Defence Safety Authority

FLYING (FLY)
2000 SERIES
REGULATORY ARTICLES

Military Aviation Authority

Military Aviation Authority
MAA

2000 SERIES (FLY) REGULATORY ARTICLES (RA)

1. The FLY series of RA address responsibility and authority for flying operations for all Aircraft except Open and S1 category Remotely Piloted Air Systems. Aviation Duty Holders and Accountable Managers (Military Flying) will issue detailed orders for flying operations in their Area of Responsibility that will ensure compliance with all relevant RAs.

2. MAA Regulatory Publications and subordinate rules, orders and instructions allow for all types of Defence Air Environment flying including research, test and evaluation, training, operational exercises, the preparation and enactment of contingency plans and operations. Such flying will be conducted under a Release To Service or a Military Permit to Fly.

3. The 2000 Series (FLY) RA are owned by Director MAA. Table 1 below shows current documents, with associated Regulation titles. The series is split into 5 sub-sets:

a. The 2100 series covers Aircrew qualifications and Competency.

b. The 2200 series covers ground qualifications and engineering from the Aircrew perspective.

c. The 2300 series covers the operation of Aircraft.

d. The 2400 series covers administrative elements.

e. The 2500 series covers the arrangements for Defence Contractor Flying Organizations.

4. Table 2 below shows withdrawn documents, along with associated Regulation titles. The Rationale for withdrawal stated in each document was correct when published and it is incumbent on the user to check that references in associated documents remain valid prior to use.

Table 1: 2000 Series (FLY) Regulatory Articles

RA NUMBER	RA DESCRIPTION	SUB RA
RA 2101	**Aircrew Qualifications**	2101(1): Entitlement to Conduct Flying Duties
		2101(2): Certificate of Qualification on Type
RA 2102	**Aircrew Competence in Role**	2102(1): Certificate of Competence
		2102(2): ►Periodic◄ Assessment of Competency
RA 2103	**Currency and Continuation Training**	2103(1): Currency Requirements
		2103(2): Continuation Training
RA 2115	**Aircraft Commanders**	2115(1): Responsibilities of an Aircraft Commander
		2115(2): Authority of an Aircraft Commander
RA 2120	**Pilots' Instrument Rating Scheme**	2120(1): Instrument Rating Requirements
		2120(2): Instrument Rating Test
RA 2125	**Aircrew Instructors ►and Aircrew Examiner◄ Training**	2125(1): Aircrew Instructor Training
		►2125(2): Aircrew Examiner Training◄
RA 2130	**Survival Equipment, Drills and Training**	2130(1): Survival Training and Currency
		2130(2): Wearing and Carriage of Aircrew Equipment Assemblies and Survival Equipment
		2130(3): Restraint Systems

RA NUMBER	RA DESCRIPTION	SUB RA
		2130(4): Aircraft Survival and Rescue Equipment
		2130(5): Ejection Seat Anthropometrics
		2130(6): Fire, Smoke and Fumes Training
RA 2135	**Aircrew and Supernumerary Crew Medical Requirements**	2135(1): Medical Employment Standard
		2135(2): Fitness-to-Fly
		2135(3): Pilot Operations – Upper Age Restriction
		2135(4): Flying After an Accident or In-Flight Medical Incident
		2135(5): Aviation Medical Training
		2135(6): High G Training
		2135(7): Temporary Medical Restrictions to Flying Duties
RA 2201	**Carriage of Maintenance Documents in UK Military Aircraft**	2201(1): Documents to be Carried
		2201(2): Withdrawn - Content incorporated into RA 2201(1)
RA 2210	**Preventive Maintenance and Continuous Charge Operations**	2210(1): Preventive Maintenance Limitations
		2210(2): Continuous Charge Operations
RA 2211	**Authorization of Aircrew to Carry Out Maintenance Tasks**	2211(1): Authorization of Aircrew to Carry Out Flight Servicing
		2211(2): Authorization of Aircrew to Carry Out Air System Maintenance Work
		2211(3): In-Flight Corrective Maintenance
		2211(4): Training of Aircrew to Enter a Cockpit Containing Aircraft Assisted Escape Systems
RA 2220	**Maintenance Test Flights**	2220(1): The Flight Test Schedule
		2220(2): Aircrew Competency and Authorization for Flight Tests
RA 2301	**Responsibility for an Air System**	2301(1): Transfer of Custody of Air System
		2301(2): Flying Requirements Post Maintenance
		2301(3): Air System Acceptance Checks
		2301(4): Exceeding Parameters and Hazardous Incidents
RA 2302	**Responsibilities in the Air**	2302(1): Responsibilities in the Air
RA 2305	**Supervision of Flying**	2305(1): Supervision of Flying
		2305(2): Withdrawn Incorporated into RA 2309
		2305(3): Withdrawn Incorporated into RA 2309
		2305(4): Aircrew Briefing
		2305(5): Withdrawn Incorporated into RA 2309
		2305(6): Withdrawn Incorporated into RA 2309
RA 2306	**Authorization of Flights**	2306(1): Authorization of Flights
RA 2307	**Rules of the Air**	2307(1): Rules of the Air

RA NUMBER	RA DESCRIPTION	SUB RA
RA 2309	**Flight Procedures: General**	2309(1): Aircraft Limitations
		2309(2): Smoking in or near Aircraft
		2309(3): Taxiing of Aircraft
		2309(4): Simulated and Practice Emergencies
		2309(5): Handing over Control of Aircraft with Dual Flying Controls
		2309(6): Oxygen and Cabin Pressure
		2309(7): Altitude Limitations
		2309(8): Night Vision Device Flying
		2309(9): Carriage of Loose Articles and Stores
		2309(10): Dropping or Jettisoning of Articles
		2309(11): Fuel Jettison
		2309(12): Flying in the Company of Civil Aircraft
		2309(13): Aerobatics
		2309(14): Refuelling and / or Re-Arming Aircraft - Engines and / or Rotors Running
		2309(15): Air to Air Refuelling
		2309(16): Electromagnetic and Cosmic Radiation
		2309(17): Landing away from Active Airfields
		2309(18): Embarked Aviation Operations
		2309(19): Air Exercise Planning and Airspace Integration
RA 2310	**Flight Procedures: Role Specific Fixed Wing**	2310(1): Supersonic Flight
		2310(2): Spinning
		2310(3): Asymmetric Power
		2310(4): Single-Engine Air System Engine Shutdowns
RA 2315	**Flight Procedures: Role Specific Rotary Wing**	2315(1): Rotors Engaged Ground Runs
RA 2320	**Flight Procedures: Role Specific S2 and Certified Remotely Piloted Air Systems**	2320(1): Remotely Piloted Air Systems Collision Avoidance
		2320(2): Control of Remotely Piloted Air Systems
		2320(3): Management of Remotely Piloted Air Systems data links
		2320(4): Remotely Piloted Air Systems Operating Locations
RA 2325	**Air Weapons Carriage, Training and Demonstrations**	2325(1): Carriage of Air Weapons and Towed Targets
		2325(2): Air Weapons Training and Demonstrations
RA 2327	**Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres**	2327(1): Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres
RA 2330	**Low Flying**	2330(1): Low Flying Governance

RA NUMBER	RA DESCRIPTION	SUB RA
		2330(2): Aviation Duty Holders / Accountable Managers (Military Flying) Orders and Instructions
		2330(3): Low Flying - General
		2330(4): UK Low Flying System - Specific
RA 2335	**Flying Displays, Display Flying, Role Demonstrations and Flypasts**	2335(1): Flying Display Organization and Management
		2335(2): Display Flying, Practices, Role Demonstrations and Flypasts (Mil)
		2335(3): Separation Distances, Minima and Restrictions
RA 2340	**Supernumerary Crew, Supernumerary Support Crew and Passengers**	2340(1): Supernumerary Crew
		2340(2): Supernumerary Support Crew
		2340(3): Passengers - General
		2340(4): Routine Air Transport Passengers
		2340(5): Tactical Passengers
		2340(6): Familiarization Flight Passengers
		2340(7): Air Experience Flight Passengers
		2340(8): Carriage of VIP Passengers
		2340(9): Carriage of Cadets as Passengers
		2340(10): Carriage of Working Dogs
RA 2345	**Aircrew Fatigue Management**	2345(1): Management of Aircrew Fatigue
		2345(2): Use of Temazepam in the Management of Work and Rest in Aircrew
RA 2350	**Air System Emergencies**	2350(1): Air System Emergencies
RA 2355	**Static Line and Freefall Parachuting**	2355(1): Approval for Static Line and Freefall Parachuting
		2355(2): Procedures for Static Line and Freefall Parachuting
		2355(3): Withdrawn – Incorporated into RA 2357
RA 2357	**Troop Insertions and Extraction Systems**	2357(1): Troop Insertions and Extraction Systems Governance
RA 2360	**Portable Electronic Devices**	2360(1): Portable Electronic Devices
RA 2370	**Test and Evaluation**	2370(1): Test and Evaluation Governance
		2370(2): Test and Evaluation Personnel
		2370(3): Test and Evaluation Activity
RA 2375	**Qualification, Approval and Use of ►Aircrew◄ Training Devices**	2375(1): Qualification of ►Aircrew◄ Training Devices
		2375(2): Approval of ►Aircrew◄ Training Devices
		2375(3): Use of ►Aircrew◄ Training Devices
RA 2380	**Performance Based Navigation Operations**	2380(1): Air System and Pilot Requirements

RA NUMBER	RA DESCRIPTION	SUB RA
		2380(2): Performance Based Navigation ►Procedures and Pilot Training◄
RA 2401	**Documents and Records**	2401(1): Air System Document Set
		2401(2): Use and Carriage of Documents in the Aircraft / Remote Pilot Station
		2401(3): Flying Logbooks and Recording of Flying Times
		2401(4): Aviation Duty Holder / Accountable Manager (Military Flying) Flying Orders
		2401(5): Authorization Record
		2401(6): Meteorological Records
		2401(7): Training Records
RA 2425	**Aircraft Accidents, Forced Landings or Incidents**	2425(1): Withdrawn – RA1410, RA1430 and the Manual of Aircraft Post Crash Management apply
		2425(2): Withdrawn – RA1410, RA1430 and the Manual of Aircraft Post Crash Management apply
RA 2435	**Her Majesty's Revenue and Customs (HMRC) Requirements**	2435(1): Withdrawn - content covered by JSP800 Volume 2, Part 2, Chapters 11 and 12

Table 2: Withdrawn 2000 Series (FLY) Regulatory Articles (not included in the 2000 Series combined document)

RA NUMBER	RA DESCRIPTION	SUB RA
RA 2321	**Class I(b) and Class I(b) MIL Remotely Piloted Air Systems – Operator Qualifications and Requirements**	2321(1): Withdrawn – Incorporated into RA 1602 and RA 1603
		2321(2): Withdrawn – Incorporated into RA 1602 and RA 1603
		2321(3): Withdrawn – Incorporated into RA 1602 and RA 1603
RA 2415	**Civil Use of Government Aerodromes**	2415(1): Withdrawn – Incorporated into RA 1010
		2415(2): Withdrawn – Not deemed regulatory material
		2415(3): Withdrawn – Not deemed regulatory material
		2415(4): Withdrawn – Not deemed regulatory material
RA 2420	**Use of Privately Owned Aircraft by Service Personnel**	2420(1): Withdrawn – JSP754 and single-Service Queen's Regulations apply
		2420(2): Withdrawn – RA2335 applies
		2420(3): Withdrawn - Content Incorporated into RA2415(2)
		2420(4): Withdrawn - Content Incorporated into RA2415(3)
		2420(5): Withdrawn - Content Incorporated into RA2415(4)
RA 2425	**Aircraft Accidents, Forced Landings or Incidents**	2425(1): Withdrawn – RA1410, RA1430 and the Manual of Aircraft Post Crash Management apply
		2425(2): Withdrawn – RA1410, RA1430 and the Manual of Aircraft Post Crash Management apply
RA 2435	**Her Majesty's Revenue and Customs (HMRC) Requirements**	2435(1): Withdrawn - content covered by JSP800 Volume 2, Part 2, Chapters 11 and 12
RA 2501	**Contractor Flying Approved Organization Scheme**	2501(1): ►Withdrawn – Incorporated into RA 1028◄
		2501(2): ►Withdrawn – Incorporated into RA 1028◄
		2501(3): ►Withdrawn – Incorporated into RA 1028◄
		2501(4): ►Withdrawn – Incorporated into RA 1028◄
		2501(5): ►Withdrawn – Incorporated into RA 1028◄

RA 2101 - Aircrew Qualifications

Rationale

Aircrew require a baseline standard of skills and knowledge to operate Air Systems safely. Risk to Life is increased if these standards are not achieved and maintained. In addition to an initial Aircrew qualification, Aircrew are to demonstrate that they achieve the baseline standard on the relevant Air System.

Contents

2101(1): Entitlement to Conduct Flying Duties
2101(2): Certificate of Qualification on Type

Regulation 2101(1)

Entitlement to Conduct Flying Duties

2101(1) Aircrew **shall** be qualified to operate Air Systems.

Acceptable Means of Compliance 2101(1)

Entitlement to Conduct Flying Duties

1. Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) **should** define in orders the criteria for the award, or acceptable equivalence of, initial Aircrew qualifications.

2. **UK Military Registered Air Systems**. Aircrew **should** meet at least one of the following criteria to operate UK military registered Air Systems:

   a. They have an initial Aircrew qualification:

      (1) The appropriate UK military flying badge[1] or;

      (2) An appropriate Aircrew qualification awarded by an ADH / AM(MF), based on successful completion of an approved training course or;

      (3) An appropriate Aircrew qualification awarded by an ADH / AM(MF) following scrutiny of previous flying training records, and an assessment of competence in the air by a type-specific Qualified Aircrew Instructor (Qualified AI)[2]; that together demonstrate equivalent levels of knowledge, experience and ability to that required for the award of the appropriate UK military flying badge or;

      (4) An appropriate foreign military qualification, approved as equivalent to the appropriate UK military flying badge or civil licence, by the ADH / AM(MF) responsible for the UK military type they will fly or;

      (5) The appropriate civil licence.

   b. They are undertaking flying duties as a student assigned to an ADH or AM(MF) approved flying training course.

3. **Approved Training Course**. The ADH / AM(MF) **should** only approve training courses for initial Aircrew qualification that have been assured by a suitably qualified and experienced Independent Body.

4. **Flying Instruction Prior to Initial Aircrew Qualification**. Where an approved training course leads to an initial Aircrew qualification, Aircrew **should** be given flying instruction by a type-specific Qualified AI (or if under a UK Civil Aviation Authority (CAA) / European Union Aviation Safety Agency (EASA) Approved Training Organisation (ATO), by an appropriately qualified Flight Instructor (FI)).

5. **Civil Registered Air Systems**. When UK civil registered Air Systems are used for military purposes in accordance with (iaw) RA 1166[3]:

[1] The relevant single-Service Flying Branch and Trade Advisor **should** be contacted for guidance on which flying badges are currently endorsed for use, or have previously been endorsed for use.
[2] Refer to MAA 02 – MAA Master Glossary; and RA 2125 - Aircrew Instructor Training. Note – the definition of Qualified AI relates to Central Flying School (CFS) accreditation. Type-specific refers to CFS accreditation on that type or mark of Air System.
[3] Refer to RA 1166 – UK Civil-Registered Aircraft Utilized ►and Piloted◄ by the Ministry of Defence.

Acceptable Means of Compliance 2101(1)

a. Civilian Aircrew **should** be qualified to the appropriate civilian licensing requirement.

b. Military Aircrew **should** comply with the qualification requirements stated in ADH orders (see para 1), and any applicable civil regulations.

Guidance Material 2101(1)

Entitlement to Conduct Flying Duties

6. Aircrew are expected to meet an equivalent standard of English as that required by International Civil Aviation Organisation Level 4 before their initial Aircrew qualification[4].

7. A UK military flying badge is awarded to Aircrew by a single-Service Approving Officer once the appropriate standard on an approved training course has been met, iaw Queen's Regulations[5].

8. Initial Aircrew qualifications awarded under paras 2.a.(2) and 2.a.(3) are only valid for operating UK military registered Air Systems which are under the ADH / AM(MF) awarding the qualification.

9. Where Flight Simulator Training Devices (FSTD) are used for formal instruction (iaw RA 2375[6]) that leads to an initial Aircrew qualification iaw para 2, Aircrew will be given instruction by a type-specific Qualified AI (or if under a UK CAA / EASA ATO, by an appropriately qualified FI).

Regulation 2101(2)

Certificate of Qualification on Type

2101(2) The ADH / AM(MF) **shall** ensure Aircrew possess a valid Certificate of Qualification on Type (CQT) for the Air System they operate.

Acceptable Means of Compliance 2101(2)

Certificate of Qualification on Type

10. A CQT **should** only be awarded on completion of an approved training course by one of the following:

a. The appropriate ADH;

b. The appropriate AM(MF) / Flight Operations post-holder (FOPH);

c. A type-specific Qualified AI empowered by orders.

11. A CQT **should** be documented in a formal record such as a Flying Logbook.

12. The ADH / AM(MF) **should** detail in orders any exemption from the requirement to hold a valid CQT, which **should** be limited to:

a. Aircrew under instruction by a type-specific Qualified AI;

b. Aircrew on an approved training course working towards a CQT;

c. Central Flying School (CFS) examiner when not acting as Aircraft Commander;

d. Test and Evaluation (T&E) Aircrew when conducting specific trials or Test Pilots when Qualitative Evaluation (QualEval) flying. However, this does not apply to the delivery of T&E training generally, for which the Aircraft Commander **should** hold a valid CQT.

13. A CQT **should** be deemed lapsed if the Aircrew member has not flown the Air System in the previous 6 months. In such circumstances, the ADH / AM(MF) **should** define an appropriate package of flying instruction ►◄ to revalidate the CQT. ►This training **should** be delivered by a type-specific Qualified AI, or an instructor approved by CFS as competent to do so (or if under a UK CAA / EASA ATO, by an appropriately qualified Type-Rating Instructor (TRI)[7]).◄

[4] Refer to 'Manual on the Implementation of ICAO Language Proficiency Requirements', ICAO (2004).
[5] RN, Army and RAF refer to The Queen's Regulations for the RAF - Joint Regulation QR J727.
[6] Refer to RA 2375 – Qualification, Approval and Use of Flight Simulator Training Devices.

Acceptable Means of Compliance 2101(2)

14. **Flying Instruction Leading to CQT.** Where an approved training course leads to the award of a CQT, Aircrew **should** be given flying instruction by a type-specific Qualified AI, or instructors approved by CFS as competent to do so (or if under a UK CAA / EASA ATO, by an appropriately qualified TRI[7]).

Guidance Material 2101(2)

Certificate of Qualification on Type

15. Where FSTD are used for formal instruction (iaw RA 2375[6]) that results in award of a CQT, Aircrew will be given instruction by a type-specific Qualified AI, or instructors approved by CFS as competent to do so (or if under a UK CAA / EASA ATO, by an appropriately qualified TRI).

16. CQT is recorded in the MOD Flying Logbook. ADH / AM(MF) / FOPH may issue a CQT as a separate document where no MOD Flying Logbook is held. Evidence from National Aviation Authority licences and proficiency checks may be used as evidence towards issue of a CQT, but do not themselves represent equivalence.

17. ADH / AM(MF) orders may describe appropriate limitations for CQT on a specific type (for example ‘First Pilot Day Only’).

18. Test Pilots may deliver flying instruction leading to CQT, where a type-specific Qualified AI could not reasonably be expected to exist, at the discretion of the ADH / AM(MF).

[7] Refer to RA 2125 – Aircrew Instructor Training.

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►This RA has been substantially rewritten; for clarity, no change marks are presented – please read RA in its entirety◄

RA 2102 – Aircrew Competence in Role

Rationale

Some Aircrew roles require additional training to operate their Air System safely in its role (other than skills and knowledge defined by initial Aircrew qualifications / Certificates of Qualification on Type (CQT)[1]). Risk to Life is increased if such training and resultant Competencies are not defined and assessed. This Regulatory Article requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to ensure Aircrew are periodically assessed, including (where necessary) in their ability to operate the Air System safely in its role.

Contents

2102(1): Certificate of Competence
2102(2): Periodic Assessment of Competence

Regulation 2102(1)

Certificate of Competence

2102(1) Aircrew **shall** possess a Certificate of Competence (CofC)[2] to operate UK military Air Systems in role.

Acceptable Means of Compliance 2102(1)

Certificate of Competence

1. ADH / AM(MF) **should** define in orders the criteria for the award of a CofC to reflect Aircrew ability to operate an Air System safely in role.

2. A CofC **should** be cancelled by the ADH / AM(MF) or delegated authority, if there is evidence that the Aircrew individual is no longer competent to hold the CofC.

3. Award or cancellation of a CofC **should** be documented in a Flying Logbook or auditable record.

Guidance Material 2102(1)

Certificate of Competence

4. ADH / AM(MF) may consider additional criteria beyond Safety of flight (such as using weapon systems). Award and retention of a CofC is at the discretion of ADH / AM(MF), even when published criteria are met.

5. Various CofC may be awarded for the same Air System, to reflect various levels of qualification (for example, 'Limited Combat Ready' or 'Combat Ready').

Regulation 2102(2)

Periodic Assessment of Competence

2102(2) Aircrew Competence **shall** be periodically assessed.

Acceptable Means of Compliance 2102(2)

Periodic Assessment of Competence

6. ADH / AM(MF) **should** define in orders criteria for Aircrew periodic assessment.

7. Aircrew Competence **should** be assessed at least annually. ADH / AM(MF) **should** stipulate in orders how and by whom the assessment will be conducted.

8. In addition to an annual assessment, ADH / AM(MF) **should** ensure that Aircrew Competence is assessed by an independent expert body. The ADH / AM(MF) **should** stipulate in orders the periodicity of independent Aircrew assessments.

9. Evidence of assessments of Competence **should** be documented in the Aircrew member's training record.

[1] Refer to RA 2101 – Aircrew Qualifications.
[2] Refer to MAA 02 – MAA Master Glossary.

Guidance Material 2102(2)

Periodic Assessment of Competence

10. Annual (or interim) assessments of Competence may be conducted as defined by an ADH / AM(MF). This would normally comprise a practical assessment and theoretical knowledge check. It may also include an assessment of flying experience (including currency and continuation training[3]) since the last assessment of Competence.

11. An independent expert body needs to be sufficiently independent such that it is not unduly influenced by commercial, operational, peer or rank / status pressures. For example, Central Flying School (CFS) Exam Wing, CFS Agents, Air and Space Warfare Centre or UK Civil Aviation Authority / European Union Aviation Safety Agency Approved Training Organisations may be utilized.

[3] Refer to RA 2103 – Currency and Continuation Training.

