air traffic controller next to take control of an aircraft.

**Accident**  
**Flugunfall**

An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

- a) a person is fatally or seriously injured as a result of:
  - being in the aircraft, or
  - direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
  - direct exposure to jet blast,except when the injuries are from natural causes, self inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or
- b) the aircraft sustains damage or structural failure which:
  - adversely affects the structural strength, performance or flight characteristics of the aircraft, and
  - would normally require major repair or replacement of the affected component,except for engine failure or damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings. small dents or puncture holes in the aircraft skin; or
- c) the aircraft is missing or is completely inaccessible.

Note 1: For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified as a fatal injury by ICAO.

Note 2: An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

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## **A**      **Acrobatic flight** **Kunstflug**

Manoeuvres intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude, or an abnormal variation in speed.

### **Advisory airspace** **(Flugverkehrs-) Beratungsluftraum**

An airspace of defined dimensions, or designated route, within which air traffic advisory service is available.

### **Area control service** **Bezirkskontrolldienst**

ATC service for controlled flights in a block of airspace.

### **Aerodrome** **Flugplatz**

A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

### **Aerodrome beacon** **Flugplatzleuchfeuer**

Aeronautical beacon used to indicate the location of an aerodrome from the air.

### **Aerodrome control service** **Flugplatzkontrolldienste**

Air traffic control service for aerodrome traffic.

### **Aerodrome control tower** **Flugplatzkontrolle**

A unit established to provide air traffic control service to aerodrome traffic.

### **Aerodrome elevation** **Flugplatzhöhe**

The elevation of the highest point of the landing area.

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**A**      **Aerodrome traffic**  
**Flugplatzverkehr**

All traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.

**Aerodrome traffic circuit**  
**Platzrunde**

The specified path to be flown by aircraft operating in the vicinity of an aerodrome.

**Aeronautical broadcasting service**  
**Flugrundfunkdienst**

A broadcasting service intended for the transmission of information relating to air navigation.

**Aeronautical chart**  
**Luffahrtkarte**

The presentation of a part of the earth's surface, the built-up areas and the contours with special regard to the necessities of air traffic.

**Aeronautical fixed service**  
**Fester Flugfernmeldedienst**

A telecommunication service between fixed locations provided primarily for the safety of air navigation and the regular, efficient and economical operation of air services.

**Aeronautical Fixed Telecommunication Network**  
**Festes Flugfernmeldernetz**

A world-wide system of aeronautical fixed circuits provided, as part of the aeronautical fixed service, for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communication characteristics.



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## **A Aeronautical Information Service Centre**

Central AIS unit of DFS in Frankfurt-Rödelheim.

### **Aeronautical Information Circular Luftfahrtinformationsrundschriften**

A notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP but which relates to flight safety, air navigation, technical, administrative or legislative matters.

### **Aeronautical Information Publication Luftfahrthandbuch**

A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

### **Aeronautical Information Service Flugberatungsdienst**

A service that comprises

- a) the collection, evaluation and publication of information which is necessary for the safe, orderly and expeditious conduct of flights,
- b) the acceptance, checking and forwarding of flight plans,
- c) the information of pilots during the pre-flight planning,
- d) the production and publication of aeronautical charts.

### **Aeronautical meteorological services**

Meteorological services means those facilities and services that provides aircraft with meteorological forecasts, briefs and observations as well as any meteorological information and data provided by States for aeronautical use.

### **Aeronautical mobile service Beweglicher Flugfernmeldedienst**

A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

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**A**  
**Aeronautical station**  
**Bodenfunkstelle**

A land station in the aeronautical mobile service. In certain instances, an aeronautical station may be located, for example, on board a ship or on a platform at sea.

**Aeronautical telecommunication**  
**Flugfernmeldeverkehr**

Telecommunication service in the aeronautical fixed service, the aeronautical mobile service and the broadcasting service.

**Aeronautical telecommunication centre**  
**Flugfernmeldezentrale**

An aeronautical telecommunication station the main duty of which is the distribution of messages between other aeronautical telecommunication centres connected to it via the AFTN/CIDIN.

**Aeronautical telecommunication service**  
**Flugfernmeldedienst**

A service provided for the transmission of ATS-related information required for the safe, orderly and expeditious handling of air traffic.

**Aeronautical telecommunication station**  
**Flugfernmeldestelle**

A station in the aeronautical telecommunication service.

**AFTN destination station**  
**Bestimmungs-Flugfernmeldestelle**

An aeronautical telecommunication station to which messages and / or digital data are directed for processing and transmission to the addressee.

**AFTN origin station**  
**Aufgabe-Flugfernmeldestelle**

An aeronautical telecommunication station where messages and/or digital data are accepted for transmission via the fixed telecommunication network.

**Airborne order**  
**Alarmstartbefehl**

Airborne order whose executions may need more than five minutes.

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## A

### **Aircraft** **Luftfahrzeug**

Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

#### **Aircraft ID**

The aircraft identification according to field 7 of the flight plan which is used as the aircraft call sign by Mode S.

#### **Aircraft identification** **Luftfahrzeugkennung**

A group of letters, figures or a combination thereof which is either identical to, or the coded equivalent of, the aircraft call sign to be used in air-ground communications, and which is used to identify the aircraft in ground-ground air traffic services communications.

#### **Aircraft proximity** **Luftfahrzeugannäherung**

A situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised. An aircraft proximity is classified as follows:

Risk of collision : The risk classification of an aircraft proximity in which a serious risk of collision has existed.

Safety not assured: The risk classification of an aircraft proximity in which the safety of the aircraft may have been compromised.

No risk of collision: The risk classification of an aircraft proximity in which no risk of collision has existed.

Risk not determined: The risk classification of an aircraft proximity in which insufficient information was available to determine the risk involved, or inconclusive or conflicting evidence precluded such determination.

#### **Aircraft station** **Luftfunkstelle**

A mobile station in the aeronautical mobile service, located on board an aircraft.

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## **A** **Air / ground communication** **Flugfunkverkehr**

Two-way communication between aircraft and stations or locations on the surface of the earth.

### **AIRMET**

Information concerning short term changes of en-route weather phenomena which may effect the safety of low-level operations.

## **I** **Airport Collaborative Decision Making**

Airport Collaborative Decision Making is the concept which aims at improving Air Traffic Flow and Capacity Management (ATFCM) at aerodromes by reducing delays, improving predictability of events and optimising the utilisation of resources.

### **Airprox**

The code word used in an air traffic incident report to designate aircraft proximity.

### **Air-taxiing** **Rollflug**

Movement of a helicopter / VTOL above the surface of an aerodrome, normally in ground effect and at a ground speed of normally less than 20 KT (37 km/h).

Note : The actual height may vary, and some helicopters may require air-taxiing above 25 FT (8 m) AGL to reduce ground effect turbulence or provide clearance for cargo sling loads.

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## A

### **Air traffic Flugverkehr**

All aircraft in flight or operating on the manoeuvring area of an aerodrome.

### **Air traffic advisory service Flugverkehrsberatungsdienst**

A service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on IFR flight plans.

### **Air traffic control clearance Flugverkehrskontrollfreigabe**

Authorisation for an aircraft to proceed under conditions specified by an air traffic control unit.

Note 1 : For convenience the term "air traffic control clearance" is frequently abbreviated to "clearance" when used in appropriate contexts.

Note 2 : The abbreviated term "clearance" may be prefixed by the words "take-off", "departure", "en-route", "approach", or "landing" to indicate the particular portion of flight to which the air traffic control clearance relates.

It will be distinguished between:

#### **Dummy clearance Dauerfreigabe**

An en-route clearance issued by an aerodrome control tower without prior coordination with approach control office or area control centre which solely bases on the data specified in the flight plan and on locally established procedures.

#### **Block clearance Blockfreigabe**

A clearance concerning events in specified blocks of airspace or during specified periods of time.

#### **Individual clearance Einzelfreigabe**

A clearance concerning a single event.

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**A**      **Air traffic control instruction**  
**Flugverkehrskontrollanweisung**

Directives issued by air traffic control for the purpose of requiring a pilot to take a specific action.

**Air traffic control message**  
**Flugverkehrskontrollmeldung**

A message the contents of which is necessary for safety and regularity of air traffic and for the execution of air traffic control.

**Air traffic controller**  
**Flugverkehrsleutnant**

A person authorised to provide air traffic control services.

**Air traffic control service**  
**Flugverkehrskontrolle**

Air traffic control service means a service provided for the purpose of:

- a) preventing collisions between aircraft, and in the manoeuvring area between aircraft and obstructions; and
- b) expediting and maintaining an orderly flow of air traffic.

**Air traffic control unit**  
**Flugverkehrskontrollstelle**

A generic term meaning variously area control centre, approach control unit or aerodrome control tower.

**Air Traffic Flow and Capacity Management**  
**Verkehrsfluss- und Kapazitätsregelung**

An ATM service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that air traffic control capacity is utilised to the maximum extent possible, and that traffic volume is compatible with the capacities declared by the appropriate ATS authority.

172 ctd.

## **A**

### **Air traffic management** **Flugverkehrsmanagement**

Air traffic management means the aggregation of the airborne and ground-based functions (air traffic services, airspace management and air traffic flow management) required to ensure the safe and efficient movement of aircraft during all phases of operations.

### **Air traffic management system** **Flugverkehrsmanagementsystem**

A system that provides ATM through the collaborative integration of humans, information, technology, facilities and services, supported by air and ground- and / or space-based communications, navigation and surveillance.

### **Air traffic services** **Flugverkehrsdienste**

A generic term meaning variously flight information services, alerting services, air traffic advisory services, air traffic control services (area-, approach or aerodrome control services).

### **Air traffic services unit** **Flugverkehrsdienststelle**

A generic term meaning variously air traffic control unit or flight information centre.

### **ALERFA**

The code word used to designate an alert phase.

### **Alerting service** **Flugalarmdienst**

A service provided to notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

### **Alert phase** **Bereitschaftsstufe**

A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

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## A All weather operations Allwetterflugbetrieb

The below mentioned categories are ICAO definitions. During All Weather Operations the procedures according to MO-ATS item 475 shall be used.

### Category I (CAT I)

Approaches and landings with a decision height not lower than 200 FT and an RVR not less than 550 m or, if an RVR is not available, a meteorological visibility converted to an RVR of not less than 550 m.

Table for the conversion of the meteorological visibility to RVR

Lighting systems in use	RVR = reported meteorological visibility x factor	
	day	night
High-intensity approach and runway lighting	1.5	2.0
Any other kind of lighting system	1.0	1.5
No lighting	1.0	not applicable

Note: It is not permitted to convert meteorological visibility to an RVR during CAT II / III operations, for take-offs and when an RVR is available.

### Category II (CATII)

Approaches and landings with a decision height lower than 200 FT but not lower than 100 FT and a RVR of not less than 300 m.

### Category III a (CAT III a)

Approaches and landings with a decision height lower than 100 FT, but not lower than 50 FT, and a RVR of not less than 200 m.

### Category III b (CAT III b)

Approaches and landings with a decision height of less than 50 FT or without decision height and a RVR of less than 200 m, but not less than 75 m.

### Category III c

Approaches and landings without decision height and without RVR.



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## **A**

### **Alternate aerodrome** **Ausweichflugplatz**

An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:

**Take-off alternate:** An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

**En-route alternate:** An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route.

**Destination alternate:** An alternate aerodrome to which an aircraft may proceed should it become impossible or inadvisable to land at the aerodrome of intended landing.

Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.

### **Altitude** **Höhe über NN**

The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

### **Angels**

Altitude in thousands of feet (only military usage).

### **Approach control service** **Anflugkontrolldienst**

Air traffic control service for arriving or departing controlled flights.

### **Approach control unit** **Anflugkontrollstelle**

A unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.

### **Approach sequence** **Anflugfolge**

The order in which two or more aircraft are cleared to approach to land at an aerodrome.

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## **A Approval request**

Request from an ATS unit to the ATS unit concerned for an ATC clearance for:

- an aircraft not yet airborne, whenever the flying time to the transfer of control point is less than the agreed minimum pre-notification time, or
- an aircraft in flight intending to operate under conditions other than those described in mutually agreed procedures.

### **Apron Vorfeld**

A defined area on a land aerodrome, intended to accommodate aircraft for the purpose of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.

### **Apron management service Vorfeldkontrolldienst**

A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.

### **Area control centre Bezirkskontrollzentrale**

A unit established to provide air traffic control service to controlled flights in control sectors under its jurisdiction.

### **Area control service Bezirkskontrolle**

Air traffic control service for controlled flights in control sectors.

### **Area navigation Flächennavigation**

A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

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## **A**

### **Area navigation route Flächennavigationsstrecke**

An ATS route established for the use of aircraft capable of employing area navigation.

Note: This may be a route which is either:

- a) not aligned on point source navigation aids providing track guidance (VOR, NDB),  
or
- b) aligned on point source aids, but on parts of that route navigational guidance from the aids is lacking.

### **Aeronautical meteorological services Flugwetterdienste**

Aeronautical meteorological services means those facilities and services that provide aircraft with meteorological forecasts, briefs and observations as well as any other meteorological information and data provided by States for aeronautical use.

### **Arrival routes Anflugstrecken**

Routes identified in an instrument approach procedure by which aircraft may proceed from the en-route phase of flight to an initial approach fix.

### **ATS airspace classification ATS Luftraumklassifizierung**

Airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.

### **ATS route Flugverkehrsstrecke**

A specified route designated for channelling the flow of traffic as necessary for the provision of air traffic services.

### **Automatic Dependent Surveillance Automatische bordabhängige Flugüberwachung**

A surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position-fixing systems, including aircraft identification, four-dimensional position and additional data as appropriate.

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**A**      **Automatic Terminal Information Service**  
**Automatische Ausstrahlung von Lande- und Startinformationen**

The automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof.

Data link - ATIS (D-ATIS)      The provision of ATIS via data link.

Voice-ATIS      The provision of ATIS by means of continuous and repetitive broadcasts.

**B**      **Base turn**  
**Wendekurve**

A turn executed by an aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. The tracks are not reciprocal.

Note: Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

**Blind transmission**  
**Blindsendung**

A transmission from one station to another in circumstances where two-way communication can not be established but where it is believed that the called station is able to receive the transmission.

**Broadcast**  
**Rundsendung**

A transmission intended to be received by all stations.

**C**      **Calculated take-off time**  
**Kalkulierte Startzeit**

The calculated take-off time (CTOT) shall be established as soon as a flight plan is available in the IFPS if the flight is subject to regulation measures. Two hours prior to EOBT at the earliest, the CTOT shall be communicated to all users concerned and to air traffic control.

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## C

### **Ceiling**

#### **Hauptwolkenuntergrenze**

The height above ground or water of the base of the lowest layer of cloud below 20000 FT covering more than half the sky.

### **CIDIN Common ICAO Data Interchange Network**

CIDIN supports the AFTN in order to improve the transmission of longer messages and more sophisticated applications between two or more ground systems.

### **Circling approach**

#### **Platzrundenanflug**

An extension of an instrument approach procedure including a visual final approach prior to landing.

Note: A circling approach is not a visual approach.

### **Clearance expiry time / Clearance void time**

#### **Freigabeablauf**

A time specified by an air traffic control unit at which a clearance ceases to be valid unless the aircraft concerned has already taken action to comply therewith.

### **Clearance limit**

#### **Freigabegrenze**

The point to which an aircraft is granted an air traffic control clearance. One of the following details shall be defined as clearance limit : aerodrome of destination, point or airspace boundary.

### **Code (SSR)**

The number assigned to a particular multiple pulse reply signal transmitted by a transponder in Mode A or Mode C.

### **Commercial air transport operation**

#### **Flüge im gewerblichen Luftverkehr**

An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

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## **C**

### **Communication services** **Kommunikationsdienste**

Communication services means aeronautical fixed and mobile services to enable ground-to-ground, air-to-ground and air-to-air communications for ATC purposes.

### **Conditional route** **Bedingt nutzbare Flugstrecke**

A conditional route (CDR) is a non-permanent ATS route or a portion thereof which can be planned and used only under certain specified conditions. CDRs are divided into different categories:

- CDR1:** Conditional route which can be planned generally permanently and may be used for planning of flights. A closure will be announced by NOTAM, AUP and EAUP.
- CDR2:** Conditional route, the availability of which is announced in the daily AUP and EAUP and which can only then be used for the planning of flights.
- CDR3:** Route which cannot be planned and which is only available at short notice and upon the instruction of air traffic control.

### **Contact point** **Verbindungsaufnahmepunkt**

A specified position, time or level at which an aircraft is required to establish radio communication with an air traffic control unit.

### **Control sector** **Kontrollsektor**

A subdivision of an area of jurisdiction within which responsibility is assigned to one or more controller(s).

### **Control zone** **Kontrollzone**

A controlled airspace extending upwards from the surface of the earth to a specified upper limit.

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## C

### **Controlled aerodrome Kontrollierter Flugplatz**

An aerodrome at which air traffic control service is provided to aerodrome traffic.

### **Controlled airspace Kontrollierter Luftraum**

An airspace of defined dimensions within which air traffic control service is provided to IFR flights and VFR flights in accordance with the airspace classification.

Note: Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D and E.

### **Controlled flight Kontrollierter Flug**

Any flight which is subject to an air traffic control clearance.

### **Controlled flight into terrain Kontrollierter Flug ins Gelände**

An accident in which an airworthy aircraft, under pilot control, is flown into terrain (ground, a mountain, water, or an obstacle).

### **Controller-pilot data link communications Lotse-Luftfahrzeugführer-Data Link-Kommunikation**

A means of communication between controller and pilot, using data link for ATC communications.

### **Coordination Koordination**

The process of exchanging or forwarding ANS-related information between or within ATS units by appropriate means and methods.

### **Critical area**

An area of defined dimensions around glide path and localizer antennas where no vehicles, including aircraft, are permitted in order to avoid unacceptable disturbances to the ILS performance.

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**C**      **Cruising level**  
**Reise Flughöhe**

A level maintained during a significant portion of a flight.

**Current flight plan**  
**Geltender Flugplan**

The flight plan, including changes, if any, brought about by subsequent clearances.

**D**      **Danger area**  
**Gefahrengebiet**

An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

**Decision altitude / height (DA / H )**  
**Entscheidungshöhe über NN / GND**

A specified altitude or height in the precision approach or approach with vertical guidance at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Note 1: Decision altitude (DA) is referenced to mean sea level (MSL) and decision height (DH) to the threshold elevation.

Note 2: The "required visual reference" means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In Category III operations with a decision height the required visual reference is that specified for the particular procedure and operation.

Note 3: For convenience where both expressions are used they may be written in the form "decision altitude / height" and abbreviated "DA / H".



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## D

### **Declared distances**

#### **Festgesetzte Strecken**

- a) Take-off run available (TORA). The length of runway declared available and suitable for the ground run of an aircraft taking off.
- b) Take-off distance available (TODA). The length of the take-off run available plus the length of the clearway, if provided.
- c) Accelerate stop distance available (ASDA). The length of the take-off run available plus the length of the stopway, if provided.
- d) Landing distance available (LDA). The length of runway which is declared available and suitable for the ground run of an aircraft landing.

### **Decoder**

A device used to decipher replies received from transponders.

### **DETRESFA**

The code word used to designate the distress phase.

### **Discrete code Individualcode**

A four-digit SSR code with the last two digits not being "00".

### **Distress phase Notstufe**

A situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger and require immediate assistance.

### **Diversion Umleitung**

The act of proceeding to an aerodrome other than the one at which a landing was intended.

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**D****DME distance  
DME-Entfernung**

The line of sight distance (slant range) from the source of a DME signal to the receiving antenna.

**E****Elevation  
Ortshöhe über NN**

The vertical distance of a point or level, on or affixed to the surface of the earth, measured from mean sea level.

**Emergency phase  
Alarmstufe**

A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

**Engagement**

Fight against target.

**En-route clearance  
Streckenfreigabe**

A clearance covering the flight path of an aircraft after take-off to the clearance limit.

**Entry fix  
Einflugfix**

The first reporting point, determined by reference to a navigation aid, over which an aircraft passes or is expected to pass upon entering a flight information region or a sector.

**Essential Traffic  
Zu beachtender Verkehr**

Essential traffic is that controlled traffic to which the provision of separation by ATC is applicable, but which, in relation to a particular controlled flight is not, or will not be, separated from other controlled traffic by the appropriate separation minimum.

172 ctd.

## **E**

### **Estimated elapsed time Voraussichtliche Flugdauer**

The estimated time required to proceed from one significant point to another.

### **Estimated off-block time Voraussichtliche Abblockzeit**

The estimated time at which the aircraft will commence movement associated with departure.

### **Exit fix Ausflugfix**

The last reporting point, determined by reference to a navigation aid, over which an aircraft passes or is expected to pass before leaving a flight information region or a control area.

### **Expected approach time Voraussichtlicher Anflugzeitpunkt**

The time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing.

Note: The actual time of leaving the holding fix will depend upon the approach clearance.

### **Expedite clearance**

An urgent clearance request from an ATS unit to the ATS unit concerned for an aircraft in flight whenever the flying time to the transfer of control point is less than the agreed minimum pre-notification time.

## **F**

### **Filed flight plan Aufgegebener Flugplan**

The flight plan as filed with an ATS unit by the pilot or his designated representative, without any subsequent changes.

172 ctd.

## **F**

### **Final approach** **Endanflug**

That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified,

- a) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified;  
or
- b) at the point of interception of the last track specified in the approach procedure;  
and ends at a point in the vicinity of an aerodrome from which :
  - 1) a landing can be made;  
or
  - 2) a missed approach procedure is initiated.

### **Final approach fix or point** **Endanflugfix oder -punkt**

That fix or point of an instrument approach procedure where the final approach segment commences.

### **Final approach segment** **Endanflugsegment**

That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.

### **Flight data** **Flugdaten**

Data regarding the actual or intended movement of aircraft, normally presented in coded or abbreviated form.

### **Flight data handling** **Flugdatenbearbeitung**

A generic term meaning variously the acceptance, checking, processing and distribution of necessary information for the execution of air traffic services.

172 ctd.

## **F**

### **Flight information** **Fluginformation**

Information useful for the safe, orderly and expeditious conduct of flight, including information on air traffic, meteorological conditions, aerodrome conditions or air route facilities.

### **Flight information region** **Fluginformationsgebiet**

An airspace of defined dimensions within which flight information service and alerting service are provided.

### **Flight information service** **Fluginformationsdienst**

A service provided for the purpose of giving advice and information useful for the safe, orderly and expeditious conduct of flights.

### **Flight level** **Flugfläche**

A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hectopascal (hPa), and is separated from other such surfaces by specific pressure intervals.

Note: A pressure type altimeter calibrated in accordance with the Standard Atmosphere:

- a) when set to a QNH altimeter setting, will indicate altitude;
- b) when set to a QFE altimeter setting, will indicate height above the QFE reference datum;
- c) when set to a pressure of 1013.2 hectopascal (hPa), may be used to indicate flight levels.

### **Flight plan** **Flugplan**

Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.

### **Flight plan data** **Flugplandaten**

Data selected from the flight plan for purposes of processing, display or transfer.

172 ctd.

## **F**

### **Flight visibility** **Flugsicht**

The visibility forward from the cockpit of an aircraft in flight.

### **Forecast** **Wettervorhersage**

A statement of expected meteorological conditions for a specified time or period and for a specified area or portion of airspace.

### **Free flight airspace**

A specified volume of airspace within which autonomous operations will be allowed and the responsibility for separation will be fully transferred to the pilot.

### **Free route airspace**

A free route airspace means a specified airspace within which users shall freely plan their routes between an entry point and an exit point without reference to the ATS route network. In this airspace, flights will remain subject to air traffic control.

## **G**

### **General air traffic** **Allgemeiner Luftverkehr**

General air traffic (GAT) are flights which are conducted in accordance with the rules and regulations of the International Civil Aviation Organization (ICAO) and / or the national civil aviation law.

### **General aviation operation** **Flüge der Allgemeinen Luftfahrt**

An aircraft operation other than a commercial air transport operation or an aerial work operation.

### **Glide path** **Gleitweg**

A descent profile determined for vertical guidance during a final approach.

172 ctd.

## **G** **GLS (GBAS Landing System) approach**

A precision approach procedure utilising GNSS, augmented by a ground-based augmentation System (GBAS), as the primary navigational reference.

### **Ground effect** **Bodeneffekt**

A condition of improved performance (lift) due to the interference of the surface with the airflow pattern of the rotor system when a helicopter or other VTOL aircraft is operating near the ground.

Note: Rotor efficiency is increased by ground effect to a height of about one rotor diameter for most helicopters.

### **Ground visibility** **Bodensicht**

The visibility at an aerodrome as reported by an accredited observer or automatic systems.

## **H** **Heading** **Steuerkurs**

The direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).

### **Height** **Höhe über GND**

The vertical distance of a level, a point, or an object considered as a point, measured from a specified datum.

### **Holding fix** **Wartepunkt**

A geographical location that serves as a reference for a holding procedure.

172 ctd.

## **H**

### **Holding point** **Rollhalt**

A designated position intended to protect a runway, an obstacle limitation surface, or an ILS / MLS critical / sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control tower.

### **Holding procedure** **Warteverfahren**

A predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.

### **HOOTER**

Call sign for jamming aircraft.

### **Horizontal separation** **Horizontalstaffelung**

Separation between aircraft expressed in terms of time, distance or angular displacement between tracks.

### **Hot Spot**

A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

## **I**

### **IDENT feature / pulse** **IDENT-Vorrichtung / Puls**

The special feature in secondary radar equipment used to distinguish one displayed code from all other codes.

### **IFR flight** **IFR-Flug**

A flight conducted in accordance with the instrument flight rules.

### **INCERFA**

The code word used to designate the uncertainty phase.



172 ctd.

I

**Incident**  
**Zwischenfall**

An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

**Independent parallel approaches**  
**Unabhängige parallele Anflüge**

Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are not prescribed.

**Independent parallel departures**  
**Unabhängige parallele Abflüge**

Simultaneous departures from parallel or near-parallel instrument runways.

**Indicated airspeed**  
**Angezeigte Fluggeschwindigkeit**

The uncorrected reading on the airspeed indicator.

**Infringement of separation**  
**Staffelungsunterschreitung**

Converging of aircraft in space and time which constitutes a violation of a given set of separation minima.

**Initial approach altitude**  
**Anfangsanflughöhe**

The altitude at which a pilot commences his approach for a published instrument approach procedure.

**Initial approach segment**  
**Anfangsanflugsegment**

That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point.

172 ctd.

## **I Instrument approach procedure Instrumentenanflugverfahren**

A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply.

### **Instrument flight rules Instrumentenflugregeln**

A set of rules governing the conduct of flight under instrument meteorological conditions.

### **Instrument meteorological conditions Instrumentenwetterbedingungen**

Meteorological conditions expressed in terms of visibility, distance from clouds, and ceiling, less than the minima specified for visual meteorological conditions.

Note 1: The specified minima for visual meteorological conditions are contained in the Aviation Regulation (LuftVO).

Note 2: In a control zone, a VFR flight may proceed under instrument meteorological conditions if and as authorised by air traffic control.

### **Instrument runway Instrumenten-Piste**

One of the following types of runways intended for the operation of aircraft using instrument approach procedures:

- a) **Non-precision approach runways:** Instrument runways served by visual aids and a non-visual aid providing at least directional guidance adequate for a straight-in approach.
- b) **Precision approach runways:** Instrument runways served by ILS and visual aids, or only by ILS, intended for operations down to defined decision heights and / or RVRs (defined values see all-weather operations).

172 ctd.

## **I Intercept**

The intercept of other aircraft.

### **Interceptor**

Fighter intercepting other aircraft.

### **Intermediate approach segment Zwischenanflugsegment**

That segment of an instrument approach procedure between either the intermediate approach fix and the final approach fix or point, or between the end of a dead reckoning track procedure and the final approach fix or point, as appropriate.

### **International Airport Internationaler Verkehrsflughafen**

Any aerodrome designated by the Contracting State in whose territory it is situated as an aerodrome of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

The following listed aerodromes are regarded as International Airports within the MO-ATS:

Berlin/Schönefeld, Berlin-Tegel, Bremen, Düsseldorf, Dresden, Erfurt, Frankfurt/Main, Hamburg, Hannover, Köln/Bonn, Leipzig/Halle, München, Münster/Osnabrück, Nürnberg, Saarbrücken and Stuttgart.

### **International scheduled air traffic Planmäßiger internationaler Fluglinienverkehr**

A series of flights with the following characteristics:

- a) it passes through the airspace over the territory of more than one state;
- b) it is performed by aircraft for the transport of passenger, mail or cargo for remuneration or higher, in such a manner that each flight is open to use by members of the public;
- c) it is operated so as to serve traffic between the same two or more points, either according to a published timetable, or with flights so regular or frequent that they constitute recognisable systematic series.

172 ctd.

## **I**      **Intersection**

A significant point defined by radials, bearings and / or distances from ground-based navigation aids.

## **J**      **Judy**

Code word for report of interceptor pilot indicating that he continues intercept visually or electronically on his own.

## **L**      **Landing area** **Landebereich**

That part of a movement area intended for the landing or take-off of aircraft.

### **Lateral separation** **Seitenstaffelung**

Separation between aircraft expressed in terms of distance or angular displacement between tracks.

### **Letter of Agreement** **Betriebsabsprache**

Letters of Agreement govern operational procedures between two or more parties; in the form of a mutual agreement; they are concluded between:

- units of the air traffic navigation services (in connection with the MO-ATS, only the air traffic services and the aeronautical information services are concerned) of DFS (internally);  
or
- DFS and non-DFS parties (externally).

### **Level** **Flughöhe**

A generic term relating to the vertical position of an aircraft in flight and meaning variously, height, altitude or flight level.

### **Location indicator** **Ortskennung**

A four-letter code compiled according to the rules of ICAO which depicts the location of a fixed aeronautical telecommunication station.

172 ctd.

## **L**      **Longitudinal separation** **Längsstaffelung**

Separation between aircraft expressed in units of time or distance along track.

### **Low approach** **Tiefanflug**

An approach conducted along or parallel to a runway, if necessary at an agreed level.

### **Low pass** **Tiefer Vorbeiflug**

A low fly-by of control tower, for example, for the purpose of visual inspection.

### **Low visibility take-off** **Start bei geringer Sicht**

A departure with a runway visual range of less than 400 m.

## **M**      **Manoeuvring area** **Rollfeld**

That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

### **Meteorological information** **Wetterinformationen**

Meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions.

### **Meteorological report** **Wettermeldung**

A statement of observed meteorological conditions related to a specified time and location.

172 ctd.

## M

### **Military NOTAM Office** **Militärische NOTAM-Zentrale**

A central operational unit of the military AIS, handling national and international NOTAM of military and civilian series. It exchanges NOTAM with the NOTAM Office of DFS, with foreign military NOTAM offices and other units handling NOTAM.

### **Minimum descent altitude / height** **Sinkflugmindesthöhe über NN / GND**

A specified altitude or height in a non-precision approach or circling approach below which descent may not be made without visual reference.

### **Minimum radar vectoring altitude** **Radarführungsmindesthöhe über NN**

The lowest altitude within controlled airspace which may be used for the vectoring of IFR flights, taking into account the minimum safe height and airspace structure within a specified area.

### **Minimum sector altitude** **Sektormindesthöhe über NN**

The lowest altitude which may be used which will provide a minimum clearance of 300 metres (1000 ft) above all objects located in an area contained within a sector of a circle of 25 NM radius centred on a radio aid to navigation.

### **Missed approach point** **Fehlanflugpunkt**

That point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed.

### **Missed approach procedure** **Fehlanflugverfahren**

The procedure to be followed if the approach cannot be continued.

172 ctd.

## M

### **Mission plan** **Missionsplan**

Means a document, which is in a format established by the Open Skies Consultative Commission, presented by the observing Party that contains the route, profile, order of execution and support required to conduct the observation flight, which is to be agreed upon with the observed Party and which will form the basis for the elaboration of the flight plan.

### **Mode (SSR)** **Modus**

The conventional identifier related to specific functions of the interrogation signals transmitted by an SSR interrogator. There are 4 modes specified in Annex 10: A, C, S and intermode.

### **Movement area** **Bewegungsfläche**

That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).

## N

### **Nachrichten für Luftfahrer**

A publication issued by DFS in the German language wherein all instructions of aeronautical authorities as well as important information and advice for air traffic are contained.

### **Navigation services** **Navigationsdienste**

Navigation services means those facilities and services that provide aircraft with positioning and timing information.

### **Navigational warning** **Navigationswarnung (Flugwarnung)**

A message about events in an airspace that constitute a hazard to or might impair air traffic.

### **Night** **Nacht**

The period between half an hour after sunset and half an hour before sunrise.

172 ctd.

## **N**

### **Night Vision Goggle** **Nachtsichtgerät**

Image intensifier system used by pilots of military and police aircraft during missions.

### **NOTAM**

A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

### **NOTAM Office**

The NOTAM Office is a unit of the DFS business unit Aeronautical Data Management, which is responsible for the acquisition, processing and dissemination of information and publications that are important for the planning, conduct and safety of air traffic.

### **NOTAM series** **NOTAM-Serie**

A consecutively numbered series of NOTAM the contents of which follow the criteria defined for the series.

### **NOTAM summary** **NOTAM-Summary**

A list of all valid NOTAM of a state.

### **No transgression zone**

In the context of independent parallel approaches, a corridor of airspace of defined dimensions located centrally between the two extended runway centre lines.

## **O**

### **Obstacle** **Hindernis**

All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that extend above a defined surface intended to protect aircraft in flight.



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## **O** **Obstacle clearance altitude / height (OCA / H)** **Hindernisfreihöhe über NN / GND**

The lowest altitude (OCA),

or

the lowest height (OCH) above

- the elevation of the relevant runway threshold

or

- above the aerodrome elevation,

used in establishing compliance with the appropriate obstacle clearance criteria.

Note 1: Obstacle clearance altitude is referenced to mean sea level and obstacle clearance height is referenced to the threshold elevation or in the case of non-precision approaches to the aerodrome elevation or the threshold elevation if that is more than 2 m (7 ft) below the aerodrome elevation. An obstacle clearance height for a circling approach is referenced to the aerodrome elevation.

Note 2: For convenience when both expressions are used they may be written in the form "obstacle clearance altitude / height" and abbreviated "OCA / H".

### **On track**

Where the term "on track" is used in the provisions relating to the application of longitudinal separation minima using DME and / or GNSS, it means that the aircraft is flying either directly inbound to or directly outbound from the station and / or fix point.

### **Operational air traffic** **Operationeller Luftverkehr**

Operational air traffic (OAT) refers to flight operations wholly or partially not performed in compliance with the rules for general aviation and for which rules and provisions are specified by the competent authorities. If required, these rules and provisions are coordinated at international level.

172 ctd.

## **P** **Pidgeons**

Direction to and distance from a geographical location, e. g. home base (only military usage).

### **Popeye**

Flying without visual reference (only military usage).

### **Precision approach procedure** **Präzisionsanflugverfahren**

An instrument approach procedure utilising azimuth and glide path information provided by ILS, MLS or PAR.

### **Primary surveillance radar** **Rundsicht-Primärradar**

A surveillance radar system which uses reflected radio signals.

### **Procedure turn** **Verfahrenskurve**

A manoeuvre in which a turn is made away from the designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

Note: Procedure turns are designated "left" or "right" according to the direction of the initial turn.

### **Prohibited area** **Luftsperrgebiet**

An airspace of defined dimensions over the territories of a State within which flights of aircraft are prohibited.

### **PSR blip** **PSR-Zielanzeige**

The visual indication, in non-symbolic form, on a radar display of the position of an aircraft obtained by primary radar.

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## **R Radar**

A radio detection device which provides information on range, azimuth and / or elevation of objects.

### **Radar approach Radaranflug**

An approach, executed by an aircraft, under the direction of a radar controller.

### **Radar blip Radarzielanzeige**

A generic term for the visual indication, in non-symbolic form, on a radar display of the position of an aircraft obtained by primary or secondary radar.

### **Radar contact Radarkontakt**

The situation which exists when the radar blip or radar position symbol of a particular aircraft is seen and identified on a radar display.

### **Radar control Radarkontrolle**

Term used to indicate that radar-derived information is employed directly in the provision of air traffic control service.

### **Radar display Radarbildschirmdarstellung**

An electronic display of radar-derived information depicting the position and movement of aircraft.

### **Radar hand-off Radarübergabe**

The transfer of responsibility for the provision of radar service to an aircraft from one radar controller to another without interruption of radar service.

172 ctd.

## R

### **Radar identification**

#### **Radaridentifizierung**

The process of correlating a particular radar blip or radar position symbol with a specific aircraft.

### **Radar monitoring**

#### **Radarüberwachung**

The use of radar for the purpose of providing aircraft with information and advice relating to significant deviations from the nominal flight path.

### **Radar navigational assistance**

#### **Navigatorische Unterstützung durch Radar**

The issue of navigational directions to aircraft in the form of suggestions to fly on specific headings derived from radar observation.

### **Radar position indication**

#### **Radarzielstandortanzeige**

The visual indication, in non-symbolic and / or symbolic form, on a radar display of the position of an aircraft obtained by primary and / or secondary surveillance radar.

### **Radar position symbol**

#### **Radarzielstandortsymbol**

A generic term for the visual indication in a symbolic form, on a radar display, of the position of an aircraft obtained after digital computer processing of positional data derived from primary radar and / or SSR.

### **Radar separation**

#### **Radarstaffelung**

The separation used when aircraft position information is derived from radar sources.

### **Radar service**

#### **Radardienst**

Term used to indicate a service provided directly by means of radar.

172 ctd.

## R

### **Radar target** **Radarziel**

The visual indication on a radar display of a primary radar echo or a secondary radar response from an aircraft.

### **Radar vectoring** **Radarführung**

Provision of navigational guidance to aircraft in the form of specific headings, based on the use of radar.

### **Regional ATFCM-ASM Unit**

The Regional ATFCM-ASM Unit is the point of contact for the CFMU and the FMPs in assessing network effects and developing solutions in the case of capacity bottlenecks.

### **Release point** **Übergabepunkt**

The point, time or level at which an aircraft comes under the jurisdiction of the next control sector.

### **Release time** **Freigabezeit**

Time prior to which an aircraft should be given further clearance or prior to which it should not proceed in case of radio failure.

### **Repetitive flight plan** **Dauerflugplan**

A flight plan related to a series of frequently recurring, regularly operated individual flights with identical basic features, submitted by an operator for retention and repetitive use by ATS units.

### **Reporting point** **Meldepunkt**

A specific geographical location in relation to which the position of an aircraft can be reported.

### **Required navigation performance** **Erforderliche Navigationsleistung**

A statement of the navigation performance accuracy necessary for operation within a defined airspace.

172 ctd.

## **R**

### **Rescue coordination centre** **SAR-Leitstelle**

A unit responsible for promoting efficient organisation of search and rescue service and for coordinating the conduct of search and rescue operations within a search and rescue region.

### **Restricted area** **Flugbeschränkungsgebiet**

An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

### **RNAV (GPS)**

An approach procedure, which may be used by pilots as:

- a) NPA up to LNAV Minima,
- b) APV Baro-VNAV up to LNAV/VNAV Minima or
- c) APV-SBAS up to LPV Minima.

### **Route Availability Document**

The Route Availability Document provides a single fully integrated and coordinated list of routing restrictions and requirements for the CFMU area.

### **Route segment** **Streckenabschnitt**

A portion of a route to be flown, as defined by two consecutive significant points specified in a flight plan.

### **Routing** **Leitweg**

A chosen routing to be followed by messages on the AFTN between acceptance and delivery.

### **Runway** **Piste**

A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

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## **R**      **Runway incursion**

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

### **Runway strip** **Pistenstreifen**

A defined area including the runway and stopway, if provided, intended

- a) to reduce the risk of damage to aircraft running off the runway,  
and
- b) to protect aircraft flying over it during take-off or landing operations.

### **Runway visual range** **Pistensichtweite**

The range over which the pilot of an aircraft on the centreline of a runway can see the runway surface markings or the lights delineating the runway or identifying its centreline.

### **RVSM approved aircraft** **RVSM genehmigtes Luftfahrzeug**

Aircraft that have received State approval for RVSM operations within the EUR RVSM airspace (FL 290 until FL 410).

## **S**      **Secondary radar** **Rundsicht-Sekundärradar**

A radar system wherein a radio signal transmitted from the radar station initiates the transmission of a radio signal from another station.

### **Secondary radar control slash** **SSR-Zielbogen**

A secondary radar reply displayed as an elongated target on analogue radar displays.

172 ctd.

## **S**      **Secondary surveillance radar** **Rundsicht-Sekundärradar**

A system of secondary radar using ground transmitters / receivers (interrogators) and airborne transponders conforming to specifications developed by ICAO.

### **Security flights** **Schutzflüge**

Flights which are conducted for the immediate defence of Germany or in order to guarantee the integrity of the German airspace.

### **Selected level** **Eingewählte Flughöhe**

The level selected within the aircraft and displayed on the radar display.

### **Segregated parallel operations** **Getrennter paralleler Betrieb**

Simultaneous operations on parallel or near-parallel instrument runways in which one runway is used exclusively for approaches and the other runway is used exclusively for departures.

### **Sensitive area**

A defined area extending beyond the critical area where the parking and / or movement of vehicles, including aircraft, is controlled in order to avoid unacceptable disturbances to the ILS performance. The sensitive area is usually within the aerodrome boundaries.

### **SIGMET information** **SIGMET-Meldung**

Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

### **Significant point**

A specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes.

Note: There are three categories of significant points: ground-based navigation aids, intersections and waypoints.



172 ctd.

## **S**      **Slot**

A slot is issued as a calculated take-off time (CTOT). In order to alleviate traffic handling within ATC, a CTOT with a tolerance of -5/+10 minutes will be offered, within which the aircraft has to depart.

### **SNOWTAM**

A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

### **Special activity area** **Gebiet mit besonderen Aktivitäten**

An airspace of defined dimensions within which unusual VFR flight activities require extraordinary alertness by flight crews for the safe conduct of flights.

### **Special VFR flight** **Sonder-VFR-Flug**

A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

### **SSR response** **SSR-Antwort**

The visual indication in non-symbolic form on a radar display of a response from an SSR transponder in reply to an interrogation.

### **Standard instrument arrival** **Standard Instrumentenanflugstrecke**

A designated instrument flight rule (IFR) arrival route linking a significant point, normally on an ATS route, with a point from which a published instrument approach procedure can be commenced.

### **Standard instrument departure** **Standard Instrumentenabflugstrecke**

A designated instrument flight rule (IFR) departure route linking the aerodrome or a specified runway of the aerodrome with a specified significant point, normally on a designated ATS route, at which the en-route phase of a flight commences.

172 ctd.

## **S**

### **Standard routing** **Standardstrecke**

Standard routings are route descriptions - conforming to the standards of the FDPS - of often used routings between 2 waypoints (reporting points and / or aerodromes).

### **State aircraft** **Staatsluftfahrzeug**

Aircraft used in military, customs and police services.

### **Stopway** **Stoppbahn**

A defined rectangular area on the ground at the end of the take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.

### **Surveillance radar** **Rundstrichradar**

Radar equipment used to determine the position of an aircraft in range and azimuth.

### **Surveillance services** **Überwachungsdienste**

Surveillance services means those facilities and services used to determine the respective positions of aircraft to allow safe separation.

### **Synthetic display** **Synthetische Darstellung**

A display of computer-generated information, normally comprising aircraft positions and associated data presented in alphanumeric or symbolic form.

## **T**

### **Take-off position** **Abflugpunkt**

A position on the runway from which aircraft commence their take-off run.

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## **T**      **Tally Ho**

Code word for report of interceptor pilot indicating that he has sighted the target (visually) (only military usage).

### **Target off-block time** **Ziel Abblockzeit**

The TOBT is a point in time to be mentioned and confirmed by the airline/handling agent at which the ground handling process at A-CDM aerodromes is concluded, clearance can be received.

### **Target start-up approval time** **Ziel Anlassfreigabezeit**

The TSAT is the point in time calculated by the A-CDM sequence planning system at which the start-up approval can be expected.

### **Taxi circuit** **Rollstrecke**

The designated path for aircraft on the manoeuvring area, taking into consideration the prevailing wind situation.

### **Taxiing** **Rollen**

Movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing, but including, in the case of helicopters, operation over the surface of an aerodrome within a height band associated with ground effect and at speeds associated with taxiing, e.g. air-taxiing.

### **Taxiway** **Rollbahn**

A defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including:

- a) Aircraft stand taxi lane. A portion of an apron designated as a taxiway and intended to provide access to aircraft stands only.
- b) Apron taxiway. A portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron.

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## T

- c) Rapid exit taxiway. A taxiway connected to a runway at an obtuse angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways and thereby minimising runway occupancy times.

### **Taxiway strip** **Rollbahnstreifen**

An area including a taxiway intended to protect an aircraft on the taxiway and to reduce the risk of damage to an aircraft accidentally running off the taxiway.

### **Technical flights** **Technische Flüge**

Test and acceptance flights and flight checks.

### **Telecommunication** **Fernmeldeverkehr**

Any transmission, emission, or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems.

### **Threshold** **Schwelle**

The beginning of that portion of the runway usable for landing.

### **Total estimated elapsed time** **Voraussichtliche Gesamtflugdauer**

For IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.

### **Touchdown** **Aufsetzpunkt**

The point where the nominal glide path intercepts the runway.

Note: Touchdown as defined above is only a datum and not necessarily the actual point at which the aircraft will touch the runway.

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## **T**

### **Touchdown zone** **Aufsetzzone**

The portion of a runway, beyond the threshold, where it is intended landing aircraft first contact the runway.

### **Track** **Kurs über Grund**

The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid).

### **Traffic avoidance advice** **Ausweichempfehlung**

Advice provided by an air traffic service unit specifying manoeuvres to assist a pilot to avoid a collision.

### **Traffic information** **Verkehrsinformation**

Information issued by an air traffic service unit to alert a pilot to other known or observed air traffic which may be in the proximity to the position or intended route of flight and to help the pilot avoid a collision.

### **Transfer of control point** **Kontrollübergabepunkt**

A defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control sector to the next.

### **Transferring controller** **Übergebender Lotse**

Air traffic controller in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic controller along the route of flight.

### **Transition altitude** **Übergangshöhe**

The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.

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## T

### **Transition layer Übergangsschicht**

The airspace between the transition altitude and the transition level.

### **Transition level Übergangsfläche**

The lowest flight level available for use above the transition altitude.

### **Transponder**

A receiver / transmitter which will generate a reply signal upon proper interrogation, the interrogation and reply being on different frequencies.

### **Transponder mandatory zone Luftraum mit vorgeschriebener Transponderschaltung**

In the transponder mandatory zone aircraft flying according to VFR shall be equipped with an automatic altitude reporting transponder automatically emitting code 7000. Exceptions from this obligation may be granted by the competent ATC unit via telephone or radiotelephony if the safety of air traffic is not impaired thereby. The regulations are valid in airspace class E.

### **Transsonic phase Transsonischer Bereich**

The phase of transition between subsonic and supersonic flight.

### **True airspeed Wahre Flug- oder Eigengeschwindigkeit**

The speed of the aeroplane relative to undisturbed air.

## U

### **Uncertainty phase Ungewißheitsstufe**

A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

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## **U**

### **Urgent flight plan** **Dringender Flugplan**

A combination of flight plan and coordination data intended for the priority entry of data in the flight data processing system if at the time of the coordination for the flight concerned no flight plan is available in the dynamic flight plan storage.

## **V**

### **Value added network**

The value added network is a database based redundant communication system for the transmission of AFTN and non-AFTN messages.

### **Vertical separation** **Höhenstaffelung**

Separation between aircraft expressed in units of vertical distance.

### **VFR flight** **VFR-Flug**

A flight conducted in accordance with the visual flight rules.

### **Vicinity of aerodrome** **Flugplatznähe**

An aircraft is in the vicinity of an aerodrome when it is in, entering or leaving an aerodrome traffic circuit.

### **Visibility** **Sicht**

The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night.

### **Visual approach** **Sichtanflug**

An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

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## **V** **Visual manoeuvring (circling) area** **Platzrundenbereich**

The area in which obstacle clearance should be taken into consideration for aircraft carrying out a circling approach.

## **Visual meteorological conditions** **Sichtwetterbedingungen**

Meteorological conditions expressed in terms of visibility, distance from clouds, and ceiling, equal to or better than specified minima.

Note : The specified minima are contained in the Aviation Regulation (LuftVO).

## **W** **Waypoint** **Wegpunkt**

A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

Fly-by waypoint a waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure,  
or

Fly-over waypoint a waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

## **Z** **Zulu(s)**

Zulu alert aircraft (only military usage).



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**173 ACRONYMS AND ABBREVIATIONS USED IN METEOROLOGICAL MESSAGES**
**A**

A	inches Zoll
ABV	above über
AMD	amended geändert

**B**

BC	patches -schwaden
----	----------------------

Note: BC is only used when isolated, irregularly distributed (smaller or larger) patches cover part of the aerodrome.

BECMG	becoming werdend
-------	---------------------

BKN	broken (5-7/8) stark bewölkt (5-7/8)
-----	---

BL	blowing -treiben
----	---------------------

BLW	below unter
-----	----------------

BR *	mist (VIS $\geq$ 1000 m until $\leq$ 5000 m) feuchter Dunst (VIS $\geq$ 1000 m bis $\leq$ 5000 m)
------	--

**C**

CAVOK	- Visibility $\geq$ 10 km; - no cloud below 5000 FT or below the highest minimum sector altitude, whichever is higher; - no CB or towering cumulus cloud at any height; - no precipitation, thunderstorm, shallow fog, sand or dust storm, low drifting dust, sand or snow. - Sicht $\geq$ 10 km; - keine Bewölkung unterhalb 5000 FT oder unterhalb der höchsten Sektormindesthöhe, wobei die größere Höhe maßgebend ist; - kein CB oder hochauftürmende Cumulus-Wolke, unabhängig von der Höhe; - kein Niederschlag, Gewitter, flacher Bodennebel, Sand- oder Staubsturm, Staub, Sand- oder Schneefegen.
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**C**

CB cumulonimbus  
Cumulonimbus

CLD cloud(s)  
Wolke(n)

**D**

D decreasing (only RVR)  
abnehmend (nur RVR)

DR low drifting  
-fegen

DS \* dust storm  
Staubsturm

DU \* widespread dust (VIS ≤ 5000 m)  
weitverbreiteter Staub (VIS ≤ 5000 m)

DZ \* drizzle  
Sprühregen

**E**

EMBD embedded  
eingelagert

**F**

FC funnel cloud(s) (tornado or waterspout)  
Grosstrombe (Tornado oder Wasserhose)

FEW few (1 - 2/8)  
leicht (bewölkt) (1 - 2/8)

FG fog  
Nebel

FRQ frequent  
häufig

FU \* smoke (VIS ≤ 5000 m)  
Rauch (VIS ≤ 5000 m)

FZ freezing  
unterkühlt (gefrierend)

---

173 ctd.

**G**

G gusts (only wind group)  
Böen (Nur Windgruppe)

GR \* hail  
Hagel

GS \* small hail and / or snow pellets  
Reif- oder Frostgraupel

**H**

HVY heavy  
stark

HZ \* haze (VIS ≤ 5000 m)  
trockener Dunst (VIS ≤ 5000 m)

**I**

IC \* ice crystals (diamond dust) (VIS ≤ 5000 m)  
Eisnadeln (VIS ≤ 5000 m)

ICE icing  
Vereisung

ISOL isolated  
vereinzelt

**M**

M below 0° (only temperature)  
unter 0° (nur Temperatur)

M below minimum measurable RVR value (only RVR)  
unter der geringsten messbaren RVR-Sichtweite (nur RVR)

MI shallow  
flach

MOD moderate (only AIRMET/ SIGMET)  
mäßig (nur AIRMET/ SIGMET)

MOV moving  
Verlagerung nach / verlagernd

173 ctd.

**M**

MT mountain  
Berg

MTW mountain wave  
Leewelle

**N**

N no distinct tendency (only RVR)  
keine feststellbare Tendenz (nur RVR)

NC no change  
keine Veränderung

NOSIG no significant change  
keine markante Wetteränderung

NSC nil significant cloud  
If there are no clouds below 5000 FT or below the highest minimum sector altitude, whichever is higher, no CB and no restrictions on vertical visibility and the abbreviation CAVOK is not appropriate, NSC shall be used.  
keine markanten Wolken  
Wenn es keine Wolken unterhalb 5000 FT oder unterhalb der höchsten Sektormindesthöhe über NN, wobei die größere Höhe maßgebend ist, keinen CB und keine Einschränkungen bei der Vertikalsicht gibt, und die Abkürzungen CAVOK nicht zutrifft, ist NSC zu verwenden.

NSW nil significant weather  
kein markantes Wetter

**O**

OBS observed  
beobachtet

OBSC obscure / obscured / obscuring  
undeutlich, unbekannt

OCNL occasional  
gelegentlich

OVC overcast (8/8)  
geschlossen (8/8)

173 ctd.

**P**

P	more than 1500 m (only RVR) mehr als 1500 m (nur RVR)
PL *	ice pellets Eiskörner
PO **	dust/sand whirls (dust devils) Sand-/Staubwirbel (Staubteufel)
PR	partial teilweise
PRFG	a substantial part of the aerodrome covered by fog ein nennenswerter Teil des Flughafens bedeckt mit Nebel
PROB	probability Wahrscheinlichkeit

**Q**

Q QNH

**R**

RA *	rain Regen
RE	recent vor kurzem

**S**

SA *	sand (VIS ≤ 5000 m) Sand (VIS ≤ 5000 m)
SCT	scattered (3-4/8) mittel bewölkt (3-4/8)
SEV	severe schwer
SFC VIS	surface visibility (not ground visibility !) Sichtweite am Boden (nicht Bodensicht !)
SG *	snow grains Schneegriesel

---

173 ctd.

**S**

SH *	shower Schauer
SIGWX	significant weather phenomena signifikante Wettererscheinung
SN *	snow Schnee
SQ *	squall Böen
SQL	squall line Böenwalze
SS *	sandstorm Sandsturm

**T**

TCU	towering cumulus congestus aufgetürmte Cumulus Congestus
TEMPO	temporary zeitweise
TL	until bis
TS	thunderstorm Gewitter

**Note:**

If "+" or "-" are given in combination with "TS" the signs do not state the intensity of the TS but of the precipitation of the TS (e.g. +TSRA = thunderstorm with heavy rain). TS without further intensity classification names a thunderstorm in the vicinity without precipitation.

TURB	turbulence Turbulenz
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**U** U increasing (only RVR)  
zunehmend (nur RVR)

**V** V variability of wind direction (clockwise) (wind group, only if  $\geq 60^\circ$  and WSPD  $< 3$  KT or if  $\geq 180^\circ$  regardless of WSPD and / or if the indication of the mean windspeed is impossible). **VRB BTN xxx° AND xxx°**  
Schwankung der Windrichtung (im Uhrzeigersinn) (Windgruppe, nur wenn  $\geq 60^\circ$  und WSPD  $< 3$  KT oder wenn  $\geq 180^\circ$  unabhängig von WSPD und / oder wenn Angabe der mittleren Windrichtung unmöglich ist). **VARIABEL ZWISCHEN xxx° UND xxx°**

VA \* volcanic ash  
Vulkanasche

VC in the vicinity  
in der Nähe

Note: VC is used up to a distance of 8 km from the aerodrome but not at the aerodrome.

VIS visibility  
Sichtweite

VRB variable  
veränderlich

**W** WDSPR widespread  
ausgedehnt

WRNG warning  
Warnung

WS wind shear  
Windscherung

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**W**

WSPD           windspeed  
Windgeschwindigkeit

Note 1:           When transmitting the **present** weather, the word "moderate" has to be added to those descriptors, precipitations, obscurations and other phenomena marked with an asterisk (\*), unless "+" or "-" are given.

Note 2:           Other phenomena marked with two asterisks (\*\*) are given only in connection with the intensity indicator "+" by the DWD.

**SYMBOLS**

-                 light  
leicht

moderate  
mäßig

+                 heavy  
stark

Note:             Without " - " or " + " means moderate. The group can contain up to nine letters and be given up to three times. In combinations the precipitation with the higher intensity is stated first.



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- 222 Ground controller
- 223 Radar controller / Executive controller
- 224 Radar approach controller
- 225 Coordinator-controller / Planning controller

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**210 GENERAL****211 AIR NAVIGATION SERVICES**

Air navigation services are:

**211.1 Air traffic services, including:**

a) air traffic control services, consisting of:

- aerodrome control services;
- approach control services;
- area control services;

b) alerting services

c) flight information services

d) air traffic advisory services.

**211.2 Communication services;****211.3 Navigation services;****211.4 Surveillance services;****211.5 Aeronautical information services;****211.6 Aeronautical meteorological services;**

Note: The air navigation services of items 2 to 5 as well as flight calibration services constitute support services for the air traffic management.

**211.7 The tasks listed below do not form part of the air navigation services but are mentioned in the Aviation Act §27c. The relevant procedures are described in the MO-ATS:**

a) air traffic flow management;

b) airspace management;

c) flight calibration services.

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**212 TASKS OF THE AIR TRAFFIC SERVICES**

212.1 The **air traffic control services** have the following tasks:

- .11 to prevent collisions between aircraft in the air and on the manoeuvring areas of aerodromes;
- .12 to prevent collisions between aircraft and other vehicles as well as obstacles on the manoeuvring areas of aerodromes;
- .13 to handle air traffic in a safe, orderly and expeditious manner while avoiding unnecessary aircraft noise;
- .14 to provide advice and information useful for the safe, orderly and expeditious conduct of flights;
- .15 to inform the responsible units if an aircraft requires assistance from the search and rescue services and to support such units, if necessary.

.16 The **flight data handling as part of the air traffic control service** has the following tasks:

- .161 to accept, process, check, edit and forward flight plan data, flight data and other information required for the safe, orderly and expeditious handling of flights;
- .162 to inform the responsible units if an aircraft requires assistance from the search and rescue services and to support such units, if necessary.

212.2 The **aeronautical information service (AIS)** has the following tasks:

- .21 to collect, evaluate and publish messages which are necessary for the safe, orderly and expeditious conduct of flights;
- .22 to accept, check and forward flight plans and flight-plan-associated messages;
- .23 to assist pilots in their pre-flight planning;
- .24 to produce and publish aeronautical charts.

212.3 The **aeronautical telecommunication service** has the following task:

- .31 to forward ATC-related information required for the safe, orderly and expeditious handling of flights.

**213 RESPONSIBILITIES**

- 213.1 The **ATC units** shall provide air traffic control service in the areas of responsibility and the procedural areas assigned to them.
- .11 Air traffic control service shall be provided for:
    - .111 IFR flights performed in controlled airspace;
    - .112 aerodrome traffic at controlled aerodromes;
    - .113 VFR flights performed in controlled airspace if these flights are subject to air traffic control services as stipulated by the Aviation Regulation (LuftVO).
  - .12 If necessary in order to prevent hazards to the safety of air traffic or if public safety and order are endangered by air traffic, ATC units may also become active in other cases.
- 213.2 Only one ATC unit shall be responsible for the control of an individual aircraft at any given time.
- 213.3 Only one ATC unit shall be responsible for the control of all aircraft operating within a defined airspace (area of responsibility / control sector). However, control of one or several aircraft may be delegated to another ATC unit provided that coordination between all air traffic control units concerned is assured.
- 213.4 Within the scope of the aeronautical information service and aeronautical telecommunication service, **AIS-C** has the following tasks:
- a) to accept, check and forward flight plans and flight plan associated messages;
  - b) to support pre-flight planning;
  - c) to provide pre-flight information services;
  - d) to accept, check and forward ATFCM messages;
  - e) to supervise the timely landing of VFR flights for which a flight plan has been filed, except where landings at international airports in Germany are concerned and to supervise the timely landing of IFR flights at uncontrolled aerodromes with airspace F;
  - f) to assist the alerting service;

- 213.4
- g) to accept, transmit and deliver all approved messages which are to be forwarded via the aeronautical fixed telecommunication network (AFTN);
  - h) to cooperate with external authorities and organisations;
  - i) to accept flight reports submitted by the pilots (post-flight information);
  - j) to process aeronautical publications and information.

213.5 The **NOTAM Office** has the following tasks:

- .51 to receive and handle NOTAM requests for Germany as well as to produce and distribute national aeronautical information (NOTAM, SNOWTAM und BIRDTAM);
- .52 to enter national and international aeronautical information (NOTAM, SNOWTAM and BIRDTAM) into the NOTAM database;
- .53 to enter and update the operational environment data for the NOTAM database system (aerodromes, navigation aids, danger areas, etc.);
- .54 to cooperate with domestic and foreign civil and military authorities and organisations.

213.6 The **flight data handling in ATC** has the following tasks:

- .61 to enter flight plan and estimate data into the flight data processing system (FDPS);
- .62 to accept, process, check and forward flight plan and estimate data which are provided by the FDPS;
- .63 to accept and pass on flight plan and estimate data by telephone;
- .64 to accept, evaluate and distribute meteorological data;
- .65 to accept, evaluate and distribute messages which are received through the AFTN;
- .66 to evaluate and distribute NOTAM and other information required to perform traffic control services;
- .67 to enter SSR codes.

**214 AIR TRAFFIC CONTROL CLEARANCES**

- 214.1 All flights within requiring an air traffic control clearance are controlled flights.
- 214.11 Clearances may only be issued if they do not compromise the safety of air traffic or public safety or order.
- 214.2 The following flights require an air traffic control clearance:
1. IFR flights;
  2. VFR flights including flights of airships and manned free balloons in airspace classes C and D;
  3. aerodrome traffic at controlled aerodromes;
  4. special VFR flights;
  5. VFR flights at night including night flights of airships and manned free balloons, leaving the vicinity of the aerodrome;
  6. cloud flights with gliders;
  7. flights into restricted areas if explicitly prescribed when the area was established;
  8. acrobatic flights within controlled airspace and over aerodromes with air traffic control;
  9. parachute descents and dropping of parachute-equipped objects within controlled airspace;
  10. ascents of flight models and uncontrolled self-propelled flying objects in controlled airspace;
  11. ascents of balloon-like luminous objects as well as mass ascents of children's balloons and ascents of bundled children's balloons;
  12. ascents of unmanned free balloons (in particular, weather balloons) with a total mass of balloon cover and ballast of more than 0.5 kg;

214.2 ctd.

13. ascents of unmanned aircraft systems which can be operated at levels of more than 30 m above ground or water,

Note: Spacecraft, rockets and similar aerial vehicles qualify as aircraft for the period of time they are operating in airspace.

214.3 The following shall be observed when issuing air traffic control clearances:

- .31 When sub-items 1 to 7 of MO-ATS item 214.2 are concerned, clearances shall be issued via radiotelephony or via telephone in exceptional cases. In the case of photographic, calibration, test and acceptance flights, a clearance shall be issued prior to commencement of the flight, either in writing or by telephone; additional clearances shall be issued via radiotelephony directly before such a flight enters airspace requiring clearances.
- .32 When sub-item 8 of MO-ATS item 214.2 is concerned, clearances shall be issued via telephone or via radiotelephony. The flight intention will be coordinated with the air traffic control service before filing the flight plan.
- .33 When sub-item 9 of MO-ATS item 214.2 is concerned, clearances shall be issued in writing or via telephone prior to the flight.
- .34 When sub-items 10 to 13 of MO-ATS item 214.2 are concerned, clearances shall be issued in writing or via telephone prior to the ascent.
- .35 Start-up approvals and en-route clearances may be issued via data link.
- .36 If necessary, the responsible ATC unit is entitled to issue clearances subject to specified conditions. A clearance may be issued while reserving the right to revoke such clearance. If a clearance is revoked, a new clearance may be issued if the situation permits / requires it.
- .37 Clearances shall be issued subject to air traffic control requirements, such as separating and expediting known air traffic.
- .38 If a flight is expected to enter an airspace for which another ATC unit is responsible, coordination shall be effected with this ATC unit.
- .39 Aircraft flying in formation shall be considered as one flight. Clearances shall be issued to the formation leader.



214.4 VFR flights including flights of airships and manned free balloons in airspace classes C and D.

Note: Clearances are issued for these flights if permitted by the air traffic situation and capacity.

.41 VFR flights in airspace class C below FL 100

.411 In exceptional cases, clearances may be issued for VFR flights performed with non-power-driven aircraft. Regulations concerning clearances for local flights (e.g. glider flights) at specific aerodromes below the airspace concerned shall be governed by an operational directive.

.412 VFR flights conducted in the public interest (e.g. photo and calibration flights) shall, in advance, be announced to and coordinated with ATC.

.42 VFR flights in airspace class C at / above FL 100

.421 High-level flights with gliders, photo, calibration, test and acceptance flights, flights of manned free balloons, parachute descents and similar flight intentions will, in advance, be announced to and coordinated with ATC.

.422 If flights are performed to fulfil air defence-related tasks (security flights, practice security flights and air defence / training flights), clearances shall be issued on the basis of relevant agreements in order to comply with the type and mission of these flights.

.423 Clearances for VFR flights in specifically defined airspaces (e.g. mountain lee wave areas) shall be governed by an operational directive.

.424 Radiotelephony communication shall be conducted in English.

.43 VFR flights in airspace class D

.431 Clearances for VFR flights to be conducted during the daytime in VMC in airspace class D are not issued for separation purposes. These clearances serve as a means of regulating traffic density in this area.

- 
- 214.44 Special VFR flights
- .441 Clearances for special VFR flights shall only be issued if **all** of the following criteria are met:
- a) traffic conditions permit such flights;
  - b) approach control has given aerodrome control permission to issue such clearances in individual cases or within the scope of agreed procedures;
  - c) ground visibility is 1500 metres or more, or 800 metres or more if rotorcraft are concerned;
  - d) the ceiling is at 500 FT or above.
- Note 1: If the ceiling is below 500 FT, a special VFR clearance may only be issued if the pilot expressly states that he has obtained a special permission to fly below the minimum safe height.
- Note 2: Special VFR clearances shall be issued for flights apparently conducted under Section 34 of the Aviation Regulation (SAR flights) or Section 30 of the Aviation Act (mission flights of the armed forces, the police and the Federal Police) even if they do not comply with the above-mentioned conditions.
- .442 When issuing the clearance, it shall be expressly stated that the performance of a special VFR flight is permitted.
- .443 As a rule, no particular level but a level band shall be assigned to Special VFR flights.
- .444 If two or more aerodromes are located within a control zone, issuance of permissions for special VFR flights shall be agreed locally.
- 214.5 VFR flights at night, including night flights of airships and manned free balloons, leaving the vicinity of the aerodrome:
- .51 An air traffic control clearance for VFR flights at night in uncontrolled airspace shall be deemed issued if, according to the flight plan, it is not necessary to fly through an activated night low flying route segment.
- .52 In all other cases, an individual clearance shall be obtained.

- 214.53 As a rule, clearances shall be issued via published IFR / VFR routes or published reporting points. It shall be ensured that flight progress strips are available at the sectors concerned.
- .54 If it is not possible to use the prescribed VOR receiver on the arrival / departure routes and routings mentioned in the flight plan, it shall be assumed that the pilot is able to adhere to the requested flight path.
- .55 The following information shall be included in the clearance, if applicable:
- a) clearance limit;
  - b) departure route;
  - c) routing;
  - d) VFR / IFR arrival route and VFR approach procedure;
  - e) level band /level;
  - f) other instructions (e.g. transponder code).
- .56 If a properly functioning transponder is not available, a clearance may be restricted or if required by special circumstances (e.g. the traffic situation) even rejected.
- .57 If a VFR flight intending to depart from an aerodrome located inside a control zone cannot be issued the necessary clearance to continue in controlled airspace, the aircraft should be permitted to leave the control zone in order to use uncontrolled airspace.
- .58 As a rule, no particular level but a level band shall be assigned to VFR flights at night in controlled airspace.
- .59 If special situations occur, pilots may be instructed to immediately leave controlled airspace.

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- 214.6 Cloud flights with gliders
- .61 Before issuing a clearance, a special activity area shall be established.
  - .62 Distances from this airspace shall be maintained for controlled flights for which there is an obligation to provide separation.
  - .63 A clearance to enter reserved airspace shall only be issued for one glider.
  - .64 It shall be ensured that the glider pilot maintains continuous listening watch and immediately returns to VMC in the event of radio failure.
- 214.7 Acrobatic flights in controlled airspace and above aerodromes with air traffic control services
- .71 Before issuing a clearance, a special activity area or an individually defined airspace shall be established for a defined period of time. This airspace or reference point may also be defined on short notice between pilot and air traffic control and shall be displayed on the radar screen.
  - .72 Distances from this airspace shall be maintained for controlled flights for which there is an obligation to provide separation.
- 214.8 Parachute descents and dropping of parachute-equipped objects in controlled airspace.
- .81 As a rule, a dropping zone is established. It defines an area with a radius of up to 2 NM around a reference point and extends from the ground to a specified upper limit.
  - .811 If no dropping zone has been established, the above-mentioned conditions shall apply analogously to an airspace with a radius of up to 2 NM around the dropping point.
  - .82 For the period between issuing the dropping clearance and, unless otherwise agreed, three minutes after completing parachute dropping activities, distances shall be observed for controlled flights for which there is an obligation to provide separation. If possible, individual navigation warnings may be issued to other flights.
  - .83 Dropping clearances into / through airspace class E above the published maximum level shall not be issued.

- 214.84 Dropping clearances for intended drops into active restricted areas or danger areas shall only be issued if a corresponding permission has been submitted to the controller.
- .85 The pilot may be instructed to obtain the dropping clearance in due time.
- .86 The pilot may be instructed to report the completion of the dropping activities.
- 214.9 Clearances for DCTs in the free route airspace
- .91 Clearances in connection with the application of the free route airspace procedures shall be issued for published DCTs.

## 215 POSITION REPORTS

- 215.1 Pilots may be instructed to report over specified points.
- 215.2 If a position report is not received within the expected period of time, immediate action shall be taken in order to obtain the report if it is likely to affect the control of other aircraft.
- 215.3 Whenever possible, position reports shall be dispensed with.

## 216 COORDINATION

- 216.1 Any information concerning the provision of air traffic services, such as air traffic control clearances, flight progress data, flight plan data and modifications / revisions, shall be coordinated.
- .11 For this coordination, the most appropriate means shall be selected from those available, e.g. FDPS, electronic data display units, telephone, intercom system or direct verbal arrangements ("elbow coordination").
- 216.2 As a rule, the transferring sector / ATC unit shall be responsible for coordination.
- 216.3 Coordination shall, in particular, be applied in the following cases:
- .31 prior to the transfer of control of an aircraft;
- .32 if there is a risk of infringing separation from other airspace users that are controlled by other units or working positions;
- .33 if a pilot requires priority handling;

216.34 if delays of 20 minutes or more are to be expected for departing aircraft; in this case, the time at which the start-up approval or en-route clearance is expected shall be mentioned;

Note: Single- and two-seated military jet aircraft shall already be informed about delays of 10 minutes or more, if not otherwise laid down locally.

.35 departure times of IFR and special VFR flights, unless locally agreed otherwise;

.36 if information on overdue or unreported aircraft has been received, unless locally agreed otherwise;

.37 when controlled aircraft are 10 NM from touchdown, unless locally agreed otherwise;

.38 with respect to coordination, VFR flights at night in controlled airspace shall be treated like IFR flights, especially if they require an individual clearance.

216.4 The following arrival or departure messages which are transmitted to an ATC unit shall be forwarded to the AIS-C:

- for VFR flights for which a flight plan has been filed;
- for IFR flights to uncontrolled aerodromes in airspace F.

216.5 The supervisor shall be informed about any failures or malfunctioning of technical equipment or facilities.

## 217 TRANSFER OF CONTROL / COMMENCEMENT OF CONTROL

217.1 Transfer of control of an aircraft shall be effected when the aircraft passes the common boundary of the areas of responsibility of two air traffic control units or at points, times or levels agreed between the two control units concerned. These transfer of control points shall be coordinated individually, depending on the current traffic volume, or defined by Letters of Agreement or Operational Orders.

.11 The accepting controller shall define the conditions of the transfer.

217.2 Responsibility for control and the obligation to establish separation from other aircraft within one's own area of responsibility may be transferred to another ATC unit by means of a RELEASE. Such transfer may, if necessary, be subject to certain conditions.

- 217.21 Unless agreed otherwise:
- .211 the controller who issues the RELEASE shall define the responsibilities for further coordination;
  - .212 switching to the control frequency / channel of the controller who issues the RELEASE is not expected.
  - .22 If a RELEASE is issued without restrictions the level, the heading, the rate of climb/descent and the speed may be changed without further coordination.
- 217.3 Control of an aircraft commences when the aircraft enters controlled airspace and ends when it leaves controlled airspace.
- 217.4 Unless specified otherwise, control of departing aircraft shall be transferred immediately after the aircraft is airborne.

**218 - 219 NOT ALLOCATED**

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**220 CONTROL FUNCTIONS****221 AERODROME CONTROLLER**

221.1 Aerodrome controllers shall provide air traffic services for the following traffic:

- .11 VFR flights entering, leaving or flying within the control zone, or otherwise operating in the vicinity of controlled aerodromes, unless they have been transferred to approach control;
- .12 aircraft landing and taking off;
- .13 aircraft on the landing area in use.

221.2 Aerodrome controllers shall, in particular, perform the following tasks:

- .21 to maintain a continuous watch on all visible flight operations at and in the vicinity of the aerodrome as well as aircraft, vehicles and persons on the manoeuvring area;
- .22 to issue clearances and instructions to aircraft as required for the safe and expeditious handling of aerodrome traffic by using radiotelephony communication or visual signals; such clearances and instructions include the following:
  - clearances to enter the control zone;
  - clearances to leave / cross the control zone;
  - clearances to join the aerodrome traffic circuit;
  - instructions to establish a take-off and landing sequence;
  - instructions to taxi to the take-off position;
  - take-off and landing clearances.
- .23 to transmit information required for the safe, orderly and expeditious conduct of flights, such as:
  - essential local traffic information;
  - essential aerodrome information;
  - meteorological information.
- .24 to provide flight information service and alerting service in their own area of responsibility.

221.3 Unless locally agreed otherwise, the following additional tasks shall be performed:

- .31 to determine the runway-in-use;
- .32 to alert rescue units;
- .33 to operate the aerodrome lighting system, unless this is done by the ground controller;
- .34 to maintain close contact with the responsible representative of the airport operator with respect to the daily inspections of the movement area, the aerodrome lighting system and the marking of obstructions.

## **222 GROUND CONTROLLER**

222.1 Ground controllers shall provide air traffic services to aircraft on manoeuvring areas. Surface movements on the landing area(s) or within the safety strips shall be coordinated with the aerodrome controller.

| 222.2 Ground controllers shall, in particular, perform the following tasks:

- .21 to issue clearances, instructions and permissions to aircraft as required for the safe and expeditious control of traffic, vehicles and persons by using radiotelephony communication or visual signals;
- .22 to issue start-up approvals and en-route clearances for departures;
- .23 to transmit information required for the safe, orderly and expeditious conduct of flights, such as:
  - essential local traffic information;
  - essential aerodrome information;
  - meteorological information.

- 222.24 to operate the aerodrome lighting system, unless this is done by the aerodrome controller; further details shall be regulated locally;
- .25 to display necessary ground signals upon the instruction of or after coordinating with the aerodrome controller.

## 223 RADAR CONTROLLER / EXECUTIVE CONTROLLER

- 223.1 Radar controllers / executive controllers shall, in particular, perform the following tasks:
- .11 ensure correct radar display by adjusting equipment accordingly or instructing maintenance personnel to initiate appropriate measures;
  - .12 provide radar service to controlled aircraft; radar controllers / executive controllers shall in particular:
    - .121 identify aircraft and maintain identification;
    - .122 radar vector aircraft to provide separation or navigational assistance;
    - .123 issue clearances and instructions to ensure that radar separation minima are not infringed at any time;
    - .124 document clearances, instructions and coordination results and update them, as appropriate (on flight progress strips, systems or other);
    - .125 monitor the progress of flights;
    - .126 issue information to aircraft about unknown targets and adverse weather areas which are observed on the radar screen, if deemed necessary and permitted by the current workload situation; aircraft shall be vectored around such areas upon request.
  - .13 comply with all applicable control procedures, taking noise abatement procedures into account;
  - .14 provide flight information service and alerting service in their own area of responsibility;

223.15 apply non-radar separation in the event of a radar failure.

223.2 When providing air traffic control, radar controllers / executive controllers shall have authority over the coordinator controllers / planning controllers assigned to them.

## **224 RADAR APPROACH CONTROLLER**

224.1 The functions of the radar approach controller comprise the provision of radar service to arriving, departing and crossing controlled flights.

224.2 The radar approach controller may perform the following functions :

- pick-up;
- feeder;
- radar departure.

224.3 Pick-up controllers shall, in particular, perform the following tasks:

- .31 to assign specific headings, speeds and levels in accordance with the planned approach sequence;
- .32 to inform pilots about intended approach procedures and determine the approach sequence;
- .33 to issue approach clearances and, if necessary, holding instructions;
- .34 to transfer radar control of aircraft to the feeder.

224.4 Feeder controllers shall, in particular, perform the following tasks:

- .41 to take over radar service for arriving aircraft from the pick-up controller;
- .42 to determine the final approach sequence, providing appropriate radar vectoring and informing pilots accordingly;
- .43 to issue clearances for instrument or visual approaches, depending on the current traffic and meteorological situation;
- .44 to provide position information to aerodrome control, if agreed locally;
- .45 to provide surveillance radar approaches, if requested or required.

- 224.5 Radar departure controllers shall, in particular, perform the following tasks:
- .51 to provide radar service to controlled flights departing within the area of responsibility of the radar departure controller;
  - .52 to transfer control of aircraft to the appropriate radar controller as soon as they are clear of all other traffic within his area of responsibility.

## 225 COORDINATOR CONTROLLER / PLANNING CONTROLLER

- 225.1 The coordinator controller / planning controller shall perform all planning and coordination tasks between different control units / sectors for the entire air traffic of the area of responsibility assigned to him.
- 225.2 Coordinator controllers / planning controllers shall, in particular, perform the following tasks :
- .21 to obtain and forward information required for the orderly provision of air traffic control;
  - .22 to issue air traffic control clearances to adjacent control units;
  - .23 to perform radar hand-offs to / from adjacent sectors or control units;
  - .24 to prepare and maintain a traffic picture of the current traffic situation and, if appropriate, inform the responsible radar controller / executive controller / radar approach controller about possible infringements of separation minima;
  - .25 to analyse and plan the expected traffic flow and propose solutions for conflict-free traffic handling;
  - .26 to assist the responsible radar controller / executive controller / radar approach controller in establishing and maintaining separation during system / radar failures;
  - .27 to assist the responsible radar controller / executive controller / radar approach controller in the case of emergencies (for example, by using the Emergency Checklist);
  - .28 document clearances, instructions and coordination results and update them, as appropriate (on flight progress strips, systems or other).

## 226 - 229 NOT ALLOCATED

**INTENTIONALLY LEFT BLANK**

**230 OTHER FUNCTIONS IN ATC****231 FLIGHT INFORMATION SPECIALIST**

231.1 The function of the flight information specialist comprises the provision of flight information and alerting service to all known aircraft.

