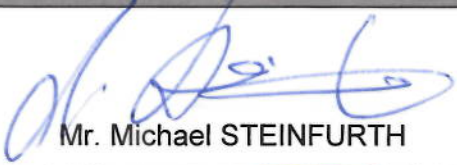




EUROCONTROL Specifications for harmonized Rules for Operatinal Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT)

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DOCUMENT APPROVAL

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1 INTRODUCTION

1.1. OAT¹ Rationale

- 1.1.1 Military and other State aircraft aviation require skills and capabilities for aircrews, ATM and Air Defence personnel and organisations beyond the scope for civil aviation.
- 1.1.2 To gain and maintain the levels of readiness and proficiency mandated for these skills and capabilities, aerial activities have to be conducted, which are not covered by rules and procedures as specified by ICAO for GAT flights and/or COMMISSION IMPLEMENTING REGULATION (EU) No 923/2012². Examples for such aerial activities include Airborne Air Refuelling, Formation Flying, Air Combat Maneuvering, etc.
- 1.1.3 OAT is the status that facilitates military and other state aircraft³ flights, for which the GAT framework is not suited to provide the rules, regulations and ATM support needed to fully ensure successful mission accomplishment.
- 1.1.4 With OAT, the full range of operational and training mission requirements, as well as aircraft capabilities can be exploited and expected levels of readiness and proficiency can be achieved.

1.2. OAT Regulatory Scope

- 1.2.1 The implementation of the Single European Sky (SES) and future ATM arrangements and technology developed by the SES ATM Research programme (SESAR) are aimed at safe, efficient and effective airspace utilisation to satisfy the needs of civil and military airspace user.
- 1.2.2 Furthermore, SES intends to create pan-European airspace independent of national borders, to better facilitate predicted future demands regarding safety, capacity, efficiency and environmental improvements.
- 1.2.3 Existing worldwide security threats and lessons learned from multi-national military operations demonstrated the need for dependable and robust pan-European OAT provisions and structures to effectively support military and other State aircraft aviation.
- 1.2.4 To appropriately facilitate OAT and its interface with GAT within the SES environment, it is the intent of EUROCONTROL Member States to harmonise and standardise relevant national OAT rules at ECAC level and therefore, Member States required the Agency to develop respective specifications.
- 1.2.5 The EUROCONTROL Specifications for harmonised Rules for OAT-IFR inside controlled Airspace of the ECAC Area as detailed in this document are satisfying this requirement and enable the EUROCONTROL Member States to achieve the intended harmonisation, pending their individual national implementation.
- 1.2.6 Additionally, this specification is in line with the declaration of the EU Member States in the SES Framework Regulation (EC 549/2004) and will support them to enhance civil-military coordination and the facilitation of cooperation between their armed forces in ATM matters.

¹ See Annex 2 for PC 9 agreed OAT definition

² COMMISSION IMPLEMENTING REGULATION (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 (SERA)

³ See Annex 2 for State Aircraft Definition

1.2.7 National Implementation of the rules and procedures specified in this document will ensure OAT-IFR harmonisation/standardisation within the controlled airspace of all States that have chosen to implement the EUROAT.

1.2.8 However, military and other state aircraft will continue to require a valid diplomatic clearance to cross national borders.

1.3. EUROAT Methodology

1.3.1 ICAO (SERA) provisions regulating GAT do not provide a regulatory framework that is sufficiently suitable for OAT flying operations. The resulting gaps have to be covered by additional and/or, if operationally required, deviating provisions for OAT.

1.3.2 To adapt OAT for standardised pan-European use and the future SES environment, relevant national OAT arrangements need to be harmonised, including a proper OAT-GAT interface.

1.3.3 The aim of the EUROAT is to provide the regulatory framework for OAT-IFR in controlled airspace at the European scale and to appropriately facilitate the interface between OAT and GAT, while minimizing the impact upon military operational procedures or aerial tactics as much as possible.

1.3.4 This is accomplished by adhering to 3 principles:

- i Whenever possible the same definitions, rules and procedures as specified by ICAO (SERA) for GAT flights shall be applied⁴.
- ii Required rules for OAT, in addition to and/or rules deviating from ICAO (SERA) provisions are detailed within this document.
- iii Where the operational requirements of a flight are incompatible with either of the above, these requirements should be met by use of an Airspace Reservation (ARES)⁵ of appropriate type and dimension, or other methods that are considered sufficiently safe and are approved by the appropriate national authority.

1.3.5 Implementation Guidance for the EUROAT Specifications is provided in Annex 1.

1.3.6 To additionally enhance the OAT-GAT interface, definitions and *explanations* about OAT flight operations covered by the regulatory framework of this document are provided in Annex 2.

1.4. Drafting Conventions

1.4.1 When nationally implementing the EUROAT, Member States are strongly requested to adhere to the same drafting conventions as used in the EUROAT.

1.4.2 Only the minimum subset of 'mandatory' requirements necessary for the correct and harmonised implementation of the Specification shall be specified.

1.4.3 Mandatory items within the Specifications shall be clearly separated from non-mandatory items.

1.4.4 Drafting conventions shall be described in the Specification such as the significance of "shall", "will", "may," etc.

1.4.5 The following minimum conventions shall be used:

- i **'Shall'** - indicates a statement of specification, the compliance with which is mandatory to achieve the implementation of the EUROCONTROL Specification.
 1. In the case of specifications providing Means of Compliances, it indicates a requirement which must be satisfied by all systems claiming conformity to the specification.

⁴ This includes due regard to differences which States might have registered with ICAO

⁵ See definition and detailed explanation in Annex 2

2. Such requirements shall be testable and their implementation auditable.

ii **'Should'** - indicates a recommendation or best practice, which, in the case of MoC specifications, may or may not be satisfied by all systems claiming conformity to the specification.

iii **'May'** - indicates an optional element.

1.4.6 Each requirement clause shall contain only one "shall" or "should" statement.

1.4.7 The use of negative requirements (e.g. "shall not" statements) should be avoided, as such clauses are notoriously difficult to test and validate.

1.4.8 In addition to the above, specific conventions may be applied in some cases.

IMPORTANT INFORMATION FOR AIRCREWS:

The EUROAT has been implemented in the airspace of the States as detailed in Annex 3; however, States have introduced national differences.

Therefore, aircrews shall consult the country chapters of the States they intend to over-fly to ensure appropriate regulatory compliance.

2 EUROCONTROL SPECIFICATIONS FOR ECAC AREA RULES FOR OAT-IFR FLIGHTS

2.1. Applicability of ICAO Rules of the Air

- 2.1.1 Unless the OAT Rules within this document detail additions to and/or deviation from ICAO and/or SERA provisions, OAT-IFR Flights shall be conducted in accordance with all parts of Annex 2 to the Convention on International Civil Aviation - Rules of the Air, ICAO Doc 4444 and the ICAO SUPPS - Doc 7030/4 and/or COMMISSION IMPLEMENTING REGULATION (EU) No 923/2012 (SERA)⁶.
- 2.1.2 ICAO and/or SERA standards are generally not repeated within this document.
- 2.1.3 **Recommendation:** This Chapter should be read in conjunction with Chapter 3, where many of the rules for the provision of ATS to OAT also apply to the conduct of OAT-IFR Flights.

2.2. Flight Prerequisites

2.2.1 Aircraft and Aircrew

- 2.2.1.1 All aircraft to be utilised for flying operations shall be in the technical condition and fitted with the onboard equipment as specified by relevant national authorities for the intended use and subject to its oversight.
- 2.2.1.2 Aircrews shall be appropriately qualified and equipped for their flight duties as specified by appropriate national regulations defined by the State of origin and subject to its oversight.
- 2.2.1.3 Aircrews shall be proficient in the use of the English language for communication purposes as defined by their State of origin and subject to its oversight.
- 2.2.1.4 Aircrews shall be medically fit for the intended flight as defined by their State of origin and subject to its oversight.

2.2.2 Flight Plan

- 2.2.2.1 When conducting an OAT-IFR Flight outside own national airspace, an OAT-IFR Flight Plan, using the ICAO Flight Plan format, shall be filed in accordance with ICAO Flight Plan filing requirements and, if necessary, additional requirements established by the State and/or FAB to be entered or transited.
- 2.2.2.2 Specific national requirements and filing conditions (rules for the input of data required filing times, addressing scheme, etc.) that are to be followed, shall be published in the National or National Military AIP and/or the country chapters of the EUROAT.

2.3. Flight Conduct

2.3.1 Airborne and Traffic Collision Avoidance System (ACAS/TCAS)

- 2.3.1.1 If equipped with **ACAS/TCAS**, single aircraft shall operate in the Traffic Alert / Resolution Advisory (TA/RA) mode outside Airspace Reservations (ARES).
- 2.3.1.2 In a standard military formation, if equipped with ACAS/TCAS, only the lead aircraft shall operate in the TA/RA mode. Nevertheless, the aircraft operating in the TA/RA mode shall also be the one operating the transponder.

⁶ COMMISSION IMPLEMENTING REGULATION (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 (SERA)

2.3.1.3 In the event that mission requirements would necessitate to not using ACAS/TCAS, the rules of the State in which the flight is taking place shall apply. In the absence of such rules, a deviation from 2.3.1.1 or 2.3.1.2 is not permissible, unless prior permission has been obtained from the appropriate national authority.

2.3.1.4 States are required to insert their respective rules into the country chapters of the EUROAT.

2.3.2 Communication

2.3.2.1 In addition to the 2-way radio communication as prescribed by the relevant airspace classification or as directed by the appropriate ATC unit, a continuous listening watch on the appropriate UHF and/or VHF Emergency Frequencies shall be maintained.

2.3.3 Altimeter Settings

2.3.3.1 QNH or QFE altimeter setting as provided by the appropriate ATC unit i.a.w. ICAO Doc 4444 shall be used by aircraft operating at or below the transition altitude (TA) and by aircraft descending below the transition level (TL).

2.3.3.2 The standard atmospheric pressure (e.g. 1013.2 hPa or 29.92 in Hg) shall be used by aircraft operating at or above the transition level and by aircraft climbing above the transition altitude.

2.3.3.3 Until a harmonised transition altitude/transition level is established for Europe, see Annex 4 for different national figures as provided by the respective States.

2.3.4 Speed Limitations

2.3.4.1 Below FL 100 the pilot-in-command shall ensure that the aircraft is not operated at speeds in excess of 250 KIAS unless one or more of the below applies:

- i Technical specifications of the aircraft require a higher airspeed for its safe operation;
- ii Military operational or training requirements necessitate a higher airspeed;
- iii A higher airspeed is allowed by the respective airspace class;
- iv A respective ATC unit mandates a higher airspeed.
- v Specific permission has been granted by an appropriate national authority for a specific flight.

2.3.4.2 Supersonic Flights can only be conducted if permitted by the appropriate national authority upon prior individual request and in accordance with respective national regulations.

2.4. Formation Flights

2.4.1 General Rule for Formation Flights

2.4.1.1 In general, a formation flight shall operate as a single aircraft in regard to navigation and position reporting and clearances issued by ATC.

2.4.1.2 Sufficient safety distance⁷ between the aircraft comprising a formation flight shall be the responsibility of the formation leader and the individual pilots-in-command at all phases of the flight, which includes take-off and landing, join-up, break-up and all parts of the Enroute flight.

⁷ See Annex 2 for definition

2.4.1.3 Upon each initial report on a new radio frequency, the formation leader shall indicate to ATC that his flight is a formation and the number of aircraft the formation flight consists of. (E.g. Callsign/Formation Flight of 4)

2.4.2 Safety Distance between two or more Formation Flights

2.4.2.1 In the event that an aerial operation requires two or more formation flights to operate below prescribed IFR separation minima between individual formation flights, the formation leaders shall be responsible for sufficient safety distance between their individual formation flights.

2.4.2.2 This responsibility shall be accepted from the respective formation leaders by stating "MARSA"⁸, relieving the ATCO from his responsibility to maintain prescribed IFR separation minima in regard to the formation flights concerned.

2.4.3 Standard Military Formation

2.4.3.1 In a standard military formation each aircraft/element of this formation shall remain within 1 NM horizontally and 100 ft vertically from the formation leader.

2.4.3.2 Only the lead aircraft (formation leader) shall squawk as directed by ATC⁹.

2.4.4 Non-standard Formation

2.4.4.1 Aircraft/elements of a formation flight that are outside the horizontal and/or vertical limits of 2.4.3.1 are considered a non-standard formation.

2.4.4.2 In this case each formation-element-lead aircraft or, if also within the formation-elements standard formation limits are exceeded, each individual aircraft of the formation shall squawk as directed by ATC.

2.4.4.3 Non-standard Formation flights represent an unusual aerial activity that shall be pre-coordinated between the flight leader and the ATC unit concerned in due time prior departure.

2.4.4.4 It is an ATC decision to approve or disapprove a non-standard formation and to determine special conditions for the conduct of a non-standard formation flight.

2.4.4.5 In the event that specific national rules/procedures or approving authorities regarding non-standard formation flights exist, they shall be detailed by the respective States in their country chapter.

2.4.5 Non-Standard Formation Departure

2.4.5.1 Whenever a condition exists that requires specific ATC support and coordination for the departure of a formation flight (e.g. radar trail departure), which is not covered in respective local operating procedures of the aerodrome, this is considered a non-standard formation departure.

2.4.5.2 In this case, the formation-leader shall request and co-ordinate his/her formation departure requirements with the appropriate ATC-unit prior departure.

2.4.5.3 It is an ATC decision to approve or disapprove a non-standard formation departure and to determine special conditions for its conduct.

2.4.6 Formation Join-Up

2.4.6.1 When a formation join-up is controlled by an ATCO, he/she shall apply standard separation criteria between individual aircraft wishing to join a formation, until the formation leader accepts responsibility for maintaining sufficient safety distance between the aircraft concerned.

⁸ See MARSA Definition in Annex 2

⁹ Or follow equivalent procedures detailed for Mode S utilization

2.4.6.2 The formation leader, once he is safely able to do so, shall confirm his assumption of responsibility for maintaining sufficient safety distance between his aircraft, the aircraft comprising the formation and the joining aircraft by stating “MARSA”; whereupon ATC shall transfer responsibility for the joining aircraft to the formation leader.

2.4.7 Formation Break-Up (Split)

2.4.7.1 Except in an emergency, a formation break-up shall only occur after pre-planning, advanced coordination and approval by ATC.

2.4.7.2 Prior to the planned formation break-up, the formation leader shall inform ATC whether to break-up the formation flight into single aircraft or elements.

2.4.7.3 The formation leader shall inform ATC about his intended aircraft/element break-up sequence, call-signs and position of these aircraft/elements relative to the formation leader's aircraft.

2.4.7.4 Aircraft/elements shall receive separate clearances and transponder codes from ATC.

2.4.7.5 As soon as the formation break-up has been directed by ATC for the respective aircraft/element, this aircraft/element is no longer part of the previous formation flight and shall follow subsequent ATC directions issued to them.

2.4.7.6 However, ATC will only assume responsibility for separation between the aircraft/elements that are conducting the formation break-up after prescribed separation minima have been established. Until then, the individual pilot-in-command/element-leader is responsible for maintaining sufficient safety distance.

2.4.8 Formation Radio Failure

2.4.8.1 A formation flight in which a flight member experiences total radio failure shall comply with the procedures outlined for this case within the Standard Operating Procedures (SOP) of their appropriate national authority.

2.4.8.2 If the SOP requires deviations from a given clearance, the flight leader or the pilot of the aircraft with the serviceable radio shall inform the ATC unit and request a different clearance.

2.4.8.3 In the event that the total radio failure affects all aircraft of the formation flight, the formation leader shall ensure compliance with basic ICAO radio failure procedures¹⁰.

2.4.8.4 In case a formation break-up is required for safe approach and landing all aircraft or element-leader of the formation flight shall squawk Mode 3, Code 7600¹¹, as soon as the break-up was initiated by the formation leader and continue to ensure compliance with basic ICAO radio failure procedures.

2.4.9 Lost-Wingman (Lost-Lead) Procedures

2.4.9.1 In any lost wingman situation, an immediate initial safety distance between aircraft is essential for flight safety to avoid a potential mid-air collision. Therefore, each wingman losing sight/contact of the aircraft preceding him or being unable to maintain formation for other reasons shall immediately execute the procedures relevant to his flight position, while transitioning to instrument flying and resuming own navigation.

2.4.9.2 **NOTE:** Irrespective of the nationally prescribed Lost-Wingman Procedures, their execution may result in a loss of minimum IFR separation in respect to other air traffic and is an Emergency situation for ATC.

¹⁰ For the ICAO EUR region the respective ICAO doc 7030 procedures shall be applied

¹¹ Or follow equivalent procedures detailed for Mode S utilization

2.4.9.3 **Recommendation:** In order to immediately alert ATC and allow to safely resolve resulting conflict potentials without undue delay, the following should be executed in addition to the appropriate lost-wingman procedure:

- i Formation leader squawks EMERGENCY and informs the appropriate ATC unit as soon as possible.
- ii Each pilot-in-command executing a Lost-Wingman Procedure squawks as directed by the appropriate ATC unit as soon as practicable.

2.5. Flights in an Airspace Reservation (ARES)¹²

2.5.1 Flights in an ARES

2.5.1.1 Flights within an activated ARES which forms part of the published airspace structure, like CBA, TSA, TRA or other Restricted Areas shall be conducted i.a.w. the national regulations and operating procedures relevant for the respective area, except aircraft transiting the ARES with ATC clearance.

2.5.2 ARES Internal Flight Separation

2.5.2.1 Within any activated ARES, sufficient safety distance between all participating aircraft shall be the responsibility of either a Controlling Military Unit¹³, or the mission/formation leader and the individual pilot-in-command. In the second case, the acceptance of this responsibility has to be acknowledged to the appropriate ATC unit by stating "MARSA".¹⁴

2.5.3 ARES External Flight Separation

2.5.3.1 When flying inside an ARES the mission/formation leader and the individual pilot-in-command shall ensure compliance with the relevant national rules concerning mandatory distances/safety-buffers towards the ARES boundaries.

2.6. Air Defence Flights

2.6.1 Executive Authority

2.6.1.1 National air defence and airspace security are exclusively under the sovereign authority of the respective State.

2.6.1.2 **Recommendation:** Resulting air defence flights should be executed based on ICAO recommendations and national rules and arrangements.

2.6.2 Intercepted Aircraft

2.6.2.1 The pilot-in-command of an intercepted aircraft shall comply with the respective ICAO standards.

2.7. Unusual Occurrences

2.7.1 Air Proximity (AIRPROX)

2.7.1.1 The pilot-in-command shall report an AIRPROX immediately after its occurrence to the respective ATC unit via available means of communication.

2.7.1.2 The pilot-in-command shall additionally report any AIRPROX with all available facts to the appropriate authority as soon as possible after landing, using relevant national reporting schemes.

¹² See Annex 2 for definition of ARES

¹³ See Definition for "Controlling Military Unit in Annex 2

¹⁴ See MARSA Definition in Annex 2

2.7.2 Take-Off/Landing Emergency

2.7.2.1 When requesting the use of an arresting gear with ATC, the pilot-in-command shall use clear phraseology regarding the type of arresting gear (cable or barrier) and the type of arrestment (approach or departure end) required.

2.7.3 Airborne Emergency

2.7.3.1 **Recommendation:** For any abnormal situation, the aircrew mantra should be followed - Fly the aircraft, analyse the situation, take appropriate actions and inform ATC when feasible.

2.7.3.2 If the nature of the situation dictates, squawk emergency (Mode 3/A Code 7700)¹⁵ and pass a plan of action to ATC when determined.

2.7.4 Unplanned Diversion with Armament

2.7.4.1 Before landing with armament or practice munitions at any military or civilian airfield¹⁶, where respective local procedures are not known, the pilot-in-command shall appropriately advise ATC about the circumstances.

2.7.4.2 After landing the pilot-in-command shall request taxi instructions to the designated safe-for-parking area and avoid taxiing into an area or position that could threaten personnel or equipment.

2.7.4.3 Before leaving the aircraft the pilot-in-command shall ensure ground crew awareness about the armament on-board and their qualification to handle armament.

2.7.4.4 If necessary, the pilot-in-command shall request assistance from the nearest suitable military installation and ensure appropriate measures be taken to safeguard the aircraft until qualified personnel take over.

2.7.5 Radio Communication Failure (NORDO) Procedure

2.7.5.1 In case of a radio communication failure a pilot-in-command shall ensure compliance with relevant ICAO radio failure procedures¹⁷ and shall be familiar with additional national procedures outlined in Annex 4.

¹⁵ Or follow equivalent procedures detailed for Mode S utilization

¹⁶ Unplanned landing with armament at a civil airfield should only be considered in the event of an emergency requiring the aircraft to land as soon as possible.

¹⁷ For the ICAO EUR region the respective ICAO doc 7030 procedures shall be applied

3 EUROCONTROL SPECIFICATIONS FOR ECAC AREA RULES REGARDING AIR TRAFFIC SERVICE PROVISION TO OAT-IFR FLIGHTS

3.1. Applicability of ICAO Standards for Air Traffic Service Provision to OAT

3.1.1 Unless the OAT Rules detailed within this document require additions to and/or deviation from ICAO and/or SERA provisions, Air Traffic Services (ATS) shall be provided to OAT-IFR Flights in accordance with all parts of Annex 11 to the Convention on International Civil Aviation - Air Traffic Services, ICAO Doc 4444 and the ICAO SUPPS - Doc 7030 and/or COMMISSION IMPLEMENTING REGULATION (EU) No 923/2012 (SERA)¹⁸.

3.1.2 ICAO and/or SERA standards are generally not repeated within this document.

3.1.3 **Recommendation:** This Chapter should be read in conjunction with Chapter 2, where many of the OAT-IFR rules also apply to the provision of ATS to OAT.

3.2. Prerequisites for ATS Provision to OAT

3.2.1 ATS Personnel

3.2.1.1 ATS personnel shall be trained and qualified to provide ATS to OAT-IFR flights in accordance with national regulations and should demonstrate equivalence to ESARR 5.

3.3. ATS Provision

3.3.1 Air Traffic Control

3.3.1.1 Air Traffic Control and other relevant Air Traffic Services (ATS) shall be provided by an Air Traffic Control Officer (ATCO) to OAT-IFR in accordance with national regulations and the provisions laid down in the EUROAT.

3.3.1.2 However, in accordance with relevant national regulations, States may consider personnel from other organisations than dedicated Air Traffic Services (e.g. national air defence) being appropriately qualified to provide services to OAT-IFR flights.

3.3.2 Communication

3.3.2.1 In addition to UHF and/or VHF 2-way radio communication systems, a continuous listening watch on the appropriate UHF and/or VHF Emergency Frequencies shall be ensured by the respective ANS organisation in such a way that an ATCO can be informed without any undue delay about distress transmissions relevant to his area of responsibility.

3.3.2.2 UHF coverage and VHF channel spacing shall be compliant with arrangements agreed at European and/or national level.

3.4. Formation Flights

3.4.1 Separation from Other Traffic

3.4.1.1 An ATCO shall separate a formation under his control from other traffic to ensure that prescribed minimum separation is not infringed.