RA 2103 - Currency and Continuation Training

Rationale

A minimum level of flying currency and training activity is required in order to enable the continued maintenance of Aircrew competencies that have been achieved in a specific role. A failure to achieve this will result in a degradation of skill that may increase Risk to Life. This Regulation requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to specify the minimum activity required to reduce this to a level that is As Low As Reasonably Practicable and Tolerable.

Contents

2103(1): Currency Requirements
2103(2): Continuation Training

Regulation 2103(1)

Currency Requirements

2103(1) ADH and AM(MF) **shall** specify in orders the currency minima, by type, ►Mark (Mk)◄ and role, for the safe operation of Air Systems by Aircrew within their Area of Responsibility.

Acceptable Means of Compliance 2103(1)

Currency Requirements

1. **Currency**. All Aircrew employed in flying appointments **should** maintain flying currency and practise their crew duties in at least one type of Air System that their Unit operates. Currency requirements for Commanders of Flying Units or Flight Operations post-holders **should** be sufficient to provide for their supervisory responsibilities.

2. **Currency Lapses**. When Aircrew have been unable to remain in current flying practice they **should** receive a check sortie in order to permit them to return to flying or conduct the activity for which currency has lapsed, for example Night flying, and subsequently regain currency. ADH and AM(MF) **should** stipulate in orders: the requirements of the check sortie (for example live flying, synthetic or a mix); who may conduct the check sortie; the validity period attributable to the check sortie; and any further training required for Aircrew whose currency has lapsed. A written report of the check sortie **should** be recorded in the Aircrew training record.

3. **Consecutive Check Sorties**. ADH and AM(MF) **should** stipulate in orders the maximum number of consecutive check sorties allowable without regaining currency before an independent assessment or period of re-training is required.

4. **Multi-Type ►or Mk◄ Aircrew**. Where Aircrew routinely operate multiple Air Systems, ADH and AM(MF) **should** specify the applicability of hours and ►◄ events flown ►by type and Mk, to satisfy general, type or Mk currency.◄

Guidance Material 2103(1)

Currency Requirements

5. **Currency Lapses.** The purpose of a check sortie is to allow a non-current individual to fulfil their normal crew duties without additional supervisory requirements whilst regaining currency. A check sortie itself does not necessarily constitute regaining of currency, ie individuals ►will◄ not be allowed to merely conduct back-to-back check sorties to be deemed current. Minimum requirements for currency as laid down in ADH or AM(MF) orders ►will◄ be met before an individual is deemed to be current. Consequently, following a check sortie, a period of consolidated flying might need to be completed to achieve currency.

6. **Aircrew Multiple Competencies**. Demands on Aircrew competencies will vary according to tasks and roles. Nevertheless, Aircrew ►will◄ be ►◄ current to meet the demands of forthcoming tasks and roles. This might require limiting the number of Air Systems flown and might necessitate additional flying training and practice above the minimum stipulated.

Guidance Material 2103(1)

7. **Multi-Type ►or Mk◄ Aircrew**. In determining currency ►◄ equivalence between Air Systems, ADH and AM(MF) will need to consider such factors as: asymmetric characteristics; instrument / cockpit layouts; performance and handling; and Air System complexity.

Regulation 2103(2)

Continuation Training

2103(2) ADH and AM(MF) **shall** specify in orders the minimum requirements of continuation training for Aircrew by type, ►Mk◄ and role.

Acceptable Means of Compliance 2103(2)

Continuation Training

8. ADH and AM(MF) **should** specify, as a minimum, the frequency and content of periodic flight, simulator and ground training and maintain appropriate training records.

9. ►ADH and AM(MF) **should** stipulate in orders action to be taken if continuation training minima are not met.◄

10. ADH and AM(MF) **should** promulgate orders or instructions detailing the entitlement to log Flying Hours and continuation training events in a multi-crew environment.

Guidance Material 2103(2)

Continuation Training

11. **Test Pilot Continuation Training**. For Test Pilots, continuation training also permits the handling of an Air System on which they may not hold a Certificate of Qualification on Type to allow them to experience the flying or system characteristics of an unfamiliar type and to practise flight test techniques.

RA 2115 - Aircraft Commanders

Rationale

An Aircraft Commander is designated by the Aircraft Operating Authority as being in command of an Air System and is responsible for its safe operation and the accomplishment of its assigned mission. A failure to execute this responsibility, or a misunderstanding of it, could increase Risk to Life. This regulation requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to establish the responsibilities and authority of an Aircraft Commander and ensure that they are understood and acted upon.

Contents

2115(1): Responsibilities of an Aircraft Commander
2115(2): Authority of an Aircraft Commander

Regulation 2115(1)

Responsibilities of an Aircraft Commander

2115(1) The Aircraft Commander **shall** be entirely responsible for the safety of the Air System, its occupants and equipment, both in the air and on the ground until it is handed over to the appropriate authority after flight.

Acceptable Means of Compliance 2115(1)

Responsibilities of an Aircraft Commander

1. ADH and AM(MF) **should** issue guidance on the standards required of Aircraft Commanders within their Area of Responsibility.

2. The Aircraft Commander **should** ensure that:

a. ►The◄ crew is properly constituted and all members are qualified, current and capable of performing their duties ►in accordance with (iaw) the Air System Document Set (ADS) and ADH / AM(MF) Orders, both in the air and on the ground.◄

b. All crew members are:

(1) Properly clothed and equipped for their tasks.

(2) In date for all safety and survival drills appropriate to the Air System.

(3) Proficient in the use of the escape and survival equipment carried.

(4) Familiar with all emergency procedures.

c. All necessary flight and fuel planning has been carried out iaw the ADS ►and ADH / AM(MF) Orders,◄ and that, when required, a flight plan has been filed with the Air Traffic Control (ATC) authorities.

d. The appropriate aeronautical information publications or other national flight planning documents relevant to the area in which they intend to operate are used.

e. An appropriate meteorological briefing has been obtained.

f. All requisite steps have been taken to prepare the Air System for the flight and the appropriate servicing documents have been inspected and signed.

g. ►The Air System is supervised and managed once the Aircraft Commander has taken responsibility for it iaw RA 2301[1]. When the Aircraft Commander is not able to effectively supervise and manage the Air System while it is in their custody, they **should** delegate this responsibility to a suitably qualified Aircrew representative.◄

h. Passengers, if carried, have been briefed on:

[1] ►Refer to RA 2301 – Responsibility for an Air System.◄

Acceptable Means of Compliance 2115(1)

(1) The authority of the Aircraft Commander.

(2) Precautions to be taken when boarding and leaving the Air System.

(3) Crash positions and emergency procedures.

(4) ►◄ Use of the Air System oxygen, escape and survival equipment carried.

(5) Loose equipment ►stowage.

(6) Use of Portable Electronic Devices while on board, if permitted.◄

i. Correct ATC communications and navigation procedures are carried out during flight.

j. Appropriate post-flight procedures are completed.

Guidance Material 2115(1)

Responsibilities of an Aircraft Commander

3. When Qualified Aircrew Instructors (Qualified AI) are qualified to act as Aircraft Commanders and are acting in the capacity of Qualified AI, they will normally be the Aircraft Commander, unless otherwise permitted by ADH or AM(MF).

4. Subordinate orders and instructions may use the term 'Aircraft Captain'. Where this occurs, the meaning will be interpreted as being synonymous with the meaning of 'Aircraft Commander'.

Regulation 2115(2)

Authority of an Aircraft Commander

2115(2) In matters of Air Safety, all persons on board, whatever their rank or status, **shall** be under the command of the Aircraft Commander.

Acceptable Means of Compliance 2115(2)

Authority of an Aircraft Commander

5. Nil.

Guidance Material 2115(2)

Authority of an Aircraft Commander

6. This regulation protects the safety of persons on board from attempts to undermine the Aircraft Commander's authority for the preservation of Air Safety. For example, a superior may be instructed by the Aircraft Commander to 'sit down and fasten a seat belt'. ►◄ A superior acting on behalf of the Aircraft Operating Authority may issue a legitimate order affecting the sortie as planned, whether on board or not, such as a Grade 1 diversion, so long as the order ►is consistent with RA 1020[2] and / or RA1024[3], and RA 1210[4].◄

[2] ►Refer to RA 1020 - Aviation Duty Holder and Aviation Duty Holder-Facing Organizations - Roles and Responsibilities.
[3] Refer to RA 1024 - Accountable Manager (Military Flying).
[4] Refer to RA 1210 - Ownership and Management of Operating Risk (Risk to Life).◄

►This RA has been substantially re-written; for clarity no change marks are presented - please read RA in entirety◄

RA 2120 - Pilots' Instrument Rating Scheme

Rationale

Pilots are sometimes required to fly Aircraft with insufficient visual references, or in shared airspace where Visual Flight Rules may be inappropriate or disallowed. Failure to safely fly their Aircraft to permitted limits solely by reference to instruments, or failure to comply with Instrument Flight Rules (IFR) for coordinating with other Aircraft and Controllers in shared airspace, increases the Risk to Life posed to Aircraft occupants and third parties on the ground. The pilots' Instrument Rating (IR) Scheme requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to adopt suitable measures to ensure pilots have appropriate qualifications, recent experience, knowledge, and skill to operate safely in these circumstances. Categorizations of Instrument Ratings provide a graduated scale based on experience as an indicator of demonstrated competence in Instrument Flying (IF)[1].

Contents

2120(1): Instrument Rating Requirements
2120(2): Instrument Rating Test

Regulation 2120(1)

Instrument Rating Requirements

2120(1) All pilots who fly UK Military Aircraft in Instrument Meteorological Conditions (IMC); or with insufficient visual references; or under IFR - **shall** hold a valid IR for their Aircraft type(s).

Acceptable Means of Compliance 2120(1)

Instrument Rating Requirements

1. **Crewed Aircraft.** Pilots of crewed Aircraft flying in IMC, or with insufficient visual references, or under IFR, **should** hold a valid IR.

2. **Remotely Piloted Aircraft (RPA).** Pilots of RPA in the Certified and Specific S2 Categories flying Beyond Visual Line of Sight (BVLOS), without a sensor certified for flight by visual references alone, **should** hold a valid IR.

3. **IR Training Design.** ADH / AM(MF) **should** define in orders the criteria for award of an IR for their Aircraft type(s). An IR **should** assure pilot competency in relation to:

    a. Safe Aircraft handling when IF (such as in IMC or when BVLOS), and;

    b. Knowledge, skills, and experience for safe flight under IFR[2] in classes of airspace in accordance with (iaw) the Air System Safety Case (ASSC)[3], Military Permit To Fly (MPTF) and / or Release To Service (RTS).

4. **Training Prior to IR Award**. In derogation to this Regulation (to cater for training), ADH / AM(MF) **should** define in orders any circumstances under which a pilot with appropriate IF supervision may fly in IMC without a valid IR, including minimum competence requirements. The following circumstances **should** be considered:

    a. IF towards award of an IR or revalidation of a lapsed IR, when crewed with another pilot who holds a valid IR.

    b. Provision for an IF competence check to demonstrate competence in IF where the requirements for initial award or revalidation of an IR are not met. An IF competence check **should not** confer the same privileges as an IR and **should not** be used for continuous IMC operations or flight under IFR. IF competence checks **should** be documented in pilots' flying training records.

[1] Refer to MAA 02 – MAA Master Glossary.
[2] Refer to RA 2307 – Rules of the Air.
[3] Refer to RA 1205 – Air System Safety Cases.

Acceptable Means of Compliance 2120(1)

c. Aircraft Commanders flying without sufficient visual references as part of a recognized flying training course who hold an appropriate IF competence check.

5. **IR Award**. The appropriate ADH / AM(MF) or Flight Operations Post Holder (FOPH) **should** only award an IR to a pilot after either a satisfactory recommendation from an Aircrew Instructor[1] (AI) or Aircrew Examiner[4] (AE) following an Instrument Rating Test (IRT), or by recognition of a current and valid civil IR[5]. If stipulated in ADH / AM(MF) orders, decisions on the award of an IR may be delegated to either:

a. Type-specific Qualified Aircrew Instructors (Qualified AI), with a Green or Master Green IR; or,

b. Instrument Rating Instructors (IRI) or Examiners (IRE).

6. **IR Award Category.** An IR **should** be categorized Amber, White, Green or Master Green, commensurate with flying experience, together with knowledge and accuracy demonstrated during the IRT as specified in ADH / AM(MF) orders.

7. **IR 'Frozen' Category**. If a pilot flies an IRT to the White, Green or Master Green standard, but has fewer than the minimum hours specified by the ADH / AM(MF) for the award of that category, they **should** be granted a 'Frozen' IR. The pilot is awarded a lower IR, which is upgraded automatically if the minimum hours requirement is achieved within 3 months of the test. The timescale in which the hours **should** be achieved could be restricted further by the ADH or AM(MF).

8. **IR 'Regression' Category.** A Green or Master Green IR **should** automatically regress to a White IR and a White IR to Unrated status if the minimum currency and practice requirements are not completed, provided the minimum currency and practice requirements are sufficient for the lower IR category. In either instance, the pilot **should** complete the currency backlog to regain their previous IR. An Unrated pilot **should** do so under appropriate IF supervision.

9. **Recording the IR Award.** On award of an IR, or a change to / from a Frozen or Regression Category, full details **should** be recorded in the pilot's Flying Logbook and their flying training record, including as a minimum:

a. IR category;

b. Any restrictions (such as types of approach or classes of airspace)[6];

c. Expiry date;

d. Aircraft type and mark;

e. Any Performance Based Navigation (PBN) endorsement.

10. **IR Applicability in Multi-Pilot Air Systems.** ADH / AM(MF) **should** define in orders which category limitations apply for crews with more than one pilot (if they hold different IR categorizations).

11. **IR Recognition Across Aircraft Types or Marks**. ADH / AM(MF) **should** define in orders if award of an IR on an Aircraft type or mark is valid for another Aircraft type or mark. This **should** only be permitted for pilots who routinely remain qualified and current on multiple types or marks.

12. **IF Currency**. ADH / AM(MF) **should** define in orders IF currency minima required to maintain validity of an IR. This **should** include a minimum number of IF hours and instrument approaches for that Aircraft type in a specified period. Where necessary, IF currency minima **should** also include applicability of IF training (including recordable hours) conducted across multiple types, or in a multi-crew environment. ADH / AM(MF) **should** also determine the number of IF simulator hours and / or approaches that may be accredited to IF currency, or an IRT[7].

[4] An 'Aircrew Examiner' is authorized to certify (but not instruct) other Aircrew to operate Air Systems within the Defence Air Environment.
[5] Subject to ADH / AM(MF) considering the civil licence demonstrates the necessary knowledge, skills and experience for their Aircraft type and role.
[6] An ADH / AM(MF) may remove restrictions later, subject to re-assessment of any IRT requirements that were omitted.
[7] Refer to RA 2375 – Qualification and Approval of Flight Simulator Training Devices.

Acceptable Means of Compliance 2120(1)

13. **IF Practice and Simulated IF**. ADH / AM(MF) **should** ensure that all pilots who are required to maintain an IR are given opportunities for adequate practice evenly distributed throughout the period of their appointment. IF practice and simulated IF, where during a live flight external visual references are artificially limited, **should** normally be carried out in Air Systems fitted with dual controls and supervised by a Safety pilot iaw RA 2307[2]. Live flying exercises involving unusual attitudes **should** be conducted in Visual Meteorological Conditions (VMC).

14. **IR Expiry**. Subject to maintaining IF currency minima, an IR **should** expire 13 months from the date of the first flight of the IRT. ADH / AM(MF) **should** only grant extensions to the 13 month expiry for essential operational reasons or exceptional circumstances. Where this is the case, any extension **should** be approved personally and in writing by the appropriate ADH or AM(MF).

15. **Cancellation of an Award or Appointment**. A pilot's IR **should** be cancelled by their ADH / AM(MF) or delegated authority, if there is evidence that the pilot is no longer competent to hold the IR. Similarly, an appointment as an IRI or IRE **should** be cancelled on the recommendation of the ADH / AM(MF) if there is evidence that the IRI or IRE is no longer competent. If an award or appointment is cancelled the word 'CANCELLED' **should** be written or stamped in red over the appropriate entry in the pilot's Flying Logbook and recorded in their flying training record.

16. **Appointment as an IRE or IRI**. An IRE / IRI is an AE or AI who is qualified to deliver assessment or training for an IR. Pilots **should** only be appointed as an IRE / IRI after an examination approved by an ADH / AM(MF). Authority to appoint IRE / IRI **should not** be delegated below OF4 level or the FOPH. Experienced IRE and IRI may be appointed as Command IRE (CIRE) or Command IRI (CIRI). IRE / IRI **should** hold at least a Green category IR valid for all types of approach and classes of airspace relevant to the Aircraft type(s) for which they instruct, or examine.

Performance Based Navigation (PBN)

17. **PBN Training and Currency.** ADH / AM(MF) **should** define in orders suitable training and currency requirements for PBN endorsements appropriate to their Aircraft type(s).

18. **PBN Endorsements.** Pilots **should** be granted PBN privileges as part of their IR, appropriate to their Air System's certified navigation specification and iaw the ADH / AM(MF) approval, when they have successfully completed an IRT containing type-specific PBN assessments and either:

a. A course of PBN theoretical knowledge and practical flying training equivalent to the requirements of Annex I of the European Union Aviation Safety Agency (EASA) Part-Flight Crew Licencing (Part-FCL)[8], including PBN elements appropriate to the Air System(s) to be operated, or;

b. An assessment of previous PBN training and experience which satisfies the ADH / AM(MF) that competence acquired is equivalent to that gained through the specified course for the Aircraft type.

19. **Required Navigation Performance (RNP) Approach (APCH) Restrictions.** For Aircraft approved for RNP APCH, if the IRT does not include an RNP APCH exercise, the PBN endorsement for the pilot is restricted and the Flying Logbook entry **should** state 'No RNP APCH' (eg Voyager White / PBN / No RNP APCH).

Guidance Material 2120(1)

Instrument Rating Requirements

20. **Practical Training Environment.** Practical flying training for an IR may be conducted during a live sortie in IMC or under simulated IF conditions, or using an appropriately qualified and approved Flight Simulator Training Device[7] (FSTD).

21. **IR Recognition Across Aircraft Types or Marks**. In determining applicability of an IR from one type or mark of Aircraft to one or more other types, ADH / AM(MF) will need to consider such factors as types of approach, approved classes of airspace,

[8] Refer to Annex I of the EASA Part-FCL.

Guidance Material 2120(1)

asymmetric characteristics, instrument / cockpit layouts, performance, handling, and Air System complexity.

22. **Classes of Airspace**. Notwithstanding general privileges conferred by a pilot's category of IR, limitations will apply in those classes of airspace for which the Air System is not equipped - unless the appropriate Air Traffic Control (ATC) authority has given clearance and it is permitted by the Air System RTS or MPTF.

23. **Command IRE / IRI.** Command IRE / IRI are appointed by ADH / AM(MF) to signify higher levels of experience and competence. They provide support to less experienced IRE / IRI, guidance and assurance to the ADH / AM(MF) in design and management of the IR scheme - and may support several Aircraft types.

IR Categories

24. **Unrated**. All pilots who don't hold a valid IR for that Aircraft type are Unrated, whether or not they have completed an IF competence check. An Unrated pilot who inadvertently enters IMC will minimize time spent in IMC to that necessary to regain VMC.

25. **Amber IR**. The Amber IR will normally be awarded to pilots who have passed the appropriate flying and ground tests but lack the experience or currency criteria laid down for the award of a White or Green IR.

a. **Privileges**. The Amber IR qualifies a pilot to carry out the following tasks.

(1) IMC: Airways crossing. Flight in Class F and G airspace.

(2) Special VFR: Flight in Class D airspace.

(3) IFR: Flight in Class D and E airspace while under the control of the authority controlling that airspace.

(4) Operational Air Traffic (OAT): All classes of airspace in the UK.

b. **IR Allowance**. A pilot holding an Amber IR will add the allowance of 300 ft to procedure minima when calculating Decision Height / Altitude (DH / DA) and Minimum Decent Height / Altitude (MDH / MDA).

26. **White IR**. The White IR will normally be awarded to pilots who have passed the appropriate flying and ground tests but lack the experience or currency criteria for the award of a Green IR.

a. **Privileges**. The unrestricted White IR qualifies a pilot to operate as General Air Traffic (GAT) or OAT in all classes of airspace.

b. **Restrictions**. ADH / AM(MF) may specify restrictions that apply to the issue of the White IR according to the experience of the pilot or the limitations of the Air System type.

c. **IR Allowance**. A pilot holding a White IR will add the allowance of 200 ft to procedure minima when calculating DH / DA and MDH / MDA.

27. **Green IR**. The Green IR will normally be awarded to pilots who have passed the appropriate flying and ground tests and who meet the minimum experience and currency criteria for the award of a Green IR:

a. **Privileges**. The unrestricted Green IR qualifies a pilot to operate as GAT or OAT in all classes of airspace.

b. **Restrictions**. ADH / AM(MF) may specify restrictions that apply to the issue of the Green rating according to the experience of the pilot or the limitations of the Air System type.

c. **IR Allowance**. The allowance for a Green IR is zero – procedures may be flown to the published minima.

28. **Master Green IR**. The Master Green IR will normally only be awarded to pilots who have displayed superior airmanship. It recognizes a higher level of experience and accomplishment in IF:

Guidance Material 2120(1)

a. **Privileges**. The unrestricted Master Green IR qualifies the pilot to the same level as a Green IR and confers the same privileges.

b. **Restrictions**. ADH / AM(MF) may specify restrictions that apply to the issue of a Master Green IR.

c. **IR Allowance**. The allowance for a Master Green IR is zero – procedures may be flown to the published minima.

29. **Civilian IR Equivalency**. ADH / AM(MF) may allow a civilian IR to be used to confer a military IR; however, in doing so they must ensure that all the criteria contained within this Regulation are met.

30. Civilian and Service FSTD Instructors who conduct IRTs will be nominated as IRE / IRI and fly their qualifying IRT in the FSTD to Green standard. Those nominated will only be approved by CIRE / CIRI after being observed briefing, conducting, and debriefing a simulator IRT. FSTD IRE / IRI will be valid for 13 months from the date of the test.

Regulation 2120(2)

Instrument Rating Test

2120(2) All pilots **shall** demonstrate their ability to fly a UK Military registered Aircraft accurately and safely by reference to instruments alone and iaw airspace requirements before being issued an IR.

Acceptable Means of Compliance 2120(2)

Instrument Rating Test

31. If conferring a military IR based on recognising equivalence of a civil IR, an ADH / AM(MF) **should** conduct to a gap analysis and supplemental training to mitigate any differences between applicable military IR training design for the Aircraft type, and the civil IR syllabus[9].