231.2 The flight information specialist shall, in particular, perform the following tasks:

- .21 to issue information useful for the safe, orderly and expeditious conduct of flights;
- .22 to be familiar with all relevant data and information about their own area of responsibility in order to be able to provide efficient flight information service;
- .23 to record position reports of VFR flights;
- .24 to take appropriate action if there are doubts as to the safe conduct of a flight and to inform the supervisor accordingly as soon as possible;
- .25 to provide navigational assistance to VFR flights;
- .26 to accept and forward flight plan and flight-plan-associated messages;
- .27 to perform other tasks in accordance with local procedures.

**232 INFORMATION CONTROLLER**

232.1 Information controllers in area control centres shall assist TACCS units in the performance of training exercises.

232.2 The information controller shall, in particular, perform the following tasks:

- .21 to obtain an overview of the current traffic situation;

- 232.22 to suggest training airspaces in close cooperation with the TACCS units and the ATC working positions concerned;
- .23 to inform the ATC working positions concerned about the selected training airspace and the beginning of training flights;
- .24 to transmit to the TACCS units flight progress data of known relevant flights performed within the selected training airspaces;
- .25 to monitor the traffic situation in the training airspace by using radar and to assist the “aircraft control coordinator” (ACCO) in the performance of his tasks by providing suitable information, such as :
- .251 SSR code changes;
- .252 changes in the flight path / level;
- .253 estimated times over relevant navigation points;
- .254 imminent infringements of agreed minimum distances, as far as possible.
- .26 to inform the working positions concerned about the completion of training exercises and any coordination that might have to be initiated for the recovery phase.

**233 LIAISON CONTROLLER**

233.1 Liaison controllers shall assist in the cooperation with the TACCS. They perform their tasks in the TACCS unit.

| 233.2 The liaison controller shall, in particular, perform the following tasks:

- .21 to assist the aircraft control coordinator (ACCO) during training exercises, if requested by the master controller (MC);
- .22 to act as a mediator between DFS and TACCS in order to solve common problems and propose procedures governing the provision of ATC service to air defence flights;
- .23 to take part in local briefings if deemed necessary by the TACCS commander;
- .24 to inform TACCS personnel about all topics relevant to the cooperation between air traffic controllers and TACCS personnel;



- 233.25 to advise TACCS personnel on the capabilities and limitations of DFS facilities;
- .26 to suggest training programmes in order to improve the training of DFS / TACCS personnel as far as the cooperation between ATC and TACCS units is concerned;
- .27 to assist TACCS units in solving problems which may arise in the cooperation between TACCS units and ATC.
- 233.3 The liaison controller shall prepare daily reports in accordance with DFS forms.

**234 TRAMON**

- 234.1 The TRA-Monitor function is performed by ATC units.
- 234.2 TRAMON shall, in particular, perform the following tasks:
- a) to inform pilots of aircraft performing training exercises in the TRA as early as possible that they are approaching the TRA boundary in order to enable them to maintain the relevant distance from the TRA boundary. The responsibility for maintaining the applicable distances within the TRA shall remain with the pilots concerned;
  - b) to inform pilots entering a defined part of the TRA about the status of neighbouring parts of the TRA.  
to inform pilots of aircraft performing training exercises in a defined part of the TRA as early as possible that they are approaching the boundary of the part of the TRA. This is to ensure that the boundary of that part of the TRA is not crossed.  
to inform pilots that another aircraft performing training exercises in an adjacent part of the TRA is approaching the joint boundary of the TRA parts.  
the responsibility for flying within the assigned airspace boundaries shall remain with the pilots concerned;
  - c) to maintain a safe distance at all times from civil transit flights and transit flights performed by military transport aircraft as well as from transit flights performed with single- or two-seated military jet aircraft at night. The distance shall be at least the prescribed radar separation minimum or the vertical distance applicable in the area concerned;
  - d) to provide traffic information to pilots of aircraft performing training exercises about military IFR transit flights which must be taken into account; traffic information shall be provided by indicating the bearing by geographical direction and range from the aircraft concerned;

- 234.2 e) to define and allocate demand-oriented blocks of airspace inside the TRA, if requested by the users;
- f) to ensure that the maximum number of aircraft flying inside the TRA is not exceeded;
- g) to inform the working positions concerned about the actual beginning and termination of use;
- h) to provide information about IFR transit flights which must be taken into account and transit flights performed by military transport aircraft (except for flights performed on approved ATS routes) to the TACCS units concerned;
- i) to clear the available airspace and assign this airspace to opportunity flights and to impose restrictions, depending on the current traffic situation;
- j) to reject opportunity flights if the maximum permissible number of aircraft (inside the TRA or a part of the TRA) has already been reached by other military aircraft performing training exercises;
- k) to temporarily close the TRA or limit the number of aircraft flying inside the TRA, if necessary for safety reasons (priority handling of civil flights and military transport aircraft).
- 234.3 TRAMON subtasks may be performed by TACCS.
- .31 If a TACCS unit performs flights inside a TRA by applying tactical radar vectoring, these units shall perform TRAMON tasks with the exception of the tasks mentioned under MO-ATS item 234.2 h) and i).
- .32 At night, TRAMON tasks, with the exception of MO-ATS items 234.2 h) and i), shall exclusively be performed by a TACCS unit.
- 234.4 ATC will not provide separation between:
- military training flights in a TRA;
  - military training flights and single- or two-seated military jet aircraft crossing the TRA under IFR.
- If possible, traffic information shall be provided, consisting of bearing by geographical direction and range.

- 234.41 While the TRA is used, military IFR flights performed with single- or two-seated military jet aircraft may be permitted to cross the TRA. The military training flights / the planned exercises shall be affected as little as possible.
- .42 Civil IFR flights and flights of military transport aircraft may cross the TRA after previous coordination as long as it is ensured that the military training flights and the planned exercises are not affected.
- .43 Crossing the TRA or that part of the TRA which is used, shall be prohibited for civil IFR flights and flights of military transport aircraft during ACT / DACT.
- .44 If agreement has been reached with the user (formation leader) that only parts of the TRA are required for the planned exercises, civil aircraft and military transport aircraft may cross the unused part of the TRA.
- .45 In the case of IFR flights crossing the training area, night-vision goggles procedures with reduced lighting shall be terminated and the pilot shall be requested to switch on the anti-collision lights and the position lights.

## **235 SUPERVISOR ATC**

- 235.1 The responsibilities of the supervisor comprise the supervision of the orderly provision of services, particularly in view of the safe, orderly, expeditious and economic performance of air traffic services within the area of responsibility assigned to him. The following tasks only refer to the provision of air traffic control services. Any tasks of the supervisor in other areas shall be regulated separately.
- 235.2 The supervisor shall, in particular, perform the following tasks:
- .21 to lead the staff members working in ATC;
  - .22 to check the compliance with the relevant regulations and defined procedures;
  - .23 to coordinate measures in the case of fire, technical failures or other disturbances;
  - .24 to coordinate measures in the case of aircraft emergencies, special occurrences and special situations;

- 235.25 to provide the required airspace and service capacities in line with the requirements of the airspace users and initiate air traffic flow management measures, if required;
- .26 to ensure adequate staffing in keeping with the current traffic situation;
- .27 to supervise and review the documentation of the staff members, which is necessary or prescribed in operations.

**236 - 239 NOT ALLOCATED**

**240 FLIGHT DATA HANDLING****241 FUNCTIONS OF FLIGHT DATA SPECIALISTS IN ATC**

241.1 The functions of flight data specialists (FDS) in air traffic control (ATC) shall include all tasks associated with the acceptance, checking, processing or forwarding of data and information required for the safe, orderly and expeditious provision air traffic control.

**242 FUNCTIONS IN APPROACH AND AREA CONTROL**

242.1 The Flight data specialists in ATC shall, in particular, perform the following data input tasks which are assigned to their working positions:

- a) to activate flight plans upon instruction by ATC;
- b) to accept flight data, coordinate them with other ATC and the Tactical Air Command and Control Service (TACCS) and make any necessary hand-written notes on the flight progress strips; such hand-written notes shall be made according to the provisions of this Manual of Operations or local operational orders, as applicable. The established abbreviations and acronyms shall be used;
- c) to enter estimate data and operational data into the FDPS;
- d) to check flight plans and flight-plan-associated messages rejected by the FDPS for formatting and logic errors as well as for system-conform routings and correct them, as necessary, so that they can be processed automatically by the FDPS;
- e) to process any flight safety messages which have an impact on the provision of air traffic services, unless locally agreed otherwise;
- f) to evaluate, in the case of an FDPS failure, messages coming in over the AFTN or any other electronic media, to prepare the required flight progress strips and distribute them to the appropriate working positions, unless locally agreed otherwise;
- g) to process flight plan and flight-plan-associated messages and SPL messages and enter additional information in the comment field, as necessary;

- 242.1
- h) to initiate landing, departure and diversion messages;
  - i) to enter the relevant data for air-filed flight plans (AFIL) communicated by means of radiotelephony;
  - j) to forward air-filed flight plans to the AIS-C;
  - k) to monitor the serviceability of the technical equipment and facilities at their disposal;
  - l) to inform the flight data supervisor in the case of malfunctioning of equipment or other technical facilities or initiate the removal of the fault in accordance with local regulations;
- Note: At ATC units where there is no flight data supervisor, the ATC supervisor shall be informed.
- m) to ensure the availability of the required resources at the respective working positions;
  - n) to perform other tasks entrusted to them within the scope of the services and operations performed.

**243 FUNCTIONS OF THE DATA ASSISTANT POSITION IN APPROACH AND AREA CONTROL**

243.1 Apart from the tasks defined in MO-ATS item 241.1, the flight data specialist employed in data preparation shall, in particular, perform the following tasks:

- a) accept and check meteorological messages and make them constantly available;
- b) operate the information and display systems;
- c) enter corrected weather data into the appropriate system;
- d) evaluate NOTAM and other information required for the provision of air traffic control, to enter them into the appropriate display systems and distribute them to the appropriate working positions;
- e) enter operational data into the FDPS, unless locally agreed otherwise;
- f) prepare and transmit SVC messages;
- g) present training areas, special routings and periods of activity on appropriate information media;
- h) support the FIS specialist in the performance of his/her tasks by coordinating with the AIS-C;
- i) evaluate VFR flight plans and, if necessary, forward them to the relevant working position;
- j) evaluate messages concerning special military flight operations, planned night flights and other important information, to inform the ATC supervisor accordingly and to distribute the messages to the working positions concerned;
- k) operate the airspace reservation system;
- l) make entries in the STCA system.

**244 FUNCTIONS OF THE FLOW MANAGEMENT POSITION**

244.1 The tasks of the flow coordinator at the flow management position (FMP) in approach and area control shall include the following:

- a) to monitor and analyse the traffic development at the CFMU terminal;
- b) to analyse the traffic flows;
- c) to inform the ATC supervisor / chief of section / senior supervisor about the traffic development as well as the capacity situation in both the pre-tactical and the tactical phase;
- d) to monitor and optimise active ATFCM measures;
- e) to inform, in consultation with the ATC supervisor, the NOD (Network Operations Division) about operational, technical and meteorological ATFCM-relevant occurrences;
- f) to forward any changes of dynamic data to the NOD;
- g) to support the ATC supervisor in the case of capacity bottlenecks by preparing possible solutions;
- h) to compile all the data required for initiating ATFCM measures and to forward them to the NOD in an appropriate form;
- i) to evaluate ANM, AIM and other information required for executing ATFCM measures and to enter them into the relevant systems;
- j) to conduct the short-term coordination required within the scope of ATFCM;
- k) to monitor the serviceability of the technical equipment and facilities at their disposal;
- l) to support the control towers within the FMA in complying with the CTOTs;
- m) to keep statistics and forms;
- n) to make entries in the STANLY\_OPS system (regulation reporter);
- o) to perform other tasks entrusted to them within the scope of the services and operations performed.



**245 OTHER FUNCTIONS IN APPROACH AND AREA CONTROL**

- 245.1 The main functions of the output assistant/runner in approach and area control shall include the following:
- a) to enter flight progress strips into the appropriate strip holders;
  - b) to immediately distribute the flight progress strips to the relevant working positions;
  - c) to archive flight progress strips;
  - d) to ensure the availability of the required resources at the working positions.
- 245.2 Any specific aspects shall be regulated locally.

**246 FUNCTIONS OF THE FLIGHT DATA SUPERVISOR**

- 246.1 The responsibilities of flight data supervisors comprise the supervision of the orderly provision of services, particularly in view of the safe, orderly, expeditious and economic performance of flight data handling in air traffic control.
- 246.2 Flight data supervisors shall, in particular, perform the following tasks:
- a) lead staff members working in ATC;
  - b) check the compliance with the relevant regulations and defined procedures;
  - c) coordinate measures in the case of technical failures or disruptions;
  - d) ensure adequate staffing in keeping with the current traffic situation;
  - e) supervise and review the documentation of the staff members, which is necessary or prescribed in operations.

**247 FUNCTIONS IN THE AERODROME CONTROL SERVICES**

247.1 The flight data specialist (FDS) in aerodrome control shall, in particular, perform the following tasks:

- a) check the completeness and correctness of flight data issued by the FDPS, to initiate corrections, or make corrections himself;
- b) enter estimate data, operational data and flight data into the appropriate systems;
- c) coordinate as agreed or instructed with other ANS units, such as approach control, and external partners;
- d) compose the ATIS information, check its correctness and completeness, supplement it as instructed and disseminate it over the appropriate media;
- e) request upon instruction clearances for arriving and departing aircraft and enter them into the FDPS;
- f) coordinate with the FMP or use the CFMU terminal in accordance with local provisions for the exchange of messages within the scope of short-term coordination;
- g) evaluate, in the case of an FDPS failure, FPL messages coming in over other electronic media, to prepare the flight progress strips and distribute them to the appropriate working positions;
- h) initiate landing, departure and diversion messages, evaluate incoming flight safety messages, messages concerning special military flight operations and planned night flights as well as other important messages, process and distribute them to the appropriate working positions and inform the supervisor;
- i) evaluate VFR flight plans and enter them into the FDPS;
- j) monitor the serviceability of the technical equipment and facilities and ensure the availability of the required resources at the working positions;
- k) collect and compile every day the documents required for the statistics in accordance with local regulations;
- l) inform the supervisor in the case of malfunctioning of equipment or other technical facilities or initiate the removal of the fault in accordance with local regulations;
- m) perform other tasks entrusted to him within the scope of the services and operations performed.

247.2 The function of the aerodrome coordinator includes the function of the flight data specialist in aerodrome control service as well as the following additional tasks:

- a) Coordination of start-up approvals and en-route clearances with the competent controller;
- b) Issuance of start-up approvals and en-route clearances for departures via radiotelephony or datalink;
- c) Evaluation of records of clearances and coordination results;
- d) Transmission of transmit instructions and information necessary for the safe, orderly and expeditious conduct of flights, for example, information concerning the aerodrome, weather information and other local information.

**248-249 NOT ALLOCATED**

**INTENTIONALLY LEFT BLANK**

**250 SPECIAL PROCEDURES****251 PRIORITY OF SERVICE**

251.1 Air traffic control service should be provided to aircraft on a "first come, first served" basis. Exceptions from this rule may, however, be made in order to handle as many aircraft as possible with the least possible average delay. Departures which have been allocated a CTOT, shall, if possible, have priority over other departures if CTOT adherence (slot tolerance -5/+10 minutes) can thus be ensured. The following flights shall, however, be granted priority or preferential clearance in the order listed:

- .11 Flights for which the pilot declares an emergency or which are apparently in an emergency situation, including flights affected or threatened by unlawful interference;
- .12 Security flights of air defence;
- .13 Flights on search and rescue missions;
- .14 Flights carrying sick or injured persons requiring immediate medical assistance, including flights urgently required for life-saving medical care of sick or injured persons;

Note: This includes flights carrying transplants, stored blood and medicine as well as flights conducted to pick up patients, transplants, stored blood, or medicine at the destination.

- .15 Government flights, including flights with Head of State status in accordance with the regulations laid down by the Federal Ministry of Transport, Building and Urban Development Affairs (BMVBS) and Open Skies-flights;

Note 1: Flights with the Federal President and flights with the Federal Chancellor as well as practice security flights performed by air defence are handled in accordance with MO-ATS item 251.15.

Note 2: Under normal circumstances, the ATC units are informed about government flights in advance. Since this is not always possible, pilots of aircraft of government flights will transmit, when establishing radiotelephony contact, the word "government flight" immediately following the radio call sign in order to indicate the priority status of the flight.

- 251.16 Flights performed with single or two-seated military jet aircraft shall have priority over other military flights.
- 251.2 The Federal Ministry of Transport, Building and Urban Development will determine if and which other flights shall be given priority handling in accordance with MO-ATS item 251.15. For those flights pilots of aircraft will transmit, when establishing radiotelephony contact, the word "preference flight" immediately following the radio call sign in order to indicate the priority status of the flight.
- 251.3 The following authorities are entitled to grant, under certain conditions, the status of government flights to aircraft without the Federal Ministry of Transport, Building and Urban Development issuing an individual permission:
- .31 Aircrews operating aircraft of the Bundeswehr and Helicopter crews of the Federal Police who report accordingly in radiotelephony communication. Information about such flights shall be entered in the daily log.
- .32 The entry "STS/"HEAD" in field 18 of the flight plan denotes flights with Heads of State and leads to automatic exemption from ATFCM restrictions.

## **252 MEASURES TO BE TAKEN DURING STATE VISITS**

- 252.1 During State visits, special protective measures shall be applied as required. It will be promulgated for each individual case which of the following measures or regulations are to be applied.
- .11 For flights carrying State guests, the vertical separation between the aircraft carrying the State guest and all other controlled aircraft shall be not less than 2000 FT and radar separation shall be not less than 5 NM.
- .12 The aircraft carrying the State guest shall be given priority handling, as appropriate.
- .13 The responsible ATC units shall ensure that welcome and farewell ceremonies at aerodromes are not disturbed by noise emitted by departing, landing or taxiing aircraft.

- 252.2 If restricted areas are established temporarily in accordance with Article 11, para. 1, of the Aviation Regulation (LuftVO), the lateral and vertical extensions of such areas will be published separately.
- .21 If flight restrictions only stipulate that VFR flights are prohibited, the ATC units concerned shall ensure that controlled flights only enter this restricted area if public safety and order are not impaired.
- .22 Regulations governing the crossing of restricted areas, including arrivals to and departures from aerodromes situated in these areas, are contained in Article 11, para. 2, sentence 2, of the Aviation Regulation (LuftVO). When issuing the corresponding permissions, requirements for ensuring public safety and order (security measures for the State guest, avoiding noise during events and conferences in which the State guest takes part) shall be taken into account. In individual cases, the Federal Ministry of Transport, Building and Urban Development will issue instructions as to when air traffic control clearances may be issued or shall be refused.
- .23 Flights performed by the Bundeswehr, the Federal Police, the police, or troops stationed in Germany on the basis of international treaties are exempted from such flight restrictions.
- 252.3 In the case of unexpected occurrences during flights of State guests, such as flight-delaying re-routing, diversionary landing, hijacking or threats, the ATC unit of the original aerodrome of destination shall be informed immediately.
- .31 The ATC unit of the aerodrome of destination shall immediately inform the representative of the protocol service.
- .32 In the event of a diversionary landing, the ATC unit of the alternate aerodrome shall immediately inform the aerodrome operator about the forthcoming arrival of the State guest.
- .33 Normal coordination procedures as well as notification procedures for aircraft accidents, threats or hijacking shall remain unaffected.
- 252.4 For flights of State guests, the Federal Network Agency will, in special cases, use measuring equipment at and in the vicinity of the aerodromes concerned in order to ascertain the source of interference of radiotelephony frequencies and to eliminate such interference. The ATC units concerned shall assist the Federal Network Agency in the performance of this task.

- 252.5 If the flight of the State guest is to be accompanied by an escort, the following procedures shall apply:
- .51 before the escort flight commences, separation shall be maintained between the escort and the aircraft carrying the State guest;
  - .52 if possible, the escort shall be assigned a published or specially defined holding procedure on or in close proximity of the flight route of the State guest from where the escorting may be initiated or commenced. The holding level should be below the level of the State guest's aircraft;
  - .53 the escort shall be vectored to the State guest's aircraft in such a way that their headings are identical or almost identical. The applicable separation minima shall be observed;
  - .54 the escort leader shall be supported in commencing the escort activities by providing him with flight progress data about the State guest's flight;
  - .55 separation between the escort and the State guest's aircraft can be discontinued when the escort leader reports that he has the State guest's aircraft in sight and confirms that he is flying in VMC. After the clearance for the commencement of the escorting has been issued, the escort leader shall be responsible for maintaining adequate distances;
  - .551 When separation is discontinued, the escort leader shall be instructed to switch to transponder Mode 3A only to prevent a TCAS resolution advisory alert.
  - .552 The aircraft carrying the State guest shall be informed about the beginning of escorting.
  - .56 When the escorting of the State guest's aircraft is discontinued and separation is re-established, the escort leader shall be instructed to switch the transponder to Mode C and / or Mode S again.
- 252.6 If the State guest's aircraft and the escort are controlled by different air traffic controllers, the commencement of the escorting shall be ensured by close coordination between the controllers concerned.



**253 CALIBRATION FLIGHTS**

- 253.1 In the case of calibration flights, traffic should be arranged in such a way that the calibration flight may be conducted without delays.
- .11 When coordinating calibration flights with the technical air navigation service (FST) prior to their performance, it shall be ensured, if possible, that such flights are carried out at those times of the day which entail the least possible delays for the remaining air traffic.
- 253.2 The technical air navigation service (FST) shall issue, in due time (usually 2 hours before the flight is performed), a NOTAM stating the period of time planned for the calibration flight (maximum period).
- .21 If the navigation facility is not usable during the calibration, the following additional information may have to be broadcasted via ATIS:
- e.g.: ILS (runway) UNSERVICEABLE; DISREGARD ALL SIGNALS
- 253.3 The supervisor may refuse or suspend calibration flights for compelling reasons (e.g. safety reasons, significant impediment to other air traffic, emergency situations). The reasons shall be entered in the daily log.
- 253.4 A clearance for the presence of calibration personnel and equipment at the calibration sites shall be deemed issued. Local procedures shall apply to the use of runways and taxiways.
- Note: The technical air navigation service (FST) shall ensure that the vehicles of the flight calibration personnel keep sufficient distance from runways and taxiways.
- 253.5 In the event of unusual occurrences (e.g. expected emergency landings), the flight calibration personnel shall be warned in accordance with the relevant local procedures. It shall not be necessary to provide information about usual aerodrome traffic.

**254 PREFERENTIAL HANDLING OF PARTICULARLY ENDANGERED FLIGHTS**

- 254.1 In order to reduce hazards for flights which are considered to be particularly endangered, such aircraft shall, as far as possible, be given preferential handling in the aerodrome area. Preferential handling shall be given:
- .11 to a departure during the period between leaving the parking position (off-block) and take-off;  
and
- .12 to an arrival during the period between landing and transfer to APRON or reaching the apron.

254.2 Depending on the intelligence gained by the Federal Ministry of the Interior (BMI), flights that are particularly endangered will normally be notified by teletype to the addressees contained in the distribution list of the "Framework Plan" (Rahmenplan). In exceptional or particularly urgent cases, information about such flights may also be conveyed in a different manner.

## **255 DELEGATION OF AIRSPACE / SERVICES**

255.1 Airspaces shall not be delegated to non-DFS units.

255.2 Delegating air traffic services to non-DFS units shall be subject to approval by DFS/UZ department CC/FD or TWR/M.

## **256 EXEMPTIONS FROM THE REGULATION ON AIR TRAFFIC CONTROL EQUIPMENT OF AIRCRAFT**

256.1 The Regulation on Air Traffic Control Equipment of Aircraft (FSAV) applies to all aircraft operating within the territory of Germany. In accordance with Article 30 of the Aviation Act (LuftVG), aircraft of the armed forces, the Federal Police and the police may be exempted from this regulation.

256.2 Exemptions from the Regulation on Air Navigation Equipment of Aircraft (FSAV) will be granted by:

- the Federal Supervisory Authority for Air Navigation Services (BAF);  
or
- DFS/UZ department CC/OCS (only if Mode S exemptions are concerned).

In individual cases, the air traffic control units concerned may issue an exemption, provided that public safety or order, especially the safety of air traffic, is not impaired.

Note: Exemptions for military aircraft must be applied for via the Bundeswehr Air Traffic Services Office (AFSBw).

256.3 When issuing exemptions, it shall be ensured that public safety and order, particularly the safety of other air traffic, are maintained and that no delays occur for other users.

256.4 Depending on the current traffic situation, air traffic control clearances may be issued subject to special conditions (e. g. routing, level, time of operation).

256.5 If the intended flight route concerns several areas of responsibility, prior coordination shall be necessary.

256.6 Applicants shall be informed about the obligation to indicate any non-compliance concerning air traffic control equipment in the flight plan.

## 257 TEMPORARY OBSTRUCTIONS IN THE PROTECTION ZONES

257.1 When temporary obstructions occur in the protection zones of instrument runways, flight operations shall be suspended until the airport operator has decided whether flight operations can be resumed under the current conditions or whether they must be restricted or remain suspended.

Note: Temporary obstructions as defined in the provisions issued by the Federal Ministry of Transport, Building and Urban Development are disabled aircraft and the equipment used within the defined zones to remove such aircraft.

257.2 If flight operations are continued under certain restrictions, the head of the tower shall initiate further measures upon coordination with the airport operator and according to the following criteria:

.21 If there is an obstruction inside zone 1:

- a) no approach clearances shall be issued for this runway until the obstruction has been completely removed;
- b) take-off clearances for departures not going towards the obstruction may be issued.

.22 If there is an obstruction inside zone 2 but the airspace above zone 3 remains clear of obstructions, clearances for instrument approaches may be issued. In this context, the obstacle clearance altitude shall be determined as followed:

a) for ILS approaches:

OCA = obstacle clearance altitude in FT plus 200 FT;

b) for localizer approaches, for RNAV (GPS), VOR, NDB and surveillance radar approaches:

OCA = obstacle clearance altitude in FT plus 300 FT.

.221 If the calculated OCAs are lower than the published OCAs, the published OCAs shall apply.

.222 Clearances for ILS approaches may only be issued if the corresponding ILS critical / sensitive areas have been vacated.

- 257.223 Clearances for departures may be issued without restrictions.
- .23 If temporary obstructions project through the approach surfaces (zone 3), no approach clearances shall be issued. Clearances for departures not going towards the obstruction may be issued.
- .24 If temporary obstructions project through the take-off climb surface (zone 3), no clearances for approaches and departures shall be issued.
- 257.3 The required obstacle clearance may also be achieved by shortening the runway. In this case, not only zones 1 and 2 of the strip shall be reduced in accordance with the displaced runway threshold, but the affected part of zone 3 shall also be moved towards the runway. The requirements for obstacle clearance of the ILS critical / sensitive areas shall remain unaffected. The airport operator shall be responsible for performing surveying tasks and ensuring marking and lighting of the displaced threshold.
- 257.4 If restricted flight operations are maintained, the following information shall be provided to the pilots concerned:
- a) type and position of the obstruction;
  - b) details about the reduced runway length, if applicable;
  - c) change in obstacle clearance altitude.
- 257.5 If temporary obstructions are likely to remain for more than 2 hours, the head of the tower shall issue a NOTAM. If restricted flight operations are maintained, the changed obstacle clearance altitudes shall be included in the NOTAM, if applicable.

## 258 EMBARGO FLIGHTS

- 258.1 Embargo flights shall be denied entry into or exit out of German airspace unless a special permission has been obtained for these flights.
- .11 For further information concerning the permission, the Federal Foreign Office may be contacted at the following telephone numbers:
- .111 **during** office hours: telephone: +49 (0)30 18 17 36 68  
facsimile: +49 (0)30 18 17 15 61  
e-mail: 405-R@diplo.de
- .112 **outside** office hours: telephone: +49 (0)30 18 17 29 11  
facsimile: +49 (0)30 17 44 98  
e-mail: lagezentrum@diplo.de

**259      REVOCATION OF PERMISSIONS FOR TAKE-OFF AND ENTRY**

259.1      Permissions for take-off and entry for flights intending to land in Germany shall be refused upon request of the Federal Aviation Office (LBA) and other authorities seeking official assistance. The relevant authority will provide for exceptions.

.11      The revocation of the permission for entry does not affect ferry flights including their take-off and landing, or overflights, unless the authorities seeking official assistance have corded otherwise.

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**260 SAFETY-RELATED OCCURRENCES****261 Reports**

261.1 The supervisor on duty or, during his absence, his deputy shall act as a central reporting and information unit for the associated operational domains. He shall evaluate incoming reports and information and immediately forward them by telephone to the central point of contact and other message recipients, using the relevant checklists and forms contained in the manual for special situations/emergencies (Grundordner "Sondersituationen/ Notfälle").

261.2 The DFS/UZ departments CC/FC and TWR/M (responsible safety management units) shall act as the central points of contact at DFS. The reports shall be transmitted to the following mobile phone number which is available H24.

+49 (0)172 – 669 26 06

261.3 The reports received from the supervisor or his deputy within the scope of the reporting system shall be processed and evaluated by the central point of contact and forwarded without delay to the necessary addressees. During normal office hours, such reports shall be forwarded by e-mail; in urgent cases and outside normal office hours, by telephone.

261.4 All reportable occurrences shall be recorded in the daily log and marked as safety-related, if appropriate. The branch shall regulate locally if and which additional information channels will be used.

261.5 To be reported are

.51 the following reportable occurrences:

- a) aircraft accidents;
- b) infringements of separation;
- c) aircraft proximities;
- d) near-CFIT accidents (controlled flight into terrain);
- e) runway incursions with avoiding action;
- f) interruptions of technical air navigation services facilities or technical facilities which impact the safe handling of air traffic;
- g) departures of security flights;
- h) take-off abort at more than 80 KT.

- 261.52 disturbances in the production process:
- a) operational difficulties which cannot be solved internally by the branch or with the help of another branch;
  - b) restrictions to / stoppage of services or inability to provide services in ATC;
  - c) technical failures involving a high risk of operational repercussions.
- .53 other occurrences to be reported:
- a) runway incursions without avoiding action;
  - b) take-off abort at a maximum of 80 KT;
  - c) runway excursions;
  - d) deviations by airspace users, for example:
    - 1) from air traffic control clearances;
    - 2) from assigned levels by more than 300 ft;
    - 3) from published flight procedures;
    - 4) from the applicable provisions concerning the carriage and operation of air navigation equipment on board aircraft;
    - 5) from the localiser when conducting independent parallel approaches;
  - e) airspace users committing violations (e.g. unauthorised penetration of airspaces);
  - f) interruptions of technical air navigation services facilities or technical facilities which may impact the safe handling of air traffic;
  - g) acts of unlawful interference which may impact the safe handling of air traffic (e.g. laser glare);
  - h) any kind of other occurrence which may pose a threat to air safety or the security of the company.
  - i) runway closure;
- Note: The supervisor on duty of the responsible control centre shall inform the National Air Policing Centre (FüZNatLV) if a runway will be closed for 60 minutes or longer. This does not apply to runway closures due to meteorological conditions.



- 261.54 the following additional reportable occurrences:
- a) unexplainable and unauthorised deviations from the cleared flight path;
  - b) unexplainable loss of radar targets (particularly secondary radar targets);
  - c) unexplainable loss of radio contact;
  - d) other unusual occurrences which give rise to the assumption that an act of unlawful interference in air traffic has occurred.
- .541 If an additional reportable occurrence becomes known, the ATC unit which is the first to be informed about it shall notify the following units or persons without delay:
- the supervisor on duty or, during his absence, his deputy of the responsible control centre;
  - the National Air Policing Centre (FüZNatLV);
  - the head of the branch.
- Note: The obligation to notify further authorities, units or persons in accordance with existing procedures and regulations (including local agreements) shall remain unaffected.
- 261.6 Reporting channels
- .61 A reportable occurrence shall be reported immediately to the supervisor on duty or to his deputy if he is absent.
- .62 Occurrences in accordance with MO-ATS items 261.51, 261.52 and 261.54 shall be reported to the central points of contact without delay and be recorded in the daily log.
- .63 Occurrences in accordance with MO-ATS item 261.53 shall be recorded in the daily log.
- 261.7 Investigation
- .71 The investigation and reporting, including possible operational and / or personnel-related measures, shall be conducted under the responsibility of the branch concerned. If two or more branches are involved in an incident, investigations shall be carried out under the responsibility of the branch having caused the incident. The other branch(es) shall provide assistance.

- 261.711 The branch taking the lead shall carry out the investigation. It shall ensure that radar data and voice recordings as well as other relevant data recordings are stored.
- If the identity of one of the aircraft involved is unknown, it shall be attempted to identify the aircraft, for example, by means of radar tracking.
- .712 The members of staff concerned shall fill in the questionnaire "Sicherheitsrelevante Ereignisse" (safety-related occurrences);
- .72 An investigation shall be carried out for the following reportable occurrences:
- a) aircraft accidents;
  - b) infringements of separation;
  - c) aircraft proximities;
  - d) near-CFIT accidents;
  - e) runway incursions with avoiding action.
- 261.8 Deadlines for the submission of reports
- .81 The following deadlines apply with respect to the submission of the report and the transmission of the documents to the responsible safety management unit:
- preliminary report within 10 days of the occurrence,
  - investigation report within 6 weeks of the occurrence.

**262 VIOLATION REPORT**

- 262.1 When circumstances become known which give rise to the assumption that a pilot has violated air traffic regulations, the following measures shall be taken:
- 262.2 The occurrence shall be recorded in the daily log. The following details shall be mentioned in the daily log:
- .21 time of violation;
  - .22 aircraft identification and type;
  - .23 brief description of the violation, including the following details:
    - .231 aerodrome of departure and destination (if known);
    - .232 flight rules;
    - .233 name and address of the pilot (if known);
    - .234 a note whether the pilot has been informed about the violation.
- 262.3 After evaluating the daily log, a violation report shall be prepared with the help of the "Violation Report" form (Verstoßmeldung) as soon as possible but no later than 1 week after the violation has occurred and sent to:
- .31 the Federal Supervisory Authority for Air Navigation Services (BAF), also in the case of the investigation and the enforcement of penalties for alleged offences committed by military pilots of military aircraft and
  - .32 the responsible safety management unit.
- Note: The staff member reporting the violation shall receive a copy of the violation report.
- 262.4 If foreign pilots are involved in the violation, the violation report shall be written in English.
- 262.5 All details required by the violation report form shall be provided, if possible. All available evidence shall be listed.
- 262.6 When preparing the report, it shall be ensured that the situation is described in an unbiased manner but that the nature of the alleged violation is evident.

262.7 If deemed necessary after evaluating the facts, the Federal Supervisory Authority for Air Navigation Services (BAF) may initiate further local investigations via the branch concerned. Up until then, it shall not be necessary to secure evidence unless the branch concerned regards the occurrence as a serious violation from the start.

.71 If evidence is requested, original evidence shall be provided.

## **263 STATEMENTS / INFORMATION**

263.1 In the case of inquiries by the police, the public prosecutor or other investigation authorities, department VR/R shall be informed without delay. Other mandatory internal reporting procedures remain unaffected.

263.2 A distinction shall be made between the following types of statements and information:

.21 Testimonies (e.g. in court, before the public prosecutor, during police investigations):

- The head of the branch shall be informed about the fact that such a statement is required (e.g. a summons);

.22 Statements (e.g. before the BFU):

- The head of the branch shall be informed about the fact that such a statement is required (e.g. questioning by the BFU);

.23 Information (e.g. to the media):

- Information concerning the facts about an aircraft accident shall be provided by the head of the branch. Further inquiries shall be forwarded to the DFS press officer. No information shall be provided concerning possible causes of the aircraft accident. Any inquiries concerning the cause of an accident shall be forwarded to the aircraft accident investigation commission. The relevant provisions pertaining to labour law shall remain unaffected.

**264      ALERTING MESSAGE**

264.1      If a pilot experiences an emergency, the regulations under MO-ATS item 623 shall be observed.

264.2      An alerting message according to MO-ATS item 1032.1 shall be transmitted for notification purposes.

.21          the following acronyms shall be entered under "Phase of emergency", depending on the individual emergency phase:

- **INCERFA**

- **ALERFA**

- **DETRESFA**

.22          one of the following statements shall be entered under "Nature of emergency":

- report overdue;

- arrival overdue;

- operational efficiency impaired;

- widespread communication checks unsuccessful;

- fuel exhausted;

- forced landing.

264.3      These entries shall be made in English.

264.4      When an emergency situation no longer exists, the alert shall be cancelled.

**265 AIRCRAFT ACCIDENTS**

- 265.1 As soon as an aircraft accident becomes known, the branch which is the first to be informed about the accident shall notify the following units or persons:
- .11 via telephone:
    - .111 rescue units as stipulated by local alert plans if the nature and location of the aircraft accident require immediate measures;
    - .112 the responsible control centre, if applicable, the German Federal Bureau of Aircraft Accidents Investigation (BFU) and, if necessary, the search and rescue service (SAR);
    - .113 the responsible aeronautical meteorological office with a request to provide a meteorological report for the place and time of the accident.
  - .12 via the AFTN in accordance with the "Aircraft Accident Report" form (Luftfahrzeugunfallbericht):
    - .121 the responsible safety management unit;
    - .122 the German Federal Bureau of Aircraft Accidents Investigation (BFU);
    - .123 the responsible SAR coordination centre;
    - .124 the responsible control centre, if applicable.
- 265.2 If the aircraft had established radio contact with a branch prior to the accident or if it can be assumed that members of staff, services, equipment or facilities of DFS are involved in the accident, the following units shall be informed by telephone:
- .21 the head of this branch;
  - .22 the central point of contact of DFS.
  - .23 The obligation to notify further authorities, units or persons in accordance with existing procedures and regulations (including local agreements) shall remain unaffected.
- 265.3 The controller who was entrusted with the handling of the flight directly before the aircraft accident occurred shall be relieved immediately and without exception from his working position after the aircraft accident has become known.

- 265.31 If it cannot be ruled out that the controller of the preceding control sector has also been involved in the aircraft accident, this controller shall also be relieved immediately and without exception after the aircraft accident has become known.
- 265.4 If it is suspected that technical air navigation services facilities / technical facilities may have been a causative factor of the aircraft accident, the supervisor shall decide which technical air navigation services facility / facilities / technical facilities shall no longer be used and issue a pertinent NOTAM. Such decisions shall be taken in consultation with the responsible technical unit (systems control and monitoring unit, SSÜ), as appropriate.
- .41 If an aircraft accident occurs during an approach or during landing after an ILS approach, and if the approach aid / ILS cannot be ruled out as a possible cause of the accident:
- the approach aid/ILS shall no longer be used; succeeding aircraft shall no longer be cleared for the approach type in question but may be cleared for other approach types;
  - the supervisor shall, in consultation with the system control and monitoring unit (SSÜ), prohibit the use of the approach aid/ILS and arrange for a pertinent NOTAM and ATIS broadcast to be issued; the approach aid/ILS shall not be switched off.
- 265.5 The responsible branch shall inform the aerodromes of departure and destination and all other units mentioned in the flight plan by using the following phraseology:
- (aircraft call sign) FORCED LANDING / CRASHED AT (time and place)
- .51 The branch which was the last to maintain radio contact with the aircraft involved in an accident shall ensure that the original of the aircraft accident report form (Luftfahrzeug-Unfallbericht) is submitted to the responsible safety management unit within a period of three (3) working days together with the following data:
- report on the operational status of the radio navigation aids and radio equipment used by the branch;
  - statements provided by the ATS personnel concerned with the accident; the members of staff concerned shall fill in the questionnaire "Sicherheitsrelevante Ereignisse" (safety-related occurrences);
  - flight progress strips or electronical data of the aircraft involved in the accident.
- .511 All data recordings made within the context of the accident shall be stored and kept under lock and key.

- 265.6 Upon request of the responsible safety management unit, the DFS branch shall prepare transcripts of all communication carried out within the context of the aircraft accident and send them to the unit requesting such transcripts.
- .61 If parts of the original recordings are to be copied to other sound carriers, the responsible safety management unit shall initiate or approve of such copying in individual cases.
- 265.7 The relevant branch shall send a copy of the documents listed in MO-ATS items 265.51 and 265.6 to the responsible safety management unit.
- .71 The branch shall retain the originals.
- .72 The branch shall prepare a comprehensive investigation report from the point of view of DFS, structured in the same way as the investigation report on safety-related occurrences, containing
- precise statements concerning the handling of the flight by ATC and the "Sicherheitsrelevante Ereignisse" (safety-related occurrences) questionnaires to be prepared by the members of staff involved in the handling of the flight, as well as
  - a description of potential activities taken by the German Federal Bureau of Aircraft Accidents Investigation (BFU), public prosecutors, the police, etc.
- This report shall be sent to the responsible safety management unit as soon as possible but no later than 10 days after the event.
- 265.8 If a military aircraft is involved in an accident (regardless of its nationality) the "Director of Bundeswehr Flight Safety" ["General Flugsicherheit in der Bundeswehr" (GenFISichhBw)] shall be responsible for the military part of the investigations. If requested by this unit, pertinent information shall be made available directly and at short notice. This shall include the right to inspect the contents of data recordings for a group of persons named by this unit. No statements shall be made about who is to blame.
- .81 Upon request, all documents shall be made available to the representatives of the investigating authorities (the Federal Bureau of Aircraft Accidents Investigation (BFU), public prosecution, police). If requested by the investigating authorities, recording media and radar data recordings shall be replayed at the premises of DFS upon consultation with the head of the branch.
- Note: If a court ruling is presented or, in the case of imminent danger, if instructed by the public prosecutor, his legal representative or the aeronautical authority of the Land, the transcripts and radar data recordings may even be confiscated, irrespective of the current status of the aircraft accident investigations.



265.9 All recordings and documents whose contents are subject to an administrative or judicial investigation shall be retained until the investigation has been concluded.

.91 The responsible safety management unit shall be informed about the time agreed with the German Federal Bureau of Aircraft Accidents Investigation (BFU) for replaying data recordings and / or the time agreed for questioning DFS staff members.

## **266 ACTS OF UNLAWFUL INTERFERENCE AGAINST GROUND FACILITIES**

266.1 Acts of unlawful interference are bomb threats, threats of violence, criminal attacks and similar actions.

266.2 As soon as it becomes known that an act of unlawful interference against air navigation services facilities has been committed, the following units or persons shall be informed immediately:

.21 the head of the branch;

.22 the supervisor of the responsible control centre;

.23 the central point of contact of DFS.

266.3 The obligation to notify further authorities, units or persons in accordance with existing procedures and regulations (including local agreements) shall remain unaffected.

## **267 RUNWAY INCURSION**

267.1 When a runway incursion has occurred, the incident shall be reported according to the relevant local reporting procedure using the Runway Incursion Monitoring Programme form. This does not affect the reporting procedure for infringements of separation.

## **268 TAKE-OFF ABORT**

268.1 After a take-off is aborted, the occurrence shall be reported to DFS/UZ department TWR/M using the form "Meldung Startabbruch" in accordance with local reporting procedures.

## **269 NOT ALLOCATED**

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**270 DISPLAY OF FLIGHT PLAN DATA****271 GENERAL**

271.1 The FDPS provides the flight progress data required for the analysis of the air traffic situation in the form of flight progress strips or electronic display. Flight progress data are available for each flight after the relevant flight plan data have been entered in the system.

271.2 Flight data shall be updated in order to ensure that an overview of the current air traffic situation is available at all times.

**272 FLIGHT PROGRESS STRIPS****272.1 General**

.11 The approved acronyms, abbreviations and symbols shall be used.

.12 Obtained and issued releases shall be documented differently. Further details shall be regulated locally.

.13 Time may be indicated in the form of two digits (minutes) if the corresponding hour has already been clearly documented on the flight progress strip.

.14 The indicators contained in ICAO Doc 8643 shall be used to indicate the aircraft types. If the abbreviation is not listed in this document, the full aircraft type designation shall be entered.

.15 The location indicators contained in ICAO Doc 7910 shall be used to indicate the location. Further details shall be regulated locally. If no location indicator has been assigned, the name shall be written in full.

**272.2 Segmentation**

.21 Flight progress strips are divided into the following boxes:

.211 time and reference box;

.212 level box;

.213 call sign box;

.214 Ninerfield, if applicable;

.215 route, restrictions and information box.

- 272.22 It shall be regulated locally which box is to be used for which type of information.
- .23 The exact position of the information to be entered in the appropriate boxes shall be regulated locally.
- .24 Individual flight progress strip types, such as departure, en-route, arrival, VFR or IFR strips may differ and may be defined locally.
- 272.3 Paper flight progress strips
- .31 If entries have to be corrected or amended, the obsolete data shall be crossed out and the correct data shall be entered.
- .32 The fact that coordination has been performed shall be marked by placing a checkmark next to the relevant information.
- .33 Levels shall be entered in vertical columns into the corresponding box. If the actual level differs from the cleared or coordinated level, the actual level shall be entered.
- .331 Altitudes shall be entered in hundreds of feet preceded by the capital letter "A".
- .332 Flight levels shall be entered by entering the appropriate figure.
- .333 By placing a checkmark on the right-hand side of the level entry, it shall be documented that the pilot has reported at this particular level.
- .334 Coordinated level changes shall be indicated by placing a checkmark on the left-hand side of the corresponding level entries.
- .335 An arrow shall be entered on the right-hand side of the entry in order to indicate a climb or descent. A horizontal line shall be drawn through the arrow after a report is received that the aircraft has reached the cleared flight level.
- 272.4 Digital flight progress strips
- .41 The available menus of the electronic system shall be used for documentation, coordination and entries.
- .42 It shall be laid down locally how the performed coordination is to be documented.

- 272.43 It shall be regulated locally how the documentation is to be carried out:
- .431 if the pilot has reported a certain flight level;
  - .432 during descent, climb or when the flight level has been reached.
  - .44 If the electronic systems or parts of the electronic system are not available, the regulations for paper flight progress strips shall apply accordingly.
  - .45 Further details shall be regulated locally.
- 272.5 Acronyms, abbreviations and symbols for flight progress strips
- .51 How to write digits

Digits shall be written in the following way:

    - 0 = 0
    - 1 = 1
    - 7 = 7
    - 9 = 9
  - .52 Acronyms and abbreviations
    - A Cleared for GLS approach
    - B Cleared for NDB approach
    - C Cleared, released
    - CDA Cleared for CDA approach
    - CE Clearance expires at ..... (time)
    - D ATC clearance delivered
    - EAT.. Expected approach time...(time)
    - G Cleared for RNAV (GPS) approach
    - H Holding instructions issued
    - H... Hold until ..... (time)
    - I Cleared for ILS approach

272.52	L	Landing clearance issued
	LA	Low approach, low pass
	LC	Level change
	LCL	Local flight
	LOC	Cleared for LOCALIZER or LOCALIZER-DME approach
	LT	Left turn
	M	Missed approach
	P	Join traffic circuit
	PH	Present heading
	PR	Join right traffic circuit
	R	Radar approach
	RH	Runway heading
	RT	Right turn
	T	TACAN approach
	TG	Touch and go
	TNG	Training flight
	V	Cleared for VOR approach
	VA	Cleared for visual approach
	VC	VFR flight in airspace class C
	VD	VFR flight in airspace class D
	VN	VFR flight at night

272.52 X Cleared to cross, or has crossed |

XMTR Transmitter

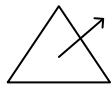
XPDR Transponder

Y Released subject to your discretion (RSYD)

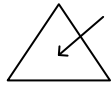
.521 Further abbreviations are listed in MO-ATS item 171 and 173. |

.522 Abbreviations which are required locally shall be coordinated with DFS/UZ department CC/FDO. |

## | 272.53 Symbols



leaving an airspace



entering an airspace



abeam



climb or departure



descent or approach



change of flight rules IFR / VFR (time)



limitations underneath the stroke



after, after overflying



transfer not before ... (time)



VFR



special VFR



via ... (route)



direct ...



... or greater, or higher, or later



272.53

... - ... or less, or lower, or earlier

~~FPL~~ flightplan closed

C released

C ↑ released for climb

C ↓ released for descent

CT released for turns

272.54 Any unambiguous combination of symbols and abbreviations is allowed. |

Example: C RT |

### 273 ELECTRONIC DISPLAY |

273.1 The layout of the electronically displayed flight progress data shall be regulated locally. |

273.2 System inputs affecting flight progress data electronically displayed shall be regulated locally. |

273.3 Acronyms, abbreviations and symbols used for electronic display shall be regulated locally. |

274 - 279 NOT ALLOCATED |

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**280 COMMUNICABLE DISEASE**

- 280.1 If a pilot identifies a suspected case of communicable disease or in case of any other evidence of a public health risk on board the aircraft, the pilot shall transmit the following information to the ATC unit with which communication is established:
- call sign,
  - departure aerodrome,
  - destination aerodrome,
  - estimated time of arrival,
  - number of persons on board,
  - number of suspected case(s) of communicable disease on board,
  - type of public health risk, if known.
- 280.2 The receiving ATC unit shall forward a message, with the above listed information, as soon as practicable to the aerodrome control tower of the destination aerodrome as well as to the aerodrome control tower of the departure aerodrome.
- .21 The message may be forwarded by AFTN (urgency message without fixed message format), telephone, fax or other means of transmission.
- 280.3 When an aerodrome control tower receives information about a suspected case of communicable disease or in case of any other evidence of a public health risk on board an aircraft, it shall notify the aerodrome operator as soon as possible of the prescribed information.
- .31 The aerodrome operator shall inform the public health authority as soon as possible according to the local contingency plans.

**281 - 289 NOT ALLOCATED**

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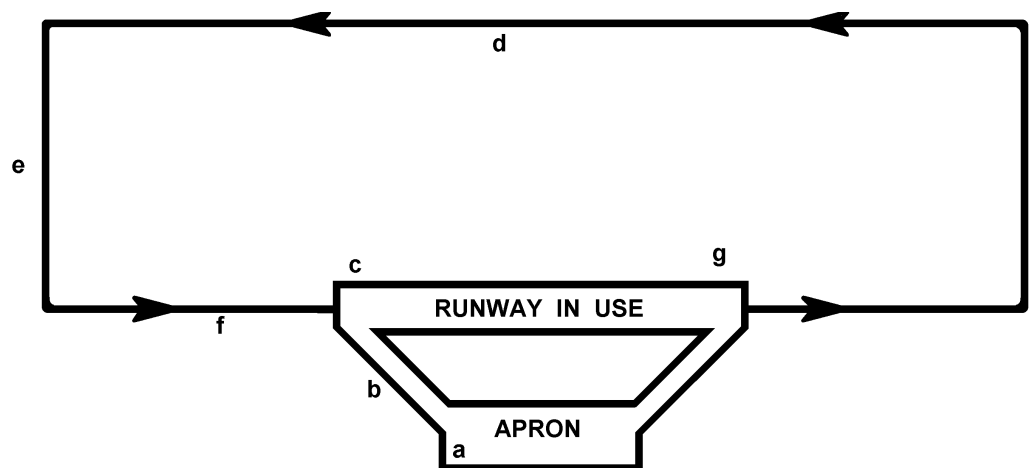
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## 310 GENERAL PROCEDURES

## 311 TRAFFIC AND TAXI CIRCUITS

311.1 The following positions in the traffic and taxi circuits are the positions where aircraft normally request and, depending on the traffic situation, receive air traffic control clearances and instructions :

- a) Parking Position : If required, aircraft requests start-up approval, en-route clearance, push back and taxi instruction for departure.
- b) Holding Point : Aircraft reports ready for departure, if requested. Departing aircraft are held at this point until permission to line up or take-off clearance can be issued.
- c) Take-off Position : Take-off clearance shall be issued here if not practicable at position b).
- d) Downwind : Aircraft reports on downwind if requested. Landing clearance may be issued.
- e) Base : Aircraft reports on base leg if requested. Landing clearance may be issued if not practicable at position d).
- f) Final : Aircraft reports on final if requested. Landing clearance shall be issued if not practicable at positions d) or e).
- g) Turn-off Position : Taxi instruction to the apron or the instruction to contact ground control resp. apron shall be issued.



311.2 Watch aircraft closely when they approach the aforementioned positions in order to issue proper clearances or instructions without delay. Where practicable, clearances should be issued without waiting for the aircraft to initiate the call.

311.3 You may request aircraft not equipped with a radio transmitter to acknowledge the reception of ATC clearances by visually perceptible signals or certain flight manoeuvres.

## 312 RUNWAY-IN-USE

312.1 Generally select as runway-in-use the runway most nearly aligned with the wind.

312.2 In selecting the runway-in-use, the unit providing aerodrome control service shall take into consideration, besides surface wind speed and direction, other relevant factors such as the aerodrome traffic circuits, the length of runway(s), capacity of runway(s), approach / departure and landing aids, proximity of adjacent aerodromes, traffic conditions, noise abatement or weather effects. The tailwind component on the runway-in-use as a rule shall not exceed 5 KT on the average, except :

- .21 a higher tailwind component has been approved for the runway by the DFS/UZ department TWR/MO;  
or
- .22 safety reasons require another runway.

312.3 If for safety reasons another runway-in-use has to be selected where the tailwind component exceeds 5 KT on the average, the pilot shall be informed.

312.4 You may assign a taxiway for take-off or landing to certain types of aircraft, provided such operation is authorized and published.

312.5 The time of change of the runway-in-use shall be :

- .51 coordinated with APP and, if necessary, with adjacent aerodrome control towers;
- .52 notified to the apron, fire crew, technical service and similar institutions according to local procedures.



312.6 If a runway is unusable for flight operations, because it is blocked by persons, vehicles or other objects, the sign "Piste-Belegt" (runway occupied) shall be switched on at the ANBLF and / or at the working position. Details shall be laid down locally.

### **313 SIGNALS TO AERODROME TRAFFIC**

313.1 Use the following light signals whenever radio communication cannot be established :

- .11 Light signals directed toward aircraft in flight mean :
  - .111 Steady green light :  
Cleared to land;
  - .112 Steady red light :  
Give way to other aircraft and continue aerodrome traffic circuit;
  - .113 Series of green flashes :  
Return for landing or continue approach (wait for clearance to land and taxi instruction);
  - .114 Series of red flashes :  
Do not land, aerodrome unsafe;
  - .115 Series of white flashes :  
Land at this aerodrome and taxi to apron (wait for clearance to land and taxi instruction);
  - .116 Red pyrotechnical lights :  
Notwithstanding any previous instructions and clearances, do not land for the time being.

- 313.12 A pilot receiving signals according to MO-ATS item 313.11 shall acknowledge these as follows :
- .121 Between sunrise and sunset, by rocking wings unless the aircraft is on the base or final legs of the approach,
  - .122 between sunset and sunrise, by flashing on and off twice the landing or position lights.
  - .13 Light signals directed toward aircraft on the ground mean :
    - .131 Steady green light :  
Cleared for take-off;
    - .132 Steady red light :  
Stop;
    - .133 Series of green flashes :  
Taxi;
    - .134 Series of red flashes :  
Vacate landing area in use;
    - .135 Series of white flashes :  
Return to starting point on the aerodrome.
  - .14 A pilot receiving signals according to MO-ATS item 313.13 shall acknowledge them as follows :
    - .141 Between sunrise and sunset, by moving ailerons or rudders;
    - .142 between sunset and sunrise, by flashing on and off twice the landing or position lights.
- 313.2 The display and removal of ground signals shall be handled in accordance with the LuftVO and local procedures.

**314 INFORMATION TO AERODROME TRAFFIC**

- 314.1 Essential local traffic shall be considered to consist of any aircraft, vehicle or person on or near the manoeuvring area or traffic operating in the vicinity of the aerodrome, which may constitute a hazard to the aircraft concerned.
- .11 During final approach, the sudden occurrence of hazards (e.g. unauthorized traffic on the runway) shall be transmitted without delay.
  - .12 Essential local traffic shall be so described as to facilitate recognition.
  - .13 Describe the relative position of traffic in a manner that will be easy to understand by using phrases such as TO YOUR RIGHT or AHEAD OF YOU instead of referring to compass directions. When using radar, directions may also be expressed by clock-reference.
  - .14 Information on essential local traffic for aircraft under the control of the unit providing approach control service shall be forwarded to APP for relay to the aircraft.
- 314.2 Essential aerodrome information is information concerning the condition of the movement area and associated facilities which is necessary for the safe operation of aircraft. It shall be issued whenever deemed necessary by the controller on duty in the interest of safety, or when requested by a pilot. It need not be transmitted if pertinent information has been published by NOTAM and the NOTAM has already been in effect for more than 24 hours. It shall include the following information, as appropriate :
- .21 Construction or maintenance work on, or immediately adjacent to the movement area;
  - .22 Rough or broken surfaces on a runway, a taxiway or an apron, whether marked or not;

- 314.23 Snow, slush, ice or water on a runway, a taxiway or an apron;
- .231 Whenever water is present on a runway, a description of the runway surface conditions on the centre half of the width of the runway, including the possible assessment of water depth, where applicable, should be made available using the following terms :
- Damp : the surface shows a change of colour due to moisture;
  - Wet : the surface is soaked but there is no standing water;
  - Water patches : significant patches of standing water are visible;
  - Flooded : extensive standing water is visible.
- .232 Pilot reports about the braking action shall be transmitted to approaching aircraft, the validity of the message shall be taken into consideration.
- .233 When transmitting the braking coefficients, the time of observation shall be stated, the reported figures of the braking coefficients shall be transmitted in landing direction.
- .24 Snow banks or drifts, including depth of snow layer and information on snow removal and sanding / spraying of runway;
- .25 Parked aircraft or other objects;
- .26 Temporary hazards, e.g. wildlife, birds on the ground or in the air;
- .27 Failure or malfunction of part or all of the aerodrome lighting system;
- .28 Other pertinent information.
- Note : It is the responsibility of the aerodrome operator to provide the aerodrome control tower with current information on aerodrome conditions.

314.3 If unusual circumstances arise (e.g. disabled aircraft on the landing area or on the safety strips) you may temporarily close certain portions of the manoeuvring area for aircraft operations if safety reasons warrant such action. Notify the aerodrome operator immediately of the reason for taking such measures.

Note : Final decision regarding the usage of the manoeuvring area rests with the Aeronautical Authority of the Land, respectively the aerodrome operator.

314.4 Transmit wind direction and speed in connection with take-off and landing as shown on the wind indicator equipment in the control tower.

.41 Do not state WIND CALM unless the wind speed indicator shows zero.

.42 The indication WIND VARIABLE ... KNOT(S) shall only be used in light wind conditions (< 3 KT) with wind direction variations of 60 degrees or more, or in the case of wind direction variations of 180 degrees or more (independent of the wind speed) and / or when it is impossible to indicate a mean wind direction (e.g. during a thunderstorm).

.43 Variations from the mean wind speed (gusts) shall be reported when the maximum wind speed exceeds the mean speed by 10 KT or more.

314.5 The competent units at the aerodrome shall be advised of wildlife or major bird concentrations on the aerodrome.

### 315 CONTROL OF VEHICLES AND PERSONS ON THE MANOEUVRING AREA

315.1 Keep the movement of vehicles, equipment, and persons on the manoeuvring area of the aerodrome to a minimum.

315.2 Approvals for movements of vehicles, equipment and persons on the manoeuvring area are to be issued in written form, orally, by means of radio communication, light signals or signals. The same applies for corresponding disapprovals.

Note : The number of approvals in written form shall be restricted to the absolutely necessary operational minimum and to the airport operating companies as partners.

315.3 Coordinate construction and other work on or near runways and taxiways with the aerodrome operator if such work has any influence on the control of aerodrome traffic.

- 315.4 For the control of vehicles and persons on the manoeuvring area the following light signals may be used after proper coordination :
- .41 Steady red light :  
Stop;
  - .42 Series of red flashes :  
Move off the landing area or taxiway and watch out for aircraft;
  - .43 Series of green flashes :  
Permission to cross landing area or to move onto taxiway;
  - .44 Series of white flashes :  
Vacate manoeuvring area in accordance with local instructions.
- 315.5 Other light signals may be used upon arrangement, provided no misunderstanding with the above signals is likely to occur.

### 316 AUTHORISATION OF SPECIAL VFR FLIGHTS

- 316.1 Special VFR flights may be authorized if **all** of the following conditions are met :
- .11 Traffic conditions permit such flights;
  - .12 Approach control has approved for the individual case or within the scope of agreed procedures;
  - .13 The ground visibility is at least 1500 m, or 800 m in case of rotor craft;
  - .14 The ceiling is at least 500 FT.

Note 1 : In case the ceiling is below 500 FT, a special VFR clearance shall not be issued unless the pilot states that he has an exemption to fly below the minimum safe height.

Note 2 : A special VFR clearance shall be issued to flights obviously conducted according to § 34 LuftVO (SAR) or § 30 LuftVG (mission flights of the armed forces, police and Federal Police) without fulfilling the a.m. conditions.

316.2 When issuing a clearance, it shall be stated that a special VFR flight is authorized.

316.3 If two or more aerodromes are located within a control zone, authorisation of special VFR flights shall depend on the meteorological conditions of the primary aerodrome as specified in local procedures.

### **317 SUSPENSION OF VFR OPERATIONS**

317.1 Whenever safety requires, VFR operations may be suspended within a control zone.

317.2 When suspending VFR operations take the following actions :

- .21 Hold all departures other than those which file an IFR flight plan;
- .22 Recall all local flights operating under VFR or obtain approval from APP to continue the flights following the regulations of special VFR flights;
- .23 Notify all operators or their designated representatives of the reason for taking such action, if necessary or requested.

### **318 TRANSFER OF DUTIES FROM APPROACH CONTROL TO AERODROME CONTROL**

318.1 APP may delegate parts of its duties with regard to IFR flights and special VFR flights to TWR. Particulars are specified in local procedures.

318.2 For the provision of air traffic services by means of radar, the responsibility for the control zone or parts thereof may be assigned to TWR. The assignment of further airspace required may be assigned for a limited period of time.

### **319 NOT ALLOCATED**

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**320 SEPARATION****321 GENERAL PROCEDURES**

- 321.1 Aerodrome traffic shall be controlled in a way so as to ensure that the separation minima outlined below are maintained.
- .11 Aircraft in formation are exempted from the separation minima with respect to separation from other aircraft of the same formation.
- 321.2 Using the same or different geographical locations lateral separation may be applied by position reports which positively indicate that the aircraft are over different geographical locations as determined visually or by reference to a navigation aid. Details shall be laid down locally.
- 321.3 Take-off clearance need not be withheld until prescribed separation exists if there is reasonable assurance that the appropriate separation will exist when the aircraft commences take-off.
- 321.4 Landing clearance need not be withheld until prescribed separation exists if there is reasonable assurance that the appropriate separation will exist when the aircraft crosses the runway threshold. However, do not clear an aircraft to land before a preceding landing aircraft has crossed the runway threshold.
- 321.5 Consider aircraft cleared for touch-and-go or low approach as landing aircraft until touching down (for touch-and-go) or crossing the beginning of the runway (for low approach), and thereafter as departing aircraft.

321.6 When locally stationed aircraft are operated in accordance with an Operational Directive to maintain their own separation while flying in the traffic circuit, clearances and information need not be issued unless a situation develops which requires corrective action. Make arrangements that in special cases such flights can be terminated immediately.

### 322 AIRCRAFT USING THE SAME RUNWAY

322.1 Separate a departing aircraft from other aircraft using the same runway by ensuring that it does not begin take-off run until **one** of the following conditions exists :

.11 The preceding departing aircraft has overflowed the end of the runway or is airborne and turning to avert any conflict;

.12 The preceding landing aircraft has vacated the runway.

322.2 Separate an arriving aircraft from other aircraft using the same runway by ensuring that it does not cross the beginning of the runway until **one** of the following conditions exists :

.21 The preceding departing aircraft has overflowed the end of the runway or is airborne and has started a turn to avert any conflict;

.22 The preceding landing aircraft has vacated the runway.

- 322.3 On the appropriately published runways reduced separation between two aircraft using the same runway may be applied as follows :
- tail wind component shall not exceed 5 KT;
  - the ground visibility is at least 5 km and the ceiling is not below 1000 FT;
  - braking action shall not be adversely affected by runway contaminants such as ice, slush, snow, water etc;
  - traffic information shall be provided to the succeeding aircraft;
  - reduced runway separation minima shall not apply between a departing aircraft and a preceding landing aircraft;
  - there shall be available means, such as suitable landmarks, to assist the controller in assessing the distances between aircraft. A surface surveillance system that provides the air traffic controller with position information on aircraft may be utilized.
- 322.31 For the purpose of reduced runway separation, aircraft shall be classified as follows :
- .311 Category 1 aircraft :
- single-engine propeller aircraft with a MTOM of 2 t or less;
- .312 Category 2 aircraft :
- single-engine propeller aircraft with a MTOM of more than 2 t but not more than 7 t  
and
  - twin-engine propeller aircraft with a MTOM of 7 t or less;
- .313 Category 3 aircraft:
- all other aircraft.

322.4 Reduced runway separation minima which may be applied at an aerodrome shall be determined for each separate runway. The separation to be applied shall in no case be less than the following minima :

.41 landing aircraft :

.411 a succeeding Category 1 aircraft may cross the runway threshold when the preceding aircraft is a Category 1 or 2 aircraft which either :

- has landed and passed a point at least 600 m from the threshold of the runway, is in motion and will vacate the runway without backtracking

or

- is airborne and has passed a point at least 600 m from the threshold of the runway;

.412 a succeeding Category 2 aircraft may cross the runway threshold when the preceding aircraft is a Category 1 or 2 aircraft which either :

- has landed and passed a point at least 1500 m from the threshold of the runway, is in motion and will vacate the runway without backtracking

or

- is airborne and has passed a point at least 1500 m from the threshold of the runway;

.413 a succeeding Category 1 to 3 aircraft may cross the runway threshold when a preceding Category 3 aircraft :

- has landed and passed a point at least 2400 m from the threshold of the runway, is in motion and will vacate the runway without backtracking

or

- is airborne and has passed a point at least 2400 m from the threshold of the runway.

- 322.42 departing aircraft :
- .421 a Category 1 aircraft may be cleared for take-off when the preceding departing aircraft is a Category 1 or 2 aircraft :
- which is airborne
  - and
  - has passed a point at least 600 m from the position of the succeeding aircraft;
- .422 a Category 2 aircraft may be cleared for take-off when the preceding departing aircraft is a Category 1 or 2 aircraft :
- which is airborne
  - and
  - has passed a point at least 1500 m from the position of the succeeding aircraft;
- .423 a Category 1 to 3 aircraft may be cleared for take-off when a preceding departing Category 3 aircraft :
- which is airborne
  - and
  - and has passed a point at least 2400 m from the position of the succeeding aircraft.

**323 AIRCRAFT USING PARALLEL RUNWAYS**

- 323.1 You may authorise simultaneous same direction operations on parallel runways, when contained in local procedures.
- 323.2 Do not authorise simultaneous opposite direction operations on parallel runways.

**324 AIRCRAFT USING INTERSECTING RUNWAYS**

324.1 Separate a departing aircraft from another aircraft using an intersecting runway by ensuring that it does not begin take-off run until **one** of the following conditions exists :

.11 The other aircraft is departing and :

.111 is airborne and turning to avert any conflict

or

.112 has passed the intersection.

.12 The other aircraft is arriving and :

.121 has vacated the landing runway

or

.122 is instructed to hold short of the intersection and has completed the landing roll

or

.123 has passed the intersection.

324.2 Separate an arriving aircraft from another aircraft using an intersecting runway by ensuring that the arriving aircraft does not cross the beginning of the runway until **one** of the following conditions exists :

.21 The other aircraft is departing and :

.211 is airborne and turning to avert any conflict

or

.212 has passed the intersection.

.22 The other aircraft is arriving and :

.221 has vacated the landing runway

or

.222 is instructed to hold short of the intersection and has completed the landing roll

or

.223 has passed the intersection.

- 324.3 Simultaneous use of intersecting runways by arriving aircraft may be permitted under the following conditions :
- .31 One of the intersecting runways has an available distance between the threshold and the intersection of at least 2200 m.
  - .32 On the runway with the available distance between threshold and intersection of at least 2200 m an aircraft having a maximum allowable take-off weight of up to 2000 kg is landing.
  - .33 This procedure shall only be applied if **all** of the following conditions are met :
    - .331 visual meteorological conditions prevail;
    - .332 braking action is not adversely affected by runway contaminants (e.g. slush, water etc.);
    - .333 both aircraft have been informed about the simultaneous landings;
    - .334 the aircraft specified in MO-ATS item 324.32 was instructed to hold short of the intersection.

### 325 SEPARATION OF HELICOPTERS

- 325.1 A departing or a landing helicopter shall not be permitted for take-off or landing until **one** of the following conditions exists :
- .11 A preceding departing helicopter has vacated the helipad,
  - .12 A preceding arriving helicopter has vacated the helipad.

Note : Helicopters performing air taxiing operations (normally not above 10 FT) within the boundary of the aerodrome are considered to be taxiing aircraft.

**326 RUNWAY INCURSION**

- 326.1 In the event the aerodrome controller, after a take-off clearance or a landing clearance has been issued, becomes aware of a runway incursion or the imminent occurrence thereof, or the existence of any obstruction on or in close proximity to the runway likely to impair the safety of an aircraft taking off or landing, appropriate action shall be taken as follows :
- .12 cancel the take-off clearance for a departing aircraft;
  - .13 instruct a landing aircraft to execute a go-around or missed approach;
  - .14 in all cases inform the aircraft of the runway incursion or obstruction and its location in relation to the runway.

**327 REDUCTION OF SEPARATION**

- 327.1 The reduction of separation for aerodrome traffic is not permitted between flights departing and landing in opposite directions.
- 327.2 In other cases, the separation minima may be reduced in the vicinity of aerodromes if :
- .21 adequate separation can be provided by the aerodrome controller when each aircraft is continuously visible to this controller;  
or
  - .22 each aircraft is continuously visible to pilots-in-command of the other aircraft concerned and the pilots thereof report that they can maintain their own separation;  
or
  - .23 in the case of one aircraft following another, the pilot of the succeeding aircraft reports that he has the other aircraft in sight and can maintain separation.
- 327.3 The procedures according to MO-ATS item 327.23 may also be applied between arriving aircraft within controlled airspace outside the aerodrome traffic circuit, if the aircraft are on the final approach track or on final approach tracks to parallel runways.



**328 WAKE TURBULENCE SEPARATION**

328.1 In order to minimize the hazards of wake turbulence - for flights for which an obligation to provide separation exists -the following radar separation minima shall be applied if the prescribed separation minima are lower :

Preceding Aircraft	Succeeding Aircraft	Separation Minima
HEAVY	HEAVY	4 NM
HEAVY	MEDIUM	5 NM
HEAVY	LIGHT	6 NM
MEDIUM	LIGHT	5 NM

Note: Above FL100 the above mentioned conditions of the Category HEAVY shall apply to an AIRBUS A380 (A388).

In addition, at and below FL100, the following minima shall apply to an AIRBUS A380 (A388):

Preceding Aircraft	Succeeding Aircraft	Separation Minima
A388 / HEAVY (non A388)	A388	not required
A388	HEAVY (non A388)	6 NM
A388	MEDIUM	7 NM
A388	LIGHT	8 NM

.11 If radar is not available the minimum time intervals of MO-ATS item 482 shall be used.

328.2 The separation minima mentioned above shall be applied when :

.21 an aircraft is operating directly behind a preceding aircraft at the same level or less than 1000 FT below;

.22 an aircraft is crossing behind another aircraft at the 6 o'clock position at the same level or less than 1000 FT below;

.23 both aircraft use the same runway or parallel runways with a distance of less than 760 m to each other;

.24 parallel runways with a distance of 760 m or more to each other are used and the flight path of the preceding aircraft is crossed at the same level or less than 1000 FT below;

.25 crossing runways are used and the flight path of the preceding aircraft is crossed at the same level or less than 1000 FT below.

- 328.3 The separation minima mentioned above do not need to be applied, if :
- .31 the pilot of an aircraft has declared that he has the preceding aircraft in sight and will attend to an appropriate distance himself;
  - .32 the pilot of an aircraft renounces wake turbulence separation;
  - .33 the area within which wake turbulence is expected will not be penetrated.
- 328.4 In cases where ATC does not influence the piloting of an aircraft (e.g. VFR flights), information on possible hazards from other aircraft shall – as far as possible - be provided :
- .41 by stating the type of aircraft, the position and - if relevant - the level, e.g. when the succeeding aircraft is in the traffic circuit and preplanned as number 2 to land  
or
  - .42 by using the phrase **CAUTION WAKE TURBULENCE**, e.g. when an aircraft departs behind an aircraft of a higher weight category.
- Note : As the occurrence of wake turbulence hazards cannot be predicted accurately, air traffic control cannot assume responsibility for the issuance of advice on such hazards at all times, nor for its accuracy.
- 328.5 When a pilot requests to establish a sufficient distance to a preceding aircraft of a higher weight category (e.g. in cases where ATC has no influence on the piloting of an aircraft), a minimum distance corresponding to the separation minima mentioned above shall be established.

**329      CONDITIONAL CLEARANCE**

329.1      If the issuance of a clearance depends on another aircraft or vehicle movement, a conditional clearance may be issued for expeditious traffic handling.

329.2      The following conditions shall be met :

.21        the clearance relates to the immediately next aircraft, vehicle or taxi movement;

.22        the object concerned can be visually identified by the appropriate pilot / vehicle driver;

.23        the controller has the objects involved in sight;

.24        the instruction is issued in a clear and unmistakable manner;

.25        the pilot / vehicle driver shall obtain a confirmation that the instruction has been read back correctly;

.26        the execution of the instruction shall be monitored;

.27        traffic information shall be provided, as appropriate;

Note:     Information that could prevent misunderstandings includes, for example, aircraft type or colour.

329.3      The report "traffic in sight" shall be obtained:

.31        before entering or crossing a runway via rapid exit taxiways;

.32        for aircraft which are both in the air;

.33        if there is any doubt that the pilot / vehicle driver has the object concerned in sight.

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**330 DEPARTING AIRCRAFT****331 START UP APPROVAL**

331.1 On request of the pilot, an approval to start engines shall be issued immediately, if the departure delay is expected to be less than 20 minutes. At A-CDM aerodromes, an approval to start engines shall be issued within the procedural time window, -5 / +5 minutes before / after the TSAT. If there is a request after the time window is over, the pilot shall be asked to update his TOBT.

En-route clearance should be issued at the same time, if possible.

- .11 In case en-route clearance cannot be issued before the aircraft starts taxiing, the pilot should be requested to advise when ready to copy ATC clearance.
- .12 The CTOT known to ATC shall be forwarded to the pilot at least once, preferably in connection with the start-up request.
- .13 If a flight suspension message (FLS) was received or if it is apparent that the slot tolerance cannot be met, start up approval shall not be issued. The pilot shall be advised to contact AIS-C or the operator.
- .14 If, at a non A-CDM aerodrome, the estimated off-block time (EOBT) of a flight not subject to ATFM measures is exceeded by more than 15 minutes, a start-up approval shall not be issued. The pilot shall be asked to initiate a delay message (DLA).

331.2 Inform the pilot about the expected time of delay if the delay until take-off is expected to be 20 minutes or more.

Note: At A-CDM aerodromes, the delay is determined by the valid TSAT.

**332 TAXI INSTRUCTION**

332.1 When issuing taxi instructions to departing aircraft, include the following items in the order listed :

- .11 holding point;
- .12 runway designator.

332.2 If necessary, include the following items :

- .21 taxi route;
- .22 wind;
- .23 QNH (METAR value); or, on request of the pilot, QFE;
- .24 when a taxi instruction is given to a taxi limit beyond a runway, it shall contain an explicit permission to cross that runway or an instruction to hold short of that runway;
- .25 any other pertinent information.

332.3 If a pilot neglects to acknowledge the valid ATIS broadcast on first radio contact :

- .31 on an IFR-flight, refer him to this information,
- .32 on a VFR-flight, transmit the relevant information.

332.4 Request an en-route clearance or a special VFR clearance from the appropriate unit and transmit it to the aircraft as soon as practicable, if no other procedure has been laid down between the approach and the aerodrome control unit.

Note : As far as locally established, the aerodrome controller may issue clearances for IFR and / or special VFR flights on his own initiative.

**333 TAKE-OFF CLEARANCE**

- 333.1 Issue the take-off clearance when it is known that the aircraft is ready for departure and traffic permits.
- .11 As a rule, an aircraft must be airborne during the slot tolerance.
- .12 If a flight suspension message (FLS) was received or if it is apparent that the slot tolerance cannot be met, take-off clearance shall not be issued. The pilot shall be advised to contact the operator, if necessary, support shall be provided.
- .13 Take-off clearances for IFR or special VFR flights shall be withheld until the aircraft has received and acknowledged the clearance for the IFR or special VFR flight.
- .14 Prior to take-off pilots shall be advised of :
- changes of Information to Aerodrome Traffic;
  - any significant changes in the wind direction and speed, the air temperature, and the visibility or RVR;
  - significant meteorological conditions in the take-off and climb-out area;
  - changes of the QNH value (METAR value);
- except when it is known that the information has already been received by the pilot.
- .15 Include the wind when issuing take-off clearance.
- 333.2 Indicate the appropriate departure route before issuing the take-off clearance for a departing VFR flight.
- Note : Consider that the published VFR route may be limited to certain aircraft categories.
- 333.3 When the aircraft is ready for departure but cannot be cleared for take-off, an instruction to line up may be issued in order to expedite traffic.

- 333.4 You may clear an aircraft for immediate take-off when another aircraft is on final approach and there is still sufficient time for the take-off. Specify traffic, if necessary.
- 333.5 When an aircraft is on final approach and there is still sufficient time to clear a departing aircraft which is in take-off position, instruct the aircraft to take-off immediately or vacate the runway if there is any doubt as to whether the aircraft will take-off.
- 333.6 When transmitting clearances and instructions, place data such as traffic information, wind at the beginning of the message, and phrases such as CLEARED FOR TAKE-OFF, LINE UP, CLEARED FOR IMMEDIATE TAKE-OFF at the end of the message.
- 333.7 A permission for a right turn after take-off may be issued if requested by the aircraft or deemed necessary by the aerodrome controller and if traffic conditions as well as noise abatement procedures permit.
- 333.8 An aircraft may be cleared to depart from an approved and published runway intersection if the pilot has requested this procedure or agrees to it. If the pilot requests information about the take-off distance available, the published length shall be indicated.

### **334 FREQUENCY CHANGE**

- 334.1 An explicit approval to leave tower frequency shall be issued to VFR flights, except when the aircraft will be instructed to change to another frequency.
- 334.2 Instruct pilots conducting IFR flights if they are required to establish radio contact after take-off or to maintain listening watch on a radio frequency other than that published in the departure route.
- .21 Aircraft operating on an IFR flight plan shall only be held on the frequency of the aerodrome controller if the traffic situation requires the direct delivery of traffic information and the responsible approach control unit had been informed.



**335 DEPARTURE MESSAGE**

335.1 For the following flights departing from controlled aerodromes a departure message shall be transmitted to the AIS-C by the aerodrome control service :

.11 VFR-flights, for which a flight plan has been filed;

Remark: Only valid for VFR-departures from international airports.

.12 IFR-flights with VFR-part (flight rule Y or Z);

.13 IFR-flights to destination areas CY, K, M, PA, R, S, T, UM, VH, VRM, VT, W and ZB;

.14 priority flights;

.15 military flights;

.16 on request of AIS-C or pilot.