¹⁸ COMMISSION IMPLEMENTING REGULATION (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 (SERA)

3.4.2 Standard Military Formation

- 3.4.2.1 In a standard military formation each aircraft/element of this formation shall remain within 1 NM horizontally and 100 ft vertically from the formation leader.
- 3.4.2.2 Only the lead aircraft (formation leader) shall squawk as directed by ATC¹⁹.
- 3.4.2.3 To ensure that minimum horizontal separation is not infringed between all aircraft of the formation and other traffic, an ATCO should add 1 NM to the distance of the prescribed minimum separation between the squawking aircraft of the formation and other traffic.²⁰
- 3.4.2.4 The minimum vertical separation that should be applied depends on respective national and/or operational regulations in regard to the airspace concerned (e.g. RVSM).

3.4.3 Non-standard Formation

- 3.4.3.1 Whenever the aircraft and/or elements of a formation are outside the horizontal and/or vertical limits of 3.4.2.1 they are considered a non-standard formation. In this case an ATCO may issue transponder codes/settings and direct each aircraft and/or element outside the standard military formation limits to squawk accordingly.

3.4.4 Formation Take-Off and Landing²¹

- 3.4.4.1 Take-off and landing of aircraft comprising a military formation flight shall be treated by ATC the same way as the take-off and landing of a single aircraft.
- 3.4.4.2 Required time/distance intervals between elements or individual aircraft comprising the formation flight are determined by the formation leader and he/she shall inform ATC about the magnitude of the intervals.
- 3.4.4.3 The formation leader shall be responsible for maintaining safety distance between the elements/aircraft conducting the formation take-off or landing.

3.4.5 Formation Join-Up

- 3.4.5.1 When an ATCO controls a formation join-up, he/she shall provide the appropriate separation until the formation leader has confirmed his readiness to assume responsibility for maintaining safety distance between his aircraft, the aircraft comprising the formation and the joining aircraft by stating "MARSA".

3.4.6 Formation Break-Up (Split)²²

- 3.4.6.1 **Recommendation:** When able, an ATCO should determine from the formation leader when the break-up (split) should commence, the procedure to be followed and the order that aircraft will depart.
- 3.4.6.2 After the formation leader reported ready for break-up (split), the ATCO should instruct the formation leader when the break-up procedure shall commence and the method to be used.
- 3.4.6.3 The formation leader shall be responsible for maintaining safety distance between the aircraft comprising the formation until standard ATC separation has been assured between individual aircraft/elements.
- 3.4.6.4 An ATCO shall provide separate Enroute clearances, including transponder codes to the individual aircraft/elements upon his discretion after the initiation of the break-up procedure.

¹⁹ Or follow equivalent procedures detailed for Mode S utilization

²⁰ See Annex 2 for further Explanation

²¹ See Annex 2 for further Explanation

²² See Annex 2 for further Explanation

3.4.7 Lost-Wingman (Lost Lead) Procedures

- 3.4.7.1 In the event of a formation implementing a lost-wingman procedure, an ATCO shall assist only on request. Individual ATC clearances shall be issued by the ATCO after individual aircraft/element identification.
- 3.4.7.2 However, the ATCO providing ATS to a formation executing a lost-wingman-procedure shall take appropriate actions to counter potential risks that the execution of a lost-wingman procedure might impose upon adjacent aircraft. This includes alerting any ATCO providing ATS to adjacent aircraft.

3.5. Flights in an Airspace Reservation (ARES)²³

3.5.1 ARES Internal Flight Separation

- 3.5.1.1 An ATCO shall apply prescribed separation minima between aircraft/formations entering an ARES until the ARES mission-/flight leader has confirmed his readiness to assume responsibility for maintaining sufficient safety distance between the aircraft within an ARES by stating "MARSA".

3.5.2 ARES External Flight Separation

- 3.5.2.1 In order to maintain prescribed separation minima, an ATCO shall ensure that aircraft operating under his/her control outside an activated ARES maintain the distance from its boundaries as detailed by relevant national regulations.
- 3.5.2.2 To ensure compliance of aircraft operating inside an ARES with nationally required distances/safety buffers towards ARES boundaries, an ATCO shall act in accordance with relevant national regulations.

3.6. Unusual Occurrences

3.6.1 Air Proximity (AIRPROX)

- 3.6.1.1 An ATCO shall report an AIRPROX immediately after either its occurrence or following a report from a pilot-in-command to the appropriate authority using relevant national reporting schemes.

²³ See Annex 2 for definition of ARES

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EUROAT ANNEXES

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Annex 1: EUROAT Implementation Guidance

1 AREA OF APPLICATION

- 1.1 The EUROAT shall apply to all aircraft flying under OAT-IFR and Air Traffic Services (ATS) providing ATC to OAT-IFR within controlled airspace of all ECAC Member States that have implemented the EUROAT and within non-EUROCONTROL/ECAC Member States that have respective agreements with EUROCONTROL in place.
- 1.2 National constraints may necessitate deviations from the EUROAT within the sovereign airspace of States. These deviations shall be listed in the country chapters of Annex 4 in addition to the mandatory information publication.

2 IMPLEMENTATION OPTIONS

2.1. States without regulatory Provisions for OAT outside segregated Airspace

- 2.1.1 States should analyse whether their highest level air traffic legislation allows in addition to GAT for OAT provisions outside segregated airspace to accommodate specific requirements for military or other State-aircraft air traffic.
- 2.1.2 If yes, continue with 2.1.5.
- 2.1.3 If not, States should examine whether a respective change of their highest level air traffic legislation would be possible for the benefit of pan-European harmonisation as e.g. agreed by the EU Member States in the SES Framework Regulation (EC 549/2004) with their statement regarding the enhancement of civil-military cooperation and the facilitation of cooperation between their armed forces in all ATM matters. If yes, continue with 2.1.5.
- 2.1.4 If a respective change of the relevant national legislation is not feasible, States should indicate to EUROCONTROL that the EUROAT cannot be implemented inside their sovereign airspace and that it will only be possible to fly and receive air traffic services i.a.w. relevant ICAO and/or national provisions for GAT when operating with military or other State aircraft within their sovereign airspace.
- 2.1.5 If a respective change of the relevant national legislation is possible or not necessary, States should consider implementing all EUROAT provisions and advising EUROCONTROL accordingly.
- 2.1.6 If, for the reason of specific national constraints, not all of the EUROAT provisions can be implemented, States should detail all deviations in their Country Chapter of the EUROAT and forward this Country Chapter to EUROCONTROL for publication in the EUROAT prior implementation.

2.2. States with regulatory Provisions for OAT outside segregated Airspace

- 2.2.1 If national OAT provisions already exist, States should compare the provisions of the EUROAT with their existing rules, regulations and procedures.
- 2.2.2 In case the result after comparing national OAT and EUROAT provisions reveals that all provisions are identical and no national deviations exist, the EUROAT can be considered as implemented by the State and accordingly reported to EUROCONTROL together with the delivery of the mandatory Country Chapter content as detailed in the EUROAT (e.g. transition level).

- 2.2.3 In the event that deviations between national and EUROAT provisions exist, States should examine whether a respective change of their current national OAT provisions would be feasible for the benefit of pan-European harmonisation as e.g. agreed by the EU Member States in the SES Framework Regulation (EC 549/2004) with their statement regarding the enhancement of civil-military cooperation and the facilitation of cooperation between their armed forces in all ATM matters.
- 2.2.4 If for the reason of specific national constraints this would not be possible, States should detail all deviations in their Country Chapter of the EUROAT and forward this Country Chapter to EUROCONTROL for publication in the EUROAT prior implementation.
- 2.2.5 The national implementation status as listed in Annex 3 indicates the areas of current EUROAT applicability within the Europe.

3 IMPLEMENTATION REQUIREMENTS

- 3.1 To be ready for national EUROAT implementation, a State has to forward its Country Chapter (Annex 4, Appendix “State”), its national Point of Contacts (Annex 5, Appendix “State”), its desired national distribution list (part of Annex 6) and has to officially declare its national EUROAT implementation date to EUROCONTROL.
- 3.2 Furthermore, Letters of Agreement (LoA) between adjacent ATC units in neighbouring States should be exchanged to appropriately ensure a commonly agreed understanding about EUROAT content and cross border ATC procedures.

4 IMPLEMENTATION DATES

- 4.1 The individual national EUROAT implementation dates will depend exclusively upon the respective reports of States to EUROCONTROL.
- 4.2 The aim is to achieve a widespread implementation in Europe within 9 months to one year after publication of the EUROAT Pre-Implementation Edition. The proposed date for initial EUROAT implementation will be transmitted in due time to all national authorities listed in Annex 5.
- 4.3 In return, States should officially declare to EUROCONTROL their acceptance or non-acceptance of this initial implementation date.
- 4.4 Regarding States that are not able to meet the initial implementation date, EUROCONTROL is expecting their individual official declaration of their national EUROAT implementation date in due time.
- 4.5 Upon reception of subsequent individual national EUROAT implementation dates, EUROCONTROL will make the appropriate amendments in Annex 3 (National Implementation Status) of the EUROAT and inform all States i.a.w. the Distribution List (Annex 6).
- 4.6 However, it should be clear to all OAT airspace users that following the EUROAT implementation date within a State, all EUROAT provisions including the respective Country Chapters are binding within the sovereign airspace of these States, regardless of the EUROAT implementation status of the state of origin of the individual airspace user.

5 IMPLEMENTATION RESPONSIBILITY

- 5.1 The national EUROAT implementation responsibility rests with the States.
- 5.2 States should indicate the national military and civil authorities that are responsible to ensure national implementation of the EUROAT to EUROCONTROL within their contribution for Annex 5.

6 IMPLEMENTATION COMPLIANCE AND OVERSIGHT

- 6.1 The national authority that provides overall national oversight and supervision regarding EUROAT compliance should be clearly indicated by States to EUROCONTROL and should be acting as the major national point of contact regarding all EUROAT matters.
- 6.2 This national authority will be as such displayed in Annex 5.

7 MEANS OF COMPLIANCE

- 7.1 States that officially declared that they have implemented the EUROAT are assumed to be fully compliant with all EUROAT provisions, except those deviations they have detailed in their Country Chapter.
- 7.2 For States to ensure regulatory compliance with the EUROAT one of the 3 options below should be chosen by States.
 - 7.2.1 Declare the EUROAT as the national regulatory framework for OAT-IFR and, if required, detail national differences in the respective Country Chapter and delete previously existing national regulations.
 - 7.2.2 Change and/or amend existing national regulation to accurately reflect the EUROAT provisions to the maximum extent possible and detail remaining differences in the respective Country Chapter.
 - 7.2.3 Compare existing national regulation with the EUROAT provisions, identify all identical individual provisions and detail remaining differences in the respective Country Chapter.
- 7.3 For States to ensure that their relevant personnel will be compliant with the EUROAT provisions in all States where the EUROAT is implemented, the following actions should be taken by States.
 - 7.3.1 Ensure through appropriate information, education and training that aircrews are sufficiently proficient with all EUROAT provisions and all relevant Country Chapters regarding the conduct of OAT-IFR flights in the airspace of all States where the EUROAT is implemented.
 - 7.3.2 Ensure through appropriate information, education and training that ATCOs and other relevant ATM personnel who are handling OAT-IFR traffic are sufficiently proficient with all EUROAT provisions, including the Country Chapter that apply for their State.
 - 7.3.3 Ensure through appropriate information, education and training that ATCOs and other relevant ATM personnel who are handling GAT traffic in an airspace where mixed GAT-OAT traffic is occurring, are sufficiently proficient with all EUROAT provisions, including the Country Chapter that apply for their State, to benefit from the predictability that the EUROAT is providing in regard to OAT-IFR flights.

- 7.4 In case a Functional Airspace Block (FAB) is established across the borders of States, the States concerned should harmonise their Country Chapters and agree on a common FAB-Chapter that will replace the previous individual national Country Chapters in the EUROAT.

8 SAFETY MANAGEMENT

- 8.1 The EUROAT shall be subject to two tiers of safety management. EUROCONTROL will have assessed their common application before approval and publication, and it will then be for the individual State to apply its own safety management process prior to national EUROAT implementation.

9 DOCUMENT MANAGEMENT RESPONSIBILITIES

- 9.1 The EUROAT is a living document that can be amended¹ as it becomes necessary to provide additional rules, regulations and procedures to enhance safety and/or accommodate new military and/or civil aviation and/or ATM requirements.
- 9.2 It will be the responsibility of EUROCONTROL to draft and publish changes to the EUROAT and distribute them i.a.w. the distribution list (Annex 6).
- 9.3 Any change in regard to the main body of the EUROAT will follow current EUROCONTROL procedures regarding the status of the document at the time of change.
- 9.4 It will be the responsibility of the States to appropriately inform EUROCONTROL about any national change in regard to Annex 4, 5 and 6 in due time and provide the appropriate drafts to EUROCONTROL for publication.

10 LANGUAGE

- 10.1 The EUROAT can be translated by a respective State in its official language if deemed necessary; however, in case of any controversy the English version of the document should be consulted.

¹ Upon proposal of a Member State, EUROCONTROL and other international Organisations such as the EU and EASA

Annex 2: Definitions and Explanations

The purpose of Annex 2 (Definitions and *Explanations*) is to provide information about mainly military terminology, OAT procedures and specifics that are not necessarily known from a pure GAT perspective. These Definitions and *Explanations* intend to enhance the safe OAT-GAT interface through common understanding. Definitions are generally the SES accepted version, or in its absence a EUROCONTROL agreed version.

Explanations are provided for the benefit of ATC personnel that are not familiar with OAT and are printed in italic.

A

Airborne Air Refuelling (AAR) is a military aerial operation to refuel aircraft during flight.

AAR operations are usually taking place in designated military training areas (e.g. TRA/TSA), or use other airspace arrangements that have been pre-coordinated with ATC as an unusual aerial activity.

Airborne Early Warning (AEW) is a military aerial operation during which an aircraft is utilizing active and/or passive electronic emitters.

AEW operations are usually taking place inside designated areas (e.g. TSA/TRA), or use other airspace arrangements that have been pre-coordinated with ATC as an unusual aerial activity.

Airspace Reservation (ARES) means a defined volume of airspace temporarily reserved for exclusive or specific use by categories of users.

Airspace Reservation (ARES) as defined above is generally used to facilitate the segregation of non-compatible air traffic, leaving the respective ATCO with the responsibility to ensure that prescribed minimum separation requirements towards the ARES boundary are maintained at all times by non-participating air traffic.

Within an ARES aircraft can perform aerial manoeuvres at their own discretion and separation responsibility, after MARSAs has been declared. Aircraft cleared to operate inside an ARES shall stay within its confines (maintaining a prescribed safety distance from the ARES boundary as nationally required) until cleared otherwise by the appropriate ATC unit.

ARES is generally of temporary nature and should be scheduled, activated and de-activated through the appropriate national or regional channels, using the respective Flexible Use of Airspace (FUA) arrangements.²

Depending on the individual State, an ARES can be a Temporary Reserved or Temporary Segregated Airspace, which could be classified as an Airspace Restriction i.a.w. the respective ICAO classification.

Airspace Restriction means a defined volume of airspace within which, variously, activities dangerous to the flight of aircraft may be conducted at specified times (a 'danger area'); or such airspace situated above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions (a 'restricted area'); or airspace situated above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited (a 'prohibited area').

Airspace Structure means a specific volume of airspace designed to ensure the safe and optimal operation of aircraft.

Air Traffic Control (ATC) Unit means variously, area control centre, approach control unit or aerodrome control tower.

² For details consult the EUROCONTROL Handbook for Airspace Management

Air Proximity (AIRPROX) means a situation in which, in the opinion of a pilot-in-command 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.

B

Break-Away means an Airborne Air Refuelling (AAR) Emergency Procedure mitigating a potential collision hazard by establishing initial separation between participating aircraft. Provided the ARES is appropriately sized for the AAR operation, this procedure can be executed within the ARES confines, requiring no ATC assistance.

Break-Away as defined above will be executed for safety reasons and is initiated by either, the tanker or a receiving aircraft. This procedure requires immediate actions, resulting in most of the cases in an almost instantaneous altitude separation of 2.000 ft between the tanker and the receiving aircraft concerned, without any option for prior co-ordination with ATC. The safety requirement to execute a break-away at any time during an AAR flight constitutes the necessity for an appropriately sized ARES, or other measures that are considered sufficiently safe to ensure that minimum required separation between the AAR flight and other air traffic can be maintained at all times.

Buddy-Buddy Refuelling is a particular AAR operation in which same or similar type of aircraft acting as tanker and receiver.

C

Civil-Military Co-ordination means the coordination between civil and military parties authorised to make decisions and agree a course of action.

Controlling Military Unit means any fixed or mobile military unit handling military air traffic and/or pursuing other activities which, owing to their specific nature, may require an airspace reservation or restriction.

Cross Border Airspace means an airspace structure extending across national borders and/or the boundaries of flight information regions.

Cross Border Area (CBA) means an airspace restriction or reservation established over international boundaries for specific operational requirements. This may take the form of a Temporary Segregated Area (TSA) or Temporary Reserved Area (TRA).

D

Danger (D) Area means an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

E

Flexible Use of Airspace (FUA) means an airspace management concept applied in the European Civil Aviation Conference area, as specified in the first edition of 5 February 1996 of the "Airspace Management Handbook for the application of the Concept of the Flexible Use of Airspace" issued by EUROCONTROL.

Fighter Escort is a formation of fighter aircraft with the task to protect high value assets (e.g. AEW aircraft).

Fighter Escort as defined above may be used to protect high level state representatives and could operate in close proximity of the protected asset, or moving at a relative distance along the same route of the protected asset.

Formation Flight means a flight consisting of more than one aircraft which, by prior arrangement between the pilots, operates as a single aircraft with regard to navigation and position reporting, as well as clearances issued by ATC.

Within formation flights as defined above, safe spacing between aircraft within the formation is the responsibility of the formation leader and the pilots of the other aircraft in the flight. This includes transition periods when aircraft within the formation are manoeuvring in closer proximity than prescribed minimum IFR separation during formation break-up or formation join-up.

Formation Break-Up (Formation Split) means an aerial manoeuvre, co-ordinated between the formation leader and the ATCO, used to divide a formation flight into smaller formation elements or single aircraft. Once positively identified and safely separated, the smaller formation elements or single aircraft will then be controlled individually and will receive separate IFR clearances.

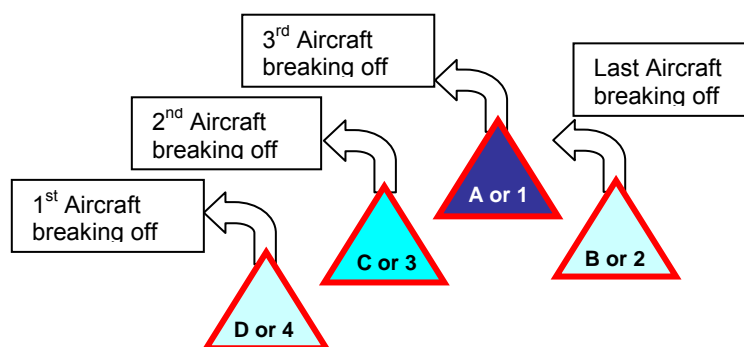
Formation Break-Up (Formation Split) as defined above is used when a formation flight under IFR intends to separate into either smaller formation elements or individual aircraft. This procedure is usually executed prior to the Initial Approach Fix (IAF) for their aerodrome of destination, in particular if e.g. Air Force operating procedures require this course of action due to actual weather conditions or runway constraints at the aerodrome of destination.

An important safety aspect of a formation split is the allocation of distinct call-signs to the subsequent formation elements or individual aircraft, to ensure that ATC instructions are carried out as intended. Generally this can be sufficiently accomplished by adding a numerical or alphabetical sequence to the original formation call-sign.

Usually a formation break-up is pre-coordinated between the formation leader and the ATCO via radio transmission during which the flight leader will identify the position of the individual aircraft relative to his lead-aircraft and the sequence in which he intends to break up the formation.

As a typically example for the break-up of a 4-ship formation in individual aircraft, the formation leader, referring to himself as "call-sign No.1 (or A)" could state: No. 2 (or B) is on my right side, No. 3 and 4 (or C and D) are on my left side; I want to break-up in the sequence 4, 3, 1, 2 (or D, C, A, B). This sequence chosen will avoid that an aircraft is turned into another one.

When the ATCO is initiating the break-up, he/she shall take due account of the provided aircraft positions relative to the lead-aircraft and the requested sequence to ensure issuing initial headings that will turn the individual aircraft away from the remaining formation as shown in the figure below.



However, the example above is only one option; every formation break-off will require an ATCO to determine his own course of action within the frame of the rules and procedures prescribed by his organisation.

Formation Join-Up means an aerial manoeuvre used to form a formation flight out of single aircraft or smaller formation elements.

Formation Join-Up is required when e.g. the meteorological conditions at the aerodrome of departure would preclude a formation take-off or sequenced take-offs of aircraft/elements comprising a formation and their subsequent join-up in VMC. This situation might require individual take-offs with a prescribed minimum time separation, since sufficient safety distance between the aircraft/elements comprising a formation cannot be maintained with visual contact or other technical means. In that event ATC support is required until during departure or Enroute conditions are met that allow the formation flight members to safely conduct the join-up.

Other examples could be the Enroute join-up of a formation-flight with a tanker aircraft or the join-up of different formations to form a larger formation-flight.

Formation Take-off and landing could be performed in close formation or in sequence, using a time/distance interval between individual elements or individual aircraft comprising the formation flight. The magnitude of this interval will be determined by the formation leader with due regard to procedures laid down by his respective military regulator. The magnitude of the interval used must be communicated by the formation leader to ATC.

Whenever the formation is able to conduct a formation take-off or landing without ATC assistance and able to maintain the responsibility for safety distance, it should be treated by ATC as one single aircraft.

Whether a formation take-off or landing is conducted in close formation or in sequence by elements or individual aircraft usually depends on the Local Operating Procedures of the aerodrome, the aerodrome runway dimensions and resulting formation take-off/landing restrictions prescribed by national military regulators, the existing meteorological conditions in regard to cross-wind, ceiling/visibility or a combination of all the factors mentioned before.

Formation Lost Wingman (Lost Lead) means an Emergency Procedure to mitigate a potential collision hazard by establishing initial separation between formation-elements or individual formation-aircraft. ATC support is required upon request.

Formation Lost Wingman (Lost Lead) as defined above requires immediate action by the pilot-in-command who lost visual contact with the aircraft representing the visual reference to appropriately position his aircraft within the formation. The major objective of this Emergency Procedure is to establish without any delay an initial lateral safety distance (and in some national rules an additional vertical safety distance) between aircraft to avoid a potential midair collision.