32. The IRT **should** be a live flight or IFSTD[7] test in addition to a ground examination as promulgated by ADH / AM(MF), relevant to Air System type. Flight tests and ground examinations for IR **should** only be conducted by a type-specific Qualified AI with a suitable IR, or an appointed CIRE / CIRI / IRE / IRI.

33. During the IRT, which may be taken under simulated or actual instrument flight conditions, a pilot **should** demonstrate their ability to fly accurately and safely by reference to Air System instruments alone and to the limits of the aids available. When fitted and not otherwise restricted, the head-up display **should** be used as the primary attitude reference during the IRT. The exercises included in the IRT **should** be promulgated in ADH / AM(MF) orders: all tests **should** comply with the provisions below.

34. **IRT Report.** On completion of flight and ground tests, an IRT Report **should** be completed and filed in the pilot's flying training record.

35. **IRT Accuracy Parameters**. The parameters for the level of accuracy that pilots **should** be assessed against for the mandatory sections of the test are in Tables 1, 2 and 3 (see AMC Paragraph 36– Assessment Parameters). For Aircraft capable of operating between fixed wing and rotary wing modes (such as tilt-rotor Aircraft) ADH / AM(MF) **should** specify IRT accuracy parameters within those of either Table 2 or Table 3, based on the ASSC.

[9] For CAA / EASA, refer EASA-Part Flight Crew Licencing FCL.600-IR.

Acceptable Means of Compliance 2120(2)

Table 1. Tracking Parameters, Instrument Approach (all Aircraft, all ratings).

Type of Approach[10]	Parameters of Permitted Deviation
Lateral and vertical Angular deviations (eg ILS, Localiser Performance with Vertical Guidance (LPV) Approaches)	±½ full scale deflection of azimuth or glide path indication during the final approach.
Linear lateral deviations (eg 2D[11] Lateral Navigation (LNAV), 3D[12] LNAV / Vertical Navigation (VNAV) Approaches)	±½ the RNP value associated with the procedure. Brief deviations from this standard up to a maximum of the full RNP value are allowable.
Linear vertical deviations (eg 3D LNAV / VNAV Approach using Baro VNAV)	Not more than – 75 feet below the vertical profile at any time, and not more than + 75 feet above the vertical profile at or below 1000 feet above Aerodrome level.
Precision Approach Radar (PAR), Surveillance Radar Approach (SRA)	The correct and timely application of Controller instructions.
Radio Aid Approaches (eg TACAN / VOR / NDB Approaches)	±5 degrees of published tracks.
Non-Standard Aircraft-Specific Approaches (eg GPS Automatic Take-Off or Landing System).	As published in ADS, with pilots to identify and respond appropriately to out-of-limit conditions (defined by ADH / AM(MF)).

Table 2. Fixed Wing Aircraft.

IR Category	Parameters of Permitted Deviation
Amber and White Ratings	±10 degrees of heading ±10 knots / 0.03 M ±100 feet (but ±200 feet above FL 250 and +100 feet to -0 feet at MDH / MDA)
Green and Master Green Rating	±5 degrees of heading ±5 knots / 0.02 M ±100 feet (but ±200 feet above FL 250 and +100 feet to -0 feet at MDH / MDA)

Table 3. Rotary Wing Aircraft.

IR Category	Parameters of Permitted Deviation
Amber, White, Green Ratings	±10 degrees of heading ±10 knots ±100 feet (but +100 feet to -0 feet at MDH / MDA)
Master Green Rating	±5 degrees of heading ±5 knots ±100 feet (but +100 feet to -0 feet at MDH / MDA)

36. **Assessment Parameters**. Except for approach minima, which are mandatory, the IRT parameters **should** be a guide to assessment only and apply to conditions of nil or light turbulence. In more difficult conditions the testing officer **should** grant a degree of latitude to the pilot under test. Greater importance **should** be attached to smooth flying using the recommended techniques, with associated captaincy, cockpit management and airmanship appropriate to the type and role of Air System on which tested, and the IR awarded. Candidates for the IRE / IRI test **should** plan, brief, fly, debrief and assess their own test in the presence of a CIRE / CIRI.

37. **Accuracy in Atypical Situations.** The limits of accuracy expected during simulated emergencies, flight on standby instruments or for operational exercises will depend on Air System instrumentation and operational requirements. The limits for these sections of tests **should** be laid down in ADH / AM(MF) orders.

[10] Refer to Military Manual of Air Traffic Management; Air Publication 3456 – RAF Manual of Flying; and Air System Document Sets (ADS) for information on relevant approach types.
[11] 2D Approaches have lateral guidance only (eg VOR, TACAN, NDB, LNAV Approaches).
[12] 3D Approaches have lateral and vertical guidance (eg ILS, LPV, LNAV / VNAV Approaches).

Acceptable Means of Compliance 2120(2)

38. **Management of Automatic Systems.** The IRT **should** assess use of automatic systems to manage crew resource management throughout a sortie. Use of autopilot functions **should** be encouraged, but where pilots may need to fly the Aircraft in a reversionary mode then this **should** also be assessed. Additionally, for Aircraft with an automatic take-off or landing capability, pilots **should** be assessed on their ability to monitor the system for out-of-limit conditions and to safely fly a missed approach procedure in each of the available manual or reversionary methods of control.

39. **Airborne Assessment of Skill**. The IRT schedules for individual Air System types **should** be promulgated in ADH / AM(MF) orders. They **should** be designed to ensure that the pilot has the necessary skills to fly a particular type in all those classes of airspace for which it is equipped, unless restrictions are placed on operations of the Air System by ADH / AM(MF) or the individual by commanders or FOPHs, who may then limit the test accordingly. In these circumstances, the limitations **should** be clearly laid out in the Flying Logbook and the IRT Report.

40. **Conduct of the Test**. Exercises involving reversionary instrumentation, unusual attitudes and simulated emergencies **should** be conducted in a manner that is appropriate to the Air System type and role; unrealistic simulated emergencies **should not** be included. The flight test **should** be conducted on not more than two sorties, but the rating validity **should** expire 13 months after the date of the first sortie.

41. **Crew Co-ordination**. If the Aircraft for the IRT is normally flown with the aid of a crew member, then the candidate **should** be assisted with such information and assistance as would normally be made available to them by the crew. If additional cockpit / Remote Pilot Station crew are specified in the RTS, they should be appropriately qualified[13] to support the pilot during the IRT.

42. **Ground Examination**. Oral or written ground examinations **should** be conducted by an IRE / IRI within 7 days of the flight test on a particular Air System type. IRE / IRI **should** ensure that the candidate's ground knowledge is sufficient for them to fly their Aircraft type safely during instrument flight as pilot or Aircraft Commander. Relevant questions **should** be selected according to the Air System type and role from the following list, and the standard of answers **should** be appropriate to the rating awarded:

a. **Manual of Military Air Traffic Management**. Many Regulations combine orders for pilots and air traffic controllers; questions **should not** be asked on controller aspects.

b. **ADH or AM(MF) Orders**.

c. **Information**. Pilots **should** be able to extract relevant information from appropriate Air Information Publications and Flight Information Publications. Candidates for the IRE / IRI test **should** also be able to extract information on the conduct of IRTs from this Regulatory Article and subordinate documents / publications.

d. **Flight instruments and Navigation Aids**. Pilots **should** be able to explain the basic principles of operation, list the errors and limitations, and describe the normal and emergency use of the flight instruments and navigation aids that they are required to interpret or operate in flight.

e. **Meteorology**. Pilots **should** be able to:

(1) Discuss the practical properties of the air masses in their likely theatres of operation.

(2) Describe the formation, Hazards associated with and avoidance of meteorological phenomena; and decode meteorological documentation.

f. **Performance**. Pilots **should** be able to make correct use of the Air System Documentation Set and other performance documents normally used on type. Where appropriate, they **should** be able to extract practical performance, holding and diversion information from these documents.

[13] Refer to RA 2101 – Aircrew Qualifications; RA 2102 – Aircrew Competence in Role; and RA 2340 - Supernumerary Crew, Supernumerary Support Crew and Passengers.

Guidance Material 2120(2)

Instrument Rating Test

43. The central advisory body regarding IF standards and techniques is Examining Wing of the Central Flying School (CFS). Where authorized, CFS agents may provide advice within their ADH / AM(MF) orders on IF matters.

►This RA has been substantially re-written; for clarity, no change marks are presented – please read the RA in its entirety◄

RA 2125 - Aircrew Instructor and Aircrew Examiner Training

Rationale

Aircrew Instructors (AI) and Aircrew Examiners (AE) provide Assurance to Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) that Aircrew are able to operate an Air System to the required standard. Ineffective instruction and examining may adversely affect Aircrew ability, reduce operational output, and ultimately lead to an increased Risk to Life (RtL). To reduce this Risk, this Regulatory Article requires ADH and AM(MF) to ensure AI and AE are appropriately trained, qualified, and assured. Central Flying School (CFS) and the Air & Space Warfare Centre (ASWC) are the lead agencies for AI and AE Training in the Defence Air Environment (DAE).

Contents

Definitions relevant to this RA
2125(1): Aircrew Instructor Training
2125(2): Aircrew Examiner Training

Definitions

Definitions relevant to this RA

1. **CFS Approved Training Organisation (ATO)**. An ATO approved by CFS in accordance with (iaw) the Manual of Military Aircrew Instruction (MMAI).

2. **Civil ATO**. A European Aviation Safety Agency (EASA), UK Civil Aviation Authority (CAA) or US Federal Aviation Authority (FAA) approved ATO.

3. **AI Training Organisation (TO)**. An organization which is neither a CFS nor Civil ATO (eg a Contractor Flying Approved Organization Scheme Organization).

4. **Qualified Weapons Instructor (QWI)**. Aircrew approved by an ADH / AM(MF) to deliver flying instruction post initial Aircrew qualification in the tactical integration and operational employment of their Air System.

5. **Other AI**. Other AI are Aircrew approved by an ADH / AM(MF) to deliver flying instruction post initial Aircrew qualification in the employment of their Air System (such as a QHTI, Air Combat Instructor, Air-Air Refuelling Instructor, Instrument Rating Instructor, Test Pilot Instructor, Flight Test Instructor etc).

6. **Aircrew Examiner**. Aircrew authorized to certify (but not instruct) other Aircrew to operate Air Systems within the DAE.

Regulation 2125(1)

Aircrew Instructor Training

2125(1) ADH and AM(MF) **shall** ensure AI within their Area of Responsibility (AoR) are appropriately trained, qualified, and assured to deliver instruction.

Acceptable Means of Compliance 2125(1)

Aircrew Instructor Training

7. ADH and AM(MF) **should** detail in orders:

   a. The types of AI within their AoR.

   b. The experience level and training required by personnel in their AoR to become AI.

   c. The currencies and Competencies required for an AI qualification to remain valid.

8. **Endorsement**. ADH / AM(MF) **should** endorse the use of any training organizations that conduct AI training within their AoR.

Acceptable Means of Compliance 2125(1)

9. **CFS ATO**. A CFS ATO **should** deliver training leading to the award of Qualified AI categories iaw the MMAI.

10. **Civil ATO**. ADH / AM(MF) **should** ensure that Civil ATOs deliver AI training iaw their civil Approvals for training credit towards civil licencing[1].

11. AI are required to possess skills that enable the effective transfer of knowledge to their students, and **should** be trained to achieve the following baseline Competences:

a. Plan and deliver structured theoretical and practical teaching events.

b. Manage trainees and instructional resources.

c. Integrate Human Factors training[2].

d. Confirm / check learning has taken place, using appropriate techniques.

e. Monitor and review trainee progress.

f. Produce comprehensive records of training.

Qualification

12. **Qualified AI**. Qualified AI[3] (eg Qualified Flying Instructor) **should** have completed a type specific CFS approved course, and had their qualification validated by CFS.

13. **QWI.** QWIs, **should** have completed an ASWC approved course and had their qualification validated by the ASWC.

14. **Other AI**. The ADH / AM(MF) **should** detail in orders how, and by whom, Other AI Qualifications will be validated, with guidance from the appropriate Training Delivery Authority (TDA).

15. **Civil Regulated Type Rating Instructors (TRI)**. Civilian TRIs **should** hold a CAA / EASA / FAA TRI qualification and **should** only conduct AI duties on types for which their license and instructor rating are endorsed, current and valid.

Assurance

16. Qualified AI **should** be subject to the processes laid down in the MMAI.

17. AI Competence **should** be assessed at least annually. ADH / AM(MF) **should** stipulate in orders how and by whom the assessment may be conducted.

18. In addition to an annual assessment, the ADH / AM(MF) **should** ensure that Qualified AI Competence is assessed by an Independent Assessor, with a periodicity not exceeding 2 years. The ADH / AM(MF) **should** stipulate the periodicity of independent assessments for QWIs and Other AIs, with guidance from the appropriate TDA. Independent assessments **should** satisfy the requirement of the annual assessment stipulated in paragraph 17.

19. A Competence check **should** include the following baseline Competencies:

a. Ability to impart skill and knowledge.

b. Proficiency in flying and airborne operating skills.

c. Standardization of current training practice.

d. Knowledge of the Air System and associated subjects allied to operation.

20. Evidence of assessments of Competence **should** be documented in the Aircrew member's training record.

[1] Refer to RA 2101 – Aircrew Qualifications, for applicability of civil licences in the Defence Air Environment.
[2] Refer to RA 1440 – Air Safety Training.
[3] Refer to MAA02: MAA Master Glossary for definition.

Guidance Material 2125(1)

Aircrew Instructor Training

21. **Independent Assessment**. ADH / AM(MF) will nominate suitably qualified assessors with role-specific expertise, who are sufficiently independent that they are not unduly influenced by commercial, operational, peer or rank / status pressures eg, CFS Exam Wing, CFS Agents, ASWC, STANEVAL or UK CAA / EASA ATO.

22. **AI TOs**. AI TOs may seek advice on good practice from CFS, who may approve course content and structure.

23. **QWIs**. The ASWC will provide details of the training it will endorse that will graduate trainees as QWIs, as well as the currencies and Competencies required for a QWI qualification to remain valid.

24. **Selection**. Aircrew may apply, or be recommended, for AI training at any time after the award of the appropriate flying badge or Aircrew qualification[4].

25. **Multi-Type AIs**. Where an Independent Assessor of proficiency in flying or airborne operating skills might not reasonably be expected to exist for a type of Air System, the ADH or AM(MF) may choose (with auditable justification and the endorsement of the Independent Assessor) to include within their orders that an Instructional Competence Check conducted on one Air System type may be read across to another type.

Regulation 2125(2)

Aircrew Examiner Training

2125(2) ADH and AM(MF) **shall** ensure AE within their AoR are appropriately trained, qualified, and assured to assess and certify their test subjects.

Acceptable Means of Compliance 2125(2)

Aircrew Examiner Training

Qualification

26. ADH and AM(MF) **should** detail in orders:

a. The types of AE within their AoR.

b. The experience level and training required by personnel in their AoR to become AE[5].

c. Who has the authority to approve the award of an AE qualification[6].

d. The currencies and Competencies required for an AE qualification to remain valid.

Assurance

27. AE Competence **should** be assessed at least annually. ADH / AM(MF) **should** stipulate in orders how and by whom the assessment will be conducted.

28. Evidence of assessments of Competence **should** be documented in the Aircrew member's training record.

Guidance Material 2125(2)

Aircrew Examiner Training

29. AE may include, but are not limited to, Aircrew Checking Officers, Examining Officers, and Instrument Rating Examiners (IRE)[7]. These AE types are not listed in the MMAI or accredited by CFS, therefore, incumbents will only examine Aircrew that hold a Certificate of Qualification on Type, unless they are also a Qualified AI.

[4] Refer to RA 2101 – Aircrew Qualifications.
[5] The authority to conduct supervisory checks does not grant AE status.
[6] The authority to approve the award of an AE qualification **should not** be delegated below OF4 level or the Flight Ops Post Holder.
[7] IRE are regulated by RA 2120 – Pilots' Instrument Rating Scheme.

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►This RA has been substantially re-written; for clarity, no change marks are presented - please read RA in entirety◄

RA 2130 - Survival Equipment, Drills and Training

Rationale

All personnel who fly in Aircraft are subject to a degree of Risk. Without the correct Survival Equipment (SE) and survival training, personnel will be exposed to increased Risk to Life (RtL). This Regulatory Article (RA) requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to detail in orders the SE and survival training required for all personnel who fly, or are flown in, UK military registered Aircraft within their Areas of Responsibility (AoR).

Contents

2130(1): Survival Training and Currency

2130(2): Wearing and Carriage of Aircrew Equipment Assemblies and Survival Equipment

2130(3): Restraint Systems

2130(4): Aircraft Survival and Rescue Equipment

2130(5): Ejection Seat Anthropometrics

2130(6): Fire, Smoke and Fumes Training

Regulation 2130(1)

Survival Training and Currency

2130(1) The ADH and AM(MF) **shall** publish orders that detail the survival drill training requirements for Aircrew, Supernumerary Crew, Supernumerary Support Crew and Passengers on Aircraft within their AoR.

Acceptable Means of Compliance 2130(1)

Survival Training and Currency

1. ADH and AM(MF) Orders **should** detail, as a minimum, the following:

   a. The application of periodicity of survival drills at Annex A to each unit within their AoR;

   b. Any additional requirements to those detailed at Annex A to be applied within their AoR;

   c. The procedures to be followed when a dispensation or extension is required. Personnel who have exceeded the maximum periodicity for a required element of survival training **should not** be permitted to fly unless a dispensation or extension has been granted.

   d. The survival drill requirements following conversion to a different Aircraft type;

   e. Underwater Escape Training (UET) requirements for Supernumerary Crew, Supernumerary Support Crew and, if appropriate, Passengers who fly regularly in helicopters over the sea;

   f. The Aircrew Equipment Assemblies (AEA) and SE to be worn during survival training;

   g. The qualifications to be held by personnel delivering survival training.

2. The ADH and AM(MF) **should** ensure that all drill SE is suitably representative, exhibits the same dynamics and operation as the actual SE used onboard the Aircraft, and / or is most likely to be used in a survival situation. Whilst differences may exist, the ADH and AM(MF) **should** be satisfied that sufficient resolution exists to provide effective training to aid survival.

Acceptable Means of Compliance 2130(1)

3. Aircrew, Supernumerary Crew, Supernumerary Support Crew and Passengers **should** be current for all survival drill requirements as stipulated in ADH / AM(MF) Orders.

4. **Safety Boat**. Whenever survival training is carried out at sea or in open water, a safety boat **should** be in attendance.

5. **Dry Training.** Where applicable, ADH and AM(MF) Orders **should** detail the content of:

a. Abandon Aircraft drills. As a minimum these **should** be practised from the strapped in position.

b. The ejection and manual separation drill. As a minimum this **should** include:

(1) A comprehensive review of the seat components, operation, limitations and ejection sequence;

(2) The strapping in procedure and safety implications of not strapping in correctly;

(3) Practical drills in the use of each firing handle and seat failures.

c. The dry life raft and life preserver drills. As a minimum these **should** include:

(1) A lecture and appropriate demonstrations covering all aspects of personal SE carried;

(2) Instruction in helicopter rescue techniques.

d. Synthetic Parachute Training (SPT). As a minimum this **should** include:

(1) Parachute flight drills;

(2) Parachute landing drills;

(3) A briefing to cover ground dragging and harness release.

Guidance Material 2130(1)

Survival Training and Currency

6. The ADH and AM(MF) may grant extensions to the periodicities detailed at Annex A for operational reasons or in exceptional circumstances.

7. The ADH and AM(MF) may exempt units from a specific drill detailed at Annex A in exceptional circumstances, when they consider that the drill is not applicable to an Aircraft type and / or role. Additionally, the ADH and AM(MF) may exempt Aircrew and trainees from the life raft / preserver drills, wet winching drills and UET / Short Term Air Supply System (STASS) drills where those Aircrew and trainees are not required to conduct over water sorties. Any exemption must be formally recorded in the Air System Safety Case[1].

8. **Wet Drills**. When a wet drill is completed the equivalent dry drill is also deemed to have been completed. Similarly, when a sea / Environmental Pool Trainer drill is completed the associated pool drill is also deemed to have been completed.

9. **Synthetic Parachute Training**. Normally SPT is to be conducted wearing full AEA and SE appropriate to the Aircraft type. However, the ADH and AM(MF) may detail alternative AEA and SE (as per para 1.f.) where they assess the wearing of full AEA and SE to be inappropriate. Water parachute dragging drills will normally be practised in conjunction with wet life raft drills.

10. **Wet Multi-Seat Life Raft Drill**. Multi-seat life raft drills are a requirement for Aircrew whose Aircraft do not normally carry multi seat life rafts. They are conducted to familiarize Aircrew with the type of life raft that may be supplied by rescue crews or when flying as a Passenger in a transport Aircraft. However, some dispensations are given in the periodicity detailed at Annex A.

[1] Refer to RA 1205 - Air System Safety Cases.

Guidance Material 2130(1)

11. **Underwater Escape Training**. UET will normally be carried out in a suitable rotary-wing module at the UET Unit (UETU), RNAS Yeovilton, although alternative facilities may be used for detached units or Defence Contractor Flying Organizations.

12. **STASS Dry Drill**. Initial STASS dry drills will be completed at the UETU. Subsequent STASS dry drills may be carried out locally.

13. **STASS Wet Drill**. STASS wet drills will be completed by eligible personnel at the same time as UET. All personnel required to undertake wet STASS training will be medically screened prior to the training, using the Medical Screening Questionnaire[2].

14. **STASS Exemptions**. The ADH and AM(MF) may permit personnel who are medically boarded and assessed as permanently unfit for wet STASS training, but who have previously completed wet STASS training, to conduct dry STASS drills only. This judgement will be made with medical guidance on a case by case basis and will be recorded in the individual's Flying Logbook[3].

15. **Environmental Pool Trainer**. Military student Aircrew will experience the effects of cold-water shock and sea survival, from their initial Aircrew Maritime Survival Drills provided by the Defence Survival, Evasion, Resistance and Extraction Training Organisation. However, the initial wet winching drill may be conducted at the Environmental Pool Trainer. Thereafter, the Environmental Pool Trainer (including winch trainer) is entirely interchangeable with the sea for drill validities detailed at Annex A.

16. **Survival, Escape / Evasion, Resistance and Extraction (SERE).** The requirements for land-centric SERE training, for operating in a potentially hostile environment, are directed in Joint Service Publication (JSP) 998[4]. These requirements are theatre specific and will be initiated as required by the relevant Force Commanders after consultation with Permanent Joint Headquarters. The currency and revalidation of SERE training is detailed in JSP 911[5].

Regulation 2130(2)

Wearing and Carriage of Aircrew Equipment Assemblies and Survival Equipment

2130(2) The ADH and AM(MF) **shall** publish orders that detail the wearing and carriage of AEA and SE on Aircraft within their AoR.