335.2 The type of transmission shall be specified locally.

**336 - 339 NOT ALLOCATED**

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**340 ARRIVING AIRCRAFT****341 ENTRY INTO THE CONTROL ZONE**

341.1 Clear arriving aircraft which do not perform an instrument approach to enter control zone if weather and traffic conditions permit. Include the following items in the order listed :

.11 VFR inbound route;

.12 Runway designator or landing direction;

.13 QNH (METAR value) or, if so requested by the pilot, the QFE (if necessary, converted to the appropriate threshold).

341.2 As far as necessary, the following items are transmitted :

.21 Level;

.22 Wind direction and speed;

.23 Essential local traffic;

.24 Essential aerodrome information;

.25 Special instructions.

341.3 When arriving VFR flights cannot be cleared in due time to join traffic circuit for traffic reasons, an authorisation to enter the control zone can be given with the instruction to hold over visual holding fixes until a further clearance can be issued; specify a time, if applicable.

**342 JOIN THE TRAFFIC CIRCUIT**

342.1 Clear arriving aircraft which do not perform an instrument approach to join the traffic circuit if traffic conditions permit. Include the following items in the order listed, if not yet transmitted.

.11 Direction of traffic circuit when right traffic circuit is used;

.12 Runway designator;

.13 QNH (METAR value) or, if so requested by the pilot, the QFE (if necessary, converted to the appropriate threshold).

342.2 As far as necessary, the following items are transmitted :

- .21 Level to enter traffic circuit;
- .22 Wind direction and speed;
- .23 Essential local traffic;
- .24 Essential aerodrome information;
- .25 Special instructions.

Note: A clearance to enter the traffic circuit or a part of the traffic circuit implies that the clearance has been given to continue flying the entire traffic circuit.

342.3 The pilot may be authorised to shorten the traffic circuit if traffic conditions and noise abatement procedures permit.

342.4 The pilot may be instructed to lengthen or shorten downwind to achieve proper spacing in the traffic circuit.

342.5 When it is required to delay an aircraft in the traffic circuit for separation purposes the aircraft may be instructed to fly one or more circles.

342.6 You may request an aircraft to switch on the landing lights in an attempt to identify the aircraft or find out its position.

### 343 LANDING CLEARANCE

343.1 When traffic permits, the landing clearance should be issued before the aircraft reaches a distance of 2 NM from touchdown.

343.2 The clearance shall include the following items in the order listed :

- .21 Essential local traffic, if necessary;
- .22 Essential aerodrome information, if necessary;
- .23 Special instructions, if necessary;
- .24 Wind direction and speed;

- 343.25 Runway designator;
- .26 Landing clearance.
- 343.3 Aircraft may be instructed for traffic reasons to make a long or short landing.
- 343.4 Touch-and-go landings, low approaches or low passes may be approved if traffic conditions permit.
- 343.5 Instruct aircraft to perform low approach at 500 FT GND or above in case another aircraft, vehicles or persons are on the runway. Issue traffic information to all aircraft involved.
- 343.6 If necessary instruct an aircraft to go around; issue a missed approach instruction, if necessary.
- 343.7 Do not withhold a landing clearance when an aircraft joins the traffic circuit without authorisation. The possibility of an emergency situation should be recognised.
- 343.8 Assist aircraft experiencing landing gear trouble by transmitting observations on the status of the landing gear to aircraft.

**344 TAXI INSTRUCTION AFTER LANDING**

- 344.1 Issue taxi instructions when the aircraft has completed the landing. Include any special instruction and essential aerodrome information, if necessary.
- 344.2 The first taxi instruction should be transmitted on the frequency of the aerodrome controller rather than on the frequency of the ground controller.

**345 ARRIVAL MESSAGE**

- 345.1 For the following flights landing on controlled aerodromes an arrival message shall be transmitted to the AIS-C by the aerodrome control service :
- .11 military flights;
- .12 flights landed on an aerodrome other than filed in the flight plan as destination aerodrome;
- .13 on request of AIS-C or pilot.
- 345.2 The type of transmission shall be specified locally.

**346 - 349 NOT ALLOCATED**

**350 ADDITIONAL PROCEDURES****351 USE OF RADAR IN AERODROME CONTROL**

351.1 In aerodrome control service radar may be used for the following purposes. The extent of the radar service to be provided and the associated details are specified in the respective Operational Orders.

.11 Integration of VFR traffic entering the control zone into the traffic circuit or into the flow of arriving IFR traffic.

.111 The approach sequence established by the approach control service shall not be interrupted. Therefore, if required, agree with APP such distances between IFR approaches that permit the integration of flights exclusively controlled by TWR into the IFR traffic.

.112 Effect the transfer of an arriving aircraft from APP to TWR according to local procedures. Make sure that the identity of the aircraft to be transferred and the approach sequence established by APP are maintained.

.12 Support of flights in the control zone by issuing selective traffic information.

351.2 The responsible approach controller may, in accordance with local procedures and if agreed to or requested by the aerodrome controller, delegate the following functions to the aerodrome controller :

.21 support of pilots, especially in cases of loss of orientation or emergencies;

.22 separation between IFR departures;

.23 separation between IFR-approaches on final approach track(s);

.24 separation between IFR departures and IFR approaches;

.25 separation between special VFR flights;

.26 separation between special VFR flights and IFR flights;

.27 separation between IFR flights and VFR flights at night within controlled airspace;

- 351.28 immediate action for separating missed approaches from other controlled flights;
- .29 immediate action to be taken if minimum separation between controlled flights has been infringed.

## 352 USE OF GROUND SITUATION DISPLAY SYSTEM

### 352.1 Purpose of Use

Ground situation display system should be used to provide monitoring and guidance of aircraft and vehicles on the manoeuvring area :

- in case of limited visibility, especially during meteorological conditions which require procedures according to CAT II / III;
- at night;
- in case of line-of-sight limitation of parts of the manoeuvring area;
- if deemed necessary by the controller.

### 352.2 Possibilities of Use

Ground situation display system information will be used :

- to confirm that the runway resp. its protection area is clear of vehicles or landed aircraft;
- to confirm that a departing aircraft is lining up on the correct runway;
- to confirm that a departing aircraft has commenced take-off run;
- to confirm that a departing aircraft has lifted;
- to provide taxi instructions to aircraft or vehicles;

Note : It remains the pilot's responsibility to avoid a possible endangerment of other aircraft, vehicles or persons when complying with taxi instructions.

- to provide traffic information to aircraft or vehicles;
- to monitor compliance with control instructions;



352.2 ctd.

- to confirm a position report;
- to provide position information and taxi instructions to aircraft or vehicles uncertain of their position;
- to provide guidance information to rescue vehicles, as required or necessary.

352.3 Limitations

The described use of ground situation display system in MO-ATS items 352.1 and 352.2 can be limited by :

- size of object;
- scale of display;
- shielding by obstacles;
- extreme meteorological conditions;
- reflections;
- ground condition / growth.

352.4 Identification

Before using ground situation display system the aircraft and vehicles concerned shall be identified by at least **one** of the following methods :

- the crossing of the beginning of the runway by a landing aircraft is observed on another radar source and correlated to an appropriate ground situation display system target;
- when transferring control the target on the ground situation display system is physically pointed out or the target's position is described without doubt to the accepting controller;
- the position and, if required, the taxi direction as observed by the controller coincide with the target displayed;
- the reported position and, if required, the taxi direction coincide with the target displayed.

352.4 ctd.

Note 1 : This report can also be made by apron management service or similar.

Note 2 : If transfer procedures by means of electronic media (e.g. DEPCOS) are laid down in a Letter of Agreement between apron and aerodrome control and if it is assured that the actual sequence of the aircraft coincides with the sequence of the transferred data, this transfer of data equals a reported position.

.41 Where A-SMGCS is used, aircraft and vehicles may be identified by the following procedures :

- direct recognition of the aircraft identification of a Mode S-equipped aircraft in a label;
- direct recognition of a suitably equipped vehicle identification in a label.

and the correspondence between the displayed position and the reported and / or visible position of the aircraft / vehicle.

352.5 Procedures

.51 Different circumstances at different aerodromes (e.g. arrangement / occupation of working position, technical equipment) in case of need imply further local procedures resp. agreements for the use of the ground situation display system.

Note : Taxi instructions with a direct influence on the movement of aircraft and vehicles (e.g.: TURN RIGHT / LEFT NOW) resp. with heading assignments (e.g. : TURN RIGHT / LEFT HEADING) shall not be used. Instructions to stop immediately are excepted.

**353-359 NOT ALLOCATED**

**360 AERODROME LIGHTING****361 GENERAL PROCEDURES**

- 361.1 The aerodrome lighting shall be operated under the conditions specified in MO-ATS item 362.
- 361.2 The intensity of the high intensity lighting system shall be adjusted to suit the prevailing meteorological conditions. Further adjustments shall be made whenever requested by aircraft.
- 361.3 The same intensity setting should be used preferably for the runway edge, centre line and touchdown zone lighting.
- 361.4 The aerodrome lighting should be turned off when no longer required to assist local air traffic. Details shall be laid down locally in agreement with the aerodrome operator.
- 361.5 Runway lighting shall not be operated if that runway is not in use, unless required for runway inspections or maintenance.
- 361.6 If any malfunction or outage of the aerodrome lighting system or parts thereof is observed notify the airport operator in accordance with local procedures.
- 361.7 Except when the runway is closed due to a total failure of the runway lighting, it is left to the discretion of the pilot, even though lighting has failed, to conduct an approach, a landing, a take-off or to taxi.
- 361.8 If in case of a failure of the obstruction lighting no precise information can be furnished about the extent of the failure, the term UNRELIABLE shall be used for the publication by NOTAM and in voice communication.

362 CONDITIONS		TURN ON								TURN OFF		
		If deemed necessary by the controller	On request of the pilot	Between SS and SR	Day and night during approaches	One RVR position indicates ≤ 1500 m	Ceiling below 1000 FT	During ILS CAT II and III operations	During LVTO	On request of the pilot	During ILS CAT II and III approaches	During ILS CAT I or non-precision approaches
	REL/H (incl. THR and end lights)	X	X	X1		X	X					
Only with REL/H	RCL	X	X					X	X	X4		
	TDZ	X	X			X				X4		
	APL/H	X	X	X2		X	X			X4		
Only with APL/H	Red side row barrets							X				X
	EFAS*	X	X			X	X			X	X	
	PAPI				X						X	
	TXE	X	X	X3								
	TXC	X	X					X	X	X4		
	Stopbars	X						X	X			
	Aerodrome beacon	X	X	X								
	Obstruction lighting	X	X	X								

General :The lighting concerned shall be operated if at least **one** of the conditions marked in Table 362 is met;

- x1 : REL / H shall be operated between SS and SR at least as follows :
- For departing aircraft :  
Before the aircraft is entering the runway until 5 minutes after departure (with radar), 15 minutes after departure (without radar).
  - For landing aircraft :  
10 minutes before the estimated time of landing until the runway is vacated.
- x2 : APL / H shall be operated between SS and SR at least as follows :  
10 minutes before estimated time of landing until the aircraft has landed.
- x3 : Local regulations with differing operating times shall be followed.
- x4 : If not prescribed
- \* : EFAS shall :
- be operated when the aircraft is in the vicinity of the outer marker or the corresponding DME-value **and** if at least one of the relevant conditions marked in MO-ATS item 362 is met.
  - be switched off during CAT II and III operations.

363 TOTAL FAILURE OF LIGHTING SYSTEMS			
	Notification via ATIS	Notification of aircraft concerned via voice communication	Close runway
<b>Approach lighting</b>	<b>X</b>		
<b>Approach lighting</b> Ceiling below 1000 FT and/or ground visibility below 3000 m	<b>X</b>	<b>X</b>	
<b>Runway lighting</b> 1) at night			<b>X</b>
<b>Runway lighting</b> 1) at day	<b>X</b>		
<b>Runway lighting</b> 1) at day ceiling below 1000 FT and/or ground visibility below 3000 m	<b>X</b>	<b>X</b>	

1) Runway lighting consists of edge, end and threshold lights.

**364 - 369 NOT ALLOCATED**

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**410 GENERAL PROCEDURES****411 PROCESSING OF ATC CLEARANCES**

411.1 Clearance requests and clearances shall immediately be processed and forwarded in the order in which they are received unless traffic conditions require a different sequencing or a different sequence is more advantageous in the interest of a expeditious traffic handling.

411.2 Clearances shall be relayed in the same wording in which they have been received.

.21 In cases where personnel transmitting clearances to aircraft does not belong to the ATS, it is essential that appropriate arrangements are made to meet this requirement.

411.3 If a clearance is not satisfactory to a pilot, an alternative clearance shall be issued, if possible.

411.4 If, during a flight, clearances that deviate from the originally issued air traffic control clearance are issued, the ATC unit that is in radio contact with the aircraft at the time when the modification becomes known shall be responsible for transmitting the modification to the pilot.

**412 CONTENTS OF ATC CLEARANCES**

412.1 Clearances shall contain the following items, as appropriate, in the order listed:

.11 clearance limit;

.12 route of flight;

.13 level or changes of level;

.14 SSR code;

.15 any other information.

412.2 As a rule, aircraft shall be cleared according to the routing specified in the flight plan.

- 412.21 Clearances deviating from the originally assigned route of flight may be issued when the traffic situation permits or so requires, and when public safety and order are not affected.
- 412.3 The following procedures shall be observed when levels are assigned:
- .31 Levels below the established IFR minimum cruising level or the minimum radar vectoring altitude shall not be assigned to IFR flights. IFR flights below the established IFR minimum cruising level or the minimum radar vectoring altitude shall only be cleared for published IFR procedures.
- .32 As a rule, the following levels shall be assigned:
- flight levels above the transition altitude;
  - altitudes at or below the transition altitude.
- .321 If appropriate, altitudes above the transition altitude may also be assigned.
- .33 Whenever possible, the level requested by the pilot shall be assigned.
- .34 An aircraft at a cruising level shall normally have priority over other aircraft desiring that cruising level. When two or more aircraft are at the same cruising level, the preceding aircraft shall normally have priority.

#### 413 COORDINATION OF FLIGHT PROGRESS DATA

- 413.1 Adjacent ATC units and sectors shall be kept informed about flight progress data of controlled flights by means of an **ESTIMATE**.
- .11 Unless otherwise agreed, these data shall be transmitted before the aircraft is estimated to enter the adjacent airspace, as far as possible, by using an automatic data transmission system. The units of the operational air navigation services can define individual times. These have to be at least 5 minutes.

413.2 If the flight plan data are known to the accepting unit, this shall be confirmed by indicating the aircraft type and the destination aerodrome. The transferring unit shall then merely give:

- .21 SSR code;
- .22 estimated time over the point or boundary;
- .23 level;
- .24 remarks, if necessary.

413.3 If no flight plan data are available transmit the following data in the order listed:

- a) ESTIMATE, specification of point, if necessary related to the direction of flight;
- b) radio call sign of the aircraft, if necessary;
- c) SSR code;
- d) type of aircraft;
- e) significant point and estimated time over;
- f) level or climb / descent and cleared level, if necessary;
- g) requested cruising level, if differing;
- h) true airspeed, if necessary;
- i) aerodrome of departure, if necessary;
- j) aerodrome of destination, if necessary;
- k) route;
- l) clearance limit, if differing from the aerodrome of destination, if necessary;
- m) remarks, if necessary.

- 413.4 Any change of ETO / ATO of **5 or more** minutes, unless otherwise agreed, as well as changes of the coordinated level or other relevant data shall be forwarded in due time by means of a **REVISION**.
- 413.5 Whenever the **flying time** of an aircraft in flight to the transfer of control point is **less** than the times established according to MO-ATS item 413.11, the prior consent of the receiving unit shall be obtained by means of an **EXPEDITE CLEARANCE**.
- 413.6 The **prior consent** of the receiving unit shall be obtained by means of an **APPROVAL REQUEST** for:
- .61 an aircraft not yet airborne whenever the flying time to the transfer of control point is less than the times established in MO-ATS item 413.11;
  - .62 an aircraft in flight intending to operate under conditions other than those described in mutually agreed procedures.

#### 414 USE OF RADIO NAVIGATION AIDS

- 414.1 Within the designated operational coverage radio navigation aids shall be used as follows:
- .11 Unrestricted:  
if fully serviceable.
  - .12 Restricted:  
taking into account the known limitations.
- 414.2 Outside the designated operational coverage, if either radar monitoring is provided or if the DFS/UZ department SIS/N has issued an exemption for specified routings.
- 414.3 Radio navigation aids which are operated "on test" or ground checked only shall not be used.

**415 METEOROLOGICAL INFORMATION**

415.1 Obtain or accept the following meteorological information from the appropriate aeronautical meteorological office, if necessary:

- .11 routine and special weather reports for aerodromes;
- .12 forecasts concerning meteorological conditions in the respective FIR / UIR;
- .13 aerodrome forecasts;
- .14 upper wind forecasts for the respective FIR / UIR.

**416 FLIGHTS ACCORDING TO IFR WITHIN AIRSPACE CLASS F**

416.1 As a rule, clearances for flights according to instrument flight rules within airspace class F shall only be issued on published IFR procedures.

- .11 Surveillance and guidance of flights is, except in emergencies or similar cases, only permitted in controlled airspace.

416.2 The obligation to provide separation for such a flight is fulfilled by clearing one flight at a time only in airspace class F. IFR flights in airspace class F will not be separated from VFR flights.

416.3 Clearances for IFR flights in airspace class F shall only be issued by the DFS control unit providing approach control service, if necessary a relay can be made by AFIS personnel. In those cases where clearances are transmitted by personnel which does not form part of the air traffic services, it is essential that appropriate arrangements are made to guarantee that the clearances are transmitted in the exact phrasing as received.

416.4 It shall be ensured that the frequency change of the IFR flight is initiated prior to entering airspace class F to enable the AFIS personnel to issue traffic information in time.

Note: The obligation to notify about entering / leaving controlled air-space is fulfilled by appropriate remarks in the approach / departure charts.

**417 - 419 NOT ALLOCATED**

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**420      GENERAL RADAR PROCEDURES**

**421      USE OF RADAR**

421.1      Radar shall be used by an ATC unit to:

- .11      provide separation;
- .12      monitor and vector aircraft;
- .13      expedite the flow of air traffic;
- .14      assist pilots in circumnavigating areas of adverse weather, in solving navigational problems, in special situations and by issuing traffic information.

421.2      Radar vectoring shall not be terminated before it is assured that the pilot is able to continue his flight on his own navigation.

**422      IDENTIFICATION**

422.1      Before providing radar service to an aircraft, radar identification shall be established and the pilot shall be informed accordingly. If radar identification is subsequently lost (interruption for three or more target returns), the pilot shall be informed accordingly.

422.2      As long as doubts exist as to the identity of a radar target, the identification shall be repeated or additional methods of identification shall be applied.

422.3      Where SSR is used, aircraft may be identified by **one or more** of the following procedures:

- .31      recognition of the aircraft identification in a radar label;
- .311      In case of uncorrelated radar targets, the sole use of the Mode S aircraft ID is only permitted for identification purposes if the MSCC (A1000) is emitted simultaneously.
- .32      recognition of an assigned discrete code in a radar label, the setting of which has been verified;

422.321            When a discrete code has been assigned to an aircraft, a check shall be made at the earliest opportunity to ensure that the code set by the pilot is identical to that assigned for the flight. Only after this check has been made, shall the discrete code be used as a basis for identification.

.33                by transfer of radar identification;

.34                Observation of compliance with an instruction to set or change a specific code;

.341              When the MSCC (A1000) has been assigned to a flight, a check shall be made at the earliest opportunity to ensure that the Mode S Aircraft ID emitted is correct. Only after this check has been made, shall the Mode S Aircraft ID be used as a basis for identification.

.342              The MSCC may only be used if the Mode S Aircraft ID is identical to the call sign indicated in item 7 of the flight plan (correlation). If an incorrect Mode S Aircraft ID is emitted, the pilot shall be instructed to correct it. If the incorrect Mode S Aircraft ID continues to be displayed, the aircraft shall be assigned a discrete Mode 3/A code.

.35                observation of compliance with an instruction to squawk IDENT.

422.4            Where SSR is not used or available, radar identification shall be established by at least one of the following methods:

.41                by correlating an observed radar position indication with an aircraft which is known to have just departed, provided that the identification is established within 1 NM from the end of the runway used;

.42                by correlating a particular radar position indication with an aircraft reporting its position over, or as bearing and distance from a point displayed on the radar map, and by ascertaining that the track of the particular radar position is consistent with the aircraft path or reported heading;

.43                Recognition of the radar target of an aircraft on a radial and arc of a navigation aid reported by the pilot;

Note:    When employing this procedure the aircraft shall be more than 5 NM from the facility when flying below FL 245 and more than 15 NM when flying above FL 245.



422.44                      Recognition of the radar target of an aircraft having executed heading changes of 30 degrees or more that were prescribed by the controller and/or confirmed by the pilot (maximum time of heading change 2 minutes);

.45                      by transfer of radar identification.

422.5                      Unless otherwise agreed upon, only those SSR codes that have been assigned to the respective ATC unit or working position shall be used.

.51                      The MSCC shall only be used in those cases where the flight data processing system has assigned an MSCC. Manual assignment of the MSCC is not permitted.

.52                      If an incorrect Mode S Aircraft ID is emitted, the pilot shall be instructed to correct it. If the incorrect Mode S Aircraft ID continues to be displayed, this shall be documented in the daily log.

422.6                      In case of a failure or a deactivation of the radar facilities which leads to a loss of Mode S data, or in case of loss of Mode S data by an individual aircraft for any other reason, the aircraft shall be assigned a discrete SSR code Mode 3/A.

422.7                      Upon entering an area where MSCC is not used, the aircraft shall be assigned a discrete SSR Code Mode 3/A.

**423                      POSITION INFORMATION**

423.1                      Position information shall be provided during non-precision approaches.

423.2                      Position information should be provided:

.21                      on pilot's request;

.22                      if radar vectoring is terminated and the pilot is to resume own navigation.

423.3                      Position information shall be issued in the form of position over, direction and / or distance from or to a known location / point.

**424                    TRANSFER OF RADAR IDENTIFICATION**

- 424.1                    Transfer of identity shall be effected by **one** of the following methods:
- .11                    the target is physically pointed out to the accepting controller;
  - .12                    the accepting controller is informed of the distance and bearing of the target from a fix or a geographical position indicated on both radar displays and, if necessary, of the track of the aircraft;
  - .13                    the transferring controller instructs the aircraft to change code and the accepting controller observes this change;
  - .14                    the transferring controller instructs the aircraft to operate the IDENT feature and the accepting controller observes this response;
  - .15                    notification of the discrete code of the aircraft.
- 424.2                    The accepting controller shall confirm the identification.
- 424.3                    When a computerised radar system is used, the identity is automatically maintained by taking over the discrete code.

**425                    RADAR TRANSFER WITHOUT COORDINATION**

- 425.1                    Unless laid down differently in a Letter of Agreement and / or an Operational Order, adjacent ATC units and / or sectors may carry out radar transfer without coordination (silent radar transfer), provided that the following minimum distances between successive aircraft proceeding in the same direction are not infringed:
- .11                    15 NM;
  - .12                    10 NM, if the radar coverages of the ATC units and / or sectors concerned overlap by at least 30 NM;
  - .13                    5 NM, for sectors in the same control centre.

**426      VECTORING AND PROVISION OF NAVIGATIONAL ASSISTANCE**

426.1      When vectoring IFR flights with radar or issuing direct clearances for flights outside published routings, the controller shall ensure the adherence to the respective minimum radar vectoring altitude.

Note:      The provisions governing the execution of SRA are not effected.

426.2      Take appropriate action when an identified controlled aircraft deviates significantly from its cleared or assigned route and such deviation is likely to affect the control being exercised.

426.3      Inform the pilot about the reason of your action when instructing him to execute manoeuvres whose purpose is not self-evident.

426.4      Aircraft shall be radar-vectorred by giving the following instructions:

- .41      the direction of turn and the magnetic heading to be flown after completion of the turn;
- or
- .42      the direction of turn and the number of degrees to be turned;
- or
- .43      a heading to be flown by the aircraft.

North shall be indicated by heading 360.

**427      USE OF SSR MODE C READOUTS AND USE OF A SYSTEM TO COMPARE SL WITH CFL**

427.1      If labels are displayed, level readouts may be used for separation purposes irrespective of whether a discrete code or a group code has been assigned.

.11      Level readouts on a QNH basis shall be used only within the framework of the respective locally established procedures.

.12      The level indicated may be used for control purposes if it does not differ by more than 200 FT from the level coordinated or reported by the pilot.

427.121            If the reported level differs by more than 200 FT from the level indicated, inform the pilot of the difference and request him to report the level again. If the discrepancy persists, request the pilot to stop his Mode C transmission, if possible.

.122            If an automatic system is used to compare the cleared flight level (CFL) with the level selected on board the aircraft (SL) and a discrepancy is found, the pilot shall be informed of the discrepancy and requested to repeat the CFL.

Note: The displayed selected level (SL) shall not be used for separation purposes, nor shall the information shown on the display be used as a substitute for a hearback/readback of level clearances.

.13            A level shall be considered to be reached if the level readout remains constant or almost constant for 3 consecutive renewals of the radar picture.

.14            A level shall be considered to be maintained if the level readout does not differ from the assigned level by more than 200 FT.

.15            A level is considered to be left or passed if the level readout indicates a change of more than 300 FT in the anticipated direction.

**428            ACAS / TCAS PROCEDURES**

428.1            The procedures to be applied for the provision of air traffic control to aircraft equipped with ACAS / TCAS shall be identical to those applicable to non-ACAS / TCAS equipped aircraft. In particular, the prevention of collisions, the establishment of appropriate separation and the information which might be provided in relation to conflicting traffic and to possible avoiding action shall conform with the normal air traffic services procedures and shall exclude consideration of aircraft capabilities dependent on ACAS / TCAS equipment.

428.2            To avoid unnecessary ACAS / TCAS-resolution advisories (RA) it is recommended that pilots reduce the rate of climb respectively descent to 1500 FT / min or less within the last 1000 FT before reaching the assigned level (flight level or altitude), unless ATC issues a specific rate in the climb / descent clearance or instruction in order to establish or maintain separation.

428.3      Procedures

428.31      The controller should be aware of the fact, that in the event of an ACAS / TCAS-resolution advisories (RA) to alter the flight path pilots shall respond immediately and manoeuvre as indicated unless doing so would jeopardize the safety of the aircraft.

.32      When a pilot reports a manoeuvre induced by an ACAS / TCAS-resolution advisory (RA), the controller:

.321      shall not attempt to modify the flight path of an aircraft responding to an resolution advisory;

.322      shall not issue any clearance or instruction to the aircraft involved until the pilot reports returning to the terms of the assigned ATC clearance or instruction;

.323      shall acknowledge by using the phrase **ROGER**;  
and

.324      should provide traffic information if deemed necessary.

.33      Once an aircraft departs from its clearance or instruction in compliance with an ACAS / TCAS-resolution advisory (RA), the controller ceases to be responsible for providing separation between that aircraft and any other aircraft affected as a direct consequence of the manoeuvre induced by an ACAS / TCAS-resolution advisory (RA).

.34      The controller shall resume responsibility for providing separation for all the affected aircraft when he acknowledges:

.341      a report from the pilot that the aircraft is resuming the assigned ATC clearance or instruction and issues an alternative clearance or instruction which is acknowledged by the pilot;  
or

.342      a report from the pilot that the aircraft has resumed the assigned ATC clearance or instruction.

428.4      Phraseology

- .41      If a pilot deviates from the assigned ATC clearance or instruction to comply with an ACAS / TCAS-resolution advisory (RA), the pilot will after initiating the manoeuvre inform ATC immediately using the phraseology:

**TCAS RA**

- .42      If an ATC clearance or instruction contradictory to the ACAS / TCAS-resolution advisory (RA) is received, the pilot will follow the ACAS / TCAS-resolution advisory (RA) and inform ATC immediately using the phraseology:

**UNABLE, TCAS RA**

- .43      A pilot who deviates from an ATC clearance or instruction in response to a ACAS / TCAS-resolution advisory (RA) will promptly return to the terms of that ATC clearance or instruction when the conflict is resolved and will notify ATC:

- .431      if the response to a ACAS / TCAS-resolution advisory (RA) is completed and ACAS / TCAS indicates CLEAR OF CONFLICT using the phraseology:

**CLEAR OF CONFLICT  
RETURNING TO** (assigned clearance)

- .432      or if the assigned ATC clearance or instruction is resumed using the phraseology:

**CLEAR OF CONFLICT  
(assigned clearance) RESUMED.**

**429      NOT ALLOCATED**

**430 SEPARATION****431 GENERAL PROCEDURES**

431.1 As a rule, radar or vertical separation procedures shall be applied for the separation of aircraft. A possible failure of radar or radiotelephony ground equipment shall not be considered in the air traffic control clearances.

.11 If the application of radar procedures is not possible, vertical and / or conventional separation procedures shall be used.

.111 Additional separation procedures may be laid down locally for special areas or points, if deemed necessary. Such documents shall be made available to the working positions concerned.

.112 Additional separation minima may be applicable for government and formation flights or in case of turbulences.

431.2 Separation shall be established between the following flights:

a) IFR flights;

b) IFR flights and VFR flights in airspace class C;

c) IFR flights and Special VFR flights;

d) VFR flights within airspace class C and Special VFR flights;

e) Special VFR flights;

f) IFR flights and VFR flights at night within controlled airspace;

g) IFR flights and VFR flights within controlled airspace which change flight rules by applying reduced weather minima;

h) VFR flights in navigational difficulties when passing through respectively when in clouds and other flights with the obligation to provide separation.

431.3 Within controlled airspace distances shall be maintained for IFR flights, VFR flights within airspace class C, Special VFR flights and VFR flights at night to:

- 431.31 the boundary of the own area of responsibility or controlled airspace, as appropriate;
- .32 restricted areas;
- .33 danger areas;
- .34 night low flying system;
- .35 special activity areas.
- 431.4 A reduction of separation minima between military aircraft based on military requirements or demanded in the course of exercises is acceptable for ATS units only, if an appropriate application of the appropriate military authority is on file and if the reduced minima to be observed shall apply only to military aircraft which are directly attached to this military authority. There is no obligation for ATC to provide separation according to MO-ATS between such aircraft.

**432 VERTICAL SEPARATION**

- 432.1 The vertical separation minimum shall be:
- .11 1000 FT between flights at and below FL 290;
- .12 1000 FT between RVSM approved flights at and above FL 290 up to FL 410 inclusive;
- .13 2000 FT between flights at and above FL 290 up to FL 410 inclusive by:
- non-RVSM approved State aircraft and any other aircraft;
  - formation flights of State aircraft and any other aircraft;
  - an aircraft with unserviceable RVSM equipment and any other aircraft;
- .14 2000 FT between flights above FL 410.



- 432.2 Vertical separation for opposite direction traffic may be terminated when:
- the prescribed radar separation exists after the aircraft have passed each other;  
or
  - at least one of the aircraft involved reports that he has passed the other aircraft.
- 432.3 When an aircraft reports leaving a level, this level may be assigned to another aircraft. In applying this procedure, the different rates of climb and descent shall be taken into account. If, however, severe turbulence is known to exist, such assignment shall not be used.
- 432.4 Vertical separation between climbing or between descending aircraft shall be ensured by instructing pilots to maintain certain climb or descent rates provided that all of the following conditions are met:
- .41 Vertical separation exists before this procedure is used. In case of severe turbulence the vertical separation shall be twice the prescribed minimum separation.
  - .42 The vertical separation will be constant or increasing.
- 432.5 If a pilot is instructed to maintain certain rates of climb or descent this condition shall be limited to the extent necessary for control purposes.
- .51 If a clearance containing certain rates of climb or descent is amended, these restrictions are no longer valid.
  - .52 Inform the pilot accordingly when an imposed limitation is no longer required.

### **433 RADAR SEPARATION**

- 433.1 Within controlled airspace radar separation may be applied between:
- .11 Radar-identified aircraft;

- 433.12 An aircraft taking off and another identified aircraft, when the aircraft taking off will be identified within 1 NM from the end of the runway.
- .13 If a controller has not identified an aircraft entering or about to enter his airspace, he may continue to provide radar service to identified aircraft provided that all of the following conditions are met:
- .131 Reasonable assurance exists that the unidentified controlled flight will be identified using SSR or the flight is being operated by an aircraft of a type which may be expected to give an adequate return on primary radar;
- .132 Radar separation is maintained between the radar controlled flights and any other observed radar position until either the unidentified controlled flight has been identified or non-radar separation has been established.
- 433.2 Radar separation based on the use of RPS and / or PSR blips shall be applied so that the distance between the centres of the RPSs and / or PSR blips, representing the positions of the aircraft concerned, is never less than a prescribed minimum.
- 433.3 Radar separation minima shall be increased by 1 NM for formation flights. If two or more formations are separated from each other, the prescribed radar separation minimum shall be increased by 1 NM for each formation.
- .31 As a rule, civil formation flights are subject to the control procedures for military formation flights.

#### 434 RADAR SEPARATION MINIMA

##### 434.1 System P1/ATCAS and Phoenix

- .11 The separation minima between aircraft

- 5 NM,
- in locally prescribed areas 3 NM

shall not be infringed.

- .12 The upper limit for the area within which 3 NM radar separation may be applied is FL 195, if not otherwise laid down locally under assistance of DFS/UZ department CC/OCS.

- 434.13 The lateral limits for the 3 NM areas shall be laid down locally under assistance of DFS/UZ department CC/OCS.
- .131 The conditions for the reduced radar separation minimum on final of 2.5 NM are contained in MO-ATS item 483.
- .14 In the event of a failure of mode C the following values apply:
- .141 5 NM,
- .142 3 NM, if the aircraft are on final approach(es) and if the aerodrome is equipped with a local ASR facility which is in operation.
- .15 The following radar separation minima between a PSR-target and a SSR-target shall be applied:
- .151 5 NM
- .152 3 NM, if the aircraft are on final approach(es) and if the aerodrome is equipped with a local ASR facility which is in operation.
- .16 If three coasting symbols appear in a row in a series of RPSs a different kind of separation (e.g.: vertical separation) shall be established.
- .17 5 NM, if three or more successive system track symbols are displayed in a series of radar position symbols (RPSs), whenever the Local Presentation Mode (LPM) of system P1/ATCAS is used. Local deviations may be agreed upon in consultation with DFS/UZ department CC/OCS.
- .18 5 NM, if three or more successive system substitution symbols are displayed in a series of RPSs, whenever the Approach Presentation Mode (APP) of system P1/ATCAS is used. In consultation with DFS/UZ department CC/OCS, local deviations may be agreed.
- 434.2 Systems P1/VAFORIT and MADAP
- .21 The separation minimum between aircraft
- 5 NM
- shall not be infringed.

**435 WAKE TURBULENCE SEPARATION**

435.1 In order to minimize the hazards of wake turbulence - for flights for which an obligation to provide separation exists - the following radar separation minima shall be applied if the prescribed separation minima are lower.

Preceding Aircraft	Succeeding Aircraft	Separation Minima
HEAVY	HEAVY	4 NM
HEAVY	MEDIUM	5 NM
HEAVY	LIGHT	6 NM
MEDIUM	LIGHT	5 NM

Note: Above FL100 the above mentioned conditions of the Category HEAVY shall apply to an AIRBUS A380 (A388).

.11 In addition, at and below FL100, the following minima shall apply to an AIRBUS A380 (A388):

Preceding Aircraft	Succeeding Aircraft	Separation Minima
A388 / HEAVY (non A388)	A388	not required
A388	HEAVY (non A388)	6 NM
A388	MEDIUM	7 NM
A388	LIGHT	8 NM

.12 If radar is not available the minimum time intervals of MO-ATS item 482 shall be used.

435.2 The separation minima mentioned above shall be applied when:

- .21 an aircraft is operating directly behind a preceding aircraft at the same level or less than 1000 FT below;
- .22 an aircraft is crossing behind another aircraft at the 6 o'clock position at the same level or less than 1000 FT below;
- .23 both aircraft use the same runway or parallel runways with a distance of less than 760 m to each other;
- .24 parallel runways with a distance of 760 m or more to each other are used and the flight path of the preceding aircraft is crossed at the same level or less than 1000 FT below;
- .25 crossing runways are used and the flight path of the preceding aircraft is crossed at the same level or less than 1000 FT below.

- 435.3 The separation minima mentioned above do not need to be applied if:
- .31 the pilot of an aircraft has declared that he has the preceding aircraft in sight and will attend to an appropriate distance himself;
  - .32 the pilot of an aircraft renounces wake turbulence separation;
  - .33 the area within which wake turbulence is expected will not be penetrated.
- 435.4 In cases where ATC does not influence the piloting of an aircraft (e.g. VFR flights), information on possible hazards from other aircraft shall - as far as possible - be provided:
- .41 by stating the type of aircraft, the position and - if relevant - the level, e.g. when the succeeding aircraft is in the traffic circuit and preplanned as number 2 to land;  
or
  - .42 by using the phrase **CAUTION WAKE TURBULENCE**, e.g. when an aircraft departs behind an aircraft of a higher weight category.
- Note: As the occurrence of wake turbulence hazards cannot be predicted accurately, air traffic control cannot assume responsibility for the issuance of advice on such hazards at all times, nor for its accuracy.
- 435.5 When a pilot requests to establish a sufficient distance to a preceding aircraft of a higher weight category (e.g. in cases where ATC has no influence on the piloting of an aircraft), a minimum distance corresponding to the separation minima mentioned above shall be established.

**436 DISTANCES TO AIRSPACE BOUNDARIES**

436.1 Aircraft crossing airspace boundaries shall be cleared so as to meet the agreed transfer conditions when reaching the distances to the airspace boundaries listed below. After crossing the airspace boundaries the agreed transfer conditions are to be maintained until passing the distances from the airspace boundaries listed below.

436.2 Radar control outside published routings may be provided up to the distances listed below to the boundaries of the areas. In case other distances are specified, or if the operating approval of the system in question prescribes other distances, those values shall be applied. The determination of the distances to airspace boundaries depends upon the activities within the areas.

436.3 Areas with air traffic (e.g.: areas of responsibility, sectors, military exercise areas, special activity areas). Regulations for TRA and MVPA can be found in MO-ATS item 436.7.

Note: Not valid for the transponder mandatory zones (TMZ).

.31 Lateral distances:

.311 For the systems P1/ATCAS, P1/VAFORIT, MADAP and Phoenix:

half the value of the radar separation minimum prescribed for the area concerned, however not less than 2.5 NM;

.312 for the systems P1/ATCAS and Phoenix at the boundaries between a locally prescribed 3-NM area and adjacent areas with higher radar separation minima:

half the value of the radar separation minimum prescribed for the area concerned, however not less than 2.5 NM.

- 436.313 For the systems P1/ATCAS and Phoenix:
- not less than 1.5 NM within locally prescribed 3-NM areas;
  - not less than 1.5 NM between adjacent locally prescribed 3-NM areas.
- .314 If no lateral separation from the boundary is maintained in an adjacent area where flights for which there is an obligation to provide separation are conducted or must be expected, the radar separation minimum stipulated by MO-ATS shall be applied to this area.
- .32 Vertical distances:
- 500 FT, if the boundary is below FL 290;
  - 500 FT, if the boundary is at or above FL290 and the aircraft involved are RVSM approved;
  - 1000 FT, if the boundary is at or above FL290 and the aircraft is a non-RVSM approved aircraft or a formation flight of state aircraft;
  - 500 FT, if the boundary is at or above FL290 and one of the aircraft involved is a non-RVSM approved aircraft or a formation flight of state aircraft and it is assured by prior coordination that the minimum vertical separation is maintained to any other aircraft in the adjacent airspace;
  - 1000 FT, if the boundary is at or above FL 410.
- .321 Unless agreed otherwise locally, the vertical distances to boundaries of military areas shall be doubled if it can be expected that flights are performed in these areas for which separation must be provided.

- 436.4 Areas with activities other than air traffic (e.g. artillery areas, bomb disposal, gas release):
- .41 Lateral distance: 2 NM
- .42 Vertical distances:
- 500 FT, if the boundary is below FL 290,
  - 1000 FT, if the boundary is at or above FL 290.
- Note: If upper limits are published as altitudes, the local QNH (METAR value) shall be taken into consideration when determining the lowest usable flight level above the area.
- .421 Vertical distances need no longer be maintained as soon as the aircraft concerned has passed the lateral boundary of the respective area and is leaving away from this area on a track perpendicular or nearly perpendicular ( $\pm 20^\circ$ ) to the border line. Divergences shall be established locally.
- 436.5 To areas without activities (e.g. protection areas for nuclear power plants, industrial sites, governmental institutions or similar), as well as High-Intensity Radio Transmission Areas (HIRTA), no lateral or vertical distances need to be maintained.
- 436.6 Temporarily defined areas within airspace class C below FL 100, and - if applicable - airspace class D (not control zone) and areas within airspace class E, where air traffic is performed during the day following the visual flight rules as well as to activated parachute dropping zones :
- .61 In the areas, within which 3 NM radar separation minimum may be applied:
- Lateral distance: 1 NM.
- In the areas, within which 5 NM radar separation minimum may be applied:
- Lateral distance: 2 NM.
- .62 Vertical distances:
- 500 FT;
- .63 The values above may be applied if the following conditions are met:



- 436.631 these areas are displayed on the radar map.
- .632 Additionally, the following shall apply to glider areas:
- it is not permitted to issue clearances for flights through activated glider areas;
- Note: If parachute dropping zones are located within gliding sectors and both of them are simultaneously used, these parachute dropping zones shall not be part of the activated gliding sectors.
- the specifications and procedures for regional glider areas are laid down in the German-language publication "Nachrichten für Luftfahrer", those for local glider areas shall be laid down in an Operational Directive;
  - in addition to the local regulations, the following shall be laid down in an operational directive:
    - traffic information by ATC will not be issued, if necessary the local aviation supervision office (örtliche Luftaufsicht) / flight control (Flugleitung) will issue;
    - constant listening watch on the frequency of the local aviation supervision office / flight control is required.
- 436.7 TRA / MVPA:
- .71 TRA / conventional procedure
- .711 Lateral distances:
- For the systems P1/ATCAS, P1/VAFORIT, MADAP and Phoenix half the value of the radar separation minimum prescribed for the area concerned, however not less than 2.5 NM.
- It may be laid down in a letter of agreement that one unit does not maintain the distance from an airspace boundary provided that the other unit maintains full radar separation of not less than 5 NM.
- .712 Vertical distances:
- 1000 FT if the boundary is below FL 290;
  - 1000 FT below and 2000 FT above, if the boundary is at FL 290;
  - 2000 FT if the boundary is above FL 290.

- 436.712 Exception: A vertical distance of 500 FT is sufficient if the published boundary is at an intermediate level (e.g. FL 245 or FL 285) below FL 290.
- .713 If only parts of the TRA are required for the planned exercises, aircraft may cross the unused part of the TRA. A lateral minimum distance of 5 NM from the boundary of the TRA part(s) in use and the prescribed minimum vertical distances from the TRA part(s) in use shall be maintained.
- 436.72 Modified TRA control procedure
- .721 Lateral distances:
- As a rule, flights may be guided to the lateral airspace boundaries both inside and outside the TRA without coordination. Formation flights may be guided outside the TRA up to a distance of 1 NM from the airspace boundary without coordination. Between training flights inside the TRA and controlled air traffic outside the TRA, the responsible TACCS unit shall maintain the distance corresponding to the radar separation minimum prescribed for the area concerned.
- .722 Vertical distances:
- Flights may be guided to the vertical airspace boundaries both inside and outside the TRA without coordination. Between training flights inside the TRA and controlled air traffic outside the TRA, the responsible TACCS unit shall maintain the following distances:
- 1000 FT, if the aircraft are below FL 290;
  - 1000 FT below and 2000 ft above, if the aircraft are at FL 290;
  - 2000 FT, if the aircraft are above FL 290.
- I
- .723 The methods to be applied in defined and agreed airspaces shall be regulated locally with the TACCS units. The coordination procedures shall be defined in local regulations.

- 436.73            MVPA: |
- .731            Lateral distances: |
- For the systems P1/ATCAS, P1/VAFORIT, MADAP and Phoenix the value of the radar separation minimum prescribed for the area concerned, however not less than 5 NM. |
- .732            Vertical distances: |
- 1000 FT if the boundary is below FL 290;
- 1000 FT below and 2000 FT above, if the boundary is at FL 290;
- 2000 FT if the boundary is above FL 290.
- 436.8            Night low flying system (NLFS):
- .81            Lateral distance:
- The appropriate applicable radar separation minimum.
- .82            Vertical distances:
- As a rule, at least 1100 FT above the en-route altitude shall be maintained, however not less than 600 FT above the emergency / entry / exit altitudes of the particular route segment.
- .821            At least 1100 FT shall be maintained above the emergency / entry / exit altitude of the route segments actually used as entry / exit segments.
- .822            At least 1000 FT below the en-route altitude shall be maintained to route segments where terrain flight following is prohibited and it is intended to underfly the NLFS.
- .823            At least 1000 FT above the en-route altitude, however not less than 500 FT above the emergency / entry / exit altitude of the particular route segment, if the same QNH-value is used for the OAT-flight within the NLFS and for other controlled flights.

- 436.83 Within the NLFS altitude changes are conducted as follows:
- from the lower to the higher en-route altitude within 3 NM before the way point;
  - from the higher to the lower en-route altitude within 3 NM behind the way point.
- .84 An aircraft may be cleared to penetrate a night low flying system route segment, if - on the basis of a Letter of Agreement - the responsible ATC unit:
- states that the particular part of the night low flying system is not in use;  
or
  - issues a crossing clearance.
- .85 Special regulation governing operational helicopter flights of the Federal Police, the police and medical emergency flights by helicopter.
- .851 If flights cannot be performed below the activated route segment at a maximum height of 700 FT GND or if the flights remain in the area of the activated route segment for a longer period of time due to the nature of their operation, the ATC unit shall be entitled to assign a different level to military training flights.
- 436.9 Distances do not have to be maintained to areas with flight models activities.

**437 HIRTA**

- 437.1 High-intensity radio transmission areas (HIRTA) have been defined for the protection of certain aircraft whose functionality could be impaired when crossing these areas.
- 437.2 The pilot shall bear the responsibility for avoiding the crossing of a HIRTA. If a pilot realises that the cleared flight path will lead him through a HIRTA, he shall inform the responsible ATC unit. The responsible ATC unit shall then issue a modified air traffic control clearance which will guide the aircraft around the HIRTA.
- .21 It is not necessary to maintain lateral or vertical distances from HIRTAs.

**438 - 439 NOT ALLOCATED**

**440                    GENERAL CONTROL PROCEDURES**

**441                    DELEGATION OF THE OBLIGATION TO PROVIDE SEPARATION**

441.1                Aircraft may be cleared to proceed subject to maintaining own separation and remaining in VMC, provided **all** of the following conditions are met :

- .11                the procedure is applied only during daytime;
- .12                the procedure is applied at or below FL 100;
- .13                no opposite direction traffic is concerned;
- .14                the pilot requests or agrees to this procedure and acknowledges that he sees the other aircraft;
- .15                the application of the procedure is limited to a specified time or a specified point / level.

441.2                If there is a possibility that the flight under VMC may become impracticable, an IFR flight shall be provided with alternative instructions to be complied with in the event that the flight in VMC cannot be continued according to the clearance.

Note: The pilot of an IFR flight, on observing that conditions are deteriorating and considering that operation in VMC will become impossible, will inform ATC before entering IMC and will proceed in accordance with the alternate instructions given.

441.3                Traffic information shall be given to both aircraft in accordance with "Essential traffic information".

441.4                When applying the above procedure, transfer of control shall only be affected with the prior agreement of the accepting unit.

441.5                In deviation from the above mentioned regulations, separation between arriving aircraft may be reduced in controlled airspace if one aircraft is following the other and the aircraft are both on the final approach track, or on final approach tracks to parallel runways, and the pilot of the succeeding aircraft reports that the other aircraft is in sight and adequate distance will be maintained.

**442            HOLDING INSTRUCTIONS**

- 442.1            When instructing an aircraft to hold, the time at which an aircraft is permitted to continue its flight or may expect a further clearance shall be given in addition to the holding level.
- 442.2            Detailed holding instructions shall be issued if **one** of the following conditions prevails:
- .21            the aircraft has to follow a holding procedure other than the published one;  
                 or
  - .22            the pilot reports that he is not familiar with the published holding procedure;  
                 or
  - .23            the aircraft is required to hold over a point for which no holding procedure is published.
- 442.3            When issuing detailed holding instructions, the following items shall be mentioned:
- .31            holding fix;
  - .32            holding level;
  - .33            inbound magnetic track to the holding fix;
  - .34            direction of turns;
  - .35            time along outbound leg or distance values, if necessary;
  - .36            time at which the flight may be continued or a further clearance can be expected.

**443            PROCEDURES FOR THE CHANGE OF FLIGHT RULES**

- 443.1            Change of flight rules from IFR to VFR
- .11            Flights for which a Y flight plan has been filed shall be cleared to the point where the IFR portion terminates.
  - .12            If a change of flight rules from IFR to VFR is requested for approaches to aerodromes below controlled airspace or to aerodromes for which no IFR approach procedure is published, a clearance to descend shall be issued only down to the specified Minimum IFR Cruising Level or to the Minimum Radar Vectoring Altitude (MRVA).

- 443.121            IFR flights below MRVA shall be cleared only for published IFR procedures.
- .13                If a pilot intends to cancel the IFR portion of his flight plan during the flight and to continue his flight according to visual flight rules, the cancellation shall be approved if the traffic situation permits.
- .14                No invitation to change from IFR flight to VFR flight is to be made either directly or by inference.
- .15                For the continuation of the flight according to visual flight rules below the Minimum IFR Cruising Level or the MRVA, the following reduced weather minima apply within the controlled airspace:
- flight visibility 3000 m;
  - visual contact to the ground;
  - clear of clouds.
- .151              Requirement for the application of these minima:
- the transition from IFR to VFR takes place at the Minimum IFR Cruising Level or the MRVA;
  - the controlled airspace is left immediately after the transition to VFR.
- .152              Until leaving the controlled airspace, these flights shall be separated from other controlled flights requiring separation.
- .153              The pilot shall be instructed to report leaving the controlled airspace.
- .16                The responsible ATC flight data specialist shall be informed if the change of flight rules was not intended in the flight plan.
- .17                If necessary, the pilot may be instructed to establish radio contact on the appropriate FIS frequency.

- 443.2      Change of flight rules from VFR to IFR
- .21      Flights for which a Z flight plan was filed shall be handled as VFR departures.
  - .22      The control sector responsible for the area in or below which the IFR portion starts, is responsible for the issuance of the IFR clearance.
  - .23      The pilot shall be informed about the beginning of the IFR portion. If an IFR clearance is issued before entry into the controlled airspace, the pilot shall be informed that the IFR clearance will be effective upon passing the Minimum IFR Cruising Level / MRVA respectively when reaching the published IFR departure procedure within uncontrolled airspace.
  - .24      For the climb from the lower limit of the controlled airspace to the Minimum IFR Cruising Level / MRVA respectively until reaching the published IFR departure procedure within uncontrolled airspace, the following reduced weather minima apply:
    - flight visibility 1.5 km;
    - clear of clouds.
  - .241      The reduced weather minima shall apply only after issue of the IFR clearance.
  - .242      Requirements for the application of these minima:
    - the transition from VFR to IFR takes place at the Minimum IFR Cruising Level / MRVA resp. on the published IFR departure procedure within uncontrolled airspace;
    - the climb between the lower limit of the controlled airspace to the Minimum IFR Cruising Level / MRVA resp. until reaching the published IFR departure procedure is executed without delay.
  - .243      With the entry into the controlled airspace, these flights shall be separated from other controlled flights requiring separation.
  - .25      Until reaching the MRVA respectively the Minimum IFR Cruising Level the pilot remains responsible for maintaining the Minimum Safe Height. Radar vectoring shall not start before the aircraft reaches the MRVA wherewith the responsibility for maintaining the Minimum Safe Height changes to the controller even before reaching the Minimum IFR Cruising Level.



443.26            On request of the pilot, the IFR clearance may be issued before departure, this may also be done via telephone. The validity of the clearance is limited to a certain period of time.

                  Note:    It shall be ensured that the transmission of the clearance to the pilot is recorded on tape.

**444            RNAV (GPS)**

444.1            In case of an RNAV (GPS)- approach the pilot shall be informed about the planned type of approach in time.

444.2            The aircraft shall be vectored to the final in a manner to allow that the initial approach altitude and at least 2 NM straight and level flight before passing the final approach point are ensured.

444.3            After commencing the final approach a change from one final to the other or a change of the type of approach precludes the continuation as RNAV (GPS)- approach.

444.4            If the pilot reports "RAIM Alert", if necessary, he will: |

                  .41            Prior to reaching the final approach point, initiate a missed approach;

                  .42            After passing the final approach point, continue the approach. |

444.5            GPS / FMS RNAV Transitions: |

                  By the use of the following phraseology the following shall be applied:

                  .51            CLEARED XXX TRANSITION |

                  Clearance to fly the lateral part of a GPS / FMS route including the charted speed instructions. Altitude instructions shall be issued separately.

                  .52            CLEARED XXX TRANSITION AND PROFILE |

                  Clearance to fly the lateral part of a GPS / FMS route including the charted speed and altitude instructions.

| 444.53            PROCEED DIRECT WAYPOINT XXX  
                      CLEARED VIA WAYPOINTS XXX AND YYY

Clearance to fly from the present position directly to a single waypoint or a combination of waypoints and continue the flight on the lateral part of a GPS / FMS route following the last waypoint, including the charted speed instructions. Altitude instructions shall be issued separately.

| 444.6            If the pilot reports "RAIM Alert":

|            .61            prior departure, a different conventional departure route shall be assigned;

|            .62            after departure, the pilot will continue his flight according to the cleared RNAV departure route.

| **445            CPDLC PROCEDURES**

| 445.1            General

|            .11            The controller-pilot data link communication (CPDLC) application provides a means of communication between the controller and pilot, using data link for ATC communication.

|            .12            This application includes a set of clearance/information/request message elements which correspond to the phraseologies used in the radiotelephony environment.

|            .13            When using CPDLC, the maximum dialogue time is 120 seconds.

|            .14            CPDLC shall only be used for non-time-critical clearances, i.e. clearances that do not require the immediate reaction of the pilot.

                      Note: If the downlink request is cut off because the time limit was exceeded, the pilot will also repeat the request over radiotelephony.

|            .15            The CPDLC status of the aircraft will be shown on the radar screen.

- 445.2      Establishment of CPDLC
  - .21      CPDLC shall be established in sufficient time to ensure that the aircraft is communicating with the appropriate ATC unit.
  
- 445.3      Exchange of operational CPDLC messages
  - .31      The controller or pilot shall construct CPDLC messages using the defined message set.
  - .32      A clearance requested by the pilot via CPDLC should be issued via CPDLC. A clearance requested by the pilot via radiotelephony should be issued via radiotelephony.
  - .33      Voice communication and radiotelephony instructions have priority over CPDLC instructions at all times.
  - .34      In the case of CPDLC instructions leading to a change in the flight profile, the pilot shall confirm the instruction by readback.
  
- 445.4      Procedure for the failure of CPDLC
  - .41      In the case of a CPDLC failure, CPDLC clearances that have not yet been confirmed shall be repeated over radiotelephony and/or confirmed.
  - .42      If the pilot or ATC is of the opinion that CPDLC should no longer be used under the given circumstances, CDPLC shall be discontinued or terminated and the other party shall be informed about this by voice communication.
  - .43      In the case of a planned shutdown or an unexpected failure of the CPDLC system, ATC will instruct all aircraft equipped with data link to return to voice communication. In the case of an onboard failure of CPDLC, the pilot shall return to voice communication and inform ATC.

**446 - 449      NOT ALLOCATED**

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**450      DEPARTING AIRCRAFT**

**451      EN-ROUTE CLEARANCE**

451.1      Before departure, an en-route clearance including the items listed below shall be issued.

.11          If a clearance cannot be issued in due time the pilot shall be informed of the approximate delay and – if known – the reason for it.

451.2      Clearance limit

.21          **One** of the following items shall be specified:

.211          aerodrome of destination;

.212          point;

.213          airspace boundary.

451.3      Departure route

.31          As a rule, a standard departure route shall be assigned.

.32          If a standard departure route cannot be assigned a departure procedure which includes the following items shall be assigned:

.321          radial, heading or arc;

.322          direction of turn when airborne, if necessary;

.323          initial level.

- If an initial level other than the one published in the standard departure route is assigned this level shall not be lower than the MRVA.
- Level restrictions necessitating an interruption of the climb to the initial level should be avoided.

451.33      For noise abatement reasons air traffic control clearances that deviate from published departure procedures below 3000 FT GND for propeller-driven aircraft and 5000 FT GND for jet-driven aircraft, or a specified higher level, should only be issued if this is imperative for safety reasons or if exemptions are permitted by the DFS/UZ department CC/ FD.

451.4      Route of flight

.41      as a rule, the routing requested in the flight plan shall be assigned;

.42      a routing that deviates from the flight plan shall be specified in detail.

451.5      SSR code

451.6      If the frequency deviates from the one published in the standard departure route the frequency to establish contact with when airborne shall be stated.

451.7      En-route clearances shall be issued in the form of dummy clearances, if possible.

## **452      DEPARTURE RESTRICTIONS**

452.1      A time restriction or another departure restriction shall be issued when necessary.

452.2      If the duration of a departure restriction cannot be limited the ATC unit concerned shall be informed.

452.3      Departure restrictions applicable beyond individual cases are considered as air traffic flow management measures.

## **453      VISUAL DEPARTURES**

453.1      For specified aircraft types and specified runways ATC may issue modified IFR departure procedures if **all** of the following conditions are met:

.11      the pilot requests or accepts the visual departure;

- 453.12            the ceiling is not below the MRVA or the pilot reports immediately before departure that the meteorological conditions allow a visual departure and that he is reasonably sure to perform this procedure;
  - .13                the visual departure only takes place during daytime;
  - .14                the visual departure is limited to a certain level (e. g. MRVA);
  - .15                the procedure was discussed with the appropriate noise abatement commission of the aerodrome.
- 453.2            The clearance for a visual departure should be issued together with the en-route clearance or directly prior to take-off clearance. By accepting a clearance for a visual departure, the pilot assumes the responsibility for ensuring obstacle clearance until passing the assigned level.
- Note:    The responsibility to maintain separation to other aircraft remains with ATC.
- 453.3            As far as possible significant weather information in the departure sector shall be forwarded to the pilot.
- 453.4            A clearance for a visual departure shall not be issued in airspace class F (HX).

**454 - 459 NOT ALLOCATED**

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**460 ARRIVING AIRCRAFT****461 INBOUND CLEARANCE**

461.1 If necessary an inbound clearance shall be issued as early as possible. Details shall be laid down locally. The inbound clearance shall include at least the following items:

461.2 Clearance limit

.21 **One** of the following items shall be given as the clearance limit:

.211 initial approach fix;

.212 another point, if so laid down or coordinated.

461.3 Route of flight.

**462 EXPECTED APPROACH TIME**

462.1 Approach control shall inform area control of an expected approach time and changes thereto unless otherwise agreed locally.

.11 An expected approach time shall be calculated when aircraft have to hold for **more than 20 minutes**.

.12 When an aircraft has to hold for **20 minutes or less** an expected approach time may be transmitted, if deemed necessary.

.13 Expected approach times shall be transmitted to pilots of single and two-seated jet-aircraft **in any case**.

462.2 An expected approach time shall be transmitted to the pilot as early as possible.

462.3 A revised expected approach time shall be transmitted to the pilot without delay whenever it differs by **5 minutes or more** from the previously transmitted time.

**463 APPROACH CLEARANCE**

463.1 An aircraft shall be cleared to execute a complete published approach procedure or portion thereof.

Note: If the type of the approach procedure is not specified the pilot is entitled to apply any published approach procedure.

.11 The clearance for a published standard approach procedure without any further level restrictions includes a clearance to descend to the lowest initial approach altitude (IAF altitude) published for this standard approach procedure.

463.2 The approach clearance shall include instructions for a circling approach if the landing is to be effected on a runway other than that aligned with the direction of the instrument approach.

463.3 The aircraft estimated to arrive first over the point from which approaches are commenced shall normally be the first aircraft cleared for an approach.

463.4 When establishing the approach sequence, an aircraft which has been authorised to absorb a specified period of notified terminal delay by cruising at a reduced speed en-route, should, in so far as practicable, be credited with the time absorbed en-route.

463.5 If a pilot does not acknowledge the receipt of the valid ATIS broadcast when establishing first radio contact with approach control:

.51 he shall be advised of the valid information if conducting an IFR flight;

.52 he shall be given the required information if the remaining flight time does not allow to monitor the ATIS broadcast;

.53 the pilot shall be informed about any changes made in a new ATIS which was recorded after he had acknowledged the information invalidated in the meantime:

.531 whenever a ground visibility of less than 2000 metres prevails:

- changes of ground visibility and, if applicable, RVR.

.532 whenever a ceiling of less than 1000 FT prevails:

- changes of the ceiling.

- 463.533 changes of the QNH value (METAR value);
- .534 changes of information to aerodrome traffic.
- .54 He shall be given the required information if conducting a VFR flight;
- 463.6 The actual QNH (METAR value) shall be transmitted to the pilot together with the first descent clearance below the transition level.
- 463.7 If a pilot reports or the controller realises that the pilot is not familiar with the approach procedure, the pilot shall receive all essential information, including details about the missed approach procedure, or another approach procedure shall be suggested.
- 463.8 Radar vectoring is terminated at the time the aircraft leaves the last assigned heading to intercept the final approach track.
- Note: The termination of the radar vectoring does not absolve the controller from the obligation to monitor the progress of flight of the aircraft.
- 463.9 If an aircraft is vectored to intercept a pilot-interpreted final approach, the pilot shall be instructed to report when established on the final approach track. This report is not required if the aircraft is vectored by a separate feeder.
- .91 When such a report is received and a deviation to the reported position is discernible on the radar display the pilot shall be advised of this deviation.
- .92 If the aircraft is already on the frequency of aerodrome control / aviation supervision office (Luftaufsicht), they shall be informed about the deviation.

**464 VISUAL APPROACH**

- 464.1 On the request or with the approval of the pilot, an IFR flight may be cleared to execute a visual approach, if:
- .11 the visual approach is coordinated with aerodrome control;  
and
  - .12 separation is maintained (during the day, it is possible to suggest to the pilot that he maintains own spacing from the preceding aircraft);  
and
  - .13 the pilot can maintain visual reference to the terrain;  
and
  - .14 the reported ceiling is at or above the level of the beginning of the initial approach segment;  
or
  - .141 the aircraft is below the reported ceiling;  
or
  - .142 the pilot reports that the meteorological conditions are such that with reasonable assurance a visual approach and landing can be completed.
- 464.2 If a pilot requests a visual approach, he shall inform ATC as soon as the conditions according to MO-ATS item 464.13 and 464.141 or 464.142 have been fulfilled.
- 464.3 When a clearance for a visual approach has been issued, the pilot shall assume responsibility for:
- .31 maintaining obstacle clearance;  
and
  - .32 complying with the conditions according to MO-ATS item 464.13 and 464.141 or 464.142.
- 464.4 A clearance for a visual approach during a radar-vector approach shall only be issued after the pilot has reported that he has the aerodrome or the preceding aircraft in sight.
- 464.5 A clearance for a visual approach shall not be issued in airspace class F (HX).

**465 MISSED APPROACH**

- 465.1 If the pilot is requested to execute a missed approach procedure that deviates from the published procedure or if he is not familiar with the published procedure, he shall receive detailed information about the missed approach procedure.
- 465.2 In this case at least the following items shall be given:
- .21 heading or track;
  - .22 level to which the aircraft shall climb on the initial heading or track before returning for another approach.
- 465.3 A missed approach shall be coordinated between approach control and aerodrome control.

**466 INITIAL AND INTERMEDIATE APPROACH**

- 466.1 When vectoring for a pilot-interpreted approach is provided, the pilot shall be advised if the type of approach differs from the one announced on the ATIS.
- 466.2 The approach clearance shall be issued at the latest when the aircraft:
- .21 has turned to a suitable heading to intercept the final approach track;  
or
  - .22 is established on the final approach track;  
or
  - .23 when radar vectoring is intended to be discontinued.
- 466.3 When vectoring an aircraft for a surveillance radar approach, the latest moment to inform the pilot about this is the time when the aircraft is turned to or established on a suitable heading to intercept the extended centreline of the runway.
- 466.4 A pilot
- .41 performing a precision approach may be informed about the distance from touchdown at which he will reach the final approach track;
  - .42 performing a non-precision approach shall in any case:
    - .421 be informed in due time about the level and the distance from touchdown at which he will reach the final approach track;  
and
    - .422 receive position information to facilitate the planning of the approach.

- 466.5 An aircraft should be vectored to intercept the final approach track so as to ensure at least 1 NM straight and level flight before commencing final descent.
- .51 If an aircraft is vectored to a shorter approach than described above, the pilot shall be informed in due time about the distance from touchdown at which the pilot will reach the final approach track.
- 466.6 For RNAV (GPS)- approaches the aircraft shall be vectored to the final in a manner to allow that the initial approach altitude and at least 2 NM straight and level flight before passing the final approach point are ensured.

#### 467 SURVEILLANCE RADAR APPROACH

- 467.1 During a surveillance radar approach the pilot shall be provided with instructions and information on the position of the aircraft relative to the extended centreline of the runway and to the distance from touchdown.
- .11 The surveillance radar approach starts at the point where the final descent is to commence normally.
- .12 For the P1 system, it shall be agreed locally in consultation with DFS/UZ department CC/OCS which P1 radar processing modes shall be used for surveillance radar approaches.
- 467.2 At or before the commencement of the final approach the pilot shall be informed of the point at which the surveillance radar approach will be terminated.
- 467.3 Altitude instructions
- .31 The pilot shall be informed when he is approaching the point at which final descent should begin.
- .32 Just before reaching that point he shall be:
- .321 informed of the obstacle clearance altitude;
- .322 in conjunction with the distance information to touchdown, instructed to commence descent;
- .323 advised to check his own minima.

- 467.33 Distance from touchdown shall normally be passed at each NM, except as provided in MO-ATS item 467.7.
- .34 Together with the distance information transmit the altitude, resp. temperature corrected, through which the aircraft should be passing to maintain the required glide path.
- .35 During a surveillance radar approach after having passed a position 4 NM from touchdown the pilot shall be advised to check his landing gear.
- .36 The pilot shall be advised when approaching the obstacle clearance altitude, respectively temperature corrected.
- .37 A table showing the altitudes, respectively temperature corrected, which should be passed depending on the distance from touchdown shall be displayed at the appropriate working position.
- 467.4 Heading instructions
- .41 In case of azimuth deviations re-establish the aircraft on the extended centreline by means of appropriate headings.
- .42 Advise the pilot accordingly if no corrective actions are required to keep the aircraft on or towards the extended centreline.
- 467.5 The pilot shall be requested to report when either the runway, the field or the approach lights are in sight.
- 467.6 A surveillance radar approach shall be terminated when **one** of the following conditions is met, whichever is the earliest:
- .61 at the missed approach point;
- .611 no altitude instructions shall be given below the OCA, except as provided in MO-ATS item 467.7;
- .612 heading instructions shall be given until reaching the missed approach point;

- 467.62 before the aircraft enters an area of continuous radar clutter;
- .63 when three successive substitution symbols, coasted targets or P1 system track symbols appear, unless the use of the P1 system presentation mode has been permitted locally in consultation with DFS/UZ department CC/OCS for surveillance radar approaches;
- .64 when the pilot reports that a visual approach can be effected;
- .65 when the pilot has initiated a missed approach.
- 467.7 When the accuracy of the radar system permits and if the aircraft is compelled to land, for example due to an emergency, surveillance radar approaches may be continued to the threshold of the runway, in which case:
- .71 between 2 NM final and touchdown altitude and heading instructions shall be given at each half NM;
- .72 transmissions should not be interrupted for intervals of more than 5 seconds while the aircraft is within a distance of 4 NM from touchdown;
- .73 the radar controller should not be responsible for any duties other than those directly connected with the SRA.
- 467.8 If traffic permits, the landing clearance should be issued before the aircraft reaches a distance of 2 NM from touchdown.
- .81 If coordination with TWR has revealed that the conditions for the issuance of a landing clearance will be met when the aircraft is less than 2 NM from touchdown, a frequency change to TWR shall not be performed and the landing clearance together with the indicated surface wind shall be relayed to the pilot immediately after receipt. In such a case instruct the pilot to contact TWR or stand-by on TWR frequency after landing.
- 467.9 When conducting surveillance radar approaches make sure that voice communications are not interfered by other aircraft.

**468 - 469 NOT ALLOCATED**



**470 ADDITIONAL PROCEDURES 1****471 SPEED CONTROL**

471.1 To allow a better utilization of the airspace and to achieve a more economical flow of air traffic speed control may be applied in the range of the established maximum speeds.

Note 1: Maximum speeds below FL 100:

IFR: In airspace classes D, E and F max. 250 KT IAS;

VFR: In airspace classes C, D, E, F and G max. 250 KT IAS.

Note 2: There are no maximum speeds published at / above FL 100.

471.2 Exceptions to the established maximum speeds:

.21 If traffic permits and the safety of air traffic is not endangered, ATC may permit a higher speed:

.211 at night in airspace class E;

.212 for IFR flights in airspace class D;

.213 for VFR flights in airspace classes C and D.

.22 Aircraft which have to be operated at a higher airspeed due to their performance characteristics, will maintain the minimum speed permitted by the respective flight condition.

.23 Aircraft of the Federal Armed Forces, by order of the Federal Armed Forces as well as Allied Forces stationed in Germany by international law may deviate from the specified maximum speed, if so required for fulfilling their special tasks.

471.3 Speed control shall not be applied to military jet aircraft executing a published high altitude approach procedure unless the prior consent of the pilot has been received.



- 472.12 If necessary, delays for approaches shall, as far as possible, be performed in holdings or by imposing speed restrictions in airspace class C and airspace class D (not control zone).
- .13 Where possible, clearances are to be given for a continuous descent and with a presumed descent rate of 300 FT / NM.
- .14 When an arriving aircraft on a standard instrument arrival route (STAR) is cleared to descend to a level lower than the level or the level(s) specified in a STAR, the aircraft shall follow the published vertical profile of a STAR, unless such restrictions are explicitly cancelled by ATC. Published minimum levels based on terrain clearance shall always be applied.
- 472.2 Departures
- .21 In the case of clearances for a shorter routing than the standard instrument departure route, all published conditions concerning the standard instrument departure route become invalid. ATC shall issue the conditions required for the remaining standard instrument departure route.
- .22 Clearances for a continuous climb to the cruising level or a level near to the cruising level should be issued as soon as possible.
- .23 Whenever possible, levels within the airspace class C, airspace class D (not control zone) and/or the TMZ shall be assigned.
- .24 When a departing aircraft on a standard instrument departure route (SID) is cleared to climb to a level higher than the initially cleared level or the level(s) specified in a SID, the aircraft shall follow the published vertical profile of a SID, unless such restrictions are explicitly cancelled by ATC.
- .25 Level restrictions imposed for separation purposes shall be cancelled at the earliest possible time.

**473 VFR FLIGHTS WITHIN AIRSPACE CLASS C BELOW FL 100 AND WITHIN AIRSPACE CLASS D (not control zone)**

473.1 The following flight data shall be recorded:

- .11 aircraft identification / call sign;
- .12 type of aircraft;
- .13 position;
- .14 route of flight;
- .15 level.

473.2 Before issuing a clearance, the flight shall be coordinated with the control sectors concerned.

473.3 The pilot shall be informed about entering and leaving.

473.4 VFR flights within airspace class C shall receive :

- .41 traffic information concerning VFR flights;  
and
- .42 avoidance advice on request.

473.5 VFR flights in airspace class D (not control zone) shall receive:

- .51 traffic information concerning IFR flights;
- .52 traffic information concerning VFR flights.

473.6 Exceptions from the obligation to issue traffic information and / or avoidance advice on request in temporary delegated areas in airspace class C below FL 100 and airspace class D (not control zone) are permitted if the procedures are laid down in written form.

**474 VFR FLIGHTS WITHIN AIRSPACE CLASS C AT / ABOVE FL 100**

474.1 The following flight data shall be recorded:

- .11 aircraft identification / call sign;
- .12 type of aircraft;
- .13 true airspeed;
- .14 position;
- .15 route in reference to radio navigational aid(s);
- .16 aerodrome of destination;
- .17 flight level.

Note: When assigning flight levels, the rules for semi-circular cruising levels may be disregarded.

474.2 Before issuing a clearance, the flight shall be coordinated with the first responsible control sector.

- .21 This control sector shall be responsible for further coordination of the flight.
- .22 To ensure this coordination, the pilot should plan his flight on the basis of published ATS routes. When issuing the clearance, this may be disregarded if it is certain that the required flight data are available at the appropriate control sectors.
- .23 If a control sector cannot accept this flight in a coordinated flight level and / or on the coordinated route due to lack of ATC capacity, an alternate clearance should be issued, if possible. If this is not possible, the flight in airspace class C at / above FL 100 shall be rejected.

474.3 VFR flights within airspace class C at / above FL 100 shall receive:

- .31 traffic information concerning VFR flights;  
and
- .32 avoidance advice on request.

**475 ALL WEATHER OPERATIONS**

## 475.1 General

- .11 All tasks to be performed in connection with All Weather Operations shall be carried out by the controller whose working position is equipped with the status monitor and selector system for this kind of approaches. He shall handle approaching aircraft until they have landed or initiated a missed approach.
- .12 Separation between one approaching aircraft and another approaching or departing aircraft shall be provided in such a way as to ensure that approaching and departing aircraft, taxiing aircraft or vehicles do not cause any interference of ILS signals when the approaching aircraft is within a distance of 2 NM from the runway threshold.
- .13 Operations according to CAT II or III include the LVTO, if the aerodrome is rated accordingly, if the aerodrome is rated CAT I only, a special LVTO rating is required.
- .14 If regulated locally, during the operation of the ILS, aircraft shall only be allowed in the critical area under following conditions :
- 1) As soon as the controller expects that a landed aircraft will taxi through the critical area of the ILS localiser, the following information shall be given to the other approaching aircraft on the respective frequencies (TWR or APP) :  
  
"Expect short-time ILS interference".
  - 2) It shall be ensured that the taxi process is executed without delay.
  - 3) No vehicles shall be allowed in the critical area during the operation of the ILS.
- .15 Decisive for the determination of the RVR for the provision, operation or change is the first RVR value measured in landing direction, i.e. in general the touchdown zone.

475.2 **Measures to be taken for CAT II / CAT III:**

RVR:  $\leq 1000$  m;  
and / or  
ceiling:  $\leq 300$  FT;

- 1) CAT II shall be selected on the status monitor and selector system;
- 2) secondary power supply for optical and non-optical landing aids shall be switched on;
- 3) sensitive area(s) shall be vacated and critical area(s) shall be checked whether vacant - if applicable.

Note: Critical and sensitive areas are considered to be vacated if this is confirmed by the airport operator.

- 4) the ILS of the opposite direction shall be switched off provided there are no operational reasons for not doing so.

.21 If the status monitor and selector system fails, CAT II resp. III is not available.

475.3 **Operation according to CAT II:**

RVR:  $\leq 600$  m;  
and / or  
ceiling:  $< 200$  FT;

- 1) CAT II shall be selected on the status monitor and selector system;
- 2) visual approach lighting system shall be switched off;
- 3) EFAS shall be switched off;
- 4) runway centre line lights shall be switched on;
- 5) red side row barrettes shall be switched on;
- 6) taxiway centre line lights shall be switched on;
- 7) stop bars shall be switched on;
  - a) a stop bar that is switched on shall not be crossed;
  - b) when issuing a taxi instruction the resp. stop bars shall be switched off;

475.3 ctd.

c) if a stop bar that shall be crossed following a clearance is not switched off, the pilot has to stop and notify ATC. A clearance to cross a stop bar that is switched on may only be issued after a check has been made.

Note 1: In this case, the airport operator will check the function of the stop bar or will determine whether the aircraft has taxied wrong.

Note 2: If there are no stop bars available or if these have failed, the protection of the runway against unintentional incursion shall be guaranteed otherwise.

8) operations according to CAT II shall be announced via ATIS;

LOW VISIBILITY PROCEDURES CAT II IN OPERATION;

9) the ILS of the opposite direction shall be switched off;

10) during approaches acc. to CAT II aircraft shall be instructed to hold at the respective holding point;

HALTEN SIE AM CAT II ROLLHALT  
HOLD AT CAT II HOLDING POINT

Note: With RVR of > 600 m, the following applies :  
If, after a defined ceiling that prescribes to take preparatory measures or to operate in accordance with CAT II, a weather report follows with a vertical visibility, the preparatory measures or the CAT II operations shall be continued. Notwithstanding this, the preparatory measures or the operations in accordance with CAT II shall be cancelled if the reported cloud base is above the prescribed minima.

11) The critical area of the ILS localiser shall be vacated no later than when the next approaching aircraft on final approach track is 4 NM from touchdown. If this is not the case, the approaching aircraft shall be instructed to conduct a missed approach.

.31 If the status monitor and selector system fails CAT II is not available.

.32 Vehicle traffic on the manoeuvring area shall only take place after approval of ATC. During CAT II operations a continuous listening watch on the appropriate frequency shall be maintained.



475.4 **Low-Visibility Take-Off (LVTO) :**

.41 Measures to be taken:

RVR:  $\leq$  **600 m**;

Stop bars shall be switched on;

RVR: **400 m**

- 1) LVTO resp. CAT II shall be selected on the status monitor and selector system;

Note: Depending on the technical capabilities of the status monitor and selector system.

- 2) runway centre line lights shall be switched on;
- 3) taxiway centre line lighting shall be switched on.

.42 Operation:

RVR:  $<$  **400 m**

- 1) LVTO operations shall be announced via ATIS:

LOW-VISIBILITY TAKE-OFF PROCEDURES IN OPERATION

Note: This announcement is not necessary during simultaneous operations acc. to CAT II or III.

- 2) During approaches acc. to CAT II or III, aircraft shall be instructed to hold at the respective holding point.

HALTEN SIE AM CAT II / III ROLLHALT  
HOLD AT CAT II / III HOLDING POINT

.43 Vehicle traffic on the manoeuvring area shall only take place after approval of ATC. During LVTO operations, a continuous listening watch on the appropriate frequency shall be maintained.

475.5 **Operation according to CAT III:**

RVR  $<$  **325 m**

- 1) CAT III shall be selected on the status monitor and selector system;
- 2) visual approach lighting system shall be switched off (unless already done following MO-ATS item 475.3);

475.5 ctd.

- 3) EFAS shall be switched off (unless already done following MO-ATS item 475.3);
- 4) runway centre line lights shall be switched on (unless already done following MO-ATS item 475.3);
- 5) red side row barrettes shall be switched on (unless already done following MO-ATS item 475.3);
- 6) taxiway centre line lighting shall be switched on (unless already done following MO-ATS item 475.3);
- 7) stopbars shall be switched on (unless already done following MO-ATS item 475.3);
- 8) operations acc. to CAT III shall be announced via ATIS:

LOW-VISIBILITY PROCEDURES CAT III IN OPERATION

- 9) During approaches acc. to CAT III, aircraft shall be instructed to hold at the respective holding point;

HALTEN SIE AM CAT III ROLLHALT  
HOLD AT CAT III HOLDING POINT

- 10) The critical area of the ILS localiser shall be vacated no later than when the next approaching aircraft on final approach track is 4 NM from touchdown. If this is not the case, the approaching aircraft shall be instructed to conduct a missed approach.