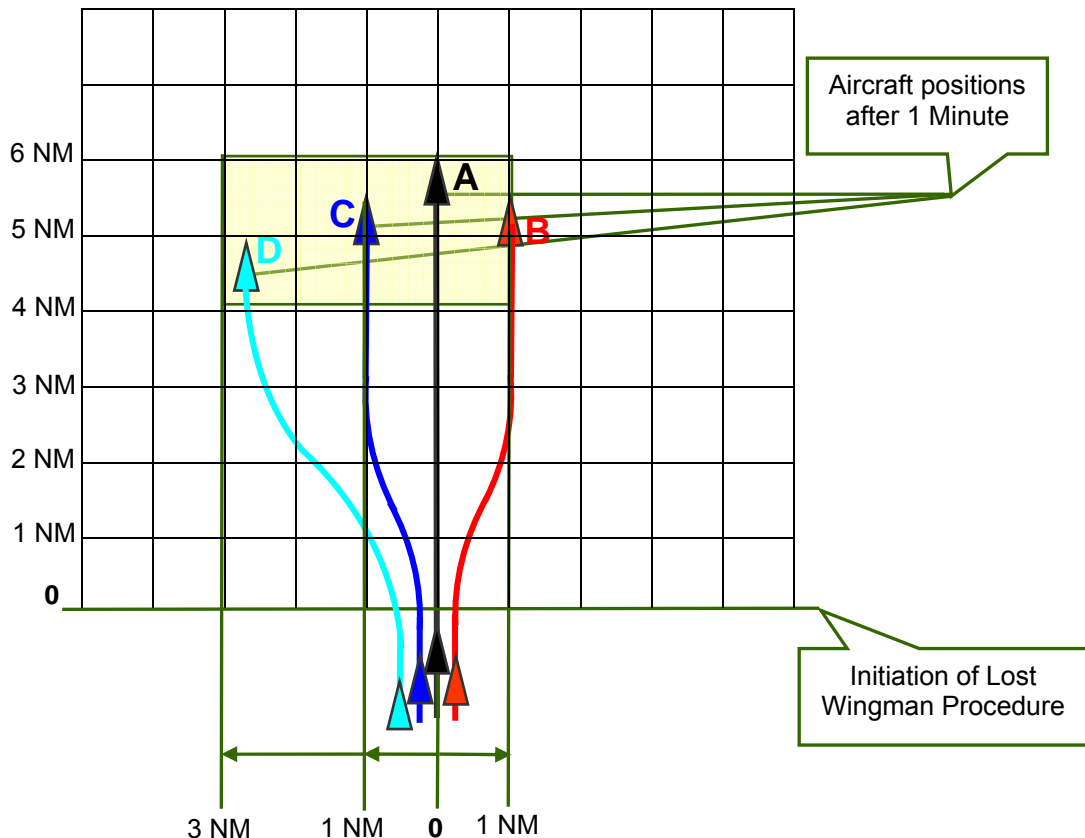
Since a lost wingman situation usually occurs in IMC, the resulting Emergency Procedure demands from the respective pilot-in-command to immediately transition to instrument flying and to follow a prescribed manoeuvring sequence. The required order of steering manoeuvres strictly depends on the formation position at the time visual contact was lost.

The respective pilot-in-command has to inform his flight lead and the appropriate ATCO as soon as practicable and he must subsequently request his individual IFR clearance.

The general design of lost wingman procedures is similar in every Air Force, however, differences in the detailed layout exist (e.g. how many degrees for how many seconds to turn away from the aircraft visual contact was lost with). Since these specifications are the result of the individual Air Force's safety assessment and an integral part of their pilots' emergency action training, they should remain at national discretion.

The figure on the next page shows a generic example of a 4-ship fingertip formation executing a lost wingman procedure from wings-level flight at an airspeed around 300 to 350 KIAS. The intended lateral separation is achieved by turning away with a prescribed bank angle and reversing the turn with the same bank angle back to the original heading after a prescribed time is elapsed. Bank angle and time to be used depend on the formation position and the respective national Air Forces' operating procedures. Some Air Forces require an additional altitude split of up to 1.000 ft to be established amongst aircraft.

Therefore, the example depicts the largest numbers used for a lost wingman procedure (B and C turn away with 20 deg of bank for 20 sec, D turns away with 30 deg of bank for 30 sec), in order to indicate the approximate biggest amount of airspace used after completion of the procedure, when the individual radio contacts will be initiated with the ATCO about one minute after initiation. At that time the individual aircraft/elements might be horizontally spread up to 4 NM.



After completion of the lost wingman procedure, all aircraft will continue to comply with the previous clearance issued for the formation until instructed otherwise, however, as shown above, spread out in an area of approximately 2 by 4 NM and up to 1.000 ft in height.

In the event that a lost wingman situation should occur in a turn, the procedures are more complex, but the end result will be similar.

The execution of a lost wingman procedure always bears the potential to create a hazard, while mitigating one, since a larger volume of airspace than planned is required instantaneously, which might lead to a situation where minimum required separation to other air traffic could be eroded.

Therefore, it is, particularly in a dense air traffic environment, of utmost importance that the pilot-in-command executing a lost wingman procedure squawks "Emergency" as soon as possible to alert the respective ATCO, providing this way an immediate option to analyse this unexpected situation and to take appropriate resulting actions.

A lost wingman situation is a rather rare occurrence and is usually taking place during departure or approach inside weather conditions with very poor visibility.

G

General Air Traffic (GAT) means all movements of civil aircraft, as well as all movements of State aircraft (including military, customs and police aircraft) when these movements are carried out in conformity with the procedures of the ICAO.

I

ICAO means the International Civil Aviation Organisation, as established by the 1944 Chicago Convention on International Civil Aviation.

M

MARSA means Military Authority Assumes Responsibility for Separation of Aircraft.

MARSA acknowledges from the respective formation (mission) leader to the ATCO that the military participants involved in an OAT flight assume responsibility for separation (safety distance) between participating military aircraft, thus relieving the ATCO from his responsibility to ensure prescribed separation minima.

The remaining responsibility of the ATCO is to provide prescribed separation between military aircraft engaged in MARSA operations and other nonparticipating IFR aircraft.

N

Non-standard Formation means a formation that is operating outside the limits of a standard military formation. A non-standard formation requires ATC approval.

Non-standard Formation is a formation in which aircraft/elements belonging to that formation will exceed the limits of a standard military formation. Therefore, aircraft/elements will squawk a separate transponder code if and as demanded by the appropriate ATC unit.

However, aircraft/elements of a non-standard formation may operate in closer proximity to each other than the prescribed minimum separation.

A typical example for the requirement to fly as non-standard formation could be an Enroute part of a formation in IMC, which would require them to continuously fly in close proximity of 3 to 6 feet wingtip-clearance between aircraft.

This is rather demanding on the pilots and can lead over time to extreme fatigue. To avoid a situation in which this fatigue could negatively impact the safety of the formation flight, the formation flight leader could select the option to fly a radar trail formation in which the formation forms a string with a distance between the individual aircraft that is prescribed by the national military regulator (usually around 2 NM). The pilots are able to maintain any prescribed distance to the preceding aircraft with their onboard radar and will this way retain the responsibility for safety distance amongst them.

An ATCO could acquire positive identification of a formation flight in radar trail by mandating the first and last or all aircraft to squawk.

A non-standard Formation Departure means a formation departure under IFR that requires specific ATC support and coordination, since it is not covered in respective local operating procedures of the aerodrome of departure.

A non-standard Formation Departure is usually conducted in a trail formation, forming a string in which the individual aircraft/elements of the formation depart with e.g. a 2 NM separation. This separation is either maintained with the on-board radar or with timing until such time at which a formation join-up can be safely conducted. Unless requested otherwise, the formation leader accepts responsibility for the separation (safety distance) of aircraft/elements belonging to the formation.

At the majority of military aerodromes where fighter-type aircraft are based, local operating procedures exist that regulate the above explained departures. However, at aerodromes where appropriate procedures for these kinds of departures are not established, they can only be conducted after previous coordination between the formation leader and ATC, pending ATC approval.

O

Operational Air Traffic (OAT)³ means all flights, which do not comply with the provisions stated for GAT and for which rules and procedures have been specified by appropriate national authorities.

P

Prohibited (P) Area means airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

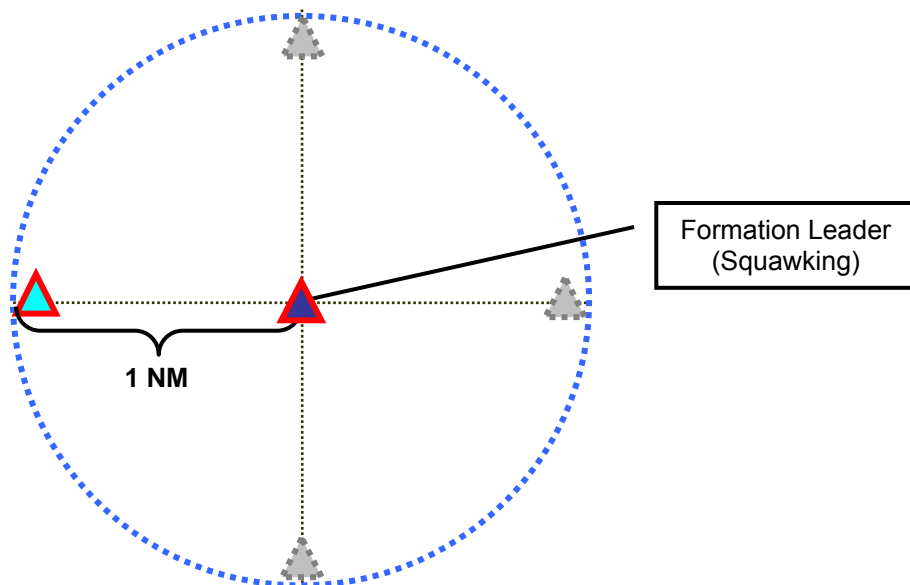
R

Restricted (R) Area means airspace of defined dimensions, above the land area and territorial waters of a State, within which the flight of aircraft is restricted in accordance with specific conditions.

S

Safety Distance in regard to formation flying means the distance that provides a safe minimum horizontal and/or vertical spacing for the respective aerial manoeuvres between the individual aircraft comprising a formation flight and is as such prescribed by the appropriate national regulations.

Standard Military Formation means a formation of aircraft flying under IFR in which each wingman aircraft will stay within 1 NM horizontally and 100 ft vertically of the lead aircraft.



A Standard Military Formation, usually consisting of 2 to 4 aircraft will remain within a cylinder-shaped airspace of 1 NM radius and 200 ft height, defined by the squawking aircraft (formation leader), representing the center of the cylinder.

In regard to separation between a standard military formation and other traffic the following best practises could provide safe options:

Where radar systems do not permit the controller to recognise separate elements of the formation then separation is to be provided on the standard military formation by adding 1 NM to the usually provided separation in regard to the SSR return (blue dotted circle in the above figure).

³ PC 16 took account of the conclusion reached by all CMIC members, other than those representing Turkey, that there was no requirement to amend the current definitions of OAT and GAT as agreed by the EUROCONTROL Commission at PC 9.

Where radar systems permits the controller to recognise separate elements of the formation then:

- Where aircraft of the formation are close enough that they are displayed on the radar display as single radar return - separation is to be based on that return.
- Where the aircraft of a formation are displayed as separate returns then separation may be based on the radar return closest to the other traffic.

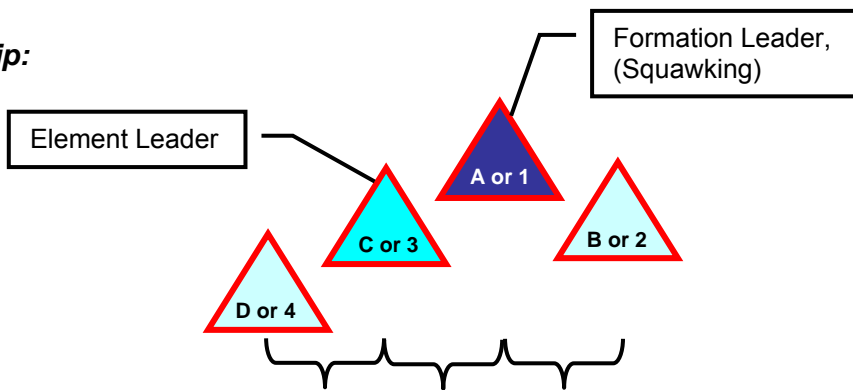
The required altitude separation between a standard military formation and other traffic will depend on the prescribed minimum separation for the respective airspace class. To ensure that prescribed minimum separation is not infringed, due account must be taken to the fact that wingman aircraft can be 100 ft above or below the lead aircraft.

The examples of (standard) 4-ship formation types depicted below are some of the most common ones and can be generally divided into close formations and tactical formations. However, the majority of formation flights will use the complete spectrum of formation types during one mission, primarily for training reasons.

Be aware that the position of the aircraft shown below could as well be mirrored in respect to the lead or squawking aircraft.

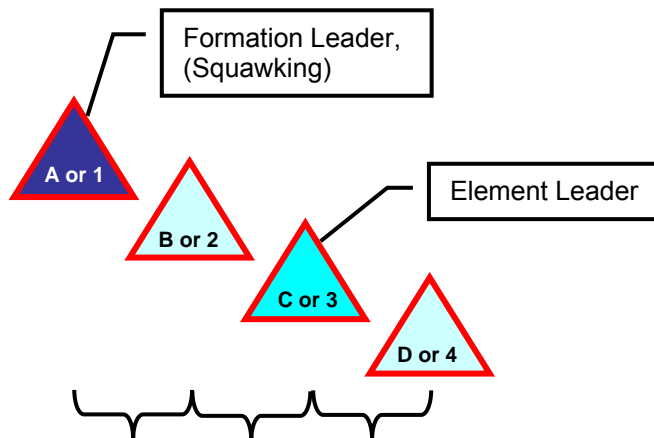
Common Close Formation Type Examples:

Fingertip:



Usually from 3 feet wingtip-clearance to 2-4 aircraft-widths spacing between individual aircraft

Echelon:

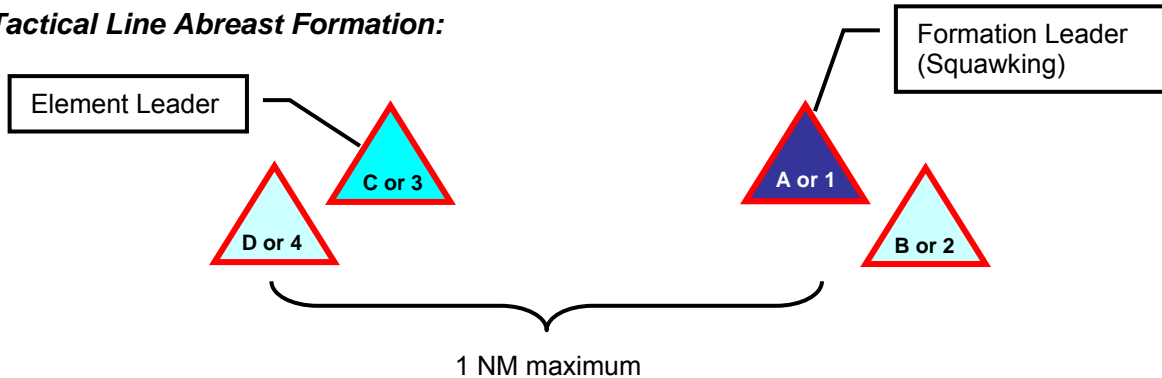


Usually from 3 feet wingtip-clearance to 2-4 aircraft-widths spacing between individual aircraft

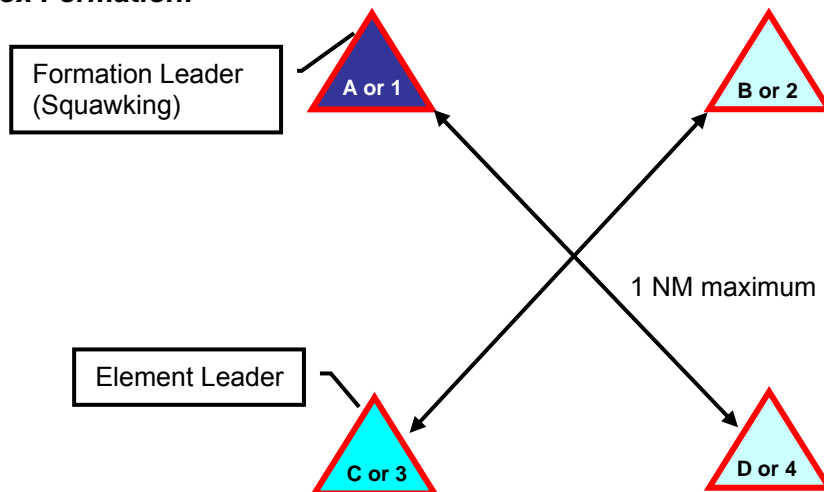
Common Tactical Formation Type Examples:

Tactical formations under IFR will only be conducted in Visual Meteorological Conditions (VMC) unless the participating aircraft are equipped with technical systems safely enabling them to maintain their formation positions in Instrument Meteorological Conditions (IMC).

Tactical Line Abreast Formation:



Box Formation:



State Aircraft⁴ means for ATM purposes and with reference to article 3(b) of the Chicago Convention, aircraft used in military, custom and police services.

Accordingly:

Aircraft on a military register, or identified as such within a civil register, shall be considered to be used in military service and hence qualify as State Aircraft; Civil registered aircraft used in military, customs and police service shall qualify as State Aircraft; Civil registered aircraft used by a State for other than military, customs and police service shall not qualify as State Aircraft.

Surveillance Flight is a flight that uses passive and/or active electronic and/or optical sensors to collect information data. The explanations for AEW flights apply equally for surveillance flights.

⁴ Decision of the Provisional Council Session 11 on 12/07/01

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Tactical Air Command and Control Service (TACCS) see Controlling Military Unit.

Temporary Reserved Airspace (TRA)⁵ means a defined volume of airspace, normally under the jurisdiction of one aviation authority and temporarily reserved by common agreement for the specific use by another aviation authority and through which other traffic may be allowed to transit under ATC clearance.

Temporary Reserved Airspace (TRA) as defined above is an area for Airspace Reservations, with its lateral and vertical boundaries published in the national AIP and Mil AIP and usually designated in many States as Restricted (R) Area. A TRA is generally temporarily reserved for special aerial purposes through relevant national or regional Airspace Management (ASM) arrangements. Other traffic may receive clearance from ATC to transit through an active TRA.

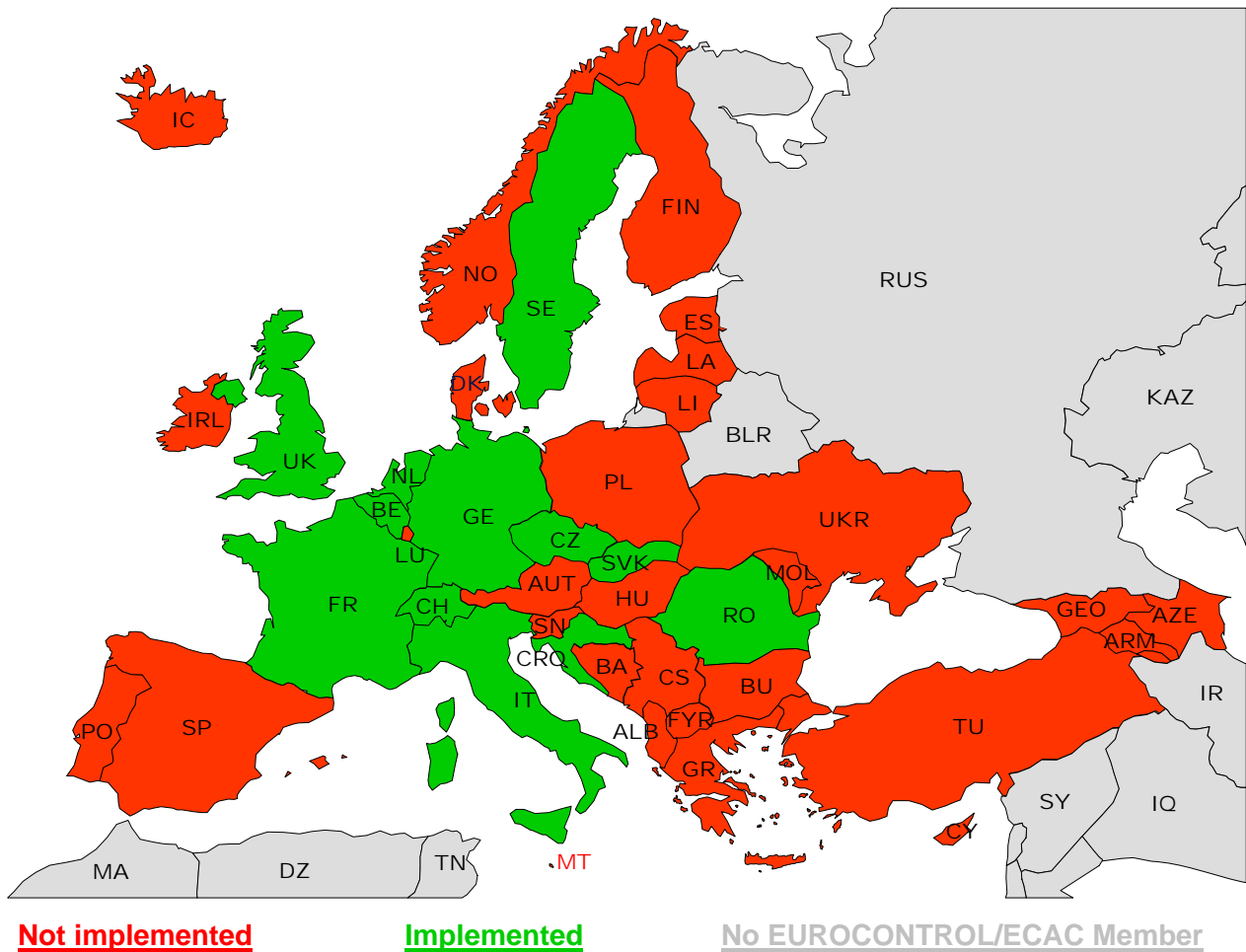
Temporary Segregated Airspace (TSA)⁶ means a defined volume of airspace, normally under the jurisdiction of one aviation authority and temporarily segregated by common agreement for the exclusive use by another aviation authority and through which other traffic will not be allowed to transit.

Temporary Segregated Airspace (TSA) as defined above is an area for Airspace Reservations, with its lateral and vertical boundaries published in the national AIP and Mil AIP and usually designated as Restricted (R) Area. A TSA is usually temporarily segregated for special aerial purposes through relevant national or regional Airspace Management (ASM) arrangements. Other traffic will usually not be allowed to transit through an active TSA.

⁵ For further details consult the EUROCONTROL Handbook for Airspace Management

⁶ For further details consult the EUROCONTROL Handbook for Airspace Management

Annex 3: National Implementation Status



The following States have formally implemented the EUROAT and provided their country chapters:

Belgium, Croatia, Czech Republic, France, Germany, Italy, Romania, Slovakia, Sweden, Switzerland, The Netherlands, United Kingdom

The following States officially notified about their plan to formally implement the EUROAT still in 2013⁷ and have provided their country chapter:

Greece, Spain

The following States officially notified about their plan to formally implement the EUROAT in 2014⁸:

Austria, Bosnia and Herzegovina, Hungary⁹

⁷ Formal national implementation updates will be provided through respective EUROAT changes

⁸ Formal national implementation updates will be provided through respective EUROAT changes

⁹ Hungary has already provided its country chapters

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Annex 4: Appendix BE - Country Chapter for BELGIUM

BE Amendments to the EUROAT

2.1 Applicability of ICAO Rules of the Air

“Foreign military flight can be conducted within Brussels FIR/UIR according GAT or OAT rules, depending upon operational requirements of the mission. However OAT is only possible during the ATCC operating hours as laid down in the BEL MIL AIP Belgium”

2.2.2 Flight Plan

Specific regulations for FPL are laid down in the BEL MIL AIP.