Acceptable Means of Compliance 2130(2)

Wearing and Carriage of Aircrew Equipment Assemblies and Survival Equipment

17. ADH and AM(MF) Orders **should** detail the minimum AEA and SE to be worn and carried on the person by all Aircrew, Supernumerary Crew, Supernumerary Support Crew and Passengers within their AoR. Only AEA and SE approved in the Air System Document Set **should** be worn or carried.

18. **Modification of Equipment.** The approval of the relevant Engineering Authority **should** be sought prior to any modification to AEA or SE. The ADH and AM(MF) **should** consult the Aircraft Type Airworthiness Authority or Type Airworthiness Manager, prior to seeking approval for modifications to AEA and SE.

Guidance Material 2130(2)

Wearing and Carriage of Aircrew Equipment Assemblies and Survival Equipment

19. **Immersion Thermal Protection.** Guidance on the wearing of AEA to protect against cold water immersion is available in JSP 911[5].

[2] The Medical Screening Questionnaire is available on the RA 2130 page of the MAA gov.uk website.
[3] Refer to AP1269A – RAF Manual of Medical Fitness; Leaflet 4-02 Annex J - Fitness for Short Term Air Supply System (STASS) Wet Drill Training.
[4] Refer to JSP 998 – MOD Policy for Joint Personnel Recovery (JPR); Annex B – JPR and SERE Training Policy.
[5] Refer to JSP 911 – Survival, Evasion, Resistance and Extraction; Part 1 – Directive.

Guidance Material 2130(2)

20. **Chemical Warfare Training.** See RA 2135(7)[6] for details regarding flying in clothing or equipment following chemical warfare training.

Regulation 2130(3)

Restraint Systems

2130(3) The ADH and AM(MF) **shall** publish orders detailing the wearing of Restraint Systems on Aircraft within their AoR.

Acceptable Means of Compliance 2130(3)

Restraint Systems

21. The pilot controlling the Aircraft **should** be securely strapped into their seat at all times.

22. All other Aircrew, Supernumerary Crew, Supernumerary Support Crew and Passengers **should** wear an appropriate restraint system, secured to a suitable anchorage point, at all times, except when attached to a winch cable or when specifically authorized by the Aircraft Commander. The time spent solely restrained in a dispatcher harness or attached to a winch cable **should** be kept to a minimum consistent with the safe completion of the task.

23. Aircraft Commanders **should** only allow restraint systems to be unfastened in flight when necessary to complete authorized tasks.

24. The ADH and AM(MF) **should** specify the occasions, and safety procedures, when an ejection seat occupant is permitted to unstrap in flight.

25. For take-off and landing, Aircrew and Supernumerary Crew **should** normally be seated and restrained using a seat harness. The ADH and AM(MF) **should** detail the specific circumstances when a seat-harness restraint is not required for Aircrew or Supernumerary Crew during take-off and landing.

26. Passengers and Supernumerary Support Crew **should** be securely strapped into their seats at all times when the Aircraft is moving, except when authorized by the Aircraft Commander.

Guidance Material 2130(3)

Restraint Systems

27. Dispatcher harnesses, whilst preventing the wearer from inadvertent exit from the Aircraft, do not provide the same degree of restraint or protection as seat harnesses.

Regulation 2130(4)

Aircraft Survival and Rescue Equipment

2130(4) The ADH and AM(MF) **shall** publish orders detailing the survival and rescue equipment to be carried in Aircraft within their AoR.

Acceptable Means of Compliance 2130(4)

Aircraft Survival and Rescue Equipment

28. ADH and AM(MF) Orders **should** detail when the following are to be carried, and the type and quantity to be carried:

a. **Life Rafts**. As a minimum these **should** be carried when it may not be possible to achieve a forced landing over land. They **should** be of sufficient number and capacity to accommodate all the occupants of the Aircraft;

b. **Medical Supplies / First Aid Kits**. These **should** be appropriate to the Aircraft role and number of occupants;

c. **Survival packs**. ADH and AM(MF) Orders **should** specify when they are to be carried, and the type and quantity to be carried.

[6] Refer to RA 2135(7) –Temporary Medical Restrictions to Flying Duties.

Guidance Material 2130(4)

Aircraft Survival and Rescue Equipment

29. **Life Rafts**. Operational considerations may render the carriage of life rafts impractical. For guidance on ADH responsibilities in Operations see RA 1020[7].

Regulation 2130(5)

Ejection Seat Anthropometrics

2130(5) The ADH and AM(MF) **shall** ensure that personnel occupying ejection seats are within the cleared and Authorized anthropometric limits.

Acceptable Means of Compliance 2130(5)

Ejection Seat Anthropometrics

30. As a minimum, ADH and AM(MF) Orders **should** detail:

a. When an ejection seat check is required;

b. Who can conduct an ejection seat check;

c. The AEA and SE to be worn by the seat occupant during an ejection seat check;

d. The minimum and maximum boarding weight limits for the ejection seats within their AoR;

e. Where minimum and maximum boarding weight limits are to be displayed;

f. The frequency of boarding weight checks.

31. Where Supernumerary Crew, Supernumerary Support Crew or Passengers have not previously had an ejection seat anthropometric check, the ADH or AM(MF) **should** ensure an anthropometric check is conducted prior to flight.

Guidance Material 2130(5)

Ejection Seat Anthropometrics

32. **Ejection Seat Check**. The ADH and AM(MF) may wish to stipulate different levels of AEA and SE to be worn during an ejection seat check for Aircrew, Supernumerary Crew, Supernumerary Support Crew and Passengers based on the sortie to be flown.

Regulation 2130(6)

Fire, Smoke and Fumes Training

2130(6) The ADH and AM(MF) **shall** detail in their orders the required Fire, Smoke and Fumes Training with associated periodicities for the Aircraft within their AoR.

Acceptable Means of Compliance 2130(6)

Fire, Smoke and Fumes Training

33. As a minimum, ADH and AM(MF) Orders **should** detail:

a. The periodicity and conduct of Aircrew on-Aircraft fire training.

b. The periodicity and conduct of Aircrew live fire extinguisher training[8], where possible using a type of extinguisher suitably representative of that installed in the Aircraft.

c. The periodicity and conduct of Aircrew smoke and / or fumes training (to include cabin crew protective breathing equipment training where appropriate).

[7] Refer to RA 1020 – Aviation Duty Holder and Aviation Duty Holder-Facing Organizations - Roles and Responsibilities.
[8] Only fire extinguishers that are safe to operate will be used for practice at a dedicated fire training facility.

Guidance Material 2130(6)

Fire, Smoke and Fumes Training

34. CAA Paper 2009 / 01[9] provides useful guidance and recommendations for fire, smoke and protective breathing equipment training, including the management of passengers, directly relevant to large passenger carrying Aircraft.

35. ADH and AM(MF) may wish to consider the following in relation to Fire, Smoke and Fumes Training:

a. Periodicity requirements based on the type, complexity and number of fire, smoke or fume sources that Aircrew might be expected to manage (Aircraft type specific).

b. Requirements for realism and accuracy in the conduct of training.

c. Ensuring practice equipment if not identical (eg Halon Fire Extinguishers) is suitably representative.

[9] Refer to CAA Paper 2009 / 01 - Cabin Crew Fire Training - Training Needs Analysis.

ANNEX A

PERIODICITY OF SURVIVAL DRILLS (MONTHS)

	Fixed Wing Aircraft with Ejection Seats			Fixed Wing Aircraft with Parachutes			Fixed Wing Aircraft without Parachutes			Helicopters		
Role	Maritime (1)	Non-Maritime (7)	Overland (2)	Maritime (1)	Non-Maritime (7)	Overland (2)	Maritime (1)	Non-Maritime (7)	Overland (2)	Maritime (1)	Non-Maritime (7)	Overland (2)
Dry Training												
Non-airborne abandon Aircraft	6	6	6	6	6	6	6	6	6	6	6	6
Ejection and manual separation	6	6	6									
Bale out (static seat)				6	6	6				6(5)	6(5)	6(5)
Synthetic parachute training	24	24	24	24	24	24				24(5)	24(5)	24(5)
Dry life raft (primary) and preserver drill	12	12		12	12		12	12		12	12	
Dry multi-seat life raft drill (3)(4)	24	24		24	24		12	12		12	12	
Pool Training (6)												
Parachute dragging	12	12		12	12					12(5)	12(5)	
Pool life raft (primary) and preserver drill	12	12		12	12		12	12		12	12	
Training at sea or Environmental Pool Trainer												
Parachute dragging	24	24		24	24					24(5)	24(5)	
Sea / EP life raft (primary) and preserver drill	24	24	I/O	24	24	I/O	24	I/O		12	I/O	
Sea / EP multi-seat life raft drill (3)(4)	I/O	I/O	I/O	I/O	I/O	I/O	24	I/O		12	I/O	
Wet winching	I/O	I/O		I/O	I/O		I/O	I/O		36	I/O	
Underwater Escape Training Unit												
STASS dry drill										12	12	
STASS wet drill										24	36	
Underwater escape training	48									24	36	

I/O – *Initial / Opportunity – Initial drill to be conducted during the initial Aircrew Maritime Survival Course, thereafter drill to be on opportunity basis.*

Notes

1. ‘Maritime Role’ includes, but is not limited to, Aircrew who during their posting / appointment, might be required to serve at, to or from sea with up to 3 months’ notice.

2. ‘Overland Role’ is declared by the ADH or AM(MF) and describes Aircrew who operate Aircraft that remain within gliding or autorotative distance from land.

3. Drill applies when the multi-seat life raft is not the primary Aircraft life raft.

4. Helicopter crews who fly with both single and multi-seat life rafts **should** carry out the drills for both.

5. Drill applies when helicopter Aircrew fly with parachutes.

6. Training can also be conducted at sea or the RNAS Yeovilton Environmental Pool Trainer, or comparable Environmental Pool Trainer as approved by the Operating Duty Holder / AM(MF).

7. ‘Non-Maritime Role’ includes Aircrew who operate Aircraft beyond gliding or autorotative distance from land, but are not expected to serve at, to or from sea with up to 3 months’ notice.

8. To aid with the management of individual drill currencies, drill expiry dates will be the last calendar day of the month in which they are due.

RA 2135 - Aircrew and Supernumerary Crew Medical Requirements

Rationale

The fitness of Aircrew and Supernumerary Crew to conduct their duties is critical to the safe flight of Aircraft. There is increased Risk to crew, Passengers and the public if appropriate levels of fitness and aviation medicine training are not achieved. Significant variation in physical and mental stressors across Air Systems, and differing mitigations for Aircrew incapacitation, necessitate a range of standards. Definitive medical policy for assessment of medical fitness standards is published in AP 1269A[1] and may be augmented in single-Service (sS) orders and other documents. This Regulatory Article (RA) directs Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to set, and Aircrew to demonstrate, the required level of fitness-to-fly and requisite aviation medicine training.

Contents

2135(1): Medical Employment Standard
2135(2): Fitness-to-Fly
2135(3): Pilot Operations - Upper Age Restriction
2135(4): Flying After an Accident or In-Flight Medical Incident
2135(5): Aviation Medicine Training
2135(6): High G Training
2135(7): Temporary Medical Restrictions to Flying Duties

Regulation 2135(1)

Medical Employment Standard

2135(1) ADH and AM(MF) **shall** stipulate, and ensure compliance with, a suitable Medical Employment Standard (MES) for all Aircrew and Supernumerary Crew within their Area of Responsibility (AoR).

Acceptable Means of Compliance 2135(1)

Medical Employment Standard

1. ►ADH and AM(MF) **should** stipulate MES[2, 3] in accordance with (iaw) both AP 1269A and medical advice from their relevant medical authority (see paragraph 5).◄

2. Aircrew and Supernumerary Crew **should**:

   a. Hold the required MES detailed in ADH or AM(MF) orders.

   b. Complete an Initial Medical Examination (IME)►[4]◄.

   c. Complete a Periodic Medical Examination (PME) ►[4]◄.

   d. Remain in date for PME if in a flying appointment.

   e. Comply with all medical limitations they have been awarded.

   f. Complete electrocardiography (ECG) and enhanced cardiac screening[4].

3. ►◄

[1] Air Publication 1269A – Royal Air Force Manual: Assessment of Medical Fitness. Although published by the RAF, AP 1269A contains medical policy for Aircrew across the Defence Air Environment.

[2] ►For Contractor Flying Approved Organization Scheme (CFAOS) Organizations, the required MES may be specified by the RAF Command Flight Medical Officer (CFMO) as a UK military Joint Medical Employment Standard (JMES), a foreign military MES or a civil medical standard.

[3] For CFAOS Organizations, this applies to all Aircrew and Supernumerary Crew flying under an Organization's CFAOS Approval, whether civilian or military (eg the MES for Service personnel flying as part of a combined test team will be as agreed between the RAF CFMO and the AM(MF).

[4] iaw AP 1269A and for CFAOS Orgaizations, as advised and agreed by CFMO,◄ for criteria and appropriate medical examiners.

Guidance Material 2135(1)

Medical Employment Standard

4. A MES for Supernumerary Crew may be more permissive than for Aircrew (for example, where appropriate to platform and role, they may be similar to passenger standards). As for Aircrew, ADH / AM(MF) will state the required MES for Supernumerary Crew following medical policy advice. Variation in MES by platform and role is anticipated.

5. An ADH or AM(MF) will seek ►and follow◄ advice on medical standards from their relevant medical authority:

   a. ►Head of Aviation Medicine (Royal Navy) for Royal Navy.

   b. Consultant Advisor in Aviation Medicine for Army. ◄

   c. SO1 Aviation Medicine (SO1 Avn Med) for Joint ►Aviation◄ Command.

   d. CFMO[5] for Royal Air Force (RAF) and CFAOS organizations.

6. ►If an ADH specifies a civil medical standard (eg Civil Aviation Authority (CAA) / European Union Aviation Safety Agency (EASA) Class 1) is appropriate for civilian Aircrew and civilian Supernumerary Crew within their AoR, this standard may be specified as an alternative to a military JMES.◄

7. A Military Aviation Medical Examiner (MAME) is a Medical Officer (MO), a Civilian Medical Practitioner (CMP) or a locum doctor, qualified to assess and determine fitness for Aircrew and Controllers[6,7]. A MAME will complete approved training from RAF Centre of ►Aerospace◄ Medicine (CAM) Aviation Medicine Training Wing (AMTW) and be endorsed by the appropriate sS medical authority.

8. Aircrew in non-flying appointments can defer their PME iaw AP 1269A Leaflet 4-02.

9. Aircrew medical fitness is assessed at PME. The MAME will sign the MES record in the individual's Flying Logbook or on a suitable certificate. The recorded PME is valid until the last day of the month in which the next PME is due.

10. Defence Contractor Flying Organizations (DCFO) require either a designated MAME or an endorsed Civil Aeromedical Examiner (Civil AME)[8]. Details of available MAMEs are available from CFMO(RAF). Civil AMEs require endorsement by Deputy Assistant Chief of Staff Aviation Medicine (DACOS AvMED) at the RAF CAM, before they can act in lieu of a MAME. Civilian Aircrew may seek advice from the CFMO(RAF)[5] for access to a MAME.

11. If a MAME does not have access to a primary care record, they will use a Statement of Health (SoH) and Medical Attendant's Report (MAR) in conjunction with a civil medical certificate where appropriate, to assess Aircrew fitness for their role[9].

Regulation 2135(2)

Fitness-to-Fly

2135(2) Aircrew and Supernumerary Crew **shall** be fit-to-fly. Aircrew and Supernumerary Crew who are unfit-to-fly, or uncertain of their fitness-to-fly, **shall** report to a MAME before they next fly.

Acceptable Means of Compliance 2135(2)

Fitness-to-Fly

12. Aircrew and Supernumerary Crew **should**:

   a. Seek medical advice if they have any reason to doubt their fitness-to-fly, even for a relatively minor illness.

   b. Contact a MAME prior to returning to flying duties if another medical practitioner (not qualified and endorsed as a MAME) has been consulted.

[5] CFMO(RAF), RAF CAM, RAF Henlow, Bedfordshire, SG16 6DN.
[6] Aircrew and Controllers who are subject to the MRP.
[7] Refer to RA 3203 – ►Military and MOD Contracted Civilian Controller Medical Requirements.◄
[8] A Civil AME certified by the CAA / EASA.
[9] The SoH and MAR may be found in AP 1269A Leaflet 4-02 Annex C and Annex D.

Acceptable Means of Compliance 2135(2)

c. Report any period they are unfit-to-fly to their Duty Holder chain or, for DCFO, the Flight Operations post-holders (FOPH).

13. Supervisors and Authorizing Officers who have reason to doubt the medical fitness of any Aircrew or Supernumerary Crew **should** seek the advice of a MAME.

14. A MAME **should** ensure that the Duty Holder chain is informed of any change in medical fitness affecting the flying status of their Aircrew or Supernumerary Crew.

15. FOPH **should** have a mechanism to be notified of any change in medical fitness affecting the flying status of their Aircrew or Supernumerary Crew.

Guidance Material 2135(2)

Fitness-to-Fly

16. Aircrew and Supernumerary Crew may declare, without medical advice, that they are not fit-to-fly.

17. Strenuous or prolonged physical exercise, breaks from flying, or fatigue, may adversely affect individual ability to withstand the stress of flight, including G tolerance - particularly in the short term. Aircrew, Supernumerary Crew, and their supervisors, will need to consider when such circumstances (whether on or off-duty) may necessitate advice from a MAME prior to flight.

Regulation 2135(3)

Pilot Operations - Upper Age Restriction

2135(3) Pilots **shall not** operate an Air System once they reach the age of 65 unless the Air System is fitted with dual controls and is operated with a second pilot. The second pilot **shall** hold the appropriate qualification and MES to act as pilot in command, and be under the age of 65.

Acceptable Means of Compliance 2135(3)

Pilot Operations - Upper Age Restriction

18. ADH and AM(MF) **should** stipulate minimum MES, qualifications and flying currency to be held by the second pilot. The second pilot **should** be capable of ►recovering from◄ all the manoeuvres, roles, or exercises that the sortie has been authorized for ►and be competent to land the Aircraft without assistance from the other pilot.◄

Guidance Material 2135(3)

Pilot Operations - Upper Age Restriction

19. Nil.

Regulation 2135(4)

Flying After an Accident or In-Flight Medical Incident

2135(4) After being involved in a flying Accident or in-flight medical Incident, Aircrew and Supernumerary Crew **shall not** operate an Air System until they have gained appropriate medical approval.

Acceptable Means of Compliance 2135(4)

Flying After an Accident or In-Flight Medical Incident

20. A MAME **should** issue medical approval prior to any return to flying duties for Aircrew or Supernumerary Crew involved in a flying Accident or in-flight medical Incident.

21. ADH and AM(MF) **should** consider the guidance in AP 1269A Leaflet 4-02 Annex I for the management of Aircrew and Supernumerary Crew following an Aircraft Accident or Incident.

Guidance Material 2135(4)

Flying After an Accident or In-Flight Medical Incident

22. AP 1269[10] Section 6 provides detailed information on handling specific types of in-flight medical Incidents[11].

Regulation 2135(5)

Aviation Medicine Training

2135(5) An ADH / AM(MF) **shall** stipulate, and ensure Aircrew and Supernumerary Crew comply with, aviation medicine training requirements within their AoR.

Acceptable Means of Compliance 2135(5)

Aviation Medicine Training

23. An ADH and AM(MF) **should** determine appropriate initial and refresher aviation medicine training requirements in conjunction with RAF CAM[12] and / or the sS medical authority.

24. As a minimum, ADH and AM(MF) orders **should**:

a. Set initial and refresher aviation medicine training requirements within their AoR.

b. Ensure all Aircrew and Supernumerary Crew complete initial aviation medicine training prior to flying training.

c. Ensure all Aircrew and Supernumerary Crew engaged on flying duties receive refresher aviation medicine training at intervals not exceeding 5 years.

d. Promulgate procedures to be followed when a dispensation or extension to aviation medicine training requirements is deemed necessary. The relevant medical authority **should** be consulted prior to any dispensation or extension to aviation medicine training requirements.

Guidance Material 2135(5)

Aviation Medicine Training

25. Aviation Medicine (AvMed) Training for Supernumerary Crew is required but training design is left up to the ADH or AM(MF) to specify following medical policy advice. As AvMed training addresses various elements including physiological (environmental) and cognitive factors, training for Supernumerary Crew may be similar in some respects to Aircrew on the same platform type, and different in others. Variation in AvMed Trg by platform and role is anticipated.

26. Further guidance on aviation medicine training can be found in AAMedP-1.2[13] which contains appropriate syllabi for initial and refresher training by Aircraft type.

Regulation 2135(6)

High G Training

2135(6) ADH and AM(MF) **shall** stipulate, and ensure Aircrew and Supernumerary Crew comply with, High G training requirements in their AoR.

Acceptable Means of Compliance 2135(6)

High G Training

27. ADH and AM(MF) **should** determine initial and refresher High G training requirements in conjunction with RAF CAM[12]. Consideration **should** be given to the definitions and stipulations in STANAG 3827[14].

[10] Refer to AP 1269 – Medical Management and Administration.
[11] Including inter alia: hypoxia; contamination of oxygen supply; fumes in the cockpit; spatial disorientation; G-Induced Loss of Consciousness (G-LOC).
[12] OC AMW Training Section, RAF CAM, RAF Henlow, Bedfordshire, SG16 6DN. Air COS Spt-CAM-AMW-OCAMTW@mod.gov.uk.
[13] AAMedP-1.2 is available from the NATO Standardization Office (NSO) public website.
[14] North Atlantic Treaty Organisation (NATO) Standardization Agreement (STANAG) 3827: MINIMUM REQUIREMENTS FOR PHYSIOLOGICAL TRAINING OF AIRCREW IN HIGH "G" ENVIRONMENT - AAMedP-1.13 EDITION A. STANAG 3827 and the associated standards in AAMedP-1.13 Ed: A are available from the NSO public website.

Acceptable Means of Compliance 2135(6)

28. High G training **should** be conducted using a centrifuge appropriate to the Aircraft being flown. Individuals subject to centrifuge exposure **should not** return to flying duties for 6 hours and until free of all residual symptoms[15].

29. As a minimum, ADH and AM(MF) orders **should**:

a. Ensure all Aircrew and Supernumerary Crew whose employment exposes them to High G environments complete High G training.

b. Specify initial and refresher High G training requirements within their AoR.

c. Ensure refresher High G training is completed by Aircrew and Supernumerary Crew returning to High G flying following an absence from a High G environment for 3 years or more.

d. Ensure refresher High G training is completed at intervals not exceeding 5 years.

e. Describe procedures to be followed for individuals who do not complete High G training to the required standard.

f. Give procedures to be followed when a dispensation or extension to High G training requirements is deemed necessary. RAF CAM **should** be consulted prior to any dispensation or extension to High G training requirements.