.51 If the status monitor and selector system fails CAT III is not available.

.52 Vehicle traffic on the manoeuvring area shall only take place after approval of ATC. During CAT III operations, a continuous listening watch on the appropriate frequency shall be maintained.

475.6 **Change of category:**

.61 If the RVR values and / or cloud base exceed the minima laid down for the respective category and a stabilisation is discernible, the higher category will be cancelled.

.62 Operational downgrading:

.621 CAT III a / b to CAT II:

- Failure of the ILS back up system;

- 475.622 CAT II or III a / b to CAT I:
- 1) reduced monitoring capabilities of localizer or glide path;
  - 2) sensitive area for CAT II or III a / b not vacated;
  - 3) failure of the transmissometer of the touchdown zone, the transmissometer of the touchdown zone may be substituted by a mid point transmissometer however not longer than 72 hours after the failure;
  - 4) failure of the wind measuring equipment, if another wind indication is available, there is no downgrading;
  - 5) failure of the secondary power supply of the runway lighting;
  - 6) complete failure of the runway lighting at day.
- .623 CAT I to another instrument approach procedure:
- Sensitive area for CAT I not vacated, however downgrading shall only be effected if the **aircraft is on the last 2 NM** of the approach and:
    - a) visibility < **1500 m**;  
and / or
    - b) ceiling < **400 FT**.
- .624 Closure of runway:
- Complete failure of the runway lighting at night.
- .625 To another instrument approach procedure:
- failure of the ILS;
  - failure of the glide path;
  - critical area is not vacated. DFS/UZ department TWR/MO may grant an exemption.
- Note: Criteria for downgrading (e.g. total failure of localizer / glide path, reduced fail safety, reduced monitoring capabilities) may be shown on the status and selector system. More specific details shall be laid down locally.

475.7 **Messages:**

- .71 In addition to the messages usually given to the pilot, the following information shall be transmitted during All Weather Operations even if they have already been transmitted via ATIS.
- .72 Together with the approach clearance and shortly before reaching the outer marker or the corresponding DME value.
- .721 RVR, beginning with the value for the touchdown zone, followed by the values along the runway. The pilot shall be informed if a RVR value is not available. In case of strong variations of the RVR values (changes of  $\geq 100$  m) the pilot may be informed accordingly.
- Note: Aircraft which have passed the outer marker or the corresponding DME value may continue in accordance with the approach category applied before the downgrading (decision of the pilot).
- .73 Shortly before reaching the outer marker or the corresponding DME value.
- .731 Direction and velocity of surface wind.
- .74 Immediately after occurrence:
- .741 Downgrading of the approach procedure and reason.
- .742 Failure of two thirds or total failure of one or more of the following lighting systems:
- a) approach lighting;
  - b) threshold lighting;
  - c) end lighting;
  - d) touchdown zone lighting;
  - e) runway centreline lighting;
  - f) runway edge lighting.
- .743 Failure of the secondary power supply of the approach lighting system.
- .75 As a rule, the following information shall be transmitted to the aircraft via ATIS only:

475.751 failure of the outer marker or the relevant DME;

.752 failure of the middle marker.

Note: In the cases mentioned in MO-ATS item 475.742, 475.743 and 475.75 a downgrading of the approach procedure is not necessary. It is the decision of the aircraft operator to consider failures (partly or in total) of ground equipment.

.76 As far as the taxi route of the aircraft is concerned:

.761 failure of two thirds or total failure of the taxiway centreline lighting;

.762 total failure of the stop bars.

**475.8 Approach clearance:**

.81 Clearances for an ILS approach acc. to CAT II or III a / b shall be given without naming the approach category.

Note: The initiation of an ILS approach does not depend on whether the minima for the pilot prevail.

475.9 During approaches (including training approaches) under meteorological conditions better than CAT II or CAT III, a special request of the pilot is necessary if the application of the All Weather Operations on the ground for the higher (more restrictive) category is required. The pilot shall be informed if or with which restrictions the All Weather Operations on the ground can be used. The secondary power supply for visual and non-visual landing aids shall only be provided following the regulations of MO-ATS item 475.2.

**476 CONTINUOUS DESCENT APPROACH (CDA)**

476.1 The CDA is an approach procedure which is executed under radar vectoring and permissible only in connection with an ILS approach CAT I. It is intended to contribute to noise abatement and fuel saving.

476.2 The CDA bases on a continuous descent executed at a gradient of 300 FT / NM (descent angle approximately 3°) down to the intermediate approach altitude on the localizer course. The intermediate approach altitude is determined for each individual runway. After reaching the intermediate approach altitude, one NM of level flight should be left for the pilot for speed reduction to intercept the glide path.

- 476.3 CDAs may be executed from all positions and levels and are not limited to specific types of aircraft. Pilots shall be expected to apply the Low-Drag / Low-Power procedure and to maintain the appropriate speeds on approaches in accordance with CDA.
- .31 The CDA constitutes a supplementary approach procedure which may be either offered by the controller or requested by the pilot.
- 476.4 A CDA shall be refused or not be applied whenever:
- .41 it must be expected that other aircraft in the approach sequence will have to be delayed significantly;
- or
- .42 doubts remain as to the feasibility of the CDA for safety reasons (e.g. separation, airspace restrictions).
- 476.5 Pilots shall be informed by APP as soon as possible whenever a CDA is to be executed.
- 476.6 The descent clearance for the CDA shall be issued as soon as the aircraft has reached a position from which a CDA can be executed at the altitude of the aircraft.
- 476.7 Distance from touchdown information shall be transmitted to the pilot:
- .71 upon commencement of the CDA or shortly before the descent shall be initiated according to the calculations;
- and
- .72 usually at a distance of 20, 15 and 10 NM from touchdown.
- Note : This enables the pilot to check the rate of descent.
- 476.8 Radar vectoring to the localizer course shall be executed in such a way that during a continuous descent performed at a gradient of 300 FT / NM still 1 NM is left for the pilot to reduce his speed while at the intermediate approach altitude on the localizer course before intercepting the glide path in level flight. The clearance for an ILS approach shall be issued as soon as the aircraft has reached the intermediate approach altitude or approaches the localizer course.
- 476.9 Pilots shall be informed accordingly if the execution of a CDA procedure is temporarily impossible. This information may also be disseminated by ATIS broadcast if the suspension of CDA operations is of a lasting nature.

**477                      INDEPENDENT PARALLEL APPROACHES**

477.1                      Independent parallel approaches may be conducted if the relevant runways are approved accordingly and all of the following conditions are fulfilled:

.11                      a suitable radar system with appropriate azimuth and range resolution and an update rate of 5 seconds or less is used in combination with suitable radar displays;

.12                      both parallel ILS systems are in operation;

.13                      the missed approach track for one approach diverges by at least 30 degrees from the missed approach track of the adjacent approach;

Note: When standard missed approaches for independent parallel approaches are assigned this condition is fulfilled. If, due to imperative safety considerations, other than standard missed approaches have to be assigned in advance, it shall be ensured that the missed approach diverges by at least 30 degrees from the missed approach track of the adjacent approach.

.14                      Vectoring is used to intercept the ILS localizer course;

.15                      separate controllers monitor the approaches to each runway and ensure that when the 1000 FT vertical separation is reduced:

1) aircraft do not penetrate the depicted no transgression zone (NTZ);  
and

2) the applicable minimum longitudinal separation between aircraft on the same ILS localizer course is maintained.

.16                      The NTZ is depicted on the situation display.

477.2                      If the conditions specified in MO-ATS item 477.1 are no longer fulfilled, radar or vertical separation shall be established without delay.

Note: Local deviations MO-ATS items 477.1 to 477.16 may be granted by DFS/UZ department CC/FD and TWR/MO.

- 477.3 The information that independent parallel approaches are in force will be provided through the ATIS broadcasts. If this is not possible, the pilot shall be advised as early as practicable after he has established communication with approach control, that independent parallel approaches are in force.
- 477.4 When vectoring to intercept the ILS localizer course, the final vector shall enable the aircraft to intercept the ILS localizer course at an angle not greater than 30 degrees and to provide at least 1 NM straight and level flight prior to ILS localizer course intercept. The vector shall also enable the aircraft to be established on the ILS localizer course in level flight for at least 2 NM prior to intercepting the ILS glide path.
- 477.5 Radar or vertical separation shall be maintained until the aircraft are established on their localizer course.
- 477.6 If the controller detects that an approaching aircraft is deviating from its course thus reducing lateral separation, he shall immediately provide radar or vertical separation between the straying aircraft and the aircraft on parallel approach even if the latter is conducting a correct final approach.
- 477.7 After the frequency change to aerodrome control, which shall be regulated locally, the responsibility for controlling and monitoring approaches and missed approaches rests with the aerodrome control tower. Deviations from this procedure can be approved by DFS/UZ departments CC/FD and TWR/MO.

#### 478 INDEPENDENT PARALLEL DEPARTURES

- 478.1 Independent parallel departures may be conducted if the relevant runways provided are approved accordingly and all of the following conditions are fulfilled:
- .11 the departure tracks diverge by at least 15 degrees immediately after take-off;
  - .12 suitable surveillance radar capable of identification of the aircraft within 1 NM from the end of the runway is available and
  - .13 the combinations of departure routes and the conditions of transfer for independent parallel departures are determined locally.
- 478.2 Local deviations to MO-ATS item 478 may be granted by DFS/UZ department CC/FD and TWR/MO.



**479 SEGREGATED PARALLEL OPERATIONS**

479.1 Segregated parallel operations may be conducted on parallel runways if the relevant runways are approved accordingly and:

.11 the nominal departure track diverges immediately after take-off by at least 30 degrees from the missed approach track of the adjacent approach;

479.2 The following types of approaches may be conducted in segregated parallel operations provided suitable surveillance radar and the appropriate ground facilities conform to the standard necessary for the specific type of approach:

a) ILS approach;

b) surveillance radar approach (SRA);

c) visual approach.

Note: In the event of a missed approach by a HEAVY jet aircraft, wake turbulence separation should be applied or, alternatively, measures taken to ensure that the HEAVY jet aircraft does not overtake an aircraft departing from the adjacent parallel runway.

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**480            ADDITIONAL PROCEDURES 2**

**481            CONVENTIONAL CONTROL - GENERAL**

481.1        Use of the regulations of MO-ATS chapter 482

.11            The ICAO provisions contained in MO-ATS chapter 482 shall only be considered as regulations within the meaning of the MO-ATS if they are put in force by corresponding local Operational Orders.

Note:        The DFS applies conventional control in exceptional cases only, for such cases this collection is published to serve as a basis for e.g. local contingency regulations.

.12            When applying MO-ATS chapter 482, separation shall be applied in such a manner that the distance between aircraft is never less than prescribed here.

.13            When applying MO-ATS chapter 482, deviations are only permitted with the consent of the DFS/UZ department CC/FDO.

**482            CONVENTIONAL CONTROL - SEPARATION MINIMA**

482.1        Lateral separation

.11            Lateral separation of aircraft at the same level is obtained by requiring operation on different routes or in different geographical locations as determined by visual observation, by use of navigation aids or by use of area navigation equipment.

.12            Means by which lateral separation may be achieved include the following:

.121           Geographical separation, in example separation positively indicated by position reports over different and locally defined geographical locations as determined visually or by reference to a navigation aid.

.122           Track separation between aircraft using the same navigation aid or method. By requiring aircraft to fly on specified tracks which are separated by a minimum amount appropriate to the navigation aid or method as follows:

- 1) VOR: at least **15 °** and at a distance of **15 NM** or more from the facility;

- 482.122 2) NDB: at least **30°** and at a distance of **15 NM** or more from the facility.
- .13 When aircraft are operating on tracks which are separated by considerably more than the foregoing minimum figures, the distance at which lateral separation is achieved may be reduced locally.
- .14 Lateral separation also exists when:
- .141 aircraft are cleared on different routes whose airspaces to be protected do not overlap;
- .142 aircraft are cleared to hold over different fixes whose holding areas do not overlap each other or other airspaces to be protected.
- .15 Information about routes and holding patterns which are considered to be separated from each other shall be taken from relevant documents available at the working position.
- 482.2 Longitudinal separation
- .21 When applying longitudinal separation aircraft shall be considered as:
- .211 **same** direction traffic, when the difference between the tracks is **less than 45°**;
- .212 **crossing** traffic, when the difference between the tracks is **between 45° and 135°**;
- .213 **opposite** traffic, when the difference between the track of one aircraft and the reciprocal track of the other aircraft is **less than 45°**.
- .22 **Longitudinal separation based on time** shall be established by requiring aircraft:
- .221 to depart at a specified time;  
or
- .222 to depart not later than at a specified time;  
or
- .223 to lose time to arrive over a geographical location at a specified time;  
or
- .224 to hold over a geographical location until a specified time.

482.23 Aircraft flying on the **same track**.

When an aircraft is **at the level of another aircraft**, the following minimum separation shall be applied:

.231 **10 minutes**, if navigation aids permit frequent determination of position and speed;

.232 **5 minutes** in the following cases, provided that in each case the preceding aircraft is maintaining a true airspeed of **20 KT or more faster** than the succeeding aircraft:

- 1) between aircraft that have departed from the same aerodrome;  
or
- 2) between en-route aircraft that have reported over the same significant point;  
or
- 3) between departing and en-route aircraft after the en-route aircraft has reported over a fix that is so located in relation to the departure point as to ensure that 5 minute separation can be established at the point the departing aircraft will join the air route.

.233 **3 minutes** in the cases listed under MO-ATS item 482.232 provided that in each case the preceding aircraft is maintaining a true airspeed of **40 KT or more** faster than the succeeding aircraft.

.234 **5 minutes**, provided **both** of the following conditions are met:

- 1) both aircraft are single- or two-seated jet aircraft;  
and
- 2) the airspeed of the succeeding aircraft is not higher than that of the preceding.

.24 Aircraft flying on **crossing tracks**:

When an aircraft is **at the level of another aircraft**, the following minimum separation shall be applied:

.241 **10 minutes**, if navigation aids permit frequent determination of position and speed.

482.25 Aircraft climbing or descending and flying on the **same track**.

When an aircraft **passes through the level** of another aircraft on the same track, the following minimum separation shall be applied:

.251 **10 minutes** while vertical separation does not exist, if navigation aids permit frequent determination of position and speed;

.252 **5 minutes** while vertical separation does not exist, if the level change is commenced within 10 minutes of the time the second aircraft has reported over an exact reporting point.

.26 Aircraft climbing or descending and flying on **crossing tracks**.

When an aircraft **passes through the level** of another aircraft on a crossing track, the following minimum separation shall be applied:

.261 **15 minutes** while vertical separation does not exist;

.262 **10 minutes** while vertical separation does not exist if navigation aids permit frequent determination of position and speed.

.27 Aircraft on **reciprocal tracks**.

.271 Where lateral separation is not provided, vertical separation shall be provided for at least **10 minutes** prior to and after the time the aircraft are estimated to pass, or are estimated to have passed.

.272 Vertical separation of **opposite traffic** may be discontinued if **one** of the following conditions exists:

1) both pilots have reported that they have seen the other aircraft upon passing;

2) both aircraft have passed the same navigation aid or fix and one of them is at least 5 minutes flying time beyond that point.

- 482.28 Longitudinal separation based on distance using DME and / or GNSS shall be established by reference to DME and / or GNSS reports. This type of separation shall be applied between two aircraft using DME, or two aircraft using GNSS, or an aircraft using DME and an aircraft using GNSS. DME and / or GNSS readings shall be obtained by the pilots from distance readings relative to the same DME and / or GNSS fix point.
- .281 Aircraft flying on the **same track**.  
When an aircraft is **at the level of another aircraft**, the following minimum separation shall be applied:
- 1) **20 NM**, provided that the aircraft utilise:
    - the same "on-track" DME station when both aircraft are utilising DME;  
or
    - an "on track" DME station and a collocated waypoint when one aircraft is utilising DME and the other is utilising GNSS;  
or
    - the same waypoint when both aircraft are utilising GNSS;  
and
    - separation is checked by obtaining simultaneous DME and / or GNSS readings from the aircraft at frequent intervals to ensure that the minimum will not be infringed.
  - 2) **10 NM**, provided:
    - 2a) the preceding aircraft is maintaining a true airspeed of **20 KT or more** faster than the succeeding aircraft;

482.281

2b) that the aircraft utilise:

- the same "on-track" DME station when both aircraft are utilising DME;  
or
- an "on track" DME station and a collocated waypoint when one aircraft is utilising DME and the other is utilising GNSS;  
or
- the same waypoint when both aircraft are utilising GNSS;  
and
- separation is checked by obtaining simultaneous DME and / or GNSS readings from the aircraft at frequent intervals to ensure that the minimum will not be infringed.

.282

Aircraft flying on **crossing tracks**.

Separation shall be provided according to the minima prescribed in MO-ATS item 482.281, provided that DME and / or GNSS readings are obtained from each aircraft from the facility located at the crossing point or fix point of the tracks and that the relative angle between the tracks is less than 90°.



- 482.283 Aircraft climbing or descending and flying on the **same track**.
- When an aircraft passes through the level of another aircraft on the same track, the following minimum separation shall be applied:
- 1) **10 NM** while vertical separation does not exist, provided that the aircraft utilise:
    - a) the same "on-track" DME station when both aircraft are utilising DME;  
or
    - b) an "on track" DME station and a collocated waypoint when one aircraft is utilizing DME and the other is utilising GNSS;  
or
    - c) the same waypoint when both aircraft are utilising GNSS;  
and
  - 2) one aircraft maintains a level while vertical separation does not exist;  
and
  - 3) separation is checked by obtaining simultaneous DME and / or GNSS readings from the aircraft at frequent intervals to ensure that the minimum will not be infringed.
- .284 Vertical separation of opposite traffic may be discontinued if the aircraft have passed each other and the DME and / or GNSS readings indicate a distance of **at least 10 NM** between both aircraft.
- .29 **Longitudinal separation based on distance using RNAV** shall be established by referring to reports based on the RNAV equipment.
- .291 To assist pilots such position reports should, whenever possible, be referenced to a common waypoint ahead of both aircraft.
- .292 RNAV distance-based separation may be applied between RNAV-equipped aircraft when operating on designated RNAV routes or on ATS routes defined by VOR.

482.293 The 10-minute longitudinal separation minimum on same-direction tracks may be replaced by an 80 NM RNAV distance-based separation minimum. The 80 NM minimum may be applied when:

- 1) speed control by true Mach number technique is applied;  
and
- 2) the preceding aircraft shall maintain a speed equal to or greater than that of the succeeding aircraft.

.294 Turbo-jet aircraft will adhere to the instructed true Mach number and will request approval before making any changes thereto. If it is essential to make an immediate speed change (for example due to turbulence) the pilot will notify ATC as soon as possible.

- 1) Pilots will advise ATC if, due to aircraft performance, it is not feasible during climb and descent to maintain the last assigned Mach number.
- 2) Provided that:
  - a) the aircraft concerned have reported over the same reporting point and follow the same track or continuously diverging tracks until some other form of separation is provided;  
or
  - b) if the aircraft have not reported over the same reporting point and it is possible to ensure, by radar or other means, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks.

- 482.294 3) When true Mach number technique is applied, minimum longitudinal separation between turbojet aircraft shall be:
- **10 minutes**;
  - or
  - between 9 and 5 minutes inclusive, provided the preceding aircraft is maintaining a true Mach number greater than the following aircraft in accordance with the following table :
- 9 minutes**, if the preceding aircraft is Mach **0.02** faster than the following aircraft;
- 8 minutes**, if the preceding aircraft is Mach **0.03** faster than the following aircraft;
- 7 minutes**, if the preceding aircraft is Mach **0.04** faster than the following aircraft;
- 6 minutes**, if the preceding aircraft is Mach **0.05** faster than the following aircraft;
- 5 minutes**, if the preceding aircraft is Mach **0.06** faster than the following aircraft.
- 4) When the 10 minute longitudinal separation minimum with true Mach number technique is applied, the preceding aircraft shall maintain a true Mach number equal to or greater than that maintained by the following aircraft.
- .295 RNAV distance-based separation minima shall not be applied after ATC has received pilot advice indicating navigation equipment deterioration or failure.
- .296 Aircraft at the **same cruising level** and on the **same track**.
- An **80 NM** RNAV distance-based separation minimum may be used provided:
- 1) each aircraft reports its distance to or from the same on-track way point;  
and
  - 2) separation is checked by obtaining simultaneous RNAV distance readings at frequent intervals.

482.297 Aircraft **climbing or descending** on the **same track**.

An **80 NM** RNAV distance-based separation minimum may be used while vertical separation does not exist, provided:

- 1) each aircraft reports its distance to or from the same on-track way-point;
- 2) one aircraft maintains a level while vertical separation does not exist;
- 3) separation is established by obtaining simultaneous RNAV distance readings.

.298 Aircraft on **reciprocal tracks**.

Vertical separation may be discontinued provided that it has been positively established by simultaneous RNAV distance readings to or from the same on-track way-point that the aircraft have passed each other by at least **80 NM**.

482.3 Separation between departing aircraft

.31 Two successive departures from the same aerodrome shall be separated by applying **one** of the following minima:

.311 **less than 1 minute** between take-offs when different runways are used and the departure routes to be followed immediately after take-off diverge by at least **45°**;

.312 **1 minute** separation, if aircraft are to fly on tracks diverging by at least **45°** immediately after take-off so that lateral separation is provided;

.313 **2 minutes** when the preceding aircraft is **40 KT or more faster** than the succeeding aircraft and both aircraft propose to follow the same track.

**482.4** Separation between arriving aircraft

- .41 Succeeding aircraft shall be cleared for approach when the preceding aircraft:
  - .411 has reported that it is able to complete its approach without encountering instrument meteorological conditions;
  - or
  - .412 is in communication with and sighted by the aerodrome control tower and reasonable assurance exists that a normal landing can be accomplished.

**482.5** Timed approach procedures

- .51 The following procedure should be utilised as necessary to expedite approaches.
  - .511 A suitable point on the approach path, which shall be capable of being accurately determined by the pilot, shall be specified to serve as a check point in timing successive approaches.
  - .512 Aircraft shall be given a time at which to pass the specified point inbound, which time shall be determined with the aim of achieving the desired interval between successive landings while respecting the applicable separation minima at all times, including the period of runway occupancy.
  - .513 The time at which the aircraft should pass the specified point shall be determined by the unit providing approach control service and notified to the pilot sufficiently in advance to permit the pilot to arrange the flight path accordingly.

Each aircraft in the approach sequence shall be cleared to pass the specified point inbound at the previously notified time, or any revision thereof, after the preceding aircraft has reported passing the point inbound.

## 482.6 Separation of departing aircraft from arriving aircraft

.61 The following separation minima shall be applied when take-off clearance is based on the position of arriving aircraft:

.611 If an arriving aircraft is making a **complete instrument approach**, a **departing** aircraft may take off:

1) in **any** direction until an arriving aircraft has started its procedure turn or base turn leading to final approach;

2) in a direction which **differs by at least 45° from the reciprocal** of the direction of approach after the arriving aircraft has started procedure turn or base turn leading to final approach, provided that the take-off will be made at least **3 minutes** before the arriving aircraft is estimated to be over the beginning of the instrument runway.

.612 If an arriving aircraft is making a **straight-in-approach**, a departing aircraft may take off:

1) in **any** direction until **5 minutes** before the arriving aircraft is estimated to be over the instrument runway;

2) in a **direction which differs by at least 45° from the reciprocal** of the direction of approach of the arriving aircraft :

a) until **3 minutes** before the arriving aircraft is estimated to be over the beginning of the instrument runway;

b) **before** the arriving aircraft **crosses** a designated **fix** on the approach track; the location of such a fix is to be determined by the appropriate ATS unit.

## 482.7 Time-based wake turbulence longitudinal separation minima

.71 Arriving aircraft

.711 At and below FL 100 the following minima shall be applied to aircraft **landing behind a HEAVY or a MEDIUM** aircraft or A388:

a) MEDIUM behind HEAVY (no A388) 2 minutes;

b) MEDIUM behind an A388 3 minutes;

c) LIGHT behind HEAVY (no A388) / MEDIUM 3 minutes;

d) LIGHT behind an A388 4 minutes.

482.72 Departing aircraft

.721 Except as provided for in MO-ATS item 482.722 for time-based departures a minimum separation of **2 minutes** shall be applied between a **LIGHT** or **MEDIUM** aircraft taking off **behind** a **HEAVY** aircraft or a **LIGHT** aircraft taking off **behind** a **MEDIUM** aircraft.

A minimum separation of **3 minutes** should be applied for a **LIGHT** or **MEDIUM** aircraft and 2 minutes for a non-**A388 HEAVY** aircraft taking off **behind** an **A388** aircraft or a **LIGHT** aircraft taking off **behind** a **MEDIUM** aircraft.

The minimum separation above-mentioned shall be applied when the aircraft are using:

- a) the same runway;
- b) parallel runways separated by less than 760 m;
- c) crossing runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 1000 FT below;
- d) parallel runways separated by 760 m or more, if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 1000 FT below.

.722 A separation **minimum** of **3 minutes** shall be applied between a **LIGHT** or **MEDIUM** aircraft when taking off **behind** a **HEAVY** aircraft or a **LIGHT** aircraft when taking off **behind** a **MEDIUM** aircraft.

A **minimum** of **4 minutes** shall be applied between a **LIGHT** or **MEDIUM** aircraft when **taking off behind** an **A388** aircraft.

The separation minima mentioned above shall be applied when using:

- a) an intermediate part of the same runway; or
- b) an intermediate part of a parallel runway separated by less than 760 m.

482.73 Displaced landing threshold

.731 A separation minimum of **2 minutes** shall be applied between a **LIGHT** or **MEDIUM** aircraft and a **HEAVY** aircraft and between a **LIGHT** aircraft and a **MEDIUM** aircraft when operating on a runway with a **displaced threshold** when:

- a) a **departing LIGHT** or **MEDIUM** aircraft **follows** a **HEAVY** aircraft arrival; and
- b) a **departing LIGHT** aircraft **follows** a **MEDIUM** aircraft arrival;
- c) an **arriving LIGHT** or **MEDIUM** aircraft **follows** a **HEAVY** aircraft **departure**, if the projected flight paths are expected to cross; and
- d) an **arriving LIGHT** aircraft **follows** a **MEDIUM** aircraft **departure**, if the projected flight paths are expected to cross.

.732 A separation **minimum of 3 minutes** should be applied between a **LIGHT** or **MEDIUM** aircraft and an **A388** aircraft when operating on a runway with a displaced landing threshold when:

- a) a **LIGHT** or **MEDIUM** aircraft takes off from the runway extremity follows an **A388** arrival on the displaced landing threshold; or
- b) a **LIGHT** or **MEDIUM** aircraft lands on the displaced landing threshold following the take-off of an **A388** aircraft from the runway extremity if the flight paths are expected to cross.

.74 Opposite direction

.741 A separation **minimum of 2 minutes** shall be applied between a **LIGHT** or **MEDIUM** aircraft and a **HEAVY** aircraft and between a **LIGHT** aircraft and a **MEDIUM** aircraft when the heavier aircraft is making a low or missed approach and the lighter aircraft is:

- a) utilising an opposite-direction runway for take-off; or
- b) landing on the same runway in the opposite direction, or on a parallel opposite-direction runway separated by less than 760 m.



- 482.742 A separation minimum of **3 minutes** should be applied between a **LIGHT** or **MEDIUM** aircraft and an **A388** aircraft when the **A388** aircraft is making a low or missed approach and the **LIGHT** or **MEDIUM** aircraft is:
- a) utilising an opposite-direction runway for take-off; or
  - b) landing on the same runway in the opposite direction, or on a parallel opposite-direction runway separated by less than 760 m.
- .75 The **separation minima** prescribed in MO-ATS item 482.71 until 482.74 **shall not** be applied:
- .751 to the succeeding aircraft the pilot of which has stated to have the preceding aircraft in sight and will attend to appropriate distance himself;
  - .752 to the succeeding aircraft the pilot of which renounces enlarged separation;
  - .753 if the area, within which wake turbulence is suspected, will not be penetrated.
- 482.8 Holding procedures
- .81 When aircraft are being held in flight, the appropriate vertical separation minima shall continue to be provided between holding aircraft and en-route aircraft while such en-route aircraft are within five minutes flying time of the holding area, unless lateral separation exists.
  - .82 If the pilot of an aircraft in an approach sequence has indicated an intention to hold for weather improvement, or for other reasons, such action shall be approved. However, when other holding aircraft indicate intention to continue their approach to land and if alternative procedures involving, for instance, the use of radar are not available, the pilot desiring to hold will be cleared to an adjacent fix for holding awaiting weather change or re-routing. Alternatively, the aircraft should be given a clearance to place it at the top of the approach sequence so that other holding aircraft may be permitted to land.

- 482.83      When establishing the approach sequence, an aircraft which has been authorized to absorb a specified period of notified terminal delay by cruising at a reduced speed en route, should, in so far as practicable, be credited with the time absorbed en route.
- 482.9      Miscellaneous
- .91      Coordination between approach and aerodrome control
- .911      If the non-radar aerodrome controller requests, the radar controller should notify the aerodrome controller when an aircraft making a radar approach is approximately 8 NM from touchdown, a subsequent notification should be made at approximately 4 NM from touchdown.
- .92      Transfer of control
- .921      Approach control shall retain control of arriving aircraft until such aircraft have been released to and are in contact with aerodrome control.
- .922      Not more than one arrival shall be released to aerodrome control during IMC, except when prior arrangements have been made.

**483 REDUCED SEPARATION ON FINAL**

483.1 Except when wake turbulence separation is to be applied, the separation minima on final approach may be reduced to 2.5 NM within 10 NM from touchdown if **all** of the following conditions are met:

- .11 the average runway occupancy time of landing aircraft is proven, by means such as data collection and statistical analysis and methods based on a theoretical model, not to exceed 50 seconds;

Note : Such data collection shall be executed by the airport authority.

- .12 the runway is dry, braking action and runway occupancy times are not adversely affected by runway contaminants such as slush, snow or ice;

- .13 a radar system with appropriate azimuth and range resolution and an update rate of 5 seconds or less is used in combination with suitable radar displays;

- .14 the aerodrome controller is able to observe, visually or by means of surface movement radar the runway in use and associated exit and entry taxiways;

- .15 aircraft approach speeds are closely monitored by the controller and when necessary adjusted so as to ensure the separation is not reduced below the minimum;

- .16 pilots have been made fully aware of the need to exit the runway in an expeditious manner whenever the reduced separation minimum on final approach is applied;

Note: It shall be agreed locally whether this notification is to be effected via ATIS or individual announcement in addition to its publication in the Aeronautical Information Publication (AIP).

- .17 procedures concerning the application of the reduced minimum are published in the AIP. The publication of the procedures and the aerodromes concerned will be affected by the DFS/UZ department CC/FDO.

483.2 Except when wake turbulence separation is to be applied, the reduced radar separation minimum on final approach may be applied within 10 NM from touchdown for staggered approaches to parallel runways without fulfilling the conditions outlined in MO-ATS item 483.11, 483.12, 483.14 and 483.16.

483.3 For independent parallel approaches, separation on final approach shall not be reduced.

**484 - 489 NOT ALLOCATED**

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**510 GENERAL****511 TASKS**

511.1 The objective of the flight information service (FIS) is to provide pilots with information essential for the safe, orderly and expeditious conduct of flights and to assist search and rescue units within the scope of the flight alerting service.

511.2 The flight information service shall perform the following tasks :

- .21 to disseminate general information as aeronautical broadcast;
- .22 to disseminate specific information in individual cases;
- .23 to accept and disseminate traffic information;
- .24 to accept and disseminate reports.

**512 SCOPE**

512.1 The scope of the flight information service will depend on the prevailing workload and the availability and capability of the technical equipment at the working positions.

512.2 The provision of air traffic control service shall have priority over the provision of other air traffic services.

Note : It is recognised that in certain circumstances aircraft on final approach, landing, take-off and climb may require to receive without delay essential information other than that pertaining to the provision of air traffic control service.

**513 RADAR FLIGHT INFORMATION SERVICE**

513.1 Radar-assisted flight information service (RAFIS) for **military flights under visual flight rules.**

513.2 Air traffic control shall have priority over RAFIS.

513.3 Apart from the functions of the general flight information service, RAFIS shall have the following additional functions :

.31 flights making use of RAFIS shall be identified and their identity shall be maintained;

.32 traffic information shall be issued when the danger of a collision might occur;

.33 traffic avoidance advice shall be issued if the pilot does not have the reported traffic in sight;

.34 navigational assistance shall be provided on request of the pilot;

.35 on request of the pilot, the crossing of airspace Classes C and D shall be coordinated by RAFIS;

.36 the pilot shall be informed about the beginning and the end of RAFIS.

513.4 Where RAFIS mandatory areas are established :

.41 OAT flights are required to make use of RAFIS;

.42 ATC may issue instructions to OAT flights.

**514 - 519 NOT ALLOCATED**



**520 DISSEMINATION OF GENERAL INFORMATION****521 AERONAUTICAL BROADCASTS**

521.1 The following information shall be disseminated preferably as aeronautical broadcast:

- .11 hazards and restrictions to air traffic occurring on short notice which cannot be published in time;
- .12 SIGMET and AIRMET;
- .13 ATIS.

**522 HAZARDS AND RESTRICTIONS TO AIR TRAFFIC**

522.1 The following events may lead to hazards and restrictions to air traffic :

- .11 distress incidents;
- .12 fuel dumping;
- .13 SAR missions;
- .14 special occurrences on the ground (gas outbursts, gas flares, large fires, bomb defusing, stray missiles, etc.).

522.2 The supervisor shall decide in each individual case whether an aeronautical broadcast will be disseminated or not and shall determine the frequency of repetitions.

Note: This does not affect the regulations concerning fuel dumping.

522.3 The aeronautical broadcast should contain the following details:

- .31 general call;
- .32 transmitting unit;
- .33 reason of broadcast;
- .34 radius, location (geographical description or reference to the nearest navigation aid) and level;
- .35 type of restriction.

**523 SIGMET AND AIRMET**

523.1 From 0700 (0600) UTC until SS + 30, SIGMET and AIRMET shall, upon receipt of the reports, be transmitted as aeronautical broadcasts in the German and English language by the control centres of Bremen, Langen, and München for their own FIR. During its period of validity, the broadcast shall be repeated every full and half hour.

Example:

ALL STATIONS MÜNCHEN INFORMATION SIGMET VALID BETWEEN  
1600 AND 1800 UTC THUNDERSTORM FORECAST FOR MÜNCHEN FIR  
MOVING EAST MÜNCHEN INFORMATION OUT

523.2 From SS + 30 until 0700 (0600) UTC, SIGMET and AIRMET shall be transmitted with the least possible delay as individual transmissions only if:

- .21 considered necessary by the controller;  
or
- .22 requested by the pilot.

**524 ATIS**

524.1 The ATIS broadcast shall contain the following elements of information in the given order. It shall be checked whether the content is correct. This does not apply to automatically generated data and to inputs that have already been checked. Further details shall be laid down locally, if required.

- a) name of the aerodrome;
- b) the word "information" and the designator (e.g. Alfa, Bravo, etc.);
- c) time of observation;
- d) type of approach to be expected;
- e) runway(s) in use;
- f) significant runway surface conditions and, if available, braking action;
- g) arrival and departure delays of 20 minutes or more, if applicable;
- h) transition level;

- 524.1
- i) other essential operational information, (e.g. restrictions in the usability of runway(s), restrictions in the usability of approach aids, construction work on or in the vicinity of the runway(s)), if available;
  - j) surface wind direction and speed, including significant variations;
  - k) visibility and, when applicable, runway visual range (RVR);
  - l) present meteorological conditions;
  - m) cloud below 10.000 FT, or below the highest minimum sector altitude, whichever is greater; types of clouds:
    - cumulonimbus (CB);
    - or
    - towering cumulus congestus (TCU).

Note : If vertical visibility is given instead of a cloud base, the phrase "NO CLOUD BASE AVAILABLE" shall be used.

- n) air temperature;
- o) dew-point temperature;
- p) QNH in full increments of hectopascal, if necessary, also in inches;
- q) information on significant meteorological phenomena in the approach, take-off and climb-out areas, if available;
- r) trend;
- s) the word "information" followed by the repetition of the identification letter and the word "out".

Note: DFS/UZ department TWR/MO will issue a specific directive if terminal information is to be transmitted separately for arriving and departing aircraft.

## 524.1 EXAMPLE ATIS FRANKFURT:

Actual ATIS-Information-Indicator: A  
Runways in Use: 25 and 18  
INFO-Field 1: EXPECT ILS APPROACH RWYS  
25 RIGHT AND 25 LEFT  
INFO-Field 3: WS TKOF RWY25L

METAR EDDF 221650Z 25006G25KT 6000 800SW +SNSH TSGRRASN  
SCT006 BKN015CB OVC050TCU OVC100 03/M01 Q1014 BECMG FM1715  
TL1815 28008G20KT 9999 BKN015CB BKN025

FRANKFURT INFORMATION ALFA MET REPORT TIME 1650 EXPECT ILS  
APPROACH RUNWAYS 25 RIGHT AND 25 LEFT RUNWAYS IN USE 25  
AND 18 TRANSITION LEVEL 60 WIND SHEARS POSSIBLE WHEN  
DEPARTING RUNWAY 25 LEFT WIND 250 DEGREES 6 KNOTS  
MAXIMUM 25 KNOTS VISIBILITY 6 KILOMETRES MINIMUM VISIBILITY  
800 METRES SOUTHWEST HEAVY SNOW SHOWERS THUNDERSTORM  
WITH HAIL RAIN AND SNOW CLOUDS SCATTERED 600 FEET BROKEN  
1500 FEET CB OVERCAST 5000 FEET TOWERING CUMULUS  
TEMPERATURE 3 DEW POINT MINUS 1 QNH 1014 HECTOPASCAL  
TREND BECOMING FROM 1715 UNTIL 1815 WIND 280 DEGREES 8  
KNOTS MAXIMUM 20 KNOTS VISIBILITY 10 KILOMETRES CLOUDS  
BROKEN 1500 FEET CB BROKEN 2500 FEET INFORMATION ALFA OUT

Note: Items g) and i) are not mentioned in the example.

524.2 Information about restrictions in the usability of runway(s) and approach aids and about construction work on or in the vicinity of the runway(s) should not be included in the ATIS broadcast, if such information has already been published by NOTAM for more than 24 hours.

524.3 When rapidly changing meteorological conditions make it inadvisable to include a weather report in the ATIS recording, the pertinent weather elements may be omitted in the ATIS text. The following text shall be broadcast instead.

EXAMPLE:

DUE TO RAPID CHANGES WEATHER INFORMATION AVAILABLE ON  
CONTROL FREQUENCY

524.4 When stating the braking coefficients, the time of observation shall be mentioned, the reported figures of the braking coefficients shall be transmitted for the landing direction.

EXAMPLE:

BRAKING COEFFICIENTS AT TIME 0755 RUNWAY 25 LEFT 21 25 26

524.5 ATIS shall be broadcast at least during the times published in the AIP.

.51 Outside the established hours, ATIS broadcasts may be transmitted if required by the traffic volume.

.52 After the last regular ATIS broadcast, pilots shall be informed via ATIS where they can obtain the relevant information.

EXAMPLE :

REQUEST ATIS INFORMATION ON CONTROL FREQUENCY

524.6 Recorded ATIS (Voice-ATIS) and data link ATIS (D-ATIS) must be identical in content.

.61 If the line capacity of the INFO block is not sufficient for the transmission of additional information, CHECK VOICE-ATIS shall be entered in the first line of the INFO block.

524.7 If no ATIS is available, the contents of the METAR or the weather report by the accredited weather observer, shall be transmitted to the pilot.

**525 - 529 NOT ALLOCATED**

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**530 DISSEMINATION OF SPECIFIC INFORMATION IN INDIVIDUAL CASES****531 SPECIAL ACTIVITIES IN THE AIRSPACE**

531.1 Information on special activities in the airspace, restricted or modified usability of facilities and MET reports shall be transmitted if necessary or requested by pilots.

531.2 This includes information about :

- .21 parachute jumping and dropping of parachute-equipped objects;
- .22 ascents of flight models and other remote-controlled or uncontrolled self-propelled flying objects;
- .23 ascents of unmanned free balloons with a total mass of balloon cover and ballast of more than 0.5 kg as well as ascents of bundled unmanned free balloons and mass ascents of unmanned free balloons;
- .24 military exercises;
- .25 air shows;
- .26 glider competitions (only for the departure phase);
- .27 other activities, if deemed necessary.

**532 RESTRICTED OR MODIFIED USABILITY OF FACILITIES**

532.1 This includes information about the restricted or modified usability of :

- .11 radio navigation aids;
- .12 radiotelephony frequencies;
- .13 aerodromes and their facilities.

**533 METEOROLOGICAL REPORTS**

533.1 MET reports include in particular :

- .11 route weather reports;
- .12 landing and special weather reports;
- .13 upper wind forecast;
- .14 special weather phenomena;
- .15 short-term weather information.

533.2 As far as possible, weather reports shall be transmitted to pilots as received from the MET office. Individual elements without significance for the further conduct of the flight may be omitted.

533.3 Information on adverse weather areas and dangerous weather phenomena should be issued in sufficient time to allow pilots to take a decision about the further conduct of their flight. This applies in particular to information for VFR flights concerning the meteorological conditions on the intended route when it must be assumed that the flight cannot be continued under VFR. The pilot shall be informed about the source of the information. If requested by the pilot, advice for circumnavigating areas of adverse weather shall be issued, if possible.

- .31 Areas of adverse weather shall be described.

533.4 If meteorological conditions observed by aerodrome control obviously differ from those reported by the meteorological service, the responsible aeronautical meteorological office shall be informed accordingly. If the observed difference may have considerable influence on the safe operation of aircraft, such additional information shall be transmitted to the pilots concerned as "Tower observation".

**534 - 539 NOT ALLOCATED**



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**540 DISSEMINATION OF TRAFFIC INFORMATION****541 TRAFFIC INFORMATION BASED ON RADAR INFORMATION**

541.1 Within the scope of the flight information service, traffic information should be issued whenever possible.

Note 1 : This also applies to airspace where unknown flights are not to be expected, as a rule.

Note 2 : It is recognised that in certain circumstances aircraft on final approach, landing, take-off and climb may require to receive without delay essential information other than that pertaining to the provision of air traffic control service.

541.2 Traffic information based on radar information shall be issued in an exact and descriptive manner. Such information should contain :

- .21 a short description of the target concerned;
- .22 azimuth from the target in terms of the 12-hour clock;
- .23 distance from the target;
- .24 general direction in which the target is proceeding;
- .25 other information known or recognisable.

541.3 Avoiding action may be suggested to a pilot. In this connection, the right-of-way rules shall be observed.

541.4 The pilot shall be informed when the collision hazard no longer exists.

541.5 If the SSR code of an unknown target indicates that it is an air defence flight, only traffic information with the remark "CAUTION AIR DEFENCE FLIGHT" shall be issued.

**542 TRAFFIC INFORMATION BASED ON POSITION REPORTS**

542.1 Traffic information based on pilot reports shall contain the following information :

- .11 type of aircraft, if known;
- .12 direction of flight of the aircraft concerned;
- .13 level or change of level;
- .14 information about the relative position of the aircraft.

**543 - 549 NOT ALLOCATED**

**550 ACCEPTANCE AND FORWARDING OF MESSAGES****551 FLIGHT DATA OF VFR FLIGHTS**

551.1 When establishing radio contact, the following flight data shall be determined:

- .11 aircraft identification / call sign;
- .12 aircraft type;
- .13 position;
- .14 flight route;
- .15 level.

551.2 If a pilot intends to enter airspace Class C below FL100 or airspace Class D (not control zone), the flight shall be coordinated with all control sectors concerned.

551.3 If a pilot intends to enter airspace Class C at/above FL100, the flight shall be coordinated with the first responsible control sector prior to issuing a clearance. This control sector shall be responsible for the further coordination of the flight. The following flight data shall be determined in addition to those mentioned in MO-ATS item 551.1:

- .31 true airspeed;
- .32 route in reference to navigation points;
- .33 aerodrome of destination;
- .34 flight level.

Note: When assigning flight levels, the rules for semi-circular cruising levels may be disregarded.

**552 FLIGHT PLAN AND FLIGHT-PLAN-ASSOCIATED MESSAGES**

552.1 Flight plan and flight-plan-associated messages shall be accepted and transferred to the responsible flight data specialist.

.11 Air-filed flight plans shall only be accepted, if this is required due to circumstances unknown to the pilot before departure.

.12 Air-filed flight plans (AFIL) shall not be accepted:

a) for flights with intermediate landings;

b) for international flights (not valid for VFR-flights to Austria).

552.2 Air-filed flight plans shall contain the following items:

a) aircraft identification;

b) flight rules and type of flight;

c) number and type of aircraft and wake turbulence category;

d) radio and navigation equipment;

e) AFIL instead of departure aerodrome and the estimated time of arrival over the point on the route from where the flight plan shall apply;

f) true airspeed;

g) cruising level;

h) route of flight;

i) destination aerodrome and total estimated elapsed time;

j) alternate aerodrome, if required;

k) endurance;

l) number of persons on board;

m) emergency and survival equipment;

n) other information.

- 
- 552.3 Flight-plan-associated messages include, for example:
- .31 modification messages (CHG);
  - .32 flight plan cancellation messages (CNL);
  - .33 departure messages (DEP);
  - .34 arrival messages (ARR);
  - .35 delay messages (DLA).
- 552.4 If a pilot requests the cancellation of a flight plan via radiotelephony, the message shall be acknowledged and made known to the responsible flight data specialist.
- Note: In this case, an arrival message is not necessary.
- .41 The flight plan cancellation shall be refused if a flight plan is mandatory for the further route of flight.
- 552.5 If a pilot requests the closing of a flight plan via radiotelephony, the message shall be acknowledged and made known to the responsible flight data specialist.
- Note: The flight plan is closed by transmission of the estimated time of landing instead of the arrival report, if the aircraft is already in the traffic circuit and a safe landing may be expected.

**553 AIREP**

- 553.1 Incoming air-reports (AIREP) shall be accepted and transmitted to the responsible aeronautical meteorological office and, if necessary, to other pilots and ATC / FIS positions.
- 553.2 Other aircraft reports affecting the safety of aviation or public safety and order (e.g. reports on forest fires, oil pollution of waters, traffic accidents) shall be accepted and forwarded to the supervisor and, if appropriate, to other aircraft concerned.

**554 GOVERNMENT TELEGRAMS**

- 554.1 Government telegrams and messages of greeting shall be recorded on a sound carrier and forwarded as follows:
- .11 Government telegrams and messages of greeting in the German language shall be transmitted as follows:
    - .111 to the Federal Chancellery by courier service, if addressed to the Federal Chancellor:  
  
Federal Chancellery  
Willy-Brandt-Straße 1  
10557 Berlin  
Germany
    - .112 to the office of the Federal President as a file via e-mail, if addressed to the Federal President:  
  
poststelle@bpra.bund.de;  
Subject: Government telegram and the State of the originator.
  - .12 Government telegrams and messages of greeting in a foreign language shall be forwarded to the Language Services Division of the Federal Foreign Office as a file via e-mail:  
  
105-2@diplo.de;  
Subject: Government telegram and the State of the originator.
- Note: If a DFS Tower is requested to send a government telegram or a message of greeting, the request shall be coordinated with the control centre responsible for recording and forwarding government telegrams or messages of greeting. The applicant shall be informed accordingly.

**555 POSITION REPORTS**

555.1 Position reports shall be recorded and forwarded to the appropriate working positions if so requested or deemed necessary.

Note: The fact that a position report from an uncontrolled VFR flight is not received at the expected time is only by that no reason to initiate search and rescue service.

**556 - 559 NOT ALLOCATED**

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**560 OTHER PROCEDURES****561 NAVIGATIONAL ASSISTANCE TO VFR FLIGHTS**

561.1 The following shall be observed when providing navigational assistance to VFR flights :

- .11 the aircraft shall be identified and identification shall be maintained;
- .12 headings shall only be given as recommendations, the pilot shall be instructed to maintain visual meteorological conditions. When giving heading and altitude recommendations, it shall be explicitly emphasised that it is a suggestion;

EXAMPLE :

SUGGEST HEADING 140 MAINTAIN VMC

- .13 if applicable, the pilot shall be informed about the fact that he will remain responsible for maintaining the minimum safe height / obstacle clearance. If appropriate, altitude information shall be provided to ensure compliance with the minimum safe height.

EXAMPLE :

OBSERVE MINIMUM SAFE HEIGHT

561.2 When navigational assistance is terminated, the pilot shall be informed about his position and instructed to resume own navigation.

EXAMPLE :

NAVIGATIONAL ASSISTANCE TERMINATED RESUME OWN NAVIGATION POSITION 3 NM WEST CHARLIE VOR

**562 VFR-PRACTICE APPROACHES**

- 562.1 A practice approach may be approved for VFR-flights intending to use an instrument approach procedure for training purposes.
- 562.2 When giving heading and altitude recommendations during VFR-practice approaches, it shall be explicitly emphasised that it is a suggestion.
- 562.3 If appropriate, altitude information shall be provided to ensure compliance with the minimum safe height.

**563 - 569 NOT ALLOCATED**

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**610 GENERAL****611 GENERAL**

611.1 The various circumstances surrounding each emergency situation preclude the establishment of exact detailed procedures to be followed. The procedures outlined herein are intended to serve as a general guide to air traffic services personnel. The air traffic services shall coordinate closely and completely amongst each other, and personnel shall use their best judgement in handling emergency situations.

611.2 All possible measures to assist an aircraft which is known to be in an emergency situation shall be taken without delay.

.21 As soon as it is known that an aircraft is in a state of emergency, the supervisor shall be informed, if practicable.

.22 The Emergency Checklist should be used as much as possible to support aircraft in a state of emergency.

611.3 It must be expected that pilots operate their transponders on Mode 3/A, code 7700, 7600, or 7500 to indicate a state of emergency.

611.4 Within the scope of the alerting service, the appropriate organisations shall be notified about aircraft in need of search and rescue aid and be assisted as required. Details shall be laid down in a local alert plan.

611.5 On request, rescue coordination centres (RCC) shall be assisted in their search for missing aircraft by the expeditious transmission of radar data recordings.

**612 RESPONSIBILITY**

612.1 As a rule, the responsibility to initiate emergency procedures shall rest with the ATC unit in whose area of responsibility the emergency occurs or which first gains knowledge of the emergency.

612.2 In the case of an aircraft accident or if an emergency landing is anticipated at or near an aerodrome, the local rescue units (fire brigade, ambulance, etc.) shall be alerted first in accordance with the local procedures.

612.3 Other air traffic services and, if applicable, appropriate rescue units shall be alerted whenever the emergency of an aircraft become obvious and direct assistance by alerting local rescue units does not appear to be feasible or effective.

### **613 COORDINATION**

613.1 ATC shall coordinate with other air traffic services and appropriate organisations to assist as much as possible aircraft believed to be overdue, missing or in a state of emergency.

### **614 DISTRESS SIGNALS**

614.1 In an emergency situation, pilots may use any possible means to attract attention, to report their position and to call for help.

614.2 The following signals, used either together or separately, mean that an aircraft is threatened by grave and imminent danger and immediate assistance is required:

- .21 SSR code 7700 or transponder switched to EMERGENCY;
- .22 a signal made by radiotelegraphy or by any other signalling method consisting of the group SOS (...---...) in Morse code;
- .23 a signal sent by radiotelephony consisting of the word MAYDAY, preferably spoken three times;
- .24 rockets or shells throwing red lights, fired one at a time at short intervals;
- .25 a parachute flare showing a red light.

**615 URGENCY SIGNALS**

615.1 The following signals, used either together or separately, mean that an aircraft wishes to give notice of difficulties which compel it to land without requiring immediate assistance:

- .11 the repeated switching on and off of the landing lights;
- .12 the repeated switching on and off of the position lights in such a manner that they cannot be mistaken for flashing position lights.

615.2 The following signals, used either together or separately, mean that an aircraft has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or of some person on board or within sight:

- .21 a signal made by radiotelegraphy or by any other signalling method consisting of the group XXX (-.-.-.-.-) in Morse code;
- .22 a signal sent by radiotelephony consisting of the word PAN PAN, preferably spoken three times.

**616 - 619 NOT ALLOCATED**

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**620 ALERTING SERVICE****621 GENERAL**

621.1 The alerting service shall be provided:

- .11 to all aircraft provided with air traffic control service;
- .12 in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to the air traffic services;

Note: Otherwise known flights are flights about which inquiries concerning their whereabouts or information that they are in need of search and rescue aid has been received by ATC units.

- .13 to any aircraft known or believed to be the subject of an act of unlawful interference in air traffic.

621.2 The alerting service shall notify and assist the units responsible for the provision of the search and rescue service.

**622 EMERGENCY PHASES**

622.1 Emergency phases have been established for the provision of the alerting service. They are divided into the uncertainty phase, the alert phase, and the distress phase. In the aeronautical fixed telecommunication service, the following designations shall be used for the emergency phases:

- .11 for the uncertainty phase: **INCERFA**
- .12 for the alert phase: **ALERFA**
- .13 for the distress phase: **DETRESFA**

The emergency phases shall be determined by the supervisors of the control centres or by the AIS-C in the case of flights subject to supervision by the AIS-C. They shall also serve as the central point of contact for collecting all information relevant to the state of emergency of aircraft operating within their flight information region.

- 
- 622.2 The **uncertainty phase** shall be declared whenever:
- .21 no communication has been received from an aircraft within a period of 30 minutes after the time a communication should have been received;  
or
  - .22 an aircraft fails to arrive within 30 minutes:
    - of the estimated time of arrival last notified to the ATC unit;  
or
    - of the estimated time of arrival estimated by the ATC unit, whichever is later;
- except when no doubt exists as to the safety of the aircraft.
- .23 The appropriate agencies shall be informed within a period of 30 minutes after an overdue position report or the estimated time of arrival if an aircraft fails to land. Such notification may not be deferred until the 30 minutes have elapsed.
- 622.3 The **alert phase** shall be declared whenever:
- .31 the inquiries initiated during the uncertainty phase have passed without result;  
or
  - .32 an aircraft has been cleared to land and fails to land within 5 minutes of the estimated time of arrival and communication no longer exists;  
or
  - .33 when information is received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent necessitating a forced landing, unless no doubt exists as to the safety of the aircraft.

- 622.4 The **distress phase** shall be declared whenever:
- .41 following the alert phase, further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress;  
or
  - .42 the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to safely complete its flight;  
or
  - .43 information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely;  
or
  - .44 information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing.
- 622.5 Measures according to MO-ATS item 622.1 to .4 shall be cancelled if it becomes known that the aircraft is neither threatened by grave and imminent danger nor requires immediate assistance.
- 622.6 To determine the emergency phases for VFR- / IFR flights for which a "Z" flight plan has been filed, the time decisive for the start of the periods set for the declaration of an emergency phase results from the calculated flight time to the point at which the IFR part begins.
- .61 The flight shall not be considered commenced until a departure message is received (by teletype or verbally).
  - .62 The above shall be applied analogously whenever a pilot requests an IFR clearance during a flight for which no flight plan has been filed.

## 623 NOTIFICATION PROCEDURES

- 623.1 If an aircraft experiences an emergency situation while under the control of an aerodrome control tower or approach control, such units shall immediately notify:
- .11 the appropriate local rescue and emergency organisations which can render immediate assistance;  
and
  - .12 the supervisor of the appropriate control centre by telephone.
- 623.2 Organisations to be notified shall be listed in local procedures.

623.3 As soon as a control centre or the AIS-C receives information about an aircraft in a state of emergency, it shall determine the emergency phase. After the emergency phase has been decided upon, it shall notify without delay the appropriate rescue coordination centre (RCC), the Federal Aviation Office (LBA), affected ATS units and other agencies concerned.

.31 The above agencies shall be notified by telephone. The following details should be transmitted when an RCC is informed for the first time:

- a) designation of the emergency phase;
- b) reporting unit;
- c) type of emergency;
- d) flight plan contents, e.g. aircraft identification, type of aircraft, etc.;
- e) time of last contact, accepting unit and frequency used;
- f) last position report and how determined, e.g.:
  - position information with reference to ICAO chart 1 : 500.000;
  - heading;
  - level;
  - speed;
- g) colour and distinctive marks of aircraft;
- h) dangerous goods carried as cargo;
- i) any action taken by the reporting unit;
- j) other relevant information, especially type of emergency transmitter and equipment carried;
- k) information about the development of the situation through the subsequent phases;
- l) end of the emergency situation.

- 623.311 Further information to be transmitted, if necessary:
- a) remaining flight time;
  - b) number of persons on board;
  - c) survival equipment carried;
  - d) bail-out position.
- .312 Information concerning the data contained in field 19 of the flight plan shall be requested from the departure aerodrome.
- .313 Prior to the declaration of a distress phase (DETRESTA), provided there is reasonable certainty that this phase will arise, every effort shall be made to obtain all information listed in MO-ATS item 1032.1 if only partial information has been made available to an RCC during a preceding emergency phase.
- 623.4 Following notification in accordance with MO-ATS item 623.31, the following additional information shall be forwarded, without delay, to all parties concerned:
- .41 any useful additional information, especially on the development of the state of emergency through subsequent phases;
  - or
  - .42 information that the emergency situation no longer exists.
- 623.5 When it has been established by an ATC unit that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved shall be informed of the nature of the emergency if they are able to render assistance.
- 623.6 ATC units handling aircraft which are expected to make an emergency landing at or near an aerodrome shall immediately notify the ATC unit or aviation supervision office (Luftaufsicht) responsible for the aerodrome concerned to alert all local rescue facilities instantaneously.
- 623.7 If an aircraft is overdue, missing or in an emergency, all aeronautical ground stations (ATC units, TACCS units, aviation supervision office (Luftaufsicht), etc.) situated along the probable route of flight shall be informed about the search and their assistance shall be requested.

- 623.8 The operator of an aircraft in a state of emergency shall be notified and kept informed of developments:
- .81 by the supervisor of the responsible control centre if the aircraft is owned by an operator who is locally represented;  
or
  - .82 by the LBA in the case of civil aircraft and if the operator is not locally represented;  
or
  - .83 by the RCC in the case of a military operator.

**624 - 629 NOT ALLOCATED**

**630 SEARCH AND RESCUE SERVICE****631 RESCUE COORDINATION CENTRES**

631.1 The search and rescue service is provided by rescue coordination centres (RCCs). They are responsible for the initiation, coordination and supervision of search and rescue operations within the SAR regions assigned to them.

.11 The Glücksburg SAR region comprises the sea area of the Bremen FIR including the offshore islands and peninsulas as well as the land area of Schleswig-Holstein and Hamburg.

.12 The Münster SAR region comprises the FIRs of Langen and München, that part of Zürich extending into Germany as well as that part of Bremen not belonging to the Glücksburg SAR region.

Note : The RCCs will alert the rescue facilities at their disposal and direct their employment.

631.2 The responsible RCC shall be informed about activated ELT signals.

**632 - 639 NOT ALLOCATED**

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**640 GENERAL PROCEDURES****641 USE OF COMMUNICATION FACILITIES**

641.1 All available communication facilities shall be used to establish and / or maintain communication with an aircraft in a state of emergency. If possible, the pilot shall be kept advised of the actions taken.

641.2 In the case of an emergency, the controller shall decide whether the aircraft is to remain on the frequency or whether it should change to another frequency. If necessary, all other aircraft shall be instructed to change to another frequency.

Note: Frequency changes for emergency aircraft shall be limited to the extent absolutely necessary.

.21 Other units shall be informed as appropriate in order to prevent the transfer of traffic to the frequency used for distress communication.

.22 Distress communication should be handled on the emergency frequency in order to prevent repeated frequency changes, particularly if transfer of traffic to another ATC unit is to be expected.

641.3 If an ATC unit receives information about an emergency but cannot directly assist the aircraft, it shall monitor the appropriate frequency and follow such traffic until it is evident that assistance is being provided.

641.4 If an aircraft is known to be in an emergency, the following shall be observed with respect to communication practices:

.41 The originator of messages addressed to an emergency aircraft shall restrict the number, scope and content of such messages to the minimum required under the circumstances.

.42 Transmissions capable of interfering with the distress communication shall be avoided.

- 641.43 If no specific station was addressed by the emergency aircraft, receipt of the distress message shall be acknowledged if the position of the aircraft indicates that it is within the own area of responsibility.
- .431 If a distress message from an aircraft operating outside the own area of responsibility is received, this message shall only be acknowledged if it is reasonably certain that the responsible station or other stations more capable of rendering assistance have not yet acknowledged the message. The controller should be prepared to assume control of the emergency traffic after coordination with the appropriate ATC.
- .44 Emergency aircraft shall be assisted as follows with respect to voice communication:
- .441 Silence shall be imposed on stations interfering with the distress communication. Depending on the circumstances, such instruction shall be addressed to ALL STATIONS or to particular stations.
- .45 When distress communication has ended or when silence is no longer required on the frequency used for distress communication, a message shall be transmitted to ALL STATIONS indicating that normal operations may be resumed.
- 641.5 If an urgency message is addressed to one's unit, the message shall be acknowledged and assistance shall be rendered.
- 641.6 Military aircraft with ejection seats are equipped with a device transmitting either a steady or an interrupted tone modulated with approximately 1000 Hz on the UHF emergency frequency as soon as the ejection seat is activated (bail-out signal). When such a signal is heard, the frequency shall be kept clear.
- 641.7 The responsible RCC shall be informed about activated ELT signals.
- 642 PLOTTING AIRCRAFT IN A STATE OF EMERGENCY**
- 642.1 Whenever deemed necessary or advisable, the flight path of an aircraft in a state of emergency shall be plotted in order to determine its probable future positions.
- 642.2 In addition, a current record of all other information connected with an existing emergency shall be kept.

**643 NON-PENETRATION AIRSPACES IN THE CASE OF HAZARDS TO AIR TRAFFIC**

643.1 In the event of hazards to air traffic (gas outbursts, gas flares, large fires, bomb defusing, stray missiles, etc.), it may become necessary to establish an airspace at short notice, penetration of which is prohibited, in order to prevent hazards to the safety of air traffic as well as hazards to public safety caused by air navigation.

643.2 The following measures shall be taken whenever the competent authority / unit notifies an ATC unit of such incidents and of the vertical and lateral dimensions of the hazardous airspace:

.21 A non-penetration airspace shall be established. The following distances shall be kept:

.211 for airspaces with straying missiles or similar according to MO-ATS item 436.3;

.212 for airspaces with gas outbursts, gas flarings, large fires, bomb defusing or similar according to MO-ATS item 436.4.

.22 Known traffic shall be diverted around or above the non-penetration airspace.

.23 The flight information service shall be informed. It will act in accordance with MO-ATS chapter 522.

.24 DFS/UZ department CC/FC shall be notified immediately of the establishment and the subsequent cancellation of a non-penetration airspace (telephone number +49 (0)172 / 6692606), if considerable effects on air traffic may be expected as a result of the establishment of this airspace.

.25 The AIS-C shall be informed. It will initiate the publication of a NOTAM and notify the nearest aerodromes and glider sites.

Note: The above measures are not to be understood as the establishment of a prohibited or restricted area which can only be effected by the Federal Ministry of Transport, Building and Urban Development (BMVBS), but as the enactment of a prohibition to penetrate the airspace in question pursuant to Article 29 section 1 of the German Aviation Act (LuftVG).

**644 - 649 NOT ALLOCATED**

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**650 FAILURE PROCEDURES****651 RADIO FAILURE PROCEDURES**

651.1 A controlled aircraft shall be considered to be in a state of emergency if radio contact with it has been lost completely. In such a case, the flight path of the aircraft shall be observed closely while radar services are continued in order to be able to take suitable action in the case of unexpected manoeuvres.

Note: An aircraft shall be considered to have encountered radio failure if an expected message from the aircraft has not been received within a period of 5 minutes.

651.2 It can be expected that pilots of controlled aircraft will adhere to the following procedures when experiencing radio failure.

**651.3 VMC**

.31 If the flight is conducted in accordance with IFR, MO-ATS item 651.4 shall apply.

.32 If the flight is conducted in accordance with VFR, the pilot shall :

.321 set code 7600;

.322 continue the flight in VMC;

.323 land at the nearest suitable aerodrome;

.324 report the arrival time of the flight as quickly as possible to the responsible ATC unit.

.33 A VFR flight may only enter a control zone, if:

.331 the pilot has received an entry clearance before;  
or

.332 landing at an aerodrome within the control zone is unavoidable due to flight operational reasons.

.34 If radio communication on a VFR flight fails prior to entering airspace Class C or D (not control zone), the pilot shall avoid this airspace irrespective of whether he has already received an entry clearance.

651.341 If radio failure occurs within airspace Class C below FL 100 or airspace Class D (not control zone), the pilot shall continue the flight in accordance with the ATC clearance received and acknowledged or, if this is not possible, shall leave this airspace on the shortest route, observing the visual flight rules pursuant to Article 28 para 1 of the Aviation Regulation (LuftVO).

.342 If radio failure occurs within airspace Class C at or above FL 100, the pilot shall be obliged to leave this airspace on the shortest route, observing the visual flight rules pursuant to Article 28 para 1 of the Aviation Regulation (LuftVO).

651.4 IMC

.41 If the flight is conducted in accordance with IFR, the pilot shall :

.411 set code 7600;

.412 maintain for a period of 7 minutes the last assigned speed and level or the minimum IFR cruising level, if the minimum IFR cruising level is higher than the last assigned level. The period of 7 minutes commences:

- when the last assigned level or minimum IFR cruising level is reached;
- or
- when code 7600 is set;

whichever is later.

Note: If, for any reasons, pilots of single- or two-seated jet aircraft are unable to adhere to the procedure of maintaining the period of 7 minutes, they shall set code 7700 and follow the procedures laid down below.

.42 Thereafter, the level and speed shall be adjusted in accordance with the filed flight plan.

Note: With regard to changes to levels and speed, the filed flight plan, which is the flight plan as filed with an ATS unit by the pilot or a designated representative without any subsequent changes, will be used.

651.43 In the case of radar vectoring or proceeding offset according to RNAV without a specified limit, the aircraft shall proceed in the most direct manner possible to rejoin the current flight plan route no later than at the next significant point, taking into consideration the applicable minimum IFR cruising level.

Note: The current flight plan, which is the filed flight plan, including changes and clearances, if any, will be used for the route of flight and the time to commence descent to the arrival aerodrome.

.44 The aircraft shall proceed according to the current flight plan route to an initial approach fix serving the aerodrome of destination and, if compliance with MO-ATS item 651.45 is required, hold over this aid until commencement of descent.

.441 If, for safety or urgent operational reasons, it seems inadvisable for the pilot to continue to the original aerodrome of destination, he may divert to another suitable aerodrome in deviation from MO-ATS item 651.44. In this case, he shall fly on a published routing to an initial approach fix established for this aerodrome and follow the additional procedures laid down in MO-ATS item 651.4.

.45 Descent over the initial approach fix specified in MO-ATS item 651.44 shall be commenced at, or as close as possible to, the EAT last received and acknowledged by the pilot. If no EAT has been received or acknowledged, it shall be commenced at the ETA of the current flight plan.

.46 An instrument approach procedure shall be completed as specified for the designated initial approach fix, and, if possible, landing shall be performed 30 minutes after:

.461 the ETA specified in MO-ATS item 651.45;

or

.462 the last acknowledged EAT;

whichever is later.

.47 If a landing cannot be performed, the pilot shall fly to the alternate aerodrome.

Note: It is not possible to establish binding procedures for this exceptional case.

- 651.48 If the pilot of a single-seated or two-seated jet aircraft is not able to comply with the above-mentioned IFR procedures for meteorological or technical reasons and he is in VMC, the transponder shall be switched to code 7700 and airspace Class C shall be left as quickly as possible, observing visual flight rules.
- .481 Afterwards, the pilot shall switch the transponder back to code 7600 and conduct the flight as stipulated by MO-ATS item 651.32 et sequence, unless an additional emergency situation occurs.
- 651.5 If a pilot conducting an IFR- / VFR flight reaches his clearance limit and is unable to continue his flight as intended in compliance with the weather minima established for this purpose, he will proceed in accordance with MO-ATS item 651.4.
- 651.6 Route segments indicated in the flight plan for approaches or holding procedures for training purposes, for which a special ATC clearance has not yet been issued, are - in the case of radio failure - no longer an integral part of the current flight plan.
- 651.7 Radio failure procedures – GPS / FMS RNAV:
- .71 After receiving a TRANSITION or TRANSITION AND PROFILE clearance, the flight shall be continued in accordance with the lateral and vertical description of the procedure including the charted speed instructions, with a subsequent final approach in accordance with a published standard instrument approach procedure.
- .72 After receiving a DIRECT TO WAYPOINT or VIA WAYPOINTS clearance, the flight shall be continued via the cleared waypoint(s) and the subsequent part of a GPS / FMS route including the charted speed and altitude instructions, with a subsequent final approach in accordance with a published standard instrument approach procedure.
- .73 For offset procedures with RNAV see MO-ATS item 651.43.



- 651.8 Control measures:
- .81 It has to be ascertained whether the receiver is still functioning. The pilot shall be instructed to:
    - .811 set a specified SSR mode / code or to activate the IDENT feature;
    - .812 execute specified manoeuvres recognisable by radar. If an instruction to change heading is issued, the time to be flown on this heading shall be restricted to a maximum of 2 minutes;
    - .813 acknowledge transmissions by rocking wings or showing landing lights if the aircraft is in flight and in sight of the controller.
  - .82 The pilot shall be informed if the execution of the instruction was observed.
  - .83 If such attempts remain fruitless, they shall be repeated on another suitable frequency / channel.
  - .84 If the receiver is still functioning, it shall be determined whether the pilot wishes to fly to the aerodrome of destination or the alternate aerodrome.
    - .841 The alternate aerodrome can be inquired at the AIS-C.
  - .85 Transfer of control of an aircraft experiencing radio failure to another control position shall be effected by radar hand-off.
  - .86 Traffic information shall be issued to aircraft in the presumed vicinity of the aircraft experiencing radio failure.
- 651.9 A radio failure message (RCF) shall be issued when it becomes clear that an aircraft operating within one's area of responsibility is experiencing an apparent radio failure.
- .91 The DFS form for filing the RCF shall be used.
  - .92 The RCF shall be sent to all ATC units along the remaining route of flight.
  - .93 An RCF is not necessary if the aircraft remains within an airspace for which an ATC unit of DFS is responsible.

- 651.94 If possible, the operator or his representative shall be notified as soon as possible after it has been confirmed that radio contact with a controlled flight has been lost.
- .95 As soon as a radio failure is detected, the following units shall be informed:
- .951 the supervisor of the responsible control centre;
- .952 the National Air Policing Centre (NAPC).
- .96 The occurrence shall be entered in the daily log. This entry shall include the following details:
- call sign;
  - period of failure;
  - flight route;
  - reasons stated by the crew (if available);
  - measures taken to re-establish radio contact;
  - time of notification of the National Air Policing Centre (NAPC).
- .97 A violation report shall be filed when a security flight is taking off or in accordance with MO-ATS item 651.971.
- Note: If an occurrence reported to the National Air Policing Centre (NAPC) results in a security flight being carried out, both an investigation report and a violation report shall be prepared. In this case, DFS/UZ department CC/FC (telephone number +49 (0)172 / 6692606) shall be informed about the take-off of the security flight by means of a "Besonderes Vorkommnis" (special occurrences) report.
- .971 The DFS branch shall file a violation report against the airline or the pilot concerned whenever a pilot fails to maintain a constant listening watch on the appropriate ATC frequency.

**652 RADAR FAILURE PROCEDURES**

- 652.1 In the case of radar failure or notification of a possible radar failure:
- .11 immediate steps to establish non-radar separation shall be taken;
  - .12 the pilots concerned shall be informed of the radar failure.
- 652.2 To prevent acute danger, vertical emergency separation may be applied.
- 652.3 If, in the case of radar failure or notification of a possible radar failure:
- .31 radar procedures cannot be applied throughout the entire ATC unit and if the situation is expected to last for a longer period, care shall be taken, by coordination with adjacent ATC units and the FMP, that traffic will be reduced to a volume which can be accepted by applying non-radar separation procedures. If possible and so specified, tasks shall be delegated to adjacent ATC units.
  - .32 application of radar procedures is impossible at only one or a few working positions of the control centre, traffic shall be handled by other working positions. If necessary, the acceptance rate shall be reduced.

**653 NO GYRO PROCEDURES**

- 653.1 In the case of gyro failure, the pilot shall be informed about the type of approach. A short explanation of the procedure shall be given.
- 653.2 In the case of heading changes, the direction of turn shall be specified and the start and end of the turn shall be determined by adding the word NOW.
- 653.3 When established on the final approach course, the pilot shall be instructed to execute the prescribed turns at half standard rate unless the pilot continues his approach with his own navigation.

**654 RVSM FAILURE PROCEDURES**

654.1 When an ATC unit receives information that an aircraft is experiencing a failure of the RVSM equipment within RVSM airspace, the following methods of separation shall be used:

- .11 minimum vertical separation of 2000 FT;  
or
- .12 radar separation.

654.2 The aircraft which is no longer approved for RVSM shall be cleared out of RVSM airspace as soon as traffic permits.

**655 - 659 NOT ALLOCATED**

**660 EMERGENCY PROCEDURES****661 ESSENTIAL TRAFFIC INFORMATION**

661.1 Essential traffic is that controlled traffic to which the provision of separation by ATC is applicable, but which, in relation to a particular controlled flight is not, or will not be, separated by the appropriate separation minimum.

.11 Essential traffic information shall be given to controlled flights concerned whenever they constitute essential traffic to each other.

.12 Essential traffic information shall include:

.121 relative position in terms of the 12-hour clock and distance from the target;

.122 type of aircraft and wake turbulence category (if relevant);

.123 direction of flight;

.124 level or level change.

**662 VERTICAL EMERGENCY SEPARATION**

662.1 As an emergency measure, use of flight levels spaced by half the applicable vertical separation minimum may be resorted to temporarily if the prescribed separation minima cannot be complied with immediately.

.11 Aircraft affected by vertical emergency separation shall receive traffic information in accordance with "Essential traffic information".

.12 Vertical emergency separation shall only be applied for as long as it is absolutely necessary.

**663 EMERGENCY DESCENT**

663.1 If an aircraft is executing an emergency descent through levels occupied by other aircraft, the appropriate ATC unit shall:

- .11 instruct the pilot to set code 7700, if necessary;
- .12 if possible, suggest a heading to be flown by the aircraft carrying out the emergency descent in order to achieve spacing from other aircraft concerned;
- .13 state the minimum radar vectoring altitude (MRVA) together with the applicable QNH, if the level-off altitude stated by the pilot is below the minimum radar vectoring altitude (MRVA);
- .14 as soon as possible, provide separation with conflicting traffic and issue essential traffic information, as appropriate;
- .15 transmit an aeronautical broadcast on the ATC and emergency frequency / channel;  
and
- .16 transmit on FIS frequency / channel, if necessary.

Note: The aircraft will deviate from the assigned track (in most cases by approx. 15°) when executing an emergency descent.

663.2 Immediately after such an emergency broadcast has been made or in association with it, all aircraft involved shall be issued clearances and instructions as to the procedures to be followed during and subsequent to the emergency descent.

**664 EMERGENCY LANDING**

664.1 The flight path and landing area shall be vacated for aircraft forced to execute an emergency landing in order to ensure an **undelayed** approach.

664.2 All rescue units shall be alerted in accordance with local procedures.

**665 FUEL DUMPING**

665.1 If a pilot intends to dump fuel, the controller shall request the following information:

- .11 expected time period of fuel dumping;
- .12 level for fuel dumping;
- .13 beginning and termination of fuel dumping;
- .14 amount of fuel to be dumped, if possible.

665.2 If possible, fuel dumping should be conducted away from large cities and in airspace of low traffic density. However, this airspace should be large enough to allow the pilot to take all necessary safety measures.

Note: The possibility that aircraft may switch off their R/T equipment while dumping fuel must be considered.

665.3 A height not below **6000 ft** GND shall be assigned for fuel dumping.

665.4 The following details shall be entered in the daily log:

- .41 call sign and type of aircraft;
- .42 level;
- .43 area;
- .44 period of time and, if possible, amount of fuel dumped;
- .45 aerodrome of departure, aerodrome of destination and if required alternate aerodrome.

- 665.5 Other known traffic shall be separated from the aircraft dumping fuel by:
- .51 lateral separation of at least:
    - .511 10 NM horizontally but not behind the aircraft dumping fuel;  
and
    - .512 with 15 minutes flying time behind and 10 NM at either side of the flight path of the aircraft dumping fuel;
  - or
  - .52 vertical separation of at least:
    - .521 1000 ft, if above the aircraft dumping fuel;
    - .522 3000 ft, if below the aircraft dumping fuel;
    - .523 Vertical separation shall be established with 15 minutes flying time behind and 10 NM at either side of the flight path of the aircraft dumping fuel.
- 665.6 A warning message shall be broadcasted on appropriate frequencies for non-controlled traffic to remain clear of the area concerned. Adjacent ATC units and control sectors should be informed of the fuel dumping taking place and requested to broadcast on applicable frequencies an appropriate warning message every 3 minutes until 15 minutes after the termination of the operation for other traffic to remain clear of the area concerned.
- .61 Upon completion of the fuel dumping, adjacent ATC units and control sectors should be advised that normal operations can be resumed.

## 666 HYPOXIA AND HYPERVENTILATION

- 666.1 If symptoms of hypoxia or hyperventilation occur, pilots should be advised to:
- .11 make a rapid descent below 10 000 ft;  
and
  - .12 check their oxygen equipment;  
and
  - .13 land as soon as possible.

## 667 - 669 NOT ALLOCATED



**670 MILITARY EMERGENCY PROCEDURES****671 RADIO FAILURE PROCEDURES**

671.1 If the pilot is able to receive transmissions but can transmit only the carrier wave, the following procedure will be applied:

- .11 The pilot will request the assistance of ATC by transmitting 4 short signals representing the Morse code letter H (...) for Homing.
- .12 Further reports have the following meaning:
- 1 click indicates **YES** or serves as acknowledgement
  - 2 clicks indicate **NO**
  - 3 clicks indicate **SAY AGAIN**
  - 1 long transmission indicates that the pilot has completed a procedure as instructed by the controller; the controller shall read back the pilot's presumable message in order to obtain an acknowledgement;
  - 1 long, 2 short, 1 long transmission indicates that the aircraft has experienced another emergency since the procedure was commenced.
- .13 Further information can be obtained from the pilot by asking questions which permit YES or NO answers.

Example:

CAN YOU MAINTAIN HEIGHT / ALTITUDE / FLIGHT LEVEL  
CAN YOU MAKE A NORMAL RECOVERY  
CAN YOU MAKE A NORMAL APPROACH TO LAND  
DO YOU HAVE A CASUALTY ON BOARD  
DO YOU HAVE HYDRAULIC FAILURE  
DO YOU HAVE ELECTRICAL FAILURE  
DO YOU HAVE FUEL FAILURE  
DO YOU HAVE OXYGEN FAILURE  
DO YOU HAVE ENGINE FAILURE

671.14 If the call sign is unknown, ATC shall assign a call sign to the aircraft for communication purposes.

Example:

SPEECHLESS AIRCRAFT ADOPT CALLSIGN SPEECHLESS ONE

671.2 Radio failure of single- and two-seated jet aircraft

.21 If, due to fuel shortage, the pilot is unable to adhere to the time prescribed for commencing descent over the initial approach fix (IAF), he shall switch his transponder to code 7700 shortly before arriving over the initial approach fix. In this case, it shall be presumed that the pilot will commence descent immediately after arriving over the IAF.