2.3.2 Communication

In Belgium, Belgian Military Aircraft may not maintain a continuous listening watch on guard frequency if impossible for an operational reason.

The carriage of a serviceable mode S (ELS or EHS) SSR transponder is highly recommended but not yet compulsory for State ACFT flying OAT within the BRUSSELS FIR/UIR including Low Level VFR flights.

2.3.2.1: For UAV flights, the Belgian Military Aviation Authority may approve another method of communication that reaches an equivalent safety level.

2.3.3 Altimeter Settings

TRANSITION ALTITUDE

A common transition altitude of 4500 ft is established inside and outside controlled airspaces. Vertical position of ACFT at or below the transition altitude shall be expressed in terms of altitude, at or above transition level in terms of flight levels.

- A pressure altimeter calibrated according to standard atmosphere:
- Shall indicate the ALTITUDE when set to the QNH.
- Shall indicate the HEIGHT above the QFE reference level when set to the QFE.
- May be used to indicate FLIGHT LEVELS when set to 1013.2 hPa (29.92 Inches)

TRANSITION LAYER

To ensure minimum radar separation between uncontrolled flights at or below 4500ft and controlled flights above the transition altitude, a transition layer of minimum 1000 ft and maximum 1499 ft shall be taken into account to determine the transition level. Within the transition layer no minimum vertical radar separation with uncontrolled flights is provided.

TRANSITION LEVEL

The transition level is the first useable flight level above the transition altitude.

Details for Transition Level calculation is laid down in BEL MIL AIP.

2.3.4 Speed Limitation

2.3.4.1 Due to military operational and training requirement in Brussels FIR the speed limitation below FL 100 of Max 250 KIAS is not applicable to OAT flights. Nevertheless for noise abatement reason military ACFT are not to be flown below 4500 ft at speeds exceeding 450 kts groundspeed (420 kts planned). Exceptions are laid down in the BEL MIL AIP.

2.3.4.2 Additionally

The number of supersonic FLTs will be limited to those necessary for maintenance in FLT tests of Belgian ACFT and those scheduled in the Belgian training syllabi for pilots. Details are laid down in the BEL MIL AIP.

2.4.3 & 3.4.3: Standard Military Formation

Additionally: During Radar Trail departures and recovery a controller may allow the separation between the leader and all other elements of the formation to be higher than 3 Nm horizontally and/or 1000ft vertically. For this type of departure / recovery, all elements of the formation shall squawk Mode 3/A and Mode C.

Radar Trail departures and recovery shall only be granted by the controller if minimum radar separation with other traffic can be guaranteed for each element of the formation.

Unless otherwise coordinated, all elements of the formation shall be contained within 1NM horizontally and 100 ft vertically from the leader whilst crossing civil controlled airspace (e.g. airways) or before being transferred to a non BAC unit.

2.5 Flight in an Airspace Reservation (ARES)

Even when declaring MARSAs aircrafts will receive TRA Service. TRA Service is an air traffic radar service in which pilots are given mandatory instructions in order to:

- Keep participating traffic (VFR & IFR) inside the published limits of its assigned reserved area;
- Enable the prescribed separation minima from other traffic to be maintained. IFR traffic will be separated from VFR and vice versa using the RADAR separation minima. VFR traffic will be given Traffic Info towards other VFR traffic and Traffic avoidance on request. Responsibility for separation between participating ACFT inside the TRA (Temporary Reserved Area) lies with the pilots. 'Participating ACFT' are those flights for which a specific area has been booked for simultaneous use.

When flying an Air Defence mission the pilot will receive Close Positive or Loose Positive Control, as defined in the BEL MIL AIP, therefore MARSAs can not be declared.

2.7.5 Radio Communication Failure Procedure

1 RECEIVER FAILURE

The pilot shall transmit reports at the scheduled times or positions, preceded by 'Transmitting in the blind due to receiver failure'. These reports should include his intentions and the time of his next intended transmission.

2 COMPLETE COM FAILURE

a. In VFR

- Squawk A7600, and
- Maintain VMC, and
- Land at the nearest suitable AD, and
- Report its arrival by the most expeditious means to the appropriate ATC unit.

b. In IFR

- Squawk A7600.
- Proceed according to FPL and hold over last NAVAID in the FPL.
- Commence a descent from this NAVAID as close as possible to the last acknowledged EAT on the FPL EAT.
- Complete the normal instrument approach procedure and land, if possible within 30 MIN of EAT (last acknowledged or FPL).
- When established on a published ATS route, maintain last assigned speed and level for a period of 7 MIN. After this period, adjust to the level in accordance with the FPL.
- When established on a published ATS route but receiving radar vectors or proceeding offset, proceed in the most direct manner possible to rejoin the current FPL route.

c. The pilot may or, when SSR is INOP, he has to fly triangles of one MIN legs (TAS higher than 300 kts) or two MIN legs (TAS equal or less than 300 kts) clockwise if his receiver still

works, anti-clockwise if the radio receiver and transmitter are both out of service. He can expect to be intercepted by a shepherd ACFT.

Note 1: If an ACFT has been given level clearances for only part of the route, it will fly this level to the point specified in the clearance and then the cruising level of the FPL.

Note 2: Departing ACFT are to fly the level they are cleared to for 3 MIN and then fly the cruising level of their FPL.

Formation Lost Wingman (Lost Lead)

National procedures differ from the definition of page 24.

Definitions:

UAV (Unmanned Aerial Vehicle), RPA (Remotely Piloted Aircraft), UA (Unmanned Aircraft), UAS (Unmanned Aircraft Systems):

A powered, aerial vehicle that does not carry a human operator uses aerodynamic forces to provide vehicle lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry a lethal or non-lethal payload. Ballistic or semi-ballistic vehicles, cruise missiles, and artillery projectiles are not considered unmanned aerial vehicles.

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Annex 4: Appendix CH - Country Chapter for SWITZERLAND

CH Amendments to the EUROAT

2.3.3. Altimeter Settings

2.3.3.3. The transition altitudes are published in the AIP (civil procedures) or the Operations Manual Air Force (OM-C; MIL FLIP) (mil procedures). Reference is made to those publications.

2.3.4. Speed Limitations

2.3.4.1. Inside CTR/TMA maximum speed is 350KIAS. Whenever, for tactical reasons, a higher speed is required, the pilot shall inform ATC.

Outside CTR/TMA

At and above FL 330	All flights	> M 0.95
Below FL 330 but above FL 100	All flights	≤ M 0.95
At and below FL 100	For operational reason Liaison flight	≤ M 0.9 ≤ M 0.7

2.3.4.2. Supersonic Flights

Operational supersonic flights require prior approval from Air Defence and Direction Center.

Minimum altitude for supersonic flights is FL 330, for descending supersonic turns FL 410.

2.4.3. Standard Military Formation

2.4.3.1. Formation flights between FL 280 and FL 430 consisting of RVSM approved ACFT shall be considered as a NON RVSM equipped flight.

2.4.4.3. Non-standard formation flights

Pre-coordination does not take place and ATC is not allowed to disapprove such flights or to determine special conditions.

2.4.9. Lost-Wingman (Lost-Lead) Procedures

2.4.9.3. Formation leader is not required to squawk EMERGENCY

2.5.2. ARES Internal Flight Separation

2.5.2.1. Sufficient safety distance applied by mission/formation leader and the individual pilot-in-command only. The term MARSAs is therefore not used.

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Annex 4: Appendix CRO - Country Chapter for CROATIA

CRO Amendments to the EUROAT

No Amendments with the exception that 2.4.6 and 2.7.2 are not applied in Croatia.

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Annex 4: Appendix CZ - Country Chapter for CZECH REPUBLIC

CZ Amendments to the EUROAT

ALTIMETER SETTING PROCEDURES

CZAF: MIL Altimeter Setting procedures based on CZE civilian procedures with following deviations and there are published in MIL AIP, ENR 1.7:

- 1) When returning from the action area – especially in the case of a group/formation descent through the clouds – set the altimeters in the time before losing altitude and entering clouds. If the flight crew does not receive QNH pressure value from the ATC authority, they shall request the pressure value in time according to the current situation. After resetting the altimeter, the crew shall inform the ATC authority (they are also to be informed when transferring to a different ATC authority).

NOTE: Where requested, it is allowed to use QFE.

2) Description of altimeter setting region

During flight at or below the transition altitude the following pressure shall be set on altimeters:

a) QNH of the controlled aerodrome

- in CTR, TMA and ATZ whose upper limit or its part is identical with lower limit of TMA,
- below TMA, during all flights conducted between lower limit of TMA defined by altitude (AMSL)* and a sea level 1000 ft (300 m) below this limit.

Note 1: lower limit of TMA defined by altitude (AMSL) is always referred to the QNH of the controlled aerodrome to which TMA belongs.

Note 2: It concerns flights in airspace just below the lower limit of TMA, during which it could come to unintended and undesirable penetration of TMA, when the pressure is set up incorrectly.

Note 3: Aerodrome QNH shall also be set during flight within LK R/TRA usually adjacent to TMA and ATS shall be provided by aerodrome ATS unit of the aerodrome in question, if the aircraft carrying on the task repeatedly climbs through the transition altitude or descends through the transition level or the whole task is carried on at or below the transition altitude.

b) Regional QNH or ONH of the nearest uncontrolled aerodrome

- in other cases.

Note 1: Regional QNH shall also be set during flight within LK R/TRA, where ATS are provided by the designated ATC unit (MACC, GCI, AWACS, etc.), if the aircraft carrying on the task repeatedly climbs through the transition altitude or descends through the transition level or the whole task is carried on at or below the transition altitude.

Note 2: Regional QNH is a forecast of minimum value of QNH within FIR Praha for a specified time period.

- 3) During formation flights of single-seat aircraft (including Mi-24) and especially while climbing through clouds in formation the altimeters shall be set after the safe clouds tops clearance had been reached and as soon as all aircraft flown in formation can operate in VMC. When the VMC are reached the flight leader shall instruct the pilots – in command of the other aircraft to set their altimeters to be the standard pressure 1013,2 hPa settings.

Note: Based on the current meteorological conditions before the flight or in the course of the flight, if the flight leader decides to postpone the altimeter settings at the transition altitude to the moment when the safe clouds tops clearance had been reached, such a decision shall be reported immediately to the ATC unit the flight is controlled by (also when transferring to another ATC unit).

Annex 4: Appendix FR - Country Chapter for FRANCE

FR Amendments to the EUROAT

2.3.1 Airborne and Traffic Collision Avoidance System ACAS/TCAS

2.3.1.4 Nothing in these rules shall relieve the pilot-in-command of an aircraft from the responsibility of taking such action, including collision avoidance manoeuvres based on resolution advisories provided by ACAS equipment, as will best avert collision.

2.4.2 Safety Distance between two or more Formation Flights

France does not apply MARSAs.

2.4.3 Standard Military Formation

2.4.3.1 Formation flights

Aircraft shall only fly in formation subject to the conditions set out by the general staffs and directorates on the basis of the following principles:

- a) The formation shall behave as a single aircraft as far as navigation and position reporting is concerned;
- b) Safety within the formation shall be ensured by the formation leader;
- c) A maximum distance shall be maintained by each aircraft/element in the formation. The position of each aircraft/element shall be defined by the competent authority in line with the instructions issued by the general staffs and directorates.

2.4.6 Formation Join-up

2.4.6.2 France does not apply MARSAs.

2.5.2 ARES Internal Flight Separation

2.5.2.1 Within any activated ARES, sufficient safety distance between all participating aircraft shall be the responsibility of either a Controlling Military Unit, or the mission/formation leader and the individual pilot-in-command. In the second case, France shall not apply MARSAs, but shall be in accordance with MARSAs principles with the NATO phraseology.

2.7.5 Radio Communication Failure (NORDO) Procedure

2.7.5.1 Communication failure

In the case of a radio communication failure, the pilot flying OAT IFR (CAM I) shall attempt to re-establish the radio link on the distress frequency. If unsuccessful, he/she shall apply one of the following procedures:

- a) If he/she is in a position to ensure his/her flight to the destination aerodrome using autonomous navigation and approach aids, he/she shall:
 1. Activate transponder code 3/A 7600;
 2. Continue the flight to the limits of the clearances received, then in accordance with the current flight plan;
 3. Perform the arrival, approach and landing procedures which are possible using the aids at his/her disposal.
- b) If the pilot feels that he/she is not able to conduct the flight to the destination airport, he/she shall:
 1. Activate transponder code 3/A 7700 (emergency);
 2. Take a French OAT level, in visual flight conditions if possible, and activate maximum endurance settings;

3. Head towards the most appropriate nearby aerodrome, with all navigation and anti-collision lights switched on;
4. execute two distress triangles to the left, with sides and corners corresponding to the diagram below, and then a number of race-track patterns to the left, with straight sides corresponding to five minutes' flying time, with a view to facilitating interception by an escort aircraft; as far as possible, he/she shall avoid flying in the same vertical plane as the aerodrome and air routes;
5. perform, when the endurance limit (fuel safety) is reached, arrival, approach and landing procedures which are possible using the aids at his/her disposal.

SEE ORIGINAL FOR DIAGRAM

c) if, while following one of these procedures, the pilot encounters visual flight conditions with a view of the ground and deems himself/herself to be in a position to take responsibility for his/her own navigation and collision avoidance, he/she may decide to switch to visual OAT rules. If this is the case, he/she shall:

1. Quickly leave upper airspace if he/she is located in such airspace;
2. Activate the transponder code for switching to visual OAT rules or for the airspace class he/she is flying in;
3. Maintain a view of the ground for landing at the destination aerodrome or a more appropriate aerodrome;
4. Activate transponder code 3/A 7600 at a distance of ten nautical miles from the aerodrome chosen.

As soon as the air traffic control body detects code 3/A 7600 or 3/A 7700 (emergency), it shall check through appropriate instructions, transmitted on the appropriate (common or individual) frequency and where this is unsuccessful on the distress frequency, whether the pilot still has radio reception.

If verification is successful, the flight shall be guided to the destination aerodrome or a more appropriate aerodrome.

3.2. Prerequisites for ATS Provision to OAT

3.2.1 ATS Personnel

3.2.1.1 France shall not apply ESARR 5 for OAT.

3.4.2 Standard Military Formation

Aircraft shall fly in formation only in accordance with the conditions set out by the general staffs and directorates and on the basis of the following principles:

- a) the formation shall behave as a single aircraft as far as navigation and position reporting is concerned;
- b) safety within the formation shall be ensured by the formation leader;
- c) a maximum distance shall be maintained by each aircraft in the formation. The position of each aircraft shall be defined by the competent authority in line with the instructions issued by the general staffs and directorates.

3.4.5 Formation join-up

3.4.5.1 France does not apply MARSAs. A similar procedure is being studied.

3.5. Flights in an Airspace Reservation (ARES)

3.5.1 ARES Internal Flight Separation

3.5.1.1 France does not apply MARSAs but shall be in accordance with MARSAs principles with the NATO phraseology.

Annex 4: Appendix GE - Country Chapter for GERMANY

GE Amendments to the EUROAT

ACAS/TCAS¹

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 aircraft not equipped with ACAS/TCAS. 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.

Transition Altitude

The altitude at or below which the pilot shall set the altimeter to the QNH value that is transmitted by the competent ATC unit and above which he shall use the standard altimeter setting is established at 5000 ft MSL (transition altitude).

Supersonic Flights

All supersonic flights by foreign military aircraft not permanently stationed in Germany are prohibited within German airspace.

Flights during which sonic speed is reached or exceeded are permitted from MON to FRI between 0700++ and 1900++ only. These flights are prohibited between 1130++ and 1300++, unless imperative for operational reasons.

Supersonic flights shall be scheduled in the flight order. Over the territory of the Federal Republic of Germany, they shall only be performed with radar monitoring and must be coordinated in advance with the radar-monitoring unit.

The minimum flight levels for supersonic flights are

- FL 360 over land,
- FL 200 over sea, which are flights off the mainland coastline. Islands off German coast of the North Sea and Baltic Sea with permanent connections to the main land are regarded as land

Supersonic flights over land below FL 360 are prohibited. They shall be performed between FL 360 and FL 500 as level flights or climbs only. The flight path shall be planned such that sonic booms will avoid densely populated areas whenever possible.

Supersonic flights over sea below FL 200 are permitted only if the distance from the coastline is at least 10 NM and the heading is towards the sea or, or in case of heading parallel to the coastline or the offshore islands, a minimum of 35 NM is maintained.

Maximum Airspeeds

Flights over land

- below FL 360 to FL 100: Mach 0.95;
- below FL 100: Mach 0.9, but not more than 575 KIAS

Within the Federal Republic of Germany, an indicated airspeed of 250 KIAS shall not be exceeded below FL 100, unless the mission requires a higher speed.

This restriction does not apply to aircraft which must be flown at a higher speed due to their flying characteristics. These aircraft shall fly at the lowest possible airspeed for their respective flight configuration under the given flight conditions, unless the mission requires a higher speed.

¹ German MilATS special directive 2-100 No. 428

Flights over sea: Mach 0.98 below FL 200

IFR Flights

IFR flights require an ATC clearance. Unless the responsible ATC unit has given different instructions / permitted a deviation these flights shall be conducted

- on ATS routes along the centreline
- on other routes along the direct heading between the en-route fixes or reporting points indicated in the flight plan.

Formation Join-Up²

ATC clearance

Formation join-ups are to be effected in compliance with the following principles:

Separation between IFR flights must 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.

As the pilots' sight from the cockpit is limited, vertical join-ups should be performed from below.

Once visual contact has been established, the responsibility for the final phase of the join-up rests with the pilot joining up.

The individual aircraft shall not be handled like a formation before the formation leader has reported "FORMATION TIGHT".

Aircraft must not be joined up to standard formations exclusively by means of airborne radar and without visual contact.

Trail/radar trail procedures are not affected by the above provisions. 2

Formation Split³

ATC clearance

Formations shall be split at the request of the formation leader.

When turning or descending, formations must not be split without the prior consent of the formation leader.

Before initiating a formation split, the formation leader shall be asked to report ready for the split.

Following the split of a formation, separation between the individual aircraft shall be established as soon as possible.

Before splitting a formation, the position of the individual aircraft shall be ascertained.

The Lost Wingman procedure⁴ 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.

If this procedure is applied during a go-around, the leaving aircraft will climb to 500 feet above the published missed approach altitude.

Operation in ARES

ATC clearance is required commencing operation

ATC clearance is required before leaving ARES

² German MilATS special directive 2-100 No. 446.3

³ German MilATS special directive 2-100 No. 446.2

⁴ German MilATS special directive 2-100 No. 677

MARSA call

not applicable – no ATC standard

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Annex 4: Appendix GR - Country Chapter for GREECE

GR Amendments to the EUROAT (GR official implementation 01.11.2013)

2.2 Flight Prerequisites

2.2.2 Flight Plan

2.2.2.2 Specific requirements and filing instructions for the completion of Flight Plans are laid down in the AIP and MAIP Greece

2.3 Flight Conduct

2.3.3 Altimeter Setting

2.3.4 There is no common transition altitude, therefore additional regulations for altimeter settings are laid down in AIP and MAIP Greece

2.3.4 Speed Limitations

2.3.4.3 In addition, supersonic flights outside designated supersonic flight areas can only be conducted by aircraft in level flight or in climb at FL 200 and above, after special permission by the appropriate ATC unit.

2.4 Formation Flights

2.4.4 Non-Standard Formation

2.4.4.5 A formation shall be declared as "Non Standard" in the RMKS column of the filed flight plan. Moreover, the call sign, and the length of the formation must also be declared, i.e.: Tiger Black – Non Standard Formation – Trail 8 NM

Only the lead and the trail-end aircraft shall squawk MODE 3A, C (the intermediate elements shall not), whilst the code must be different. Specific codes shall be assigned by the appropriate ATC unit.

2.7.5 Radio Communication Failure (NORDO) Procedure

2.7.5.1 ICAO Radio Communication Failure procedures are applied.

3.2 Prerequisites for ATS Provisions to OAT

3.2.1 ATS Personnel

3.2.1.1 Air Traffic Service is provided by civilian and military Air Traffic Control Officers (ATCO). Civilian ATCOs are qualified in compliance with ESARR 5. Military ATS personnel shall be trained and qualified to provide ATS to OAT-IFR flights in accordance with national regulations, however, compliance with ESARR 5 will not be demonstrated.

3.3 ATS Provision

3.3.1 Air Traffic Control

3.3.1.3 Air Traffic Control is provided:

- Above FL 195 in the whole of Athinai FIR/Hellas UIR
- Within ATS Routes
- In Terminal Control Areas and Control Zones
- In aerodrome traffic zones at controlled aerodromes

With the exemption of Military Control Areas and Military Aerodromes, Air Traffic Services in Greece are provided by the Hellenic Civil Aviation Authority.

3.4.3 Non-Standard Formation

A formation should be declared as “non-standard” in the RMKS column of the filed flight plan. Moreover, the call sign, and the length of the formation must also be declared, i.e.: Tiger Black – Non Standard Formation – Trail 8 NM

Only the lead and the trail-end aircraft shall squawk MODE 3A, C (the intermediate elements shall not), whilst the code must be different. Specific codes shall be assigned by the appropriate ATC unit.

Annex 4: Appendix HU - Country Chapter for HUNGARY

HU Amendments to the EUROAT (HU official implementation 01.01.2014)

2.3.3 Altimeter Settings

See eAIP ENR 1.7 ALTIMETER SETTING PROCEDURES

The altimeter setting procedures in use generally conform to those contained in ICAO Doc 8168 OPS/611 Aircraft Operation Vol. I. Part 6 and are given in full below. Differences are shown *in italics*.

These procedures are applied to all IFR and VFR flights operating within Budapest FIR.

The atmospheric pressure is measured in accordance with ICAO Annex 3 Chapter 4, paragraph 4.11.

QNH and QFE values are computed in tenth of hecto-pascal. On pilots' request it may be given in millimetres and tenths.

In routine reports disseminated at the aerodrome QNH is included regularly while QFE is available on request from air traffic service units.

The values are rounded to the nearest lower whole hecto-Pascal. For example QNH 995,6 hPa is given as: "QNH 995".

In plain language reports (ATIS and VOLMET) broadcast) the unit of measurement (hPa) is omitted.

BASIC ALTIMETER SETTING PROCEDURES

General

System of flight levels

- a. Flight level zero is located at the atmospheric pressure level of 1013.2 hPa. Consecutive flight levels are separated by a pressure interval corresponding to at least 1000 feet (305 m) in the Standard Atmosphere.
- b. Flight levels are numbered according to the following table, which indicates the corresponding height in the Standard Atmosphere in feet and the approximate equivalent height in meters.

Flight Level Number	Height in the Standard Atmosphere	
	Feet	Meters
100	10000	3050
150	15000	4550
200	20000	6100
660	66000	20100

Transition altitude

The transition altitude specified for Budapest FIR is 9000 feet.

Transition level

The transition level will be determined by the appropriate ATC unit so as to give a transition layer of at least 1000 feet (305 m) vertical separation above the transition altitude.

For determination of current transition level the following table is used.

Transition altitude		QNH hPa	Transition level
Feet	Meters		
9000	2750	1013,3 and above	FL100
		1013,2 - 977,2	FL110
		977,1 and below	FL120

The transition level at Budapest Liszt Ferenc International Airport is transmitted normally in ATIS broadcast, or is involved in the clearances as appropriate.