Guidance Material 2135(6)

High G Training

30. Centrifuge exposure may adversely affect individuals due to the physical strain of High G and sensory disturbance induced by centrifuge manoeuvres.

31. Further guidance on High G training can be found in AAMedP-1.13[16].

Regulation 2135(7)

Temporary Medical Restrictions to Flying Duties

2135(7) Aircrew and Supernumerary Crew **shall** comply with any restrictions following exposure to conditions affecting their fitness-to-fly.

Acceptable Means of Compliance 2135(7)

Temporary Medical Restrictions to Flying Duties

32. Aircrew and Supernumerary Crew **should** consult a MAME prior to:

a. Elective surgery.

b. Corneal refractive surgery for visual correction.

c. Ophthalmic procedures including Anaesthetics or Glaucoma preparations.

d. Routine immunisation.

e. Hypnotherapy.

f. Acupuncture.

g. Psychological therapy or counselling.

h. Complementary and alternative medicine.

33. Aircrew and Supernumerary Crew **should** establish with a MAME any flying restrictions caused by inoculations or vaccinations.

34. Aircrew and Supernumerary Crew **should not**:

a. Take any prescription medicine, drugs, tablets, remedies, or nicotine replacement therapy before flying unless prescribed or approved by a MAME.

[15] If in doubt, refer to Regulation 2135(2): Fitness-to-Fly.
[16] Refer to AAMedP-1.13 - Minimum Requirements for Physiological Training of Aircrew in High "G" Environment. AAMedP-1.13 is available from the NSO public website.

Acceptable Means of Compliance 2135(7)

b. Use any over-the-counter medicines, drugs, tablets, or remedies within 24 hours of reporting for flying duties unless approved by a MAME, as the effect on an individual's fitness-to-fly may not be immediately apparent.

c. Use any dietary supplements, homeopathic remedies or alternative medicines unless approved by a MAME.

d. Fly for 7 days after a general, spinal, or epidural anaesthetic, or for 12 hours after a local or regional (dental) anaesthetic, unless the period is extended in consultation with a MAME.

e. Fly for 12 hours after acupuncture treatment.

f. Fly for 36 hours after donating blood, or as directed by a MAME.

g. Fly for 24 hours after the application of mydriatic eye drops or agents (14 days in the case of atropine).

h. Fly for 7 days after the donation of bone marrow or stem cell harvesting, after which they **should** consult a MAME prior to return to flying duties.

35. Aircrew and Supernumerary Crew **should not** fly:

a. Within 12 hours of using compressed air breathing apparatus for swimming / diving, or within 24 hours if a depth of 10 m has been exceeded (unless 100% oxygen has been breathed throughout the dive after which immediate flying is permissible); or

b. Within 12 hours of experiencing hyperbaric pressures[17]; or

c. Within 24 hours of Short-Term Air Supply System training unless all the following apply:

(1) Immersion has been less than 20 minutes.

(2) Depth of immersion did not exceed three metres.

(3) Cabin pressure altitude will be below 8000 ft.

(4) An interval of 4 hours has elapsed between the end of training and commencing flying.

36. Aircrew and Supernumerary Crew **should not** fly at a cabin altitude above FL100 within 12 hours of exposure in a low-pressure chamber.

37. Following exposure to any chemical warfare training agents, Aircrew and Supernumerary Crew **should not**:

a. Conduct flying duties until all physical and psychological effects produced by the agent have cleared.

b. Conduct flying duties for a minimum period of 12 hours following exposure to CS gas.

c. Fly in any clothing or equipment that remains contaminated by the training.

38. Aircrew and Supernumerary Crew who have engaged in boxing (including sparring, but not including non-contact training) **should not** fly for 48 hours after a bout. Furthermore, they **should** be examined by a MAME before resuming flying duties.

[17] Such as cabin pressure testing. This does not apply to patients or attendants undertaking long treatment for decompression illness, refer to BRd 2806(4) - Therapeutic and Medical Management of Diving.

Guidance Material 2135(7)

Temporary Medical Restrictions to Flying Duties

39. Some techniques used by complementary or alternative medical practitioners are not subject to the same controls as conventional medicine and may not be evidence based. Complementary or alternative medicine cannot be guaranteed to be free from detrimental side-effects.

40. Most inoculations and vaccinations will cause a 12-hour restriction on flying. Where specific aviation medicine guidance is not provided a MAME will normally be consulted.

41. A wide variety of sporting activities could lead to a Risk of concussion. Where there is any Risk that a head injury may have been incurred, consultation with a MAME is likely to be necessary.

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RA 2201 – Carriage of Maintenance Documents in UK Military Aircraft

Rationale

Maintenance documents provide an audit trail of Maintenance activities that have been carried out on military registered Air Systems. Loss of the information contained in these documents could jeopardize the Continuing Airworthiness of an Air System and increase Risk to Life as a consequence. This Regulation details the processes that are to be applied to maintain the protection of these documents when an ►Aircraft◄ is deployed away from its parent Station, Ship or Unit, and ensures that they are available for quality assurance, data exploitation and investigations.

Contents

2201(1): Documents to be Carried
2201(2): Withdrawn – Incorporated in RA 2201(1) ►◄

Regulation 2201(1)

Documents to be Carried

2201(1) When an Aircraft is planned to land away from the parent Station / Ship / Unit, appropriate Maintenance documents and publications **shall** be carried in the Aircraft.

Acceptable Means of Compliance 2201(1)

Documents to be Carried

1. Whenever an Aircraft Commander plans to land away from the parent Station / Ship / Unit, the appropriately prepared Aircraft technical log (MOD Form 700 or equivalent) **should** be carried in the subject Aircraft or, if appropriate, in an accompanying Aircraft.

2. If the Aircraft Commander plans to land at an airfield or Ship that is unfamiliar with the Aircraft type, appropriate technical publications to enable the safe handling and Maintenance of the Aircraft **should** be carried in the Aircraft or in an accompanying Aircraft.

3. Aviation Duty Holders and Accountable Managers (Military Flying) **should** promulgate the appropriate Maintenance documents and publications to be carried.

Guidance Material 2201(1)

Documents to be Carried

4. For the purpose of this Regulation, the term 'land away from the parent Station / Ship / Unit' is not intended to include a landing conducted during a period of continuous charge where the final destination is the parent Station / Ship / Unit.

5. Where carriage of the Aircraft technical log and technical publications is not practical, alternate means of transportation may be used provided the Aircraft Commander has arranged for the timely arrival of the documents at the destination.

6. ►The Manual of Airworthiness Maintenance - Documentation (MAM-D)[1] provides guidance for◄ the necessary preparation of the Aircraft technical log prior to carriage in the Aircraft, including the requirement to remove / copy documents bearing original signatures. The intent of ►the MAM-D[1]◄ is to preserve original signatures for work carried out and put measures in place to aid the reconstruction of the Aircraft technical log in the event of loss. ►At each new point of departure, documents bearing original signatures will be removed; however, where the information contained in the removed documentation is to remain with the Aircraft, a copy will be substituted.◄

7. For the purposes of this Regulation, 'appropriate technical publications' may include, but are not limited to:

   a. Safety and Maintenance Notes (Topic 5A2).

   b. Flight Servicing Schedule (Topic 5B1).

[1] ►Refer to The Manual of Airworthiness Maintenance - Documentation (MAM-D) - Part 1 Chapter 3.1 - MOD Form 700 Series – General Information.◄

Guidance Material 2201(1)

c. Ground Handling Notes (Topic 12A).

8. Electronic data may be downloaded and carried in the Aircraft to which it relates, providing that a verified, up-to-date, back-up of the database has been made and retained for safe keeping.

Regulation 2201(2)

Original Signatures

2201(2) Withdrawn - Incorporated in RA 2201(1) ►◄.

Acceptable Means of Compliance 2201(2)

Original Signatures

9. Withdrawn - Incorporated in RA 2201(1) ►◄.

Guidance Material 2201(2)

Original Signatures

10. Withdrawn - Incorporated in RA 2201(1) ►◄.

►This RA has been substantially re-written; for clarity, no change marks are presented – please read RA in entirety.◄

RA 2210 – Preventative Maintenance and Continuous Charge Operations

Rationale

Preventative Maintenance comprises scheduled Maintenance, condition-based Maintenance and flight servicing; all of which are Maintenance activities that are to be carried out on an Air System prior to, or on completion of, a period of flying. Continuous Charge is when an Air System conducts multiple starts and stops, crew changes, refuelling operations or take off and landings within a single period of Preventative Maintenance. Flight beyond Preventative Maintenance limits may result in an increase in Risk to Life, therefore an Air System is to be operated within those limits, and the correct procedures followed during Continuous Charge operations.

Contents

2210(1): Preventative Maintenance Limitations
2210(2): Continuous Charge Operations

Regulation 2210(1)

Preventative Maintenance Limitations

2210(1) The Aircraft Commander **shall not** operate the Air System beyond the validity period of Preventative Maintenance.

Acceptable Means of Compliance 2210(1)

Preventative Maintenance Limitations

1. Aviation Duty Holders and Accountable Managers (Military Flying) **should** issue orders that ensure an Aircraft Commander does not operate an Air System beyond the validity period of Preventative Maintenance.

Guidance Material 2210(1)

Preventative Maintenance Limitations

2. Preventative Maintenance comprises scheduled Maintenance, condition-based Maintenance and flight servicing as detailed in the Air System Maintenance programme, as well as any additional Preventative Maintenance requirements that may be imposed by the Military Continuing Airworthiness Management Organization.

3. The next Preventative Maintenance due will be recorded in the Air System technical log.

Regulation 2210(2)

Continuous Charge Operations

2210(2) To conduct Continuous Charge operations the Aircraft Commander **shall**:

(1) Ensure any Maintenance undertaken on the Air System during a period of Continuous Charge is conducted by appropriately Authorized[1] personnel;

(2) Record any Faults occurring during the period of operation;

(3) Record any change of Aircraft Commander.

[1] Refer to RA 4806 - Personnel Requirements (MRP 145.A.30).

Acceptable Means of Compliance 2210(2)

Continuous Charge Operations

4. The Aircraft Commander **should** ensure that they, or another crew member, are Authorized to conduct any flight servicing or Pre-flight Maintenance[2] that is required during a period of Continuous Charge.

5. During a period of Continuous Charge, the Aircraft Commander **should**:

a. Complete flight servicing activities that become due in accordance with (iaw) the flight servicing schedule. These activities may be delegated to suitably Authorized engineering staff or another Authorized crew member, however the Aircraft Commander remains responsible for the conduct of the Maintenance.

b. Ensure any Pre-flight Maintenance is conducted iaw the MAM-P Chapter 4.1[2] instructions governing Air System Maintenance whilst under Aircrew Charge.

c. Ensure that all essential records are updated within the Air System technical log (MOD Form 700 or its equivalent).

d. Record all Faults occurring during a period of Continuous Charge in the Air System technical log (MOD Form 700 or its equivalent).

6. When permitted, a crew change, flight servicing, Pre-flight Maintenance or replenishment with engines / rotors running **should** only occur with specific Authorization from the Aircraft Commander.

7. All Aircraft Commander changes that take place during Continuous Charge **should** be recorded in the Air System technical log (MOD Form 700 or its equivalent). For the MOD Form 700 the specific document is either the current Flight Servicing Certificate (FSC) or the Continuous Operation Crew Charge Certificate.

8. An Aircraft Commander who takes over, or continues to be responsible for, an Air System on Continuous Charge with declared Faults **should** either:

a. Certify their acceptance of those Faults, or;

b. Declare the Air System unserviceable and return the Air System to the responsible Maintenance organization.

Guidance Material 2210(2)

Continuous Charge Operations

9. Continuous Charge[3] is a concept of operations that is Authorized for certain types of Air System, which allows the Air System to perform multiple sorties (undertaken, if necessary, by different crews), while remaining under the responsibility of the Aircraft Commander(s).

10. A period of Continuous Charge starts when the first Aircraft Commander accepts custody of the Air System[4] and the technical log acceptance certificate is signed (MOD Form 700 or its equivalent). It ends when the final after-flight declaration is completed and custody of the Air System is returned to the Maintenance organization. For the MOD Form 700 these signatures are recorded on the FSC.

11. The Aircraft Commander may physically leave the Air System, but they retain responsibility for the Air System until they are no longer the Aircraft Commander.

12. Continuous Charge operations are only permitted on those types of Air System for which approval has been granted by the respective Type Airworthiness Authority (TAA)[5].

[2] Refer to the Manual of Airworthiness Maintenance – Processes (MAM-P) – Chapter 4.1 - Types of Maintenance.
[3] Refer to the MAM-P - Chapter 3.2 – Continuous Charge.
[4] Refer to RA 2301 – Responsibility for an Air System.
[5] Where the Air System is Civilian-Owned, ownership of regulatory responsibility by either the TAA or Type Airworthiness Manager (TAM) needs to be agreed within the Sponsor's approved model for Type Airworthiness (TAw) management; refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems, or refer to RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air Systems. Dependant on the agreed delegation of TAw responsibilities TAM may be read in place of TAA.

RA 2211 - Authorization of Aircrew to Carry Out Maintenance Tasks

Rationale

Aircrew may be required to conduct flight servicing to improve flexibility of use of Air Systems. Airworthiness will be compromised if this activity is conducted by inappropriately authorized personnel, therefore Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) are to ensure that Aircrew are appropriately trained and assessed as competent in order to be authorized for such activities.

Contents

2211(1): Authorization of Aircrew to Carry Out Flight Servicing
2211(2): Authorization of Aircrew to Carry Out Air System Maintenance Work
2211(3): In-Flight Corrective Maintenance
2211(4): Training of Aircrew to Enter a Cockpit Containing Aircraft Assisted Escape Systems

Regulation 2211(1)

Authorization of Aircrew to Carry Out Flight Servicing

2211(1) Aircrew required to carry out Flight Servicing **shall** be authorized and competent.

Acceptable Means of Compliance 2211(1)

Authorization of Aircrew to Carry Out Flight Servicing

1. Prior to receiving authority to flight service (AFS), individual Aircrew **should** conduct appropriate training and demonstrate competence to carry out flight servicing. The competency check **should** demonstrate an adequate understanding of:

   a. The Air System technical publications.

   b. The Air System technical log (MOD Form 700 or equivalent).

   c. The relevant regulations within the MRP RA 4000 Series: Continuing Airworthiness Engineering.

   d. ►The relevant details within the Manual of Airworthiness Maintenance – Processes (MAM-P)[1].◄

2. ADH and AM(MF) **should** ensure that a formal record of Authorization is maintained►[1]◄.

Guidance Material 2211(1)

Authorization of Aircrew to Carry Out Flight Servicing

3. AFS may include, but is not limited to:

   a. Flight servicing►[1]◄.

   b. System replenishments.

   c. Fuelling operations ►◄.

   d. Loading and unloading of ►◄ pyrotechnics►[2]◄.

   e. Supervision of ground handling►[3]◄.

4. The AFS authorizer will be a ►Suitably Qualified and Experienced Person (SQEP)◄ holding the appropriate ►◄ Authority Level ►◄ J►[4]◄. This may be, but is not limited to, the Squadron Air Engineer Officer (RN), Officer Commanding Workshops (Army), Senior Engineering Officer (RAF) or, for Defence Contractor Flying Organizations, an equivalent authorized engineer.

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[1] ►Refer to MAM-P Chapter 2.3 – Authorization of Aircrew to Carry Out Air System Maintenance Work.
[2] Refer to MAM-P Chapter 8.2 – Weapon Preparation and Loading.
[3] Refer to MAM-P Chapter 3.4 – Ground Operations.
[4] Refer to MAM-P Chapter 0.6 – Authority Levels and Tasks.◄

Guidance Material 2211(1)

5. The Authorization will:

   a. Explicitly detail the scope of the activities which apply, including, if applicable, certification in the technical log (MOD Form 700 or equivalent) that the Aircraft is ready for flight.

   b. Be valid for a maximum period of one year or until ►assignment to a new unit◄, whichever is sooner. Re-Authorization will require the individual to pass a competency check.

6. An acceptable process for granting aircrew AFS is contained within ►MAM-P[1].◄

7. **Ground Handling of ►Aircraft.◄** The requirements for personnel involved in the ground handling of ►Aircraft,◄ including Aircrew, are contained within ►MAM-P[3].◄

Regulation 2211(2)

Authorization of Aircrew to Carry Out Air System Maintenance Work

2211(2) Aircrew required to carry out a specified range of Preventive and Corrective Maintenance activities pertinent to the type / mark of Air System or Air System equipment on which they are qualified to fly **shall** be authorized and competent.

Acceptable Means of Compliance 2211(2)

Authorization of Aircrew to Carry Out Air System Maintenance Work

8. Prior to receiving Authorization to carry out Maintenance, individual Aircrew **should** undergo appropriate training and demonstrate competence to carry out Maintenance. The competency check **should** demonstrate an adequate understanding of:

   a. The Air System technical publications.

   b. The Air System technical log (MOD Form 700 or equivalent).

   c. The relevant regulations within the MRP RA 4000 Series: Continuing Airworthiness Engineering.

   d. ►The relevant details within the MAM-P[1].◄

9. ADH and AM(MF) **should** ensure that a formal record of Authorization is maintained►1◄.

Guidance Material 2211(2)

Authorization of Aircrew to Carry Out Air System Maintenance Work

10. The Authorization may include, but is not limited to:

   a. Minor Corrective or Preventive Maintenance►1◄.

   b. Role changes►1,5◄.

   c. Authority to defer Maintenance or record limitations (regulated by RA 4812[6] ►◄). Where applicable, the scope of Air System items / systems to which this could be permitted will be published in the Topic 2(N/A/R)1; however, individual Authorization may restrict this scope further.

11. The Authorizer will be ►SQEP◄ holding the appropriate ►◄ Authority Level ►◄ J►4◄. This may be, but is not limited to, the Squadron Air Engineer Officer (RN), Officer Commanding Workshops (Army), Senior Engineering Officer (RAF) or, for Defence Contractor Flying Organizations, an equivalent authorized engineer.

12. The Authorization will:

[5] ►Refer to MAM-P Chapter 7.4 - Air System Role Equipment: Maintenance, Modification and Control.◄
[6] Refer to RA 4812 – Certification of ►Air System Release◄ and Component Release (MRP 145.A.50).

Guidance Material 2211(2)

a. Explicitly detail the scope of the activities which apply, including, if applicable, certification in the technical log (MOD Form 700 or equivalent) that the Air System is ready for flight.

b. Be valid for a maximum period of one year or until ►assignment to a new unit◄, whichever is sooner. Re-Authorization will require the individual to pass a competency check.

13. An acceptable process for granting Aircrew Authorization is contained within ►MAM-P[1]. ◄

Regulation 2211(3)

In-Flight Corrective Maintenance

2211(3) In-flight Corrective Maintenance **shall** only be carried out at the specific request of the Aircraft Commander and **shall** be limited in scope.

Acceptable Means of Compliance 2211(3)

In-Flight Corrective Maintenance

14. In-flight Corrective Maintenance **should** be limited to system reconfiguration, adjustments and component changes on a prescribed list of systems promulgated by the platform Type Airworthiness Authority (TAA)►[7]◄.

15. In-flight Corrective Maintenance **should** only be conducted by authorized personnel.

16. Any Maintenance conducted in-flight **should** be recorded in accordance with ►MAM-P [8].◄

Guidance Material 2211(3)

In-Flight Corrective Maintenance

17. A list of systems on which in-flight Corrective Maintenance may be attempted is promulgated by the TAA in the Topic 2(N/A/R)1, where applicable.

18. An acceptable process for controlling in-flight Corrective Maintenance is detailed in ►MAM-P [8].◄

Regulation 2211(4)

Training of Aircrew to Enter Cockpits Containing Aircraft Assisted Escape Systems

2211(4) Aircrew who require access to a cockpit containing Aircraft Assisted Escape Systems (AAES) **shall** be appropriately trained.

Acceptable Means of Compliance 2211(4)

Training of Aircrew to Enter Cockpits Containing Aircraft Assisted Escape Systems

19. ADH and AM(MF) **should** ensure that appropriate training is conducted for the particular Air System, and detail the periodicity of continuation training. All training **should** be recorded on appropriate auditable training documents.

[7] ►Where the Air System is Civilian-Owned, ownership of regulatory responsibility by either the TAA or Type Airworthiness Manager (TAM) needs to be agreed within the Sponsor's approved model for Type Airworthiness (TAw) management; refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems, or refer to RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air Systems. Dependant on the agreed delegation of TAw responsibilities TAM may be read in place of TAA as appropriate throughout this RA.

[8] Refer to MAM-P Chapter 4.1 – Types of Maintenance.◄

Guidance Material 2211(4)

Training of Aircrew to Enter Cockpits Containing Aircraft Assisted Escape Systems

20. The periodicity of initial and subsequent AAES (eg ejection seat) training and ►Role◄ Performance Statements applicable to selected categories of personnel are promulgated in technical publications.

21. Further technical policy on working with AAES is contained within ►MAM-P[9].◄

[9] ►Refer to MAM-P Chapter 7.1 – Aircraft Assisted Escape Systems.◄

►This RA has been substantially re-written; for clarity no change marks are presented – please read RA in entirety◄

RA 2220 – Maintenance Test Flights

Rationale

Flight Tests are conducted to confirm the performance, mission effectiveness or handling qualities and to perform diagnostic analysis of an Air System following maintenance. Before the Air System is confirmed as serviceable there is an increased Risk to Life and therefore the conduct of a Flight Test requires specific competency and authorization.

Contents

2220(1): The Flight Test Schedule
2220(2): Aircrew Competency and Authorization for Flight Tests

Regulation 2220(1)

The Flight Test Schedule

2220(1) Flight testing **shall** be carried out in accordance with the Flight Test Schedule (FTS).

Acceptable Means of Compliance 2220(1)

The Flight Test Schedule

1. Both Maintenance Test Flights (MTF) and Partial Test Flights (PTF) **should** be conducted in accordance with the FTS for the Air System.

2. MTF **should not** be flown while the Air System is under a period of continuous charge.

3. PTF **should not** be flown while the Air System is under a period of continuous charge unless the aircrew can confirm component or system serviceability.

Guidance Material 2220(1)

The Flight Test Schedule

4. A MTF is conducted to confirm the performance and serviceability of an Air System and will encompass the full FTS.

5. A PTF is conducted to confirm the performance and serviceability of an Air System related to specific maintenance activity. The content of the PTF will involve selected elements of the FTS as required.

6. An Airborne Check (AC) or Taxi Check (TC) is an engineering requirement not covered by the FTS, or where the testing of the system or component in accordance with the FTS is deemed inappropriate.

Regulation 2220(2)

Aircrew Competency and Authorization for Flight Tests

2220(2) Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) **shall** establish and promulgate in Orders the Suitably Qualified and Experienced Person (SQEP) and authorization requirements for the conduct of Flight Tests.