671.3 Radio failure in the NLFS

.31 Radio failure procedures with no other emergency

.311 If en-route prior to obtaining the clearance for the NLFS, the pilot will:

- set code 7600;
- maintain the flight route according to the current flight plan (including the NLFS);
- in the case of radar vectoring without a specified limit, proceed in the most direct manner possible to rejoin the current flight plan route no later than at the next significant point;
- maintain / intercept the level stated in the filed flight plan (with the exception of the levels in the NLFS);
- if an intermediate level has been assigned, maintain this level for 7 minutes after switching to code 7600 and then climb to the level stated in the filed flight plan;
- fly to an IAF of the aerodrome of destination according to the current flight plan and perform a published instrument approach procedure from there without delay.

- 671.312 If en-route after having obtained the clearance for the NLFS, the pilot will:
- set code 7600;
  - fly along the night low-flying route to the exit point according to the filed flight plan by performing a terrain-following flight (TFF) or maintaining the respective en-route altitude / terrain-following height;
  - not perform bomb release procedures;
  - at the exit point, initiate a climb to the EMERGENCY PULL-UP ALTITUDE according to the GEMIL FLIP;
  - maintain this level for 7 minutes and then intercept the level stated in the filed flight plan;
  - fly to an IAF of the aerodrome of destination according to the current flight plan and perform a published instrument approach procedure from there without delay.
- .313 If en-route after having left the NLFS, the pilot will:
- set code 7600;
  - maintain the flight route according to the current flight plan;
  - in the case of radar vectoring without a specified limit, proceed in the most direct manner possible to rejoin the current flight plan route no later than at the next significant point;
  - maintain / intercept the level stated in the filed flight plan;
  - if an intermediate level has been assigned, maintain this level for 7 minutes after switching to code 7600 and then climb to the level stated in the filed flight plan;
  - fly to an IAF of the aerodrome of destination according to the current flight plan and perform a published instrument approach procedure from there without delay.
- Note: If radio contact cannot be established just before the exit point, this may be due to insufficient radio coverage. To re-establish radio contact, the pilot will climb from the terrain-following height / en-route altitude to the emergency altitude.

- 671.32 Radio failure procedures with a further emergency
- .321 If the nature and extent of the further emergency do not permit the application of the procedures described in MO-ATS item 671.31, the pilot will:
- set code 7700.
- .322 The flight will be continued at the discretion of the pilot-in-command. Binding procedures for this case cannot be laid down.
- 671.4 Use of special frequencies in the case of UHF radio failure
- .41 The weapons systems F 4, TOR and EUFI (Eurofighter) are equipped with a UHF emergency radio.
- .411 The frequencies are as follows:
- channel 1 -243.40 MHz (secondary emergency frequency);
  - channel G -243.00 MHz (emergency frequency).
- 671.5 Radio failure during radar trail and trail formations
- .51 In the case of radio failure of the formation leader, he will set code 7600 and continue the flight according to the radio failure procedures.
- .511 ATC shall inform the succeeding aircraft / element and, on request, split the formation.
- .52 In the case of radio failure of the succeeding aircraft, it / they shall set code 7600 and continue the flight according to the clearance.
- .521 ATC shall inform the formation leader and, on request, split the formation.
- .522 If the distance from the preceding aircraft cannot be maintained visually and / or with on-board equipment, the pilot will set code 7700 and continue the flight according to the clearance.

671.6 Radio failure during air refuelling procedures

671.61 Radio failure of the receiver

.611 The receiver will:

- set code 7600;  
and
- climb to the alternate flight level;  
and
- follow the heading of the tanker for 3 minutes;  
and
- continue the flight according to the current flight plan.

.612 If the 3 minute parameter cannot be complied with due to a further emergency that requires the aircraft to return without delay, the receiver will set code 7700 and continue the flight immediately according to the current flight plan or proceed to a suitable aerodrome, if necessary.

.62 Radio failure of the tanker

.621 The tanker will:

- set code 7600;  
and
- abort the refuelling immediately;  
and
- follow the refuelling heading on the basic level for 3 minutes;  
and
- continue the flight according to the current flight plan.

.622 The receiver(s) will establish radio contact with the responsible ATC unit and request an IFR clearance.

**672 PROCEDURES IN THE CASE OF DETERIORATION OF WEATHER DURING THE CONDUCT OF MILITARY VFR FLIGHTS**

672.1 To enable military aircraft to change from a VFR to an IFR flight, contact points are installed in the control centres.

Note: The published UHF frequencies or the published VHF control sector frequency / channel will be used.

672.2 Change in VMC:

.21 If required, the pilot shall be instructed to maintain VMC until an ATC clearance has been issued;

.22 the aircraft shall be identified;

.23 the required ATC clearance shall be obtained as EXPEDITE CLEARANCE from the working position concerned.

672.3 Change in IMC:

.31 The pilot will set code 7700 / mode C or military EMERGENCY;

.32 the pilot will, if he is below the levels mentioned here, initiate climb to :

.321 altitude 3500 ft north of 52°00N;

.322 altitude 4500 ft south of 52°00N and outside of the areas described below;

- FL 65 south of 49°00N and west of 09°10E;

- FL 85 south of 48°00N and east of 09°10E;

.323 altitude 5200 ft flights in the area of the Harz between :  
51°55N / 10°20E  
51°55N / 10°50E  
51°40N / 10°50E  
51°40N / 10°20E

Note: If the pilot does not climb to the above-mentioned levels, he shall be advised accordingly.

- 672.33 The pilot will maintain his level if he is at or above the levels defined in MO-ATS item 672.32.
- .34 If necessary, the unit contacted shall obtain the required ATC clearance with the announcement EMERGENCY PULL UP.
- 672.4 Radar traffic information or avoidance advice shall be provided until an ATC clearance is issued.
- 672.5 If radio contact cannot be established, the pilot will initiate a distress call on the emergency frequency 243 MHz or 121.5 MHz.
- .51 If radio contact still cannot be established, the pilot will:
- .511 - set code 7600;
- .512 continue the flight to the aerodrome of destination at levels as described in MO-ATS item 672.32 and conduct an instrument approach procedure when reaching the initial approach fix;  
or
- .513 if encountering VMC during the flight, continue the flight in VMC and conduct an established entry and approach procedure for VFR flights for the aerodrome of destination.
- 672.6 The above-mentioned operating procedures shall be considered to be emergency procedures. No altitude shall be reserved as a precautionary measure.
- 672.7 If separation from other controlled aircraft is not immediately possible, vertical emergency separation may be applied.
- 672.8 The application of the above-mentioned procedures shall be entered in the daily log.

**673 FLAMEOUT PROCEDURES**

- 673.1 A flameout procedure is a spiral descent to the nearest suitable aerodrome in the case of a complete loss of engine thrust.

Note: The aim of this procedure is to vector an aircraft to a suitable altitude and to a position from which it has visual contact to an aerodrome in order to attempt a landing.

- 673.2 Flameout procedures in VMC
- .21 The pilot will fly his aircraft:
    - .211 to the HIGH KEY position (above the aerodrome)  
or
    - .212 directly to the LOW KEY position (abeam the aerodrome) and land following a spiral descent from there;  
or
    - .22 the pilot will land following a straight-in approach.
- 673.3 Flameout procedures in IMC or above clouds
- .31 Headings shall be issued to vector the aircraft to the HIGH KEY position.
  - .32 The pilot performs a spiral descent until he has the aerodrome in sight and then performs a visual landing.
- 673.4 Radar-controlled flameout procedure
- .41 A radar-controlled flameout procedure is a descent with straight-in landing in VMC or IMC.
  - .42 Measures to be taken by ATC:
    - .421 Heading and distance to a position suitable to conduct a straight-in landing shall be issued.
    - .422 Distance information at intervals of 1 NM in reference to the aerodrome shall be issued.  
  
Note: The pilot will try to achieve a 1:1 glide slope (a descent of 1000 ft per NM). If the aircraft is positioned too high, the pilot may deviate from his track to achieve the optimum glide path.
    - .423 On reaching the glide path, distance information shall be transmitted at intervals of 0.5 NM.



**674 FUEL SHORTAGE**

674.1 If a pilot discovers that the remaining fuel quantity has fallen short of the amount specified for the safe termination of the flight, he will advise this with the following phrases:

.11 **MAYDAY – LOW ON FUEL**

The fuel supply is exhausted to such an extent that it constitutes an imminent danger and the pilot requests immediate assistance.

.12 **MAYDAY - MINIMUM FUEL**

The fuel supply is exhausted to such an extent that it falls short of the minimum amount specified for a safe termination of the flight and the pilot deems priority handling necessary.

**675 ABANDONMENT OF AIRCRAFT / BAIL-OUT**

675.1 In the case of emergencies requiring the abandonment of the aircraft, a heading shall be transmitted which will cause the aircraft to crash away from populated areas, if possible.

675.2 If the pilot decides to bail- out and time permits, he will, immediately prior to the ejection, pass aircraft heading and altitude to ATC.

.21 This information shall be recorded and passed on to the appropriate rescue services without delay.

**676 VERTIGO**

676.1 Vertigo causes spatial disorientation.

676.2 To prevent vertigo, pilots of single-seated jet aircraft should only be instructed to change frequency or to switch SSR when in straight and level flight, if possible.

**677 LOST WINGMAN PROCEDURE**

677.1 The Lost Wingman Procedure will be applied when the pilot has lost visual contact to his formation. The pilot will set code 7700 and request an individual ATC clearance.

677.2 If this procedure is applied during a go-around, the leaving aircraft will climb to 500 ft above the published missed approach altitude.

**678 LOSS OF RADAR AND / OR VISUAL CONTACT DURING RADAR TRAIL / TRAIL FORMATIONS**

678.1 If radar and / or visual contact has been lost, the pilot will set Code 7700 and request an individual clearance on the control frequency.

678.2 In this case, air traffic control shall inform the formation leader or the succeeding aircraft / element and split the formation on request.

**679 NOT ALLOCATED**

**680 SPECIAL PROCEDURES****681 ASSISTANCE OF VFR FLIGHTS ENCOUNTERING NAVIGATIONAL DIFFICULTIES**

681.1 If it becomes apparent that a pilot has suffered loss of orientation for more than a moment, this shall be considered an emergency regardless of whether the pilot has declared an emergency or not. ATC must do everything to assist the pilot. The responsibility for the execution of the subsequent flight manoeuvres remains with the pilot.

Note: It will be significant for all subsequent measures to know the remaining fuel or the remaining flight time.

Example:

REQUEST REMAINING FLIGHT TIME

681.2 First it shall be determined whether the pilot will be able to continue his flight with sufficient flight visibility and / or visual reference to the ground.

Example:

ARE YOU ABLE TO CONTINUE VISUALLY

.21 An attempt shall be made to identify the aircraft by means of radar. If this is possible, the pilot shall be informed about his position.

.211 If the pilot requests radar vectoring or if the controller considers this to be advisable, it shall be determined whether the vector shall lead him:

a) to a line of position (e.g. highway, river, railway);

or

b) to an aerodrome (landing site).

.212 Radar vectoring shall only be applied if the geographical features are displayed on the radar map.

681.22 The pilot shall be informed whenever the radar target is lost and / or radar guidance is terminated. His last position shall be specified.

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681.3 If the pilot has neither visual reference to the ground nor sufficient flight visibility or if this is to be expected (the aircraft is "on top"), an attempt shall be made to vector the aircraft into an area for which the aeronautical meteorological office or other pilots have reported conditions permitting the pilot to continue visually.

.31 If this is not possible and the obtained weather reports indicate that the ceiling in the area in which the aircraft is operating is above the MRVA, the pilot may be authorised to descend through the closed cloud cover down to the MRVA.

Example:

YOU MAY DESCEND 3000 FT

.311 If descent through a closed cloud cover is intended, it will be advisable to start descent at 1000 FT above cloud top in order to reach a stabilised flight attitude before the aircraft "dives" into the clouds (recommended rate of descent not exceeding 500 FT / min).

- 681.32 If the obtained weather reports indicate that it seems impossible to reach VFR conditions prior to reaching the MRVA, an attempt shall be made to guide the aircraft to an aerodrome with published approach procedures, keeping it in VFR conditions as long as possible.
- .33 If the flight cannot be continued in VFR conditions, instructions for altitude and heading changes should not be issued simultaneously. Heading changes should preferably be made in increments of 10°.
- Example:
- YOU SHOULD TURN 10 DEGREES TO THE LEFT
- .34 Approach should preferably be made in the manner of a surveillance radar approach. The aircraft should be aligned on its final approach course early enough so that course corrections can be avoided as much as possible during descent on final.
- 681.4 The following additional information shall serve as a helpful guideline to mastering the situation.
- .41 If the pilot has neither visual reference to the ground nor sufficient flight visibility, he should be recommended to perform:
- .411 climb and descent in straight flight;
- .412 turns in small increments using, if possible, the rudder (skid turn);
- .413 continuous descent on final approach.
- Note: A stepped descent should only be made if a continuous descent does not appear to be advisable due to the height of the cloud base.
- .42 In the case of aircraft driven by carburettor engines, the pilot may be reminded to activate his carburettor heating before descent.
- .43 If there is a risk of icing, pilots may be reminded to activate their de-icing system (including pilot heating and propeller de-icer), if available.

- 681.5 The behaviour and voice of the controller should have a reassuring and calming effect on the pilot. The option of engaging a controller with flying experience or a flight instructor for assistance should be considered.
- 681.6 Radio communication with German-speaking pilots should preferably be made in the German language.

Note: The following explanations serve as additional information to the provisions and information contained in MO-ATS chapter 681.

The provisions and information contained in MO-ATS chapter 681 permit the controller to assist a pilot without instrument rating within the bounds of legal possibilities, even if visual flight rules cannot be complied with. If flying through or within clouds cannot be avoided, the controller is obliged to establish and maintain separation from other aircraft. It is presumed that pilots are able to read heading and altitude from their instruments, even if they do not have an instrument rating.

The pilot's exclusive authority to make decisions regarding the operation of the aircraft is provided in Article 3 of the Aviation Regulation (LuftVO). This note is to remind the controller of the possibility that pilots may not always execute the actions proposed to them.

As a rule, radar service may only be used down to the MRVA, except for approaches to aerodromes. In this case, some kind of SRA should be executed along a published instrument approach procedure.

The different possibilities to provide assistance are divided into several steps. The remaining flight time and the meteorological information for the area concerned are essential for the air traffic controller's decision about which possibility to consider.

If the term "sufficient flight visibility" is used, it means "visibility below VMC" but sufficient for the pilot to keep clear of obstacles, for example.

**682 ASSISTANCE OF VFR FLIGHTS AT NIGHT UNDERFLYING THE NLFS**

682.1 If it turns out that a pilot is unable to overfly or cross a route segment of the NLFS for meteorological reasons, he may underfly the route segment is permitted.

- Note: The following conditions apply to the pilot :
- maximum height of 700 ft GND below the NLFS;
  - minimum safe height of 500 ft GND;
  - the geographical structure of the area; and
  - the accessibility of emergency landing areas are observed.

**683 ACTS OF UNLAWFUL INTERFERENCE IN AIR TRAFFIC**

683.1 Acts of unlawful interference in air traffic are:

- .11
  - hijacking of aircraft;
  - or
  - criminal attacks, bomb threats and threats of violence against aircraft, or similar cases (e.g. threat level 3 or 4).
  
- .12 Possible indicators for an act of unlawful interference in air traffic could be:
  - unexplainable and unauthorised deviations from the cleared flight path;
  - unexplainable loss of radar target;
  - unexplainable loss of radio contact;
  - other unusual occurrences which give rise to the assumption that an act of unlawful interference has occurred.

683.2 If an aircraft is the subject of unlawful interference, the following units or persons shall be notified immediately:

- the supervisor of the responsible control centre;
- the National Air Policing Centre (NAPC);
- the head of the branch;
- DFS/UZ department CC/FC (telephone number +49 (0)172 / 6692606).

- 683.21 The obligation to notify other authorities, units and persons in accordance with existing procedures and regulations (including local agreements) shall remain unaffected.
- 683.3 Hijacking of aircraft
- .31 It shall be assumed that an aircraft is hijacked when it has set code 7500;
- Note 1: The aircraft may also set code 7700 to indicate that it is threatened by grave and imminent danger and requires immediate assistance.
- Note 2: To indicate that it is hijacked, the aircraft may proceed at a level which differs from the cruising levels normally used for IFR flights in the area by 1000 ft if above FL 410 or by 500 ft if below FL 410.
- .32 The following actions shall be taken by ATC:
- .321 the requests of the pilot of the hijacked aircraft shall be complied with as far as possible.
- .322 if there are any doubts with regard to the code setting or level, the pilot shall be asked for confirmation.
- Note: It should be taken as a confirmation that the code setting or level divergence was no mistake if the request remains unanswered.
- .323 Whenever circumstances call for extra precautions, separation should be greater than the minima specified.
- .324 No further radiotelephony communication (neither to the hijacked aircraft nor to any other aircraft) referring to the hijacking shall be initiated unless the pilot himself has confirmed the hijacking by radiotelephony.
- .325 The pilot shall be supplied with all information required for the safe conduct of his flight. The pilot's acknowledgement, however, cannot be expected.



683.326 If it becomes known that an aircraft is hijacked, all available details shall be forwarded to the local security commission and to the adjacent ATC units concerned.

.327 All flight manoeuvres of the hijacked aircraft shall be monitored and plotted.

## **684 THREAT LEVELS**

684.1 The following 4 levels of threat are used to address “simple” unruly passenger behaviour, as well as any other degree of unlawful interference.

.11 Level 1: Disruptive behaviour - suspicious or threatening

The following behaviour is considered to belong to level 1 threats:

- disorderly behaviour due to alcohol, drugs etc.;
- abusive language used by passenger;
- acts or body language confirming any suspicious or threatening behaviour.

.111 The cabin crew will inform the pilot and the pilot will immediately ensure that the cockpit is properly secured.

.12 Level 2: Physically abusive behaviour

This type of behaviour involves:

- physical abuse from the assailant, e.g. grabbing, pushing, slapping, kicking another passenger or crew;
- deliberate damage to property e.g. breaking of seats, destroying panels.

.121 The pilot will consider to divert and land at the nearest suitable aerodrome.

.13 Level 3: Life-threatening behaviour (weapon)

This type of threat is a life threatening one, and its seriousness is determined by the presence of a weapon, for examples, guns, explosives, knives, chemicals, gases, flammable liquids.

.131 The pilot will declare an emergency to ATC, squawk 7700, and will request a diversion to the nearest suitable aerodrome.

684.14 Level 4: Attempted or actual breach of cockpit

This type of threat is the most serious threat. The hijacker could use physical force and violence in the cabin in order to gain access to the cockpit. Any threat to enter the cockpit should be considered as a method of gaining control of the aircraft and use it as a mass destruction weapon.

.141 The pilot will immediately declare an emergency to ATC, squawk 7500, and will land at the nearest suitable aerodrome. The pilot will use an emergency or rapid descent to minimise the time of exposure to the hijack in flight.

**685 - 689 NOT ALLOCATED**

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**710 GENERAL****711 DEVIATIONS FROM AIR TRAFFIC REGULATIONS**

711.1 Pursuant to § 30 LuftVG, the Federal Armed Forces, the police, the Federal Police, and the armed forces stationed in Germany according to international treaties may deviate from air traffic regulations inasmuch as this is necessary for the accomplishment of their special objectives under consideration of public safety or order.

Note: This is not being checked by the controller.

711.2 When executing air traffic services, consider that, according to § 30 LuftVG, also the equipment of aircraft may deviate from existing equipment regulations.

711.3 Exemptions from the Regulation on Air Navigation Equipment of Aircraft (FSAV) will be granted by:

- the Federal Supervisory Authority for Air Navigation Services (BAF);
- or
- DFS/UZ department CC/OCS, only if Mode S exemptions are concerned.

In individual cases, the air traffic control units concerned may issue an exemption, provided that public safety or order, especially the safety of air traffic, is not impaired.

Note: Exemptions for military aircraft must be applied for via the Bundeswehr Air Traffic Services Office (AFSBw I 1).

711.4 Aircraft of the Federal Armed Forces and the Allied Forces will deviate from the established maximum speeds for VFR and IFR flights below FL 100, if this is required by their mission or by the aircraft configuration.

**712 CONTROL PROCEDURES FOR FORMATION FLIGHTS**

712.1 Aircraft flying in formation shall be considered as one flight. The responsibility for maintaining safety distances within the formation does not rest with ATC.

- 712.11 A standard formation is a formation in which a longitudinal and / or lateral distance of no more than 1 NM and a vertical distance of no more than 100 ft from the aircraft responsible for the transponder settings is maintained by the other elements of the formation.
- Note: The assigned SSR code will only be transmitted by the formation leader. Unless other instructions have been given, the other members of the formation will set their transponders on "STANDBY". The responsibility for the transponder settings rests with the original formation leader, also in case of changing the formation lead.
- .12 In case of a formation split, separation shall be established between the individual aircraft. Each aircraft of the formation shall be assigned an individual call sign.
- 712.2 The minima for radar separation from formation flights shall be increased by 1 NM.
- .21 If two or more formations are separated from each other, the prescribed radar separation minimum shall be increased by 1 NM for each formation.
- 712.3 Instructions to the formation leader shall be given at sufficient intervals in order to enable him to give the orders necessary for the execution of the instruction to the pilots of his formation.
- .31 When splitting formations of single-seated military jet aircraft, no instructions regarding change of squawk or frequency shall be issued to pilots other than the formation leader during the formation flight or the process of splitting.
- Note: Lost Wingman procedures and procedures for loss of radar and / or visual contact during radar trail / trail formations are described in MO-ATS item 677 and item 678.
- .32 Individual instructions shall only be issued when the formation has been split and the aircraft are in straight-and-level flight.
- 712.4 On request of the formation leader, a formation shall be split without delay.

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- 712.41 Formations should be split by:
- .411 assigning altitudes;  
or
  - .412 vectoring;  
or
  - .413 speed control.
- .42 As a rule, formations in IMC shall not be split during turn or descent unless the formation leader has requested or approved this.
- .43 The formation leader shall be asked to report ready for the split before initiating the split.
- .44 The formation leader shall be informed about the intended approach sequence of the individual aircraft unless otherwise requested.
- .45 If the formation leader requests another sequence, he shall be asked to report this sequence.
- 712.5 The different types of formation split may be combined, which can in some cases expedite the splitting process.
- .51 Formation split by assigning altitudes has been accomplished when:
- .511 the pilot reports having reached the assigned level;  
or
  - .512 the pilot reports having passed a level corresponding to the vertical separation minimum;  
or
  - .513 in case of formations consisting of two aircraft only and if the formation is descending from a higher level, when one aircraft is maintaining a level and the other aircraft has passed this level.
- Note: This type of formation split may be performed regardless of the position of the aircraft relative to each other.
- .52 Formation split by vectoring is performed according to the following principles:
- .521 the position of the individual aircraft within the formation shall be requested unless reported by the formation leader;

- 
- 712.522 under poor meteorological conditions, position changes should only be performed when absolutely necessary;
- .523 heading instructions that involve crossing the flight paths of other aircraft of the formation shall not be issued unless the pilot has agreed to this crossing;
- .524 when splitting the formation, heading instructions shall be issued in a way that the identification of all the aircraft and separation can be achieved and maintained as soon as possible. The formation split is completed when the radar separation minima have been established;
- .525 formations shall not be split by means of heading instructions when the formation is about to change its direction unless the formation leader has agreed.
- 712.53 Formation split by means of speed control is done by:
- .531 assigning speeds;  
or
- .532 increasing or decreasing speed.
- .533 If there are doubts about the feasibility of speed reduction, the consent of the pilot shall be obtained.
- Note: Formation splits by means of speed control are time-consuming and require a relatively large airspace.
- .534 Formation splits by means of speed control shall be handled according to the regulations of MO-ATS item 471.2 (exceptions to the prescribed speed limits).
- 712.6 For the join-up of formations the following principles shall be observed:
- .61 the aircraft to which another aircraft shall join up should be in visual meteorological conditions;
- .62 at limited external vision, the join-up should be performed vertically, i.e. from below;
- .63 IFR separation shall be maintained until the pilot reports having the aircraft he is joining up with in sight. Position information to the succeeding aircraft shall be given according to the criteria for issuing radar traffic information;



- 712.64 the individual aircraft shall not be handled like a formation before the formation leader has reported FORMATION TIGHT;
- .65 once visual contact has been established, the responsibility for the final phase of the join-up rests with the pilot;
- .66 a formation join-up that is performed exclusively by means of airborne radar and without visual contact shall not be permitted.

### 713 SSR CODES

#### 713.1 VFR-Flights

- .11 VFR flights between GND and FL 100 will set code 0033 including mode C.
- .12 Flights in the night low flying system (NLFS) will set the following codes:
- NLFS system = code 2000
- Terrain Following Flight = code 0024

#### 713.2 Aircraft Emergencies

- .21 Military aircraft can indicate an aircraft emergency while maintaining their individual code.

### 714 MEANING OF THE WEATHER COLOUR CODE FOR MILITARY AERODROMES

#### 714.1 Meaning of the colour states

Colour State	Ceiling	Ground Visibility
BLUE+ (BLU+)	No ceiling	8 km
BLUE (BLU)	2500 FT	8 km
WHITE (WHT)	1500 FT	5000 m
GREEN (GRN)	700 FT	3700 m
YELLOW (YLO)	300 FT	1600 m
AMBER (AMB)	200 FT	800 m
RED (RED)	below 200 FT	below 800 m
BLACK (BLACK)	Aerodrome not usable for reasons other than cloud amount and / or visibility minimum.	

**715 LOW-LEVEL FLIGHTS OVER THE NORTH SEA AND THE BALTIC SEA**

715.1 In order to facilitate the provision of the search and rescue service, low-level flights over the North Sea and the Baltic Sea are advised to report when crossing the coastline outbound, to state their expected flight time over the sea, and to report when crossing the coastline inbound. If ATC receives such reports, they shall be passed to the ATS unit responsible for the point of inbound crossing.

**716 SUPERSONIC FLIGHTS OF MILITARY JET AIRCRAFT**

716.1 Supersonic flights of military jet aircraft over the terrain of Germany are only permitted under radar control.

716.2 The minimum levels for supersonic flights are:

.21 FL 360 over land;

.22 FL 200 over the sea.

.221 Supersonic flights over the sea below FL 200 may only be conducted in a distance of at least 10 NM from the coast with a heading towards the sea, or a heading parallel to the coast or to the islands in a distance of at least 35 NM.

.23 Exemptions herefrom are possible in defined areas, the published minima shall be adhered to.

716.3 Supersonic flights shall only be conducted in horizontal flight or during climb, the overflight of densely populated areas should be avoided.

.31 This is not applicable above FL 500 and in defined areas.

716.4 Security flights are exempted from the regulations in MO-ATS item 716.1 until 716.3.

- 716.5 The following separation minima shall be used:
- .51 Laterally:  
The prescribed radar separation minimum.
  - .52 Vertically:  
2000 FT
- Note: Exemptions requiring a vertical separation minimum of 4000 FT will be entered in the flight plan and announced by the crew.
- 716.6 The clearance for the supersonic phase shall include the instructions to be followed during deceleration. As far as possible such instructions shall not be issued during the supersonic phase.
- 716.7 The following details have to be recorded for supersonic flights, the method of documentation shall be laid down locally:
- .71 call sign, type of aircraft;
  - .72 aerodrome of departure;
  - .73 level;
  - .74 commencement and end of the supersonic flight (date, time, position);
  - .75 remarks (e. g.: test or acceptance flight).

**717 RADAR TRAIL / TRAIL FORMATIONS**

- 717.1 In case of radar trail / trail formations, the pilots will maintain the distances between each other on their own responsibility with on-board equipment or by means of visual contact.
- 717.2 Radar trail / trail formations are flights of military aircraft performed as non-standard formations.
- .21 A radar trail / trail formation may consist of several elements, with one element consisting of no more than two aircraft. The first and the last aircraft of the formation shall be assigned a squawk.
- .22 All aircraft in a radar trail / trail formation will remain within one defined block of airspace.
- .221 The vertical extension of the airspace block during the approach and departure phase is defined by the levels of the first and the last aircraft of the formation.
- .222 The vertical extension of the airspace block during the en-route phase is defined after individual coordination with the air traffic control services.
- .223 The horizontal extension of the airspace block is defined by the positions of the first and the last aircraft of the formation and 2 NM on each side of the flight path of these aircraft.
- 717.3 ATC will maintain a distance between this block of airspace and other air traffic subject to ATC that amounts to the prescribed radar separation minimum plus 1 NM.
- 717.4 In case of IFR departures, the leader of the formation will report when the assigned level has been reached. This report indicates that the entire formation is on this level.
- .41 If the flight is continued as a standard formation, the formation leader will report when the aircraft have joined up to a standard formation.
- 717.5 Radar trail / trail formation approaches may only be performed at military aerodromes.
- 717.6 Coordination of radar trail / trail formations shall begin with the words RADAR TRAIL / TRAIL FORMATION.

**718 TARGETS OF OPPORTUNITY**

- 718.1 In cooperation with the TACCS, flying units shall conduct air defence training flights to visually identify the following targets of opportunity:
- single- or two-seated military jet aircraft;  
or
  - flights by aircraft with a civil registration which are conducted on behalf of the Federal Ministry of Defence and are not equipped with TCAS (for example PC 9).
- .11 Targets of opportunity are divided into:
- targets of opportunity (VFR flight plan);
  - coordinated targets of opportunity (IFR flight plan).
- 718.2 Intercepts against targets of opportunity (VFR flight plan) are only admissible at airspace class E and G and with the provision that current level information is available.
- 718.3 Intercepts against coordinated targets of opportunity (IFR flight plan) are only admissible in controlled airspace and in VMC. They must have been previously coordinated with the responsible ATC unit and the consent of the pilots must have been obtained.
- 718.4 During an intercept, the following procedures shall be applied:
- aircraft shall transmit Mode C / Mode S;
  - the target of opportunity / coordinated target of opportunity must not take evasive actions;
  - a minimum distance of 1000 FT (vertical or horizontal) shall be maintained by the interceptor.
- 718.5 The TACCS maintains the agreed minimum distances from all other controlled air traffic.
- 718.6 The responsible ATC unit shall be notified immediately of the end of an intercept.

**719 OPEN SKIES FLIGHTS**

719.1 An Open Skies flight shall have the same priority as a government flight.

719.2 ATC shall ensure that the Open Skies flight can be conducted along its planned flight path in keeping with the published mission plan.

Note: The routing contained in the mission plan is not identical to the sequence of points indicated in item 15 of the flight plan. The mission plan is transmitted to the civil ATC units concerned by department CC/FDO one day prior to the flight. Included in the plan are those points that come as close as possible to the actual route of flight according to the mission plan.

.21 ATC shall be authorised to change the flight path upon request of the pilot-in-command or for other compelling reasons (e.g. aircraft emergencies).

719.3 ATC shall inform the unit responsible for the restricted area (ED-R) when the aircraft has exited from the restricted area.

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**720 PROCEDURES FOR AIR DEFENSE SECURITY FLIGHTS / PRACTICE SECURITY FLIGHTS****721 SECURITY FLIGHTS**

721.1 Security flight are flights which are conducted for the immediate defence of Germany or in order to guarantee the integrity of the German airspace and prevent attacks on the safety of air traffic, particularly aircraft hijacking, acts of sabotage and terrorism. They are called **ALPHA SCRAMBLE**.

721.2 The supervisor of the responsible control centre will be informed about the conduct of security flights by the Tactical Air Command and Control Service unit (TACCS) as soon as possible. This information shall, as far as suitable and possible, contain the following details:

- phrase **ALPHA SCRAMBLE**;
- departure aerodrome;
- call sign, number and type of aircraft;
- route between two defined points or heading (scramble vector);
- level during en-route phase (corresponding semi-circular level, if tactical situation requires);
- actual or estimated departure time;
- destination area (target area);
- call sign of the aircraft to be intercepted;
- SSR code (squawk);
- call sign of the accepting TACCS unit and frequency (primary / secondary).

721.3 The supervisor shall notify those control sectors and (as far as necessary) adjoining ATC units which are affected by the security flight. All efforts shall be made to keep the planned route (level, heading) clear of all other air traffic.

## 721.4 Phases of the Security Flight

## .41 Departure Phase:

.411 As a rule, the appropriate DFS ATC unit shall be responsible for the departure phase. The transfer of control of the security flight to the responsible unit of the TACCS shall take place as soon as possible. If in individual cases, the tactical situation requires a transfer of control at the request of the responsible TACCS unit, this shall be conducted as quickly as possible.

## .42 En-route Phase:

.421 As a rule, the appropriate TACCS unit is responsible for the en-route phase. The en-route phase begins with the transfer of control to the TACCS unit, but no later than when the aircraft reaches the planned level, and ends when the target area is reached.

.422 As a rule, the responsible ATC unit shall confirm the reserved route (level and heading) with the phrase **SCRAMBLE VECTOR AND LEVEL ARE ASSURED**. With this confirmation, the responsible ATC unit shall fulfill the obligation to provide separation up to the reserved route.

.423 If the responsible ATC unit is unable to confirm the reservation of the route and the security flight is under the jurisdiction of a TACCS, the TACCS shall be responsible to maintain the minimum distances.

.424 If, for compelling reasons, a deviation from the agreed route (level and / or heading), becomes necessary, the TACCS unit will be responsible to maintain the minimum distances. The responsible ATC unit will be informed about the deviation without delay. The ATC unit will inform the TACCS unit when they are able to take over the obligation to provide separation again.

## .43 Target Area Phase:

.431 In the target area, security flights are conducted exclusively under the guidance of the TACCS unit.

## .44 Return Phase :

.441 The return phase starts with the termination of the mission order. When ending the mission, the TACCS unit changes the status of the security flight to that of a practice security flight. The transfer of control to the responsible ATC unit takes place as soon as possible. The procedures according to MO-ATS item 722 shall apply.



- 721.442 If the practice security flight is continued, the appropriate ATC unit shall be responsible for the route to the training airspace. Deviating procedures shall be coordinated in individual cases.
- .443 The shortest possible route shall be used for practice security flights returning to the aerodrome of destination.
- 721.5 Diversion from the obligation to keep the prescribed minimum distances:
- .51 When a security flight (ALPHA SCRAMBLE) is conducted, TACCS may deviate from the prescribed minimum distances if this is required for the execution of air-defence-related tasks.

## 722 PRACTICE SECURITY FLIGHTS

- 722.1 Practice security flights have the same profile and phases of flight as security flights. Their status is that of government flights. The priority handling of a practice security flight ends with the transfer to the responsible TACCS unit but starts again when the flight is returned to the responsible ATC unit for the return phase. They are called **TANGO SCRAMBLE**.
- 722.2 The military ATC unit or the TACCS unit concerned will always coordinate practice security flights with the DFS ATC unit as soon as possible. All flight plan data necessary to issue an ATC clearance will be forwarded to the DFS ATC unit.
- 722.3 If the status of a practice security flight changes to that of a security flight, the procedures according to MO-ATS item 721 shall be followed.

## 723 INTERCEPT PROCEDURE OF CIVIL AIRCRAFT

- 723.1 As a rule, in the scope of security flights, the responsible TACCS-unit shall maintain the minimum vertical distances corresponding to the applicable separation minima during intercept procedures on civil aircraft.
- 723.2 If, for tactical reasons, the vertical separation minima have to be infringed (e.g. visual identification) and a possible TCAS resolution advisory alert is to be expected, only transponder code 3/A shall be transmitted from a distance of 20 NM from the target object. The responsible TACCS unit shall inform the responsible ATC unit about the deactivation in due time. After Mode C / Mode S have been switched off, the TACCS unit shall immediately inform the responsible ATC unit about any deviation from the coordinated flight route (course / level).

723.3 Depending upon the situation, other civil aircraft in the vicinity of the security flight may be informed of the Mode C / Mode S deactivation at the discretion of the controller / supervisor.

723.4 After leaving the target and re-establishment of the agreed minimum distances, Mode C / Mode S will be reactivated immediately by an instruction of TACCS unit.

**724 LETTERS OF AGREEMENT**

724.1 Details concerning MO-ATS item 721 and 722 shall be settled locally between the units concerned, if necessary.

**725 - 729 NOT ALLOCATED**

**730      PECULIARITIES OF AIR TRAFFIC CONTROL OF SINGLE- OR TWO-  
SEATED JET-AIRCRAFT** |

**731      LANDING GEAR CHECK** |

731.1    If the pilot has not reported that the landing gear was extended on base leg  
or at least 2.5 NM from touchdown, he shall be requested to check the  
landing gear. |

**732 - 739 NOT ALLOCATED** |

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**740 AIR REFUELLING PROCEDURES****741 GENERAL**

741.1 Air refuelling missions shall be monitored by radar.

741.2 Air refuelling missions will be performed:

.21 in specified tanker patterns;

or

.22 on individually established routes (en-route refuelling).

741.3 If the tanker pattern is located within a TRA, the air refuelling missions may be monitored by a Tactical Air Command and Control Service unit without involvement of ATC.

Note: If a tanker pattern is located within a TRA, the distance between the tanker pattern and the TRA boundary shall be at least 3.5 NM unless deviating regulations have been specified locally.

741.4 The controller responsible for the performance of air refuelling missions must have been briefed about air refuelling procedures.

741.5 If air refuelling missions are monitored by the personnel of a Tactical Air Command and Control Service unit in a control centre (air defence element, ADE), a controller of the DFS shall be appointed who is authorized to give orders to the ADE in all matters related to ATC.

741.6 Tanker missions shall be entered in the appropriate form.

**742 PUBLISHED TANKER PATTERNS**

742.1 As a rule, **four consecutive flight levels on top of each other** are required for air refuelling missions within a published tanker pattern.

742.2 As a rule, these flight levels will be used in the following manner:

.21 **FL A Alternate flight level**

The FL above the tanker shall be kept clear for specific purposes, e.g. evasive action or exit;

.22 **FL B Basic level of the tanker**

Actual FL of the tanker, refuelling flight level;

- 742.23 **FL C Entry level of the first receiver(s)**  
FL below FL B. Entry level of the first receiver(s) if no other aircraft is in formation with the tanker. This FL shall be kept clear as long as aircraft are in formation with the tanker to enable a descent in an emergency situation;
- .24 **FL D Entry level of further receivers**  
FL below FL C. Entry level of further receivers if receiver aircraft are already in formation with the tanker.
- 742.3 In the tanker pattern, the tanker shall be asked to:
- .31 report the prevailing weather situation;  
and
- .32 specify the receiver position(s) at the tanker before and after the refuelling in consultation with ATC;  
and
- .33 keep the receivers in close formation in the specified position(s) on completion of the refuelling. The receivers shall be instructed to report on the air refuelling frequency (ATC) to obtain a clearance for their further flight.

## 743 SEPARATION

- 743.1 Tanker pattern
- .11 ATC will apply the prescribed radar or vertical separation minima to the tanker and other traffic subject to separation. The radar separation minima to a tanker formation (tanker and receiver) shall be increased by 1 NM.
- .12 The prescribed vertical separation minima shall be complied with above FL A and below FL D.
- .13 ATC is responsible for maintaining the required separation between tanker and receiver until the receiver reports to have the tanker in sight and has been given clearance to change to the refuelling frequency (boomer).
- .14 If the tanker pattern is located within a TRA, further missions in the TRA shall be assigned a FL that ensures a distance of at least 2000 FT above FL A or below FL D.

- 743.2 En-route refuelling
- .21 The prescribed radar separation minimum between the tanker and other aircraft subject to separation shall be increased by 1 NM.
  - .22 Above the FL of the tanker, the prescribed vertical separation minimum shall be maintained.
  - .23 Below the FL of the tanker, the prescribed vertical separation minimum shall be doubled.

#### **744 RECEIVER APPROACH AND DEPARTURE PROCEDURES**

- 744.1 The tanker shall be informed about approaching receivers.
- 744.2 Approaching receivers shall be informed about:
- .21 the prevailing weather situation;  
and
  - .22 the position, FL and heading of the tanker;  
and
  - .23 the number of receivers in formation with the tanker.
- 744.3 Approaching receivers shall be asked to check and report whether the altimeter is set on standard pressure.
- 744.4 Approaching receivers shall be informed about the position of the tanker until the pilot reports to have radar or visual contact with the tanker.
- .41 ATC will only issue clearances for the FL below the tanker with the consent of the tanker.
- 744.5 When the receiver reports the tanker in sight, he shall be requested to:
- .51 set the transponder on STANDBY;  
and
  - .52 change to the refuelling frequency (boomer).
- 744.6 The receiver shall be requested to remain in formation with the tanker until having received a clearance from the competent ATC unit. This clearance shall be issued to receivers with the provision to maintain the safety distance on their own responsibility when leaving the formation.

**745 TANKER CELL FORMATION**

745.1 Air refuelling in tanker cell formations shall only be performed within specified tanker patterns or on specified routes with a maximum of 3 tankers.

.11 The standard cell formation is flown with successive tankers in line astern and stepped up behind the leader.

745.2 The leading tanker shall be cleared to maintain the FL specified for the tanker pattern (FL B).

.21 The tankers in the tanker cell formation will maintain a lateral distance of 1 NM and a vertical distance of 500 ft in VMC / 1000 ft in IMC.

.22 The vertical extension of the tanker pattern depends on the number of tankers. A squawk shall be assigned to the first and the last tanker.

.23 When establishing separation to a tanker cell formation, the prescribed radar separation minimum shall be increased by 1 NM.

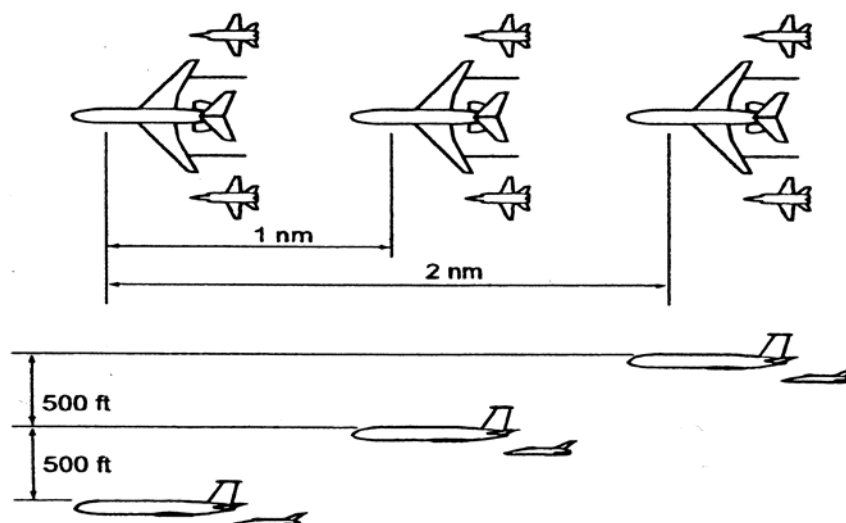
.24 The prescribed vertical separation minimum shall be maintained above FL A and below FL D.

745.3 In case of en-route tanker cell formations, the following vertical separation minima shall be applied:

.31 Above the FL of the last tanker, the prescribed vertical separation minimum;

.32 Below the FL of the first tanker, the prescribed vertical separation minimum shall be doubled.

Tanker Cell Formation in VMC





- 745.4 Special procedure - breakaway
- .41 If the tanker or the receiver(s) is / are endangered during refuelling, refuelling will be aborted immediately by issuing the instruction BREAKAWAY (may be issued by tanker, receiver or boomer).
  - .42 The receiver will slow down and take up a safe position behind the tanker. The tanker will maintain its heading and FL and increase its speed.
  - .43 When the incident has been resolved, refuelling may be resumed with the consent of the pilots involved.

#### **746 BUDDY-BUDDY REFUELLING**

- 746.1 Buddy-Buddy refuelling may be conducted:
- .11 in reserved airspaces;
  - .12 VFR in airspace class E;
  - .13 as IFR en-route refuelling.
- 746.2 During refuelling on IFR routes the separation minima applicable for formation flights shall be applied to other traffic for which there is an obligation to provide separation.
- 746.3 During refuelling the following restrictions in the manoeuvrability shall be taken into consideration:
- .31 only standard turns possible;
  - .32 as a rule no vertical movements shall take place. If this is not possible, a maximum vertical speed of 1000 ft / min during descent resp. 500 ft / min during climb shall not be exceeded.
- 746.4 Beginning and end of the refuelling will be reported by the tanker.

#### **747 - 749 NOT ALLOCATED**

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**750 ADDITIONAL MILITARY PROCEDURES****751 INTRODUCTION**

751.1 The procedures described in MO-ATS chapter 750 are no regulations within the meaning of the MO-ATS. They merely serve the purpose of informing ATC personnel about special features of the different weapons systems and as basis for local procedures.

751.2 These additional military procedures provide information about the different procedures applied by military aircraft in case of aircraft emergencies not described in MO-ATS chapter 710 - 740.

**752 PECULIARITIES OF AIR TRAFFIC CONTROL OF SINGLE- OR TWO SEATED JET-AIRCRAFT**

752.1 If the pilot has lost orientation but is able to fly a procedure that could be identified by an ATC unit, he may be expected to:

- .11 fly equilateral triangular patterns to the **right** in case of **transmitter failure**;
- .12 fly equilateral triangular patterns to the **left** in case of **transmitter and receiver failure**;
- .13 set code 7600 or 7700;
- .14 maintain listening watch on the emergency frequencies.

Note: **2 minute** legs at TAS of **300 KT or less**;  
**1 minute** legs at TAS of **more than 300 KT**.

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752.2 Use of shepherd aircraft

A shepherd aircraft should, if possible, possess flight characteristics equal or similar to those of the aircraft in emergency and be IFR equipped. The request for a shepherd aircraft shall be addressed to the appropriate military ATC unit or Tactical Air Command and Control Service unit which will then relay the request to a suitable flying unit, unless the ground radar station itself has direct telephone connections to such a unit. The shepherd aircraft shall be vectored so as to be able to intercept the aircraft in emergency. When both aircraft have established visual contact, they will be vectored to the nearest most suitable aerodrome.

752.3 Single frequency approach - SFA

- .31 The SFA is an approach during which pilots will not be required to change frequency / channel from the beginning of the approach until touchdown. Pilots conducting an en-route descent may be instructed to change frequency / channel when control is transferred from the control centre to the local ATC unit.
- .32 By avoiding frequency / channel changes the strain on the pilot caused by actions that might cause spatial disorientation will be reduced. As far as possible, this rule shall also apply to the change of codes.
- .33 Single-seated not home based aircraft operating in IMC shall be assigned, whenever possible, a single frequency / channel from the beginning of the instrument approach to touchdown. If this is not possible, frequency / channel changes shall be instructed during a non-critical phase of flight.
- .34 During a non-radar approach aircraft may be instructed to change to the frequency / channel of the control tower, if:
  - .341 during day-time, after the IFR flight has been cancelled or the pilot reports able to proceed with visual reference to the ground;
  - .342 during night-time, after the IFR flight has been cancelled and the aircraft is in level flight.

- 752.4 Frequency / channel change with single-seated aircraft in formation
- In case of single-seated aircraft frequency / channel changes should be avoided as far as possible during formation flight in IMC. In any case frequency / channel changes shall be avoided during turns.
- 752.5 Speed adjustment
- Speed adjustments shall not be instructed during final approach after commencement of descent or extraction of landing gear.
- 752.6 Position information
- .61 Single- or two-seated military jet aircraft shall be informed about their position:
- .611 during identification, except when the aircraft is identified by a position report of the pilot or within 1 NM of the runway after take-off;
- .612 when conducting random approaches, if this is deemed necessary.

### 753 AIRCRAFT EMERGENCIES OF THE DIFFERENT WEAPONS SYSTEMS

- 753.1 In case of a disturbance which might lead to an aircraft emergency or in case of an aircraft emergency it must be expected that the pilot will execute an emergency approach procedure. The procedures listed below are standard procedures for training purposes and serve as a guide for actual emergencies.
- .11 In an aircraft emergency, it is **solely** the decision of the pilot:
- .111 whether he applies one of the procedures;
- .112 which procedure he applies;
- .113 to which extent he deviates from a procedure.
- .12 The precautionary landing pattern is executed as precautionary approach with F 4 aircraft. With Tornado single engine (asymmetric) and swept wing approaches will be flown.

## 753.2 Precautionary straight-in approach

- .21 A precautionary straight-in approach is executed like a normal straight-in approach considering the following items:
- .211 the speed is generally 20 KT IAS higher than normal, it may, however, exceed 300 KT IAS for some types of emergency (e.g. engine problems with subsequent limited thrust changes);
- .212 the landing gear will be extended at the pilot's discretion;
- .213 the traffic entry is determined by the type of emergency (e.g. thrust available) and the local procedures. During traffic entry the breakaway of the formation, if applicable, takes place. All manoeuvres are executed so as to reach a point which is 8 NM (optimum) but not less than 4 NM before touchdown on the final approach track.

## 753.3 Partial power pattern (PPP)

- .31 The partial power pattern is executed as specified below:
- .311 Aircraft configuration
- flaps take-off position;
  - speed 260 KT IAS + 5 KT for each 1000 lbs. of fuel above 2000 lbs;
  - descent descent gradient 1 / 2 (1000 ft of height / 2 NM of flight path);
  - landing gear will be extended on pilot's discretion just prior to touchdown when landing is assured.
- .312 Taking into account the descent gradient of 1/2, the flight path will be calculated in such a way that the pilot will safely reach the runway on the basis of the remaining level, e.g. at a height of 5000 ft, the flight path may not be longer than 10 NM.
- .32 The procedure can only be applied if the pilot has precise information concerning the direction to and the distance from the selected touchdown at his disposal. He may use radar approach control, GCI, TACAN, AIRBORNE RADAR, DF or known geographical locations. The pilot will receive the best support by using radar approach control.

753.33 For training purposes the following weather minima apply:

.331 ceiling 1000 ft;

.332 flight visibility 3500 m.

Note: The optimum final approach for simulation of PPP approaches should be 10 NM to 8 NM. The minimum must not be less than 4 NM.

.34 During an actual emergency situation the pilot might have to fly whatever pattern is possible depending on the emergency situation (power available, airspeed) and location (distance to next suitable aerodrome, altitude). In this case he is not restricted to any weather minima. It is then up to him to decide whether to fly the approach or to abandon the aircraft.

753.4 Precautionary Approach

.41 In case of a disturbance which might lead to an aircraft emergency or in case of an aircraft emergency with engines running still sufficiently, the pilot will decide to land out of a precautionary approach. In any case, the pilot will observe the following:

.411 reduce the gross weight as far as possible;

.412 maintain minimum speed of 230 KT IAS until landing configuration is established;

.413 avoid sudden steep or narrow turns and strong sudden changes of engine power;

.414 approach from an extended final approach and establish landing configuration not until the aircraft is in the final approach phase;

.415 in almost all aircraft emergencies, the final approach speed will increase to approximately 170 to 190 KT IAS.

.42 In case of failure of the main hydraulic system and one of the two additional hydraulic systems or in case of engine failure essential turns will be flown only to the side where one engine or hydraulic system is still working.

- 753.5 Tornado - Single engine radar approach (Asymmetric approach)
- .51 Preferably a standard radar approach procedure is established:
    - .511 downwind / base 250 KT IAS;
    - .512 landing gear will be extended when intercepting glide path;
    - .513 full flaps with reaching the final approach.
  - .52 For training single engine radar approaches:
    - .521 one engine is set to idle thrust;
    - .522 if a fullstop landing is performed, thrust reverser is not used;
    - .523 go around after a low approach is performed with reheat on the good engine;
    - .524 when practising a touch-and-go out of an single engine radar approach both engines are used to go;
    - .525 no special weather restrictions apply.
- 753.6 Swept wing approach
- .61 A swept wing approach is flown with either 45° or 67° wing sweep, preferably using an established radar approach procedure and applying the following configuration:
    - .611 downwind / base 300 KT IAS;
    - .612 final approach minimum 210 KT IAS and minimum 12 NM;
    - .613 landing gear will be extended when intercepting glide path.
  - .62 When practising a swept wing approach, go around is initiated at 300 ft height above touchdown zone elevation (HAT).
  - .63 Due to high speed, traffic circuit and turning radius may increase considerably.



## 753.7 Ice-free approach

- .71 If the prevailing weather conditions imply the risk of aircraft icing that could lead to an aircraft emergency, the pilot will perform an ice-free approach. During this approach, the pilot will proceed as follows:
- .711 downwind / base leg at a minimum of 350 KT IAS up to a point 5 NM from initiating descent for final approach;
- .712 after having initiated the descent, the aircraft will be configured for landing.

**754 PECULIARITIES**

## 754.1 Hydrazine Incidents of Aircraft Type F 16

- .11 The F 16 is equipped with an emergency power unit (EPU) which temporarily provides electrical and hydraulic power for the controls in case of engine disturbance. The EPU uses hydrazine monofuel (military code H 70). Hydrazine is a highly toxic cancerogenic liquid.
- .12 To protect air crews and ground personnel from risks of this kind, certain precautionary measures have to be taken at the aerodrome in question. In order that they can be initiated in time, the pilot of an F 16 is obliged to inform his destination aerodrome of any EPU activation during his flight. On request of the pilot, this message will immediately and, as far as possible, word by word be passed to the destination aerodrome.
- .121 The following terms may be used:
- |                         |   |
|-------------------------|---|
| Home Base               | Aerodrome at which the aircraft concerned is stationed;                                       |
| F 16 Base               | Any aerodrome equipped for the maintenance of F 16;   |
| Recovery Base           | Any aerodrome without EPU maintenance facility;   |
| F 16 EPU Incident       | Each activation of an F 16 EPU;   |
| Hydrazine Incident      | Detected hydrazine leak;  |
| Hydrazine Response Team | A team of qualified EPU experts that can be called in from an aerodrome where F 16 are based. |

**755 FUNCTIONS OF RADAR APPROACH**

- 755.1 The ASR controller is responsible for the control of aircraft within his area of responsibility. He:
- a) to informs himself on current provisions, regulations and flight operational particularities prior to assuming duty;
  - b) makes a functional check of the equipment belonging to the operating position;
  - c) familiarises himself with aerodrome status, meteorological conditions and present traffic situation;
  - d) maintains listening watch on the prescribed RT frequencies / channels;
  - e) identifies aircraft, establishes and maintains radar separation;
  - f) monitors and assists non-radar instrument approaches, issues radar traffic information and initiates, if necessary, the forwarding of such information to the aerodrome control tower;
  - g) informs aircraft on runway conditions, aerodrome weather reports and restrictions / changes relative to the serviceability of aerodrome facilities;
  - h) supports aircraft in emergency situations, initiates, if necessary, the activation of emergency services and assists these services in performing their task;
  - i) forwards tactical information / instructions relevant for the accomplishment of the mission;
  - j) vectors and monitors calibration flights;
  - k) employs non-radar separation procedures in case of radar failure;
  - l) issues ATC clearances to aircraft under his control;
  - m) directs and supervises the activities of OJT personnel assigned to his operating position;
  - n) cooperates closely with the coordinator.

- 755.2 The PAR controller is responsible for the control of aircraft transferred to him for performing / monitoring the final approach. He:
- a) informs himself on current provisions, regulations and flight operational particularities prior to assuming duty;
  - b) makes a functional check of the equipment belonging to the operating position;
  - c) familiarises himself with aerodrome status, meteorological conditions and present traffic situation;
  - d) maintains listening watch on the prescribed frequencies / channels;
  - e) directs aircraft on final approach until reaching the decision altitude;
  - f) monitors final approaches conducted by means of pilot-interpreted navigational aids;
  - g) informs aircraft on runway conditions, changes in aerodrome weather reports and restrictions / changes concerning the serviceability of aerodrome facilities;
  - h) supports aircraft in emergency situations, initiates, if necessary, the activation of emergency services and assists these services in performing their task;
  - i) vectors and monitors calibration flights;
  - j) transmits ATC clearances to aircraft under his control and issues radar traffic information;
  - k) provides SRA in the event of a PAR failure;
  - l) directs and monitors the activities of OJT personnel assigned to his operating position;
  - m) cooperates closely with the coordinator.

- 755.3 The coordinator is directly responsible for the coordination with other agencies being of importance to the conduct of flight operations. He:
- .31 informs himself on current provisions, regulations and flight operational particularities prior to assuming duty;
  - .32 keeps close cooperation with ASR controller and PAR controller;
  - .33 is responsible for the timed provision / relay of ATC clearances, flight information, flight data as well as other information concerning flight operations;
  - .34 records aircraft movements and is in charge of the proper maintenance of prescribed forms;
  - .35 directs and supervises the activities of OJT personnel assigned to his operating position.
- 755.4 This description of functions is not considered to be complete, and additional functions / operating positions may be required depending on local conditions.

## **756 RADAR APPROACH PROCEDURES ASR / PAR**

- 756.1 The transmission of information described in the standard radar approach procedure may be omitted when they are invariably valid and it is certain that the pilot of an arriving aircraft is familiar with the procedure.
- 756.2 Details of the transfer of control shall be laid down between the ATC units concerned in letters of agreement.
- .21 The transferring controller is responsible for the separation of IFR traffic transferred to the radar approach unit from other traffic within its area of responsibility.
  - .22 Aircraft must have been transferred to the final controller at least 1 NM before reaching the point where the final descent is commenced.
  - .23 If an ATC trainee accepts control, the pilot shall be advised accordingly.

- 756.3 It is permitted to deviate from a standard radar approach procedure e. g. in order to perform straight-in approaches, radar approaches in connection with TACAN penetrations and random approaches.
- .31 If deviations become necessary, all information respectively instructions prescribed for downwind or base shall be transmitted, before the aircraft reaches a point with a distance of at least 8 NM from touchdown.
- 756.4 The instructions / information specified here are minimum requirements which, as a rule, shall be transmitted to the pilot in the indicated sequence during an SRA/ PAR approach.
- .41 After identification of an aircraft, the radio failure procedure shall be transmitted to the pilot.
- .42 The latest weather report, the runway to be used, the runway condition including braking action and the landing minimum shall be transmitted to the pilot.
- .421 In case of changes, these shall be transmitted as soon as possible.
- .422 If the meteorological conditions are below the established minima, the pilot shall be advised upon initial contact.
- .423 If the pilot insists on a landing, he shall be rendered any possible assistance.
- .43 During a radar approach a position report shall be given:
- .431 in the traffic circuit at least once on each leg;
- .432 on a straight-in approach at least once prior to commencement of the final approach.
- .44 If the type of intended landing is unknown, it shall be requested from the pilot.
- .45 The aerodrome control tower shall be advised:
- .451 of the pilots intention and the position of the aircraft when the aircraft is at a distance of 10 NM;
- and
- .452 again of the distance when the aircraft is 6 NM from touchdown.

- 756.46 While proceeding to the final approach, the pilot shall be instructed to perform an initial and a final cockpit check. If a traffic circuit is flown, the instructions shall be issued so that the initial check can be performed on downwind well in advance before turning onto base, the final check on base.
- .47 The published missed approach procedure and a level and a heading instruction suitable to initiate the missed approach procedure shall be transmitted to the pilot. The transmission shall be effected prior to commencing final descent.
- .48 Aircraft shall be vectored to final approach so that a level flight of at least 1 NM on final approach before commencing final descent is possible.
- .49 In case of radar vectoring frequency / channel changes shall be avoided during approaches, whenever possible. In case of frequency changes for single-seated or two-seated military jet aircraft see MO-ATS item 752.3 and 752.4.
- 756.5 A final controller engaged in directing a PAR approach shall not be responsible for any duties other than those directly connected with the particular approach.
- .51 When assuming control of an aircraft, the final controller shall at first make a communication check and advise the pilot that no further acknowledgement of transmission is required. Thereafter, transmissions shall not be interrupted for intervals of more than 5 seconds (15 seconds in case of a SRA).
- .511 During final approach the final controller shall activate the mike button only for the period necessary to transmit instructions and information.
- .512 When, in the judgement of the final controller, continuous transmissions are necessary in the interest of safety, at least two transmission breaks or, in case of formation flights more than two transmission breaks, are mandatory.
- .52 An advance notice about starting final descent shall be given to the pilot approximately 1 NM before reaching and just before intercepting the final descent.

- 756.53 It is the responsibility of the aerodrome control tower to issue the landing clearance. The landing clearance shall be requested when the aircraft has reached a position not less than 6 NM from touchdown.
- .531 Current wind information from the wind indicator as well as information on the crosswind component shall be transmitted to the pilot together with the landing clearance.
- .532 The final controller shall not continue an approach closer than 3 NM from touchdown unless specifically authorized to do so by the aerodrome control tower. In any case, the final controller shall pass the landing clearance or instruct the pilot to discontinue the approach before the aircraft reaches a point 2 NM from touchdown.
- .54 On final approach distance from touchdown information shall be transmitted at least:
- .541 every 1 NM up to a distance of 2 NM from touchdown;
- .542 every 1/2 NM thereafter.
- .55 Heading instructions shall be transmitted so that the aircraft closes with the extended runway centreline in the most precise manner. After the aircraft has started final descent, only minor corrections should be required for the remainder of the approach to keep the aircraft properly aligned with the centreline.
- .551 The instruction to commence final descent shall be issued when the centre of the radar target is about to reach the glide path. Deviations from the glide path shall be transmitted to the pilot together with an indication of the necessary adjustment of the rate of descent. The pilot shall be advised when the aircraft starts to regain the glide path, is about to intercept the glide path and when it remains on the glide path.
- .56 When the aircraft is at a distance of approximately 2.5 NM from touchdown the pilot shall be requested to check that landing gear and flaps are extended.
- .57 Just before and when reaching the decision respectively the minimum descent altitude, the pilot shall be informed accordingly and, if necessary, be advised of a possible discontinuation of the approach.

- 756.58 The pilot shall be instructed to discontinue the approach or to perform a missed approach if:
- .581 the aircraft diverges during the final approach from the nominal flight path in such a way as to make a safe completion of the approach unlikely;
  - .582 the landing clearance is not received in due time;
  - .583 requested by the aerodrome control tower;
  - .584 the radar target was not visible on the PAR display for 3 seconds during the last 2 NM of the approach and the pilot cannot continue the approach visually;
  - .585 the identity of the aircraft is uncertain during final approach;
  - .586 in any case the reason for the instruction to discontinue the approach shall be transmitted to the pilot;
  - .587 when the instruction to initiate a missed approach or another approach has been received by the pilot, control with PAR shall be terminated;
  - .588 if the initiation of another radar approach is not possible or not suitable, the pilot shall be instructed to execute another approach procedure or to proceed to the alternate aerodrome.
- 756.6 As an SRA is less accurate than a PAR approach, surveillance radar approaches in IMC shall only be performed if apparent advantages for a safe completion of the approach are given.
- .61 Control of an SRA shall be affected in accordance with the provisions of MO-ATS item 756.5 with the exception of MO-ATS item 756.52, 756.54, 756.551, 756.584 and 756.587.
  - .62 Immediately before reaching the point at which the descent should commence as computed, the pilot shall be instructed to commence final descent.
  - .63 While on final approach, distance information shall be passed at intervals of 1 NM. The reference point for the transmission of distance values must correspond to the touchdown defined for PAR approaches.



756.64 The pre-computed altitudes which the aircraft shall be passing to maintain a constant rate of descent shall be transmitted at intervals of 1 NM together with the appropriate distance information. The altitudes to be transmitted shall be calculated by means of values of the following table and the highest elevation of the touchdown zone.

Distance from touchdown (NM)	6	5	4	3	2	1
Altitude above touchdown (ft)	1800	1500	1200	900	600	300

756.7 In case of radar approaches control is terminated when the aircraft reaches the decision altitude or the minimum descent altitude.

.71 To assist the pilot, information may continue to be issued until the aircraft is over touchdown.

756.8 After termination of control during radar approaches or when the aircraft has touched down, the pilot shall be instructed to contact the aerodrome control tower.

756.9 If IFR flights are directed out of the area of responsibility by means of radar, radar vectoring shall be provided until the aircraft is established on course to the appropriate en-route navigational aid.

## 757 ADDITIONAL SERVICES

757.1 The provision of control takes precedence over the provision of additional services.

757.2 An approach by pilot interpreted navigational aid shall be monitored by radar, if requested by pilot and if the workload of the controller permits.

.21 In addition to the landing clearance, only such information and advice as appears necessary for the safe performance of the flight shall be transmitted to the pilot.

.22 In any case during final approach the following information shall be transmitted to the pilot:

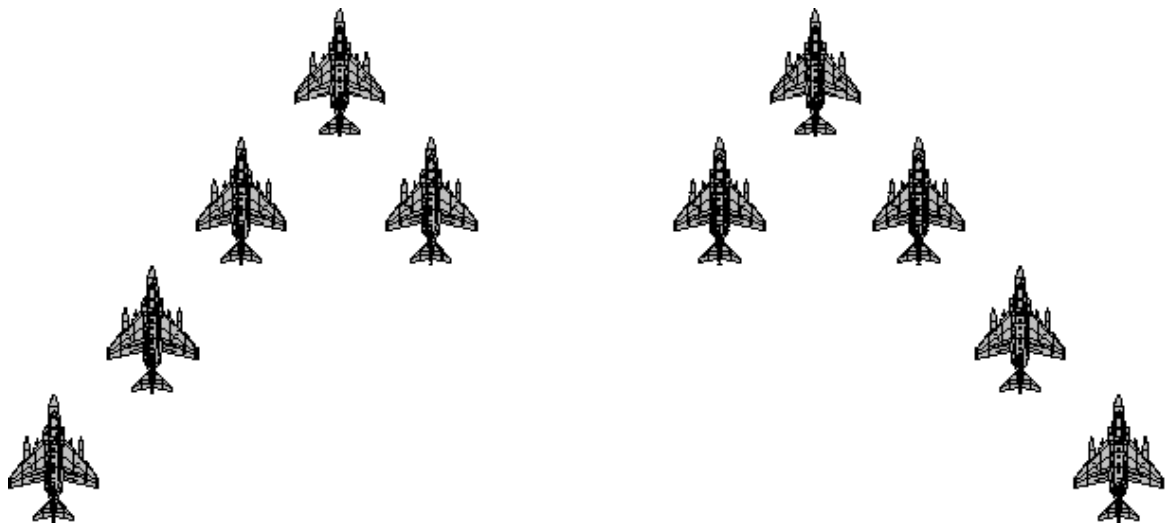
.221 advice on deviations from the nominal flight path which make appear a safe completion of the flight unlikely;

.222 in case of an ILS approach, additional advice on deviations from the nominal glide path.

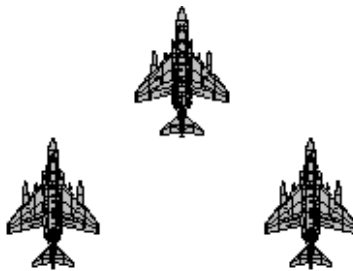
- 
- 757.23 The final controller shall always be prepared to take over control to continue the approach as PAR approach if requested by the pilot.
- 757.3 In the scope of flight information service radar traffic information shall be issued as far as the workload permits.
- .31 Radar traffic information shall include the following information on the unknown aircraft:
- .311 azimuth in terms of the 12 hour clock or, if more suitable, the compass bearing;
- .312 distance in NM;
- .313 flight direction;
- .314 altitude, if known.
- .32 Evasive manoeuvres to resolve conflict situations by means of heading and / or level changes shall be recommended:
- .321 on pilot's request;  
or
- .322 if the situation requires such action.
- .323 The pilot shall be informed if the collision risk ceases to exist.
- .33 As far as visible on the radar display, information that an aircraft appears likely to enter an area of adverse weather shall be transmitted to the pilot in time. On request and, as far as possible, the pilot shall be informed of the best way to circumnavigate the area of adverse weather.
- .34 Navigational assistance with radar may be rendered to VFR flights if this is requested by the pilot or advisable for control purposes.

757.4 Types of Formation

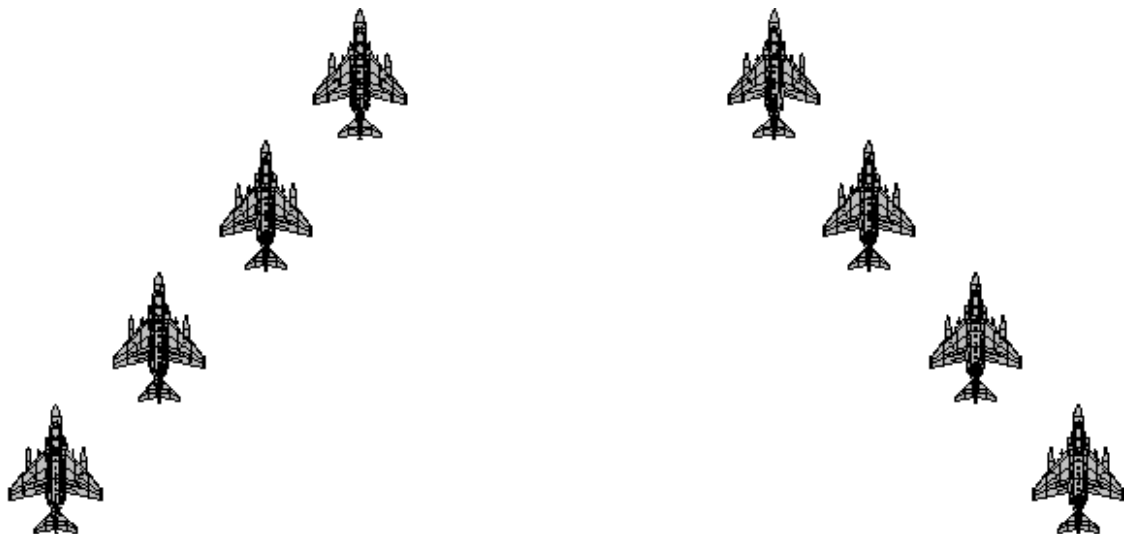
.41 Finger Left or Finger Right (Finger Tip)



.42 Triple Finger Tip



.43 Echelon Left or Echelon Right



757.44 Trail



.45 Box or Diamond



- 757.5 As a rule, the take-off of several aircraft will be carried out as individual take-off with small time intervals or in elements.
- .51 Aircraft intending to carry out standard or non-standard formation flights with or without fixed maximum distances shall be treated as one unit. The take-off clearance for the formation shall be transmitted to the formation leader.
- .511 If aircraft of a formation take-off at time intervals the prevailing wind shall again be transmitted to each individual aircraft upon take-off in case of gusty wind.
- .52 In case of formation flights with fixed maximum distances, the pilots will join up to close formation before commencing cruise flight.
- .53 When requested, IFR flights joining up to the formation shall be assisted by the radar control unit by issuing information on the position(s) of the preceding aircraft. The radar control unit concerned shall maintain IFR separation until the pilot(s) report(s) that visual reference or radar contact has been established.
- 757.6 On request of the formation leader, IFR formation flights in approach shall be split by the radar control unit. In this case, separation between the individual aircraft shall be provided, taking into consideration the meteorological conditions, the position of aircraft within the formation, airspace structure and traffic situation.
- 757.7 In case of individual landings of VFR flights, the pilots are responsible for the required sufficient distance between the aircraft of the formation.
- 757.8 During the approach of a formation flying between the INITIAL and the BREAK, an instruction already given as to the side to which pitching shall be carried out, shall not be changed. If the cancellation of the initially given instruction cannot be avoided, an instruction to cross the aerodrome without breakaway of the formation with re-entry into the traffic pattern shall again be issued.
- Note: The term radar control unit applied in this context is meant to be any military control unit using radar to perform control.

**758 - 759 NOT ALLOCATED**

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**810      RADIOTELEPHONY PROCEDURES****811      PERFORMANCE**

- 811.1      Voice communication is performed as radiotelephony communication in the aeronautical mobile service.
- 811.2      Aeronautical mobile service is a voice communication between aeronautical stations and aircraft stations or between aircraft stations.
- 811.3      On established frequencies survival craft stations as well as emergency position-indicating beacon stations may also participate in the aeronautical mobile service.

**812      LANGUAGE**

- 812.1      Voice communication in the aeronautical mobile service shall be conducted in the English language.
- 812.2      The German language may only be used :
- .21      on VFR flights and for taxiing traffic on frequencies designated for voice communications in the German language;  
                or
- .22      if the receiving person is not familiar with the English language.
- 812.3      In emergency situations, any language sufficiently commanded may be used.

**813      LISTENING WATCH**

- 813.1      Maintain continuous listening watch on frequencies assigned to your operating position.
- 813.2      All calls received via radiotelephony, telephone or other voice communication facilities shall be answered with the least possible delay.

**814      PROCEDURES FOR VOICE COMMUNICATION**

- 814.1      To obtain a precise, unambiguous and uniform method of transmission the standard phrases and phraseology contained in this chapter shall be used, as far as possible.

- 814.11 The manner of speaking shall be distinct and in a normal conversational tone as well as at an even volume and rate of speech;
- .12 Irrelevant and improper remarks are not permitted.
- 814.2 Phrases such as IMMEDIATELY or EXPEDITE shall only be used if this is unavoidable.
- Note : If for reasons of a safe conduct of flight an immediate execution is not possible the instruction will be followed - as far as possible - and ATC advised accordingly.
- 814.3 The use of abbreviations in voice communications is not permitted. This does not apply to abbreviations which are generally understood in air traffic (e.g. ATC, FIR, IFR, RVR, VFR, VMC, VOR), the Q-groups (e.g. QNH, QFE, QDM) and abbreviations for aircraft types (e.g. ATR 72, MD 11).
- 814.4 The call sign shall be transmitted at the beginning of a message. A direct answer to a message may be terminated by the call sign.
- 814.5 A control frequency may only be left with explicit approval of ATC, except after reaching the final parking position (on blocks). ATC shall be notified prior to leaving a flight information frequency.
- 814.6 Flights in airspaces classes E, F and G may be requested to report leaving the airspace resp. to remain on the frequency.
- 814.7 Pilots of aircraft shall announce the missing RNAV equipment when establishing communications with ATC and after each change of frequency with the phrase **NON RNAV** after the call sign. Pilots of aircraft shall announce the failure of the RNAV equipment when establishing communications with ATC and after each change of frequency with the phrase **UNABLE RNAV DUE EQUIPMENT** after the call sign.

## 815 ESTABLISHMENT OF RADIO CONTACT

- 815.1 When calling an aircraft the call sign as depicted in the flight plan shall be used.

- 815.2 Radio contact shall be established as follows :
- .21 Initial call :
1. Call sign of the radio station to be addressed;
  2. Call sign of the calling radio station.
- .22 Reply :
1. Call sign of the radio station to be addressed;
  2. Call sign of the replying radio station.
- 815.3 If it can be expected that the station called receives the call, a message may be sent immediately after the initial call.
- .31 For VFR flights this procedure may only be applied if ATC requests the aircraft to change frequency.
- 815.4 If the call sign of the calling station is not understood, the phrase SAY AGAIN YOUR CALL SIGN shall be used.
- 815.5 In case a station is uncertain as to whether it has been called or not, this call shall not be answered but another clarifying call be awaited.
- 815.6 A flight according to instrument flight rules shall, with every frequency change, state the level and, when during climb or descent, the cleared level. When changing from approach control to aerodrome control the level announcement is not required. During approaches to aerodromes with parallel runways the designator of the runway being approached shall be stated.
- 815.7 If a pilot is not able to establish radio contact on the prescribed frequency he will try to establish radio contact on another frequency published for the route of flight, e.g. the emergency frequency 121.5 MHz. If these efforts remain unsuccessful, he will try to establish radio contact with other aeronautical stations or aircraft. If this also does not enable him to establish contact with the appropriate air traffic control, the pilot will follow the lost communication procedures.

Note : The following DFS control centres can be reached via INMARSAT :  
Bremen, Langen, München and Rhein.

**816 TRANSFER OF RADIO CONTACT**

816.1 If no further voice communication is required with an aircraft on the own frequency, instruct the pilot to contact the accepting unit or working position as follows :

- .11 not later than at the release point;  
or
- .12 at a position laid down in local procedures.

816.2 When transferring voice communication within the same unit the location name may be omitted.

816.3 The receiving unit shall notify the sending unit in the event that communication with the aircraft is not established as expected.

**817 CHECK OF RADIO EQUIPMENT**

817.1 If a radio check or a readability test is considered necessary, these should not last longer than ten seconds.

817.2 The following degrees of readability are applied to a radio check :

- 1 = unreadable
- 2 = readable now and then
- 3 = readable but with difficulty
- 4 = readable
- 5 = perfectly readable

**818 BROADCASTING SERVICE**

818.1 Broadcasting service is performed as voice communication. It will be disseminated on frequencies and during times published in the AIP Germany or in the "Nachrichten für Luftfahrer" as well as - if necessary - on other frequencies and during other times.

**819 NOT ALLOCATED**

**820 TELEPHONE PROCEDURES****821 GENERAL**

821.1 The English language shall be used in telephone communications.

.11 The German language may be used :

.111 if the receiving party is not familiar with the English language;

.112 between the aeronautical telecommunication centre (FFZ), the telecommunication station DFS/UZ (EDDA) and aeronautical telecommunication stations of the Bundeswehr;

.113 in the AIS-C.

821.2 In emergency situations, any language sufficiently commanded may be used.

821.3 Exchange messages of an operational nature only. Exceptions may be authorized by the supervisor.

821.4 The procedures contained in MO-ATS items 821.1 to 821.3 shall also be used for other voice communication media (e.g. squawk box).

**822 PROCEDURES FOR TELEPHONE COMMUNICATION**

822.1 To obtain a precise, unambiguous and uniform method of transmission the standard phrases and phraseology contained in MO-ATS chapter 850 and 860 shall be used, as far as possible.

.11 The manner of speaking shall be distinct and at an even volume and rate of speech;

.12 Irrelevant and improper remarks are not permitted.

822.2 The use of abbreviations in telephone communications is not permitted. This does not apply to abbreviations which are generally understood in air traffic (e.g. ATC, FIR, IFR, RVR, VFR, VMC, VOR), the Q-groups (e.g. QNH, QFE, QDM) and abbreviations for aircraft types (e.g. ATR 72, MD 11).

822.3 If more than one call is received at the same time, they shall be answered in the assumed order of importance. Endeavour to avoid the phrase STANDBY before the term indicating the type of message is received.

822.4 Transmitted messages shall be terminated and received messages shall be acknowledged by stating the initials.

822.5 Establish communication with other parties preferably via direct line. If unable, try a connection via other stations or request such stations to relay.

### **823 ESTABLISHMENT OF TELEPHONE COMMUNICATION**

823.1 When establishing telephone communication the called and the calling party shall indicate location and working position respectively location and sector. If doubts exist as to the caller's identity, the called party shall verify it.

823.2 If the intercom system is used, it is sufficient to indicate the working position.

823.3 As far as possible commence each message by a term indicating its nature such as CLEARANCE, ESTIMATE, DEPARTURE, REVISION.

823.4 Precede messages concerning aircraft in emergency by the word EMERGENCY and give such transmission priority in any case.

823.5 All calls received via radiotelephony, telephone or other voice communication facilities shall be answered with the least possible delay.