Transition from flights to altitudes and vice versa

The vertical position of aircraft at or below the transition altitude shall be expressed in terms of altitude, whereas such position at or above the transition level shall be expressed in terms of flight levels. While passing through the transition layer, vertical position shall be expressed in terms of flight levels in climb and in terms of altitude when descending.

2.3.4 Speed Limitations

See MILAIP ENR 1.4-2 and 1.4-3

Due to specific conditions detailed in 2.3.4.1 OAT flights below FL100 will be executed inside Military Air Corridors (MAC) within a given speed restriction (IAS higher than 250kts but less than M0,85).

Supersonic flights allowed above FL360 (11000m). For QRA(I) Alpha Scramble supersonic flight is granted without any restriction.

Annex 4: Appendix IT - Country Chapter for ITALY

IT Amendments to the EUROAT

IMPORTANT NOTICE: The following is a list of differences applicable to OAT-IFR flights in Italian FIRs. The implementation of EUROAT rules in Italy DOES NOT imply the automatic acceptance of OAT-IFR flights from other nations. OAT-IFR flights that intend to operate within the airspace under Italian sovereignty will take place only if specific agreements with the States involved are in force and under the conditions established, including the diplomatic clearance. At tactical level also an OAT mission authorization by Italian Military Operational Authority is required.

2.2.2 Flight plan

2.2.2.1 All OAT-IFR flights shall fill in an ICAO Flight Plan following the specific requirements specified in MilAIP Italy.

2.3.2 Communications

2.3.2.2 The air-ground radiotelephony communications shall be conducted in English language.

2.3.2.3 Communications shall be concise and unambiguous, using standard ICAO phraseology published in ICAO Annex 10 Volume II, ICAO Doc 4444 PANS-ATM with the specific differences for military operations published in MilAIP Italy.

2.3.3 Altimeter settings

2.3.3.4 Information about transition altitude/transition level applicable within Italian FIRs is published in AIP-Italia and in MilAIP Italy.

2.3.4 Speed Limitations

2.3.4.1 Speed limitations below FL 100 apply to military flights unless otherwise specified by national rules (due to operational or technical reasons) or in case of different instructions issued by ATC.

2.4.3 Standard Military Formation

2.4.3.1 In standard military formation the longitudinal or lateral distance between the ACFT in the formation and the ACFT of the formation leader shall not exceed ½ NM; the vertical distance shall not exceed 100 ft.

2.4.3.3 Formation flights between FL 280 and FL 410 consisting of RVSM approved ACFT shall be considered as a NON-RVSM equipped flight.

2.4.4 Non-standard Formation

2.4.4.1 Aircraft/elements of a formation flight that are outside the horizontal and/or vertical limits of 2.4.3.1 (as modified in IT amendments to EUROAT) are considered a non-standard formation.

2.6.2 Intercepted Aircraft

2.6.2.2 In addition to signals published by ICAO (Appendix 1 to ICAO Annex 2), intercepting ACFT may direct the following signals to the intercepted aircraft.

Series	Intercepting aircraft signals	Meaning	Intercepted aircraft responds	Meaning
3 bis	DAY or NIGHT: release of one or more volleys of flares from such a position and distance as to constitute no hazard for the intercepted aircraft.	Last warning. Follow me. If you don't comply, your safety will not be assured.	DAY or NIGHT: use Series 1, 5 or 6 signals prescribed for intercepted aircraft.	(see Appendix 1 to ICAO Annex 2, Series 1, 5, 6 signals)

2.7.2 Take-Off/landing Emergency

2.7.2.1 When requesting the use of an arresting gear with ATC, the pilot-in-command shall use the standard phraseology associated to the type of arresting gear (cable or barrier), and the position of the arresting system (approach or departure) as published in MilAIP Italy.

3.4.2 Standard Military Formation

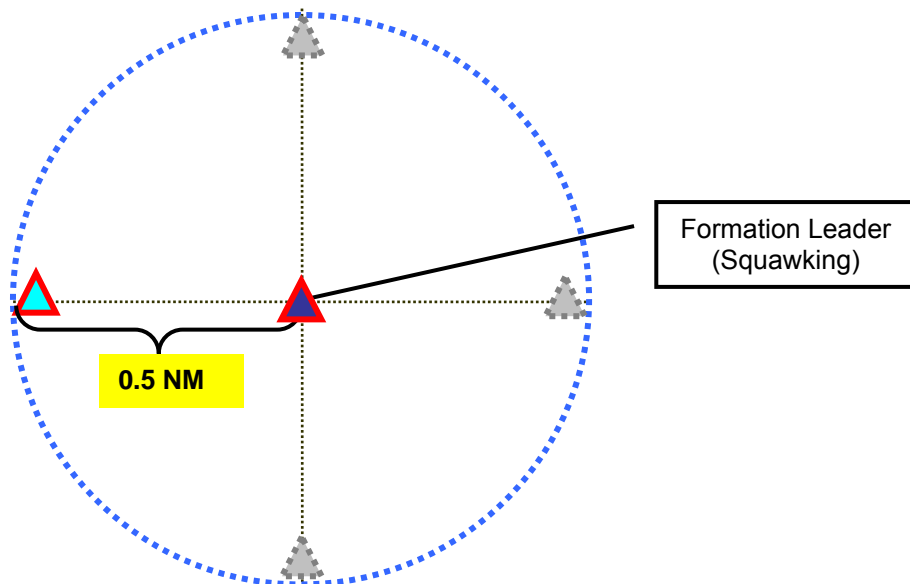
3.4.2.1 In standard military formation the longitudinal or lateral distance between the formation leader and the other ACFT shall not exceed ½ NM; the vertical distance shall not exceed 100 ft.

3.4.3 Non-standard Formation

3.4.3.1 If either horizontal or vertical (or both) limits exceed 3.4.2.1, military formation is to be considered a “non-standard formation”. In this case, ATCO may issue single transponder codes/settings to each ACFT and all ACFT have to squawk accordingly.

Annex 2 Definitions and explanations

Standard Military Formation is an ACFT formation where each wingman flies within 0.5 NM horizontally and within 100 ft vertically from the leading ACFT.



A Standard Military Formation, usually consisting of 2 to 4 aircraft, shall remain within a cylinder-shaped airspace of max 0.5 NM radius and max 200 ft height, defined by the squawking aircraft (formation leader), representing the center of the cylinder .

In regard to ATC separation, a standard military formation shall be considered as a single aircraft and the applicable separation minima need not to be increased except when flying in RVSM airspace where vertical separation minimum from the formation flight and other aircraft shall be 2000 ft.

Radar Trail Formation means a formation flight in which two or more aircraft are spaced longitudinally at a variable distance in time between 30 seconds and 1 minute equal to a distance of 3-7 NM and where the following ACFT maintain own radar separation from the front ACFT.

This type of formation shall be indicated in item 18 of flight plan [e.g. **RMK/RADAR TRAIL FORMATION FROM ...(place)... TO ...(place)..**].

When establishing radio contact with an ATS unit, the flight leader is responsible to notify type of formation, number of aircraft involved and distance in time or NM, among the ACFT.

Annex 4: Appendix NL - Country Chapter for THE NETHERLANDS

NL Amendments to the EUROAT

3.3.4 Altimeter Settings

3.3.4.3 The transition altitude in the Amsterdam FIR is 3000 ft for IFR flights.

3.3.4.4 The common transition level for the Amsterdam FIR is above 4000ft AMSL and is determined hourly.

3.3.5 Speed Limitations

3.3.5.1 Below 3000 ft AGL or in controlled airspace flights shall be carried out with an IAS less than 350 KT unless the flight characteristics of the ACFT type concerned or the type of mission to be executed, require higher speeds in which case a maximum IAS of 450 KT shall not be exceeded.

3.3.7 Use of afterburner

3.3.7.1 Except for take-off and climb afterburner is not to be used below 10.000ft AGL

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Annex 4: Appendix RO - Country Chapter for ROMANIA

RO Amendments to the EUROAT

2.3.4 Speed limitations

2.3.4.1 In TMA, below FL 100, and in CTR , the maximum speed for OAT flights is 350 KIAS (650 km/h), except for Air Policing mission flights, OAT flights in reserved airspace and the designated flights coordinated at pre-tactical and tactical level.

2.3.4.2 In Bucharest FIR, supersonic flights are prohibited below 10 000 m STD, except Romanian or Allied Member States military flights conducted for fulfilling combat missions.

2.4.1 General Rule for Formation Flights

2.4.3 Formation flights between FL 280 and FL 410 consisting of RVSM approved aircraft shall be considered as a NON RVSM equipped flight.

2.4.4 Non-standard Formation

2.4.4.5 Airspace volume which includes non/standard formation is considered by ATCO as a mobile Segregated Temporary Area (TSA).

2.4.5 Non-standard Formation Departure

2.4.5.1 Each aircraft from non-standard formation is controlled by ATCO as an individual flight during take off and landing.

2.4.6 Formation Join Up

Additional:

Before departure and on route, by 5 minute before joining up, the formation leader will report to the ATC unit the following information:

- each joining up aircraft call sign;
- joining up position or time;
- joining up procedure.

2.4.8 Formation Radio Failure

2.4.8.1

a) When two way air-to-air radio communication failure experiences between an aircraft the rest of formation, the next steps are followed:

- the pilot of the aircraft experiencing two way air-to-air radio communication failure transmits to the other pilots, the specific visual signals for this situation;
- the pilot of the aircraft experiencing two way air-to-air communication failure, checks the two way air-to-ground radio communication;
- if the two way air-to-ground radio communication works, the pilot of the aircraft experiencing air-to-air radio communication failure report the experienced situation to the air traffic control unit;
- if the formation leader experiences air-to-air communication failure, another pilot from the formation flight takes over the formation command;
- the formation leader reports to the air traffic control unit the experienced situation and the decision regarding continuing the mission or landing on the suitable airfield;
- the pilot of the aircraft experiencing air-to-air radio communication failure, maintains the formation position in the visual limit.

b) When an air-to-air radio communication failure experiences between all aircraft of the formation flight, the next steps are followed:

- the formation leader attempts to contact air traffic control unit to check two-way air-ground radio communication;
- if the two way air-ground communication is established, the formation leader reports to the air traffic control unit the experienced situation and the the decision regarding continuing the mission;
- if two way air ground radio communication is not established, the formation flight will follow the basic ICAO radio failure procedures;
- if the break-up of formation flight is necessary, the formation leader squawks Mode C, code A 7600, immediately after the formation break-up initiation and follows the basic two way radio communication failure.

Annex 4: Appendix SE - Country Chapter for SWEDEN

SE Amendments to the EUROAT

2.3.3 Altimeter Settings

2.3.3.1 The transition altitude in Sweden FIR is decided to 5000 ft. Three airports have higher transition altitude due to obstacles/ high terrain (6000 ft/ 9000 ft).

2.3.3.2 The transition level is the lowest available flight level above transition altitude.

2.3.4 Speed limitations

2.3.4.1. Inside military TMA appointed IAS, for VFR and IFR, is decided to 300 KIAS, however on ATS initiative or on PIC request and if the traffic situation allows other IAS can be cleared by ATC.

2.7.5 Radio communication failure procedure in OAT

If interruption of the radio connection occurs with a military aircraft performed according to FPL / OAT, the continued provision of air traffic services is based on the assumption that the pilot continues the flight in accordance with the current flight plan.

If the pilot-in-command for some reason do not find this procedure applicable, he/she shall:

When the two-way radio communication in operational air traffic (OAT) is broken the pilot shall set transponder code 7600 and, if possible, continue the flight in visual meteorological conditions and land at the nearest suitable aerodrome

ATS will ascertain the degree of radio failure by advising the pilot to operate IDENT (SPI) feature or to change code. When it is determined that the ACFT receiver is functioning, the acknowledgement of receipt of ATC instructions will be continued using IDENT (SPI) feature or code change. In the case of a complete radio-communications failure the pilot shall follow established procedures as below:

If an aircraft needs assistance, attention shall be established in one of following ways:

When visual contact is established with another aircraft shall:

- The pilot manoeuvre at a parallel heading besides the other aircraft
- By day wing-rocks shall be made and by night repeated regular twinkles with the navigation lights be made.
- A pilot observing the distress signals shall acknowledge with the same signals and guide the aircraft to landing at a suitable aerodrome.

When failing to establish visual contact with another aircraft shall:

- The pilot shall search an area and altitude where the aircraft is supposed to be observed by radar.
- The pilot shall operate at fuel economic speed in an equilateral triangle with a one minute leg for jet aircraft and a two minutes leg for propeller aeroplanes and helicopters
- The triangle should be flown in a left-hand circuit if both the transmitter and receiver are unserviceable and in a right-hand circuit if only the transmitter is unserviceable.
- In instrument flight the turns be performed with a 45 degrees bank for aeroplanes and with a 30 degrees bank for helicopters. (*)

2.4.9.3 Recommendation:

The formation leader shall inform ATC and the formation wingman shall switch on the transponder. In Sweden a lost wingman situation is not by default considered to be an emergency, but if a member of the formation considers it to be so he/she should squawk EMERGENCY.

Annex 4: Appendix SP - Country Chapter for SPAIN

SP Amendments to the EUROAT (SP official implementation TBD 2013/14)

NOTE: Spain is currently adapting National Regulation to EUROAT; contact Spanish Military Control Centre (see Annex 5, Appendix SP, Point 4) before flying any OAT over Spanish territory.

1. General information

Spanish operational flights, conducted under VFR (OVFR), IFR (OIFR) or Air Defence Rules (ADFR), are regulated by the *Reglamento de la Circulación Aérea Operativa (RCAO)*, published under a Royal Decree. EUROAT has been included in this regulation, except amendments showed in this National Annex. Spanish AIP also includes OAT information and ARES activation, activity and limits.

Military Air Traffic Control Centres (ECAOs) are collocated with civilian ACCs (see Annex 5).

Most ARES are managed by Air Defence System for daily training of fighter Units. Refer to Spanish AIP for ARES activation and use. Air Defence Centres call signs are “PEGASO”, “POLAR” and “PAPAYO”.

2. General deviations from EUROAT

The general deviations from EUROAT are:

- When ATC is written in EUROAT, Spanish Regulation refers to “ATS or Tactical Control”.
- ARES is non classified airspace, only advisory services are provided. Within this airspace, it is always a pilot responsibility to maintain aircraft separation (same formation, OAT or GAT).
- In line with the above bullet, MARSAs always applies inside ARES.
- For abbreviations and definitions, Spain refers to NATO AAP- 15 (NATO GLOSSARY OF ABBREVIATIONS USED IN NATO DOCUMENTS AND PUBLICATIONS) and AAP- 6 (NATO GLOSSARY OF TERMS AND DEFINITIONS). EUROAT Annex 2 “Definitions and Explanations” is only applicable for those not included in NATO Publications.

3. Deviation and national procedure

2.3.1.1. Does not apply.

2.3.2.1. In addition to the 2-way radio communication, a continuous listening watch on the appropriate emergency frequencies (UHF and/or VHF) shall be maintained.

2.3.3.3. Transition altitude in Spanish aerodromes is established at 6000 ft, except (reference: AIP ENR 1.7.1):

- Granada, that is 7000ft.
- Madrid/Barajas, Madrid/Getafe, Madrid/Cuatro Vientos and Madrid/Torrejón that is 13.000ft.

2.3.4.1. Add to 2.3.4.1.:

- vi. Previous coordination with ATS (civil or military).

2.4.4.5. Additional information regarding Formations:

	Information to provide to ATS/Tactical Control:
IMPLIES TO HAVE IN SIGHT THE REST OF THE AIRCRAFT	<p>CLOSE - STANDARD FORMATION (1)</p> <p>SPREAD - STANDARD/NON STANDARD FORMATION (2)</p> <p>OPEN - STANDARD/NON STANDARD FORMATION (3)</p>
IMPLIES TO HAVE RADAR CONTACT WITH PRECEDING AIRCRAFT	<p>RADAR TRAIL - NON-STANDARD FORMATION (4)</p>

(1) **CLOSE STANDARD FORMATION:** Always a standard formation. Aircraft are very close together. The separation between them depends on the type of aircraft, usually a fuselage / a span / half a rotor, flying in different horizontal planes and vertically spaced with wingtip clearance

(2) **SPREAD STANDARD FORMATION OR SPREAD NON STANDARD FORMATION:** Depending on the mission could be standard or non standard. Normally occupies a single level flight, but could occupy several levels depending on the type of training and the number of aircraft.

(3) **OPEN STANDARD OR OPEN NON STANDARD:** Depending on the mission could be standard or non standard formation. Mainly used during long flights to reduce workload. The normal separation of each element with respect to the leading pilot is 1 NM lateral or longitudinal and 100 ft vertically.

(4) **RADAR TRAIL NON STANDARD FORMATION:** It is always a non standard formation. Separation between aircraft is determined by using the on-board radar. All aircraft are at the same flight level except during climb or descent. Separation varies according to the type of aircraft radar. It can reach a maximum range of 7 NM (12 km) to the leading aircraft.

2.4.5.3. Does not apply.

2.4.9.3. Recommendation is mandatory and states:

In order to immediately alert ATC and allow to safely resolving resulting potential conflict without undue delay, the following should be executed in addition to the appropriate lost-wingman procedure:

- i. Formation leader will inform ATS as soon as possible.
- ii. The aircraft executing a lost-wingman procedure shall squawk EMERGENCY, and follow directions from ATC.

2.5.1.1. Priority will be given to the CAO aircraft over CAG aircraft. Flights in ARES will be conducted according to the procedures established to carry out the mission, except for aircraft crossing the ARES, previous ATS authorization.

- 2.5.2.1. Separation between aircraft within ARES. When flying in ARES, enough separation will be maintained between all aircraft, being the responsibility of the formation leader / aircraft commander. MARSAs always apply, due to ARES being unclassified airspace; therefore control or separation is not provided.
- 2.5.3.1. and 3.5.2.1. In order to maintain a minimum separation, ATS units shall ensure that aircraft operating under its control outside the ARES are maintained at a proper distance, which is generally 3 NM.
- 2.7.2.1. Takeoff or landing emergency. When an aircraft requests a braking system to the ATS, the aircraft commander will use a clear wording requesting the type of braking system ("cable, cable, cable" or "barrier, barrier, barrier") and, if time permits, location (beginning or end of track). (STANAG 3817 shall apply)
- 2.7.5.1. ICAO procedures shall apply. Each Air Force Base has its NORDO traffic circuit, which are described in the Spanish AIP.
- 3.2.1.1. ESSAR 5. Currently there is not a requirement for OAT Military controllers to speak English. However, most of them speak and understand English language. If necessary, it is recommended to request in advance an English speaker controller when planning an OAT flight.
- 3.4.2.4. OAT vertical separation between aircraft
- i. When aircraft are below FL290 apply the minimum separation of 1000ft.
 - ii. When aircraft are above FL290 in airspace RVSM then apply the minimum separation of 2000ft.
 - iii. When aircraft are in RVSM airspace shall apply the following separation minimum:
 - 1000ft between RVSM approved aircraft
 - 2000ft between aircraft when at least one of them has not RVSM
 - 2000ft between formations or between training and other aircraft and non-RVSM
- 3.5.1.1. ARES separation is always pilot responsibility.
- 3.5.2.1. In order to maintain a minimum separation, ATS units shall ensure that aircraft operating under its control outside the ARES are maintained at a proper distance, which is generally 3 NM.
- 3.5.2.2. There are not buffers regarding ARES boundaries, being pilot responsibility to keep inside it.

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Annex 4: Appendix SVK - Country Chapter for SLOVAKIA

SVK Amendments to the EUROAT

2.3.2 Communication

2.3.2.1 (3.3.2.1) A continuous listening watch on the appropriate UHF Emergency Frequencies is not maintained in the Slovak Republic.

2.3.3.3 Altimeter Settings

The transition altitudes at the controlled aerodromes in the Slovak Republic are published in AIP Slovak Republic (ENR 1.7). The transition altitudes at the military aerodromes:

- MALACKY (LZMC) 8000ft/2450 m MSL,
- PREŠOV (LZPW) 8000ft/2450 m AMSL.

Regional QNH for BRATISLAVA FIR is issued every 3 hours. It is a minimum of forecasted QNH values in all BRATISLAVA FIR regions.

2.3.4 Speed Limitations

2.3.4.2 Supersonic Flights can only be conducted in the Slovak republic under these conditions:

- the minimum level for a climbing aircraft shall be at least FL 370,
- the minimum level for a horizontal flight shall be at least FL 410,
- the minimum level for a descending aircraft shall be at least FL 450.

All supersonic flights shall be executed by 20.00 UTC.

Air Defence Flights (Alpha Scramble) are allowed to depart from the rules defined in 2.3.4.

2.5.3.1 (3.5.2.1) In the Slovak Republic the safety-buffers towards the ARES boundaries are 2.5 NM.

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Annex 4: Appendix UK - Country Chapter for the UNITED KINGDOM

UK Amendments to the EUROAT

NOTE: The UK national regulations are compliant with the EUROAT excepting the national variations which are listed in the annex. The annex also contains the mandatory content as detailed in the EUROAT guidance material.

2.1.	Applicability of ICAO Rules of the Air
	UK differences to the ICAO Rules of the Air relevant to OAT under IFR rules inside CAS are contained below with the full details of UK differences listed at UK AIP Gen 1.7 .
	<p>ICAO Annex 2</p> <p>Chapter 3.1.8. UK requirements contain ATC procedures for military formations but not civil and specify formation elements must be contained within 1 nm and same level. Full details of these requirements are detailed below.</p> <p>Chapter 3.5.3. No provision is yet made in UK Regulations or ATS documentation regarding the carriage and operation of data-link communication systems.</p> <p>Chapter 3.9</p> <p>Class A Airspace: The UK has not yet notified VMC minima for Class A Airspace as adopted in Annex 2 on 4 November 1999. However, comparable VMC minima are specified for certain applications in Class A Airspace (UK AIP ENR 1-4-1 paragraph 2). It is the intention of the UK to adopt the changes to Annex 2 Table 3.1 introduced on 4 November 1999.</p> <p>Class B Airspace: Class B Airspace is not used in the UK.</p> <p>Class C, D and E Airspace: In addition to the minima specified in Table 3-1, the VFR flight is allowed by aircraft, other than helicopters, at or below 3000 ft amsl at a speed of 140 kt or less, which remain clear of cloud and in sight of the surface and in a flight visibility of at least 5 km. Helicopters may fly under VFR in Class C, D or E Airspace at or below 3000 ft amsl provided that they remain clear of cloud and in sight of the surface.</p>
2.3.1	Use of Airborne Collision Avoidance Systems (ACAS) in the United Kingdom FIR and UIR
	<p>ACAS indications shall be used by pilots in the avoidance of potential collisions, enhancement of situational awareness, and the active search for, and visual acquisition of, conflicting traffic. The ability of ACAS to fulfil its role of assisting pilots in the avoidance of potential collisions is dependent on the correct and timely response by pilots to ACAS indications.</p> <p>The Traffic Alert and Collision Avoidance System (TCAS) II is accepted by the Civil Aviation Authority (CAA) as a suitable ACAS system provided its installation is certificated by the State of Registry, and that its operation by flight crew is in accordance with appropriate operating instructions.</p> <p>Procedures to be Established. An operator shall establish procedures to ensure that: When ACAS is installed and serviceable, it shall be used in flight in a mode that enables Resolution Advisories (RAs) to be produced unless to do so would not be appropriate for conditions existing at the time, and</p> <p>When undue proximity to another aircraft is detected by ACAS, the commander or the pilot to whom conduct of the flight has been delegated shall ensure that</p>

corrective action is initiated immediately to establish safe separation.