Acceptable Means of Compliance 2220(2)

Aircrew Competency and Authorization for MTF/PTF

7. ADH and AM(MF) **should** maintain a record of all aircrew assessed as SQEP to conduct Flight Tests.

8. Flight tests **should** normally be conducted during the day and in Visual Meteorological Conditions. ADH and AM(MF) **should** establish and define additional orders for flight tests that take place at night or in Instrument Meteorological Conditions.

Guidance Material 2220(2)

Aircrew Authorization for MTF and PTF

9. For authorization purposes an AC or TC is not considered to be a Flight Test.

RA 2301 - Responsibility for an Air System

Rationale

Responsibility for an Air System is transferred between the Continuing Airworthiness Management Organization and the Aircrew when flying operations take place. A failure to correctly record this process could result in a breakdown in Maintenance activity and increase Risk to Life. ►◄ It is necessary to record the transfer of custody and responsibility of an Air System when it is released to and from flying operations or has a flying requirement or taxi check raised post Maintenance, to ensure that an auditable record exists.

Contents

2301(1): Transfer of Custody of Air Systems
2301(2): Flying Requirements Post Maintenance
2301(3): Air System Acceptance Checks
2301(4): Exceeding Parameters and Hazardous Incidents

Regulation 2301(1)

Transfer of Custody of Air Systems

2301(1) Custody of, and responsibility for, an Air System **shall** transfer to the Aircraft Commander from the time the acceptance certificate is signed until the after-flight declaration is completed.

Acceptable Means of Compliance 2301(1)

Transfer of Custody of Air Systems

1. The Aircraft Commander **should** ensure that ►they are◄ satisfied with the declared condition of the Air System when the acceptance certificate is signed. If ►they are◄ not satisfied, ►they◄ **should** declare the Air System unserviceable.

2. Once custody of the Air System has been accepted, the Aircraft Commander **should** authorize and monitor any subsequent Maintenance activity that may be required prior to, or during flight.

3. The Aircraft Commander **should** ►ensure◄ that the technical log (MOD Form 700 or equivalent) has been updated to reflect the condition of the Air System when the after-flight declaration is completed and that the symptoms of any new Air System faults have been adequately briefed to the receiving Maintenance organization.

Guidance Material 2301(1)

Transfer of Custody of Air Systems

4. Unless operating under Continuous Charge (as detailed in RA 2210(2)[1]), transfer of custody and responsibility for the Air System is between the Aircraft Commander and the supporting Maintenance organization. When operating under Continuous Charge, transfer of custody and responsibility for the Air System between flights is between Aircraft Commanders.

5. The signature on the acceptance certificate certifies that:

   a. Any limitations are acceptable to the Aircraft Commander for the intended flight.

   b. The Aircraft Commander is aware of all acceptable deferred faults.

   c. The recorded state of the Air System in respect of role equipment, fuel, oxygen, etc, is acceptable to the Aircraft Commander for the intended flight.

   d. The recorded armament state of the Air System is as ordered by the Authorizing Officer.

   e. The technical log (MOD Form 700 or equivalent) has been checked and co-ordinated by an appropriately authorized individual.

[1] Refer to RA 2210(2): Continuous Charge Operations.

Guidance Material 2301(1)

f. Any flying requirement or taxi checks are acceptable to the Aircraft Commander and ►they have◄ been adequately briefed on any special tests required.

g. Any Aircrew accepted faults documented in the Air System technical log are acceptable to the Aircraft Commander.

6. The signature on the after-flight declaration certifies that:

a. The Aircraft Commander has returned the Air System to the 'Finally Armed' state in accordance with the Air System ►Document Set◄, or that no explosive armament stores are fitted.

b. Each fault that became evident whilst the Aircraft Commander was responsible for the Air System (including pre-flight faults), has been recorded in the appropriate section of the Air System technical log (eg MOD Form 707A).

c. The results of any flying requirements undertaken have been entered in the appropriate section of the Air System technical log (eg MOD Form 707B(AFRC)).

d. The Flying Log and any Equipment Running Logs in the Air System technical log (eg MOD Form 724) have been updated.

e. Where applicable, the Oil Replenishment Record in the Air System technical log (eg MOD Form 737) has been completed for any oil replenishments carried out whilst the Aircraft Commander was responsible for the Air System.

f. Any record of hours flown and cumulative hours flown has been updated in the Air System technical log.

g. Where applicable, the Aircraft assisted escape system has been placed into the 'safe for parking' condition.

Regulation 2301(2)

Flying Requirements Post Maintenance

2301(2) Aircraft Commanders **shall** familiarize ►themselves◄ with any flying requirements or taxi checks raised as a result of Maintenance conducted prior to flight.

Acceptable Means of Compliance 2301(2)

Flying Requirements Post Maintenance

7. On completion of the flight, the Responsible Aircrew Member **should** document the result of the flying requirement or taxi check in the appropriate section of the Air System technical log (MOD Form 700 or equivalent).

Guidance Material 2301(2)

Flying Requirements Post Maintenance

8. Nil.

Regulation 2301(3)

Air System Acceptance Checks

2301(3) The Aircraft Commander **shall** ensure that all necessary acceptance checks (walk-round) are carried out before flight.

Acceptable Means of Compliance 2301(3)

Air System Acceptance Checks

9. The Aircraft Commander or Responsible Aircrew Member **should** undertake acceptance checks personally unless operating conditions (such as the use of Operational Readiness Servicing (ORS)) make this impractical.

10. If the Aircraft Commander chooses to delegate the acceptance checks to a Responsible Aircrew Member, the person undertaking these checks **should** report any significant observations to the Aircraft Commander before flight.

Guidance Material 2301(3)

Aircraft Acceptance Checks

11. For Air Systems subject to ORS, the Aircrew will carry out the Air Systems acceptance checks following completion of the ORS. However, an authorized person, in consultation with the relevant Aircrew, ►will◄ decide whether the Air System acceptance check has been invalidated by a Maintenance activity on that Air System.

12. While not part of an Air System's Maintenance schedule, Air System acceptance checks are vital, since it is possible for an Air System to be cleared for flight yet not be in a fit condition for flight due to, for example, wings or rotors being folded, covers and blanks still in position, etc.

13. Air System acceptance checks will be promulgated in the Air System Topic 14 or other relevant instructions.

Regulation 2301(4)

Exceeding Parameters and Hazardous Incidents

2301(4) The Aircraft Commander **shall** inform the responsible Maintenance organization when an Air System in ►their◄ custody has been exposed to an event that might adversely affect its serviceability.

Acceptable Means of Compliance 2301(4)

Exceeding Parameters and Hazardous Incidents

14. Nil.

Guidance Material 2301(4)

Exceeding Parameters and Hazardous Incidents

15. An 'event' that might be considered as adversely affecting an Air System's serviceability may include, but is not limited to:

a. Exceeding an Air System, engine or component operating parameter.

b. Excessively turbulent flight conditions.

c. High winds or storm conditions whilst parked.

d. Lightning strike.

e. Bird ►or wildlife◄ strike.

f. Shock loading of an engine or component.

g. Heavy landing.

h. Heavy sea spray.

i. Contamination by fire extinguishant or other potentially hazardous gas / fluid.

j. Blast or weapon efflux from an adjacent weapon installation.

k. ►Volcanic ash exposure.◄

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►This RA has been substantially re-written; for clarity, no change marks are presented - please read RA in entirety◄

RA 2302 - Responsibilities in the Air

Rationale

Aircrew are required to operate UK Military Registered Air Systems in inherently hazardous regimes in order to achieve their mission. If Aircrew do not fully understand their responsibilities in the air with regard to safe Air System operations, Risk to Life may not be reduced to a level that is As Low As Reasonably Practicable (ALARP) and Tolerable. This regulation requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to produce orders and instructions detailing Aircrew responsibilities in the air for their Area of Responsibility (AoR).

Contents

2302(1): Responsibilities in the Air

Regulation 2302(1)

Responsibilities in the Air

2302(1) All Aircrew **shall** ensure that the mission, sortie or task, for which they have been Authorized, is executed in a manner that minimizes the risk and hazards to the Air System, its occupants, ground crew, other airspace users and third parties over which their Air Systems are flown.

Acceptable Means of Compliance 2302(1)

Responsibilities in the Air

1. ADH and AM(MF) **should** issue orders or instructions detailing the duties and responsibilities in the air for all Aircrew under their command or control.

2. Aircrew **should** ensure that they are familiar with the relevant regulations, orders, instructions and laws which are applicable to them, and diligently conduct themselves so as to remain within any boundaries set therein.

3. Aircrew **should** be responsible for the safe operation of any equipment and services under their control, and report to the Aircraft Commander any action, fault, failure, malfunction or defect that may affect the Airworthiness or safe operation of the Air System.

4. ADH and AM(MF) **should** specify in orders the minimum crew to be carried in each type and / or mark of Air System within their AoR.

Guidance Material 2302(1)

Responsibilities in the Air

5. If, at any time, any member of the crew considers that the safety of the Air System, or any other Air System or person is jeopardised in any way, they will advise the Aircraft Commander accordingly and, if necessary, offer specific guidance to avoid any hazardous situation.

6. The Aircraft Commander possesses the authority to disembark any person, or any part of the cargo which, in their opinion, represents a potential hazard to the safety of the Air System or its occupants.

Applicability of the Armed Forces Act (AFA)

7. There are a number of offences which may arise from the manner in which an Air System is flown. These include:

   a. Dangerous flying (Section 33 Armed Forces Act 2006 or its amendments).

   b. Low flying (Section 34 Armed Forces Act 2006 or its amendments).

Guidance Material 2302(1)

c. Annoyance by flying (Section 35 Armed Forces Act 2006 or its amendments).

d. Unfitness through alcohol or drugs (Section 20 Armed Forces Act 2006, as amended by AFA 2011).

8. In addition, an offence may be committed where Aircrew contravene standing orders (Section 13 Armed Forces Act 2006 or its amendments) or perform their duty negligently (Section 15 Armed Forces Act 2006 or its amendments).

9. The orders created by the ADH and AM(MF) together with the relevant parts of the Military Aviation Authority Regulatory Publications and the Armed Forces Act 2006, provide the disciplinary framework governing military flying.

10. Civilians may be subject to service discipline by virtue of Section 370 of the Armed Forces Act 2006 or its amendments. Under the provisions of Section 370 and Section 49 of the Armed Forces Act 2006 they may be prosecuted if they conduct in, or in relation to, a military aircraft, any act that if done in or in relation to a civil aircraft would amount to a prescribed Air Navigation Order offence.

►This RA has been substantially re-written; for clarity, no change marks are presented - please read RA in entirety◄

RA 2305 - Supervision of Flying

Rationale

Across the Defence Aviation Environment, numerous activities take place that whilst enhancing capability and operational effectiveness, also provide a complex set of Risks that need to be understood and carefully managed. Without effective leadership and senior supervision, Aircrew could be exposed to greater Risk to Life (RtL) than is necessary. This Regulatory Article (RA) requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to appoint a named Suitably Qualified and Experienced Person (SQEP) who is individually responsible for the supervision of flying operations to ensure that the Risk / benefit balance is appropriate, and that they are conducted in accordance with (iaw) the ADH and AM(MF) Air Safety objectives.

Contents

2305(1): Supervision of Flying
2305(2): Withdrawn Incorporated into RA 2309
2305(3): Withdrawn Incorporated into RA 2309
2305(4): Aircrew Briefing
2305(5): Withdrawn Incorporated into RA 2309
2305(6): Withdrawn Incorporated into RA 2309

Regulation 2305(1)

Supervision of Flying

2305(1) ADH and AM(MF) **shall** appoint SQEP individuals to supervise the flying operations for which they are responsible and promulgate appropriate orders detailing their duties.

Acceptable Means of Compliance 2305(1)

Supervision of Flying

1. Flying Supervisors **should:**
   a. Be appointed by the appropriate ADH or AM(MF).
   b. Have previously held the role of a Flying Authorizer[1].
   c. Have completed and maintain currency for the MAA Centre of Air Safety Training Flying Supervisors Course[2].
   d. Have experience and qualifications appropriate to their role as a Flying Supervisor.
   e. Normally hold a Certificate of Qualification on Type on the Aircraft for which they are responsible. Where this is not the case, ADH or AM(MF) orders **should** detail appropriate mitigations.
   f. Have overall responsibility for the safety of flying operations within their Area of Responsibility (AoR) as directed by the relevant ADH or AM(MF).
   g. Ensure receipt of Terms of Reference (ToR) detailing their supervisory responsibilities.
   h. Co-ordinate with the relevant Duty Holder-Facing organizations, such as Air Traffic Management (ATM), on any Air Safety matters relevant to their responsibilities.
2. ADH or AM(MF) **should**:
   a. Appoint Flying Supervisors within their AoR and promulgate lists of individuals appointed by name with any limitations that may apply.

[1] Refer to RA 2306 – Authorization of Flights.
[2] Refer to RA 1440 – Air Safety Training.

Acceptable Means of Compliance 2305(1)

b. Ensure that Flying Supervisors in their AoR possess appropriate knowledge of the flying location(s), the relevant Aircraft type(s) and System(s), and individual Aircrew.

c. Define the experience, qualifications and responsibilities of Flying Supervisors in Orders and ToR.

d. Issue ToR to Flying Supervisors.

e. Personally brief each Flying Supervisor on the requirements of their flying supervision duties. This brief **should** ensure that Flying Supervisors:

(1) Understand ADH or AM(MF)'s Risk tolerability boundaries.

(2) Understand that they are empowered to cease flying if they consider that the Risks of continued operations are no longer As Low as Reasonably Practicable (ALARP) and Tolerable.

f. Define the weather limits, including sea states and wind limitations above which Flying Supervisor consideration is to be given to the halting of routine flying or flying during exercises.

3. Commanders of flying Units, Squadrons, Flights and Flight Operations post-holders **should** ensure that**:**

a. Local orders, appropriate to the construct of the Unit / Squadron, are issued for the supervision of flying iaw ADH or AM(MF) orders.

b. Flying Supervisor(s) are nominated appropriate to the construct of the Unit / Squadron, to be immediately contactable and available during the period, and to oversee all flying conducted on the Unit / Squadron.

c. Where necessary, appropriate arrangements are in place to enable on-call Aircraft (eg QRA, SAROPS etc) to launch outside normal working hours and / or in poor weather conditions without immediate supervision.

4. **Operations away from home base**. Flying Supervisors **should** ensure Aircrew operating away from home base conform to the local flying orders applicable at the detached location. For overseas detachments Flying Supervisors **should** also ensure that Aircrew conform to national regulations and procedures. Where conflict exists between their normal operating criteria and the national or local flying orders, the more stringent **should** be applied. ADH or AM(MF) **should** ensure that an appropriate reach-back mechanism to receive higher-level supervision for those Aircrew operating away from home base is detailed in orders.

5. **Flights operating in or over foreign territory**[3]. Iaw international law, Flying Supervisors **should** ensure that appropriate diplomatic clearance iaw AP1158[4] is obtained.

Flights outside the UK Flight Information Region (FIR).

6. Flying Supervisors **should** ensure that the agreed procedures for notification through ATM channels are complied with when operating outside the UK FIR or Upper Information Region, unless operating under 'due regard'[5].

7. For organizations without a direct military chain of command, such as Contractor Flying Approved Organization Scheme (CFAOS) organizations, the AM(MF) **should** inform the MOD of the intended operating area by emailing the appropriate Air Staff desk officer in MOD[6] to ensure the MOD provides appropriate political approval if required.

[3] Territory is defined as 'the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such state' (Chicago Convention 1944 and subsequent updates refer). Territorial waters are usually 12 nm from the coast (Article 3 of the United Nations Convention on the Law of the Sea refers).
[4] Refer to AP1158 – Approval and Diplomatic Clearance for Flights to Destinations Abroad.
[5] Refer to RA 2307 – Rules of the Air and RA 2320 – Role Specific Remotely Piloted Air Systems.
[6] Air Staff desk officer in MOD: CAS-ASIntl1SO1Europe-NATO@mod.gov.uk, CAS-ASIntl2SO1Africa-ME-SAsia@mod.gov.uk or CAS-ASIntl3SO1Ameri-Can-APAC@mod.gov.uk.

Guidance Material 2305(1)

Supervision of Flying

8. **Flying Supervisors.** Flying Supervision is not only a list of responsibilities but is fundamental to the control and safe conduct of flying operations. Whilst the Authorizer is involved in the tactical detail of a sortie, the Flying Supervisor is an experienced point of contact who will consider the bigger picture and make appropriate safety and prioritization decisions based on their experience and knowledge of wider Defence intent and ADH or AM(MF) appetite for Risk. Supervision is a combination of prior experience and a sound understanding of the capabilities, strengths and weaknesses of Aircrew. Flying Supervisors are to have a thorough understanding of Risk, Risk appetite and mitigation. They need not be consulted on all flying tasks, but will intervene when required to prioritize, modify or veto flying as they see fit.

9. **Local Flying Orders**. Local Flying Orders need not repeat the direction and guidance of superior level documents but may raise any minimum qualification or safety margin to take account of local requirements or conditions. It is the duty of Aircrew to acquaint themselves with appropriate flying regulations and orders.

10. **Operations away from home base**. Where conflict exists between normal operating criteria and national or local flying orders, the more stringent will be applied. Conflicts that arise will be resolved through consultation with the local Flying Supervisor at the detached location. For overseas detachments, full details of the procedure to be followed, notice required, and special considerations to be taken into account for individual countries are contained in AP1158[4].

11. **Loan Aircrew Supervision**. A formal, auditable handover is required when Aircrew transfer across ADH or AM(MF) boundaries on a temporary basis. The handover will satisfy the donating and receiving organizations as to duty of care considerations, Aircrew currency and competency and wider line management responsibilities.

Regulation 2305(2)

Embarked Aviation Operations

2305(2) Withdrawn – Incorporated into RA 2309.

Acceptable Means of Compliance 2305(2)

Embarked Aviation Operations

12. Withdrawn – Incorporated into RA 2309.

Guidance Material 2305(2)

Embarked Aviation Operations

13. Withdrawn – Incorporated into RA 2309.

Regulation 2305(3)

Air System Limitations

2305(3) Withdrawn – Incorporated into RA 2309.

Acceptable Means of Compliance 2305(3)

Air System Limitations

14. Withdrawn – Incorporated into RA 2309.

Guidance Material 2305(3)

Air System Limitations

15. Withdrawn – Incorporated into RA 2309.

Regulation 2305(4)

Aircrew Briefing

2305(4) ADH and AM(MF) **shall** define specific responsibilities for the supervision and co-ordination of all mission planning and Aircrew briefing.

Acceptable Means of Compliance 2305(4)

Aircrew Briefing

16. Flying Supervisors **should:**

a. Ensure that pre-flight and post-flight mission and sortie briefs are conducted in a thorough and professional manner.

b. Conduct periodic checks of the quality and content of Aircrew flight planning and briefings. Details of this requirement **should** be included in the Flying Supervisor's ToR.

c. Ensure that all Aircrew have access to suitable aeronautical planning and briefing facilities to include at least:

(1) An ability to access all relevant mission / flight planning information in a timely manner.

(2) Adequate accommodation to conduct mission / flight planning without distraction and in reasonable comfort.

Guidance Material 2305(4)

Aircrew Briefing

17. **Aeronautical Briefing Facilities**. STANAG 3052[7] provides details of the North Atlantic Treaty Organization (NATO) agreed minimum standard for aeronautical briefing facilities. Defence Contractor Flying Organizations may request these details from the MAA.

18. **Briefing Topics**. Briefings, elements of which may be given by specialist briefing personnel, are likely to consider:

a. Crew composition, formation composition / changes and limitations.

b. Crew responsibilities for checks iaw Flight Reference Cards, where appropriate on multi-crew Aircraft.

c. Aircraft and supporting system details.

d. Meteorology, including significant meteorological features during the flight and landing conditions at the destination.

e. ATM data, together with relevant details of alternative routes and diversionary (alternate) Airfields.

f. Navigational warnings.

g. Communications plan.

h. Special operational and / or tactical information for a particular operation, mission or exercise.

i. Sortie content and formation details.

j. Instructions required for Aircrew training.

k. Day / night and night / day transitional flight considerations.

l. Flight restrictions.

m. Emergency / survival procedures.

19. **Briefing Aids**. Briefing aides are to be kept up to date and accurate by appropriately trained personnel. These include maps, noticeboards and electronic means.

[7] Refer to STANAG 3052 – Aeronautical Briefing Facilities.

Regulation 2305(5)

Air Exercise Planning and Airspace Integration

2305(5) Withdrawn – Incorporated into RA 2309.

Acceptable Means of Compliance 2305(5)

Air Exercise Planning and Airspace Integration

20. Withdrawn – Incorporated into RA 2309.

Guidance Material 2305(5)

Air Exercise Planning and Airspace Integration

21. Withdrawn – Incorporated into RA 2309.

Regulation 2305(6)

Taxiing of Aircraft

2305(6) Withdrawn – Incorporated into RA 2309.

Acceptable Means of Compliance 2305(6)

Taxiing of Aircraft

22. Withdrawn – Incorporated into RA 2309.

Guidance Material 2305(6)

Taxiing of Aircraft

23. Withdrawn – Incorporated into RA 2309.

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RA 2306 - Authorization of Flights

Rationale

Authorization is the authority given to an Aircraft Commander to fly a particular Air System on a specified mission or duty. In the course of normal operations a disregard for the direction that is implicit within Authorization may increase the Risk to Life to a level that is not As Low As Reasonably Practicable and Tolerable. This Regulation provides Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) with an immediate level of assurance and direction.

Contents

2306(1): Authorization of Flights

Regulation 2306(1)

Authorization of Flights

2306(1) All flights by UK Military Air Systems **shall** be Authorized.

Acceptable Means of Compliance 2306(1)

Authorization of Flights

1. ADH and AM(MF) **should** publish, by appointment, those personnel who may delegate powers of Authorization.

2. ADH and AM(MF) **should** promulgate lists of individuals who have powers of Authorization by name or appointment and any limitations that apply. Authorizing Officers **should** receive Terms of Reference detailing their responsibilities.