**824 - 829 NOT ALLOCATED**

**830 MESSAGES****831 CATEGORIES OF MESSAGES AND ORDER OF PRIORITY**

Message types authorized in the aeronautical mobile service :

- 831.1 **Distress messages** are messages concerning aircraft and passengers threatened by serious and imminent danger and requiring immediate assistance.
- 831.2 **Urgency messages** are messages concerning the safety of an aircraft, a vessel, any other vehicle or a person.
- 831.3 **Messages relating to direction finding** are messages for transmission of direction finding values.
- 831.4 **Flight safety messages** are:
- .41 Messages which are transmitted while performing air traffic control service (air traffic control messages);
  - .42 Position reports from pilots;
  - .43 Messages from pilots or aircraft operators which are of immediate concern to an aircraft in flight.
- 831.5 **Meteorological messages** are messages for the transmission of weather data.
- 831.6 **Flight regularity messages** are:
- .61 Messages concerning changes in aircraft operation schedules;
  - .62 Messages concerning servicing of aircraft;
  - .63 Instructions to representatives of aircraft operators concerning changes in requirements for passengers and crew, caused by unavoidable deviations from normal operation schedules, individual requirements of passengers and crew are not permitted;
  - .64 Messages concerning non-routine landings;
  - .65 Messages concerning aircraft parts and material urgently required;
  - .66 Messages concerning operations or maintenance of facilities essential for the safety or regularity of aircraft operation.

831.7 Government telegrams are messages which are transmitted by sovereigns or persons of equal rank who are on board of an aircraft.

831.8 Flight regularity messages and government telegrams shall be transmitted on frequencies of the flight information service or on another frequency assigned by air traffic control in order to avoid interference with the execution of air traffic control.

831.9 For the messages listed above the sequence indicated is decisive for the priority.

### 832 FORWARDING OF MESSAGES

832.1 Messages of lower priority may be interrupted for the delivery of messages with a higher priority, whereas messages of the same priority shall be transmitted in the order in which they are received.

832.2 When a message has been accepted for relay, consider its priority and deliver it avoiding unnecessary delay.

832.3 If an acknowledgement of a message that has been accepted for relay cannot be issued, the originator shall be notified accordingly.

### 833 ACKNOWLEDGEMENT OF MESSAGES

833.1 The receipt of messages from aircraft shall be acknowledged in any case. Before a message is acknowledged, unknown or obscure expressions used in voice communication shall be clarified by further inquiries.

Note : Be aware of unauthorized use of ATC frequencies.

833.2 An aircraft station shall acknowledge the receipt of a message by transmitting its own call sign and if necessary the phrase ROGER.

.21 The aircraft station shall read back safety-related parts of ATC clearances and instructions. The following items shall always be read back :



- 833.211 ATC clearances, conditional clearances shall be read back verbatim including condition(s);
- .212 instructions to enter, land on, take-off from, hold short of, cross, taxi and backtrack on any runway;
- .213 runway-in-use;
- .214 altimeter settings;
- .215 SSR codes;
- .216 level instructions;
- Note : If the level of an aircraft is reported in relation to the standard atmospheric pressure 1013.2 hPa, the words FLIGHT LEVEL shall precede the level value. If the level of the aircraft is reported in relation to QNH / QFE, the level value shall be followed by the word FEET.
- .217 heading and speed instructions;
- .218 frequency, in case of a frequency change.
- .22 Other instructions shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with, e.g. by using the phrase WILCO.
- 833.3 An aeronautical station shall acknowledge the receipt of a message of an aircraft station by :
- .31 the transmission of the call sign of the aircraft station and if necessary a phrase like e.g. ROGER;  
or
- .32 the transmission of the own call sign and if necessary a phrase like e.g. ROGER;  
or
- .33 the transmission of the call sign of the aircraft station, the own call sign and if necessary a phrase like e.g. ROGER.
- 833.4 After establishment of voice communication
- the location name or the name of the aeronautical station
  - or
  - the function identification
- and other phrases like e.g. ROGER may be omitted if a confusion is excluded.

833.5 If the acknowledgement of a message is missing, an acknowledgement shall be obtained, otherwise the message is considered as not transmitted.

833.6 The controller shall listen to the read-back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew, and shall take immediate action to correct any discrepancies revealed by the read-back.

#### **834 MULTIPLE CALL**

834.1 Stations in the aeronautical mobile service may simultaneously call **several** stations.

834.2 Stations called in a multiple call shall acknowledge receipt of the message in the sequence used by the calling station.

#### **835 GENERAL CALL**

835.1 Stations in the aeronautical mobile service may simultaneously call **all** stations maintaining listening watch on a frequency.

835.2 A general call starts with the phrase ALL STATIONS followed by the call sign of the transmitting station and ends with the word OUT.

835.3 An acknowledgement of a general call is not expected.

**836 - 839 NOT ALLOCATED**

**840 SPECIAL PROCEDURES****841 DISTRESS TRAFFIC**

841.1 A distress call will be initiated by the emission of the distress signal **MAYDAY**, preferably three times, and be transmitted on the frequency used or on the emergency frequency; it shall be addressed to a definite aeronautical station and contain the call sign of the aircraft in distress.

841.2 The distress message following the distress call will contain the following data :

- .21 nature of distress;
- .22 intentions of the pilot;
- .23 kind of assistance required;
- .24 data concerning position, course and level.

841.3 The station in distress or controlling the distress traffic may impose silence on all or on certain radio stations interfering with the distress traffic with the instruction STOP TRANSMITTING MAYDAY.

841.4 As soon as the distress traffic is ended or if the silence condition is no longer required, the station having controlled the distress traffic shall transmit the message DISTRESS TRAFFIC ENDED on the same frequency.

841.5 The use of the emergency frequencies is permitted only in cases of emergency or failure of all other frequencies.

**842 URGENCY TRAFFIC**

842.1 An urgency call will be initiated by the emission of the urgency signal **PAN PAN**, preferably three times, and transmitted on the frequency used; it shall be addressed to a definite aeronautical station and contain the call sign of the aircraft transmitting the message.

Note : An urgency call may also concern the calling aircraft.

842.2 The urgency message following the urgency call will contain the following data :

- .21 nature of difficulty or observation,
- .22 any other information important for rendering assistance,
- .23 if applicable, intentions of the pilot,
- .24 if applicable, data concerning position, course and level.

### 843 BLIND TRANSMISSIONS

843.1 If the pilot has tried in vain to establish radio contact with the appropriate air traffic control but has indications that his transmissions are received, he will, in addition to the provisions laid down in MO-ATS item 815.7 transmit important messages blind. The message will commence with the phrase TRANSMITTING BLIND and will be repeated completely. In the message time and / or position of the next transmission are announced and, in case of an intended frequency change, also the frequency to be changed to and the aeronautical station to be called.

843.2 If an aeronautical station is not able to establish radio contact with an aircraft on the frequencies the aircraft might listen in, it shall, if necessary:

- .21 request assistance from other aeronautical stations to call the aircraft or to relay messages;
- .22 request aircraft in the vicinity to establish radio contact or to relay messages.

843.3 If the efforts mentioned above remain unsuccessful, the aeronautical station should transmit messages by blind transmission on the frequency / frequencies the aircraft might listen in (e.g. the emergency frequencies 121.5 MHz and 243.0 MHz).

843.4 Blind transmissions of air traffic control clearances to an aircraft by another aircraft shall only be relayed after specific request of ATC.

**844 - 849 NOT ALLOCATED**

**850 VOICE COMMUNICATION**

- 851 General
- 852 Phraseology
- 852.1 Aerodromes without air traffic control
- 852.2 Aerodromes with air traffic control
- 852.3 Additional phraseologies for aerodrome traffic
- 852.4 Frequency change
- 852.5 Flights according to visual flight rules in airspaces class C and D (not control zone)
- 852.6 Flights according to instrument flight rules
- 852.7 Controlled flights
- 852.8 Flight information service
- 852.9 Cancelling and closing of flight plan
- 853 Emergency procedures
- 854 Additional military radiotelephony procedures
- 855 Phrases for radar- / radio interferences

**851 GENERAL**

- 851.1 The phraseology listed below cannot cover all situations. Therefore additional phraseology, which is short and cannot be misinterpreted, shall be used, if required.
- 851.2 The structure of the phraseology in chapters does not mean that phraseology of one chapter may not be used in other situations.
- 851.3 The parts of the phraseology printed bold shall be used.
- 851.4 Parts of the phraseology marked by asterisks (\*) shall be used additionally, as far as necessary.
- 851.5 Parts of the phraseology divided by diagonals (/) shall be used alternatively, as far as necessary.
- 851.6 Parts of the phraseology marked by brackets shall be completed with the resp. statements.
- 851.7 German phraseology:           L - Luftfunkstelle  
  B - Bodenfunkstelle
- 851.8 English phraseology:        A - Aircraft radio station  
  G - Ground radio station

## 852 PHRASEOLOGY

## 852.1 AERODROMES WITHOUT AIR TRAFFIC CONTROL

## 852.11 Taxiing / air-taxiing

- |  |   |
|--|---|
| L: <b>ROLLE VON</b> (Position) <b>ZU</b> (Zielpunkt)   | A: <b>TAXIING FROM</b> (significant point) <b>TO</b> (destination)  |
| L: <b>ROLLE</b> * <b>ÜBER</b> (Position / Rollstrecke)* <b>ZUM / ZUR</b> (Position) * <b>VERMEIDE</b> (Information)*       | A: <b>TAXIING</b> * <b>VIA</b> (significant point / taxi route)* <b>TO</b> (significant point) * <b>AVOIDING</b> (information)* |
| L: <b>SCHWEBE ZUM HUBSCHRAUBERABSTELLPLATZ / HUBSCHRAUBERSTARTPLATZ / ZUR HUBSCHRAUBERPARKPOSITION</b> (Position)          | A: <b>AIR-TAXIING TO HELICOPTER STAND / HELIPAD / HELICOPTER PARKING POSITION</b> (significant point)                           |
| L: <b>ÜBERQUERE PISTE</b> (Bezeichnung) * <b>HINTER LANDENDER / LANDENDEM / ABFLIEGENDER / ABFLIEGENDEM</b> (Lfz.-Muster)* | A <b>WILL CROSS RUNWAY</b> (designator) * <b>BEHIND LANDING / DEPARTING</b> (type of aircraft)*                                 |

Note: For helicopter traffic, TAXI is substituted by AIR-TAXI if the helicopter hovers.

## .111 Taxi information for departing aircraft

- |  |   |
|--|---|
| L: (Lfz.-Muster) (Position) <b>VFR ÜBER</b> (Abflugstrecke) / <b>NACH</b> (Richtung) *(Absichten)*   | A: (type of aircraft) (significant point) <b>VFR VIA</b> (departure route) / <b>TO THE</b> (direction) *(intentions)*   |
| B: <b>PISTE</b> (Bezeichnung) * <b>ÜBER</b> (Rollstrecke)* <b>WIND</b> (Richtung), <b>GRAD</b> (Geschwindigkeit) <b>KNOTEN</b> * <b>QNH</b> (Ziffern) (Verkehrsinformation)* | G: <b>RUNWAY</b> (designator) * <b>VIA</b> (taxi route)* <b>WIND</b> (direction), <b>DEGREES</b> (speed) <b>KNOTS</b> * <b>QNH</b> (figures) (traffic information)* |



852.14 Special intentions of the pilot

L: <b>STARTE DURCH</b>	A: <b>GOING AROUND</b>
L: <b>MACHE TIEFANFLUG</b>	A: <b>MAKING LOW APPROACH</b>
L: <b>MACHE KURZE / LANGE LAN- DUNG</b>	A: <b>MAKING SHORT / LONG LANDING</b>
L: <b>MACHE ZIELLANDEÜBUNG</b>	A: <b>MAKING SPOT LANDING</b>
L: <b>FLIEGE AN ZUR BANNERAUF- NAHME</b>	A: <b>APPROACHING FOR BANNER PICK-UP</b>
L: <b>FLIEGE AN ZUM BANNER- / SEILABWURF</b>	A: <b>APPROACHING TO DROP BANNER / ROPE</b>
L: <b>FLIEGE PLATZRUNDE(N)</b>	A: <b>FLYING TRAFFIC CIRCUIT(S)</b>
L: <b>MACHE AUFSETZ- UND DURCHSTARTÜBUNG</b>	A: <b>MAKING TOUCH AND GO</b>
L: <b>VERLASSE IHRE FREQUENZ</b>	A: <b>LEAVING YOUR FREQUENCY</b>

.15 Instructions for protection from danger

B: <b>HALTEN SIE POSITION</b> *(Begründung)*	G: <b>HOLD POSITION</b> *(reason)*
L: <b>HALTE</b>	A: <b>HOLDING</b>
B: <b>VERLASSEN SIE SOFORT</b> <b>PISTE</b> *(Begründung)*	G: <b>VACATE RUNWAY IMMEDI- ATELY</b> *(reason)*
L: <b>VERLASSE SOFORT PISTE</b>	A: <b>VACATING RUNWAY IMME- DIATELY</b>
B: <b>BESCHLEUNIGEN SIE START /</b> <b>ROLLEN</b> *(Begründung)*	G: <b>EXPEDITE TAKE-OFF / TAXI</b> *(reason)*
L: <b>BESCHLEUNIGE</b>	A: <b>EXPEDITING</b>
B: <b>START / LANDUNG NICHT</b> <b>ERLAUBT</b> *(Begründung)*	G: <b>TAKE-OFF / LANDING NOT</b> <b>PERMITTED</b> *(reason)*
B: <b>SOFORT ANHALTEN</b> *(Wieder- holen des Lfz.-Rufzeichens) SO- FORT ANHALTEN*	G: <b>STOP IMMEDIATELY</b> *(repeat aircraft call sign) STOP IMME- DIATELY*
L: <b>HALTE AN</b>	A: <b>STOPPING</b>
B: <b>STARTEN SIE DURCH</b> *(Begründung)*	G: <b>GO AROUND</b> *(reason)*
L: <b>STARTE DURCH</b>	A: <b>GOING AROUND</b>

Note: Further phraseologies for flights from and to aerodromes without air traffic control can be found in MO-ATS item 852.3.



**852.2 AERODROMES WITH AIR TRAFFIC CONTROL**

## 852.21 Start up procedures Aircraft / Air Traffic Control

L: (Position) *INFORMATION (ATIS-Kennbuchstabe)* <b>ER- BITTE ANLASSEN</b>	A: (significant point) *INFORMA- TION (ATIS code letter)* <b>RE- QUEST START UP</b>
B: <b>ANLASSEN ERLAUBT</b>	G: <b>START UP APPROVED</b>
B: <b>ANLASSEN NEGATIV</b> (Be- gründung)	G: <b>NEGATIVE START UP</b> (reason)
B: *ERWARTEN SIE* <b>ANLASSEN UM</b> (Zeit)	G: *EXPECT* <b>START UP AT</b> (time)
B: *ERWARTEN SIE ABFLUG UM (Zeit)* <b>ANLASSEN NACH EI- GENEM ERMESSEN</b>	G: *EXPECT DEPARTURE (time)* <b>START UP AT OWN DISCRE- TION</b>
B: <b>MELDEN SIE ANLASSBEREIT</b>	G: <b>REPORT READY TO / FOR START *UP*</b>

## .211 Start up procedures ground crew / cockpit

G: \*ARE YOU\* **READY TO / FOR START \*UP\***  
A: **STARTING NUMBER** (engine number(s))

Note 1: The ground crew should follow this exchange by either a reply on the intercom or a distinct visual signal to indicate that all is clear and that the start up as indicated may proceed.

Note 2: Unambiguous identification of the parties concerned is essential in any communications between ground crew and pilots.

## .212 Push back / power back

G: **ARE YOU READY FOR PUSH BACK / POWER BACK**  
A: **READY FOR PUSH BACK / POWER BACK**  
A: (significant point) **REQUEST PUSH BACK / POWER BACK**  
G: **PUSH BACK / POWER BACK APPROVED**  
G: **PUSH BACK / POWER BACK NEGATIVE**  
G: **STAND BY**  
G: **PUSH BACK / POWER BACK AT OWN DISCRETION**  
G: **EXPECT** (number) **MINUTES DELAY \*DUE** (reason)\*  
G: **CONFIRM BRAKES RELEASED**  
A: **BRAKES RELEASED**  
G: **COMMENCING PUSH BACK / POWER BACK**  
G: **PUSH BACK / POWER BACK COMPLETED**  
A: **STOP PUSH BACK / POWER BACK**  
G: **CONFIRM BRAKES SET**

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A: **BRAKES SET**  
 A: **DISCONNECT**  
 G: **DISCONNECTING STAND BY FOR VISUAL AT YOUR LEFT / RIGHT**

Note: This exchange is followed by a visual signal to the pilot to indicate that disconnect is completed and all is clear for taxiing.

.213 Tow procedures

A: **REQUEST TOW** (company name) (type of aircraft) **FROM** (significant point) **TO** (significant point)  
 G: **TOW APPROVED VIA** (route)  
 G: **HOLD POSITION**  
 G: **STAND BY**

.22 Aerodrome data for departing aircraft

<p>L: <b>ERBITTE ABFLUGINFORMATION</b>          B: <b>PISTE</b> (Bezeichnung) <b>WIND</b> (Richtung) <b>GRAD</b> (Geschwindigkeit) <b>KNOTEN</b> *SICHT (Ziffern) <b>METER / KILOMETER / PISTENSICHTWEITE</b> (Ziffern) <b>METER / KEINE ANGABEN*</b> <b>TEMPERATUR</b> (Ziffern) <b>TAUPUNKT</b> (Ziffern) <b>QNH</b> (Ziffern)</p>	<p>A: <b>REQUEST DEPARTURE INFORMATION</b>          G: <b>RUNWAY</b> (designator) <b>WIND</b> (direction) <b>DEGREES</b> (speed) <b>KNOTS</b> *VISIBILITY (figures) <b>METRES / KILOMETRES / RVR</b> (figures) <b>METRES / NOT REPORTED*</b> <b>TEMPERATURE</b> (figures) <b>DEW POINT</b> (figures) <b>QNH</b> (figures)</p>
--	---

.23 Taxi Procedures

.231 Departure with flight plan

<p>L: (Position) *INFORMATION (ATIS-Kennbuchstabe)* <b>ERBITTE ROLLEN</b></p>	<p>A : (significant point) *INFORMATION (ATIS code letter)* <b>REQUEST TAXI</b></p>
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.232 Departure without flight plan

<p>L: (Lfl.-Muster) (Position) <b>VFR ÜBER</b> (Abflugstrecke) *INFORMATION (ATIS-Kennbuchstabe)* <b>ERBITTE ROLLEN</b> *(Absichten)*</p>	<p>A: (type of aircraft) (significant point) <b>VFR VIA</b> (departure route) *INFORMATION (ATIS code letter)* <b>REQUEST TAXI</b> *(intentions)*</p>
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852.233

Taxi / Air-taxi

- B: ROLLEN SIE ZUM ROLLHALT PISTE** (Bezeichnung) **ÜBER** (Rollstrecke) **\*WIND** (Richtung) **GRAD** (Geschwindigkeit) **KNOTEN QNH** (Ziffern)\*
- B: ROLLEN / DREHEN SIE IN DIE / DEN ERSTE(N) / ZWEITE(N) / PASSENDEN** (Rollstrecke) **LINKS / RECHTS** **\*UND RUFEN SIE ROLLKONTROLLE\***
- B: ROLLEN SIE ÜBER** (Rollstrecke)
- B: ROLLEN SIE AUF PISTE** (Bezeichnung)
- B: ROLLEN SIE ZUM** (Zielpunkt auf dem Flugplatz)
- L: ERBITTE ZURÜCKROLLEN PISTE** (Bezeichnung)
- B: ZURÜCKROLLEN \*GENEHMIGT\* PISTE** (Bezeichnung)
- L: (Position) ERBITTE ROLLEN** (zu Zielpunkt auf dem Flugplatz)
- B: ROLLEN SIE GERADEAUS**
- B: GEWÄHREN SIE \*(Verkehr)\* VORFAHRT**
- L: GEWÄHRE \*(Verkehr)\* VORFAHRT**
- L: VERKEHR** (Lfl.-Muster) **IN SICHT**
- B: ROLLEN SIE IN DIE HALTEBUCHT**
- B: FOLGEN SIE** (Beschreibung des Verkehrs)
- B: VERLASSEN SIE PISTE** (Bezeichnung)
- B: MELDEN SIE VERLASSEN**
- L: PISTE** (Bezeichnung) **VERLASSEN**
- B: IHRE PARKPOSITION / IHR STANDPLATZ** (Bezeichnung)
- B: BESCHLEUNIGEN SIE ROLLEN** \*(Begründung)\*
- L: BESCHLEUNIGE**
- B: \*VORSICHT\* ROLLEN SIE LANGSAMER** \*(Begründung)\*
- L: ROLLE LANGSAMER**
- G: TAXI TO HOLDING POINT RUNWAY** (designator) **VIA** (taxi route) **\*WIND** (direction) **DEGREES** (speed) **KNOTS QNH** (figures)\*
- G: TAKE / TURN FIRST / SECOND / CONVENIENT** (taxi route) **LEFT / RIGHT** **\*AND CONTACT GROUND\***
- G: TAXI VIA** (taxi route)
- G: TAXI VIA RUNWAY** (designator)
- G: TAXI TO** (destination on aerodrome)
- A: REQUEST BACKTRACK RUNWAY** (designator)
- G: BACKTRACK \*APPROVED\* RUNWAY** (designator)
- A: (significant point) REQUEST TAXI** (to destination on aerodrome)
- G: TAXI STRAIGHT AHEAD**
- G: GIVE WAY TO** (description and position of traffic)
- A: GIVING WAY \*TO** (traffic)\*
- A: TRAFFIC** (type of aircraft) **IN SIGHT**
- G: TAXI INTO HOLDING BAY**
- G: FOLLOW** (description of traffic)
- G: VACATE RUNWAY** (designator)
- G: REPORT VACATED**
- A: RUNWAY** (designator) **VACATED**
- G: YOUR STAND / GATE** (designator)
- G: EXPEDITE TAXI** \*(reason)\*
- A: EXPEDITING**
- G: \*CAUTION\* TAXI SLOWER** \*(reason)\*
- A: SLOWING DOWN**

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B: **SCHWEBEN SIE ZUM HUBSCHRAUBERABSTELLPLATZ / HUBSCHRAUBERSTARTPLATZ / ZUR HUBSCHRAUBERPARKPOSITION** (Position)

L: **SCHWEBE ZUM HUBSCHRAUBERABSTELLPLATZ / HUBSCHRAUBERSTARTPLATZ / ZUR HUBSCHRAUBERPARKPOSITION** (Position)

G: **AIR-TAXI TO HELICOPTER STAND / HELIPAD/ HELICOPTER PARKING POSITION**  
(significant point)

A: **AIR-TAXIING TO HELICOPTER STAND / HELIPAD / HELICOPTER PARKING POSITION**  
(significant point)

Note: For helicopter traffic, TAXI is substituted by AIR-TAXI if the helicopter hovers.

.234 Holding

B: **HALTEN SIE POSITION**  
\*(Begründung)\*

L: **HALTE**

G: **HOLD POSITION** \*(reason)\*

A: **HOLDING**

.235 To hold short of a runway

B: **HALTEN SIE** (Richtung) **VON**  
(Position)

B: **HALTEN SIE** (Entfernung) **VON / VOR** (Position)

B: **HALTEN SIE VOR** (Position)

L: **HALTE / HALTE VOR** (Position)

B: **HALTEN SIE AM** \*CAT II / III\*  
**ROLLHALT**

G: **HOLD** (direction) **OF** (significant point)

G: **HOLD** (distance) **FROM** (significant point)

G: **HOLD SHORT OF** (significant point)

A: **HOLDING / HOLDING SHORT**  
(significant point)

G: **HOLD AT** \*CAT II / III\* **HOLDING POINT**

852.236 To cross a runway

- |  |  |
|--|--|
| <p>L: <b>ERBITTE ÜBERQUEREN *DER* PISTE</b> (Bezeichnung)</p> <p>B: <b>ÜBERQUEREN SIE PISTE</b> (Bezeichnung) *MELDEN SIE VERLASSEN*</p> <p>B: <b>BESCHLEUNIGEN SIE ÜBERQUEREN DER PISTE</b> (Bezeichnung) *VERKEHR (Lfz.-Muster) (Entfernung) MEILEN ENDANFLUG*</p> <p>L: <b>PISTE</b> (Bezeichnung) <b>VERLASSEN</b></p> | <p>A: <b>REQUEST *TO* CROSS RUNWAY</b> (designator)</p> <p>G: <b>CROSS RUNWAY</b> (designator) *REPORT VACATED*</p> <p>G: <b>EXPEDITE CROSSING RUNWAY</b> (designator) *TRAFFIC (type of aircraft) (distance) MILES FINAL*</p> <p>A: <b>RUNWAY</b> (designator) <b>VACATED</b></p> |
|--|--|

Note: If the report "runway vacated" is requested it shall be made when the entire aircraft is beyond the relevant runway holding point.

.237 When a taxi instruction contains a taxi limit beyond a runway

- |  |  |
|--|--|
| <p>B: <b>ROLLEN SIE ZUM ROLLHALT PISTE</b> (Bezeichnung) <b>ÜBER</b> (genaue Angabe der Rollstrecke) <b>HALTEN SIE VOR PISTE</b> (Bezeichnung) / <b>ÜBERQUEREN SIE PISTE</b> (Bezeichnung)</p> | <p>G: <b>TAXI TO HOLDING POINT RUNWAY</b> (designator) <b>VIA</b> (specific taxi route to be followed) <b>HOLD SHORT OF RUNWAY</b> (designator) / <b>CROSS RUNWAY</b> (designator)</p> |
|--|--|

Note: When a taxi instruction is given to a taxi limit beyond a runway, it shall contain an explicit permission to cross that runway or an instruction to hold short of that runway.

852.24 Departure instructions

- |  |   |
|--|---|
| <p>L: <b>ERBITTE ABFLUGANWEISUNGEN</b> *(Details)*</p> <p>B: <b>VERLASSEN SIE KONTROLLZONE</b> *SONDER-VFR* <b>ÜBER</b> (Strecke) *IN *FLUGHÖHE* (Ziffern) FUSS / ODER HÖHER / TIEFER* *(Anweisungen)*</p> <p>B: <b>ABFLUG ÜBER</b> (Bezeichnung) <b>NICHT MÖGLICH</b> *(Begründung)*</p> <p>B: <b>MELDEN SIE</b> *ABFLUG-* <b>BEREIT</b></p> <p>B: <b>SIND SIE</b> *ABFLUG-* <b>BEREIT</b></p> <p>L: *ABFLUG-* <b>BEREIT</b></p> <p>B: <b>SIND SIE BEREIT ZUM SOFORTABFLUG</b></p> <p>L: *BIN* <b>BEREIT ZUM SOFORTABFLUG</b></p> <p>B: <b>NACH DEM ABHEBEN</b> (Anweisungen)</p> | <p>A: <b>REQUEST DEPARTURE INSTRUCTIONS</b> *(details)*</p> <p>G: <b>LEAVE CONTROL ZONE</b> *SPECIAL VFR* <b>VIA</b> (route) *AT *ALTITUDE* (figures) FEET / OR ABOVE / BELOW* *(instructions)*</p> <p>G: <b>UNABLE TO ISSUE DEPARTURE VIA</b> (designator) *(reason)*</p> <p>G: <b>REPORT *WHEN* READY</b> *FOR DEPARTURE*</p> <p>G: <b>ARE YOU READY</b> *FOR DEPARTURE*</p> <p>A: <b>READY</b> *FOR DEPARTURE*</p> <p>G: <b>ARE YOU READY FOR IMMEDIATE DEPARTURE</b></p> <p>A: <b>READY FOR IMMEDIATE DEPARTURE</b></p> <p>G: <b>WHEN AIRBORNE</b> (instructions)</p> |
|--|---|

.25 Clearance to enter runway and await take-off clearance

- |  |  |
|--|--|
| <p>B: <b>ROLLEN SIE ZUM ABFLUGPUNKT PISTE</b> (Bezeichnung) *DORT HALTEN*</p> <p>B: <b>ROLLEN SIE ZUM ABFLUGPUNKT PISTE</b> (Bezeichnung) *BEREITHALTEN FÜR / ERWARTEN SIE SOFORTABFLUG*</p> | <p>G: <b>LINE UP RUNWAY</b> (designator) *AND WAIT*</p> <p>G: <b>LINE UP RUNWAY</b> (designator) *BE READY FOR / EXPECT IMMEDIATE* *DEPARTURE*</p> |
|--|--|

.251 Conditional clearance

- |   |   |
|---|---|
| <p>B: <b>MELDEN SIE LANDENDE / ABFLIEGENDE</b> (Verkehrsinformation) <b>IN SICHT</b></p> <p>L: <b>LANDENDE / ABFLIEGENDE</b> (Verkehrsinformation) <b>IN SICHT / NICHT IN SICHT</b></p> | <p>G: <b>REPORT LANDING / DEPARTING</b> (traffic information) <b>IN SICHT</b></p> <p>A: <b>LANDING / DEPARTING</b> (traffic information) <b>IN SICHT / NOT IN SICHT</b></p> |
|---|---|

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**B: HINTER LANDENDER / ABFLIEGENDER** (Verkehrsinformation) **ROLLEN SIE ZUM ABFLUGPUNKT PISTE** (Bezeichnung) **\*DORT HALTEN\* HINTER**

**L: HINTER LANDENDER / ABFLIEGENDER** (Verkehrsinformation) **ROLLE ZUM ABFLUGPUNKT PISTE** (Bezeichnung) **\*HALTE DORT\* HINTER** **\*LANDENDER / ABFLIEGENDER\*** **\*(Verkehrsinformation)\***

**B: KORREKT / NEGATIV**

**G: BEHIND LANDING / DEPARTING** (traffic information) **LINE UP RUNWAY** (designator) **\*AND WAIT\* BEHIND**

**A: BEHIND LANDING / DEPARTING** (traffic information) **LINING UP RUNWAY** (designator) **\*AND WAITING\* BEHIND** **\*LANDING / DEPARTING\*** **\*(traffic information)\***

**G: CORRECT / NEGATIVE**

Note: Conditional clearances shall be read back verbatim including condition(s) (e.g. BEHIND LANDING ...).

.26 Take-off

**B: WIND** (Richtung) **GRAD** (Geschwindigkeit) **KNOTEN** **\*MELDEN SIE ABHEBEN\* PISTE** (Bezeichnung) **START FREI**

**G: WIND** (direction) **DEGREES** (speed) **KNOTS** **\*REPORT AIRBORNE\* RUNWAY** (designator) **CLEARED FOR TAKE-OFF**

**B: WIND** (Richtung) **GRAD** (Geschwindigkeit) **KNOTEN PISTE** (Bezeichnung) **FREI ZUM SOFORTSTART**

**G: WIND** (direction) **DEGREES** (speed) **KNOTS RUNWAY** (designator) **CLEARED FOR IMMEDIATE TAKE-OFF**

.261 Helicopter operation

**B: WIND** (Richtung) **GRAD** (Geschwindigkeit) **KNOTEN PISTE** (Bezeichnung) **START FREI**

**G: WIND** (direction) **DEGREES** (speed) **KNOTS RUNWAY** (designator) **CLEARED FOR TAKE-OFF**

**B: WIND** (Richtung) **GRAD** (Geschwindigkeit) **KNOTEN START FREI** **\*VOM\* HUBSCHRAUBERSTARTPLATZ / VON** (Position, wenn nicht Piste / Hubschrauberstartplatz)

**G: WIND** (direction) **DEGREES** (speed) **KNOTS CLEARED FOR TAKE-OFF** **\*FROM THE\* HELIPAD / FROM** (location, if not runway / helipad)

852.262 When take-off clearance has not been complied with

**B: STARTEN SIE SOFORT ODER  
VERLASSEN SIE DIE PISTE**

\*(Anweisungen)\*

**B: STARTEN SIE SOFORT ODER  
HALTEN SIE \*(Position) z.B.:  
VOR DER PISTE\***

**G: TAKE OFF IMMEDIATELY OR  
VACATE RUNWAY**

\*(instructions)\*

**G: TAKE OFF IMMEDIATELY OR  
HOLD \*(significant point) e.g.  
SHORT OF RUNWAY\***

.263 To cancel a take-off clearance

**B: HALTEN SIE POSITION START-  
FREIGABE AUFGEHOBEN ICH  
WIEDERHOLE STARTFREIGA-  
BE AUFGEHOBEN**

\*(Begründung)\*

**L: HALTE**

**G: HOLD POSITION CANCEL  
TAKE-OFF I SAY AGAIN**

**CANCEL TAKE-OFF \*(reason)\***

**A: HOLDING**

.264 To stop a take-off after an aircraft has commenced take-off roll

**B: SOFORT ANHALTEN \*(Wieder-  
holen des Rufzeichens der Luft-  
funkstelle) SOFORT ANHALTEN\***

**L: HALTE AN**

**G: STOP IMMEDIATELY \*(repeat  
aircraft call sign) STOP IMME-  
DIATELY\***

**A: STOPPING**

.265 When airborne

**L: ERBITTE LINKS- / RECHT-  
SKURVE**

**B: LINKS- / RECHTSKURVE  
NEGATIV / GENEHMIGT**

**B: WARTEN SIE AUF LINKS- /  
RECHTSKURVE**

**L: LINKS- / RECHTSKURVE  
NICHT MÖGLICH**

\*(Begründung)\*

**B: NACH ERREICHEN / DURCH- /  
ÜBERFLIEGEN VON (Höhe /  
Position) (Anweisungen)**

**B: (Standardabflugstreckename  
und -nummer) ABFLUGSTRE-  
CKE**

**A: REQUEST LEFT / RIGHT  
TURN**

**G: LEFT / RIGHT TURN NEGA-  
TIVE / APPROVED**

**G: STAND BY FOR LEFT / RIGHT  
TURN**

**A: UNABLE LEFT / RIGHT TURN  
\*(reason)\***

**G: AFTER REACHING / PASSING  
(level / significant point) (instruc-  
tions)**

**G: (standard departure name and  
number) DEPARTURE**



852.266 Heading to be followed

**B: STEIGEN SIE GERADEAUS / IN PISTENRICHTUNG**

\*(Anweisungen)\*

**B: NACH DEM ABHEBEN**

**B: FLIEGEN SIE / DREHEN SIE LINKS / RECHTS STEUERKURS (drei Ziffern) / IN PISTENRICHTUNG / STEIGEN SIE (Anweisungen)**

**G: CLIMB STRAIGHT AHEAD / ON RUNWAY HEADING**

\*(instructions)\*

**G: WHEN AIRBORNE**

**G: FLY / TURN LEFT / RIGHT HEADING (three figures) / CONTINUE RUNWAY HEADING / CLIMB (instructions)**

.27 Entering control zone / aerodrome traffic circuit

**L: (Lfl.-Muster) VFR (Position, Höhe über NN) \*INFORMATION (ATIS-Kennbuchstabe)\* ZUR LANDUNG / ZUM TIEFANFLUG / ZUM AUFSETZEN UND DURCHSTARTEN**

**B: FLIEGEN SIE IN DIE KONTROLLZONE \*SONDER-VFR\* ÜBER (Strecke) \*(Höhe über NN)\* PISTE (Bezeichnung) QNH (Ziffern) \*(Anweisungen)\***

**A: (type of aircraft) VFR (significant point, altitude) \*INFORMATION (ATIS code letter)\* FOR LANDING / LOW APPROACH / TOUCH AND GO**

**G: ENTER CONTROL ZONE \*SPECIAL VFR\* VIA (route) \*(altitude)\* RUNWAY (designator) QNH (figures) \*(instructions)\***

Note: A clearance to enter control zone is no authorisation to join traffic circuit. If no clearance to join traffic circuit was issued the holding pattern has to be entered.

**B: FLIEGEN SIE IN DIE \*RECHTS\* PLATZRUNDE / \*DIREKT IN\* DEN (Teil der Platzrunde) \*PISTE (Bezeichnung)\* \*WIND (Richtung) GRAD, (Geschwindigkeit)\* KNOTEN\* QNH (Ziffern)\* \*(Verkehrsinformation)\***

**G: JOIN \*RIGHT\* TRAFFIC CIRCUIT / \*DIRECT\* (part of traffic circuit) \*RUNWAY (designator)\* \*WIND (direction), DEGREES (speed)\* KNOTS \*QNH (figures)\* \*(traffic information)\***

Note: If the QNH was already delivered with the clearance to enter control zone, a repetition in the clearance to join traffic circuit is superfluous (except with changes of value).

852.271 To shorten traffic circuit

L: **ERBITTE GERADEAUS- / DIREKTANFLUG PISTE** (Bezeichnung)

B: **MACHEN SIE GERADEAUS- / DIREKTANFLUG PISTE** (Bezeichnung)  
\*(Verkehrsinformation)\*

A: **REQUEST STRAIGHT-IN- / DIRECT APPROACH RUNWAY** (designator)

G: **MAKE STRAIGHT-IN- / DIRECT APPROACH RUNWAY** (designator) \*(traffic information)\*

.272 Helicopter operation

B: **FLIEGEN / DREHEN SIE \*DIREKT\* ZUM / ZUR** (Position) / **PISTE** (Bezeichnung) / **HUBSCHRAUBERLANDEPLATZ** \*(Verkehrsinformation)\*

G: **PROCEED / TURN \*DIRECT\* \*TO\*** (significant point) / **RUNWAY** (designator) / **HELIPAD** \*(traffic information)\*

.273 Request for position reports

B: **MELDEN SIE PLATZ / PISTE** (Bezeichnung) / **ANFLUGBEFEUERUNG IN SICHT**

B: **MELDEN SIE BEREIT FÜR SICHTFLUG**

B: **MELDEN SIE** (Einzelheiten / Teil der Platzrunde)

G: **REPORT FIELD / RUNWAY** (designator) / **APPROACH LIGHTS IN SICHT**

G: **REPORT VISUAL**

G: **REPORT** (details / significant point in traffic circuit)

.274 Instructions for landing sequence

B: **NUMMER** (Ziffer) **FOLGEN SIE** (Lfl.-Muster, Position)

B: **MACHEN SIE KURZEN / LANGEN ANFLUG**

B: **VERLÄNGERN / VERKÜRZEN SIE GEGENANFLUG** (Einzelheiten)

G: **NUMBER** (figure) **FOLLOW** (type of aircraft, position)

G: **MAKE SHORT / LONG APPROACH**

G: **EXTEND / SHORTEN DOWNWIND** (details)

852.274 ctd

B: **\*ANFLUG/ GEGENANFLUG / QUERANFLUG / ENDANFLUG\* FORTSETZEN** \*BEREITEN SIE SICH AUF MÖGLICHEN FEHLANFLUG VOR\*

B: **FLIEGEN SIE EINE WEITERE \*RECHTE\* PLATZRUNDE**

G: **CONTINUE** \*APPROACH / DOWNWIND / BASE / FINAL\* \*PREPARE FOR POSSIBLE GO AROUND\*

G: **MAKE ANOTHER \*RIGHT HAND\* CIRCUIT**

.28 Landing

B: **WIND** (Richtung) **GRAD** (Geschwindigkeit) **KNOTEN PISTE** (Bezeichnung) **LANDUNG FREI**

B: **MACHEN SIE KURZE / LANGE LANDUNG**

G: **WIND** (direction) **DEGREES** (speed) **KNOTS RUNWAY** (designator) **CLEARED TO LAND**

G: **MAKE SHORT / LONG LANDING**

Note: To reduce the potential for misunderstanding, the landing clearance shall include the designator of the landing runway.

.281 Helicopter operation

B: **WIND** (Richtung) **GRAD** (Geschwindigkeit) **KNOTEN PISTE** (Bezeichnung) **LANDUNG FREI**

B: **WIND** (Richtung) **GRAD** (Geschwindigkeit) **KNOTEN LANDUNG FREI** \*AUF DEM\* **HUBSCHRAUBERLANDEPLATZ / AUF** (Position)

G: **WIND** (direction) **DEGREES** (speed) **KNOTS RUNWAY** (designator) **CLEARED TO LAND**

G: **WIND** (direction) **DEGREES** (speed) **KNOTS CLEARED TO LAND** \*ON THE\* **HELIPAD / ON** (significant point)

.282 Special Procedures

L: **ERBITTE AUFSETZEN UND DURCHSTARTEN PISTE** (Bezeichnung)

B: **PISTE** (Bezeichnung) **FREI** \*ZUM\* **AUFSETZEN UND DURCHSTARTEN**

B: **MACHEN SIE ABSCHLUSSLANDUNG PISTE** (Bezeichnung)

A: **REQUEST TOUCH AND GO RUNWAY** (designator)

G: **RUNWAY** (designator) **CLEARED TOUCH AND GO**

G: **MAKE FULL STOP** \*LANDING\* **RUNWAY** (designator)

852.283 Approach over or along a runway

L: **ERBITTE TIEFANFLUG**  
 B: **PISTE** (Bezeichnung) **FREI ZUM TIEFANFLUG \*ENTLANG\***  
 \*(Höhenbeschränkung)\* (Verfahren nach dem Tiefanflug)

A: **REQUEST LOW APPROACH**  
 G: **RUNWAY** (designator)  
**CLEARED LOW APPROACH**  
 \*ALONG\* \*(level restriction)\* (go around instructions)

.284 Visual inspection by persons on the ground

L: **ERBITTE TIEFEN VORBEIFLUG**  
 B: **FREI ZUM TIEFEN VORBEIFLUG** (Anweisungen)

A: **REQUEST LOW PASS**  
 G: **CLEARED LOW PASS** (instructions)

.285 To delay aircraft

B: **HALTEN SIE \*ÜBER\*** (Position) / **KREISEN SIE \*LINKS / RECHTS\*** \*(Begründung)\*  
 B: **MACHEN SIE VOLLKREIS LINKS / RECHTS** \*(Begründung)\*

G: **HOLD \*OVER\*** (significant point) / **ORBIT \*LEFT / RIGHT\*** \*(reason)\*  
 G: **MAKE A LEFT / RIGHT THREE SIXTY** \*(reason)\*

.286 Missed approach

B: **STARTEN SIE DURCH\*** (Begründung)\*  
 L: **STARTE DURCH\*** (Begründung)\*

G: **GO AROUND** \*(reason)\*  
 A: **GOING AROUND** \*(reason)\*

### 852.3 ADDITIONAL PHRASEOLOGIES FOR AERODROME TRAFFIC

852.31 Landing gear trouble

B: (Teil(e) des Fahrwerks) **SCHEINT / SCHEINEN \*NICHT\* AUS- / EINGEFAHREN**

G: (part(s) of landing gear) **\*DO(ES) NOT\* APPEAR(S) DOWN / UP**

852.32 Aircraft without radio transmitter

B: **BESTÄTIGEN SIE DURCH BEWEGEN DER QUERRUDER / DES SEITENRUDERS**

G: **ACKNOWLEDGE BY MOVING AILERONS / RUDDER**

B: **BESTÄTIGEN SIE DURCH WACKELN**

G: **ACKNOWLEDGE BY ROCKING WINGS**

B: **BESTÄTIGEN SIE DURCH BLINKEN MIT LANDESCHEINWERFER**

G: **ACKNOWLEDGE BY FLASHING LANDING LIGHTS**

.33 Additional traffic information

B: (Lfz.-Muster) **STARTET / LANDET AUF PISTE** (Bezeichnung)

G: (type of aircraft) **DEPARTING / LANDING ON RUNWAY** (designator)

B: (Lfz.-Muster) **IM ANFLUG AUS / IM ABFLUG NACH** (Richtung)

G: (type of aircraft) **APPROACHING FROM / DEPARTING TO** (direction)

B: **\*ZUSÄTZLICHER\* VERKEHR** (Einzelheiten)

G: **\*ADDITIONAL\* TRAFFIC \*IS\*** (details)

.331 Wake turbulence warning

B: **VORSICHT WIRBELSCHLEPPEN \*VON ANFLIEGENDER / ABFLIEGENDER** (Lfz.-Muster)\*  
\*(weitere Informationen, wie benötigt)\*

G: **CAUTION WAKE TURBULENCE \*FROM ARRIVING / DEPARTING** (type of aircraft)\*  
\*(additional information, as required)\*

B: **NUMMER 2 HINTER / FOLGENSIE** (Lfz.-Muster) (Position)  
\*(Flughöhe)\*

G: **NUMBER 2 BEHIND / FOLLOW** (type of aircraft) (position)  
\*(level)\*

.332 Jet blast / slipstream

B: **VORSICHT PROPELLERSTRAHL**

G: **CAUTION SLIPSTREAM**

B: **VORSICHT ABGASSTRAHL**

G: **CAUTION JET BLAST**

852.333

Aerodrome information

- B: (Ortsname) **PISTEN\*OBERFLÄCHEN\*ZUSTAND PISTE** (Bezeichnung) (Zustand)
- B: (Ortsname) **PISTEN\*OBERFLÄCHEN\*ZUSTAND PISTE** (Bezeichnung) **NICHT BEKANNT / LETZTE MELDUNG ERHALTEN** (Zeit)
- B: **PISTENMELDUNG UM** (Beobachtungszeit) **PISTE** (Bezeichnung) (Art des Niederschlags) **BIS ZU** (Stärke des Belags) **MILLIMETER**
- B: **VORSICHT BAUARBEITEN** \*BEIDERSEITS / LINKS / RECHTS VON (Teil der Bewegungsfläche)\*
- B: (Teil der Bewegungsfläche) **TROCKEN / FEUCHT / NASS / WASSERPFÜTZEN / ÜBERFLUTET** (Tiefe)
- B: (Teil der Bewegungsfläche) **TROCKEN / SCHNEE GERÄUMT** (Länge und Breite wie zutreffend) / **BEHANDELT / BEDECKT MIT FLECKEN VON TROCKENEM SCHNEE / FEUCHTEM SCHNEE / GEPRESSTEM SCHNEE / MATSCH / GEFRORENEM MATSCH / EIS / EIS UNTER / EIS UND SCHNEE / SCHNEEWEHEN / GEFRORENE SPURRILLEN UND GRATE**
- B: (Teil der Bewegungsfläche) **GLATT / SCHNEE / EIS GERÄUMT / GESTREUT / GESPRÜHT**
- B: (Teil der Bewegungsfläche) **GESPERRT / AUFGEWEICHT / UNEBEN**
- B: **VORSICHT VOGELSCHWARM** \*KREUZEND VON LINKS / VON RECHTS\*
- B: **VORSICHT LASERBLENDUNGEN** \*(POSITIONSANGABE)\*
- G: (location name) **RUNWAY** \*SURFACE\* **CONDITION** **RUNWAY** (designator) (condition)
- G: (location name) **RUNWAY** \*SURFACE\* **CONDITION** **RUNWAY** (designator) **NOT AVAILABLE / LAST REPORT RECEIVED AT** (time)
- G: **RUNWAY REPORT AT** (observation time) **RUNWAY** (designator) (type of precipitant) **UP TO** (depth of deposit) **MILLIMETRES**
- G: **CAUTION CONSTRUCTION WORK** \*BOTH SIDES / LEFT / RIGHT OF (part of movement area)\*
- G: (part of movement area) **DRY / DAMP / WET / WATER PATCHES / FLOODED** (depth)
- G: (part of movement area) **DRY / SNOW REMOVED** (length and width as applicable) / **TREATED / COVERED WITH PATCHES OF DRY SNOW / WET SNOW / COMPACTED SNOW / SLUSH / FROZEN SLUSH / ICE / ICE UNDERNEATH / ICE AND SNOW / SNOWDRIFTS / SNOW DRIFTS / FROZEN RUTS AND RIDGES**
- G: (part of movement area) **SLIPPERY / SNOW / ICE REMOVED / SANDED / SPRAYED**
- G: (part of movement area) **CLOSED / SOFT / ROUGH**
- G: **CAUTION FLOCK OF BIRDS** \*CROSSING LEFT TO RIGHT / RIGHT TO LEFT\*
- G: **CAUTION LASERGLARE** \*(POSITION)\*

852.334 Braking action in landing direction

B: **BREMSWIRKUNG** \*GEMELDET  
VON (Lfz.-Muster)\* \*UM (Zeit)\*  
**GUT / MITTEL / SCHLECHT**

G: **BRAKING ACTION** \* RE-  
PORTED BY (type of aircraft)\*  
\*AT (time)\* **GOOD / MEDIUM /  
POOR**

.335 Braking coefficients in landing direction

B: **BREMSKOEFFIZIENTEN UM**  
(Zeit) **PISTE** (Bezeichnung)  
(Werte)

G: **BRAKING COEFFICIENTS AT**  
(time) **RUNWAY** (designator)  
(values)

.336 Operational status of visual and other landing aids

B: (Teil der Befuerung) **AUSGE-  
FALLEN**

G: (part of lighting system) **UN-  
SERVICEABLE**

B: (Art) **BEFEUERUNG** (Betrieb-  
szustand)

G: (type) **LIGHTING** (status)

B: **ILS / GBAS** (Betriebsstufe) (Be-  
triebszustand)

G: **ILS / GBAS** (category) (status)

B: (Bezeichnung der Sicht- oder  
anderer Anflughilfe) **PISTE** (Be-  
zeichnung) (Beschreibung der  
Mängel)

G: (specify visual or non-visual aid)  
**RUNWAY** (designator) (descrip-  
tion of deficiencies)

.337 Meteorological conditions

B: **WIND** (Richtung) **GRAD** (Ge-  
schwindigkeit) **KNOTEN**

G: **WIND** (direction) **DEGREES**  
(speed) **KNOTS**

B: **SICHT** (Ziffern) **METER / KILO-  
METER**

G: **VISIBILITY** (figures) **METRES /  
KILOMETRES**

Angabe des Bedeckungsgrads  
der Bewölkung :

Transmission of the cloud cov-  
erage :

- **WOLKENLOS**
- **LEICHT** \*BEWÖLKT / BE-  
DECKT\* (1-2/8)
- **MITTEL** \*BEWÖLKT / BE-  
DECKT\* (3-4/8)
- **STARK** \*BEWÖLKT / BE-  
DECKT\* (5-7/8)
- **GESCHLOSSEN** / \*VOLL-  
STÄNDIG\* **BEDECKT** (8/8)

- **SKY CLEAR**
- **FEW** (1-2/8)
- **SCATTERED** (3-4/8)
- **BROKEN** (5-7/8)
- **OVERCAST** (8/8)

852.337 ctd.

- |                               |                             |
|-------------------------------|-----------------------------|
| - KEINE MARKANTEN WOLKEN      | - NO SIGNIFICANT CLOUDS     |
| B: MELDEN SIE FLUGBEDINGUNGEN | G: REPORT FLIGHT CONDITIONS |

852.34 Determining of position

- |  |                        |
|--|------------------------|
| B: SCHALTEN SIE LANDESCHWEINWERFER EIN | G: SHOW LANDING LIGHTS |
|--|------------------------|

.35 Information on times

- |   |  |
|---|--|
| L: ERBITTE UHRZEIT / LANDEZEIT / ABFLUGZEIT | A: REQUEST TIME CHECK / LANDING TIME / AIRBORNE TIME |
| B: ZEIT (Ziffern)                           | G: TIME (figures)                                    |
| B: ABFLUGZEIT (Ziffern)                     | G: AIRBORNE AT / TIME (figures)                      |

## | 852.4 FREQUENCY CHANGE

| 852.41 IFR as well as VFR in airspace Class C before frequency change

- |   |   |
|---|---|
| B: *UM / ÜBER (Zeit / Position)*<br><b>RUFEN SIE *JETZT*</b> (Bodenfunkstelle) *AUF* (Frequenz) | G: *AT / OVER (time or significant point)* <b>CONTACT</b> (unit) *ON* (frequency) *NOW* |
| B: <b>FALLS KEIN KONTAKT</b> (Anweisungen)  | G: <b>IF NO CONTACT</b> (instructions)  |
| L: <b>ERBITTE *FREQUENZ* WECHSEL *AUF (Frequenz)*</b>   | A: <b>REQUEST *FREQUENCY* CHANGE *TO (frequency)*</b>                                   |
| B: *FREQUENZ* <b>WECHSEL GE-NEHMIGT</b>   | G: *FREQUENZ* <b>CHANGE APPROVED</b>  |

| .42 IFR after frequency change

- A: (level, including passed and cleared level if not maintaining the cleared level)  
\*CLIMBING / DESCENDING (level)\*



852.42 ctd.

Note: When changing from approach control to tower control the indication of the level resp. the passed or cleared level is not required.

A: **RUNWAY** (designator)

Note: For approaches to aerodromes with parallel runway systems, the runway designator shall be indicated in addition to the radio call sign of the aircraft.

A: (speed, if a speed was assigned)

Note: The assigned speed shall also be advised on first contact with an ATC unit after a frequency change, whether or not a full position report is required.

.43 VFR and IFR

B: **VERLASSEN** \*DER FRE-  
QUENZ\* **GENEHMIGT** \*FÜR (Zif-  
fer) MINUTE(N)\*

B: **BLEIBEN SIE AUF DIESER  
FREQUENZ** \*BIS (Position / Zeit /  
Flughöhe) / FÜR (Ziffer) MINU-  
TE(N)\*

B: \*WENN BEREIT\* **RUFEN SIE**  
(Bodenfunkstelle) \*AUF\* (Fre-  
quenz)

B: **UM / ÜBER / AM** (Zeit / Position)  
**RUFEN SIE** (Bodenfunkstelle)  
\*AUF\* (Frequenz)

G: **APPROVED TO LEAVE**  
\*FREQUENCY\* \*FOR (figures)  
MINUTE(S)\*

G: **REMAIN \*ON\* THIS FRE-  
QUENCY** \*UNTIL (significant  
point / time / level) / FOR (fig-  
ures) MINUTE(S)\*

G: \*WHEN READY\* **CONTACT**  
(unit) \*ON\* (frequency)

G: **AT / OVER** (time / significant  
point) **CONTACT** (unit) \*ON\*  
(frequency)

852.43 ctd.

- |   |  |
|---|--|
| <p>B: <b>*NACH DEM ABHEBEN* STAND BY FÜR</b> (Bodenfunkstelle) <b>*AUF*</b> (Frequenz)</p> <p>B: <b>MONITOR</b> (Bodenfunkstelle) <b>*AUF*</b> (Frequenz)</p> | <p>G: <b>*WHEN AIRBORNE* STAND BY FOR</b> (unit) <b>*ON*</b> (frequency)</p> <p>G: <b>MONITOR</b> (unit) <b>*ON*</b> (frequency)</p> |
|---|--|

Note: An aircraft may be requested:

- a) to **STANDBY** on a frequency when it is intended that the ATS unit will initiate communications soon,
- b) to **MONITOR** a frequency when information is being broadcast thereon.

.44 Equipment with 8.33 kHz channel spacing

- |  |   |
|--|---|
| <p>B: <b>BESTÄTIGEN SIE ACHT KOMMA DREI DREI AUSGERÜSTET</b></p> <p>L: <b>BESTÄTIGE ACHT KOMMA DREI DREI</b></p> <p>L: <b>ACHT KOMMA DREI DREI NEGATIV</b></p> <p>B: <b>BESTÄTIGEN SIE ACHT KOMMA DREI DREI AUSNAHMEGENEHMIGUNG</b></p> <p>L: <b>BESTÄTIGE / NEGATIV ACHT KOMMA DREI DREI AUSNAHMEGENEHMIGUNG</b></p> <p>B: (Freigabe / Anweisung) <b>WEGEN ACHT KOMMA DREI DREI ANFORDERUNG</b></p> | <p>G: <b>CONFIRM EIGHT POINT THREE THREE EQUIPPED</b></p> <p>A: <b>AFFIRM EIGHT POINT THREE THREE</b></p> <p>A: <b>NEGATIVE EIGHT POINT THREE THREE</b></p> <p>G: <b>CONFIRM EIGHT POINT THREE EXEMPTED</b></p> <p>A: <b>AFFIRM / NEGATIVE EIGHT POINT THREE THREE EXEMPTED</b></p> <p>G: (clearance / instruction) <b>DUE *TO* EIGHT POINT THREE THREE REQUIREMENT</b></p> |
|--|---|

Note: To indicate that a certain clearance is given because otherwise a non-equipped aircraft would enter the airspace of mandatory carriage.

852.45 UHF Capability

**B: BESTÄTIGEN SIE UHF**  
**L: BESTÄTIGE UHF / NEGATIVE**  
**UHF**

**G: CONFIRM UHF**  
**A: AFFIRM UHF / NEGATIVE UHF**

**852.5 FLIGHTS ACCORDING TO VISUAL FLIGHT RULES IN AIRSPACE**  
**CLASSES C AND D (not control zone)**

852.51 Flights below flight level 100

.511 Clearance request

**L: (Lfz.-Muster) (Position) VFR \*IN\***  
**\*FLUGHÖHE\* (Ziffern) FUSS /**  
**FLUGFLÄCHE (Ziffern) ERBIT-**  
**TE DURCHFLUG DURCH**  
**LUFTRAUM CHARLIE / DELTA**  
**ÜBER (Flugstrecke)**  
**\*FLUGHÖHE\* (Ziffern) FUSS /**  
**FLUGFLÄCHE (Ziffern)**

**A: (type of aircraft) (significant**  
**point) VFR \*AT\* \*ALTITUDE\***  
**(figures) FEET / FLIGHT LEVEL**  
**(figures) REQUEST CROSSING**  
**AIRSPACE CHARLIE / DELTA**  
**VIA (route) \*ALTITUDE\* (fig-**  
**ures) FEET / FLIGHT LEVEL**  
**(figures)**

.512 Crossing clearance

**B: DURCHFLUG GENEHMIGT**  
**ÜBER (Flugstrecke)**  
**\*FLUGHÖHE\* (Ziffern) FUSS /**  
**FLUGFLÄCHE (Ziffern)**

**G: CROSSING APPROVED VIA**  
**(route) \*ALTITUDE\* (figures)**  
**FEET / FLIGHT LEVEL (figures)**

.513 Entry into the airspace

**B: SIE FLIEGEN IN LUFTRAUM**  
**CHARLIE / DELTA EIN**

**G: YOU ARE ENTERING AIR-**  
**SPACE CHARLIE / DELTA**

.514 Route instruction

**B: FLIEGEN SIE AUF RADIAL (drei**  
**Ziffern) VON (Name der VOR)**  
**BIS (Position)**

**G: PROCEED ON RADIAL (three**  
**figures) OF (name of VOR) TO**  
**(significant point)**

852.515 Level instruction

B: **HALTEN SIE** \*FLUGHÖHE\*  
(Ziffern) **FUSS / FLUGFLÄCHE**  
(Ziffern)

B: **ÜBERFLIEGEN SIE** (Position) **IN**  
\*FLUGHÖHE\* (Ziffern) **FUSS /**  
**FLUGFLÄCHE** (Ziffern) \***ODER**  
**HÖHER / TIEFER\***

B: \***NACH ÜBERFLIEGEN VON**  
(Position)\* **STEIGEN / SINKEN**  
**SIE AUF** \*FLUGHÖHE\* (Ziffern)  
**FUSS / FLUGFLÄCHE** (Ziffern) /  
**UND HALTEN SIE HÖHEN-**  
**BLOCK** (Flughöhe) **BIS** (Flug-  
höhe)

B: **MELDEN SIE VERLASSEN /**  
**DURCHFLIEGEN / ERREICHEN**  
**VON** \*FLUGHÖHE\* (Ziffern)  
**FUSS / FLUGFLÄCHE** (Ziffern)

G: **MAINTAIN** \*ALTITUDE\* (fig-  
ures) **FEET / FLIGHT LEVEL**  
(figures)

G: **CROSS** (significant point) **AT**  
\*ALTITUDE\* (figures) **FEET /**  
**FLIGHT LEVEL** (figures) \***OR**  
**ABOVE / BELOW\***

G: \***AFTER PASSING** (significant  
point)\* **CLIMB / DESCEND**  
\*ALTITUDE\* (figures) **FEET /**  
**FLIGHT LEVEL** (figures) / **AND**  
**MAINTAIN BLOCK** (level) **UN-**  
**TIL** (level)

G: **REPORT LEAVING / PASSING**  
**/ REACHING** \*ALTITUDE\* (fig-  
ures) **FEET / FLIGHT LEVEL**  
(figures)

.516 Holding instructions

B: **HALTEN SIE ÜBER** (Position)  
**ERWARTEN SIE WEITERE**  
**FREIGABE UM** (Zeit) / **IN** (Minu-  
ten)

G: **HOLD OVER** (significant point)  
**EXPECT FURTHER CLEAR-**  
**ANCE AT** (time) / **IN** (minutes)

.517 Request for revised clearance (e.g. due to weather)

L: **ERBITTE** \*FLUGHÖHE\* (Ziffern)  
**FUSS / FLUGFLÄCHE** (Ziffern)  
**ÜBER** (Strecke) \***WEGEN** (Be-  
gründung)\*

A: **REQUEST** \*ALTITUDE\* (fig-  
ures) **FEET / FLIGHT LEVEL**  
(figures) **VIA** (route) \***DUE TO**  
(reason)\*

.518 Leaving the airspace

B: **VERLASSEN SIE** \*LUFTRAUM\*  
**CHARLIE / DELTA RICHTUNG /**  
**STEUERKURS** (drei Ziffern) / **IN**  
\*FLUGHÖHE\* (Ziffern) **FUSS /**  
**FLUGFLÄCHE** (Ziffern)  
\*(Begründung)\*

G: **LEAVE** \*AIRSPACE\* **CHARLIE**  
**/ DELTA DIRECTION / HEAD-**  
**ING** (three figures) / **AT**  
\*ALTITUDE\* (figures) **FEET /**  
**FLIGHT LEVEL** (figures)  
\*(reason)\*

L: **VERLASSE** \*LUFTRAUM\*  
**CHARLIE / DELTA**

A: **LEAVING** \*AIRSPACE\* **CHAR-**  
**LIE / DELTA**

852.518 ctd.

**B: SIE VERLASSEN \*LUFTRAUM\*  
CHARLIE / DELTA**

**G: YOU ARE LEAVING \*AIR-  
SPACE\* CHARLIE / DELTA**

.52 Flights at and above flight level 100

.521 Clearance request

**A: (type of aircraft) SPEED (figures) POSITION (significant point) \*ALTITUDE\*  
(figures) FEET / FLIGHT LEVEL (figures) VFR TO (destination) REQUEST  
ENTERING AIRSPACE CHARLIE AND FLIGHT LEVEL (figures) VIA  
(route)**

.522 Clearance

**G: ENTER AIRSPACE CHARLIE CLIMB FLIGHT LEVEL (figures) PROCEED  
TO (significant point)**

.523 Instruction to leave airspace

**A: DESCEND BELOW FLIGHT LEVEL 100**

.53 Common instructions for radar vectoring

**B: SQUAWK (Code)**

**G: SQUAWK (code)**

**B: SQUAWK IDENT**

**G: SQUAWK IDENT**

**B: IDENTIFIZIERT \*(Position)\***

**G: IDENTIFIED \*(significant point)\***

**B: RADARKONTAKT \*(Position)\***

**G: RADAR CONTACT \*(significant  
point)\***

**B: DREHEN SIE LINKS / RECHTS  
STEUERKURS (drei Ziffern)  
\*ZUR STAFFELUNG\***

**G: TURN LEFT / RIGHT HEADING  
(three figures) \*FOR SEPARA-  
TION\***

.531 Termination of radar vectoring

**B: RADARFÜHRUNG BEENDET  
ÜBERNEHMEN SIE EIGENNA-  
VIGATION POSITION (Position)**

**G: RADAR VECTORING TERMI-  
NATED RESUME OWN NAVI-  
GATION POSITION (significant  
point)**

**852.6 FLIGHTS ACCORDING TO INSTRUMENT FLIGHT RULES**

.61 Instructions

.611 Departure instructions

G: **\*WHEN AIRBORNE\* TURN LEFT / RIGHT HEADING** (three figures)

G: **SET HEADING TO / \*PROCEED\* DIRECT** (significant point) **\*AT (time)\***

G: **AFTER PASSING / REACHING SET HEADING TO / \*PROCEED\* DIRECT**  
(significant point) **\*AT (time)\***

G: **CLEARANCE EXPIRES AT** (time)

.612 Approach instructions

A: **REQUEST** (type of approach) **\*RUNWAY (designator)\***

G: **CLEARED** (type of approach) **\*RUNWAY (designator)\***

A: **REQUEST** (RNAV plain language designator)

G: **CLEARED** (RNAV plain language designator)

G: **CLEARED** (type of approach) **RUNWAY (designator) FOLLOWED BY CIR-  
CLING RUNWAY (designator)**

G: **COMMENCE APPROACH AT** (time)

G: **REPORT RUNWAY / LIGHTS / FIELD IN SIGHT**

G: **REPORT COMMENCING PROCEDURE TURN**

G: **MAINTAIN OWN SEPARATION** (traffic)

G: **ARE YOU FAMILIAR WITH** (type of approach) **RUNWAY (designator)**

.62 Holding procedures

.621 Visual holding instructions

G: **HOLD VISUAL OVER** (significant point) / **BETWEEN** (significant points)

.622 Published holding procedure over a facility or a fix

G: **HOLD AT / OVER** (significant point, name of facility or fix) **MAINTAIN /  
CLIMB / DESCEND** (level) **\*(additional instructions, if necessary)\* EXPECT  
FURTHER CLEARANCE AT (time) / IN (minutes) / EXPECTED AP-  
PROACH TIME (time)**

852.623 When pilot requests description of holding procedure based on a facility (VOR or NDB)

**A: REQUEST HOLDING INSTRUCTIONS**

**G: HOLD AT / OVER** (significant point, name of facility or fix) \*(identification / frequency)\* \*MAINTAIN / CLIMB / DESCENT (level)\* \*(direction)\* \*(specified) RADIAL / COURSE / INBOUND TRACK (three figures) DEGREES\* \*LEFT / RIGHT HAND PATTERN\* \*OUTBOUND TIME (figure) MINUTE(S) \*(additional instructions, if necessary)\*

**G: HOLD BETWEEN** (figures) **AND** (figures) **DME** \*AT / MAINTAIN / CLIMB / DESCENT (level)\* \*LEFT / RIGHT HAND PATTERN\* \*(additional instructions, if necessary)\*

.624 Expected approach time

**G: NO DELAY EXPECTED**

**G: EXPECTED APPROACH TIME / EAT** (figures)

**G: REVISED EXPECTED APPROACH TIME / EAT** (figures)

**G: DELAY NOT DETERMINED** (reason)

.63 Radar approach control service

.631 Provision of service

**G: EXPECT / VECTORING** \*FOR\* (type of approach) **RUNWAY** (designator)

**G: EXPECT / VECTORING** \*FOR / TO\* (significant point)

**G: (type of approach) NOT AVAILABLE DUE TO** (reason) \*(instructions)\*

.632 Instructions and information

**G: YOU WILL INTERCEPT** (navigational aid or track) (distance) **FROM** (significant point)

**G: REPORT ESTABLISHED** \*ON ILS / LOCALIZER / GLIDE PATH\* \*(or ON GBAS / MLS APPROACH COURSE)\*

**G: CLOSING FROM LEFT / RIGHT**

**G: INTERCEPT** (navigational aid)

852.632 ctd.

G: **TURN LEFT / RIGHT HEADING** (three figures) \*TO INTERCEPT (navigational aid)\*  
 G: **EXPECT VECTOR ACROSS** (navigational aid) \*(reason)\*  
 G: **THIS TURN WILL TAKE YOU THROUGH** (navigational aid) \*(reason)\*  
 G: **TAKING YOU THROUGH** (navigational aid) \*(reason)\*  
 G: **MAINTAIN** (level) **UNTIL GLIDE PATH** \*INTERCEPTION\*  
 G: **REPORT RUNWAY** (designator) / **LIGHTS / FIELD IN SIGHT**

.633 Surveillance Radar Approach

G: **THIS WILL BE A SURVEILLANCE RADAR APPROACH RUNWAY** (designator) **TERMINATING AT MISSED APPROACH POINT OBSTACLE CLEARANCE ALTITUDE** (figures) **FEET CHECK YOUR MINIMA**  
 G: **VECTORING FOR SURVEILLANCE RADAR APPROACH RUNWAY** (designator)  
 G: **HEADING IS GOOD**  
 G: **TURN LEFT / RIGHT HEADING** (three figures)  
 G: (distance) **FROM TOUCHDOWN COMMENCE DESCENT NOW**  
 G: (distance) **FROM TOUCHDOWN ALTITUDE SHOULD BE** (figures) **FEET**  
 G: **CHECK GEAR DOWN \*AND LOCKED\***  
 G: **PASSING MISSED APPROACH POINT**  
 G: **OVER THRESHOLD**  
 G: **APPROACH COMPLETED CONTACT** (unit) \*ON\* (frequency)

.634 Missed approach procedure

G: **PASSING MISSED APPROACH POINT CONTINUE VISUALLY OR GO AROUND** \*(missed approach instructions)\*  
 G: **GO AROUND** \*(missed approach instructions)\* \*(reason)\*  
 G: **ARE YOU GOING AROUND**  
 G: **IF GOING AROUND** (instructions)  
 A: **GOING AROUND**

.64 Visual approach

.641 If visual approach can be initiated promptly

A: **REQUEST VISUAL APPROACH** \*RUNWAY (designator)\*  
 G: **CLEARED VISUAL APPROACH RUNWAY** (designator)



852.642 If visual approach is intended

A: **REQUEST VECTORS FOR VISUAL APPROACH** \*RUNWAY (designator)\*  
G: **STANDBY FOR VISUAL APPROACH** \*RUNWAY (designator)\* \*(reason)\*  
G: **ADVISE ABLE TO ACCEPT VISUAL APPROACH** \*RUNWAY (designator)\*  
A: **ABLE TO ACCEPT VISUAL APPROACH** \*RUNWAY (designator)\*

.643 Delegation of the obligation to provide separation to the pilot (only during daytime)

G: **NUMBER** (figures) **FOLLOW** (type of aircraft) (position) **MAINTAIN OWN SEPARATION**  
G: **MAINTAIN OWN SEPARATION FROM PRECEDING** (type of aircraft / wake turbulence category) \*CAUTION WAKE TURBULENCE\*

.65 Visual departure

.651 Issuing visual departure instructions

A: **REQUEST VISUAL DEPARTURE** \*DIRECT\* \*TO / UNTIL (significant point / altitude)\*  
G: **VISUAL DEPARTURE RUNWAY** (designator) **APPROVED TURN LEFT / RIGHT** \*DIRECT\* \*TO\* (heading / significant point) \*MAINTAIN VISUAL REFERENCE TO \*THE\* TERRAIN UNTIL (altitude)\*  
G: **ADVISE ABLE** \*TO ACCEPT\* **VISUAL DEPARTURE** \*DIRECT\* \*TO / UNTIL\* (significant point / altitude)  
A: **ABLE** \*TO ACCEPT\* **VISUAL DEPARTURE** \*RUNWAY (designator)\*

.652 Pilot's agreement on executing a visual departure prior to take-off, i.e. read back of additional ATC clearance

A: **VISUAL DEPARTURE TO / UNTIL** (significant point / altitude)

852.66 Parallel operations

.661 Manoeuvre during independent and dependent parallel approaches

G: **CLEARED \*FOR\*** (type of approach) **RUNWAY** (designator) **LEFT / RIGHT**

G: **YOU HAVE CROSSED \*THE\* LOCALIZER TURN LEFT / RIGHT**

**\*IMMEDIATELY\* AND RETURN TO \*THE\* LOCALIZER**

G: **ILS RUNWAY** (designator) **LEFT / RIGHT LOCALIZER FREQUENCY \*IS\***  
(frequency)

G: **TURN LEFT / RIGHT** (number) **DEGREES / HEADING** (three figures) **IM-  
MEDIATELY TO AVOID TRAFFIC \*DEVIATING FROM ADJACENT AP-  
PROACH\* CLIMB** (level)

.67 GPS / FMS RNAV phraseologies

G: **CLEARED** (designator) **TRANSITION**

G: **CLEARED** (designator) **TRANSITION AND PROFILE**

G: **CLEARED DIRECT WAYPOINT** (designator)

G: **CLEARED VIA WAYPOINTS** (designator) **AND** (designator)

A: **UNABLE RNAV (GPS) DUE TO** (reason e.g. **LOSS OF RAIM** or **RAIM  
ALERT**)

.68 Runway visual range

G: **RVR \*RUNWAY** (designator) **\*FIRST PART\*** (value) **METRES / NOT  
AVAILABLE / NOT REPORTED \*SECOND PART\*** (value) **METRES / NOT  
AVAILABLE / NOT REPORTED \*THIRD PART\*** (value) **METRES / NOT  
AVAILABLE / NOT REPORTED \*FOURTH PART\*** (value) **METRES / NOT  
AVAILABLE / NOT REPORTED\***

G: **RVR \*RUNWAY** (designator) **\*TOUCHDOWN ZONE\***(value) **METRES /  
NOT AVAILABLE / NOT REPORTED \*MIDPOINT\*** (value) **METRES / NOT  
AVAILABLE / NOT REPORTED \*STOP END\*** (value) **METRES / NOT  
AVAILABLE / NOT REPORTED**

G: **TRANSMISSIOMETER** (significant point) **UNSERVICEABLE**

Note 1: Multiple RVR observations are always representative of touchdown zone, midpoint and stop end respectively.

Note 2: Where reports for three or more locations are given, the indication of these locations may be omitted, if the reports are passed in the order of touchdown zone, midpoint and stop end.

852.69 Change of flight rules

.691 Change from IFR to VFR

A: **CANCELLING** \*MY\* IFR \*FLIGHT\*

G: IFR \*FLIGHT\* **CANCELLED AT** (time) \*(instructions)\*

G: **UNABLE TO ACCEPT CANCELLATION** \*DUE TO (reason)\*

Note: Only the IFR portion of the flight plan is cancelled, the flight plan is still active. Report of arrival required.

.692 Change from VFR to IFR

A: **REQUEST IFR CLEARANCE**

G: **CLEARED** \*TO\* (clearance limit) **VIA** (route) **CLIMB** (level) **IFR STARTS AT** (significant point / time) / **WHEN PASSING / REACHING** (level) / **\*NOW\*** \*(instructions)\*

## 852.7 CONTROLLED FLIGHTS

Note: Phraseologies not published in German will be used by ATC for pilots only familiar with the German language on the basis of the phraseologies for controlled flights published here.

.71 Issuance of en-route clearance

G: **CLEARED / PROCEED** \*TO\* (clearance limit) **VIA** (details of route to be followed / instructions) **FLIGHT PLANNED ROUTE** (or description of route) \*CLIMB (level)\* **SQUAWK** (four figures) \*(instructions)\*

G: **CLEARED** \*TO\* (clearance limit) \*VIA (route) (level) (details)\* **SQUAWK** (four figures)

G: **RECLEARED** (amended clearance details) \*REST OF CLEARANCE UNCHANGED\*

G: **RECLEARED** (amended route portion) **TO** (significant point of original route) \*REST OF CLEARANCE UNCHANGED\*

852.711 If clearance cannot be issued immediately upon request

G: **EXPECT CLEARANCE AT** (time)

.712 When clearance for deviation cannot be issued

G: **UNABLE, TRAFFIC** (direction) **BOUND** (type of aircraft) (level) **ESTIMATED / OVER** (significant point) **AT** (time) **CALL SIGN** (call sign) **ADVISE INTENTIONS**

.713 Time limit for clearance validity

G: **DEPART NOT EARLIER / LATER THAN** (time)

G: **CLEARANCE VALID FROM** (time) **TO** (time)

G: **CLEARANCE EXPIRES AT** (time)

.714 When there is doubt that an aircraft can comply with a clearance or instruction

G: **IF UNABLE** \*(instructions) **AND\* ADVISE**

.715 When a pilot is unable to comply with a clearance or instruction

A: **UNABLE**

.72 Air traffic control clearances without prefix "cleared"

.721 Route

G: **JOIN** (specify) **AT** (significant point) **AT** (level) \*AT (time)\*

G: \***PROCEED**\* **FROM** (significant point) **TO** (significant point)

G: **PROCEED** (followed as necessary by)

- **TO** (significant point)
- **DIRECT** (significant point)
- **VIA** (route and / or significant point(s))
- **VIA FLIGHT PLANNED ROUTE**
- **VIA** (distance) **DME ARC** (direction) **OF** (name of DME station)

852.722 Level

G: **FLIGHT LEVEL** (number)  
G: **\*ALTITUDE\*** (figures) **FEET**

Note: The term LEVEL may be variously FLIGHT LEVEL or ALTITUDE.

G: **MAINTAIN** (level) (followed as necessary by)

- **TO** (significant point)
- **UNTIL PASSING** (significant point)
- **UNTIL** (time)
- **UNTIL ADVISED BY** (unit)
- **UNTIL FURTHER ADVISED**
- **WHILE IN CONTROLLED AIRSPACE**

Note: The term MAINTAIN shall not be used instead of DESCEND or CLIMB when instructing an aircraft to change level.

.723 Level changes, rates of climb / descent

G: **CLIMB / DESCEND** (followed as necessary by)

- (level)
- **IMMEDIATELY**
- **TO REACH** (level) **AT** (time or significant point)
- **AT** (figures) **FEET PER MINUTE / OR GREATER / LESS** \*(restrictions)\*
- **AND MAINTAIN BLOCK** (level) **UNTIL** (level)

G: **CLIMB** (level) **LEVEL RESTRICTION(S)** (SID designator) **CANCELLED / LEVEL RESTRICTION(S)** (SID designator) **AT** (point) **CANCELLED**

G: **DESCEND** (level) **LEVEL RESTRICTION(S)** (STAR designator) **CANCELLED / LEVEL RESTRICTION** (STAR designator) **AT** (point) **CANCELLED**

G: **RESUME NORMAL RATE OF DESCENT / CLIMB**

G: **REPORT LEAVING / REACHING / PASSING** (level)

A: **REQUEST LEVEL CHANGE / CLIMB / DESCENT AT** (time or significant point)

G: **EXPECT LEVEL CHANGE / CLIMB / DESCENT**

- **FROM** (unit)
- **AT** (time or significant point)
- **AFTER PASSING** (significant point)
- **IN** (figures) **MINUTES**

852.723 ctd.

G: **STOP CLIMB / DESCENT AT** (level)  
 G: **CONTINUE CLIMB / DESCENT** (level)  
 G: **EXPEDITE CLIMB / DESCENT UNTIL PASSING** (level)

If climb / descent need not be started immediately after receipt of clearance.

G: **WHEN READY CLIMB / DESCEND** \*REPORT LEAVING (level)\*  
 A: **CLIMB / DESCEND** (level) **MAINTAINING** (level) \*WILCO\*

.724 To require an aircraft to climb or descend maintaining own separation and VMC

G: **MAINTAIN OWN SEPARATION AND VMC** (limitation) (traffic)  
 A: **REQUEST VMC DESCENT / CLIMB**

.725 Specification of cruising levels

G: **CROSS** (significant point) **AT / ABOVE / BELOW** (level)  
 G: **CROSS** (significant point) **AT** (time) **OR LATER / BEFORE AT** (level)  
 G: **CROSS** (distance) **MILES DME** \*(direction)\* **OF** (name of DME station) **AT / ABOVE / BELOW** (level)  
 G: **CROSS** (distance) **MILES GNSS** \*(direction)\* **OF** (significant point) **AT / ABOVE / BELOW** (level)  
 G: **ADVISE IF ABLE TO CROSS** (significant point) **AT** (time) / (level)

| .726 Use of selected level

| G: **CLEARED** (level) **CHECK SELECTED LEVEL**

.73 Instructions

.731 Heading instructions

G: **LEAVE** (significant point) **HEADING** (three figures) \*e.g. : AT (time)\*  
 G: **CONTINUE HEADING** (three figures)  
 G: **CONTINUE PRESENT HEADING**  
 G: **FLY HEADING** (three figures) \*WHEN ABLE PROCEED DIRECT (designator) (significant point)\*  
 G: **TURN LEFT / RIGHT** (figures) **DEGREES / HEADING** (three figures)

852.731 ctd.