The circumstances when it is appropriate to operate ACAS in the Traffic Advisory (TA)-only mode are specified in the Flight Operations Manual. This should be limited to particular in-flight failures, during take-offs or landings in limiting performance conditions (for example at high altitude airports), and locations where States have approved specific procedures permitting aircraft to operate in close proximity, only. For military aircraft this may include air-to-air refuelling amongst other types of operation.

TCAS II Operating Characteristics. TCAS II will issue a TA only when another aircraft with a compatible operating transponder is close in both range and altitude. If the transponder in the potentially conflicting aircraft is providing altitude data, an RA may be issued.

TAs and RAs can be issued on the basis of 'time to closest point of approach (CPA)' or 'fixed distance' thresholds being penetrated. On most occasions, TAs and RAs will be issued on the 'time to CPA' basis, but in RVSM penetration of airspace fixed range and altitude thresholds are likely to be a more frequent cause.

Note: In cases where a vertical speed of closure causes RAs to be issued, TCAS II in the climbing/descending aircraft may advise a reduction in the climb or descent rate, whilst TCAS II in the other aircraft may advise a 'Climb' or 'Descend' RA. If the climbing/descending aircraft in this pair is diverging in range at a slow rate, the 'Climb' or 'Descend' RA issued to the Flight Crew in the other aircraft may remain displayed for several minutes, even though the former has levelled off at its cleared flight level. Although this particular circumstance is likely to be rare, even when it does occur, excessive altitude excursions need not result.

Operation of Aircraft When ACAS II is Unserviceable. The current TCAS II Minimum Equipment List permits TCAS II equipped aircraft to operate for up to 10 days with the equipment out of service. This position will be kept under review.

Due to the safety benefits arising from TCAS operations and the collaborative way in which it arrives at collision avoidance solutions any aeroplane with an unserviceable transponder as well as an unserviceable TCAS will not be permitted in UK airspace for which mandatory carriage of a transponder is required.

Operation of TCAS II in RVSM Airspace. Above FL 290, TAs and RAs are most likely to occur in airspace where aircraft change altitude to reduce separation from 2000 ft to 1000 ft: this airspace is described as a 'Transition Area'. Specifically:

- TAs can be expected when aircraft vertically separated by 1000 ft pass each other. If the speed at which they pass is low, such as when one is overtaking the other, TAs may be intermittent or they may last for long periods.
- RAs can be expected when the vertical speed of closure, which may be the sum of the vertical speeds of both aircraft or the vertical speed of one of the aircraft, exceeds approximately 1500 ft/min. RAs might also be issued when either aircraft experiences turbulence sufficient to cause TCAS to project the vertical separation between both aircraft to be less than 800 ft at CPA, or when a 'soft altitude hold' function in either aircraft achieves the same result.

Guidance for Aircraft Operators and Flight Crews. Flight Crews can reduce the likelihood of TAs and RAs occurring above FL 290 where separation is less than 2000 ft vertically and 5 nm horizontally by confining vertical speeds to less than 1500 ft/min. Desirably, the vertical speed should be between 500 and 1000 ft/min.

The TCAS II function control selector should not be moved from the 'TA/RA' or 'Normal' position upon entering RVSM Airspace. Although it is implicit that such TAs and RAs as have been described could be termed 'unnecessary', this might not always be the case. For this reason, Flight Crews would be unwise either to disable an effective collision avoidance device without sound reason, or to assume that any TA or RA issued in this airspace is other than genuine.

Flight Crews shall not manoeuvre an aircraft solely in response to a TA. TAs are intended to alert the pilot to the possibility of an RA, and to assist in visual acquisition of conflicting traffic. However, visually acquired traffic may not be the same traffic causing a TA, and visual perception of an encounter may be misleading, particularly at night.

In the event that an RA is issued, Flight Crews shall:

- Respond immediately and manoeuvre as indicated by the ACAS unless doing so would jeopardise the safety of the aircraft;
- Follow the RA even if there is a conflict between that RA and an air traffic control (ATC) instruction to manoeuvre;
- Not manoeuvre in the opposite sense or direction to that of the RA;
- Limit RA manoeuvres to the minimum extent necessary to comply with the RA.

Flight Crews should note that:

- Other critical warnings such as Stall Warning, Windshear Warning and Ground Proximity Warning Systems have priority over ACAS.
- Visually acquired traffic may not be that causing an RA, as the visual perception of an encounter may be misleading, particularly at night.
- ATC may not know when an ACAS system issues an RA. It is possible for ATC to issue instructions to an aircraft that are unknowingly contrary to RA instructions on that aircraft. Therefore, it is essential that ATC be notified when an ATC instruction is not being followed because it conflicts with an RA.
- a manoeuvre opposite to the sense of an RA may result in a reduction in vertical separation with the 'threat' aircraft and therefore must be avoided at all times; this is particularly true in the case of an ACAS-ACAS coordinated encounter, when the RAs complement each other in order to reduce the potential for collision. Manoeuvres, or lack of manoeuvres, that result in vertical rates opposite to the sense of an RA could result in a collision with the threat aircraft.

A pilot who has deviated from an air traffic control instruction or clearance in response to an RA shall:

- As soon as possible, as permitted by flight deck workload, notify the appropriate ATC unit of the RA, including the direction of any deviation from the current ATC instruction or clearance.
- When they are unable to comply with a clearance or instruction that conflicts with an RA, notify ATC as soon as possible consistent with flying the aircraft.
- Promptly comply with any modified RAs.
- Return to the terms of the ATC instruction or clearance when the conflict is resolved.
- After initiating a return to, or resuming the current clearance, notify ATC as soon as possible consistent with flying the aircraft.

Verbal reports should be made to Air Traffic Control at the first practicable moment and written reports submitted to the designated Authority as soon as possible after the flight has ended

2.3.3	Altimeter Settings
2.3.3.3	Transition Altitude
	<p>The Transition Altitude within the UK is 3000 ft except in or beneath the airspace specified at section 4 of UK AIP ENR 1.7 as follows:</p> <p>Aberdeen CTR/CTA 6000 ft Belfast CTR/TMA 6000 ft Birmingham CTR/CTA 6000 ft Bristol CTR/CTA 6000 ft Cardiff CTR/CTA 6000 ft Davenport CTA 6000 ft Doncaster Sheffield CTR/CTA 5000 ft Durham Tees Valley CTR/CTA 6000 ft † East Midlands CTR/CTA 6000 ft Edinburgh CTR/CTA 6000 ft Glasgow CTR/CTA 6000 ft Leeds Bradford CTR/CTA 5000 ft † Liverpool CTR/CTA 5000 ft London TMA 6000 ft Manchester TMA 5000 ft Newcastle CTR/CTA 6000 ft Scottish TMA 6000 ft Solent CTA 6000 ft † Sumburgh CTR/CTA 6000 ft †</p> <p>† Note: Outside the notified hours of operation the Transition Altitude is 3000 ft.</p>
2.3.4	Speed Limitations
	<p>Pilots of military aircraft operating within CAS as GAT are to conduct their flights in accordance with the ATC rules applicable to the airspace. Military pilots are not subject to the speed limit of 250 knots specified for civil flights below FL100.</p>
2.4	Formation Flights
2.4.3	Standard Military Formation
	<p>Within a formation of aircraft the formation leader is responsible for separation between units comprising the formation. This is known as MARSAs 'military accepts responsibility for separation of aircraft'.</p> <p>Formation Flights in Receipt of an ATS - Specific Requirements. Formations are to be considered as a single unit for separation purposes provided that:</p> <ul style="list-style-type: none"> • The formation elements are contained within one nm laterally and longitudinally, and at the same level or altitude. • The formation, although operating outside the parameters given above, has been the subject of an AUS Airspace Coordination Notice (ACN) or tactical negotiation. • When first checking in on a control frequency, formation leaders are to clearly state the number of aircraft in the formation. Controllers are to ensure that this information is obtained prior to establishing an ATS. • Where traffic under service comprises a formation or stream of 2 or more aircraft, controllers are to include this information during radar handovers, requests for Cleared Flight Path, verbal co-ordination or when passing traffic information on landline or RT. • When crossing Controlled Airspace (CAS) all aircraft in the formation are to monitor the relevant ATC frequency.

	<p>Formation Flights Within CAS. When flying within CAS (Classes A-D) and when under a radar service within Class E, the following procedures are also to be applied:</p> <ul style="list-style-type: none"> • All aircraft are to fly within one nm laterally and longitudinally of each other at the same level or altitude by visual means or by use of airborne radar. Where this not possible for any reason, formations are to be split into elements separated by the prescribed ATC separation minima before entering CAS. Such elements may be either individual aircraft or smaller formations that can fly within one nm laterally and longitudinally and at the same level or altitude, each of which is to be assigned a discrete SSR code with Mode C. • Prior to a formation entering CAS, controllers are to obtain a confirmation on RT that all aircraft within elements are within one nm of each other. • When formations are within level flight, controllers are to obtain confirmation that all elements are at their assigned level prior to the formation entering CAS. When a formation has been cleared to climb or descend in CAS controllers are to obtain confirmation that all elements have reached the new assigned level. If the vacation of a level is relevant for the purposes of co-ordination, controllers are to obtain confirmation that all elements have vacated the level in question. • Controllers may permit a formation to join up in CAS under the following circumstances: <ul style="list-style-type: none"> • When an aircraft is in emergency and a formation join up is essential. • Formations commencing a join-up prior to entering CAS are permitted to complete their join within CAS, when conditions allow, subject to maintaining standard separation from other aircraft. Controllers are also to give appropriate consideration to the formation's proximity to other airspace users. • Within Class C airspace, controllers may allow formations to join up; however, they are to give appropriate consideration to the formation's proximity to Upper Air Routes and other airspace users. • Additionally, all elements involved in the formation join up are to squawk Mode 3A plus C until established in formation. Once established in formation individual elements, excepting the lead aircraft, are to be instructed to squawk standby. • Formations may require to split on a planned (e.g. prior to descent) or unplanned (e.g. approaching deteriorating weather or in emergency) basis. Early notification to controllers of the formation's requirements will ensure that any change in configuration takes place in a controlled, orderly and safe manner. Controllers may permit formation splits, planned or unplanned, in CAS giving due regard to other airspace users and coordination requirements. • C130 station keeping equipment (SKE) formations may be exempted from the lateral and vertical formation containment requirements provided that: <ul style="list-style-type: none"> • Lead and tail aircraft are squawking (with Mode C). • The flight is operating in accordance with a relevant Airspace Coordination Notice (ACN). • Prior to the formation entering CAS, the controller has obtained a confirmation on RT that all elements are at the assigned level. • Formations that are subject to ACN action (for example Coronet Flights) or tactical negotiation should use best practice (first and last aircraft squawking), together with positive confirmation to ATC that all aircraft are established in the assigned level block.
2.4.6	<p>Formation Join -Up</p>
	<p>Formation join-up procedures are as follows:</p> <p>VMC. Individual aircraft may rendezvous, either by ground controlled vectors, or by internal aids, with the final join-up being made visually. The initial minimum vertical</p>

	<p>separation is to be 2000ft below the formation but if the pilot is not visual with the formation when established in trail, vertical separation may be reduced to 1000ft below with the agreement of both the formation leader and the pilot of the joining aircraft. From this position, with the consent of the formation leader (the formation leader is responsible for separation (MARSA)), the aircraft may be cleared to climb visually and join the formation. The formation leader is responsible for MARSA between the units comprising the formation until the completion of formation break-up procedures, and the controller is to address his instructions only to the formation leader.</p> <p>IMC. Training formation join-ups will not normally be attempted in IMC. However, when for operational reasons IMC join-ups are essential, the following procedures are to be applied. The initial phase of the join-up may be achieved either by ground controlled vectors or by use of aircraft internal aids to a point 5nm horizontally from the formation leader and within 2000ft vertically. At this point the position of the joining aircraft is to be passed to the formation leader and confirmation obtained that he is willing to assume responsibility for separation between his aircraft, the aircraft comprising the formation and the joining aircraft. On receipt of this confirmation, the joining aircraft is to be transferred to the formation leader's discrete frequency. From this point MARSA applies. The final join up will be completed using aircraft internal aids under the direction of the formation leader. The joining aircraft is to squawk standby when join-up is complete.</p> <p>In-flight Procedures. When formation join-up is complete the formation is to be regarded as a single unit for separation purposes. RAF formations and most USAFE formations will be stepped-down vertically from the leader and may occupy more than one flight level. It is essential that the controller providing the service is aware of the flight levels blocked by the formation and ensures that, where applicable, it falls within the Altitude Reservation (ALTRV) authorized in the ACN. USAFE tanker formations use a different procedure. Should the climb to cruising level be stopped at an intermediate level, the formation will step-down at 500ft levels from the leader. However, once cruising level is achieved, the formation will stack-up at 500ft levels from the leader. Each element of the formation will be separated horizontally from the leader by one nm.</p>
2.4.7	<p>Formation Break -Up</p> <p>The controller is to determine from the formation leader when the break-up procedures should commence, the procedures to be followed and the order that aircraft will depart. The controller is to indicate to the formation leader when the break-up procedure may commence. There are 3 methods for departing formation: Differential airspeed (USAFE preferred); achieving vertical separation and applying vectors.</p> <p>Formation break-up procedures are to be carried out by one controlling agency only. MARSA applies between the aircraft comprising the formation until standard separation has been achieved between individual aircraft and each aircraft has been identified and placed under service. Handover of control to another ATS unit is not to be made until these actions have been completed.</p> <p>Differential Airspeed (USAFE Preferred). Provided sufficient time is available, initial break-up is to be achieved by using differential airspeed to at least 5nm longitudinal spacing. The formation leader is to inform the controller when 5nm separation has been achieved and request individual control of aircraft within the formation. Individual aircraft are to be identified and placed under the appropriate service when separation has been notified.</p>

	<p>Achieving Vertical Separation. The controller is to determine from the formation leader whether individual aircraft will be climbing to a flight level above, or descending to a flight level below, the formation level to achieve standard vertical separation. With the approval of the controller, individual aircraft should depart the formation visually in the pre-notified sequence on the instructions of the formation leader, and climb or descend to the assigned flight level. The controller is to confirm that an aircraft is established at its assigned flight level, identified and placed under service, before authorising the formation leader to instruct the next aircraft to depart the formation.</p> <p>Applying Vectors. The controller is to determine from the formation leader the vectors that individual aircraft will follow when departing the formation to achieve standard horizontal separation. With the approval of the controller, individual aircraft should depart the formation visually, in the pre-notified sequence, on the instructions of the formation leader, maintaining the assigned flight level and flying the agreed vector. When standard separation has been achieved, the controller is to identify the aircraft and place it under service before authorising the formation leader to instruct the next aircraft to depart the formation.</p>
2.7.5	<p>Radio Communications Failure (NORDO) Procedure</p>
	<p>The UK procedures for Radio Communications Failure are detailed in the UK AIP ENR 1.1, 1.1-13, 3.4.2.2.</p> <p>Radio Failure Procedures For Pilots</p> <ul style="list-style-type: none"> • As soon as ATC know that two-way communication has failed they will, as far as practical, maintain separation between the aircraft experiencing the communication failure and other aircraft, based on the assumption that the aircraft will operate in accordance with following radio communication failure procedures. • It should be noted that for many aerodromes in the UK, the radio communications failure procedures published in the AD 2 section of the UK AIP differ from, or amplify, the basic procedures that follow. <p>For the purposes of these procedures, ATC will expect an IFR flight following the ATS route structure to adopt the IMC procedure. If there is an overriding safety reason, the pilot may adopt the VMC procedure.</p> <ul style="list-style-type: none"> • Flights operating outside controlled or advisory airspace, without reference to ATS, should only use these procedures when the pilot decides that there is a need to alert ATC that two-way radio communications failure has occurred. • It should be noted that the use of loss of two-way communications procedures may result in aircraft flying outside controlled airspace. • The procedures here apply to two-way radio communications failure. In the event that an additional emergency situation develops, ATC will expect the pilot to squawk code 7700. • The expression Expected Approach Time (EAT) will mean either an EAT given by the appropriate ATC Unit or, if the pilot has been given 'No delay expected', the ETA over the appropriate designated landing aid serving the destination aerodrome. • Pilots are given an EAT of 'Delay not determined' when the destination runways cannot be used for landing and it is not possible to accurately predict when they will become available. In some circumstances an EAT of 'Delay not determined' will also be given when a preceding flight has elected to remain over the holding facility pending an improvement in weather conditions at the destination. If 'Delay not determined' has been given, do not attempt to land at the destination aerodrome, divert to the alternate destination specified in the current flight plan

or another suitable airfield.

- The 'current flight plan' is the flight plan, as filed and acknowledged with an ATC Unit, by the pilot or a designated representative.
- Essential information may be relayed by ATC using the ACARS/Data Link. Pilots may endeavour to use alternative methods for communicating with ATC such as HF. The Distress and Diversion Cells (D&D) serving the London FIR/UIR and the Scottish FIR/UIR may be contacted by phone by aircraft that have approved installations that can access the UK telephone network. The telephone numbers are as follows: London D&D Tel: 0044 (0)1489 612406 Scottish D&D Tel: 0044 (0)1292 692380.

VMC. A **VFR** or **IFR** flight in VMC experiencing communication failure shall:

- When VMC can be maintained, the pilot should squawk code 7600 with Mode C and land at the nearest suitable aerodrome. Pilots should take account of visual landing aids and keep watch for instructions as may be issued by visual signals from the ground. The pilot should report arrival to the appropriate ATC unit as soon as possible. If it does not appear feasible to continue the flight in VMC, or if it would be inappropriate to follow this procedure, the pilot should adopt the procedures for IMC detailed below.
- **Note:** Pilots already in receipt of an ATC clearance may enter controlled airspace and follow the procedures referred to above. **Those flights, that have not received an ATC clearance, should not enter controlled or advisory airspace unless an overriding safety reason compels entry.**

IMC. A flight experiencing communication failure in IMC shall:

- Squawk code 7600 with Mode C.
- Maintain, for a period of 7 minutes, the current speed and last assigned level or minimum safe altitude, if this higher. The period of seven minutes begins when the transponder is set to 7600 and this should be done as soon as the pilot has detected communications failure.
- If failure occurs when the aircraft is following a notified departure procedure such as a Standard Instrument Departure (SID) and clearance to climb, or re-routing instructions have not been given, the procedure should be flown in accordance with the published lateral track and vertical profile, including any stepped climbs, until the last position, fix, or waypoint, published for the procedure, has been reached. Then, for that part of the period of 7 minutes that may remain, maintain the current speed and last assigned level or minimum safe altitude, if this higher.
- Thereafter, adjust the speed and level in accordance with the current flight plan and continue the flight to the appropriate designated landing aid serving the destination aerodrome. Attempt to transmit position reports and altitude/flight level on the appropriate frequency when over routine reporting points.
- If being radar vectored, or proceeding offset according to RNAV, without a specified limit, continue in accordance with ATC instructions last acknowledged for 3 minutes only and then proceed in the most direct manner possible to rejoin the current flight planned route. Pilots should ensure that they remain at, or above, the minimum safe altitude.
- If being radar vectored by an Approach Control Radar Unit, comply with the loss of communications procedures notified on the appropriate ATC Surveillance Minimum Altitude Chart (ATCSMAC) as detailed in the AD 2 section of the UK AIP.
- Arrange the flight to arrive over the appropriate designated landing aid serving the destination aerodrome as closely as possible to the ETA last acknowledged by ATC. If no such ETA has been acknowledged, the pilot should use an ETA derived from the last acknowledged position report and the flight-planned times for the subsequent sections of the flight.
- Arrange the flight to arrive over the appropriate designated landing aid serving

	<p>the destination aerodrome at the highest notified Minimum Sector Altitude taking account of en-route terrain clearance requirements.</p> <ul style="list-style-type: none"> • If following a notified Standard Arrival Route (STAR), after the 7 minute period, pilots should arrange descent as close as possible to the published descent planning profile. If no descent profile is published, pilots should arrange descent to be at the minimum published level at the appropriate designated Initial Approach fix. • On reaching the appropriate designated landing aid serving the destination aerodrome, begin further descent at the last acknowledged EAT. If no EAT has been acknowledged, the descent should be started at the ETA, above, or as close as possible to this time. If necessary, remain within the holding pattern until the minimum holding level, published for the facility, has been reached. The rate of descent in holding patterns should not be less than 500 ft per minute. If 'Delay not determined' has been given, do not attempt to land at the destination aerodrome, divert to the alternate destination specified in the current flight plan or another suitable airfield. • Carry out the notified instrument approach procedure as specified for the designated navigational aid and, if possible, land within 30 minutes of the EAT or the calculated ETA. When practical, pilots should take account of visual landing aids and keep watch for instructions that may be issued by visual signals from the ground. • If communications failure occurs during an approach directed by radar, continue visually, or by using an alternative aid. If this is not practical, carry out the missed approach procedure and continue to a holding facility appropriate to the airfield of intended landing for which an instrument approach is notified and then carry out that procedure. <p>Actions taken by ATC</p> <ul style="list-style-type: none"> • As far as is practical, ATC shall maintain separation between the aircraft experiencing the communication failure and other aircraft based on the assumption that the aircraft will operate in accordance with published radio communication failure procedures. • ATC will assume that an aircraft's receiver may be functioning and will transmit instructions for routing and other relevant information such as the EAT, weather information, altimeter settings and runway in use at destination (or alternate) aerodromes. • ATC will use all means possible to monitor the flight's progress and inform other flights where necessary. • ATC will attempt to re-establish communications with the pilot by monitoring standby frequencies (where available) and by contacting the aircraft operator, handling agent or by use of ACARS/Data Link when available. • ATC will co-ordinate the flight with other ATC agencies as required. • If the flight re-establishes communications with an ATC unit during flight, or after the aircraft has landed, the ATC unit will relay the pilot's intentions, or that the aircraft has landed, to the ATC Unit that was providing an ATS when the communications failure occurred. • If the aircraft's progress cannot be monitored by radar and there has been no other indication of the aircraft's progress, or landing, normal overdue action will commence 30 minutes after the ETA for the destination airfield.
3.1.	Applicability of ICAO Standards for Air Traffic Service Provision to OAT
	<p>UK differences relevant to the ICAO Standards for Air Traffic Service Provision to OAT under IFR rules inside CAS are below with full details of UK differences listed at UK AIP Gen 1.7.</p>