3. ADH and AM(MF) **should** detail in orders the processes to be followed for the Authorization of flights.

4. **Duties of the Authorizing Officer.** The Authorizing Officer **should** as a minimum:

   a. Detail the Aircraft Commander, and if applicable, the Formation Leader.

   b. Ensure that the Aircraft Commander, and/or the Formation Leader or leaders understand the aims of the tasked mission or duty.

   c. Ensure that the Aircraft Commander, and if applicable, the Formation Leader is capable of carrying out ►their◄ responsibilities as detailed in these regulations or other applicable directives or orders issued by a subordinate authority.

   d. Ensure that the Aircraft Commander or Formation Leader has thoroughly planned ►their◄ mission, alternate mission or duty.

   e. Ensure that the crew or formation members are qualified, in current flying practice, and capable of executing the tasked mission, alternate mission or duty as planned without undue hazard.

   f. Define the duties of each member of Aircrew (eg P1, Commander) in the flight authorization record[1], before flight.

   g. Accurately state in the flight Authorization record the nature of the planned duty or exercise.

   h. If necessary, alter the mission or crew, place further limitations on, or ultimately cancel the sortie.

   i. Ensure that all aspects of the authorization are recorded in sufficient detail in an appropriate Authorization record;

   j. ►Consider the impact of any synthetic training conducted immediately prior to the flight on the authorized sortie content, particularly practice and simulated emergency handling.◄

[1] Colloquially known as the authorization sheet.

Acceptable Means of Compliance 2306(1)

5. **Methods of Authorization.** UK Military Air Systems **should not** be flown unless the flight has been ►Authorized◄, normally in writing, and the Aircraft Commander has signified that ►they◄ understand the mission or duty by initialling the appropriate Authorization record. Electronic Authorization **should** only be used where it is at least as robust as written Authorization; in particular it **should** be capable of immediate audit and hard copy reproduction. Exceptionally, if an Authorizing Officer and/or Aircraft Commander is unable to carry out the procedure for written Authorization, verbal Authorization **should** be given instead. The Authorization record **should** be annotated to reflect the granting of verbal Authorization as soon as possible.

6. **Aircrew Capability.** Authorizing Officers **should** pay particular attention to Aircrew competency and qualifications, and apply Aircrew fatigue management considerations when Authorizing a flight.

7. **Day/Night Flying Considerations.** Unless prior arrangements have been made for night flying, Aircrew **should** only be Authorized for ►◄ flight if the Authorizing Officer is satisfied that they will arrive at their destination before the end of evening civil twilight. Furthermore, where bad weather influences light levels, the Authorizing Officer **should** consider applying a greater safety margin and stipulate the latest hour at which the Air System is to arrive at its destination.

8. **Meteorological Considerations.** The Authorizing Officer **should** assure ►themself◄ that due consideration has been given to meteorological conditions, and be prepared to adjust the sortie profile accordingly.

9. **Authorization of Passenger Flights.** The names of passengers **should** be entered in the Authorization record, whenever practicable, or recorded on passenger manifests.

10. **Flying during Exercises.** Authorizing Officers **should**, where possible, follow standard Authorizing procedures; moreover, the proper degree of flying supervision is to be maintained. However, when an exercise scenario makes normal Authorization impracticable a general 'exercise' Authorization **should** be given.

11. **Flying during Operations.** ADH **should** stipulate occasions when operational requirements preclude explicit Authorization and how those situations **should** be managed. However, the Authorizing Officer **should**, where possible, follow standard Authorizing procedures.

Guidance Material 2306(1)

Authorization of Flights

12. **Delegation of Authorization.** The power to delegate Authorization for Defence Contractor organizations must not be granted below post holder level.

13. **Processes for Authorization.** Authorizing Officers need to follow standard procedures and processes for Authorization to ensure that the ADH or AM(MF) intent is met. Accordingly, ADH and AM(MF) orders must specify the actions required of an Authorizer and the overall management of Authorization within their Area of Responsibility.

14. **Risk.** The key role of the Authorizing Officer is to be aware of the probability and impact of potential problems and to eliminate, reduce or control the hazards involved through risk management and implementation of suitable controls.

15. **Self-Authorization.** Suitably qualified Aircrew may be granted powers of Self Authorization by an Approving Officer[2] with any limitations detailed on an appropriate certificate. Independent Authorization, rather than self-Authorization, is encouraged.

16. **Cross-Boundary Authorization.** Powers of Authorization do not transfer across ADH or AM(MF) boundaries. Suitably qualified Aircrew, such as appointed Central Flying School or Standards Agents, may be empowered to Authorize all flights in Air Systems on which they are qualified. However, migrating Aircrew powers of Authorization must be endorsed by the gaining ADH or AM(MF) and promulgated as such in accordance with para 2. The sortie Authorization record must remain with the ADH or AM(MF) organization operating the Air System.

[2] The Defence Contractor Flying Organization equivalent is the Flight Operations post-holder.

Guidance Material 2306(1)

17. **Authorization Terminology.** In stating the nature of the planned duty, the Authorizer must avoid ill-defined terms such as 'local flying'. Where aerobatic manoeuvres are implicit in an Authorized duty (eg air combat, weapon delivery, etc) the term ‘aerobatics’ need not be added. Codes specifying sortie content may be used to abbreviate written Authorization. Orders and instructions will specify the codes that may be used and the relevant decode will be displayed alongside the Authorization record. Trials sorties may be entered into the Authorization record by the number of the Trials Instruction. Details indicating which part of the Trial is being conducted must be entered separately on the Authorization record. A copy of the Trials Instruction must be available at the point of Authorization. As an overarching guide for the completion of Authorization of flights, it must be possible to reconstruct the nature, scope and boundaries of the authorized flight and task, including the consistution and specific duties of the crew, from the authorization record.

18. **Deviation from Authorization.** Exceptionally an Aircraft Commander or Formation Leader may undertake a mission or duty not included in the pre-flight Authorization. However, the deviation must be within the constraints of these regulations, and the Aircraft Commander/Formation Leader must be satisfied that the deviation from the Authorized mission is on the grounds of Air System safety, or in the UK national or Service interest. The Aircraft Commander, or Formation Leader, will inform ►their◄ Authorizing Officer or Supervisor of ►their◄ actions as soon as possible and in any event must do so after landing. ►They◄ must annotate the Authorization record to indicate the additional duties carried out. The amendment to the authorization record must be clearly initialled by the Aircraft Commander/Formation Leader so as to clarify under whose authority the additional duties were undertaken.

19. **Aircrew Capability.** If any Aircrew member considers that the flight for which they have been Authorized is in any way beyond ►their◄ capabilities or qualifications, it is ►their◄ duty to inform the Authorizing Officer or Aircraft Commander accordingly.

20. **Flying during Exercises.** Where a general 'exercise' Authorization is given, this will state the period for which Authorization has been granted, the maximum number of hours or sorties to be flown and any additional limitations imposed on individuals or crews. In this situation, the Authorizing Officer will consider the requirement for relaxing the Authorization process, and if necessary conduct an assessment of risk.

21. **Flying during Operations.** A tasking message may be taken as Authorization to execute an operational sortie. However, if a hard copy of the tasking message is received it must be kept for reference. Where practicable, Authorization record will be completed after the sortie. This does not apply to operational training which requires full Authorization.

22. ►**Consideration of Synthetic Training Activity.** Aviation accident investigations have suggested a potential for Aircrew to incorrectly make ‘live’ inputs to emergency systems during the conduct of simulated or practice emergency handling on an Air System in flight immediately after conducting the same exercise ‘live’ in a Synthetic Training Device. This cognitive phenomenon might be mitigated by appropriate authorization, pre-flight briefing, crew composition and other supervisory factors and must be considered during the authorization process.◄

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RA 2307 - Rules of the Air

Rationale

The Defence Air Environment comprises a wide range of military registered Aircraft. These vary in size, manoeuvrability and speed yet share the same airspace with each other and many civilian registered ►Aircraft.◄ Such variety could present a Hazard if operated in an inconsistent or unexpected manner. In the UK, civilian registered ►Aircraft◄ achieve consistency by adhering to the Air Navigation Order (ANO) and Standardized European Rules of the Air (SERA); however, the majority of the ANO and SERA do not apply to military registered Air Systems. This Regulatory Article ensures operators of military registered Air Systems comply with the relevant requirements of the ANO and SERA and, when the unique nature of military flying requires deviation from the ANO and SERA, such ►Aircraft◄ are operated in a manner that provides an Air Safety outcome at least as good as the rules for civilian registered ►Aircraft.◄

Contents

2307(1): Rules of the Air

Regulation 2307(1)

Rules of the Air

2307(1) The Aircraft Commander and / or handling pilot **shall** follow the Rules of the Air.

Acceptable Means of Compliance 2307(1)

Rules of the Air

Avoidance of Collisions

1. Notwithstanding that a flight is being made with Air Traffic Control (ATC) clearance, the Aircraft Commander or handling pilot **should** take all possible measures to ensure that their Aircraft does not collide with other Aircraft, obstacles or terrain.

2. An Aircraft **should not** be flown in such proximity to other Aircraft as to create a danger of collision.

3. Aircraft **should not** be flown in Formation, except in an emergency or under operational tasking, unless the Aircraft Commanders have agreed to do so and have been authorized for that activity[1]. Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) **should** stipulate when and how Formation Flying ►will◄ be Authorized. Orders and instructions **should** include as a minimum:

   a. Briefing requirements;

   b. Numbers of Aircraft permitted;

   c. Authorization criteria, including Formation Lead;

   d. Minimum distance between Formation members;

   e. Formation Flying in controlled airspace;

   f. Weather minima;

   g. Occasions when Formation Flying is authorized between dissimilar types or when non-UK Military ►Aircraft◄ are involved.

4. **Tactical Training**. ADH / AM(MF) **should** stipulate the occasions when it might be necessary to depart from the Rules of the Air for the Avoidance of Collisions for the purposes of tactical training. Alternative procedures and methods of achieving separation criteria **should** be promulgated, briefed and Authorized.

[1] Refer to RA 3234 – Air System Formations, which details procedures for safe and efficient flight when in formation.

Acceptable Means of Compliance 2307(1)

5. An Aircraft that is obliged by these Rules of the Air to keep out of the way of another Aircraft **should** avoid passing over, under or in front of the other Aircraft unless it passes well clear and takes into account the effect of the Aircraft's wake turbulence.

6. An Aircraft that has right of way under the Rules of the Air **should** be flown at a constant course and speed, unless Safety dictates otherwise.

7. The Aircraft Commander of an Aircraft who is aware that the manoeuvrability of another Aircraft is impaired **should** give way to that Aircraft.

8. For the purposes of this Regulation, an Aircraft towing a sailplane[2] or other object **should** be considered to be a single ►Aircraft◄ under the command of the Aircraft Commander of the towing ►Aircraft.◄

9. Formations of Aircraft are normally less manoeuvrable than single Aircraft and are unable to take sudden avoiding action. The handling pilots of single Aircraft **should** therefore give way to, and keep clear of, Formations of Aircraft.

10. ►Airborne◄ Collision Avoidance Systems (ACAS), where fitted, **should** be operated in accordance with (iaw) the Air System Document Set. pilots **should** use standard radiotelephony phraseology iaw CAP 413[3].

11. **Use of ACAS Equipment fitted with Resolution Advisory Mode**. When fitted, ACAS equipment capable of Resolution Advisory mode **should** normally have this mode selected. A Resolution Advisory warning **should** be actioned according to the instruction issued. ADH / AM(MF) **should** promulgate orders or instructions detailing the circumstances when selection of Traffic Advisory-only (TA only) mode, or standby / off mode is permitted.

12. **Aircraft Converging**. When two Aircraft are converging at approximately the same level, the Aircraft that has the other on its right **should** give way, except as follows:

    a. Powered Aircraft **should** give way to airships, sailplanes and balloons;

    b. Airships **should** give way to sailplanes and balloons;

    c. Sailplanes **should** give way to balloons;

    d. Powered Aircraft **should** give way to Aircraft towing other Aircraft or other objects.

13. ►**Aircraft**◄ **Approaching Head-On**. When two Aircraft are approaching head-on, or approximately so, in the air and there is a danger of collision, each handling pilot **should** alter course to the right, unless to do so would force a crossing of flight paths.

14. **Aircraft Overtaking**. An Aircraft that is being overtaken in the air has the right of way, and the handling pilot of the overtaking Aircraft, whether climbing, descending or in horizontal flight, **should** keep out of the way of the other Aircraft by altering course to the right. The handling pilot of the overtaking Aircraft **should** keep out of the way of the other Aircraft until that other Aircraft has been passed and is clear, notwithstanding any change in relative positions of the two Aircraft. This does not apply to sailplanes overtaking other sailplanes, which **should** pass clear by altering course to the right or left, whichever is the most appropriate.

15. **Air Traffic Zones**. Aircraft **should not** enter Air Traffic Zones including Aerodrome Traffic Zones (ATZ) and Military Aerodrome Traffic Zones (MATZ) without prior permission of the controlling authority.

16. **Glider and Micro-light Sites**. During published hours of operation, Aircraft **should** avoid permanent glider sites by a minimum of the following margins, unless otherwise specified:

    a. Permanent Glider Sites. 2000 ft Above Ground Level (AGL) and 2 nm radius.

    b. Permanent Micro-light Sites. 2000 ft AGL and 1 nm radius.

[2] A heavier than air Aircraft that does not depend on an engine including gliders, hang gliders, paragliders, and other comparable craft.
[3] Refer to CAP 413 – Radiotelephony Manual.

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17. **Flight in the Vicinity of an Aerodrome**[4]. In addition to the avoidance criteria listed in the UK Military Low Flying Handbook (UKMLFH), Aircraft Commanders **should** avoid flying in the vicinity of an Aerodrome unless authorized by ATC. Where an Aerodrome does not have ATC, Aircraft Commanders **should** avoid that location unless they can positively confirm whether or not other Aircraft are operating and:

a. Conform with or avoid the pattern of traffic formed by other Aircraft in operation;

b. Deconflict from other Aircraft operating at that location;

c. All turns **should** be left, when approaching for landing and after taking off, unless otherwise promulgated.

18. **Aircraft Landing**. Handling pilots of Aircraft in flight or on the ground or water **should** give way to Aircraft landing or on final approach to land or water.

19. When two or more Aircraft are approaching any place for the purpose of landing, the handling pilot of the Aircraft at the lower altitude possesses the right of way but **should not** cut in front of another Aircraft that is on final approach to land or overtake that Aircraft. However, the following exceptions apply:

a. When an ATC unit has communicated to any Aircraft an order of priority of landing, the handling pilot **should** approach to land in that order;

b. When the handling pilot is aware that another Aircraft is making an emergency landing, they **should** give way to that Aircraft unless specifically instructed to do otherwise by ATC. Notwithstanding that the handling pilot that gives way may have previously received permission to land, the handling pilot **should not** attempt to land until they have received further permission to do so.

20. **Aircraft Take-off**. An Aircraft taxiing on the manoeuvring area of an Aerodrome **should** give way to an Aircraft taking off or about to take off.

21. The handling pilot of an Aircraft **should** take off and land: in the direction indicated by ATC; by the ground signals indicated; or, if no signals are displayed, into the wind unless good aviation practice demands otherwise.

22. The handling pilot of an Aircraft **should not** land on a Runway at an Aerodrome if the Runway is not clear of other Aircraft, unless otherwise authorized by the controlling ATC unit.

23. Where take-off and landing are not confined to a Runway:

a. The handling pilot of an Aircraft, when landing, **should** leave clear on their left any Aircraft which has landed or is already landing or about to take off. If such an Aircraft is about to turn it **should** turn to the left after the handling pilot has satisfied themself that such action will not interfere with other traffic movements.

b. The handling pilot of an Aircraft about to take off **should** take up position and manoeuvre in such a way as to leave clear on their left any other Aircraft which has already taken off or is about to take off.

24. After landing, the handling pilot of an Aircraft **should** move clear of the landing area as soon as it is safe to do so unless otherwise authorized by an ATC unit.

25. **Right of Way on the Ground**. Vehicles and vehicles towing an Aircraft **should** give way to Aircraft that are landing, taking off or taxiing. Vehicles (whether towing an Aircraft or not) meeting other vehicles (whether towing an Aircraft or not) **should** follow the principles in para 26.

26. **Right of Way for Taxiing Aircraft.** In case of danger of collision between two Aircraft taxiing on the movement area of an Aerodrome, the following **should** apply:

a. When two Aircraft are approaching head-on, or approximately so, each **should** stop or where practicable alter course to the right so as to keep well clear.

[4] Refer to MAA02: MAA Master Glossary for definition.

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b. When two Aircraft are on a converging course, the one which has the other on its right **should** give way.

c. An Aircraft which is being overtaken by another Aircraft **should** have the right-of-way and the overtaking Aircraft **should** keep well clear of the other Aircraft.

27. **Movement of Aircraft on Aerodromes**. The handling pilot of an Aircraft **should not** taxi on the Movement Area or cross an active Runway without positive ATC Clearance, or where the Aerodrome has an Aerodrome Flight Information Service (FIS) unit for the time being notified on watch, without permission of that unit. Where ATC or FIS facilities are not available, permission **should** be sought from the person in charge of the Aerodrome.

28. **Collision Avoidance during Instrument Meteorological Conditions (IMC) Flight**. To reduce the Risk of a collision, flight in IMC **should** only be conducted in ►one or more of◄ the following circumstances:

a. When in receipt of a radar or procedural service;

b. When following a published approach or departure procedure;

c. In an emergency;

d. Where specific approval is given in orders issued by ADH or AM(MF).

29. In IMC Flight where a radar or procedural service is not available or cannot be obtained, handling pilots **should** fly at cruising levels as defined in the UK Aeronautical Information Publications (AIP) based on the standard altimeter setting 1013.2 hPa, above Transition Altitude (TA) or the Safety Altitude, whichever is higher.

30. In the event of unavoidable or inadvertent entry into IMC handling pilots **should** make every effort to obtain an Air Traffic Service (ATS). If a radar service is unavailable, wherever possible handling pilots **should** avoid areas of known or expected airborne activity such as airfield approach and departure lanes, sailplane sites or areas of off-shore helicopter activity.

31. **Royal Low-Level Corridors (RLLC)**. Military Aircraft **should** only operate in RLLC iaw RA 3237[5].

Low Flying

32. Low Flying is a specific area in which the UK Military deviates from the civilian Rules of the Air. The UK Military Low Flying Regulations described in RA 2330[6] and the procedures described in the UKMLFH **should** be followed by all Aircraft operating below 2000 ft AGL / above mean sea level (AMSL). Light propeller driven Aircraft and Rotary Wing Aircraft are considered to be Low Flying when operating at less than 500 ft AGL / AMSL, but are considered to be in the UK Low Flying System when operating at less than 2000 ft, AGL.

'Due Regard'

33. Flying that is conducted outside the UK Flight Information Region (FIR) and Upper Information Region (UIR), in international airspace, but not conducted under International Civil Aviation Organization (ICAO) flight procedures►[7]◄, **should** only be carried out under 'Due Regard' and approved by the ADH ►/ AM(MF)◄ or operational commander[8].

34. 'Due Regard' carries a personal responsibility on the part of the Aircraft Commander and / or handling pilot to maintain separation from other Aircraft, vessels and objects (such as offshore platforms). ►ICAO guidance on 'Due Regard' highlights that ADH / AM(MF) and crew **should** ensure that they are fully informed about, and conversant with, all the following in respect of the area of activity:

a. The type(s) of civil Aircraft operations;

b. The ATS airspace organization and responsible ATS unit(s);

[5] Refer to RA 3237 – Royal Low Level Corridors.
[6] Refer to RA 2330 – Low Flying.
[7] ►AM(MF) **should** contact the MAA to discuss suitability prior to operating under principles of 'Due Regard'.◄
[8] Refer to RA 1020 – Aviation Duty Holder and Aviation Duty Holder-Facing Organizations - Roles and Responsibilities.

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c. ATS routes and their dimensions;

d. Relevant Regulations and special rules, including airspace restrictions.

35. Aircraft operating under 'Due Regard' **should** be subject to one or more of the following conditions:

a. Aircraft **should** be operated under Visual Flight Rules (VFR) and in Visual Meteorological Conditions (VMC);

b. Aircraft **should** be operated under the radar surveillance and control of a surface or airborne radar facility;

c. Aircraft **should** be equipped with airborne radar and qualified operators sufficient to provide separation between themselves and other Aircraft;

d. In the absence of the ability to comply with para 35.a, b, or c, Aircraft **should** be operated such that conflicting Aircraft can be detected and information relayed to the Aircraft Commander in such a way that they can then make timely decisions on appropriate deconfliction action and act accordingly.

36. In the event that civil Aircraft are permitted to operate through an area of military activity, military staff conducting the activity **should** also be fully informed of, and familiar with:

a. The means and methods of identifying civil Aircraft;

b. Means and method(s) of co-ordination with the ATS unit(s) and;

c. Terminology and phraseologies for use in communications with ATS units or, as a last resort, with civil Aircraft.

37. ADH / AM(MF) who authorize flights to be conducted under 'Due Regard' **should** be aware of the relevant ICAO regional Air Navigation Plan(s) (ANP), any relevant AIP from the state over who's territory the flights will take place and any related documents and charts. If necessary, and if reasonably practicable to do so, a special briefing regarding the civil aviation activities and infrastructure **should** be arranged with the assistance of ATS specialists from the State(s) concerned. Further Guidance can be found in ICAO Document 9554[9].◄

Air Traffic Management and Airspace

38. Aircrew **should** read these Rules of the Air in conjunction with the Air Traffic Management (ATM) 3000 series Regulations and the UK AIP.

39. **ATC Systems**. Unless alternative ATM / ATC arrangements have been agreed, Aircraft Commanders **should** conform to the civil national ATM / ATC Systems of all countries over which they fly.

40. **Notification of Arrival and Departure**. The Aircraft Commander **should** notify the airfield controlling authority of any intention to arrive or depart. Additionally, the Aircraft Commander **should** notify any change of intended destination or any estimated delay in arrival of 45 minutes or more.

41. **Flight Plans**. Flight plans **should** be submitted iaw the UK AIP ENR 1.10 (Flight Planning) and CAP 694 chapter 4[10].

42. **Prohibited and Restricted Areas**. Without the prior permission of the controlling authority for the area, Aircraft **should not** enter UK Prohibited and Restricted Areas as defined in Chapter 5 of the Manual of Military Air Traffic Management including:

a. National Prohibited and Restricted Areas;

b. Military Prohibited and Restricted Areas;

c. Provost Marshal Prohibited and Restricted Areas.

[9] ►Refer to ICAO Doc 9554 – Manual concerning safety measures relating to military activities potentially hazardous to civil aircraft operations (www.icao.int).◄

[10] Refer to CAP 694 – The UK Flight Planning Guide.

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43. **Danger Areas**. Aircraft **should not** enter permanent Danger Areas or scheduled Danger Areas during published operating hours without permission of the controlling authority.

44. **Restricted Airspace (Temporary)**. Non-participating Aircraft **should not** enter temporary airspace reservations promulgated by Notice to ►Aviation◄ (NOTAM) within the specified dimensions.

45. **High Intensity Radio Transmission Area (HIRTA)**. Aircraft **should** adhere to HIRTA restrictions ►detailed in their approved flight release and limitations document[11]◄. HIRTA Air System susceptibility can also be found at the No 1 Aeronautical Information Documents Unit Intranet and specific HIRTA restrictions are contained in section 2 and 3 of the UKMLFH.