G: **TURN LEFT / RIGHT IMMEDIATELY** (number of degrees) **DEGREES / HEADING** (three figures) **TO AVOID \*UNIDENTIFIED\* TRAFFIC** (bearing by clock-reference and distance)

G: **MAKE A LEFT / RIGHT THREE SIXTY** \*(reason)\*

G: **ORBIT LEFT / RIGHT** \*(reason)\*

G: **STOP TURN HEADING** (three figures)

Note: When it is necessary to specify a reason for the above manoeuvres, the following phraseologies should be used :

- **DUE \*TO\* TRAFFIC**
- **FOR SPACING**
- **FOR SEPARATION**
- **FOR DOWNWIND / BASE / FINAL**

.732 Speeds

A: **SPEED** (figures) **KNOTS / MACH** (number)

G: **REPORT INDICATED AIRSPEED / MACH NUMBER / SPEED**

G: **MAINTAIN** (figures) **KNOTS / MACH** (number) **\*UNTIL (significant point)\* \* OR GREATER / OR LESS\***

G: **MAINTAIN PRESENT SPEED**

G: **DO NOT EXCEED MACH** (number) / (figures) **KNOTS**

G: **INCREASE / REDUCE SPEED \*TO\*** (figures) **KNOTS / MACH** (number)

G: **INCREASE / REDUCE SPEED BY** (figures) **KNOTS / MACH** (number)

G: **RESUME NORMAL SPEED**

G: **NO SPEED RESTRICTIONS**

A: **UNABLE TO COMPLY INDICATED AIRSPEED WILL BE** (figures) **KNOTS / MACH** (number)

Note: When assigned a speed to maintain, the flight crew shall include this speed in their position reports. The assigned speed shall also be advised on first contact with an ATC unit after a frequency change, whether or not a full position report is required.

852.733 Track (offset) parallel to the cleared route

G: **ADVISE IF ABLE TO PROCEED PARALLEL OFFSET**

G: **PROCEED OFFSET** (distance) **RIGHT / LEFT OF** (route) (track) **\*CENTRE LINE\*** **\*AT\*** (significant point / time) **\*UNTIL** (significant point / time)\*

G: **CANCEL OFFSET** (instructions to rejoin cleared flight route / other information)

852.74 Identification of aircraft

G: **SQUAWK** \*(code)\* **\*IDENT\***

G: **REPORT HEADING** **\*AND FLIGHT LEVEL / ALTITUDE\***

G: **FOR IDENTIFICATION TURN LEFT / RIGHT HEADING** (three figures) **FOR** (maximum time 2 minutes) **MINUTE(S) / SECONDS**

G: **TRANSMIT FOR IDENTIFICATION AND REPORT HEADING**

G: **IDENTIFIED** \*(significant point)\*

G: **RADAR CONTACT** \*(significant point)\*

G: **NOT IDENTIFIED CONTINUE OWN NAVIGATION**

.75 Position

.751 Position information by Air Traffic Control

G: **POSITION** (distance) (direction) **OF** (significant point)

G: **POSITION OVER / ABEAM** (significant point)

.752 Position reports by pilots

1. IFR flights

- A :
- a) (significant point);
  - b) (actual time over);
  - c) (level, including passed level and cleared level if not maintaining the cleared level);
  - d) (next significant point and estimated time over);
  - e) (ensuing significant point);
  - f) (speed, if a speed was assigned).

1.1 Elements c), d) and e):

May be omitted from position reports transmitted by voice.



852.752 ctd.

1.2 Element f):

When assigned a speed to maintain, this speed shall be included in the position report.

2. VFR flights

L :	a) (Position)	A :	a) (significant point)
	b) (Überflugzeit)		b) (actual time over)
	c) (Flughöhe)		c) (level)

2.1 The announcement of the actual time over may be omitted if the significant point is reached at the moment of the report.

3. Flights in the traffic circuit

L: (Teil der Platzrunde)	A: (part of traffic circuit)
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.753 To omit position reports when under radar control

G: **OMIT POSITION REPORTS** \*UNTIL (specify)\*  
 G: **NEXT REPORT AT** (significant point)  
 G: **REPORT(S) REQUIRED ONLY AT** (significant point(s))  
 G: **RESUME POSITION REPORTING**

.76 Termination of service

G: **RADAR CONTROL TERMINATED** \*DUE TO (reason)\*  
 G: **RADAR SERVICE TERMINATED** \*(instructions)\*  
 G: **RESUME OWN NAVIGATION** (position) \*(instructions)\*  
 G: **WILL SHORTLY LOSE IDENTIFICATION** (instructions / information)  
 G: **IDENTIFICATION LOST** \*(reasons)\* \*(instructions)\*

852.77 Transponder

B: HABEN SIE TRANSPONDER	G: ARE YOU TRANSPONDER EQUIPPED
L: TRANSPONDER NEGATIV / POSITIV	A: NEGATIVE TRANSPONDER / AFFIRM
B: MELDEN SIE TYP / MODE / CODE DES TRANSPONDERS	G: ADVISE TYPE / MODE / CODE OF TRANSPONDER
B: *NACH DEM ABHEBEN* SQUAWK (Code)	G: *WHEN AIRBORNE* SQUAWK (code)
B: RESET SQUAWK *(Mode)* (Code)	G: RESET SQUAWK *(mode)* (code)
L: RESETTING (Code)	A: RESETTING (code)
B: BESTÄTIGEN SIE SQUAWK	G: CONFIRM SQUAWK
L: SQUAWK (Code)	A: SQUAWKING (code)
B: SQUAWK (nach Bedarf gefolgt von)	G: SQUAWK (followed as necessary by)
- *(Code)* *UND* IDENT	- *(code)* *AND* IDENT
- CHARLIE	- CHARLIE
- STANDBY	- STANDBY
B: SQUAWK MODE 3 ALFA ONLY	G: SQUAWK MODE 3 ALFA ONLY
B: ÜBERPRÜFEN SIE HÖHENMESSEREINSTELLUNG UND BESTÄTIGEN SIE FLUGHÖHE / (Flughöhe)	G: CHECK ALTIMETER SETTING AND CONFIRM LEVEL / (level)
B: STOP SQUAWK CHARLIE FALSCH ANZEIGE	G: STOP SQUAWK CHARLIE WRONG INDICATION
B: STOP SQUAWK	G: STOP SQUAWK
B: ÜBERPRÜFEN SIE MODE S AIRCRAFT ID	G: CHECK MODE S AIRCRAFT ID
B: RESET MODE S AIRCRAFT ID	G: RESET MODE S AIRCRAFT ID

.78 Special phraseologies

.781 TCAS (ACAS) phraseologies

A: TCAS RA
G: ROGER
A: CLEAR OF CONFLICT, RETURNING TO (assigned clearance)
G: ROGER (or alternative instructions)
A: CLEAR OF CONFLICT (assigned clearance) RESUMED
G: ROGER (or alternative instructions)
A: UNABLE, TCAS RA
G: ROGER

852.782 RVSM phraseologies

G: **CONFIRM RVSM APPROVED**  
 A: **NEGATIVE RVSM STATE AIRCRAFT**  
 A: **NEGATIVE RVSM \*(status)\***  
 G: **NEGATIVE RVSM**  
 G: **UNABLE ISSUE CLEARANCE INTO RVSM AIRSPACE MAINTAIN / DESCEND / CLIMB FLIGHT LEVEL (number)**  
 A: **UNABLE RVSM DUE \*TO\* TURBULENCE / EQUIPMENT**  
 A: **READY TO RESUME RVSM**  
 G: **REPORT WHEN ABLE TO RESUME RVSM**  
 G: **CONFIRM ABLE TO RESUME RVSM**  
 G: **NEGATIVE RVSM / NEGATIVE RVSM STATE AIRCRAFT**  
 G: **UNABLE RVSM DUE \*TO\* TURBULENCE / EQUIPMENT**

.783 General ADS phraseologies

G: **ADS / AUTOMATIC DEPENDENT SURVEILLANCE OUT OF SERVICE**  
 (appropriate information, as necessary)

.784 ATFCM phraseologies

G: **SLOT \*IS\* (time)**  
 G: **REVISED SLOT \*IS\* (time)**  
 G: **SLOT CANCELLED \*REPORT READY\***  
 G: **FLIGHT SUSPENDED UNTIL (time) / UNTIL FURTHER NOTICE DUE \*TO\* (reason)**  
 G: **FLIGHT SUSPENDED UNTIL FURTHER NOTICE, DUE \*TO\*(reason)**  
 G: **SUSPENSION CANCELLED, REPORT READY**  
 G: **UNABLE TO APPROVE START UP \*CLEARANCE\* DUE \*TO\* SLOT EXPIRED, REQUEST A NEW SLOT**  
 G: **SLOT EXPIRES AT (time)**  
 G: **UNABLE TO APPROVE START UP \*CLEARANCE\* DUE \*TO\* SLOT (time), REQUEST START UP AT (time)**

.785 CPDLC phraseologies

A: **CONFIRMING CPDLC (message)**  
 G: **\*ALL STATIONS\* CPDLC FAILURE REVERT TO VOICE**  
 A: **CPDLC MESSAGE FAILURE**  
 G: **CPDLC MESSAGE FAILURE \*REVERT TO VOICE\***  
 A: **DISREGARD CPDLC (message type) MESSAGE, BREAK (correct information or request)**  
 G: **DISREGARD CPDLC (message type) MESSAGE, BREAK (correct clearance, instruction, information or request)**  
 G: **\*ALL STATIONS\* STOP SENDING CPDLC REQUESTS \*UNTIL ADVISED (reason)\***  
 G: **\*ALL STATIONS\* RESUME NORMAL CPDLC OPERATIONS**

**852.8 FLIGHT INFORMATION SERVICE**

(issues information and recommendations only)

.81 Weather information

.811 Information about special weather phenomena

B: **FLUGSICHERUNGSRADAR ZEIGT STARKES NIEDER-SCHLAGSGEBIET** (Ziffern) **UHR** (Entfernung) **MEILEN GEBIET IST** (Ziffern) **MEILEN TIEF UND ERSTRECKT SICH VON** (Richtung) **NACH** (Richtung) **ÜBER** (Entfernung) **MEILEN**

B: (Lfz.-Muster) **MELDET** (Beschreibung) **VEREISUNG / TURBULENZ \*IN WOLKEN\*** (Gebiet) (Zeit)

B: **\*KONTROLL\* TURM BEOBACHTET** (Wetterinformation)

B: **LUFTFAHRZEUGFÜHRER BERICHTET** (Wetterinformation)

G: **ATC RADAR SHOWS HEAVY PRECIPITATION AREA** (figures) **O'CLOCK** (distance) **MILES AREA** (figures) **MILES DEEP EXTENDING FROM** (direction) **TO** (direction) **FOR** (figures) **MILES**

G: (type of aircraft) **REPORTED** (description) **ICING / TURBULENCE \*IN CLOUD\*** (area) (time)

G: **TOWER OBSERVES** (weather information)

G: **PILOT REPORTS** (weather information)

.812 Observation deviating from official weather report

B: **TURMBEOBACHTUNG SICHT NACH** (Richtung) (Ziffern) **METER**

G: **TOWER OBSERVATION VISIBILITY TO** (direction) (distance) **METRES**

.82 Traffic information

B: **\*UNBEKANNTER\* VERKEHR** (Richtung, Entfernung und andere Informationen)

B: **\*UNBEKANNTER\* VERKEHR** (Ziffer) **UHR** (Entfernung) **MEILEN** (Flugrichtung) (Informationen)

G: **\*UNKNOWN\* TRAFFIC** (direction, distance and other information)

G: **\*UNKNOWN\* TRAFFIC** (figure) **O'CLOCK** (bearing by clock reference) (distance) **MILES** (direction of flight) (information)

852.82 ctd.

B: (Verkehr) (Position)

- **SCHNELL / LANGSAM FLIEGEND**
- **KOMMT NÄHER**
- **VON VORNE / SELBE RICHTUNG**
- **ÜBERHOLT**
- **KREUZT VON LINKS / VON RECHTS**

Falls bekannt :

- (Lflz.-Muster)
- (Flughöhe) / (Flughöhenunterschied) (Ziffern) \*NICHT BESTÄTIGT\*
- **STEIGT / SINKT**

L: **HALTE AUSSCHAU**L: **VERKEHR / (Lflz.-Muster) IN SICHT**L: **KEIN \*SICHT\* KONTAKT**L: **ERBITTE AUSWEICHEMPFEHLUNG / KURSFÜHRUNG**B: **EMPFEHLE \*LINKS- / RECHTSKURVE\* STEUERKURS** (drei Ziffern)B: **FREI VON VERKEHR**B: **KEIN GEMELDETER VERKEHR**

G: (traffic) (significant point)

- **SLOW / FAST MOVING**
- **CLOSING**
- **OPPOSITE / SAME DIRECTION**
- **OVERTAKING**
- **CROSSING LEFT TO RIGHT / RIGHT TO LEFT**

If known :

- (type of aircraft)
- (level) / (relative level) (figures) \*NOT CONFIRMED\*
- **CLIMBING / DESCENDING**

A: **LOOKING OUT**A: **TRAFFIC / (type of aircraft) IN SICHT**A: **NEGATIVE CONTACT**A: **REQUEST AVOIDANCE ADVICE / VECTORS**G: **SUGGEST \*LEFT / RIGHT TURN\* HEADING** (three figures)G: **CLEAR OF TRAFFIC**G: **NO REPORTED TRAFFIC**

.83 Navigational assistance

L: **\*POSITION UNBEKANNT\* ERBITTE NAVIGATORISCHE UNTERSTÜTZUNG \*NACH (Position)\***B: **QDM / QDR** (drei Ziffern)B: **SQUAWK** (Code)B: **IDENTIFIZIERT \*(Position)\***B: **RADARKONTAKT \*(Position)\***B: **BLEIBEN SIE VMC**B: **ACHTEN SIE AUF SICHERHEITSMINDESTHÖHE / HINDERNISFREIHEIT**B: **EMPFEHLE \*LINKS- / RECHTSKURVE\* STEUERKURS** (drei Ziffern)A: **\*POSITION UNKNOWN\* REQUEST NAVIGATIONAL ASSISTANCE \*TO (significant point)\***G: **QDM / QDR** (three figures)G: **SQUAWK** (code)G: **IDENTIFIED \*(significant point)\***G: **RADAR CONTACT \*(significant point)\***G: **MAINTAIN VMC**G: **OBSERVE MINIMUM SAFE HEIGHT / OBSTACLE CLEARANCE**G: **SUGGEST \*LEFT / RIGHT TURN\* HEADING** (three figures)

852.83 ctd.

**B: NAVIGATORISCHE UNTERSTÜTZUNG BEENDET ÜBERNEHMEN SIE EIGENNAVIGATION POSITION** (Position oder navigatorische Hinweise)

**G: NAVIGATIONAL ASSISTANCE TERMINATED RESUME OWN NAVIGATION POSITION** (significant point or navigational information)

.84 To instruct setting of transponder

**B: RESET SQUAWK** \*(Mode)\*  
(Code)  
**L: RESETTING** (Code)  
**B: BESTÄTIGEN SIE SQUAWK**  
**L: SQUAWK** (Code)  
**B: SQUAWK** (nach Bedarf gefolgt von)  
- \*(Code)\* \*UND\* **IDENT**  
- **CHARLIE**  
- **STANDBY**  
**B: STOP SQUAWK**

**G: RESET SQUAWK** \*(mode)\*  
(code)  
**A: RESETTING** (code)  
**G: CONFIRM SQUAWK**  
**A: SQUAWKING** (code)  
**G: SQUAWK** (followed as necessary by)  
- \*(code)\* \*AND\* **IDENT**  
- **CHARLIE**  
- **STANDBY**  
**G: STOP SQUAWK**

.85 VFR-Practice Approach

**L: ERBITTE** (Art des IFR Anfluges)  
**ÜBUNGSANFLUG VFR**  
**B:** (Art des IFR Anfluges)  
**ÜBUNGSANFLUG VFR GENEHMIGT / NICHT GENEHMIGT**

**A: REQUEST** (type of IFR approach)  
**PRACTICE APPROACH VFR**  
**G:** (type of IFR approach)  
**PRACTICE APPROACH VFR APPROVED / NOT APPROVED**

## 852.9 CANCELLING AND CLOSING OF FLIGHT PLAN

.91 Cancelling

**L: ICH HEBE MEINEN FLUGPLAN AUF**  
**B: FLUGPLAN AUFGEHOBEN UM**  
(Zeit)

**A: CANCELLING MY FLIGHT PLAN**  
**G: FLIGHT PLAN CANCELLED AT**  
(time)

Note: Flight plan is cancelled, report of arrival not necessary.

852.92 Cancelling the IFR part of the flight plan

A: **CANCELLING \*MY\* IFR \*FLIGHT\***

G: **IFR \*FLIGHT\* CANCELLED AT** (time) \*(instructions)\*

G: **UNABLE TO ACCEPT CANCELLATION \*DUE TO** (reason)\*

Note: The IFR part of the flight plan is cancelled, the VFR part is still valid. Report of arrival required.

.93 Closing of flight plan

L: **\*LANDEZEIT (Ziffern)\* ERBITTE  
SCHLIESSUNG MEINES FLUG-  
PLANS**

B: **FLUGPLAN GESCHLOSSEN  
UM** (Ziffern)

A: **\*LANDING TIME (figures)\* RE-  
QUEST TO CLOSE MY FLIGHT  
PLAN**

G: **FLIGHT PLAN CLOSED AT  
(figures)**

Note: Instead of the report of arrival the flight plan may be closed by transmission of the estimated time of landing, provided the aircraft is already in the traffic circuit and a safe landing may be expected.

## 853 EMERGENCY PROCEDURES

## 853.1 RADIO FAILURE

B: **FALLS SIE HÖREN BESTÄTIGEN SIE DURCH WACKELN / EINSCHALTEN DER LANDESCHWEINWERFER**

G: **IF YOU READ ROCK YOUR WINGS / SHOW LANDING LIGHTS**

B: **FALLS SIE HÖREN DREHEN SIE LINKS / RECHTS STEUERKURS (drei Ziffern) FÜR (Zeitmaximum 2 Minuten) MINUTE(N) / SEKUNDEN**

G: **IF YOU READ TURN LEFT / RIGHT HEADING (three figures) FOR (maximum time 2 minutes) MINUTE(S) / SECONDS**

B: (Manöver) / **SQUAWK BEOBACHTET \*POSITION (Position)\* WERDE MIT RADARKONTROLLE FORTFAHREN**

G: (manoeuvre) / **SQUAWK OBSERVED \*POSITION (significant point)\* WILL CONTINUE RADAR CONTROL**

B: **FALLS FUNKVERBINDUNG UNTERBROCHEN (Anweisungen)**

G: **IF RADIO CONTACT LOST (instructions)**

B: **FALLS KEINE SENDUNG EMPFANGEN WURDE FÜR (Ziffer(n)) MINUTE(N) / SEKUNDEN (Anweisungen)**

G: **IF NO TRANSMISSIONS RECEIVED FOR (number) MINUTES / SECONDS (instructions)**

B: **ANTWORT NICHT EMPFANGEN (Anweisungen)**

G: **REPLY NOT RECEIVED (instructions)**

B: **FALLS SIE HÖREN (Anweisungen)**

G: **IF YOU READ (instructions)**

## .11 Blind transmission

B: **BLINDSENDUNG (Anweisungen / Information)**

G: **TRANSMITTING BLIND (instructions / information)**



**853.2 EMERGENCY DESCENT**

A: **EMERGENCY DESCENT** (intentions / actions)

G: **EMERGENCY DESCENT ALL STATIONS** (unit) **IN THE VICINITY OF / AT** (significant point or location) **EMERGENCY DESCENT IN PROGRESS FROM** (level) (followed as necessary by specific instructions, clearances, traffic information)

Note: In case of an emergency descent this message will be broadcast on the control and if necessary on the flight information frequency.

**853.3 NO GYRO PROCEDURES**

G: **THIS WILL BE A NO GYRO VECTOR FOR** (type of approach) **TO** (runway or other limit) **MAKE ALL TURNS RATE ONE / HALF / (number) DEGREES PER SECOND START AND STOP ALL TURNS ON THE COMMAND NOW**

G: **TURN LEFT / RIGHT NOW**

G: **STOP TURN NOW**

.31 When established on final

G: **MAKE ALL TURNS RATE HALF**

**853.4 TRANSPONDER SETTING**

.41 To request emergency code

G: **SQUAWK MAYDAY / CODE SEVEN SEVEN ZERO ZERO**

**853.5 FUEL DUMPING BELOW FL 130 (FL160 in the alpine area)**

B: **AN ALLE** (Bodenfunkstelle)  
**VORSICHT TREIBSTOFF-**  
**SCHNELLABLASS WIRD**  
**DURCHGEFÜHRT VON** (Lfz.-  
Muster) **ÜBER** (Position) **MIT**  
**KURS** (Richtung) **VON** (Flug-  
höhe) **DER LUFTRAUM BIS 10**  
**MEILEN UM DAS GEBIET DES**  
**TREIBSTOFFSCHNELLAB-**  
**LASSES IST ZU MEIDEN**

B: **AN ALLE** (Bodenfunkstelle)  
**TREIBSTOFFSCHNELLAB-**  
**LASS WURDE DURCHGE-**  
**FÜHRT ÜBER** (Position) **VON**  
(Flughöhe) **DIESES GEBIET IST**  
**BIS** (Zeit) **ZU MEIDEN**

G: **ALL STATIONS** (unit) **USE**  
**CAUTION FUEL DUMPING IN**  
**PROGRESS BY** (type of air-  
craft) **AT** (significant point) **ON**  
**COURSE** (direction) **FROM**  
(level) **AVOID FLIGHT WITHIN**  
**10 MILES OF FUEL DUMPING**  
**AREA**

G: **ALL STATIONS** (unit) **FUEL**  
**DUMPING HAD BEEN IN**  
**PROGRESS AT** (significant  
point) **FROM** (level) **AVOID**  
**THIS AREA UNTIL** (time)

**853.6 ASSISTANCE FOR VFR FLIGHTS ENCOUNTERING NAVIGATIONAL DIFFICULTIES**

L: **HABE ORIENTIERUNGSVER-**  
**LUST ERBITTE UNTERSTÜT-**  
**ZUNG**

B: **ERBITTE VERBLEIBENDE**  
**FLUGZEIT**

B: **KÖNNEN SIE NACH SICHT**  
**WEITERFLIEGEN**

B: **SIE KÖNNEN AUF**  
\*FLUGHÖHE\* (Ziffern) **FUSS /**  
**FLUGFLÄCHE** (Ziffern) **SINKEN**

B: **EMPFEHLE** (Ziffern) **GRAD**  
**NACH LINKS / RECHTS ZU**  
**DREHEN**

A: **LOSS OF POSITION RE-**  
**QUEST ASSISTANCE**

G: **REQUEST REMAINING**  
**FLIGHT TIME**

G: **ARE YOU ABLE TO CON-**  
**TINUE VISUALLY**

G: **YOU MAY DESCEND**  
\*ALTITUDE\* (figures) **FEET /**  
**FLIGHT LEVEL** (figures)

G: **SUGGEST TO TURN** (figures)  
**DEGREES TO THE LEFT /**  
**RIGHT**

**853.7 RADAR EQUIPMENT DEGRADATION**

B: **SEKUNDÄRRADAR AUSGE-**  
**FALLEN** (weitere Information wie  
benötigt)

B: **PRIMÄRRADAR AUSGEFAL-**  
**LEN** (weitere Information wie be-  
nötigt)

G: **SECONDARY RADAR OUT OF**  
**SERVICE** (appropriate informa-  
tion as necessary)

G: **PRIMARY RADAR OUT OF**  
**SERVICE** (appropriate informa-  
tion as necessary)

**853.8 ALERTING PHRASEOLOGIES**

.81 Low altitude warning

G: **LOW ALTITUDE WARNING CHECK YOUR ALTITUDE IMMEDIATELY**  
**QNH** (number) \***MINIMUM FLIGHT ALTITUDE IS** (altitude)\*

.82 Terrain alert

G: **TERRAIN ALERT** (suggested pilot action, if possible)

.83 Collision alert

G: **COLLISION ALERT** (appropriate information or instructions, as necessary)

**853.9 COMMUNICABLE DISEASE**

A: **REQUEST THE FOLLOWING INFORMATION ABOUT SUSPECTED CASE(S) OF COMMUNICABLE DISEASE ON BOARD THIS AIRCRAFT TO BE FORWARDED. ADVISE READY TO COPY**

G: **READY TO COPY**

A: **ADVISE** (destination aerodrome) **TOWER THAT** (call sign), **DEPARTURE AERODROME** (departure aerodrome) **ESTIMATING** (destination aerodrome) **AT** (estimated time of arrival) **PERSONS ON BOARD** (number) **REPORTING** (number) **CASE(S) OF COMMUNICABLE DISEASE ON BOARD**

G: **ROGER**

**854 ADDITIONAL MILITARY RADIOTELEPHONY PROCEDURES****854.1 GENERAL**

.11 The following phrases will be used in voice communication with military aircraft. They cannot cover all situations. If required, additional phraseologies which are short and cannot be misinterpreted, e.g. from MO-ATS chapters 852 and 853, shall be used.

Note: Parts of phraseologies marked by asterisks (\*) may be used additionally, as far as necessary.

854.12	Phrases	
	ALPHA SCRAMBLE	Security flights for the immediate defense of Germany or in order to guarantee the integrity of the german airspace.
	CONTINUE WITH	Used when it is known that an aircraft has already established contact with another unit.
	FORMATION/ FLIGHT	Callsign add-on for the initial call of a formation.
	SPELL	Spell portion indicated phonetically.
	TANGO SCRAMBLE	Practice security flights of air defense.
.13	Training	
	STUDENT CONTROLLER	
	Note:	If a student controller is conducting ATC the pilot shall be informed accordingly.
<b>854.2</b>	<b>INSTRUMENT APPROACH NDB / TACAN / IAA</b> (internal aids approach) <b>/ ARA</b> (airborne radar approach)	
.21	Initial call	
	A: (position) <b>REQUEST</b> (type of approach) <b>APPROACH</b>	
	G: <b>CLEARED TO</b> (facility / identification)	
	G: <b>CLIMB / DESCEND</b> (level)	
	G: <b>MAINTAIN</b> (level) <b>EXPECT APPROACH CLEARANCE AT</b> (time) / <b>NO DELAY EXPECTED</b>	
	A: <b>CLEARED TO</b> (facility / identification) <b>MAINTAINING / CLIMBING</b> (level)	
	*NO DELAY EXPECTED*	

854.22 Local meteorological conditions

A: **REQUEST WEATHER**

G: (name of aerodrome) **WEATHER RUNWAY IN USE** (designator) (weather data) **BRAKING ACTION** (condition)

G: **REVISED QNH** (figures)

.221 Information about local meteorological conditions, runway status and landing minima

G: (name of aerodrome) **WEATHER** (details) **RUNWAY IN USE** (designator) **RUNWAY** (condition) **BRAKING ACTION** (numbers / description) **MINIMUM FOR THIS APPROACH : DECISION ALTITUDE / MINIMUM DESCENT ALTITUDE** (numbers) **FEET**

.222 If the local meteorological conditions are below the established minima, the controller shall advise the pilot upon initial contact.

G: **WEATHER AT** (name of aerodrome) **BELOW ASR/PAR MINIMA CEILING** (figures) **FEET VISIBILITY** (figures) **METRES REQUEST INTENTIONS**

.23 NDB approach

G: **CLEARED \*FOR\* NDB APPROACH RUNWAY** (designator) **CIRCLING** (geographical direction) **RUNWAY** (designator) **REPORT HIGH CONE / BEACON OUTBOUND**

A: **HIGH CONE / BEACON OUTBOUND**

G: **REPORT LOW CONE / BEACON INBOUND GEAR DOWN**

A: **LOW CONE / BEACON INBOUND GEAR DOWN**

G: **WIND** (figures) **RUNWAY** (designator) **CLEARED** (type of landing)

.24 TACAN approach

G: **CLEARED \*FOR\* TACAN APPROACH RUNWAY** (designator) **CIRCLING** (geographical direction) **RUNWAY** (designator) **REPORT PASSING INITIAL APPROACH FIX**

G: **REPORT GATE / FINAL APPROACH FIX GEAR DOWN**

A: **GATE / FINAL APPROACH FIX GEAR DOWN**

G: **WIND** (figures) **RUNWAY** (designator) **CLEARED** (type of landing)

854.25 Internal aids / airborne radar approach

G: **CLEARED AIRBORNE RADAR / INTERNAL AIDS APPROACH RUNWAY**  
(designator) **REPORT INITIAL APPROACH FIX**  
A: **PASSING INITIAL APPROACH FIX**  
G: **REPORT GEAR DOWN**  
A: **FINAL APPROACH FIX GEAR DOWN**  
G: **WIND** (figures) **RUNWAY** (designator) **CLEARED** (type of landing)

.26 Missed approach

A: **EXECUTING MISSED APPROACH**  
G: **FOLLOW MISSED APPROACH PROCEDURE / CLIMB ON HEADING**  
(three figures) (level) **REHOME** (facility / IAF)  
G: **IF GOING AROUND CLIMB \*ALTITUDE\*** (figures) **FEET ON HEADING**  
(three figures) / **EXECUTE** (type of missed approach) **MISSED APPROACH PROCEDURE**

### 854.3 PRECISION APPROACH

A: **PRECISION** (aircraft call sign) **HEADING** (three figures) **\*ALTITUDE\*** (level)  
G: **PRECISION READ YOU** (figure) **IDENTIFIED** (position) **HOW DO YOU READ**  
A: **READ YOU** (figure)  
G: **DO NOT ACKNOWLEDGE FURTHER TRANSMISSIONS UNLESS OTHERWISE INSTRUCTED**

.31 Glide path advisory

G: (figures) **MILES TO INTERCEPT GLIDE PATH**  
G: (figures) **SECONDS TO INTERCEPT GLIDE PATH**  
G: **APPROACHING GLIDE PATH**

854.32 Azimuth / altitude instruction

G: **INTERCEPTING / ON CENTRE LINE**  
 G: **HEADING IS GOOD**  
 G: **SLIGHTLY LEFT / LEFT / FAR LEFT (RIGHT) OF CENTRE LINE TURN RIGHT / LEFT HEADING** (three figures) / **TURN LEFT / RIGHT** (figures) **DEGREES**  
 G: **CORRECTING SLOWLY / RAPIDLY TO CENTRE LINE**  
 G: **COMMENCE DESCENT NOW / INTERCEPTING / ON GLIDE PATH**  
 G: **RATE OF DESCENT IS GOOD**  
 G: **SLIGHTLY BELOW / BELOW / FAR BELOW (ABOVE) GLIDE PATH ADJUST RATE OF DESCENT**  
 G: **CORRECTING SLOWLY / RAPIDLY TO GLIDE PATH**  
 G: **RESUME NORMAL RATE OF DESCENT**  
 G: **ON FINAL**  
 G: **TRANSMISSION BREAK**  
 G: (position) **WIND** (figures) **RUNWAY** (designator) **CLEARED** (type of landing) **\*CHECK / CONFIRM GEAR DOWN** (if not reported before) **\*ACKNOWLEDGE**

854.33 Information about decision altitude

G: **APPROACHING DECISION ALTITUDE**  
 G: **PASSING DECISION ALTITUDE NOW CONTINUE VISUALLY OR GO AROUND**

.34 Discontinuance of approach

G: **MAINTAIN \*ALTITUDE\*** (figures) **FEET / CLIMB IMMEDIATELY \*ALTITUDE\*** (figures) **FEET**  
 G: **GO AROUND** (reason)  
 G: **BREAK OFF TO THE LEFT / RIGHT** (reason)  
 G: **NEGATIVE LANDING CLEARANCE**  
 G: **RUNWAY** (designator) **UNUSABLE**  
 G: **IDENTIFICATION LOST IF RUNWAY** (designator) **NOT IN SIGHT** (instructions)  
 G: **CLIMB \*ALTITUDE\*** (figures) **FEET FLY HEADING** (three figures) **\*AND\* CONTACT RADAR \*FOR FURTHER INSTRUCTIONS\* \*ON\*** (frequency) **\*G: IF GOING AROUND CLIMB \*ALTITUDE\*** (figures) **FEET FLY HEADING** (three figures) **EXECUTE MISSED APPROACH PROCEDURE \*instructions\***

**854.4 SURVEILLANCE RADAR APPROACH (SRA)**

G: **THIS WILL BE A SURVEILLANCE RADAR APPROACH RUNWAY** (designator) **MINIMUM DESCENT ALTITUDE** (figures) **FEET**  
**ALL ALTITUDES ARE TEMPERATURE CORRECTED**

G: **HEADING IS POOR**

G: **TURN LEFT / RIGHT HEADING** (three figures)

G: (distance / seconds) **PRIOR TO DESCENT**

G: (distance) **FROM TOUCHDOWN \*COMMENCE DESCENT NOW\***

.41 Information on precalculated altitudes

G: (distance) **FROM TOUCHDOWN ALTITUDE SHOULD BE** (figures) **FEET**

G: **APPROACHING MISSED APPROACH POINT**

G: **MISSED APPROACH POINT NOW CONTINUE VISUALLY OR GO AROUND**

.42 Malfunctioning or failure of the gyro compass

G: **DISREGARD YOUR GYRO THIS WILL BE A NO-GYRO APPROACH RUNWAY** (designator)

.43 Instructions for turns

G: **MAKE ALL TURNS STANDARD RATE START AND STOP ALL TURNS ON THE WORD NOW**

G: **TURN LEFT / RIGHT NOW**

G: **STOP TURN NOW**

.44 Further information to support the pilot

G: **OVER APPROACH LIGHTS**

G: **OVER BEGINNING OF RUNWAY** (designator)

G: **OVER TOUCHDOWN NOW**

**854.5 CIRCLING APPROACH**

If the approaching aircraft has to perform a circling approach, the approach clearance shall include geographical information relative to the runway that specifies how to continue the approach when visual contact with the aerodrome has been established.



854.5 ctd.

**G: CLEARED \*FOR\* (type of approach) RUNWAY (designator) CIRCLING APPROACH (geographical information e.g. SOUTHEAST / NORTHWEST) OF THE FIELD FOR RUNWAY (designator)**

**854.6 AIRCRAFT ARRESTING SYSTEM**

854.61 CABLE

.611 Information about the operational status

**G: APPROACH / OVERRUN CABLE UP / DOWN / DERIGGED  
G: CABLE NUMBER 3 AND 4 INSTALLED**

.612 Request of the pilot during take-off or landing

**A: CABLE CABLE CABLE**

Note: The pilot shall be informed about the position of the cable relative to the threshold. The distance shall be rounded to multiples of 100 FT.

**854.7 SINGLE ENGINE APPROACH**

**G: REPORT LIMITED CHECKS COMPLETED  
A: LIMITED CHECKS COMPLETED  
A: GEAR DOWN**

Note: The landing gear will be extended when intercepting glide path. It shall be ensured that the confirmation of the final cockpit checks is obtained immediately after commencing descent.

**854.8 FLIGHT INFORMATION SERVICE**

.81 Radar flight information service (RAFIS)

A: **REQUEST RADAR FLIGHT INFORMATION SERVICE**  
G: **FOR IDENTIFICATION SQUAWK** (four figures) **QNH** (value)  
G: **IDENTIFIED** (position) **RADAR FLIGHT INFORMATION SERVICE MAINTAIN VMC**  
G: **IDENTIFICATION LOST FLIGHT INFORMATION SERVICE ONLY**  
G: **RADAR FLIGHT INFORMATION SERVICE TERMINATED**  
G: **TRAFFIC** (figures) **O'CLOCK / BEARING RANGE** (figures) **MILES** (direction of flight)

.82 Weather information

G: **RADAR OBSERVED THUNDERSTORM** (figures) **O'CLOCK** (figures) **MILES**

**854.9 ADDITIONAL SPECIAL PROCEDURES**

854.91 Buddy-Buddy refuelling

A: **STARTING BUDDY-BUDDY REFUELLING IN ONE MINUTE**  
A: **STARTING BUDDY-BUDDY REFUELLING NOW**  
A: **TERMINATING BUDDY-BUDDY REFUELLING NOW**

854.92 Entry into NLFS

G: **DESCEND INTO NLFS, ATC SERVICE TERMINATED AT** (time) **CONTACT MONITOR \*ON\*** (frequency)

.93 Start / Termination of intercepts in IMC

G: **ATC SERVICE STARTS AT** (time), **CLEARED \*TO\*** (destination) **VIA** (route)  
G: **ATC SERVICE TERMINATED AT** (time), **CONTACT** (unit) (frequency)

.94 Entry into TRA

G: **IFR CANCELLED AT** (time), **TRA OPERATION APPROVED / CONTACT TRAMON / CONTACT TACCS \*ON\*** (frequency)

**855 PHRASES FOR MILITARY RADAR / RADIO INTERFERENCES****855.1 GENERAL**

The following phrases are used during voice communication with military aircraft causing radar resp. radio interferences.

**855.2 CALL SIGN**

HOOTER (on emergency frequency 243.0 MHz)

**855.3 PHRASES****G: EMERGENCY STRANGLE MUSIC**

Cease non-communication electronic jamming only.

**G: EMERGENCY STRANGLE CHATTER**

Cease communication jamming only

**G: EMERGENCY STRANGLE STREAM**

Cease dispensing of chaff only.

**G: EMERGENCY STRANGLE MUSIC CHATTER STREAM**

Cease all active electronic counter measures.

**856 – 859 NOT ALLOCATED**

**INTENTIONELLY LEFT BLANK**

**860 ADDITIONAL RADIOTELEPHONY PROCEDURES****861 CALL SIGNS OF AERONAUTICAL STATIONS**

861.1 The call sign of an aeronautical station consists of the location designation or the name of the aeronautical ground station and one of the function identifications listed below.

861.2 For the performance of voice communication in the **English** language:

CONTROL	area control service without radar;
APPROACH	arrival and departure control service without radar;
RADAR	air traffic control service with radar;
DEPARTURE	departure control service with radar;
ARRIVAL	arrival control service with radar;
DIRECTOR	control service on final approach with radar;
PRECISION	control service on final approach with precision radar;
TOWER	aerodrome control service;
GROUND	air traffic control on the manoeuvring area;
DELIVERY	transmission of en-route clearances;
INFORMATION	flight information service by the DFS;
APRON	aircraft guidance on the apron by the airport operator;
INFO	aerodrome flight information service by personnel of aviation supervision office (Luftaufsicht) or Flugleiter;
DISPATCH	transmission of flight regularity messages of aircraft operating agencies;
MONITOR	TRA monitoring with radar;
TRAMON	TRA monitoring with radar;
RESCUE	Operations fire brigade;
COCKPIT	Aircraft in direct communication with RESCUE.

- 861.3 For performance of voice communication in the **German** language:
- |                   |   |
|-------------------|---|
| TURM              | aerodrome control service;  |
| ROLLKONTROLLE     | air traffic control on the manoeuvring area;  |
| INFORMATION       | flight information service by the DFS;  |
| START oder SCHULE | training of personnel;  |
| INFO              | aerodrome flight information service by personnel of aviation supervision office or Flugleiter; |
| VORFELD           | aircraft guidance on the apron by the airport operator;   |
| SEGELFLUG         | glider activity;  |
| RÜCKHOLER         | glider accompaniment and return;  |
| VERFOLGER         | free balloon accompaniment and return;  |
| WETTBEWERB        | competitions;   |
| RESCUE            | Operations fire brigade;  |
| COCKPIT           | Aircraft in direct communication with RESCUE.   |
- 861.4 If required, additional call signs depending on use will be fixed and assigned by the DFS.

## 862 CALL SIGNS OF AIRCRAFT STATIONS

- 862.1 An aircraft radiotelephony call sign shall be one of the following types:
- .11 type a):
    - .111 nationality and registration mark of the aircraft;  
resp.
    - .112 name of aircraft manufacturer, nationality and registration mark of the aircraft;  
resp.
    - .113 name of aircraft model, nationality and registration mark of the aircraft;  
or

- 862.12 type b):
- .121 the telephony designator of the aircraft operating agency, followed by the four characters of the registration mark of the aircraft;  
or
- .13 type c):
- .131 the telephony designator of the aircraft operating agency, followed by the flight identification;  
or
- .14 type d):
- .141 a radio call sign consisting of not more than 7 digits for military aircraft and aircraft used for special public issues.
- 862.2 Call signs of aircraft stations may not be changed during flight except for the explicit assignment of another call sign by ATC to avoid confusion.
- 862.3 If confusion is likely to arise from the radio call sign indicated in the flight plan, assign another call sign to the aircraft concerned on a temporary basis. Cancel such an assignment as soon as the aircraft leaves your own area of responsibility unless the change of the call sign has previously been coordinated with the unit concerned.
- 862.4 Abbreviated call signs may only be used after successful establishment of radio contact and if a confusion is not likely. Pilots shall only use the abbreviated call sign if it has already been used by the aeronautical station.
- 862.5 Abbreviated call signs shall be in the following form:
- .51 types a) and d):
- .511 The first and at least the last two characters of the registration mark; resp.
- .512 the name of the aircraft manufacturer and at least the last two characters of the registration mark;  
resp.
- .513 the name of the aircraft model and at least the last two characters of the registration mark;  
or

- 862.52 type b):
- .521 the telephony designator of the aircraft operating agency, followed by at least the last two characters of the registration mark;  
or
- .53 type c):
- .531 call signs consisting of the telephony designator of the aircraft operating agency and the flight identification may not be abbreviated.

## EXAMPLES:

call sign	types a) and d)			type b)	type c)
complete	DABCD	CESSNA DEABC	ARROW DESJZ	CONDOR ABCD	LUFTHANSA 401
abbrevi- ated	DCD	CESSNA BC	ARROW JZ	CONDOR CD	(no abbreviated form)
	or DBCD	or CESSNA ABC	or ARROW SJZ	or CONDOR BCD	(no abbreviated form)

862.6 The transmission of call signs of aircraft stations of type c) and aircraft type, which consist of identical numbers may be simplified by using the words ZWOMAL / DOUBLE or DREIMAL / TRIPLE (e.g. DLH 444 as LUFTHANSA TRIPLE FOUR, B 777 as BOEING TRIPLE SEVEN).

862.7 Notwithstanding the provisions of MO-ATS items 862.1 until 862.5, aircraft shall include immediately after the call sign when establishing radio contact with ATC and after every frequency change the following additions:

.71 Aircraft in the wake turbulence category HEAVY the word HEAVY, as well as A380 (A388) type aircraft the word SUPER;

.72 Aircraft without the prescribed RNAV equipment the phrase NON RNAV;

.73 Aircraft with priority in accordance to the regulations laid down by the BMVBS, the word GOVERNMENT FLIGHT, according to MO-ATS item 251.15, or the word PREFERENCE FLIGHT, according to MO-ATS item 251.2;

.74 Pilots of a formation the word FORMATION or FLIGHT.



**863 TRANSMISSION OF LETTERS**

863.1 Use the following spelling table whenever call signs, words or abbreviations must be spelt:

Letter	Word	Pronunciation
A	Alfa	Alfa
B	Bravo	Brawo
C	Charlie	Tschahrli
D	Delta	Delta
E	Echo	Ecko
F	Foxtrot	Foxtrott
G	Golf	Golf
H	Hotel	Hotell
I	India	Indja
J	Juliect	Dschuljett
K	Kilo	Kilo
L	Lima	Lima
M	Mike	Maik
N	November	Nowemmba
O	Oscar	Osska
P	Papa	Papah
Q	Quebec	Kibeck
R	Romeo	Rohmio
S	Sierra	Sierra
T	Tango	Tängo
U	Uniform	Juniform
V	Victor	Wiktor
W	Whiskey	Wisski
X	X-ray	Exre
Y	Yankee	Jänki
Z	Zulu	Sulu

863.2 The following designations shall be used to differentiate between the runways.

L:	LEFT
R:	RIGHT
C:	CENTRE

**864 TRANSMISSION OF FIGURES AND MARKS**

864.1 Transmit figures or marks as follows:

Figure or mark	Pronunciation	
	german	english
0	null	siro
1	eins	woan
2	zwo	tuh
3	drei	tri
4	vier	fohr
5	fünf	feif
6	sechs	six
7	sieben	sewen
8	acht	äit
9	neun	neiner
100	einhundert	woanhandrid
1000	eintausend	woantausend
,	Komma	dessimel
.	Komma	dessimel
/	Schrägstrich	deiägonel

864.2 All numbers except whole hundreds, whole thousands and combinations of thousands and whole hundreds shall be transmitted by pronouncing each figure separately.

864.3 Whole hundreds and whole thousands shall be transmitted by pronouncing each figure in the number of hundreds or thousands followed by the word **HUNDRED** or **THOUSAND** as appropriate.

Examples:

300	THREE HUNDRED
4000	FOUR THOUSAND

864.4 Combinations of thousands and whole hundreds shall be transmitted by pronouncing each figure in the number of thousands followed by the word **THOUSAND** followed by the number of hundreds followed by the word **HUNDRED**:

Examples:

13 600	ONE THREE THOUSAND SIX HUNDRED
4 300	FOUR THOUSAND THREE HUNDRED

- 864.5 Excepted from this regulation are:
- .51 azimuth in terms of the 12-hour clock in case of traffic information which shall be transmitted as e.g. ten, eleven, twelve o'clock;
  - .52 instructions to fly a 360° turn expressed as **MAKE A** (LEFT / RIGHT) **THREESIXTY** in the English language.
  - .53 The transmission of call signs of aeronautical stations of type c) and aircraft type (see MO-ATS item 862), which consist of identical numbers may be simplified by using the words ZWOMAL / DOUBLE or DREIMAL / TRIPLE (e.g. DLH 444 as LUFTHANSA TRIPLE FOUR, B 777 as BOEING TRIPLE SEVEN).
- 864.6 Wherever VHF **communication** is separated by **25 kHz or by 8.33 kHz, three figures after the decimal point** should be used. If the second and third figure behind the decimal is a zero the transmission of the first number behind the decimal is sufficient.

Examples:

Spoken as

118,000	EINS EINS ACHT KOMMA NULL ONE ONE EIGHT DECIMAL ZERO
118,025	EINS EINS ACHT KOMMA NULL ZWO FÜNF ONE ONE EIGHT DECIMAL ZERO TWO FIVE
118,005	EINS EINS ACHT KOMMA NULL NULL FÜNF ONE ONE EIGHT DECIMAL ZERO ZERO FIVE
118,010	EINS EINS ACHT KOMMA NULL EINS NULL ONE ONE EIGHT DECIMAL ZERO ONE ZERO

## 865 TRANSMISSION OF VISIBILITY VALUES

- 865.1 The values for flight visibility, ground visibility and runway visual range shall be transmitted as follows :
- .11 in metres: if the visibility is less than 5 km;
  - .12 in kilometres: if the visibility is 5 km or more but less than 10 km;
  - .13 as a visibility of 10 km: if the visibility is 10 km or more.

**866 ASSIGNMENT / REPORTING OF LEVELS**

866.1 Levels shall be assigned / reported:

- .11 for altitudes the word FEET shall follow the level indication. The word FLUGHÖHE / ALTITUDE may precede the level indication;
- .12 for flight levels the level indication shall be preceded by the term FLIGHT LEVEL;
- .13 in the English language the words TO and FOR shall not be used in connection with assignment / reporting of levels.

**867 PHRASES**

867.1 Use the following phrases in voice and telephone communication:

<b>Phrase</b>	<b>Meaning</b>
ACKNOWLEDGE	Let me know that you have received and understood this message
BESTÄTIGEN SIE	Teilen Sie mit, dass die Meldung empfangen und verstanden wurde
AFFIRM	Yes
POSITIV	Ja
APPROVED	Permission for proposed action granted
GENEHMIGT	Erlaubnis für das beantragte Verfahren erteilt
BREAK	I hereby indicate the separation between portions of the message (to be used where there is no clear distinction between the text and other portions of the message)
TRENNUNG	Ich zeige hiermit die Trennung zwischen Teilen der Meldung an (zu benutzen, wenn keine klare Trennung zwischen dem Text und anderen Teilen der Meldung erkannt werden kann)

867.1 ctd. Phrase	Meaning
BREAK BREAK	I hereby indicate the separation between messages transmitted to different aircraft in a very busy environment
TRENNUNG TRENNUNG	Ich zeige hiermit die Trennung zwischen Meldungen an, die in einer hochbelasteten Verkehrssituation an verschiedene Luftfahrzeuge übermittelt werden
CANCEL AUFGEHOBEN	Cancel the previously transmitted clearance Die vorher übermittelte Freigabe ist aufgehoben
CHECK	Examine a system or procedure (Not to be used in any other context. No answer is normally expected)
CHECK	Prüfen Sie ein System oder ein Verfahren (In keinem anderen Zusammenhang zu verwenden. Normalerweise wird keine Antwort erwartet)
CLEARED FREI	Authorized to proceed under the conditions specified Genehmigung, unter festgelegten Bedingungen zu verfahren
CONFIRM BESTÄTIGEN SIE	I request verification of (clearance, instruction, action, information) Ich erbitte Bestätigung der (Freigabe, Anweisung, Handlung, Information)
CONTACT RUFEN SIE	Establish communications with... Stellen Sie Funkverbindung her mit...
CORRECT KORREKT	"True" or "Accurate" "Wahr" oder "Richtig"
CORRECTION BERICHTIGUNG	An error has been made in this transmission (or message indicated). The correct version is... Bei der Übermittlung ist ein Fehler unterlaufen, es muß richtig heißen...
DISREGARD IGNORIEREN SIE	Ignore Selbsterklärend

867.1 ctd. <b>Phrase</b>	<b>Meaning</b>
GO AHEAD KOMMEN	Proceed with your message Setzen Sie Ihre Meldung ab
Note:	Used only in telephone communications
HOW DO YOU READ WIE VERSTEHEN SIE MICH	What is the readability of my transmission Wie ist die Verständlichkeit meiner Sendung
I SAY AGAIN ICH WIEDERHOLE	I repeat for clarity or emphasis Ich wiederhole zur Klarstellung oder Betonung
MAINTAIN BEHALTEN SIE ... BEI/ BLEIBEN SIE	Remain at the level specified, or in its literal sense, e.g. MAINTAIN VFR Behalten Sie z.B. die benannte Flughöhe bei, oder im übertragenen Sinne, z.B. Bleiben Sie VFR
MONITOR MONITOR	Listen out on (frequency) Hören Sie (Frequenz) ab
NEGATIVE NEGATIV	No / permission not granted / that is not correct Nein / Erlaubnis wird nicht erteilt / das ist nicht richtig
NON RNAV NON RNAV	Announcement of missing RNAV equipment Angabe wenn Flächennavigationsausrüstung fehlt
OVER KOMMEN	My transmission is ended and I expect a response from you Meine Übermittlung ist beendet, und ich erwarte Ihre Antwort
Note:	Not normally used in VHF communications
OUT ENDE	This exchange of transmission is ended and no response is expected Die Übermittlung der Meldung ist beendet. Ich erwarte keine Antwort
Note:	Not normally used in VHF communications

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867.1 ctd. <b>Phrase</b>	<b>Meaning</b>
READ BACK	Repeat all or the specified part of this message back to me exactly as received
WIEDERHOLEN SIE WÖRTLICH	Wiederholen Sie alles oder den bezeichneten Teil dieser Meldung wörtlich
RECLEARED	A change has been made to your last clearance and this new clearance supersedes your previous clearance or part thereof
FREIGABEÄNDERUNG	Es hat sich eine Änderung gegenüber Ihrer letzten Freigabe ergeben, und diese neue Freigabe ersetzt die vorherige Freigabe oder Teile davon
REPORT MELDEN SIE	Pass me the following information Geben Sie mir die folgende Information
REQUEST ERBITTE	I would like to know / I wish to obtain Ich möchte wissen / ich beantrage
ROGER VERSTANDEN	I have received all of your last transmission Ich habe Ihre letzte Meldung vollständig erhalten
Note:	Under no circumstances to be used in reply to a question requiring <b>READ BACK</b> or a direct answer in the affirmative ( <b>AFFIRM</b> ) or negative sense ( <b>NEGATIVE</b> ).
SAY AGAIN	Repeat all, or the following part of your last transmission
WIEDERHOLEN SIE	Wiederholen Sie alles oder den folgenden Teil Ihrer Meldung
SPEAK SLOWER SPRECHEN SIE LANGSAMER	Reduce your rate of speech Vermindern Sie Ihre Sprechgeschwindigkeit
SQUAWK SQUAWK	Switch transponder to the following setting Schalten Sie den Transponder auf Mode / Code .....

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867.1 ctd. <b>Phrase</b>	<b>Meaning</b>
STANDBY STANDBY	Wait and I will call you Warten Sie und ich werde Sie rufen
Note:	The caller would normally re-establish contact if the delay is lengthy. STANDBY is not an approval or denial.
UNABLE NICHT MÖGLICH	I cannot comply with your request, instruction or clearance Ich kann Ihrer Anfrage, Anweisung oder Freigabe nicht Folge leisten
Note:	UNABLE is normally followed by a reason.
WILCO WILCO	I understand your message and will comply with it (Abbreviation for "will comply") Ich verstehe Ihre Meldung und werde entsprechend handeln
WORDS TWICE WORTE DOPPELT	<b>Request</b> : Communication is difficult. Please send every word, or group of words, twice <b>Information</b> : Since communication is difficult, every word, or group of words, in this message will be sent twice <b>Aufforderung</b> : Die Verständigung ist schwierig. Bitte senden Sie jedes Wort, oder jede Gruppe von Worten, doppelt <b>Information</b> : Da die Verständigung schwierig ist, wird jedes Wort, oder jede Gruppe von Worten, in dieser Meldung doppelt gesendet



**868 TRANSMISSION OF TIMES**

868.1 Arrival and departure times as well as times in connection with a taxi instruction shall only be transmitted on pilot's request.

868.2 The number of minutes shall be transmitted with two figures as time. If a confusion is possible all four figures of hours and minutes shall be transmitted.

**869 COORDINATION**

S = Sending unit; R = Receiving unit

869.1 Estimate / Expedite Clearance

.11 Flight plan data known:

S: **ESTIMATE / EXPEDITE CLEARANCE** (\*direction of flight\* / significant point) \*ON\* (call sign)

R: (type of aircraft) \*TO\* (destination)

S: **SQUAWKING** (SSR code) **ESTIMATED** (significant point) (time) **AT / DESCENDING / CLIMBING** (level) \*REMARKS\*

.12 Flight plan data unknown:

S: **ESTIMATE / EXPEDITE CLEARANCE** (\*direction of flight\* / significant point) \*ON\* (call sign)

R: **NO DETAILS**

S: **ESTIMATE** (\*direction of flight\* / significant point) \*ON\* (call sign); **SQUAWKING** (SSR code); (type); **ESTIMATED** (significant point) (time) **AT/CLIMBING/DESCENDING** (level); \*REQUESTED (level)\*; \*SPEED (filed TAS)\*; \*FROM (aerodrome of departure)\*; \*TO (aerodrome of destination)\*; **VIA** (route); \*clearance limit\*; \*remarks\*

.13 In case of a failure or degradation of the RNAV equipment the following shall be coordinated verbally, if necessary in addition to the ACT message:

S: **RNAV OUT OF SERVICE**

869.2 Revision

S: **REVISION** \*significant point\* (call sign)

R: **GO AHEAD**

S: (details as necessary)

869.3 Transfer of control

- R: **REQUEST RELEASE** \*OF\* (call sign)  
S: **RELEASED** \*AT (time) / OVER / ABEAM (significant point) / WHEN  
PASSING (level)\* \*(conditions / restrictions)\*  
R: **IS** (call sign) **RELEASED** \*FOR (climb / descent / turn)\*  
S: **NOT RELEASED** \*UNTIL (time / significant point)\*  
S: **UNABLE** (call sign) \*TRAFFIC IS (details)\*  
S: **RSYD** (traffic) \*( significant point) / (further information)\*

869.4 Approval request

.41 Approval request for departures

- S: **APPROVAL REQUEST** (call sign) DEPARTURE FROM (location)  
R: (aircraft type) **TO** (destination) / **NO DETAILS**  
S: (details)  
R: \*REQUEST\* **APPROVED** \*(restrictions)\*  
R: **UNABLE** (alternative instructions)

.42 Approval request for en-route flights

- S: **APPROVAL REQUEST** (significant point) (call sign)  
R: **GO AHEAD**  
S: (details)  
R: \*REQUEST\* **APPROVED** \*(restrictions)\*  
R: **UNABLE** (alternative instructions)

869.5 Inbound release

- S: **INBOUND RELEASE** (call sign) \*SQUAWKING (SSR code)\* (type of aircraft) **FROM** (departure point) **RELEASED AT** (significant point / time / level) **CLEARED TO AND ESTIMATING** (clearance limit) (time) **AT** (level) \*EXPECTED APPROACH TIME / NO DELAY EXPECTED\* **CONTACT AT** (time)

869.6 Radar handover

- S: **RADAR HANDOVER** (call sign) \*SQUAWKING (SSR code)\* **POSITION** (position) (level)

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**910 GENERAL****911 OBJECTIVES OF AIR TRAFFIC FLOW AND CAPACITY MANAGEMENT (ATFCM)**

911.1 ATFCM aims at adjusting demand and capacity on the basis of strategic planning. The tactical application takes account of unforeseeable limitations pertaining to flights or airspaces.

.11 Air Traffic Flow Management (ATFM) is a service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilised to the maximum extent possible, and that the traffic volume is compatible with the capacities declared by the appropriate air traffic service providers.

.12 Air Traffic Flow and Capacity Management (ATFCM) is ATFM extended to include the optimisation of traffic patterns and capacity management. Through managing the balance of capacity and demand the aim of ATFCM is to enable flight punctuality and efficiency, according to the available resources with the emphasis on optimising the network capacity through the collaborative decision making process.

911.2 For the performance of ATFCM, the following DFS control centres have been provided with a flow management position (FMP):

- Bremen
- Karlsruhe
- Langen
- München

**912 RESPONSIBILITIES**

912.1 As a rule, the CFMU shall be responsible for the planning, coordination and implementation of strategic, pre-tactical and tactical ATFCM measures.

912.2 The responsible chief of section/senior supervisor/supervisor ATC shall decide whether the traffic volume to be expected can be accepted by his area of responsibility or which ATFCM measures have to be taken.

912.3 The flow coordinator shall coordinate the necessary measures with the NOD (Network Operations Division) in line with the decision taken by the chief of section/senior supervisor/supervisor ATC.

912.4 In keeping with the CDM (Collaborate Decision Making) principles, ATFCM measures shall be jointly agreed between the NOD and the local FMP.

If, despite all efforts, consensus cannot be reached, the following shall apply:

.41 The FMP is responsible for decisions concerning regulations and ATFCM measures relieving their own area of responsibility.

.42 The CFMU is responsible for decisions on network measures (e.g. reroutings, level capping) directly affecting other FMPs.

.43 Short-term measures, such as MDIs, may be coordinated between adjacent FMPs. In this case, the CFMU should be informed.

.44 The FMP will exercise its influence by determining or changing the capacity value submitted to the CFMU.

912.5 The FMP is the operational ATFCM point of contact for the CFMU.

912.6 The Regional ATFCM-ASM Unit is the point of contact for the CFMU and the FMPs in assessing network effects and developing solutions in the case of capacity bottlenecks.

### **913 PUBLICATIONS OF THE CFMU**

913.1 The CFMU disseminates information in the form of the:

.11 Air Traffic Flow and Capacity Management Notification Message (ANM)

The ANM contains all ATFCM measures.

.12 Air Traffic Flow and Capacity Management Information Message (AIM)

Additional procedures to be observed within the scope of air traffic flow management are published by means of an AIM.

.13 Air Traffic Flow and Capacity Management Daily Plan (ADP)

The ADP contains all ATFCM measures for the day of operation.

**914 - 919 NOT ALLOCATED**

**920 ATFCM PHASES****921 GENERAL**

921.1 ATFCM comprises 3 phases:

- .11 strategic phase;
- .12 pre-tactical phase;
- .13 tactical phase.

**922 STRATEGIC PHASE**

922.1 The strategic phase takes place between 18 months and seven days prior to the day of operation and includes research, planning and coordination activities.

922.2 The strategic phase aims at evaluating demand and at making available the resulting capacity requirements.

922.3 The DFS control centres shall establish local procedures.

922.4 The FMPs should assess network effects and develop solutions in cooperation with the Regional ATFCM-ASM Unit.

**923 PRE-TACTICAL PHASE**

923.1 The pre-tactical phase comprises a period of six days prior to the day of operation and consists of planning and coordination activities.

During this phase, the available capacity resources are analysed and the decision is made whether ATFCM measures (regulations or specific routings) are necessary or not. The relevant ATFCM measures will be coordinated and reported to the CFMU one day in advance.

The output is the ATFCM Daily Plan (ADP). It contains all ATFCM measures adopted for the day of operation and is published by the CFMU via Notification Message (ANM) and the ATFCM Information Message (AIM). Publication starts in the afternoon prior to the day of operation.

923.2 FMP responsibilities during the pre-tactical phase (D-2)

The FMPs should assist the CFMU in the Collaborative Decision Making (CDM) process. Any sector configurations and capacities that differ from those submitted to the CFMU shall be reported to the Network Management Cell (NMC).

The FMPs shall access PREDICT and view the Draft ADP.

923.3 The DFS control centres shall establish local procedures.

923.4 Pre-tactical FMP activities

.41 Discussions between FMP and NMC take place between 1230 and 1330 (1130 and 1230) UTC.

.42 If the NMC has not received any objection by 1330 (1230) UTC, it is assumed that the relevant FMP agrees with the proposals of the NMC.

923.5 The FMPs should assess network effects and develop solutions in cooperation with the Regional ATFCM-ASM Unit.

## **924 TACTICAL PHASE**

924.1 Tactical flow management is applied on the day of operation. In this phase, the daily plan is updated according to the actual traffic and capacity.

924.2 Tactical FMP activities

.21 The CFMU Terminal shall be used to monitor the traffic situation in order to:

a) monitor and analyse the traffic load;

b) take appropriate action when demand exceeds capacity. This includes:

- opening additional sectors;
- optimisation of sector configurations;
- level capping for certain flights;



- 924.21
- rerouting traffic;
  - temporary capacity increases;
  - implementation of regulation;
- c) monitoring the effects of the implemented measure(s) and taking corrective action, if required;
- d) providing support, advice and information to ATC, aerodromes and aircraft operators;
- e) supporting the control towers within the FMA in complying with the CTOTs.
- .22 Details shall be passed to NOD on:
- a) local conditions relevant to ATFCM;
  - b) changes to ENV data (e.g. taxi times, capacity values);
  - c) changes to sector configurations;
  - d) any operational problems and ATC measures affecting the traffic flow.
- .23 NOD shall be notified of ATFCM incidents by means for the form: "Operational Problem Report".
- .24 Delays shall be analysed and problems shall be solved by coordinating with NOD and adjacent FMPs.
- .25 Initiation of failure procedures in the case of an ETFMS failure.

**925 - 929 NOT ALLOCATED**

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**930 FLOW MANAGEMENT PROCEDURES****931 SLOT ALLOCATION/SLOT MONITORING**

- 931.1 The slot allocation procedure may be applied to IFR flights and to flights intending to change flight rules.
- 931.2 A slot shall be communicated in the form of a calculated take-off time (CTOT) to all users concerned and to air traffic control at the earliest two hours prior to EOBT. In order to facilitate traffic handling in the departure sequence, air traffic control is granted a slot tolerance of -5 minutes/+10 minutes.
- 931.3 The pilot shall be informed at least once about the CTOT, preferably together with the start-up request.
- 931.4 As a rule, the pilot may only take off within the slot tolerance.
- 931.5 En-route clearances for departures from uncontrolled aerodromes shall only be issued if the CTOT has been observed.
- 931.6 Both the pilot and the air traffic services are responsible for adhering to the CTOT.
- 931.7 Departures which have been allocated a CTOT, shall, if possible, have priority over other departures if CTOT adherence can thus be ensured.

**932 CHANGES IN THE ROUTE OF FLIGHT**

- 932.1 If it is planned to change the planned flight route, ATC shall inform the FMP if it becomes apparent that adjacent sectors are affected by the change.

**933 SELECTIVE ARRIVAL REGULATION IN REDUCED VISIBILITY**

933.1 If, due to meteorological conditions, the responsible air traffic control unit is unable to accept the planned number of arrivals to a certain aerodrome, an arrival regulation shall be initiated at the NOD as early as possible. The regulation rate, the reason for the regulation and the RVR shall be given with the ATFCM measure.

**934 MEASURES TO BE TAKEN IN THE CASE OF ADVERSE OPERATING CONDITIONS AT AERODROMES**

934.1 Aerodrome control shall inform their local FMP about the relevant problem. Aerodrome control may request the following measures via the local FMP or in individual cases directly at the NOD.

- a) coordination of a revised CTOT;
- b) change of the standard taxi times submitted to the CFMU;
- c) suspension of CTOTs for all flights;
- d) implementation of arrival and departure regulations.

In cases where, due to local regulations, direct coordination between aerodrome control and the NOD takes place, the local FMP shall be informed without delay about the measures taken.

**935 LAST MINUTE IMPROVEMENT PROCEDURE**

935.1 The procedure applies to flights with disproportionate delays operating:

- a) entirely within the airspace of one ACC
- or
- b) between two adjacent ACCs.

935.2 If one or more sectors of the FMPs ACC are primarily causing such flights to be delayed, the FMP shall monitor the flight list to determine which of these flights are due to enter the sector concerned in the next 30 minutes.

935.3 After having carried out the necessary coordination with the adjacent FMP and relevant sectors concerned, the NOD shall be contacted to request exclusion from slot allocation of such flights.

.31 The FMP shall use the following format for this message:

“..... FMP, request exclusion for flight ..... from regulation .....”

**936 - 939 NOT ALLOCATED**

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**940 ATFCM MESSAGE DIALOGUE****941 ATFCM MESSAGES****941.1 SAM - Slot allocation message**

The SAM is used to inform aircraft operators and ATS of the CTOT for an individual flight. The CFMU shall send an SAM no earlier than two hours prior to the EOBT if the planned flight is subject to ATFCM measures.

- TITLE Message name
- ADDR Number of additional addresses\*)
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off-block date\*)
- IOBT Initial off-block time\*)
- EOBD Estimated off-block date
- EOBT Estimated off-block time
- CTOT Calculated take-off time
- REASON Reason to explain an action by ETFMS\*)
- COMMENT Additional information
- RVR Runway visual range\*)
- REGUL Identifier for the restriction imposed
- TAXITIME Taxi time
- REGCAUSE Reason of regulation

\*) All fields marked with an asterisk are optional

**941.2 SRM - Slot revision message**

If the CTOT is changed by more than 5 minutes, the CFMU shall send an SRM. The CFMU shall automatically initiate a slot revision message if the flight is in "ready for improvement" (RFI) or "ready" (REA) status. If the flight plan has the status "slot improvement wanted", the CFMU shall only send an SRM as a response to a slot improvement proposal acceptance message (SPA).

- 
- |       |            |  |
|-------|------------|--|
| 941.2 | - TITLE    | Message name                           |
|       | - ADDR     | Number of additional addresses*)       |
|       | - ARCID    | Aircraft identification                |
|       | - IFPLID   | IFPS identification                    |
|       | - ADEP     | Aerodrome of departure                 |
|       | - ADES     | Aerodrome of destination               |
|       | - IOBD     | Initial off-block date*)               |
|       | - IOBT     | Initial off-block time*)               |
|       | - EOBD     | Estimated off-block date               |
|       | - EOBT     | Estimated off-block time               |
|       | - NEWCTOT  | Revised calculated take-off time       |
|       | - REASON   | Reason to explain an action by ETFMS*) |
|       | - COMMENT  | Additional information                 |
|       | - RVR      | Runway visual range*)                  |
|       | - REGUL    | Identifier for the restriction imposed |
|       | - TAXITIME | Taxi time                              |
|       | - REGCAUSE | Reason of regulation                   |

### 941.3 SLC - Slot requirement cancellation message

The CFMU shall send an SLC if all ATFCM measures are eliminated or if the flight plan is cancelled. The receipt of an SLC does not exclude the possibility that ATFCM measures will be initiated again for this flight at a later time. In this case, the CFMU will send a new SAM.

- |            |  |
|------------|--|
| - TITLE    | Message name                           |
| - ADDR     | Number of additional addresses*)       |
| - ARCID    | Aircraft identification                |
| - IFPLID   | IFPS identification                    |
| - ADEP     | Aerodrome of departure                 |
| - ADES     | Aerodrome of destination               |
| - IOBD     | Initial off-block date*)               |
| - IOBT     | Initial off-block time*)               |
| - EOBD     | Estimated off-block date               |
| - EOBT     | Estimated off-block time               |
| - REASON   | Reason to explain an action by ETFMS*) |
| - COMMENT  | Additional information                 |
| - TAXITIME | Taxi time                              |



**941.4 SIP - Slot improvement proposal message**

The CFMU shall send an SIP if a better calculated take-off time (CTOT) can be proposed, but only if the flight plan has the status "SIP wanted".

- TITLE Message name
- ADDR Number of additional addresses\*)
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off-block date\*)
- IOBT Initial off-block time\*)
- EOBD Estimated off-block date
- EOBT Estimated off-block time
- CTOT Calculated take-off time
- NEWCTOT Revised calculated take-off time
- REASON Reason to explain an action by ETFMS\*)
- REGUL Identifier for the restriction imposed
- RESPBY Latest time by which a response must be received
- COMMENT Additional information
- TAXITIME Taxi time

**941.5 SPA - Slot improvement proposal acceptance message**

The SPA is used by the flight plan originator to accept the NEWCTOT offered by means of an SIP.

- TITLE Message name
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off-block date\*)
- IOBT Initial off-block time\*)
- EOBD Estimated off-block date\*)
- EOBT Estimated off-block time
- NEWCTOT Revised calculated take-off time

**941.6 SRJ - Slot improvement proposal rejection message**

The SRJ is used by the flight plan originator to reject the NEWCTOT offered by means of a slot improvement proposal message (SIP).

- TITLE Message name
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off-block date\*)
- IOBT Initial off-block time\*)
- EOBD Estimated off-block date\*)
- EOBT Estimated off-block time
- REJCTOT Rejected calculated take-off time

**941.7 FLS - Flight suspension message**

The FLS is used to suspend individual flights, irrespective of whether they have been assigned a slot or not. Slots which were assigned to these flights are cancelled with an FLS.

An FLS is generated by the CFMU

- in the case of poor visibility at the destination aerodrome (selective arrival regulation);
- in exceptional circumstances (e.g. runway closure) which make it impossible to conduct a flight (true suspension);
- in response to a slot missed message (SMM);
- for flights which are subject to flight activation monitoring (FAM) and have not been activated on time.

In the case of a selective arrival regulation, the FLS may also contain a response time (RESPBY). It is possible to indicate, by means of an FCM or CHG, the RVR required for a flight with the code "RVR" or to confirm the RVR stated in the FLS. It is recommended to specify the RVR when filing the flight plan.

Once the transmitted RVR values occur at the destination airport, the flight is reactivated by the ETFMS and allocated a slot, if necessary.

If, due to the meteorological conditions, a flight can only be conducted at a later time, a change or delay message shall be transmitted.

941.7 If the flight is suspended to the next day (after 1159 p.m.) because of the meteorological conditions, the new date (NEWEOBD) shall be entered in the flight plan to ensure unambiguous identification.

- TITLE Message name
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off-block date\*)
- IOBT Initial off-block time\*)
- EOBD Estimated off-block date
- EOBT Estimated off-block time
- REGUL Identifier for the restriction imposed
- REASON Reason to explain an action by ETFMS\*)
- RVR Runway visual range\*)
- RESPBY Latest time by which a response must be received\*)
- COMMENT Additional information
- TAXITIME Taxi time
- REGCAUSE Reason for the ATFCM measure

#### 941.8 DES - De-suspension message

A DES is used to de-suspend a flight which has previously been suspended by means of a flight suspension message (FLS) as soon as the reason for the suspension is no longer applicable and provided that a slot allocation is not necessary.

- TITLE Message name
- ADDR Number of additional addresses\*)
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off-block date\*)
- IOBT Initial off-block time\*)
- EOBD Estimated off-block date
- EOBT Estimated off-block time
- REASON Reason to explain an action by ETFMS\*)
- COMMENT Additional information
- TAXITIME Taxi time

**941.9 FCM - Flight confirmation message**

An FCM is sent to the CFMU in order to announce that a flight can be reactivated at the EOBT which is specified in the message. The FCM can be sent as a response to an individual FLS or to an FLS after an SMM.

The CFMU will respond to an FCM with an FSH, SAM or DES.

A FCM is not permitted as a response to flights for which an FLS was sent due to FAM. Such flights can be reactivated by means of a DLA or a CHG. The CFMU will respond with an SAM or a DES.

- TITLE Message name
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- EOBD Estimated off-block date\*)
- EOBT Estimated off-block time
- IOBD Initial off-block date\*)
- IOBT Initial off-block time\*)
- RVR Runway visual range\*)

**941.10 SMM - Slot missed message**

Flight plan originators shall initiate an SMM if they cannot comply with the received CTOT and a new EOBT is not yet known.

The CFMU will then cancel the CTOT and suspend the flight plan by means of an FLS.

- TITLE Message name
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- EOBD Estimated off-block date\*)
- EOBT Estimated off-block time
- IOBD Initial off-block date\*)
- IOBT Initial off-block time\*)
- CTOT Calculated take-off time

**941.11 SWM - Slot improvement proposal wanted message**

An SWM is initiated by the flight plan originator if the flight plan is to be transferred from "RFI" status (default) to "SWM" status. A slot improvement shall always be offered by means of a slot improvement proposal message (SIP). It shall be accepted by means of an SPA or rejected by means of an SRJ.

- TITLE Message name
- ARCID Aircraft identification
- IFPLID IFPS identification\*)
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off-block date\*)
- IOBT Initial off-block time\*)
- EOBD Estimated off-block date\*)
- EOBT Estimated off-block time

**941.12 RFI - Request for direct improvement message**

If a flight plan has "SWM" status, the flight plan originator can transfer it to "RFI" status by means of an RFI. If a slot improvement is possible, the flight plan originator will immediately receive an SRM.

- TITLE Message name
- ARCID Aircraft identification\*)
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off-block date\*)
- IOBT Initial off-block time\*)
- EOBD Estimated off-block date\*)
- EOBT Estimated off-block time

**941.13 REA - Ready message**

The ready message can only be sent by air traffic control (TWR or FMP) upon the request of the aircraft operator.

An REA can be sent if:

- the aircraft is able to take off before the EOBT (maximum 30 minutes);
  - the aircraft is ready for departure prior to the CTOT.
- TITLE Message name
  - ARCID Aircraft identification
  - IFPLID IFPS identification\*)
  - ADEP Aerodrome of departure
  - ADES Aerodrome of destination
  - IOBD Initial off-block date\*)
  - IOBT Initial off-block time\*)
  - EOBD Estimated off-block date\*)
  - EOBT Estimated off block time
  - MINLINEUP Minimum to line-up for take-off\*)

**941.14 RRP - Rerouting proposal message**

The CFMU shall initiate an RRP if the changed route can improve the CTOT and alleviate the situation of the concerned airspace.

- TITLE Message name
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off block date\*)
- IOBT Initial off block time\*)
- EOBD estimated off block date
- EOBT Estimated off block time
- CTOT Calculated take-off time\*)
- PTOT Provisional take-off time\*)
- NEWCTOT Revised calculated take-off time\*)
- NEWPTOT New provisional take-off time\*)
- REASON Reason to explain an action by ETFMS\*)
- ORGRTE Original route
- NEWRTE New route
- RRTEREF Reroute reference designation
- COMMENT Additional information
- RESPBY Latest time by which a response must be received
- TAXITIME Taxi time

**941.15 RJT - Rerouting rejection message**

An RJT is used by the flight plan originator to reject a rerouting proposal submitted by means of a rerouting proposal message (RRP). The CTOT which was allocated before the receipt of the RRP remains valid.

- TITLE Message name
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off block date\*)
- IOBT Initial off block time\*)
- EOBD Estimated off block date\*)
- EOBT Estimated off block time
- RRTEREF Reroute reference designation\*

**941.16 RRN - Rerouting notification message**

The RRN message is issued in case of an acceptance of the rerouting

- TITLE Message name
- ARCID Aircraft identification
- IFPLID IFPS identification
- ADEP Aerodrome of departure
- ADES Aerodrome of destination
- IOBD Initial off block date\*)
- IOBT Initial off block time\*)
- EOBD Estimated off block date\*)
- EOBT Estimated off block time
- ORGRTE Original route
- CTOT Calculated take-off time\*)
- PTOT Provisional take-off time\*)
- RRTEREF Reroute reference designation
- NEWRTE New route
- NEWCTOT Revised calculated take-off time\*)
- NEWPTOT New provisional take-off time\*)
- RESPBY Latest time by which a response must be received
- REASON Reason to explain an action by ETFMS\*)
- COMMENT Additional information
- TAXITIME Taxi time

**942 - 949 NOT ALLOCATED**

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**1010 AFTN MESSAGE CATEGORIES****1011 GENERAL**

1011.1 In Germany, the following messages may be transmitted via the aeronautical fixed telecommunication network (AFTN), provided that they are in keeping with the applicable regulations:

- a) distress messages;
- b) urgency messages;
- c) flight safety messages;
- d) meteorological messages;
- e) flight regularity messages;
- f) aeronautical information services (AIS) messages;
- g) aeronautical administrative messages;
- h) service messages.

**1012 DISTRESS MESSAGES**

1012.1 This message category comprises messages sent by mobile stations reporting that they are threatened by grave and imminent danger and all other messages relative to the immediate assistance required by the mobile station in distress.

These messages are not subject to a prescribed message format.

This message category also comprises the alerting message (ALR) with distress phase "**DETRESFA**". This message shall be transmitted in a prescribed format. The message format is outlined in MO-ATS item 1032.1.

.11 The priority indicator "**SS**" shall be used for the transmission of such messages.

.12 Receipt of a distress message shall be confirmed with the priority indicator "**SS**", unless locally agreed otherwise.

Example: SS EDMMZGZX  
121322 EDWWZRZA  
R 121319 EDMMZGZX

**1013 URGENCY MESSAGES**

1013.1 This message category comprises messages concerning the safety of a ship, aircraft or other vehicle, or of some person on board or in sight.

This message category also comprises the alerting messages (ALR) with alert phase "**ALERFA**" and uncertainty phase "**INCERFA**" which shall be transmitted in a prescribed format. The message format is outlined in MO-ATS item 1032.1.

- .11 The priority indicator "**DD**" shall be used for the transmission of such messages; they are not subject to a prescribed message format.