	<p>ICAO Annex 11</p> <p>Chapter 2.5.2.2.1. The UK does not designate Class B, C or D Airspace in all portions where an ATC service is provided to IFR or VFR flights.</p> <p>Chapter 2.6.1. In applying FUA, the UK permits gliders to operate VFR in notified portions of controlled airspaces. When such activity occurs such airspace is segregated from other GAT, and ATC provides separation from the segregated airspace</p>
3.2.	Prerequisites for ATS Provision to OAT
3.2.1	ATS Personnel
	Military ATS personnel shall be trained and qualified to provide ATS to OAT-IFR flights in accordance with national regulations; however, equivalence to ESARR 5 will not be demonstrated.
3.4.1	Separation from Other Traffic
	OAT operating in/out of EGWU in the EGLL CTR may be separated by 500ft from GAT.
3.4.2	Standard Military Formation
	This section should be read in conjunction with section 2.4 which details complimentary regulations relating to OAT-IFR formation flights.
	<p>Military Formations Routing as GAT. Formation flights are normally to fly as OAT and not GAT. Exceptionally, when this is not possible or practicable, a formation may file as GAT; however, crews have been made aware that this may lead to delay or re-routing.</p> <p>Where ATS has been delegated to the ANSP from an adjacent state, the military will not be able to provide a service. Civil sectors will therefore be responsible for providing a service through this area. Civil ATC may also opt to work the formation flight if it deems appropriate for reasons of safety. In such a case, the formation will be handed over to the military at soon as practicable. All procedures will be subject to specific local requirements.</p> <p>Formation Flights Exiting the UK to Fly as GAT in Europe. Although flights will normally be OAT to the UK FIR/UIR boundary, a flight plan to join CAS at the last fix prior to the exit fix of the UK boundary will be filed and an appropriate Air Traffic Flow Management slot obtained for the civil sector containing the boundary fix. This will generate a civil flight plan that will enable continuation of GAT flight beyond the UK boundary. Where possible, the military controller is to pre-note the formation flight to the civil sector concerned at least 20 minutes before the flight's estimate for the boundary fix.</p> <p>The military controller is to treat the formation as an OAT crosser and obtain appropriate co-ordination in order that the flight can reach the boundary fix. The military controller is to identify the flight to the civil sector as a formation and confirm its intentions; where practicable the flight should remain clear of the centreline of GAT routes for as long as possible. A request for a joining clearance at the boundary fix is to be obtained by the military controller; the civil sector will then activate the civil flight plan and pass an estimate to the adjoining ACC. The civil sector will provide a joining clearance to the military controller, along with the position at which the flight should be transferred; the military controller will then transfer the flight directly to the adjacent ACC.</p> <p>Formation Flights Inbound to the UK Arriving as GAT from Europe. On first receipt of the inbound estimate, the civil sector will pre-note the appropriate military agency, including the squawk and time at the FIR/UIR boundary fix; the military will</p>

	<p>then provide a new squawk and frequency. The adjacent ACC will be asked to transfer the formation flight directly to the military frequency; it will not be required to change the squawk. Military ATC are to change the squawk once the flight is within UK airspace. Appropriate co-ordination is to be agreed to enable the formation to clear CAS as soon as practicable.</p>
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Annex 5: Appendix BE - National Points of Contact for BELGIUM

1. Military Aeronautical Authority:
*Defence
Air Component - COMOPSAIR
Airspace Control Ops (A 3.2)
Kwartier Koningin Elisabeth / Quartier Reine Elisabeth
Bldg 1
Eversestraat / Rue d'Evere 1
B - 1140 BRUSSELS
Telephone number: ++32 (0)2 701 1736
Fax number: ++32 (0)2 701 7266
E-mail: maildesk.atm&ad@mil.be*

2. Entry/Transit of MIL NON-NATO Acft:
*Service Public Fédéral
Affaires Etrangères
Commerce Extérieur et
Coopération au Développement
Direction Générale B
B 3.4
Politique De Transport International
Autorisations Diplomatiques
Rue Des Petits Carmes, 15
B -1000 Bruxelles*

3. MILITARY AIS:
*Defence
Air Component - COMOPSAIR
Airspace Control Ops (A 3.2)
Kwartier Koningin Elisabeth
Bldg 1
Eversestraat / Rue d'Evere 1
B - 1140 BRUSSELS
Telephone number: ++32 (0)2 701 3213
Fax number: ++32 (0)2 701 7266
E-mail: maildesk.atm&ad@mil.be*

4. MILITARY ATCC:
*Defence
Air Component - ATCC SEMMERZAKE
ATC SQN
Kw Kapt VI de Hemptinne
Molenstraat 69
B - 9890 Gavere
Telephone number: ++ 32 (0)9 389 2555
Fax number: ++ 32 (0)9 389 2401
E-mail: datco@mil.be*

5. Incident investigation:

Defence

Air Component

Aviation Safety Directorate (ASD / ATM)

Base Charles Roman

B - 1320 BEAUVECHAIN

Telephone number: ++32 (0)10 68 2460 or ++32 (0)10 68 2461

or ++32 (0)10 68 2462

Fax number: ++32 (0)10 68 2601

E-mail: ASD-ATM@mil.be

6. Supervisory authority:

If safety of GAT is involved:

Belgian Supervising Authority for Air Navigation Services

Centre Communication Nord

Rue du Progrès 80 - Boîte 5, 1030 Bruxelles.

If only safety of OAT is involved:

COMOPSAIR ATM Safety Advisory Board

Defence

Air Component - COMOPSAIR

Airspace Control Ops (A 3.2)

Kwartier Koningin Elisabeth

Bldg 1

Eversestraat / Rue d'Evere 1

B - 1140 BRUSSELS

Annex 5: Appendix CH - National Points of Contact for SWITZERLAND

1. MILITARY AERONAUTICAL AUTHORITY

Postal Address: Federal Department of Defence, Civil Protection and Sport DDPS
Swiss Armed Forces
Swiss Air Force
Military Aviation Regulation (REMIL)
Airbase
CH-1530 Payerne
Telephone: +41 26 662 20 25
Telefax: +41 26 662 21 48

2. ENTRY AND TRANSIT REGULATIONS FOR MILITARY ACFT OF NON-NATO COUNTRIES

For diplomatic clearance

Download form here: <http://www.bazl.admin.ch/diplomaticclearances>
This form may be submitted by fax or email
Telefax: +41 31 325 80 60
E-mail: diplomatic.clearances@bazl.admin.ch

For OPS request

Postal Address: Federal Department of Defence, Civil Protection and Sport DDPS
Swiss Armed Forces
Swiss Air Force
Air Operations Center
OZD
Militärflugplatz
CH- 8600 Dübendorf
Telephone: +41 44 823 3000

3. AERONAUTICAL INFORMATION SERVICES

Postal address: skyguide
Swiss air navigation services ltd
Skyguide AIM services
Flugsicherungsstrasse 1-5
p.o.box 23
CH - 8602 Wangen b. Dübendorf
AFTN address: LSSAYOYX
Telephone: +41 43 931 61 68 (AIP)
+41 43 931 61 61 (AIM Services Switzerland, German/English)
+41 43 931 62 03 (AIM Services Switzerland, French/English)
E-mail: aim.helpdesk@skyguide.ch
aip@skyguide.ch

4. MILITARY AIR TRAFFIC CONTROL CENTRE

Postal address: Air Defense and Direction Center

skyguide

Flugsicherungsstrasse 1-5

CH - 8602 Wangen b. Dübendorf

AFTN address: LSASSUIX

Telephone: +41 44 823 37 37

Telefax: +41 44 823 31 16

E-mail: domaddc@skyguide.ch

5. DEPARTMENT OF INCIDENT INVESTIGATION

Authority: Federal Department of Defence, Civil Protection and Sport DDPS

Swiss Armed Forces

Swiss Air Force

Flight Safety Section

Papiermuehlestrasse 20

CH-3003 Bern

Telephone: +41 31 324 38 83

Telefax: +41 31 324 39 64

E-mail: FSH.LW@vtg.admin.ch

Annex 5: Appendix CRO - National Points of Contact for CROATIA

MILITARY AVIATION AUTHORITY

Ministarstvo obrane Samostalna služba za vojni zračni promet
Stančićeva 6
10000 Zagreb
Hrvatska (Croatia)

Telephone: +385(1)4567 667
Telefax: +385(1)4568 154
E-mail: hrvoje.filipovic@morh.hr

CROATIAN AIR FORCE

Hrvatsko ratno zrakoplovstvo i protuzračna obrana
VP 3044
Hrvatska (Croatia)

Telephone: +385(1)4861 010
Telefax: +385(1)4861 183
E-mail: branko.plazanic@morh.hr

ENTRY AND TRANSIT REGULATIONS FOR MILITARY ACFT OF NON-NATO COUNTRIES

Ministarsvo vanjskih i europskih poslova Služba za strance
Petretičev trg 2

10000 Zagreb
Hrvatska (Croatia)

Telephone: +385(1)4599 314
Telefax: +385(1)4599 447
E-mail: stranci@mvep.hr

DEPARTMENT OF INCIDENT INVESTIGATION

Ministarstvo obrane Samostalna služba za vojni zračni promet
Odjel za istraživanje zrakoplovnih nesreća i ozbiljnih nezgoda
Stančićeva 6

10000 Zagreb
Hrvatska (Croatia)

Telephone: +385(1)4568 739
Telefax: +385(1)4568 154
E-mail: goran.strmecki@morh.hr

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Annex 5: Appendix CZ - National Points of Contact for CZECH REPUBLIC

1. MILITARY AVIATION AUTHORITY

Postal address: OVL MO
Generala Píky 1
Praha 6 – Dejvice
161 05
Czech Republic

Telephone: +420 973 210 801/ 211 107
Telefax: +420 973 210 832
E-mail: pbrouk@email.cz
kasajm@gmail.com

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Annex 5: Appendix FR - National Points of Contact for FRANCE

1. MILITARY AERONAUTICAL AUTHORITY

Postal address:

DIRECTION DE LA SECURITE AERONAUTIQUE D'ÉTAT
Base aérienne 107 - CS 40704
78941 VELIZY CEDEX - FRANCE
Telephone: +33(1) 45073750
Telefax: +33(1) 45073356
E-mail: secdsae@gmail.com

2. ENTRY AND TRANSIT REGULATIONS FOR MILITARY ACFT OF NON-NATO COUNTRIES

Postal address: Ministry of Foreign Affairs
Bureau des survols / DSD
20 AVENUE DE SEGUR
75007 PARIS

3. AERONAUTICAL INFORMATION SERVICES

Postal address: Aeronautical Information Services
DIVISION INFORMATION AERONAUTIQUE
BASE AERIENNE 106
AVENUE DE L'ARGONNE - CS 70 037
33693 MERIGNAC CEDEX
Telephone: +33(5) 57925570
Telefax: +33(5) 5792556974
E-mail: sec.dia.dircam@inet.air.defense.gouv.fr

4. MILITARY AIR TRAFFIC CONTROL PROVIDERS

Commandant de l'Aviation Légère de l'Armée de Terre
Base aérienne 107 78129
VILLACOUBLAY ARMEES
Tel:+33(1) 41289350
Telefax : +33(1) 41289360

Commandant la Force d'aéronautique Navale
ALAVIA BP 10 83800 TOULON ARMEES
Tel : +33(4) 94020020
Telefax : +33(4) 94023197

Commandant les forces aériennes
Base aérienne 128 BP 105 57998 METZ ARMEES
Tel : +33(3) 87695641
Telefax : +33(3) 87695637
Directeur de DGA essais en vol
Base d'essais d'ISTRES 13804 ISTRES CEDEX
Tel : +33(4) 42483810
Telefax:+33(4) 42483812

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Annex 5: Appendix GE - National Points of Contact for GERMANY

1. MILITARY AVIATION AUTHORITY

Postal address: Bundesministerium der Verteidigung
FüSK I 2
Fontainengraben 150
53123 Bonn

Telephone: +49 (0)228 99 24 4884
Telefax: +49 (0)228 99 24 6687
E-mail: BMVgFueSKI2@bmvq.bund.de

2. FEDERAL MINISTRY OF TRANSPORT, BUILDING AND URBAN DEVELOPMENT

Postal address: Bundesministerium für Verkehr,
Bau und Stadtentwicklung
LR 23
Postfach 20 01 00
53170 Bonn

Telephone: +49 (0)228 99 300 4934
Telefax: +49 (0)228 99 300 1451
E-mail: ref-lr23@bmvbs.bund.de

3. MILITARY AERONAUTICAL INFORMATION SERVICE

Postal address: Amt für Flugsicherung der Bundeswehr
Abteilung Militärische Flugsicherung
Insterburger Straße 4 – 6
60487 Frankfurt am Main

Telephone: +49 (0)69 79307 2001 (Frankfurt Hausen)
+49 (0)6103 3105 701 (Langen)
Telefax: +49 (0)69 79307 2109 (Frankfurt Hausen)
+49 (0)6103 3105 799 (Langen)

E-mail: AFSBwLeitungGrpII@bundeswehr.org

4. MILITARY AIR TRAFFIC SERVICES

Postal address: Amt für Flugsicherung der Bundeswehr
Abteilung Militärische Flugsicherung
Insterburger Straße 4 – 6
60487 Frankfurt am Main

Telephone: +49 (0)69 79307 2001 (Frankfurt Hausen)
+49 (0)6103 3105 701 (Langen)
Telefax: +49 (0)69 79307 2109 (Frankfurt Hausen)
+49 (0)6103 3105 799 (Langen)
E-mail: AFSBwLeitungAbteilungMilFS@bundeswehr.org

5. MILITARY ENROUTE AIR TRAFFIC SERVICES

Postal address: Deutsche Flugsicherung GmbH
Militärische Unternehmensangelegenheiten (DFS ZM)
Am DFS-Campus 10
63225 Langen

Telephone: +49 (0) 6103 707 4401
Telefax: +49 (0) 6103 707 4495
E-Mail: cdc-zm@dfs.de

Annex 5: Appendix GR - National Points of Contact for GREECE

1. Military Aeronautical Information Services

Joint Civil and Military ATS Group

Hellenic Civil Aviation Authority

D20 AIS Division – D20/D National Aeronautical Publication Section

P.O. Box 70360

GR 16610 Glyfada

GREECE

AFTN LGGGYNYP

Telefax: +30 210 975 0757

Telephone: + 30 210 997 2760

2. Military Air Traffic Services

Hellenic Air Force General Staff

Air defence Directorate

Air Traffic Control Section

227-231, Mesogion Ave.

GR 16561, Cholargos

GREECE

Telefax: +30 210 659 1450

Telephone: +30 210 659 1451

e-mail: a45.hafgs@haf.gr

3. Military Department of Incident Investigation

Hellenic Air Force General Staff

Flight Safety Center

227-231, Mesogion Ave.

GR 15561, Cholargos

GREECE

Telephone: +30 210 659 1236

e-mail: fsd.hafgs@haf.gr

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Annex 5: Appendix HU - National Points of Contact for HUNGARY

Ministry of National Development Department for Civil Aviation and Inland Navigation

Postal address: H-1011 Budapest, Fő utca 44-50.

Phone: +06-1-795-1700

Fax: 06-1-795-0697

E-mail: ugyfelszolgalat@nfm.gov.hu

National Transport Authority Aviation Authority

Postal address: H-1675 Budapest, POB. 41.

Phone: +36-1-273-5526

Fax: +36-29-354-224

E-mail: ugyfelszolgalat.li@nkh.gov.hu

Ministry of Defence Department for Planning and Coordination

Postal address: H-1885 Budapest, POB. 25.

Phone: +36-1-474-1124

Fax: +36-1-474-1321

E-mail: hmtkf@hm.gov.hu

Meteorology Hungarian Meteorological Service

Address: H-1024, Budapest, Kitabel u. 1.

AFTN address: LHBPYMYC

Phone: +36-1-346-4600

Fax: +36-1-346-4669

E-mail: omsz@met.hu

Geoinformation Service of Hungarian Defence Forces

Weather Forecast and Training Institute

Address: H-1024 Budapest, Szilágyi Erzsébet fasor 7-9.

Postal address: H-1525, Budapest 114 POB. 37

Phone: +36-30-815-0257

Customs

Competent regional commands at aerodromes:

Kecskemét:

Dél-Alföld Regional Command of Customs and Finance, Szeged

Phone: +36-62-567-400

Fax: +36-62-567-498

Pápa:

Közép-Dunántúl Regional Command of Customs and Finance, Székesfehérvár

Phone: +36-22-514-450

Fax: +36-22-514-495

Szolnok:

Észak-Alföld Regional Command of Customs and Finance, Szolnok

Phone: +36-52-518-900

Fax: +36-52-410-417

Frontier Guard

Competent regional authority at aerodromes:

Kecskemét:

Bács-Kiskun County Central Police Station
Kecskemét

Phone: +36-76-513-356

Fax: +36-76-484-684

Pápa:

Budapest Airport Police Directorate

Phone: +36-1-296-0676

Fax: +36-1-296-0672

+36-1-291-9748

Szolnok:

Budapest Airport Police Directorate

Phone: +36-1-296-0676

Fax: +36-1-296-0672

+36-1-291-9748

Aircraft accident investigation

Transportation Safety Bureau

Postal address: 1675 Budapest, POB. 62

Duty phone: +36-1-294-5529

+36-30-931-0832

Duty fax: +36-1-296-95-20

E-mail: bejelentes@kbsz.hu

notification@kbsz.hu

Entry regulations for military aircraft of non-NATO countries

Ministry of Foreign Affairs

Main office: 1027 Budapest, Bem rakpart 47.

Postal address: 1027 Budapest, Bem rakpart 47.

Phone: +36-1-458-1000

Fax: +36-1-212-5918

Aeronautical Information Services

HungaroControl

Hungarian Air Navigation Services Pte. Ltd. Co.

Postal address: 1185 Budapest, Igló utca 33-35.

Phone: + 36 1 293 4444

e-mail: info@hungarocontrol.hu

Annex 5: Appendix IT - National Points of Contact for ITALY

1. MILITARY AERONAUTICAL AUTHORITY

Postal address: Stato Maggiore Aeronautica - Italian Air Staff
Ufficio Generale Spazio Aereo e Meteorologia.
Viale dell'Università, 4
00185 Roma - Italia
Telephone: +39 06 4986 7094
Telefax: +39 06 4986 7093
e.mail: usam@aeronautica.difesa.it

2. MILITARY OPERATIONAL AUTHORITY

Aeronautica Militare - Comando Operazioni Aeree (COA)

Postal address: Via Ponte Rosso, 1
44028 – Poggio Renatico (Ferrara) - ITALY
Telephone: +39 0532 828373
Telefax: +39 0532 828584
E-mail: aerosquadra.aoc.psa@am.difesa.it

3. ENTRY AND TRANSIT REGULATIONS FOR MILITARY ACFT

3.1. Non-NATO Countries:

Postal address: Ministry of Foreign Affairs - Ministero degli Affari Esteri
Piazzale della Farnesina, 1
00135 Roma – ITALY
Telephone: 0039 - 06.36911

3.2. NATO Countries:

Postal address: Stato Maggiore Aeronautica - Italian Air Staff
Viale dell'Università, 4
00185 Roma - Italia
Telephone: +39 06 4986 5066
Telefax: +39 06 4986 4503
E-mail: stataereo.pia@am.difesa.it

4. AERONAUTICAL INFORMATION SERVICES

Aeronautica Militare - Centro Informazioni Geotopografiche Aeronautiche

Postal address: Servizio Informazioni Aeronautiche
Via di Pratica di Mare, 45
00040 - Pomezia (RM) - ITALY
AFTN address: LIICYOYX
Telephone: +39 06 9129 3745
Telefax: +39 06 9129 4347
E-mail: ita.milais@am.difesa.it

5. MILITARY AIR TRAFFIC CONTROL CENTRE

Postal address: Servizio Coordinamento e Controllo A.M. Roma
SCCAM Roma
Via Appia Nuova, 1491
00178 - Roma - ITALY
AFTN address: LIRRYWYX
Telephone: +39 06 7970 4022
Telefax: +39 06 7970 4021
E-mail: sccamciampino@am.difesa.it

6. DEPARTMENT OF INCIDENT INVESTIGATION

Authority: Stato Maggiore Aeronautica - Italian Air Staff

Ispettorato per la Sicurezza del Volo

Viale dell'Università, 4

00185 - Roma - ITALY

Telephone: +39 06 4986 5887

Telefax: +39 06 4986 6057

E-mail: isv@am.difesa.it

Annex 5: Appendix NL - National Points of Contact for The Netherlands

1. MILITARY AERONAUTICAL AUTHORITY

Postal address: Ministry of Defence
Military Aviation Authority
P.O. Box 20701
2500 ES The Hague
The Netherlands

Telephone: +31(0)70 3167500
Telefax: +31(0)70 3167501
E-mail: MLA@mindef.nl

2. ROYAL NETHERLANDS AIR FORCE

Postal address: Royal Netherlands Air Force
Mission Support Branch
P.O. Box 8762
4820 BB Breda
The Netherlands

Telephone: +31(0)76 5447384
Telefax: +31(0)76 5447356
E-mail: ATC@mindef.nl

3. ENTRY AND TRANSIT REGULATIONS FOR MILITARY ACFT OF NON-NATO COUNTRIES

Postal address: Ministry of Foreign Affairs
ATTN: Transport Advisor
P.O. Box 20061
2500 EB The Hague
The Netherlands

4. AERONAUTICAL INFORMATION SERVICES

Postal address: Air Operations Control Station Nieuw Milligen
Aeronautical Information Services
P.O. Box 52
3886 ZH Garderen
The Netherlands

AFTN address: EHMCYNYX
Telephone: +31(0)577 458321 (8361)
Telefax: +31(0)577 456523
E-mail: aocs.ais@mindef.nl

5. MILITARY AIR TRAFFIC CONTROL CENTRE

Postal address: Air Operations Control Station Nieuw Milligen
711 Squadron
P.O. Box 52
3886 ZH Garderen
The Netherlands

AFTN address: EHMCYNYX
Telephone: +31(0)577 458302
Telefax: +31(0)577 458317
E-mail: AOCS_SSB_711@mindef.nl

6. DEPARTMENT OF INCIDENT INVESTIGATION

Authority: Air Operations Control Station Nieuw Milligen
711 Squadron Safety Management
P.O. Box 52
3886 ZH Garderen
The Netherlands

Telephone: +31(0)577 458302
Telefax: +31(0)577 458317
E-mail: AOCS.Safetymanager@mindef.nl

Annex 5: Appendix RO - National Points of Contact for ROMANIA

1 ROMANIAN AIR FORCE HEADQUARTERS

Postal address:	Romanian Air Force Headquarters Navigation and ATM Section Șoseaua București-Ploiești, km 10,5 Bucharest Romania
Telephone:	+ 40 (0)21 319 60 86
Fax:	+ 40 (0)21 319 40 11
E-mail:	relmilin@roaf.ro

1 ROMANIAN MINISTRY OF DEFENCE AERONAUTICAL REGLEMENTATIONS, RELATIONS AND OVERFLIGHT SECTION

Postal address:	Ministry of Defence Aeronautical Reglementations, Relations And Overflight Section Izvor Street, nr. 110 Bucharest Romania
Telephone:	+ 40 (0)21 410 63 90
Fax:	+ 40 (0)21 410 26 95
E-mail:	survol@mapn.ro

1 AIR OPERATIONS CENTRE

Postal address:	Balotești, jud. Ilfov
Telephone:	+ 40 (0)21 315 86 47
Fax:	+ 40 (0)21 315 01 05
E-mail:	fdex@roaf.ro

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Annex 5: Appendix SE - National Points of Contact for SWEDEN

1. MILITARY AVIATION SAFETY INSPECTORATE

Postal address: Swedish Armed Forces
Military Headquarters
FLYGI
107 85 STOCKHOLM

Telephone: +46 8 788 75 00

e-mail: exp-hkv@mil.se
goran.almfjord@mil.se

2. SWEDISH TRANSPORT AGENCY

Postal address: Swedish Transport Agency
Civil Aviation Department
601 79 NORDKÖPING
Sweden

Telephone: +46 771 503 503

e-mail: lars-eric.blad@transportstyrelsen.se

INTENTIONALLY LEFT BLANK

Annex 5: Appendix SP - National Points of Contact for SPAIN

1. MILITARY AERONAUTICAL AUTHORITY

The responsible authority for military aviation in Spain is the “Jefe de Estado Mayor del Ejército del Aire” (Chief of Air Staff).

The “Estado Mayor del Ejército del Aire” is responsible for the management of the OAT and the operation and administration of military air bases.

Postal address:

*CUARTEL GENERAL DEL AIRE
ESTADO MAYOR DEL AIRE
División de Operaciones
Sección de Espacio Aéreo (EMA/DOP/SESPA)
c/ Romero Robledo, 8
28008 Madrid (ESPAÑA)
TEL: +34-915 032 097
FAX: +34-915 034 496
AFTN: LEMA*

2. ENTRY AND TRANSIT REGULATIONS FOR MILITARY ACTF OF NON-NATO COUNTRIES

As above

3. AERONAUTICAL INFORMATION SERVICES

As above

4. MILITARY AIR TRAFFIC CONTROL CENTRE

The “Estado Mayor del Ejército del Aire” has been commended the air traffic control of the operative air traffic (Circulación Aérea Operativa, CAO), the coordination between this traffic and the general air traffic (Circulación Aérea General, CAG) and the CAO flow management traffic, according to “Real Decreto 1489/94”, of February 1st, where the operative air traffic regulation was approved.

The following organizations take part on CAO control service and air traffic coordination:

- EMA/DOP/SESPA: for planning and strategic coordination.
- GRUCAO: for pre-tactical coordination.
- ECAO: for execution and tactical coordination (located in the several ACC Madrid, ACC Barcelona and ACC Seville).
- APP/TWR: for execution.

Postal address:

- EMA/DOP/SESPA: *as above*
- GRUCAO
*Base Aérea de Torrejón
Ctra. de la Base s/n
Torrejón de Ardoz
28850 Madrid
TEL: 34-917 035 071
FAX: 34-916 566 625*
- AIS: *as above*

- ECAO:
 - o ECAO MADRID (Located in ACC Madrid): 91 703 5300,
ECAO MADRID CHIEF 91 703 5329.
 - o ECAO BARCELONA (Located in Barcelona ACC): 93 638 2956,
ECAO BARCELONA CHIEF 93 638 02 13
 - o ECAO SEVILLA (Located in Seville ACC): 95 428 84 00,
ECAO SEVILLE CHIEF 95 428 88 89

Annex 5: Appendix SVK - National Points of Contact for SLOVAKIA

1. MILITARY AVIATION AUTHORITY

Postal address: Ministry of Defence
Military Aviation Authority
Kutuzovova 8
832 47 Bratislava
The Slovak Republic (Slovakia)

Telephone: +421(0)960 315800
Fax: +421(0)960 315827
E-mail: mosr.uvl@mil.sk
Website: <http://maa.mil.sk/>

2. ENTRY AND TRANSIT REGULATIONS FOR MILITARY ACFT OF NON-NATO COUNTRIES)

Postal address: Ministry of Foreign Affairs
Hlboká cesta 2
833 36 Bratislava 37
The Slovak Republic (Slovakia)

Telephone: +421(0) 2 / 5978 1111
Fax: +421(0) 2 / 5978 3333
E-mail: info@mzv.sk
Website: <http://www.foreign.gov.sk/>

3. AERONAUTICAL INFORMATION SERVICES

Postal address: Military Aeronautical Information Services
VÚ 3030
Borovianska cesta 1
960 01 Zvolen
The Slovak Republic (Slovakia)

AFTN address: LZSLYWYC
Telephone: +421(0)960 463514
Fax: +421(0)960 463662
E-mail: vlis@mil.sk

4. MILITARY AIR TRAFFIC CONTROL CENTRE

Postal address: Stanovište OAT
Letisko M.R.Štefánika
P.O. Box 6
820 01 Bratislava 21
The Slovak Republic (Slovakia)

AFTN address: LZIBYWYX
Telephone: +421(0)960 328122
Fax: +421(0)960 328110
E-mail: stanovisteOAT@mil.sk

5. DEPARTMENT OF INCIDENT INVESTIGATION

Authority/Reporting of occurrences: Ministry of Defence
Military Aviation Authority
Kutuzovova 8
832 47 Bratislava
The Slovak Republic (Slovakia)

Telephone: +421(0)960 315801
Fax: +421(0)960 315827
E-mail: jan.salaj@mod.gov.sk

Annex 5: Appendix UK - National Points of Contact for the UNITED KINGDOM

NATIONAL SUPERVISORY AUTHORITY

UK Civil Aviation Authority
Directorate of Airspace Policy
CAA House 45-59 Kingsway
London
WC2B 6TE
UK

Telephone: +44 (0)207 4536541
Telefax: +44(0) 207 4536565
E-mail: andy.sinclair@caa.co.uk

MINISTRY OF DEFENCE

DAATM
6th Floor
CAA House 45-59 Kingsway
London
WC2B 6TE
UK

Telephone: +44 (0)207 4536574
Telefax: +44(0) 207 4536565
E-mail: DAATM-AirspaceSO1@mod.uk

MILITARY AVIATION AUTHORITY

SO1 ATM Regulation
Juniper L1 Wg 4 #5104
MOD Abbey Wood North
Bristol
BS34 8JH

Telephone: +44 (0) 30679 82544
E-mail: MAA-Reg-ATM@mod.uk

MILITARY ATM AUTHORITY

ATM Dep Force Cdr
HQ 1 Gp
Headquarters Air Command
High Wycombe
Buckinghamshire
HP14 4UE
UK

Telephone: +44(0)1494 494050
Telefax: +44(0)1494 492161
E-mail: 1GP-BMATMDepForceCdr@mod.uk

**ROYAL NAVY ATM AUTHORITY
NAVY COMMAND**

SO1 CSAV Ops Spt
Navy Command
MP 2-2
LEACH
Whale Island
Portsmouth
PO2 8BY
UK
Telephone: +44 (0) 2392 62 5373
Telefax: +44(0) 2392 625478
E-mail: NavyCSAV-OPSSPTS01@mod.uk

ENTRY AND TRANSIT REGULATIONS FOR MILITARY ACFT OF NON-NATO COUNTRIES

Diplomatic Clearance. Foreign military aircraft overflying the United Kingdom or landing at any UK military or civil airfield require prior diplomatic flight clearance. This is obtained through the relevant Embassy or High Commission (Defence Department).

Block Clearances. Some countries have block diplomatic clearances. (For more information contact the Ops Directorate MOD London).

Ops Directorate
Ministry of Defence
Main Building
Whitehall
London
SW1A 2HB

Telephone: +44(0)207 218 2723
Telefax: +44(0)207 218 7727
E-mail: CTandUKOps-FlightClearance@mod.uk

AERONAUTICAL INFORMATION SERVICES

No 1 AIDU
Royal Air Force Northolt
West End Road
Ruislip, Middlesex
HA4 6NG
UK

AFTN address: EGVCYOYX
Telephone: +44(0) 20 8833 8209/8906
Telefax: +44(0) 20 8841 1078
E-mail: customerservicesmail@aidu.mod.uk

MILITARY AIR TRAFFIC CONTROL CENTRES

LATCC(Mil)
Sopwith Way
Southampton
SO31 7AY
UK

AFTN address: EGZYOATT
Telephone: +44(0)1489 612500
Telefax: +44(0)1489 612277
E-mail: LATCC-OC@mod.uk

ScATCC (Mil),
Aviation House,
Prestwick,
Scotland
KA9 2PL
UK

AFTN address: EGZYOATP
Telephone: +44(0)1294 655180
Telefax: +44(0)1294
E-mail: PWK-OC@mod.uk

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Annex 6: Appendix BE, Distribution List for BELGIUM

Defence
Air Component - COMOPSAIR
Airspace Control Ops (A 3.2)
Kwartier Koningin Elisabeth
Bldg 1
Eversestraat / Rue d'Evere 1
B - 1140 BRUSSELS
Telephone number: ++32 (0)2 701 7776
Fax number: ++32 (0)2 701 7266
E-mail: maildesk.atm&ad@mil.be

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Annex 6: Appendix CH- Distribution List for SWITZERLAND

MILITARY AERONAUTICAL AUTHORITY

Postal Address:

Federal Department of Defence, Civil Protection and Sport DDPS

Swiss Armed Forces

Swiss Air Force

Military Aviation Regulation (REMIL)

Airbase

CH-1530 Payerne

Telephone: +41 26 662 20 25

Telefax: +41 26 662 21 48

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Annex 6: Appendix CRO - Distribution List for CROATIA

1. MILITARY AVIATION AUTHORITY

Postal address: Ministarstvo obrane
 Samostalna služba za vojni zračni promet
 Stančićeva 6
 10000 Zagreb
 Hrvatska (Croatia)

Telephone: +385(1)4567 667
Telefax: +385(1)4568 154
E-mail: hrvoje.filipovic@morh.hr

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Annex 6: Appendix CZ, Distribution List for CZECH REPUBLIC

MILITARY AVIATION AUTHORITY

Postal address: OVL MO
 Generala Píky 1
 Praha 6 – Dejvice
 161 05
 Czech Republic

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Annex 6: Appendix FR, Distribution List for FRANCE

Postal address:

DIRECTION DE LA SECURITE AERONAUTIQUE D'ÉTAT

Direction de la circulation aérienne militaire

Base aérienne 107 - CS 40704

78941 VELIZY CEDEX - FRANCE

Telephone: +33(1) 45073519

Telefax: +33(1) 45073935

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Annex 6: Appendix GE, Distribution List for GERMANY

- Postal address: **Bundesministerium der Verteidigung**
FüSK I 2
Fontainengraben 150
53123 Bonn
- Telephone: +49 (0)228 99 24 4884
Telefax: +49 (0)228 99 24 6687
E-mail: BMVgFueSKI2@bmvg.bund.de
- Postal address: **Bundesministerium für Verkehr,
Bau und Stadtentwicklung**
LR 23
Postfach 20 01 00
53170 Bonn
- Telephone: +49 (0)228 99 300 4934
Telefax: +49 (0)228 99 300 1451
E-mail: ref-lr23@bmvbs.bund.de
- Postal address: **Amt für Flugsicherung der Bundeswehr**
Abteilung Militärische Flugsicherung
Insterburger Straße 4 – 6
60487 Frankfurt am Main
- Telephone: +49 (0)69 79307 2001 (Frankfurt Hausen)
+49 (0)6103 3105 701 (Langen)
Telefax: +49 (0)69 79307 2109 (Frankfurt Hausen)
+49 (0)6103 3105 799 (Langen)
E-mail: AFSBwLeitungGrpII@bundeswehr.org
- Postal address: **Amt für Flugsicherung der Bundeswehr**
Abteilung Militärische Flugsicherung
Insterburger Straße 4 – 6
60487 Frankfurt am Main
- Telephone: +49 (0)69 79307 2001 (Frankfurt Hausen)
+49 (0)6103 3105 701 (Langen)
Telefax: +49 (0)69 79307 2109 (Frankfurt Hausen)
+49 (0)6103 3105 799 (Langen)
E-mail: AFSBwLeitungAbteilungMilFS@bundeswehr.org
- Postal address: **Deutsche Flugsicherung GmbH**
Militärische Unternehmensangelegenheiten (DFS ZM)
Am DFS-Campus 10
63225 Langen
- Telephone: +49 (0) 6103 707 4401
Telefax: +49 (0) 6103 707 4495
E-Mail: cdc-zm@dfs.de

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Annex 6: Appendix GR, Distribution List for GREECE

HELLENIC CIVIL AVIATION AUTHORITY - HCAA

D4- ANS Regulatory Authority Division
Vas. Georgiou 1, Elliniko, GR 16604
GREECE
Telephone: +30 210 8916135
Fax number: +30 210 8949098
e-mail: d4@hcaa.gr

HELLENIC CIVIL AVIATION AUTHORITY - HCAA

D17- AIR TRAFFIC FLOW MANAGEMENT & AIRSPACE MANAGEMENT DIVISION
Vas. Georgiou 1, Elliniko, GR 16604
GREECE
Telephone: +30 210 9972404
Fax number: +30 210 9647329
e-mail: d17@hcaa.gr

Military Aeronautical Information Services

Joint Civil and Military ATS Group
Hellenic Civil Aviation Authority
D20 AIS Division – D20/D National Aeronautical Publication Section
P.O. Box 70360
GR 16610 Glyfada
GREECE
AFTN LGGGYNYP
Telefax: +30 210 975 0757
Telephone: + 30 210 997 2760

Military Air Traffic Services

Hellenic Air Force General Staff
Air defence Directorate
Air Traffic Control Section
227-231, Mesogion Ave.
GR 16561, Cholargos
GREECE
Telefax: +30 210 659 1450
Telephone: +30 210 659 1451
e-mail: a45.hafgs@haf.gr

Entry and Transit Regulations for Military Aircraft

Hellenic Air Force General Staff
International Relations Section
227-231, Mesogion Ave.
GR 16561, Cholargos
GREECE
Telefax: +30 210 646 9733
Telephone: +30 210 659 1731
e-mail: a73.hafgs@haf.gr

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Annex 6: Appendix HU, Distribution List for HUNGARY

**Ministry of National Development
Department for Civil Aviation and Inland Navigation**

Postal address: H-1011 Budapest, Fő utca 44-50.

Phone: +06-1-795-1700

Fax: 06-1-795-0697

E-mail: ugyfelszolgalat@nfm.gov.hu

**National Transport Authority
Aviation Authority**

Postal address: H-1675 Budapest, POB. 41.

Phone: +36-1-273-5526

Fax: +36-29-354-224

E-mail: ugyfelszolgalat.li@nkh.gov.hu

**Aircraft accident investigation
Transportation Safety Bureau**

Postal address: 1675 Budapest, POB. 62

Phone: +36-1-294-5529; +36-30-931-0832

Fax: +36-1-296-95-20

E-mail: bejelentes@kbsz.hu; notification@kbsz.hu

**Ministry of Defence
Department for Planning and Coordination**

Postal address: H-1885 Budapest, POB. 25.

Phone: +36-1-474-1124

Fax: +36-1-474-1321

E-mail: hmtkf@hm.gov.hu

Entry regulations for military aircraft of non-NATO countries

Ministry of Foreign Affairs

Main office: 1027 Budapest, Bem rakpart 47.

Postal address: 1027 Budapest, Bem rakpart 47.

Phone: +36-1-458-1000

Fax: +36-1-212-5918

Aeronautical Information Services

HungaroControl

Hungarian Air Navigation Services Pte. Ltd. Co.

Postal address: 1185 Budapest, Igló utca 33-35.

Phone: + 36 1 293 4444

e-mail: info@hungarocontrol.hu

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Annex 6: Appendix IT, Distribution List for ITALY

1. Stato Maggiore della Difesa

3° Reparto Politica Militare e Pianificazione

Postal address: Via XX settembre, 11
00187 – Roma - ITALY
Telephone: +39 06 4691 2295
Telefax: +39 06 4691 2483
E-mail: terzo.pg.sostegno@smd.difesa.it

2. Stato Maggiore dell'Esercito

Postal address: Via XX Settembre, 123/A
00187 – Roma - ITALY
Telephone: +39 06 4735 7380
Telefax: +39 06 4884257
E-mail: _____smeprotocollo@esercito.difesa.it

3. Stato Maggiore della Marina

Postal address: Piazza della Marina, 4
00196 – Roma - ITALY
Telephone: +39 06 3680 4155
Telefax: +39 06 3680 3393
E-mail: _____stat.aer.3uff@marina.difesa.it

4. Stato Maggiore Aeronautica - Italian Air Staff

Ufficio Generale Spazio Aereo e Meteorologia

Postal address: Viale dell'Università, 4
00185 - Roma - ITALY
Telephone: +39 06 4986 7094
Telefax: +39 06 4986 7093
E-mail: usam@aeronautica.difesa.it

5. Stato Maggiore Aeronautica - Italian Air Staff

3° Reparto Pianificazione dello Strumento Aerospaziale

Postal address: Viale dell'Università, 4
00185 Roma - ITALY
Telephone: +39 06 4986 5627
Telefax: +39 06 4986 6268
E-mail: stataereo.pia@am.difesa.it

6. Comando Generale dell'Arma dei Carabinieri

Postal address: Viale Romania, 45
00197 – Roma - ITALY
Telephone: +39 06 8098 2128
Telefax: +39 06 8098 2228
E-mail: cgusancs@carabinieri.it

7. Comando Generale della Guardia di Finanza

VII Reparto - Ufficio Aereo

Postal address: Viale XXI Aprile, 51
00162 - Roma - ITALY
Telephone: +39 06 4422 3711
Telefax: +39 06 4422 3706
E-mail: RM0014810407-VIIReparto-UfficioAereo@gdf.it

8. Aeronautica Militare - Comando Squadra Aerea

Postal address: Via di Centocelle, 301
00175 – Roma - ITALY
Telephone: +39 06 2400 2429
Telefax: +39 06 2400 2705
E-mail: [aerosquadra.sm.ats@aeronautica.difesa.it](mailto:aerosquadra.sm.ats@ aeronautica.difesa.it)

9. Aeronautica Militare - Comando Scuole AM

Postal address: Lungomare Nazario Sauro, 39
70121 – Bari - ITALY
Telephone: +39 080 5418814
Telefax: +39 080 5418615
E-mail: [aeroscuoleaeroregione3@aeronautica.difesa.it](mailto:aeroscuoleaeroregione3@ aeronautica.difesa.it)

10. Aeronautica Militare - Comando Logistico

Postal address: Viale dell'Università, 4
00185 Roma - ITALY
Telephone: +39 06 4986 4366
Telefax: +39 06 4986 6248
E-mail: [aerolog@aeronautica.difesa.it](mailto:aerolog@ aeronautica.difesa.it)

11. Stato Maggiore Aeronautica - Ispettorato per la Sicurezza del Volo

Postal address: Viale dell'Università, 4
00185 - Roma - ITALY
Telephone: +39 06 4986 4138
Telefax: +39 06 4986 6857
E-mail: [isv@am.difesa.it](mailto:isv@ am.difesa.it)

12. Aeronautica Militare - Comando Operazioni Aeree (COA)

Postal address: Via Ponte Rosso, 1
44028 – Poggio Renatico (Ferrara) - ITALY
Telephone: +39 0532 828373
Telefax: +39 0532 828584
E-mail: [aerosquadra.aoc.psa@am.difesa.it](mailto:aerosquadra.aoc.psa@ am.difesa.it)

13. Aeronautica Militare - Centro Informazioni Geotopografiche Aeronautiche

Postal address: Servizio Informazioni Aeronautiche
Via di Pratica di Mare, 45
00040 - Pomezia (RM) - ITALY
Telephone: +39 06 9129 3745
Telefax: +39 06 9129 4347
E-mail: [ita.milais@am.difesa.it](mailto:ita.milais@ am.difesa.it)

Annex 6: Appendix NL, Distribution List for THE NETHERLANDS

MILITARY AERONAUTICAL AUTHORITY

Postal address: Ministry of Defence
Military Aviation Authority
P.O. Box 20701
2500 ES The Hague
The Netherlands

ROYAL NETHERLANDS AIR FORCE

Postal address: Royal Netherlands Air Force
Mission Support Branch
P.O. Box 8762
4820 BB Breda
The Netherlands

MILITARY AIR TRAFFIC CONTROL CENTRE

Postal address: Air Operations Control Station Nieuw Milligen
711 Squadron
P.O. Box 52
3886 ZH Garderen
The Netherlands

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Annex 6: Appendix RO, Distribution List for ROMANIA**1 ROMANIAN AIR FORCE HEADQUARTERS**

Postal address:	Romanian Air Force Headquarters Navigation and ATM Section Șoseaua București-Ploiești, km 10,5 Bucharest Romania
Telephone:	+ 40 (0)21 319 60 86
Fax:	+ 40 (0)21 319 40 11
E-mail:	relmilin@roaf.ro

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Annex 6: Appendix SE, Distribution List for SWEDEN

1. MILITARY AVIATION SAFETY INSPECTORATE

Postal address: Swedish Armed Forces
Military Headquarters
FLYGI
107 85 STOCKHOLM

Telephone: +46 8 788 75 00

e-mail: exp-hkv@mil.se
goran.almfjord@mil.se

3. SWEDISH TRANSPORT AGENCY

Postal address: Swedish Transport Agency
Civil Aviation Department
601 79 NORDKÖPING
Sweden

Telephone: +46 771 503 503

e-mail: lars-eric.blad@transportstyrelsen.se

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Annex 6: Appendix SP, Distribution List for SPAIN

Military Aeronautical Authority

CUARTEL GENERAL DEL AIRE
ESTADO MAYOR DEL AIRE
División de Operaciones
Sección de Espacio Aéreo (EMA/DOP/SESPA)
c/ Romero Robledo, 8
28008 Madrid (ESPAÑA)
TEL: +34-915 032 097
FAX: +34-915 034 496

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Annex 6: Appendix SVK, Distribution List for SLOVAKIA

1. MILITARY AVIATION AUTHORITY

Postal address: Ministry of Defence
Military Aviation Authority
Kutuzovova 8
832 47 Bratislava
The Slovak Republic (Slovakia)

Telephone: +421(0)960 315800
Fax: +421(0)960 315827
E-mail: sona.matunakova@mod.gov.sk
Website: <http://maa.mil.sk/>

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Annex 6: Appendix UK, Distribution List for the UNITED KINGDOM

NATIONAL SUPERVISORY AUTHORITY

UK Civil Aviation Authority
Directorate of Airspace Policy
CAA House 45-59 Kingsway
London
WC2B 6TE
UK

Telephone: +44 (0)207 4536541
Telefax: +44(0) 207 4536565
E-mail: andy.sinclair@caa.co.uk

MINISTRY OF DEFENCE

DAATM
6th Floor
CAA House 45-59 Kingsway
London
WC2B 6TE
UK

Telephone: +44 (0)207 4536574
Telefax: +44(0) 207 4536565
E-mail: DAATM-AirspaceSO1@mod.uk

MILITARY AVIATION AUTHORITY

Military Aviation Authority
SO1 ATM Regulation
Juniper L1 Wg 4 #5104
MOD Abbey Wood North
Bristol
BS34 8JH

Telephone: +44 (0) 30679 82544
E-mail: MAA-Reg-ATM@mod.uk

MILITARY ATM AUTHORITY

ATM Dep Force Cdr
HQ 1 Gp
Headquarters Air Command
High Wycombe
Buckinghamshire
HP14 4UE
UK

Telephone: +44(0)1494 494050
Telefax: +44(0)1494 492161
E-mail: 1GP-BMATMDepForceCdr@mod.uk

ROYAL NAVY ATM AUTHORITY

NAVY COMMAND
SO1 CSAV Ops Spt
Navy Command
MP 2-2
LEACH
Whale Island
Portsmouth
PO2 8BY
UK

Telephone: +44 (0) 2392 62 5373

Telefax: +44(0) 2392 625478

E-mail: NavyCSAV-OPSSPTSO1@mod.uk



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