**1014 FLIGHT SAFETY MESSAGES**

1014.1 This message category comprises the following messages:

- .11 movement and control messages (e.g. flight plan and flight-plan-associated messages, coordination messages); **FF**
- .12 messages originated by an aircraft operating agency that are of immediate concern to aircraft in flight or preparing to depart; **FF**
- .13 meteorological messages restricted to SIGMET information, special air-reports, AIRMET messages, volcanic ash and tropical cyclone advisory information and amended forecasts. **FF**

**1015 METEOROLOGICAL MESSAGES**

1015.1 This message category comprises the following messages:

- .11 messages concerning forecasts, such as terminal aerodrome forecasts (TAFs), area and route forecasts; **GG**
- .12 messages concerning meteorological observations, such as METAR and SPECI. **GG**

**1016 FLIGHT REGULARITY MESSAGES**

1016.1 This message category comprises the following messages:

- .11 aircraft load messages required for the weight-and-balance computation; **GG**

<b>MO</b>	<b>MESSAGE CATEGORIES</b>	<b>ATS</b>
1016.12	messages concerning changes in aircraft operating schedules;	<b>GG</b>
.13	messages concerning the servicing of aircraft;	<b>GG</b>
.14	messages concerning changes in collective requirements for passengers, crew and cargo caused by unavoidable deviation from normal operating schedules;	<b>GG</b>
.15	messages concerning non-routine landings of aircraft;	<b>GG</b>
.16	messages concerning pre-flight arrangements serving the requirements of the air navigation services and operational services for non-scheduled aircraft operation, e.g. overflight clearance requests;	<b>GG</b>
.17	messages by aircraft operating agencies reporting an aircraft arrival or departure;	<b>GG</b>
.18	messages concerning parts and materials urgently required for the operation of aircraft.	<b>GG</b>
<b>1017</b>	<b>AERONAUTICAL INFORMATION SERVICES (AIS) MESSAGES</b>	
1017.1	AIS messages comprise:	
.11	messages concerning NOTAMs;	<b>GG</b>
.12	messages concerning SNOWTAMs.	<b>GG</b>
<b>1018</b>	<b>AERONAUTICAL ADMINISTRATIVE MESSAGES</b>	
1018.1	Aeronautical administrative messages comprise:	
.11	messages regarding the operation or maintenance of facilities provided for the safety or regularity of aircraft operations;	<b>KK</b>
.12	messages concerning the functioning of aeronautical telecommunication services;	<b>KK</b>
.13	messages exchanged between civil aviation authorities relating to aeronautical services.	<b>KK</b>

1018.14 Administrative DFS messages are messages that are exchanged between DFS units. They deal with operational and technical issues as well as with urgent administrative matters which require immediate action. The persons entitled to originate such messages shall be regulated locally.

.141 The text shall be in German and as concise as possible.

.142 For messages to the DFS/UZ, the first information in the text shall be the organisational unit of the addressee. If a reference is required, it shall come directly after the organizational unit of the addressee and contain the following data:

a) origin of the reference message;

b) signature of the reference message;

c) subject of the reference message.

.143 The originator must be clearly identifiable by the signature. The relevant abbreviations shall be used, if necessary, supplemented by the name of the relevant officer and/or the name of the originator. The signature shall be separated from the last text part by means of a hyphen.

## 1019 SERVICE MESSAGES

1019.1 This message category comprises service messages originated by aeronautical telecommunication stations to ensure proper operations of services. Their priority indicator shall be based on the priority of the reference message.

**1020 MESSAGE FIELDS****1021 GENERAL**

The information segments forming a field shall be combined as elements consisting of a fixed or variable number of characters. Each field shall be assigned a field number according to the information it contains.

The fields and the various elements within the fields shall be separated by the following characters:

"(" The "open bracket" character shall be the start-of-information signal. This signal shall be used immediately preceding the message type designator.

"-" A hyphen shall be used as the start-of-field signal. This character shall separate the individual fields.

"⇒" and "/" Elements within a field shall be separated by a space (sp) or an oblique stroke, depending on the field layout.

"<" and "≡" Carriage return (CR) and line feed (LF) have the same function within a field as a space and may be used instead of a space to separate elements where separation of elements is permitted. CR and LF may be used alone or together to separate elements.

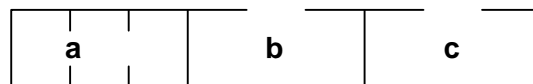
")" The "close bracket" character shall be the end-of-information signal. This signal shall be used immediately following the last element in the last field.

Note: Due to their formatting function, hyphen, "open bracket" and "close bracket" may not be used within a field.

**1022 FIELDS OF AIR TRAFFIC CONTROL MESSAGES**

Air traffic control (ATC) messages are standardised to facilitate automatic data processing. Each message shall consist of a standardised sequence of fields, each field of a standardised sequence of elements or, in certain cases, of only one element.

Explanations on the message fields:

1022.1 **Field type 3: Message type, number and reference data**

- a** (fixed) Message type designator is made up of three letters and indicates the type of message. The message type designator shall be preceded by the start-of-information signal "open bracket".
- b** (var.) Message number (only for the exchange of data between computers)
- c** (var.) Reference data (only for the exchange of data between computers)

Examples: (ACTR/ZMC123  
(FPL

1022.2 **Field type 5: Description of emergency**

- a** (var.) Emergency phase      INCERFA  
or                                      ALERFA  
or                                      DETRESFA
- b** (fixed) Originator of message, consisting of eight letters
- c** (var.) Nature of emergency - plain language text

Example: ALERFA/EINNZQZX/REPORT OVERDUE

1022.3 **Field type 7: Aircraft identification / SSR Mode and Code**

- a** (var.) Aircraft identification consisting of not more than seven alphanumeric characters.

## 1. Registration mark

- a) for aeroplanes, rotorcraft, airships, powered gliders, air sports equipment and manned free balloons, e.g.: DMONA;



1022.3

- b) for gliders the assigned identification,  
e.g.: D 1234;
  - c) the designator assigned to the aircraft operator by ICAO in conjunction with the identification of the flight assigned by the aircraft operator,  
e.g.: DLH234;
  - d) a radio call sign used by military aircraft,  
e.g.: HAWK33A.
2. For test purposes, flight plans may be entered on a trial basis. In this case, the word "TEST" shall be inserted in field 7 instead of the aircraft identification.
  3. In the case of more than one aircraft, the aircraft identification of the formation leader shall be inserted; the registration marks of all aircraft of the formation shall be inserted in item 18, separated by a space and preceded by "REG/".
  4. If radio call signs are used, the radio call sign of the formation leader shall be inserted; the radio call signs of all aircraft of the formation shall be inserted in item 18, separated by a space and preceded by "RMK/CS".

Note: Field 7 may be terminated after element a.

Oblique stroke (shall be omitted if field 7 is terminated after element a)

**b** (fixed) SSR Mode consisting of the letter A;

**c** (fixed) SSR Code consisting of 4 digits (octal).

Example: DABCD/A2021

1022.4 **Field type 8: Flight rules and type of flight**

a	b
---	---

**a** (var.) 1) Flight rules, consisting of one letter:

**I** for flights that are conducted entirely under instrument flight rules (IFR);

**V** for flights that are conducted entirely under visual flight rules (VFR);

**Y** for flights planning a change of flight rules if IFR is first;

**Z** for flights planning a change of flight rules if VFR is first;

If the letter "Z" is used, the significant point at which a change of flight rules is planned, including the estimated elapsed time to this point is to be shown under "EET/" in field 18.

Military flights which are to be conducted as operational flights, in whole or in part, shall be marked by "RMK/OAT" in item 18 of the flight plan.

VFR flights which are to be conducted at night, in whole or in part, shall be marked by "RMK/N VFR NIGHT" in item 18 of the flight plan.

VFR flights which are to be conducted in airspace C shall be marked by "RMK/C" in item 18 of the flight plan.

**b** (fixed) Type of flight, designated by one letter:

**S** scheduled air service;

**N** non-scheduled air transport operation;

**G** general aviation operation;

**M** military flights;

**X** other flights.

1022.4

If the letter "X" is used, further details concerning the planned flight shall be indicated in item 18, preceded by "RMK/".

Example: RMK/LIC TG ("touch-and-go")  
RMK/LIC LA ("low approach")

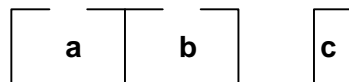
Further explanations concerning the training flight may be made.

Example: RMK/several APCH at EDDK for 01:30 hrs

For State aircraft intending to perform flights within RVSM airspace (FL 290 and above), the letter "M" shall be inserted to indicate the type of flight (field 8b).

Note: State aircraft means any aircraft used for military, customs and police.

1022.5 **Field type 9: Number and type of aircraft, wake turbulence category**



**a** (var.) Number of aircraft consisting of 1 or 2 digits.

**b** (var.) Aircraft type consisting of 2 to 4 characters, being the appropriate designator chosen from ICAO Doc 8643 Aircraft Type Designators.

If no designator has been assigned, the letters "ZZZZ" shall be used. In this case, further information on the type of aircraft shall be inserted in item 18, preceded by "TYP/".

If there is more than one type of aircraft flying, "ZZZZ" shall be inserted. The types of all aircraft in the formation shall be inserted in item 18, preceded by "TYP/", in the sequence of the aircraft identifications listed under "REG/". If radio call signs are used, these shall be inserted in the sequence listed under "RMK/CS".

1022.5 Oblique stroke

**c** (fixed) Wake turbulence category consisting of 1 letter:

**J** (super) currently only for Airbus A 380;

**H** (heavy) maximum certificated take-off mass of 136,000 kg or more;

**M** (medium) maximum certificated take-off mass of less than 136,000 kg but more than 7,000 kg;

**L** (light) maximum certificated take-off mass of 7,000 kg or less.

1022.6 **Field type 10: Equipment**



**a** (var.) Radio communication, navigation, enroute and instrument approach equipment, consisting of 1 or more letters.

**N** if no equipment is carried or if the existing equipment is unserviceable, or if the pilot is not permitted to use the equipment carried;

**S** if standard equipment (VHF RTF, ADF, VOR and ILS) is carried and serviceable.

One or more of the following letters to indicate the equipment available and serviceable:

<b>A</b> Not allocated	<b>M</b> Omega
<b>B</b> Not allocated	<b>O</b> VOR
<b>C</b> LORAN C	<b>P</b> P-RNAV
<b>D</b> DME	<b>Q</b> Not allocated
<b>E</b> Not allocated	<b>R</b> RNP type certification
<b>F</b> ADF	<b>T</b> TACAN
<b>G</b> GNSS	<b>U</b> UHF RTF
<b>H</b> HF RTF	<b>V</b> VHF RTF
<b>I</b> Inertial navigation	<b>W</b> RVSM
<b>J</b> Data link	<b>X</b> When prescribed by ATS
<b>K</b> MLS	<b>Y</b> 8.33 kHz channel spacing
<b>L</b> ILS	<b>Z</b> Other equipment carried

1022.6

State aircraft that are not equipped with RNAV shall not insert the letters "S" and "P" in item 10 of the flight plan. They shall enter "STS/NONRNAV" in item field 18.

State aircraft without RVSM permission shall be marked by "STS/NONRVSM" in item 18.

Aircraft whose RNAV equipment fails temporarily or does not meet the minimum requirements anymore shall not insert the letters "S" and "P" in item 10 of the flight plan. They shall enter "STS/RNAVINOP" in item 18.

If the letter "Z" is used, the equipment shall be specified in item 18, preceded by "COM/" and/or "NAV/", as appropriate.

If the letter "J" is used, the equipment carried shall be specified in item 18, preceded by "DAT/" followed by one or more letters, as appropriate.

Oblique stroke

**b** (var.) Surveillance equipment

One or two of the following letters shall be inserted to describe the SSR transponder or ADS equipment carried:

Transponder:

<b>N</b>		if transponder is not carried or un-serviceable;
<b>A</b>	Mode A	(4 digits = 4096 codes);
<b>C</b>	Mode A and C	(4 digits = 4096 codes);
<b>X</b>	Mode S	without both aircraft identification and pressure-altitude transmission;
<b>P</b>	Mode S	including pressure altitude transmission;
<b>I</b>	Mode S	including aircraft identification transmission;

1022.6                    **S**    Mode S                    including both aircraft identification and pressure-altitude transmission.

Note:                    For flights marked by "S", IFPS will produce the following entry in field 18 if the entire flight is to be conducted in Mode S airspace or to enter Mode S airspace and to remain in it until landing:

-IFP/MODESASP

ADS equipment:

**D**    ADS capability

Example : S/XD

1022.7    **Field type 13: Departure aerodrome and time**

a					b				
---	--	--	--	--	---	--	--	--	--

**a** (fixed) departure aerodrome, consisting of 4 letters:

in accordance with ICAO DOC 7910 Location Indicators

If the departure aerodrome has not been allocated an ICAO location indicator, the letters "ZZZZ" shall be used. In this case, further information on the aerodrome of departure shall be provided in field 18, preceded by "DEP/".

AFIL shall be used if the flight plan has been filed in the air. In this case, the ATS unit from which supplementary flight data can be obtained shall be shown in field 18, preceded by "DEP/".

**b** (fixed) time, consisting of 4 digits (in hours and minutes), giving:

the estimated off-block time (EOBT);

for AFIL flight plans and flight plans starting at a certain point, the actual or estimated time over the first point of the route from which on the flight plan is to apply;

for ALR and DEP messages, the actual time of departure from the aerodrome.

## 1022.8 Field type 14: Estimate data



- a** (var.) boundary point to which the estimated time in element b) refers, consisting of 2 to 5 characters.

oblique stroke (optional)

- b** (fixed) Estimated time at boundary point, consisting of 4 digits in hours and minutes.

- c** (var.) Cleared level

**F** followed by 3 digits = Indication of the flight level;

**A** followed by 3 digits = Indication in ft MSL in hundreds of feet.

Outside Germany, the following additional specifications may be made, provided that the relevant publications permit:

**S** followed by 4 digits = standard metric level;

**M** followed by 4 digits = altitude in tens of metres.

- d** (var.) Supplementary crossing data

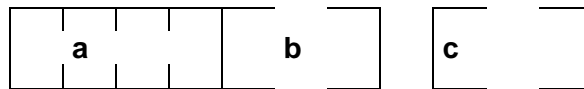
For descents and climbs, it is possible to indicate the level at which the aircraft will cross the reporting point mentioned in element a). This level shall be indicated as expressed in element c) but must differ from the cleared level indicated in element c).

- e** (fixed) Crossing conditions, consisting of 1 letter

**A** if the aircraft will cross the reporting point mentioned in element a) at or above the level in element d);

**B** if the aircraft will cross the reporting point mentioned in element a) at or below the level in element d).

## 1022.9 Field type 15: Route



- a** (var.) True air speed (TAS) consisting of 1 letter and up to 4 digits. If necessary, the first places shall be filled by "0".
- N** followed by 4 digits giving the airspeed in knots, e.g.: N0320 = 320 knots;
- M** followed by 3 digits giving the true Mach number, e.g.: M095 = 0.95 Mach;
- K** followed by 4 digits giving the airspeed in kilometres per hour, e.g.: K0780 = 780 km/h.
- Planned speed changes by 5 per cent or more shall be indicated in the description of the route.
- b** (var.) Requested cruising level, consisting of 1 letter and 3 digits. If necessary, the first places shall be filled by "0":
- F** followed by 3 digits (indication of flight level), e.g.: F120 = flight level 120;
- A** followed by 3 digits (indication in ft MSL in hundreds of feet), e.g.: A030 = Altitude 300 FT.
- Outside Germany, the following additional specifications may be made, as far as the relevant publications permit:
- S** followed by 4 digits (standard metric level), e.g.: S1200 = standard metric level 120;
- M** followed by 4 digits (altitude in tens of metres), e.g.: M0350 = 3500 metres.



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Planned changes to the requested cruising level shall be indicated in the description of the route.

For flights to be conducted under visual flight rules, the acronym "VFR" shall be inserted instead of the requested cruising level unless a level has been indicated.

Note: The provisions for IFR flights shall apply to VFR flights at night going beyond the vicinity of an aerodrome and for flights subject to air traffic control or flights to be conducted at a certain level.

**c (var.) 1. Information concerning the requested route**

The requested route shall be indicated by means of one or more elements as described below. The routing shall be described unequivocally. The elements shall be separated as prescribed. The following rules shall be observed when the route is specified:

- a) Identification of the significant point, consisting of 2 to 5 alphanumerical characters;
- b) ATS routing, consisting of 2 to 7 alphanumerical characters;
- c) DME point, consisting of 8 or 9 alphanumerical characters; the first two or three letters indicating the identification of a radio navigation aid, followed by two 3-digit groups indicating the magnetic bearing and the distance from this radio navigation aid in nautical miles.
- d) Geographical latitude and longitude in degrees and minutes, consisting of 7 or 11 alphanumerical characters.

The first two digits of the seven characters of the letter/number combination indicate the geographical latitude in degrees. They are followed by the letter "N" for north or "S" for south. The next three digits indicate the geographical longitude in degrees, followed by the letter "E" for east or "W" for west. The first places of the degrees shall be filled by "0", if necessary.

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The first four digits of the eleven characters of the letter/number combination indicate the geographical latitude in degrees and minutes. They are followed by the letter "N" for north or "S" for south. The next five digits indicate the geographical longitude in degrees and minutes, followed by the letter "E" for east or "W" for west. The first places of the degrees and minutes shall be filled by "0", if necessary.

Note: For flights within Germany, it is not permitted to designate a point on a route by means of geographical latitude and longitude.

For approaches and departures according to instrument flight rules, the published identifications of standard instrument departure and arrival routes (SID/STAR) shall be inserted.

If a SID/STAR has not been established for an aerodrome, "DCT" (direct) shall be inserted as the first or last route segment, as appropriate.

For VFR flights entering Germany, the point of crossing the international border shall be inserted in item 18, preceded by "EET/".

For VFR flights at night leaving the vicinity of an aerodrome, a published IFR routing shall be inserted, if possible. If this is not possible, it shall be ensured that at least one significant point according to the ATS chart is inserted per ATC sector.

## 2. Flights outside published ATS routes

Significant points shall be inserted, normally not more than 30 minutes flying time or 200 NM apart, including each point at which a significant change of direction, a change of speed or level or a change of track is planned.

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The route, if prescribed, shall be indicated as follows:

- a) For flights operating predominantly in an east-west direction between 70°N and 70°S the track shall be defined by referring to significant points formed by the intersections of half or whole degrees of latitude with meridians spaced at intervals of 10 degrees of longitude.
  - b) For flights operating in areas outside those latitudes, the tracks shall be defined by significant points formed by the intersection of parallels of latitude with meridians spaced at a maximum of 20 degrees of longitude. The distance between these significant points shall, as far as possible, not exceed one hour's flight time. Additional significant points shall be established as deemed necessary.
  - c) For flights operating predominantly in a north-south direction, the tracks shall be defined by reference to significant points formed by the intersections of whole degrees of longitude with specified parallels of latitudes which are spaced at 5 degrees.
  - d) For flights outside published ATS routes, "DCT" (direct) shall be inserted between the specified points in order to indicate the direct route of flight between two points.
3. The following entries for the route are also permitted item 15:
- a) Change of speed and level  
The point at which a change of speed and/or level is planned shall be indicated, followed by an oblique stroke and the data about speed and level. The speed and level data shall always be inserted together, even if only one of the elements is to be changed.

1022.9

## b) Change of flight rules

The point at which a change of flight rules is planned shall be indicated.

- Change from IFR to VFR:

If the flight is not subject to air traffic control, only the indicator "VFR", separated by a space, shall be inserted after the specified point.

If the VFR portion of the flight is subject to air traffic control, the significant point shall be followed by an oblique stroke, followed by the speed and level data and, separated by a space, the indicator "VFR".

- Change from VFR to IFR:

The significant point shall be followed by an oblique stroke, followed by the speed and level data and, separated by a space, the indicator "IFR".

The significant point and the estimated elapsed time (in minutes after the EOBT) until crossing this point shall be inserted in item 18, preceded by "EET/".

- Change from non-operational to operational air traffic:

The reporting point at which the change to operational military air traffic is planned, shall be marked by "OAT". The change to non-operational military air traffic shall be marked by "GAT".

Examples:           N0400F370...Q760 NOR/N0300F250  
                          OAT TB6 NAVPI...  
                          N0460F370...TB1 NTM GAT UR110  
                          DIK...

1022.9

## c) Cruise climb

For routes outside Germany, the cruise climb may be indicated by using a maximum of 28 successive characters as described below:

The letter C, followed by an oblique stroke; then the point at which cruise climb is planned to start, followed by an oblique stroke; then the speed to be maintained during cruise climb, followed either by the two levels defining the layer to be occupied during cruise climb, or the level above which cruise climb is planned, followed by the word PLUS.

Examples: C/48N050W/M082F290F350  
C/48N060W/M085F270PLUS

## d) STAY indicator

The STAY indicator specifies the location and time of a special activity (e.g.: test flight, photo flight) and shall only be used for **individual** flights if the **entire** flight is conducted within the IFPZ.

When used in field 15, a STAY indicator shall be inserted between the point of entry into the STAY area and the point of exit from the STAY area. The time spent in the STAY area shall be indicated in hours and minutes.

Example:

Point of entry into and exit from the STAY area are the same:

MCT STAY1/0100 MCT

Point of entry into and exit from the STAY area are not the same:

MCT STAY1/0030 POL

The combination of change of flight rules, flight type changes, speed and level changes is possible at any time:

Example:

MCT VFR STAY1/0030 POL/N0220F150 IFR MCT

Up to 9 STAY indicators (n=1-9) may be inserted in field 15; they shall be numbered consecutively and shall be described in detail in field 18 preceded by "STAYINFOn".

1022.9 If only one STAY indicator is contained in field15, it shall always bear the number "1".

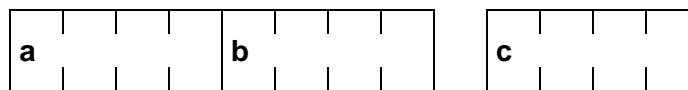
Example:

Item 15: SHA STAY1/0100 SHA STAY2/0030 POL

Item 18: STAYINFO1/CALIBRATION OF SHA VOR  
STAYINFO2/CALIBRATION OF POL VOR

## 1023 FIELDS OF AIR TRAFFIC CONTROL MESSAGES

1023.1 **Field type 16: Destination aerodrome, total estimated elapsed time and alternate aerodromes**



**a** (fixed) destination aerodrome, consisting of 4-letter indicator:

in accordance with ICAO DOC 7910 Location Indicators

"ZZZZ" if no ICAO location indicator has been assigned. In this case, further information shall be provided in item 18, preceded by "DEST/". For flight plans to be transmitted to the IFPS or over the AFTN, the indicator shall be supplemented by indicating the responsible AIS unit.

If the landing location for manned free balloons cannot be anticipated, the word "UNKNOWN" shall be inserted in item 18, preceded by "DEST/".

**b** (fixed) Total estimated elapsed time, consisting of a 4 digits.

For a flight plan received from an aircraft in flight, the total estimated elapsed time is the estimated time from the first point of the route to which the flight plan applies.

**c** (fixed) Alternate aerodrome(s), consisting of 4 letters.

1023.2 For flights which are entirely or partly conducted under instrument flight rules, at least one and not more than two alternates shall be inserted. The information concerning the alternate shall be provided in the same way as the information concerning the destination aerodrome. If "ZZZZ" is used, further details shall be given in item 18, preceded by "ALTN/". A maximum of two alternates may be inserted.

1023.3 **Field type 17: Arrival aerodrome and time**

<b>a</b>					<b>b</b>					<b>c</b>	
----------	--	--	--	--	----------	--	--	--	--	----------	--

- a** (fixed) arrival aerodrome, consisting of 4 letters:

The information concerning the actual arrival aerodrome is subject to the same rules as the information concerning the destination aerodrome. If "ZZZZ" is used, the name of the arrival aerodrome shall be inserted in plain language in element c).

- b** (fixed) arrival time, consisting of a 4 digits

- c** (var.) If the arrival aerodrome is not contained in field 17a (if "ZZZZ" is used), its name shall be inserted here in plain language.

Example: -ZZZZ1042 BELZIG KRANKENHAUS

1023.4 **Field type 18: Other information**

<b>a</b>
----------

or

--	--	--	--	--	--

- a** (var.) Other information shall be inserted, consisting of an indicator (3-4 letters), followed by an oblique stroke and the information to be recorded, using abbreviations, whenever possible. The digit "0" shall be inserted if no other information is contained in item 18 of the flight plan form. It is possible to insert more than one element a); the elements shall be separated by spaces.

1023.41 The following entries are permitted in field 18:

<b>ALTN/</b>	Alternate aerodrome, if "ZZZZ" is inserted in item 16
<b>AWR/Rn</b>	Alternative flight plan referring to "Aircraft Operator What-If Reroute Function" (AOWIR); "n" being the sequence number of the AOWIR alternative flight plan
<b>CODE/</b>	Aircraft address (expressed in the form of an alphanumeric code of 6 hexadecimal characters) when required by the appropriate ATS authority
<b>COM/</b>	Communications; significant data related to communication equipment, if "Z" is inserted in item 10
<b>DAT/</b>	Significant data related to data link capability, followed by the letters "S" (for satellite data link), "H" (for HF data link), "V" (for VHF data link) and "M" (for SSR Mode S data link)
<b>DEP/</b>	Name of departure aerodrome, if "ZZZZ" is inserted in item 13 or, if "AFIL" is inserted in item 13, the ATS unit from which supplementary flight data can be obtained
<b>DEST/</b>	Name of destination aerodrome if "ZZZZ" inserted in item 16. For flight plans to be transmitted to the IFPS or over the international AFTN, the responsible AIS unit shall be indicated
<b>DOF/</b>	Date of flight, in sequence year-month-day (e.g.: DOF/050228)
<b>EET/</b>	Estimated elapsed time; significant points, points involving change of flight rules, locations or FIR boundaries, including the accumulated estimated elapsed times to such points or boundaries in hours and minutes



1023.41	<b>IFP/</b>	An indicator inserted by IFPS e.g.:
		IFP/ERRROUTE      General problem with the route
		IFP/NON833      The flight plan is non-compliant with the requirements concerning the mandatory 8.33 kHz equipment
		IFP/NONRVSM      The flight plan is non-compliant with EUR RVSM requirements
	<b>MDCN/</b>	Military diplomatic clearance number for military aircraft, if required
	<b>NAV/</b>	Navigation; significant data related to navigation equipment, if "Z" is inserted in item 10
	<b>OPR/</b>	Name of operator, if not obvious from the aircraft identification in item 7
	<b>ORGN/</b>	Initial originator of the message (entry is made by IFPS)
	<b>PER/</b>	Aircraft performance data
	<b>RALT/</b>	Name of en-route alternative aerodrome(s), in connection with ETOPS
	<b>REG/</b>	Aircraft registration mark
	<b>RFP/Qn</b>	Replacement flight plan (replacement, alternative flight plan), "n" being the sequence number (1-9) of the replacement flight plan for the flight in question
	<b>RIF/</b>	Reclearance in flight; route details to the revised destination aerodrome and/or revised aerodrome
	<b>RMK/</b>	Remark; any other information which may be significant for the handling of the flight
	<b>RVR/</b>	Runway visual range, in metres (2-4 digits)

1023.41

<b>SEL/</b>	SELCAL code
<b>SRC/</b>	Data source of the relevant message (entry is made by IFPS)
<b>STAYINFO</b>	Describes the type of the special flight intention listed in item 15 with a STAY indicator, "n" being the sequence number (1-9) of the STAY indicator
<b>STS/</b>	Reason for special handling. Distinctions are made between standard and free-text STS entries. Only the following standard STS entries are permitted:  <b>STS/ATFMEXEMPTAPPROVED</b> Leads to automatic exemption from ATFCM restrictions  <b>STS/EMER</b> Flights in a state of emergency (leads to automatic exemption from ATFCM restrictions)  <b>STS/EXM833</b> State aircraft not equipped with 8.33 kHz channel spacing radio prescribed for certain areas  <b>STS/HEAD</b> Flights with Head of State status (leads to automatic exemption from ATFCM restrictions)  <b>STS/HOSP</b> Flights transporting sick or injured persons requiring immediate medical assistance, including flights urgently required for life saving medical care of sick or injured persons. This comprises both the transport of transplants, stored blood and medicine and flights conducted to pick up patients, transplants, stored blood, or medicine

1023.41

**STS/HUM**

Flights operating for humanitarian reasons

**STS/NIL**

Replaces all other STS/ entries; only to be used for flight plan modification message

**STS/NONRNAV**

State aircraft not equipped with type RNP prescribed for a route segment, a routing and/or an area

**STS/NONRVSM**

State aircraft which have no RVSM permission

**STS/PROTECTED**

Security sensitive flights, whose flight plan should only be available to a restricted audience

**STS/RNAVINOP**

Aircraft whose RNAV equipment may fail temporarily or which no longer meets the minimum requirements

**STS/SAR**

Flights engaged in search and rescue missions (leads to automatic exemption from ATFCM restrictions)

**STS/STATE**

State aircraft means any aircraft used for military, customs and police

**TYP/**

Aircraft type, if "ZZZZ" is inserted in item 9

**Note:**

If the Ministry of Transport, Building and Urban Development (BMVBS) has granted priority to certain flights, this priority shall be reported to ATC over radiotelephony.

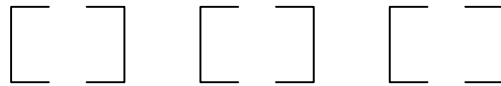
More than one STS entry may be inserted in item 18. In addition to the above-mentioned standard indicators, "STS/" may also be followed by free-text information.

## 1023.5 Field type 19: Supplementary information



The field consists of a maximum of 9 variable elements. The individual elements shall be separated by spaces. The following information shall be provided in field 19:

- E/** Endurance in hours and minutes;
- P/** Total number of persons on board, or TBN, if the total number of persons on board is not known at the time of filing the flight plan;
- R/** Emergency and survival equipment:
  - "U" if frequency 243.0 MHz (UHF) is available,
  - "V" if frequency 121.5 MHz (VHF) is available,
  - "E" if emergency locator transmitter (ELT) is available.
- S/** Type of survival equipment carried:
  - "P" if polar survival equipment is carried,
  - "D" if desert survival equipment is carried,
  - "M" if maritime survival equipment is carried,
  - "J" if jungle survival equipment is carried.
- J/** Type of life jackets carried:
  - "L" if life jackets are equipped with lights,
  - "F" if life jackets are equipped with fluorescein,
  - "U" if any life jacket radio is equipped with UHF on frequency 243.0 MHz,
  - "V" if any life jacket radio is equipped with VHF on frequency 121.5 MHz.
- D/** Number, capacity, type and colour of the dinghies carried
- C/** if dinghies are covered
- A/** Colour of aircraft and significant markings
- N/** Any other remarks (e.g. regarding survival equipment)
- C/** Name of pilot-in-command.

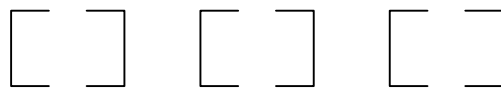
**1023.6 Field type 20: Alerting/search and rescue information**

This field consists of 8 variable elements which shall be indicated in the following sequence. Any information not available shall be shown as "NIL" or "NOT KNOWN".

The following elements shall be indicated:

- a) Identity of aircraft operator
- b) Unit which made last radio contact
- c) Time of last radio contact
- d) Frequency of last radio contact
- e) Last reported position
- f) Method of determining last known position
- g) Action taken by reporting unit
- h) Other pertinent information

Example: USAF LGATZTZX 1022 126.7 GN 1022 PILOT  
REPORT OVER NDB ATS UNITS ATHENS FIR  
ALERTED NIL

**1023.7 Field type 21: Radio failure information**

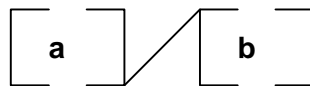
This field consists of 6 variable elements which shall be indicated in the following sequence. Any information not available shall be shown as "NIL" or "NOT KNOWN".

1023.7

The following elements shall be indicated:

- a) Time of last radio contact
- b) Frequency of last radio contact
- c) Last reported position
- d) Time at last reported position
- e) Remaining COM capability
- f) Any necessary remarks

Example: 1232 121.3 WRB 1229 TRANSMITTING ONLY  
126.7 LAST POSITION CONFIRMED BY RADAR  
10 NM W FFM

1023.8 **Field type 22:Amendment**

- a** (var.) Field number  
Type number of the field to be amended, consisting of a 1- or 2-digit number.

Oblique stroke

- b** (var.) Amended data  
The complete and amended data of the field indicated in element a), constructed as specified for that field.

Note: It is possible to amend more than one field at a time in one modification message; the fields shall be separated by a hyphen.

**1024 - 1029 NOT ALLOCATED**

**1030     ATS MESSAGES****1031     MESSAGE CATEGORIES**

## 1031.1   Distress messages, urgency messages

This message category comprises the following messages:

- a) distress messages and distress traffic, including alerting messages;
- b) urgency messages, including alerting messages relating to an alert phase or to an uncertainty phase;
- c) other messages concerning known or suspected emergencies which do not fall under a) or b) above, and radio communication failure messages.

<b>Category</b>	<b>Message type</b>	<b>Message type designator</b>
Emergency message	Alerting message Radio communication failure message	ALR RCF

## 1031.2   Movement and control messages

This message category comprises, *inter alia*, the following messages:

<b>Category</b>	<b>Message type</b>	<b>Message type designator</b>
Flight plan and flight-plan-associated message	Arrival message Modification message Flight plan cancellation message Departure message Delay message Filed flight plan message	ARR CHG CNL DEP DLA FPL

## 1031.2 Movement and control messages

Category	Message type	Message type designator
Coordination message	Advanced boundary information Activation Actual time of departure SSR Code assignment message Current flight plan Departure Sequence Update Message Estimate message Logical acknowledgement message Preliminary activation message Message for the abrogation of the coordination Revision Message	ABI ACT ATD COD CPL DSU  EST LAM  PAC MAC  REV
Supplementary message	Request flight plan message Request supplementary flight plan message Supplementary flight plan message	RQP RQS  SPL

## 1031.3 Flight information messages

This message category comprises the following messages:

- |     |   |              |
|-----|---|--------------|
| .31 | messages containing traffic information;                      | <b>FF</b>    |
| .32 | messages containing meteorological information;               | <b>FF GG</b> |
| .33 | messages concerning the operation of aeronautical facilities; | <b>GG</b>    |
| .34 | messages containing essential aerodrome information;          | <b>GG</b>    |
| .35 | messages concerning air traffic incident reports.             | <b>FF</b>    |



**1032 MESSAGE LAYOUT OF FLIGHT SAFETY MESSAGES****1032.1 a) ALR Alerting message**

- (Field 3 Message type designator;
  - Field 5 Description of emergency;
  - Field 7 Aircraft identification and SSR Mode and Code;
  - Field 8 Flight rules and type of flight;
  - Field 9 Type of aircraft and wake turbulence category;
  - Field 10 Equipment;
  - Field 13 Departure aerodrome and time\*);
  - Field 15 Route \*\*);
  - Field 16 Destination aerodrome and total estimated elapsed time, alternate aerodrome(s)\*\*);
  - Field 18 Other information\*\*);
  - Field 19 Supplementary information\*\*);
  - Field 20 Alerting/search and rescue information\*\*)
- \*) = time = actual time of departure (ATD)  
\*\*) = using more than one line, if necessary

Example: (ALR-INCERFA/LIMMZRX/OVERDUE  
-DLH 3867/A7517-IS  
-A319/M-SDEIRWY/S  
-LIMC0610  
-N0449F280 ABESI UN851 KUDES T163 NELLI/N0425F240  
T163 PSA PSA1W  
-EDDF0102 EDDK  
-REG/DAILM EET/LSAS0003 LIMM0010 LSAS0014  
-EDUU0029 EDFF0037 OPR/ DLH RMK/NO POSITION  
REPORT SINCE DEP PLUS 3 MINUTES  
-E/0405 P/60 R/UV J/LF A/WHITE C/MÜLLER  
-LIMMZRX 0613 126.7 MAL- 0613 PILOT REPORT  
-OVER NDB ATS UNITS MILANO FIR ALERTED NIL)

1032.1 **b<sup>1</sup>) ARR** Arrival message

(Field 3 Message type designator;  
-Field 7 Aircraft identification;  
-Field 13 Departure aerodrome;  
-Field 17 Arrival aerodrome and time)

Example: (ARR-DHHNN-EDAC-EDAJ1244)

**b<sup>2</sup>) ARR** Arrival message for a landing at an alternate

(Field 3 Message type designator;  
-Field 7 Aircraft identification;  
-Field 13 Departure aerodrome;  
-Field 16 Destination aerodrome;  
-Field 17 Arrival aerodrome and time)

Example: (ARR-DHHNN-EDAC-EDDB-EDAJ1244)

**c) CHG** Modification message

(Field 3 Message type designator;  
-Field 7 Aircraft identification;  
-Field 13 Departure aerodrome;  
-Field 16 Destination aerodrome;  
-Field 22 Amendment)

Example: (CHG-DABDC-EDDF-EDDM-9/B733/M)

**d) CNL** Flight plan cancellation message

(Field 3 Message type designator;  
-Field 7 Aircraft identification;  
-Field 13 Departure aerodrome;  
-Field 16 Destination aerodrome)

Example: (CNL-DABDC-EDDF-EDDM)

1032.1 **e) CPL** Current flight plan message

- (Field 3 Message type designator;
- Field 7 Aircraft identification and SSR Mode and Code;
- Field 8 Flight rules and type of flight;
- Field 9 Type of aircraft and wake turbulence category;
- Field 10 Equipment;
- Field 13 Departure aerodrome;
- Field 14 Estimate data;
- Field 15 Flight route;
- Field 16 Destination aerodrome;
- Field 18 Other information)

Example: (CPL-UAL621/A5120-IS  
-A319/M-S/CD  
-EDDF-FUL/1323F220  
-N0440F220 FUL G5 DKB  
-LIMM  
-0)

**f) DEP** Departure message

- (Field 3 Message type designator;
- Field 7 Aircraft identification and SSR Mode and Code;
- Field 13 Departure aerodrome and actual time of departure;
- Field 16 Destination aerodrome)

Example: (DEP-DHHNN-EDAC1222-EDAJ)

**g) DLA** Delay message

- (Field 3 Message type designator;
- Field 7 Aircraft identification;
- Field 13 Departure aerodrome and new EOBT;
- Field 16 Destination aerodrome)

Example: (DLA-DABDC-EDDF1400-EDDM)

**h) EST** Estimate message

- (Field 3 Message type designator;
- Field 7 Aircraft identification and SSR Mode and Code;
- Field 13 Departure aerodrome;
- Field 14 Estimate data;
- Field 16 Destination aerodrome)

Example: (EST-BAW671/A5631-LFPG-ABB/1548F140-EGLL)

1032.1 **i) FPL** Flight plan message

- (Field 3 Message type designator;
  - Field 7 Aircraft identification and SSR Mode and Code;
  - Field 8 Flight rules and type of flight;
  - Field 9 Type of aircraft and wake turbulence category;
  - Field 10 Equipment;
  - Field 13 Departure aerodrome and time\*);
  - Field 15 Route \*\*);
  - Field 16 Destination aerodrome and total estimated elapsed time, alternate aerodrome(s)\*\*);
  - Field 18 Other information;
  - Field 19 Supplementary information)
- \*) = time = actual time of departure (ATD)  
\*\*) = using more than one line, if necessary

Example: (FPL-AZJ932-IN  
-B727/M-S/C  
-LGIR1300  
-N0450F310 MIL UL613 KRK UL995 BRD UL612 CHI UZ906  
BZO UM726 TALAL T161 PSA PSA1W  
-EDDF0259 EDDK  
-REG/N12345 OPR/ STARWAYS  
-E/0605 P/98 R/UV J/LF A/WHITE C/MEIER)

**j) RCF** Radio communication failure message

- (Field 3 Message type designator;
  - Field 7 Aircraft identification and SSR Mode and Code;
  - Field 21 Radio failure information \*)
- \*) = using more than one line, if necessary

Example: (RCF-DLH4256/A1234-1232  
121.3 CLN 1229 TRANSMITTING ONLY 126.7 MHZ  
LAST POSITION CONFIRMED BY RADAR 10NM W FFM)

**k) RQP** Request flight plan message

- (Field 3 Message type designator;
- Field 7 Aircraft identification;
- Field 13 Departure aerodrome and time;
- Field 16 Destination aerodrome)

Example: (RQP-IBE428-LEMD1230-EDDM)

1032.1 **l) RQS** Request supplementary flight plan message

- (Field 3 Message type designator;
- Field 7 Aircraft identification;
- Field 13 Departure aerodrome and time;
- Field 16 Destination aerodrome)

Example: (RQS-BAW429-EGLL-EDDF)

**m) SPL** Supplementary flight plan message

- (Field 3 Message type designator;
  - Field 7 Aircraft identification and SSR Mode and Code;
  - Field 13 Departure aerodrome and time (ATD);
  - Field 16 Destination aerodrome, total estimated elapsed time and alternate aerodromes;
  - Field 18 Other information \*);
  - Field 19 Supplementary information \*)
- \*) = using more than one line, if necessary

Example: (SPL-DLH1515  
-EDDW0920  
-EKCH0400 EKVB  
-REG/DAILM RMK/CHARTER  
-E/0640 P/9 R/V J/L A/WHITE C/SCHMITT)

**1033 – 1039 NOT ALLOCATED**

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**1040 OTHER MESSAGES****1041 NOTAM**

1041.1 A **NOTAM** is issued to disseminate information concerning operationally significant changes to the AIP which are of a temporary nature.

- .11 Permanent changes to the AIP, changes involving extensive texts and changes of a duration of more than three months shall only be published as NOTAM if timely promulgation as an AIP Supplement or AIP Amendment (14 days' notice) cannot be ensured.

**1042 SNOWTAM**

1042.1 All civil aerodromes in Germany that are included in the seasonal snow plan shall submit their **SNOWTAM** to the AIS-C. SNOWTAM shall be originated by airport operators.

- .11 All other aerodromes and airfields shall originate their snow and ice reports as NOTAM at the NOTAM Office.
- .12 If the aerodrome or part of it is closed due to snow or ice, this information will additionally be disseminated by NOTAM.

**1043 BIRDTAM**

1043.1 Currently, only national bird strike warnings (**BIRDTAM**) are published in a separate message format in Germany. BIRDTAM provide information about hazards due to bird migration.

**1044 - 1049 NOT ALLOCATED**

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**1050 MESSAGE FORMATS****1051 AFTN**

1051.1 Roman numbers can only be transmitted as Arabic numerals. For this reason, the relevant Arabic number shall be preceded by the word "ROMAN".

- .11 If an Arabic number follows immediately after the Roman number, the Arabic number shall be preceded by the word "ARABIC".

Example:

II 5 shall be transmitted for international usage as:

ROMAN 2 ARABIC 5

shall be transmitted for German usage as:

roem 2 arab 5

1051.2 The following sequences of characters shall not be permitted:

- .21 uninterrupted sequence of the characters ZCZC or +--+ , with the exception of the start-of-message indicator in the message heading;
- .22 uninterrupted sequence of the characters NNNN or ,,,, (4 commas), with the exception of the end-of-message indicator.
- .23 if it is absolutely necessary to transmit these sequences of characters, for example, in service messages to clarify or explain a matter, these characters shall be paraphrased or be separated by spaces.

1051.3 The text of a message shall be as short as possible (telegram style).

- .31 Authorised abbreviations and codes shall be used. If abbreviations and codes are not available, the use of plain language shall be permitted.
- .32 Private messages shall not be allowed.
- .33 The text of a message shall not exceed 1800 characters (a maximum of 50 lines, but not more than 25 complete lines of text). Messages exceeding the permissible number of 1800 characters shall be partitioned into several messages, unless this is done automatically.

Note 1: The characters permitted for message texts include all writing and non-writing functions, with the exception of the line feed preceding the text part and the end-of-message block.

- 1051.33 Note 2: Messages from a visual display unit (VDU) which exceed the permissible message or text length are automatically divided into different messages.
- .34 The text of a message shall be preceded by the following information, if required:
- .341 name of a company or military organisation which has not been allocated a 3-letter designator and for which "YYY", "YXY" has been inserted in the addressee and/or originator indicator;
- .342 aircraft identification of an aircraft for which "ZZZ" (aircraft in flight) has been inserted in the addressee and/or originator indicator;
- .343 any reference provided by the originator; it shall be inserted at the beginning of the text as described above; it comprises:
- transmission indicator, if an aeronautical telecommunication station refers to a message which has been sent directly from this station to another station or which has been received by the latter;
  - origin part if a service message referring a certain message is to be addressed to an aeronautical telecommunication station which has not directly received this message or to which this message has not been sent yet.
- .35 If the addressee indicator contains several designators "YYY" and/or "YXY", the names of the companies and/or organisations shall be inserted at the beginning of the text in the same sequence.
- .36 If the designators "YYY", "YXY" and "ZZZ" had to be used in the addressee and originator indicator, the names of the companies and/or organisations shall be indicated in the same sequence, but separated by a line feed.
- .37 The name of the company/organisation or the aircraft shall be preceded by the word "FROM" in the originator indicator.
- .38 The end of the explanations is marked by the word "STOP".

Example:

```
FF EDDMYYYYX  
250830 LGGGZZZX  
ALPENFLUG  
FROM DALON STOP  
Text
```

**1052 ADEXP**

1052.1 ADEXP message fields shall always begin with a start-of-field character ("-"), followed by a keyword and the relevant field contents.

1052.2 The keyword defines the field contents.

1052.3 Each message shall begin with the keyword "TITLE". The following message type defines all other fields required for this message type.

.31 The ICAO flight plan shall have the following ADEXP format:

ICAO flight plan item 3	ADEXP format: title
ICAO flight plan item 7a	ADEXP format arcid
ICAO flight plan item 7b	ADEXP format ssrcode
ICAO flight plan item 7c	ADEXP format ssrcode
ICAO flight plan item 8a	ADEXP format fltrul
ICAO flight plan item 8b	ADEXP format flttyp
ICAO flight plan item 9a	ADEXP format nbarc
ICAO flight plan item 9b	ADEXP format arctyp
ICAO flight plan item 9c	ADEXP format wktrc
ICAO flight plan item 10a	ADEXP format ceqpt
ICAO flight plan item 10b	ADEXP format seqpt
ICAO flight plan item 13a	ADEXP format adep
ICAO flight plan item 13b	ADEXP format eobt
ICAO flight plan item 14 a,b&c	ADEXP format estdata
ICAO flight plan item 14 d&e	ADEXP format estdata
ICAO flight plan item 15 a&b	ADEXP format speed & rfl
ICAO flight plan item 15	ADEXP format route
ICAO flight plan item 16a	ADEXP format ades
ICAO flight plan item 16b	ADEXP format ttleet
ICAO flight plan item 18	ADEXP format various elements

---

**1052.4 Message fields**

Key word: **ADDR (address)**

Definition: additional addressing

Example: -ADDR EDDZZPZX

Key word: **ADEP (aerodrome of departure)**

Definition: designates the departure aerodrome. This field corresponds to flight plan item 13

Example: -ADEP EDDF

Key word: **ADES (aerodrome of destination)**

Definition: designates the destination aerodrome. This field corresponds to flight plan item 16

Example: -ADES EDDH

Key word: **ARCID (aircraft identification)**

Definition: designates the aircraft identification, either the flight number or the aircraft registration mark. This field corresponds to flight plan item 7

Example: -ARCID DLH1234

Key word: **COMMENT (additional information)**

Definition: provides additional information with respect to the ATFCM message

Example: -COMMENT FLIGHT CANCELLED

Key word: **CTOT (calculated take-off time)**

Definition: designates the take-off time calculated by the ETFMS

Example: -CTOT1123

Key word: **EOBD (estimated off-block date)**

Definition: designates the date of the day on which the flight is to take place; this field is only necessary if there could be misunderstandings concerning the date

Example: -EOBD 010925

Key word: **EOBT (estimated off-block time)**

Definition: designates the estimated off block time; this field corresponds to flight plan item 13b

Example: -EOBT1100

Key word: **ERRFIELD (erroneous field(s))**

Definition: designates the incorrect field of the original message

Example: -ERRFIELD 15

- 1052.4 Key word: **FILTIM (date and time stamp of original message)**  
Definition: designates the date and time of filing of the original message to which reference is made  
Example: -FILTIM 101010
- Key word: **IFPLID (individual flight plan identification)**  
Definition: designates the IFPS identification  
Example: -IFPLID AA00000102
- Key word: **IOBD (initial off-block date)**  
Definition: designates the date on which the flight was to take place originally  
Example: -IOBD010924
- Key word: **IOBT (initial off-block time)**  
Definition: designates the initial off-block time  
Example: -IOBT1130
- Key word: **MINLINEUP (minimum time to line-up for take-off)**  
Definition: designates the minimum time needed to line-up for take-off  
Example: -MINLINEUP 0010
- Key word: **NEWCTOT (revised calculated take-off time)**  
Definition: designates the revised calculated take-off time; replaces the previous CTOT  
Example: -NEWCTOT1515
- Key word: **NEWPTOT (new provisional take-off time)**  
Definition: designates the new provisional take-off time; replaces the previous PTOT  
Example: -NEWCTOT1515
- Key word: **NEW RTE (new route)**  
Definition: designates the new route when a rerouting is proposed by the CFMU  
Example: -NEW RTE MID A1 BOGNA UA1 RBT UG32 TOP
- Key word: **ORGMSG (original message)**  
Definition: provides the reference to the title of a message originally received  
Example: -ORGMSG SRR
- Key word: **ORGRTE (original route)**  
Definition: designates the original route according to item 15c of the flight plan  
Example: -ORGRTE MID UA1 RBT UG32 TOP

- 1052.4 Key word: **PTOT (provisional take-off time)**  
Definition: designates the provisional take-off time provided by the ETFMS; (PTOT, plus 10 minutes, minus 5 minutes)  
Example: -PTOT1123
- Key word: **REASON**  
Definition: designates the reason for a message rejection or slot cancellation  
Example: -REASON OUTREG
- Key word: **REGCAUSE (reason for regulation)**  
Definition: designates the cause of an ATFM measure  
Example: -REGCAUSE WA 84
- Key word: **REGUL (regulation)**  
Definition: designates the reference to an ATFM measure  
Example: -REGUL UZZU12
- Key word: **REJCTOT (rejected CTOT)**  
Definition: designates the rejection of a new calculated take-off time; the old CTOT remains valid  
Example: -REJCTOT 1515
- Key word: **RESPBY (respond by)**  
Definition: designates the latest time by which a response must be received by the CFMU  
Example: -RESBY 1520
- Key word: **RRTEREF (reroute reference designation)**  
Definition: provides the defined designator for the recommended route  
Example: -RRTEREF EGLLLMML1
- Key word: **RVR (runway visual range)**  
Definition: designates the runway visual range  
Example: -RVR100
- Key word: **TAXITIME (taxi time)**  
Definition: designates the taxi time from off-block to take-off; this time has been determined by the ETFMS for each aerodrome  
Example: -TAXITIME 0020
- Key word: **TITLE (message name)**  
Definition: the first field of each ATFCM message, designates the type of message  
Example: -TITLE SAM

1053 - 1059 NOT ALLOCATED

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**1110 GENERAL****1111 DOCUMENTS**

1111.1 The following regulations and documents shall be observed in addition to this Manual of Operations and the documents mentioned in chapter 121.

- .11 NOTAM and AIC;
- .12 Nachrichten für Luftfahrer (NfL) (German-language publication);
- .13 Sonderdruck Gesetzestexte des Luftverkehrsrechts (German-language publication containing aviation legislation texts);
- .14 AIM, ANM, AUP, EAUP and UUP
- .15 ATS chart;
- .16 User manuals.

1111.2 Further documents can be provided according to local regulations.

**1112 REGULATIONS GOVERNING SECRECY OF TELECOMMUNICATIONS**

1112.1 The members of staff employed in flight data handling and the AIS-C shall observe the regulations governing secrecy of telecommunications.

- .11 The regulations governing secrecy of telecommunications deal with the unauthorised use and distribution of all messages and information as well as details concerning telecommunication, particularly in view of the question whether or not and with whom telecommunication has been effected.

1112.2 Only messages which are listed in this Manual of Operations shall be approved for transmission via the aeronautical fixed telecommunication network.

- .21 If unauthorised messages become known to the receiver or the transmitting unit, such violations shall be reported to DFS/UZ department AIM/FP to enable them to initiate appropriate measures.
- .22 All transmissions shall be effected in accordance with the procedures defined by this Manual of Operations.
- .23 The contents of the message shall be transmitted without modification. Modifications shall not be permitted unless made directly by the originator in writing.

**1113 SYSTEM REPLIES**

- 1113.1 Flight data handling shall be carried out in compliance with the systems status messages. The relevant failure procedures shall be applied, if necessary.
- 1113.2 The flight data specialist shall inform the flight data supervisor or the ATC supervisor if he receives a systems status message which affects the handling of data within his area of responsibility.
- 1113.3 Inputs which have been rejected by the FDPS by means of an error indication or a non-processing acknowledgement have not been processed and shall be corrected by entering the relevant data.
- .31 If it is not possible to enter these data in due time, the necessary flight progress strips shall be written by hand.
- .32 All data that are relevant for the coordination of the flight shall be transmitted to the coordination partner by telephone.

**1114 - 1119 NOT ALLOCATED**

**1120 FLIGHT PLAN HANDLING****1121 GENERAL**

1121.1 Incoming flight plans shall be handled in due time and according to the systems and operational requirements.

1121.2 If the FDPS contains a flight plan which is not in accordance with the operational requirements, it shall be corrected.

- .21 IFPS shall be informed during the pre-flight phase (EOBT -60 minutes) if the information previously received by IFPS concerning point of exit from the area of responsibility and cruising altitude changes.

Remark: This does not apply to intermediate altitudes or to altitudes which have been assigned by ATC on a tactical basis.

1121.3 It shall be ensured that the flight plan data are available to all sectors concerned by the flight within the FDPS. Coordination with the neighbouring system shall also be ensured.

1121.4 It shall be verified that the indicated routing complies with the published procedures and regulations.

- .41 In the case of a new entry and/or a modification, at least one point of the routing, preferably the last reporting point crossed, shall be copied from the original flight plan.

- .42 If it becomes necessary to modify the flight plan/enter a new flight plan due to the diversion of an aircraft to an alternate aerodrome, this shall be indicated in the COMMENT field together with the original destination aerodrome.

1121.5 It is not permitted to modify the aircraft identification when entering a flight plan into the FDPS.

**1122 INPUT OF FLIGHT PLANS**

1122.1 Re-entering a flight plan into the FDPS is only permitted, if it is required for operational reasons.

1122.2 When flight plans are entered into the FDPS, the following shall be observed:

- .21 In the case of flight plans which are transmitted over the AFTN from abroad and which cannot be processed fully automatically, the EOBT shall not be changed. This also applies to the failure recovery of the FDPS.

- 1122.3 The standardised routes stored in the system should be used for route indications, whenever possible.
- .31 In the case of flights from or to aerodromes for which no standardised routes are stored in the system, published ATS routes shall be used, if possible. If no ATS routes are available, a point-to-point input shall be made in combination with an ATS chart. At least one significant point shall be entered for each ATC sector.
- .32 If the route has been changed, "FVIA..." shall always be inserted verbatim in the COMMENT filed together with the original routing when entering the data in the FDPS. The changed routing shall be highlighted.
- .33 When entering a flight plan, the original data contained in item 10 (Equipment) and item 18 (Other Information) shall be entered verbatim.
- 1122.4 If it becomes necessary to enter a flight plan into the FDPS because no flight plan exists, "NO FPL AVBL" shall always be inserted into the COMMENT field and reverse printing of the route shall be initiated.
- 1122.5 When entering test flight plans, the identifier "TESTnn" shall be inserted instead of the type of aircraft.

## **1123 HANDLING OF FLIGHT PLANS TRANSMITTED BY RADIO-TELEPHONY**

- 1123.1 Pilots may file a flight plan during the flight if this is required by special conditions which were not known to them before they departed.
- .11 The flight information service receives the flight plan data on designated radio frequencies and forwards them to the responsible flight data specialist.
- .12 The flight data specialist shall forward such flight plans to the AIS-C; before doing so, he shall enter a flight plan containing estimate data into the FDPS, if necessary.
- .13 Flight plans for continuing flights after intermediate landings and to flights abroad shall not be accepted when transmitted via radiotelephony.

**1124 HANDLING OF FLIGHT PLANS FOR VFR FLIGHTS IN AIRSPACE CLASS "C" AND "D" (NOT CONTROL ZONE)**

- 1124.1 If the flight data specialist obtains flight data for a VFR flight in airspace class "C" or "D" from air traffic control, the completeness of the data shall be checked and missing information shall be requested, if necessary.
- 1124.2 The aircraft identification shall be used to check whether a flight plan is already stored in the system; this flight plan shall be activated, as appropriate.
- 1124.3 The flight plan data shall then be entered into the FDPS. And the production of flight progress strips that are in accordance with operational requirements shall be ensured.

**1125 HANDLING OF FLIGHT PLAN CANCELLATIONS OR CHANGE OF FLIGHT RULES DURING THE FLIGHT**

- 1125.1 If air traffic control informs the flight data specialist about a flight plan cancellation or a change of flight rules from IFR to VFR, this information shall be forwarded to the AIS-C if it constitutes a deviation from the original flight plan.
- .11 In the case of a change of flight rules from VFR to IFR, the estimated elapsed time (EET) to the first point of the route flown shall be highlighted in the COMMENT field.
- 1125.2 If a flight plan is cancelled by radiotelephony, the following procedure shall be applied.
- .21 The flight data specialist shall provide the following information to the AIS-C: "CLSD FPL AT ..... (place) / ... (time)".
- .22 Subsequently, the flight plan shall be cancelled.
- 1125.3 If a change of flight rules from IFR to VFR is announced via radiotelephony, the following procedure shall be applied:
- 1125.4 The flight data specialist shall provide the following information to the AIS-C: "CNL IFR AT ... (place) / ... (time)".

**1126 HANDLING OF MILITARY FLIGHT PLANS WITH PRACTICE APPROACHES**

1126.1 The following procedure shall be applied to OAT flights with practice approaches at aerodromes in Germany for which only one flight plan was filed:

.11 The flight plans shall be divided into several individual flight plans. The entries in item 18 shall be copied in whole and the EOBT for the individual route segments shall be determined on the basis of the Total EET.

.12 The division of the flight plan shall be indicated by entering the following information into the COMMENT field: Part1/n, Part2/n and ADEP/ADEST.

**1127 HANDLING OF VFR FLIGHT PLANS**

1127.1 For VFR flights which are entirely or partly to be conducted at night, "RMK/N" shall be entered in the COMMENT field.

1127.2 For VFR flights which are to be conducted in airspace Class "C", "RMK/C" shall be entered in the COMMENT field.

**1128 - 1129 NOT ALLOCATED**

**1130 HANDLING OF SELECTED MOVEMENT AND CONTROL MESSAGES****1131 GENERAL**

1131.1 Movement and control messages (air traffic control messages) shall be handled without delay and in accordance with systems and operational requirements.

1131.2 It is not permitted to modify aircraft identifications when entering air traffic control messages into the system.

**1132 MESSAGES INCLUDING CROSSING DATA**

1132.1 The input of messages including crossing data shall always have priority over the input of other messages without crossing data.

1132.2 Messages including crossing data shall be handled in the order of the estimated times over (ETOs).

**1133 FLIGHT PLAN MODIFICATION**

1133.1 Item 15c can be changed by means of a modification messages.

.11 In the FDPS, "FVIA ..." shall be entered verbatim in the COMMENT field in order to ensure the evaluation of item 18.

**1134 CNL MESSAGE**

1134.1 Flight plan cancellation messages shall be entered into the FDPS unless they are processed fully automatically when they are received over the AFTN.

1134.2 If crossing data have already been entered for the flight plan concerned, the competent flight data specialist shall make an inquiry to the ATC units/sectors concerned by the flight to clarify the matter.

**1135 - 1139 NOT ALLOCATED**

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**1140 COORDINATION OF FLIGHT PLAN DATA****1141 GENERAL**

1141.1 Any information concerning the provision of air traffic services, such as air traffic control clearances, flight progress data, flight plan data and modifications, shall be coordinated.

- .11 For this coordination, the most appropriate means shall be selected from those available, e.g. FDPS, electronic data display units, telephone, intercom system, direct verbal arrangements ("elbow coordination").

1141.2 If the flight plan data are already known to the accepting unit, this shall be confirmed by indicating the aircraft type and the destination aerodrome. The transferring unit shall then merely transmit:

- .21 SSR code;  
.22 significant point and estimated time over;  
.23 level;  
.24 remarks, if necessary.

1141.3 If no flight plan data are available, the following data shall be transmitted in the order listed:

- a) ESTIMATE, specification of point, if necessary related to the direction of flight;
- b) radio call sign of the aircraft, if necessary;
- c) SSR code;
- d) type of aircraft;
- e) significant point and estimated time over;
- f) level or climb/descent and cleared level, if necessary;
- g) requested cruising level, if different;
- h) true airspeed, if necessary;
- i) aerodrome of departure, if necessary;
- j) aerodrome of destination, if necessary;

- 1141.3 k) route;
- l) clearance limit, if different from destination aerodrome, if necessary;
- m) remarks, if necessary.
- 1141.4 Whenever estimate data for more than one flight have come in, they shall be handled in the order of their estimates, first one first.
- 1141.5 Unless agreed otherwise, these data shall be forwarded without delay, if possible, by means of an automatic data communication system.

## **1142 COORDINATION BY MEANS OF THE FLIGHT DATA PROCESSING SYSTEM**

- 1142.1 The flight data specialist who handles the FDPS inputs shall be particularly responsible for:
- .11 the immediate input of estimate data/departure times into the system;
  - .12 the input of a routing in keeping with the operational requirements (also in the case of pre-announcements) and, if necessary, the immediate initiation of corrections;
  - .13 checking the correctness of the input;
  - .14 checking the acknowledgements to be provided by the system and, if necessary, immediate initiation of corrective action.
- 1142.2 Information from item 18 and other information shall be given in the COMMENT field according to their relevance for the provision of services.

## **1143 TELEPHONE COORDINATION**

- 1143.1 The provisions contained in Chapter 800 "Voice communication" shall be observed when conducting telephone coordination.

**1144 REJECTED ABI / ACT AND PAC**

1144.1 A rejected ABI/ACT or PAC is presented to the flight data specialist in the editing window.

- .11 These data shall be entered in the FDPS by means of the appropriate message in accordance with local procedures.
- .12 The flight plan shall be transferred to the appropriate flight plan status so as to ensure that the flight progress strips are printed out.

**1145 - 1149 NOT ALLOCATED**

**INTENTIONALLY LEFT BLANK**

**1150      OUTPUT FROM THE FLIGHT DATA PROCESSING SYSTEM****1151      GENERAL**

1151.1    The FDPS converts flight plan data and displays them in an appropriate form.

**1152      PAPER FLIGHT PROGRESS STRIPS**

1152.1    The flight progress strips shall be put into strip holder.

1152.2    The flight progress strips shall be submitted to the relevant positions in due time.

1152.3    Flight progress strips shall be filed and archived. Details shall be regulated locally.

**1153 – 1159 NOT ALLOCATED**

**INTENTIONALLY LEFT BLANK**

**1160 PROCESSING OF FLIGHT PLAN DATA WHICH ARE NOT PROCESSED FULLY AUTOMATICALLY****1161 GENERAL**

1161.1 AFTN messages which the system does not process fully automatically will be handled at defined flight data working positions. Further details shall be regulated locally.

- .11 The messages shall be handled immediately, i.e. they shall be checked for mistakes and corrected accordingly.

**1162 FLIGHT PLAN HANDLING**

1162.1 When correcting the routing indicated in item 15, the standardised routes stored in the system shall be used as far as possible.

1162.2 If changes are made to items 15b and 15c, "FVIA..." shall always be inserted verbatim into the COMMENT field together with the original routing when entering the data into the FDPS. The changed routing shall be highlighted. Additional telephone coordination with other FDPS might be necessary.

1162.3 The content of the item 18 information shall be repeated in the COMMENT field if the information contained in item 18 is relevant to the provision of air traffic control.

**1163 HANDLING OF APL/ACH MESSAGES**

1163.1 APL messages shall be handled as follows:

- .11 The message identification "APL" shall be replaced by "FPL".

1163.2 ACH messages shall be handled as follows:

- .21 If ATC-relevant data are changed, the message shall be entered as "CHG".

**1164 HANDLING OF ATFCM MESSAGES**

1164.1 ATFCM messages which cannot be assigned to a flight plan in the system, shall be handled as follows:

- .11 It shall be ascertained whether the associated flight plan has meanwhile been processed by the system, whether it is in the queue or whether it is currently being handled by another defined flight data working position.
- .12 Since it is possible that one ATFCM message overtakes another or that the reference times do not correspond to those stored in the system, the current status shall be identified, if necessary with the help of the data from the FMP terminal.
- .13 If the status cannot be clearly identified, the message shall be forwarded to the aerodrome control tower concerned.

**1165 HANDLING OF INCORRECTLY ADDRESSED MESSAGES**

1165.1 When handling incoming messages, it shall be ascertained whether they are relevant for the FDPS. If this is not the case, the originator shall be informed about the incorrect address.

**1166 - 1169 NOT ALLOCATED**



**1170 HANDLING OF METEOROLOGICAL MESSAGES****1171 GENERAL**

1171.1 The abbreviations listed in ICAO Doc 8400 and in MO-ATS chapter 173 shall be used when requesting or forwarding meteorological messages.

**1172 ATIS**

1172.1 The ATIS broadcast shall contain the following elements of information in the given order. It shall be checked whether the content is correct. This does not apply to automatically generated data and to inputs that have already been checked. Further details shall be laid down locally, if required.

- a) name of the aerodrome;
- b) the word "information" and the identification letter (e.g. Alpha, Bravo, etc.);
- c) time of observation;
- d) type of approach to be expected;
- e) runway(s) in use;
- f) significant runway surface conditions and, if available, braking action;
- g) arrival and departure delays of 20 minutes or more, if applicable;
- h) transition level;
- i) other essential operational information, [(e.g. restrictions in the usability of runway(s)), restrictions in the usability of approach aids, construction work on or in the vicinity of the runway(s)], if available;
- j) surface wind direction and speed, including significant variations;
- k) visibility and, when applicable, runway visual range (RVR);
- l) present weather;

- 1172.1 m) clouds below 10 000 FT or below the highest minimum sector altitude, whichever is greater; types of clouds:
- cumulonimbus (CB)  
or
  - towering cumulus congestus (TCU);

Note : If a vertical visibility is given instead of a cloud base, the phrase "NO CLOUD BASE AVAILABLE" shall be used.

- n) temperature;
- o) dew point temperature;
- p) QNH in full increments of hectopascal, if necessary, also in inches;
- q) information on significant meteorological phenomena in the approach, take-off and climb out areas, if available;
- r) trend;
- s) the word "information" followed by the repetition of the identification letter and the word "out".

Note : Department TWR/MO of the DFS/UZ will issue a specific order if terminal information service is to be transmitted separately for arriving and departing aircraft.

Example ATIS Frankfurt:

Actual ATIS-Information-Indicator: A  
Runways in Use: 25 and 18  
INFO-Field 1: EXPECT ILS APPROACH RWYS 25  
RIGHT AND 25 LEFT  
INFO-Field 3: WS TKOF RWY25L

METAR EDDF 221650Z 25006G25KT 6000 800SW +SNSH TSGRRASN  
SCT006 BKN015CB OVC050TCU OVC100 03/M01 Q1014 BECMG  
FM1715 TL1815 28008G20KT 9999 BKN015CB BKN025

1172.1 FRANKFURT INFORMATION ALFA MET REPORT TIME 1650 EXPECT ILS APPROACH RUNWAYS 25 RIGHT AND 25 LEFT RUNWAYS IN USE 25 AND 18 TRANSITION LEVEL 60 WIND SHEARS POSSIBLE WHEN DEPARTING RUNWAY 25 LEFT WIND 250 DEGREES 6 KNOTS MAXIMUM 25 KNOTS VISIBILITY 6 KILOMETRES MINIMUM VISIBILITY 800 METRES SOUTHWEST HEAVY SNOW SHOWERS THUNDERSTORM WITH HAIL RAIN AND SNOW CLOUDS SCATTERED 600 FEET BROKEN 1500 FEET CB OVERCAST 5000 FEET TOWERING CUMULUS TEMPERATURE 3 DEW POINT MINUS 1 QNH 1014 HECTOPASCAL TREND BECOMING FROM 1715 UNTIL 1815 WIND 280 DEGREES 8 KNOTS MAXIMUM 20 KNOTS VISIBILITY 10 KILOMETRES CLOUDS BROKEN 1500 FEET CB BROKEN 2500 FEET INFORMATION ALFA OUT

Note: Items g) and i) are not mentioned in the example.

1172.2 Information about restrictions in the usability of runway(s) and approach aids and about construction work on or in the vicinity of the runway(s) should not be included in the ATIS broadcast, if such information has already been published by NOTAM for more than 24 hours.

1172.3 If rapid changes in the landing forecast would result in frequent modifications of the ATIS recording, the pertinent weather elements may be omitted in the ATIS text. In lieu thereof, the following text shall be broadcast:

Example:

DUE TO RAPID CHANGES WEATHER INFORMATION AVAILABLE ON CONTROL FREQUENCY

1172.4 When quoting the braking coefficients, the time of observation shall be stated, the reported figures of the braking coefficients shall be transmitted in landing direction.

Example:

BRAKING COEFFICIENTS AT TIME 0755 RUNWAY 25 LEFT 21 25 26

1172.5 ATIS shall be broadcast at least during the times published in the AIP.

.51 Outside the established hours, ATIS broadcasts may be transmitted if required by the traffic volume.

.52 After the last regular broadcast, pilots shall be informed via ATIS where they can obtain the ATIS information.

Example:

REQUEST ATIS INFORMATION ON CONTROL FREQUENCY

1172.6 Recorded ATIS (Voice-ATIS) and data link ATIS (D-ATIS) must be identical.

.61 If the line capacity of the INFO block is not sufficient for the transmission of the additional information, CHECK VOICE-ATIS shall be entered in the first line of the INFO block.

1172.7 If no ATIS is available, the contents of the METAR or the weather report by the accredited weather observer, shall be transmitted to the pilot.

### 1173 SIGMET / AIRMET

1173.1 From 0700 (0600) UTC until SS + 30, SIGMET and AIRMET shall, upon receipt of the reports, be transmitted as aeronautical broadcasts in the German and English language by the control centres of Bremen, Langen and München for their own FIRs. During its period of validity, the broadcasts shall be repeated twice an hour, on the hour and at half past.

Example:

ALL STATIONS MÜNCHEN INFORMATION SIGMET VALID BETWEEN  
1600 AND 1800 UTC THUNDERSTORM FORECAST FOR MÜNCHEN  
FIR MOVING EAST MÜNCHEN INFORMATION OUT

1173.2 From SS + 30 until 0700 (0600) UTC SIGMET and AIRMET shall be transmitted with the least possible delay as individual transmissions only if:

- .21 considered necessary by the controller;  
or
- .22 requested by the pilot.

### 1174 HANDLING OF OTHER METEOROLOGICAL REPORTS

1174.1 If necessary, the following meteorological information shall be obtained from the competent aeronautical meteorological office:

- .11 regular and special meteorological reports for aerodromes;
- .12 regular forecasts about the weather conditions in the FIR/UIR concerned;
- .13 aerodrome forecasts;
- .14 upper wind forecasts for the FIR/UIR concerned;

- 1174.15 SIGMET reports;
- .16 other useful meteorological information.
- 1174.2 The following order shall be observed when forwarding meteorological reports and landing forecasts:
- a) designator (e.g.: meteorological report or special weather report);
  - b) place and time of observation;
  - c) wind direction and speed, including significant variations;
  - d) visibility, runway visual range (RVR), if applicable;
  - e) present weather;
  - f) cloud cover, if appropriate, type or clouds cumulonimbus or towering cumulus congestus (TCU), as well as the cloud base;
  - g) temperature and dew point temperature;
  - h) QNH (and other pressure values) in full increments of hectopascal, if necessary, also in inches;
  - i) trend;
  - j) other important information.

Example:

WETTERMELDUNG BREMEN 1020 WIND 240 GRAD 25 KNOTEN,  
MAXIMAL 37 KNOTEN SICHT 500 METER PISTENSICHTWEITE PISTE  
27 800 METER STARKER REGEN TEMPERATUR 6 TAUPUNKT 4 QNH  
1007 NOSIG

MET REPORT BREMEN 1020 WIND 240 DEGREES 25 KNOTS GUSTS  
MAXIMUM 37 KNOTS VISIBILITY 500 METRES RVR RUNWAY 27 800  
METRES HEAVY RAIN TEMPERATURE 6 DEW POINT 4 QNH 1007  
NOSIG

- 1174.3 For any other reports coming in from the aeronautical meteorological office, the order of the individual elements shall be retained when forwarding the message. Individual elements which are of no importance at the moment may be omitted.

**1175 - 1179 NOT ALLOCATED**

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**1210 PROCEDURES IN CASE OF MALFUNCTIONING OF THE ATS INFORMATION SYSTEM OF THE BUNDESWEHR (FSINFOSYSBW)**

**1211 GENERAL RULES**

1211.1 The DFS shall provide support in the processing of flight plans and flight-plan-associated messages in the following malfunctioning cases of the computer-based ATS information system of the Bundeswehr (FSInfoSysBw).

- Failure of message switching at the CIDIN level
- Total failure of the FSInfoSysBw

1211.2 The following procedures have been agreed with the Bundeswehr Air Traffic Services Office (AFSBw) and shall be applied accordingly :

.21 AIS units of military units subordinated to the Air Transport Command shall, after telephone coordination, transmit flight plans and flight-plan-associated messages to the Air Mission Wing of the Federal Ministry of Defence (Military AIS Köln-Bonn).

.22 The Military AIS Köln-Bonn shall also forward ORM and ATFCM messages to the FPL originators.

1211.3 OAT international flight plans, mixed GAT/OAT and GAT/IFPS flight plans of the other military units shall be transmitted by fax to the AIS-C.

.31 The AIS-C only serves as a relay station for the forwarding of flight plans and flight-plan-associated messages.

.32 The military originator shall be responsible for the contents, correctness, readability and addressing of the FPL and other messages. The DFS will not check the message contents.

.33 In Item 18 of the flight plan, "DOF/" shall always be inserted.

.34 Indication of a telefax number is absolutely mandatory for the message dialogue.

.35 All ORM and ATFCM messages shall be sent back by fax to the military AIS unit concerned, without taking further action.

- 1211.4 Military AIS units shall transmit OAT FPLs for domestic flights by to the flight data specialists of the control centre concerned.
- 1211.5 AFSBw, Div II 3, shall inform, inter alia, the DFS aeronautical telecommunication centre (FFZ) by telephone about the kind of malfunctioning. The FFZ shall transmit a message to this effect to the flight data specialists of all relevant sectors at the DFS control centres and to the AIS-C.
- 1211.6 The Military NOTAM Office (AFSBw, Div II 3) shall promulgate the malfunctioning by means of a NOTAM, series M; this NOTAM shall be disseminated via the DFS NOTAM Office.
- 1211.7 As soon as the malfunctioning has been remedied, AFSBw, Div II 3, shall disseminate a message to this effect and inform the DFS aeronautical telecommunication centre (FFZ). The FFZ shall transmit the REOP message to all addressees at the DFS who received the INOP message.
- 1211.8 The Military NOTAM Office shall be responsible for the cancellation of this NOTAM.

## 1212 FAILURE OF MESSAGE SWITCHING AT THE AFTN/CIDIN LEVEL

### 1212.1 Measures to be taken in the case of malfunctioning

- .11 The Military NOTAM Office (AFSBw, Div II 3) shall publish the following NOTAM, series M (disseminated via the civil NOTAM Office) :

LINE BETWEEN GERMAN MIL COM CENTRE FRANKFURT AND THE FRANKFURT INTERNATIONAL COM CENTRE INOPERATIVE; RELAYING OF MESSAGES IMPOSSIBLE: ATS MESSAGES TO GERMAN MIL ADDRESSES/AERODROMES SHALL BE TRANSMITTED VIA PHONE OR TELEFAX ONLY: FOR PHONE/TELEFAX NUMBERS SEE GERMAN MIL AIP: VFR FLIGHTS CAN ONLY BE MONITORED IF INFORMATION ABOUT THE FLIGHT CONCERNED HAS BEEN RECEIVED.

- .12 The DFS aeronautical telecommunication centre (FFZ) shall disseminate internally the following information to the flight data specialists of all relevant sectors at the DFS branches.

LINE BETWEEN THE GERMAN MIL COM CENTRE FRANKFURT AND THE FRANKFURT INTERNATIONAL COM CENTRE INOPERATIVE; RELAYING OF MESSAGES IMPOSSIBLE: PLEASE BE PREPARED FOR ADDITIONAL INQUIRIES FROM MIL USERS.

1212.2 Measures to be taken when the malfunctioning has been remedied

- .21 AFSBw, Div II 3, shall inform the DFS aeronautical telecommunication centre (FFZ) and disseminate the following message :

FSINFOSYSBW REOP. NOTAM DATA BASE IS NOT UP TO DATE EXCEPT PROCESS REGION GERMANY.

- .22 The Military NOTAM Office (AFSBw, Div II 3) shall cancel the NOTAM, series M, with the following notification:

GERMAN MIL COM CENTRE FRANKFURT REOP.

### 1213 TOTAL FAILURE OF THE FSINFOSYSBW SYSTEM

1213.1 Measures to be taken in the case of malfunctioning

- .11 The Military NOTAM Office (AFSBw, Div II 3) shall inform the DFS NOTAM Office, publish a NOTAM, series M and ask the DFS NOTAM Office for disseminate of the following NOTAM :

GERMAN MIL COM CENTRE FRANKFURT INOPERATIVE. TRANSMISSION OF MESSAGES NOT POSSIBLE. ATS MESSAGES TO GERMAN MIL ADDRESSEES/AERODROMES SHALL BE TRANSMITTED BY PHONE OR TELEFAX ONLY. FOR PHONE/TELEFAX NUMBERS SEE GERMAN MIL AIP. VFR FLIGHTS CAN ONLY BE MONITORED IF INFORMATION ABOUT THE FLIGHT CONCERNED HAS BEEN RECEIVED.

1213.2 AFSBw, Div II 3, shall inform the DFS aeronautical telecommunication centre (FFZ) and request the transmission of the following information to the flight data specialists in all relevant sectors at the DFS branches.

GERMAN MIL COM CENTRE FRANKFURT MALFUNCTIONING FSINFOSYSBW, RELAYING OF MESSAGES INOPERATIVE. PLEASE BE PREPARED FOR ADDITIONAL INQUIRIES FROM MIL USERS.

1213.3 Measures to be taken when the malfunctioning has been remedied

- .31 AFSBw, Div II 3, shall inform the DFS aeronautical telecommunication centre (FFZ) and disseminate the following message internally :

FSINFOSYSBW REOP. NOTAM DATA BASE IS NOT UP TO DATE.

1213.32 The Military NOTAM Office (AFSBw, Div II 3) shall cancel the NOTAM, series M, published by the DFS NOTAM Office, with the following notification :

GERMAN MIL COM CENTRE FRANKFURT REOP.

**1214 - 1229 NOT ALLOCATED**