Flight Rules and Flight Conditions

46. Flights ►◄ **should** be conducted either under Instrument Flight Rules (IFR), VFR or Special Visual Flight Rules (SVFR) as appropriate. VMC and IMC refer to the weather conditions encountered during flight. These terms are used to denote actual weather conditions, as distinct from the flight rules under which the flight is being conducted. VMC exist when the weather permits flight iaw the VFR; IMC exist when weather conditions are below the minima for VFR flight.

47. An Aircraft Commander electing to change the conduct of a flight from IFR to VFR **should** notify the appropriate ATS unit specifically that the IFR flight is cancelled.

Visual Flight Rules

48. **UK**. Within the UK, under VFR, pilots **should** maintain safe separation from other traffic. To operate under VFR, the extant environmental conditions **should** meet the VMC minima specified in Table 1, below.

Table 1. UK VMC Minima for VFR Flight.

Altitude Band	Airspace Class	Flight Visibility	Distance from Cloud
At and above 10 000 ft AMSL	A (1) B C (2) D E F G	8 km	1500 m horizontally 1000 ft vertically
Below 10 000 ft AMSL and above 3000 ft AMSL, or above 1000 ft above terrain, whichever is the higher	A (1) B C (2) D E F G	5 km (3)	1500 m horizontally 1000 ft vertically
At and below 3000 ft AMSL, or 1000 ft above terrain, whichever is the higher	A (1) B C (2) D (6) E	5 km (3)	1500 m horizontally 1000 ft vertically
At and below 3000 ft AMSL, or 1000 ft above terrain, whichever is the higher	F G	5 km (4)	1500 m horizontally 1000 ft vertically or clear of cloud and with the surface in sight (5)

Notes:

1. The VMC minima in Class A airspace are included for guidance to pilots and do not imply acceptance of VFR flights in Class A airspace.
2. Class C airspace extends vertically from FL195 to FL660.
3. The minimum flight visibility at speeds greater than 250 kts **should** be 8 km.
4. Minimum flight visibility outside controlled airspace.
   a. **Day.** At 140 kts or less the minimum flight visibility for all Aircraft may be reduced to 1500 m if manoeuvred at a speed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision. Helicopters **should** only be permitted to operate in less than 1500 m flight visibility if manoeuvred at a speed

[11] ►Refer to RA 1300 – Release To Service; RA 1305 – Military Permit To Fly (In-Service), (Special Case Flying) and (Single Task); RA 5880 – Military Permit To Fly (Development) (MRP Part 21 Subpart P).◄

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that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision.

b. **Night.** At 140 kts or less the minimum flight visibility for helicopters only **should** be 3 km ►except where Systems are specifically certified to offer suitable performance for safe flight below 3 km visibility and a reduction of normal minima is approved by the ADH. In these circumstances appropriate training, equipment and imperative **should** be demonstrated. Visibility **should not** be lower than 1500 m over land or 1000 m over sea. All such activity **should** include additional supervision.◄

5. Distance from cloud.

a. At speeds greater than 250 kts the minimum horizontal clearance from cloud **should** be 1500 m.

b. At speeds greater than 140 kts in the UK Military Low Flying System the minimum vertical distance from cloud **should** be 500 ft.

6. **Class D VFR Operations**. A VFR flight in airspace class D is *also* deemed to have complied with Table 1 if the Aircraft is flown:

a. During the day;

b. At an indicated airspeed of 140 kts or less to give adequate opportunity to observe other traffic or any obstacles in time to avoid collision; and

c. Remaining clear of cloud, with the surface in sight and:

i. For Aircraft other than helicopters, with a flight visibility of at least 5 km;

ii. For helicopters, with a flight visibility of at least 1500 m.

49. **Outside the UK**. Outside the UK, pilots **should** normally comply with the VFR of the country over which they are flying, unless UK criteria are more restrictive, in which case UK criteria ►**should**◄ be followed.

50. **Flight Visibility**. For the purposes of an Aircraft taking off from, or approaching to land at, an Aerodrome within Class B, C, or D airspace, the visibility, if any, communicated to the handling pilot by the appropriate ATC unit **should** be taken to be the extant flight visibility.

51. **Class D VFR Operations**. Except when a special VFR clearance is obtained from an ATC unit, VFR flights **should not** take off or land at an Aerodrome within a control zone, or enter the Aerodrome Traffic Zone (ATZ) or Aerodrome Traffic circuit when the reported meteorological conditions at that Aerodrome are below the following minima:

a. The ceiling is less than 450 m (1500 ft); or

b. The ground visibility is less than 5 km.

52. For fixed wing and helicopter flights wishing to operate under VFR to or from an Aerodrome or enter the ATZ or Aerodrome Traffic circuit in class D airspace, the ground visibility **should** be used.

53. **VFR Flight Plans**. pilots intending to fly in Class B, C or D airspace **should** complete a flight plan and obtain an ATC Clearance prior to entry to the airspace.

54. **Continuous Watch**. When flying within Class A, B, C, D and IFR in E airspace, pilots **should** maintain a continuous watch on the notified radio frequency and comply with any instructions given by the appropriate ATC unit.

55. Exceptions to the rules for the VFR Flight Plan and Continuous Watch rules above **should** only be as follows:

a. Gliders that: are flying during daylight hours; and are operating within controlled airspace designed and detailed in the AIP or NOTAM issued for this

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exception; and, which maintain 1500 m horizontal and 1000 ft vertical clearance from cloud; and possess flight visibility of at least 8 km.

b. Powered ►Aircraft◄ which do not possess radio equipment and that: are flying during daylight hours; and are operating within controlled airspace designed and detailed in the AIP or NOTAM for this exception; and, which maintain 1500 m horizontal and 1000 ft vertical clearance from cloud; and possess flight visibility of at least 5 km.

c. The above 2 types of ►Aircraft◄ where permission has been granted by the appropriate ATC unit.

d. VFR flight plans **should not** be submitted for VFR flight in Class C airspace above FL 195 or along a Class C ATS route at any level.

IFR

56. **UK**. Within the UK, pilots **should** follow IFR as follows:

a. **Outside Controlled Airspace (CAS)**. Above TA, pilots **should** select cruising levels as defined by the UK AIP, based on the standard altimeter setting 1013.2 hPa, unless they are flying in conformity with instructions from ATC, His Majesty's (HM) Ship or an Air Surveillance and Control System Unit.

Note:

Throughout any period of level flight above the transition altitude, other than at a Flight Level, the Aircraft **should** be in receipt of a surveillance radar service or carrying out a holding procedure established in relation to an airfield.

b. **Inside CAS**. Inside CAS, the following conditions **should** be complied with when the flight is proceeding as General Air Traffic:

(1) A flight plan **should** be submitted to the appropriate ATC Centre (ATCC).

(2) Clearance for the flight **should** be obtained from the appropriate ATCC.

(3) A pilot **should** possess a valid instrument rating.

(4) The Air System **should** carry appropriate radio equipment operating on the notified radio frequencies.

(5) The Air System **should** carry radio-navigation equipment appropriate to the specific airspace requirements.

(6) The flight **should** be conducted iaw the ATC Clearance and instructions received.

57. **Outside the UK**. Outside the UK, IFR flights **should** be conducted iaw the applicable national procedures.

58. **IFR and Safety Altitude**. Under normal flying conditions the IFR do not allow flight below 3000 ft in IMC unless conforming with provisions listed at Deviations from Standard IFR (below). Additionally, military exercises might necessitate operations above the transition altitude with flight profiles that do not conform to the standard IFR. Such exercises **should** conduct the appropriate liaison with the Airspace Utilisation Section (Civ: 0207 453 6599) and other Ministry of Defence (MOD) and civil airspace authorities and **should** take appropriate NOTAM and warning action once flight profiles have been agreed.

Applicability of VFR and IFR

59. **Flight Under IFR**. IFR flying **should** be conducted as follows:

a. Within the UK, flight under IFR is mandatory:

(1) In IMC.

(2) In Class A airspace, except where SVFR is permitted.

(3) In Class C airspace when VFR operations are not permitted.

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60. **Flight Under VFR**. With the exception of SVFR, a flight **should** only be conducted under VFR in circumstances that do not mandate IFR.

61. **SVFR**. SVFR flights may be authorized to operate within a control zone, subject to ATC Clearance. Except when permitted for helicopters in special cases such as, but not limited to, medical flights, Search and Rescue (SAR) Operations and fire-fighting the Aircraft Commander **should** ensure that:

a. Flight is conducted clear of cloud and with the surface in sight and;

b. The flight visibility is not less than 1500 m or, for helicopters, not less than 800 m and;

c. Speed is 140 kts IAS or less to give adequate opportunity to observe other traffic and any obstacles in time to avoid a collision; and

d. Flight is conducted day only, unless otherwise permitted by ATC and;

e. Cloud ceiling is not less than 600 ft AGL.

Deviations from Standard IFR

62. Any UK military ►Aircraft◄ operating in IMC over the sea outside airspace classified A to F, **should** comply with published IFR procedures for the relevant UK FIR concerned except when:

a. In airspace detailed in the AIP or NOTAM for flight not iaw the IFR.

b. In a Danger Area which is notified as active and allocated to the flying unit.

c. In accordance with operation orders for specific exercises where allocated operating levels preclude flight at the appropriate IFR level - in the normal course the operational sponsor for the exercise **should** ensure that any necessary NOTAM action is taken.

d. Flying in conformity with instructions by ATC, an HM Ship or an Air Defence unit (see note).

e. ►When conforming to Maritime Sortie Descent Rules (para 64).

f. When conforming to Helicopter Instruction Practice Areas (para 68).◄

Note:

Other than for reasons of Safety, or as directed by sub-paras (►a◄) to (►c◄) above, a controlling unit **should not** direct an Aircraft in level cruising flight to fly at a non-semi-circular level unless the Aircraft is in receipt of a recognized radar service. If provided by a Ship, only an air warning or air control radar **should** be used, and the service **should** be provided from a dedicated console where the appropriate radar is available at all times.

Tactical Maritime and Non-Tactical Maritime Sorties

63. **Radar Service ►for Maritime Sorties◄**. A radar service ►in the context of Maritime Sorties◄ is defined as either ►an◄ Air Traffic Management radar service; or provision of an Air System's radar capability that can ensure safe separation from the coast ►◄ and surface contacts. Orders and instructions for Air Systems equipped with suitable radar, **should** be issued by ADH / AM(MF) and detailed in the Air System Safety Case ►◄[12].

64. **Descent and Operations below 3000 ft IMC outside CAS**. Aircraft operating in the maritime environment **should** only be Authorized to descend and operate below 3000 ft and to continue to operate below Safety altitude in IMC over the sea subject to compliance with the following conditions:

[12] Refer to RA 1205 – Air Systems Safety Cases.

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Table 2. Tactical Maritime ►◄ Sorties.

Radar service available	Once 2 nm clear of the coast (5 nm for fixed wing ►Aircraft◄), and heading away from land, Aircraft may descend below their Safety Altitude and continue down to the Authorized operating altitude. Descent below 200 ft may only take place when visual with the surface, or with reference to a serviceable radio / radar altimeter.
No radar service available	Once 5 nm clear of the coast, and heading away from land, Aircraft may descend below their Safety Altitude and continue to 500 ft Minimum Separation Distance (MSD) with reference to a serviceable barometric altimeter. If 5 nm separation from land cannot be maintained then the Aircraft **should** climb to Safety Altitude.

►*Table 3. Non-Tactical Maritime Sorties.*◄

Radar service available	Once 2 nm clear of the coast (5 nm for fixed wing ►Aircraft◄), and heading away from land, Aircraft may descend below their Safety Altitude and continue to 500 ft MSD. They may then remain in IMC at 500 ft MSD provided that they have been Authorized to do so (and they remain greater than 5 nm from the coast). Flight below 500 ft MSD in IMC is only permitted when either: a. Specifically Authorized. b. Conducting a radar approach (including Helicopter Controlled Approach (HCA) / Ship Controlled Approach (SCA) / Emergency Low Visibility Approach (ELVA).
No radar service available	Once 5 nm clear of the coast, and heading away from land, Aircraft may descend to 500 ft MSD in an attempt to gain VMC. If still IMC at this height, then the Aircraft **should** climb to Safety Altitude. If still IMC then a further climb **should** be made until VMC is achieved, or until above the transition altitude where standard IFR apply.

Notes:

1. **Tactical maritime**. Sorties involving operations / training that are constrained in selection of operating levels / altitudes by a need to achieve a specific sortie aim such as Anti-Submarine Warfare, Airborne Early Warning (AEW), Anti Surface Warfare, Maritime Counter Terrorism and SAR.

2. **Non-Tactical maritime**. Sorties that do not involve flight in a tactical profile such as Helicopter Delivery Service, Senior Officer Taxi, Navigation Exercise, embarkation etc.

3. Whenever possible and consistent with the Emissions Control (EMCON) policy in force, Air Systems operating IMC **should** be in receipt of a radar service.

4. Safety Altitude outside of 5 nm from the coast **should** be a minimum of 1000 ft AMSL.

65. Fixed wing ►Aircraft◄ operating in the maritime environment, unless specifically Authorized for a Tactical Maritime Sortie iaw Table 2, **should** be Authorized to descend not lower than 500 ft MSD in IMC with reference to a barometric altimeter and 300 ft MSD with reference a serviceable radio / radar altimeter. Descent below 300 ft MSD **should** be specifically Authorized, and the pilot **should** be visual with the surface, or on recovery, when use **should** be made of radar service to ensure safe separation from surface contacts.

66. ►Aircraft◄ simulating missile-attack profiles for training present additional Risk because the flight profile converges on HM Ships. These sorties **should** only be

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Authorized to descend below 3000 ft AMSL IMC subject to specific approval by the ADH ►/ AM(MF)◄ additional criteria as follows:

a. The Air System being in receipt of a radar service from an ATC unit or under the control of a suitably qualified Air System Controller (AC), Fighter Controller (FC), ATC Officer (ATCO) using Ship's warning or air control radar or under the control of an AEW Air System.

b. The descent is conducted 5 nm clear and heading away from land.

c. A minimum of 750 ft AMSL for multiple ►Aircraft◄ and 500 ft AMSL for single ►Aircraft.◄

67. Beyond Visual Range (BVR) Remotely Piloted Air Systems (RPAS) flying missile attack profiles in VMC but without reference to the surface **should** apply the criteria required for operating in IMC.

Helicopter Instrument Flying Practice Areas.

68. Helicopters engaged in instrument flying practice or test flights **should** only operate below 3000 ft in IMC subject to the following conditions:

a. The ►helicopter◄ is in receipt of a Radar Service and the flight is conducted within a designated training area or area which is under the control of the unit providing the radar service, and the following restrictions apply:

(1) Over land, the lower limit is fixed at an altitude / height which will ensure 1000 ft terrain clearance or at 1500 ft AMSL if higher.

(2) Over the sea, helicopters **should** operate not lower than 500 ft AMSL providing that the ►helicopter◄ can be kept at least 2 nm clear of the coast and / or surface contacts when below Safety Altitude.

Safety Altitude

69. ADH / AM(MF) **should** issue orders concerning Safety Altitudes as necessary to ensure the safe navigation of ►Aircraft◄ within their Area of Responsibility. In doing so, the following principles apply.

70. **En Route**. The Safety Altitude for a particular route or exercise area **should** be calculated by adding a minimum of 1000 ft to the elevation (ie height above mean sea level) of the highest obstacle located, as a minimum, within 5 nm of the ►Aircraft◄ position rounded up to the next 100 ft. If the flight is to take place over Mountainous Terrain►[13]◄ the increment will be increased to a minimum of 2000 ft. When severe turbulence is anticipated, consideration **should** be given to increasing the Safety Altitude further to compensate for the hazardous conditions that are likely to occur. Where areas of turbulence associated with mountain and lee waves are forecast or known to be present, a minimum in-flight clearance of 5000 ft is necessary above mountains which are up to 5000 ft in height above the surrounding terrain. For higher mountains the clearance **should** be at least equal to their height above the terrain.

Descent Below Safety Altitude

71. **Over Land**. Unless specifically Authorized, Aircraft Commanders or handling pilots **should not** descend below Safety Altitude, except when compelled to do so in an emergency, unless the handling pilot is in visual contact with the surface, is using a serviceable terrain-following radar equipment or can let down by means of an approved radio or radar terminal approach procedure provided by Air System ATC units. Instructions for Air Systems equipped with terrain-following radar, both in IMC and at night, **should** be issued by ADH / AM(MF).

72. **Offshore**. Unless specifically Authorized for a ►◄ Maritime Sortie iaw Table 2 ►or Table 3◄ or unless special dispensation has been granted by the MOD, subject to any more stringent ►orders◄ that ADH / AM(MF) may have imposed, when descending over the sea more than 5 nm from the coast, Aircraft **should** only descend below Safety Altitude in IMC to a minimum of 500 ft above Authorized MSD in an attempt to achieve VMC below cloud. If cloud is not cleared by 500 ft above authorized

[13] ►Refer to MAA 02: Master Glossary. Mountainous Terrain is defined as an area of changing terrain profile where the changes of terrain elevation exceed 3000 ft (900 m) within a distance of 10 nm (18.5 km).◄

Acceptable Means of Compliance 2307(1)

MSD, or VMC cannot be achieved from this position, Aircraft **should** climb to Safety Altitude and, if still IMC, climb until VMC is achieved or until above 3000 ft AMSL. Whenever possible, descents **should** be planned such that, if made in IMC, they will occur in areas clear of known airborne activity (for example, civil helicopter offshore operations) or where such activity can be determined and avoided.

Aircraft Lighting

73. **Navigation Lights**. Between sunset and sunrise, navigation lights **should** be displayed by Aircraft in flight, taxiing, being towed and whenever possible when being ground-run. At night, in the event of a navigation light failure in flight, the Aircraft **should** be landed as soon as practicable unless authorized by the appropriate ATC unit to continue.

a. **Within the United Kingdom**. In exceptional circumstances, between sunset and sunrise, planned activity without navigation lights **should** only take place as follows:

(1) Within segregated airspace. This option **should** be used wherever and whenever practical; or,

(2) Air Systems **should** be in receipt of a radar service from an Area Radar Unit as follows:

(a) In accordance with the recurring Airspace Change Notice issued for the conduct of lights out activity in non-segregated airspace.

(b) All ►Aircraft◄ **should** squawk Mode 3A with C and Mode S where fitted.

(c) In the event of transponder failure or the failure of the radar being used to provide the radar service, navigation lights **should** be turned on immediately; or,

(3) Under the terms of the UK AIP, which describes the procedures for the notification and clearance of Unusual Aerial Activity; or,

(4) When low flying without lights in the UK Low Military Flying System, such flying **should** be conducted iaw the UKMLFH ►◄.

b. **Outside the United Kingdom**. In accordance with appropriate national requirements. Clearances for such flights **should** be negotiated locally with the national authorities concerned.

74. **Anti-Collision Lights (Including High-Intensity Strobe Lights (HISLs))**. If any anti-collision lights fail during flight at night the Aircraft **should** land as soon as it is safe to do so, unless authorized by the appropriate ATC unit to continue its flight. An Aircraft may continue to fly during the day in the event of a failure of an anti-collision light provided the light is repaired at the earliest practicable opportunity. When installed, anti-collision lights **should** be used as follows:

a. **During Flight**. Anti-collision lights **should** be selected on at all times when the Aircraft is being operated with the following exceptions:

(1) During exercises with night vision aids that might be adversely affected by high intensity lighting.

(2) When Aircraft are conducting aerial photographic operations and the anti-collision lights might cause unwanted reflection.

(3) During night operations in the immediate vicinity of the flight-deck at sea.

(4) During Formation Flying, when anti-collision lights can be switched off at the discretion of the Formation Leader.

(5) At any other time when the Aircraft Commander determines that the safe operation of their or any other ►Aircraft◄ is being jeopardized.

b. **On the Ground**

Acceptable Means of Compliance 2307(1)

(1) Fixed wing ►Aircraft◄ anti-collision lights (not HISL) **should** normally be selected on for engine starting (except in an Aircraft Shelter) and while taxiing.

(2) Helicopter anti-collision lights **should** normally be selected on whenever the rotors are running or about to run.

(3) ►A pilot **should** be permitted to switch off or reduce the intensity of any flashing lights fitted to meet the requirements of (1) and (2) if they are likely to adversely affect the safe performance of duties or subject an outside observer to harmful dazzle. In such circumstances consideration **should** be given to the visibility of the Aircraft and any confusion which might be caused by deviation from standard procedure.◄

Aircraft Marshalling Signals and Airfield Ground Signals

75. Personnel involved in flying operations **should** remain proficient in the use and interpretation of Aircraft marshalling signals and airfield ground signals. Aircraft marshalling signals for military operations are detailed in STANAG 3117[14]. Military Airfield ground signals are detailed in the RA 3500 series►[15]◄. ICAO Annex 2[16] details the marshalling signals and visual ground signals used at civilian airfields. The details of STANAG 3117 are available to Defence Contractor Flying Organizations by request to the MAA.

Miscellaneous Rules of the Air

76. **Aerobatic Manoeuvres**. Unless necessary and specifically Authorized, aerobatic manoeuvres **should not** be performed: over the Congested Area of any city, town or settlement; or, within controlled airspace except with the consent of the appropriate ATC unit.

77. **Simulated Instrument Flying**. Simulated Instrument Flying (IF) where Authorized, **should** normally only be carried out in Aircraft fitted with dual controls and be supervised by a second pilot holding a valid Certificate of Qualification on Type (CQT).

78. ADH / AM(MF) orders **should** detail specific circumstances where a Safety lookout who is a Suitably Qualified and Experienced Person (SQEP) can be utilized for simulated IF instead of a second pilot holding a valid CQT. SQEP for Safety lookout is defined as qualified pilots, Observers or, as specified in ADH / AM(MF) orders, other personnel who have completed an appropriate Safety lookout training package. Simulated IF utilizing a SQEP Safety lookout **should not** include Unusual Positions or Practice Forced Landings.

79. For Aircraft where a second pilot holding a valid CQT or SQEP Safety lookout is not (or, in the case of single seat Aircraft, cannot be) carried, ADH / AM(MF) **should** issue orders and instructions detailing the approved specific circumstances for 'single-pilot' simulated IF, which ►will◄ be conducted as follows:

a. Unusual Positions or Practise Forced Landings **should not** be practised.

b. Where possible, segregated airspace **should** be used.

c. An appropriate radar service **should** be used.

d. Supernumerary Crew, Supernumerary Support Crew and Passengers **should not** be carried.

80. **Test Flying Over Congested Areas**[4]. Unless necessary and specifically Authorized, Test Flying **should not** be conducted over a Congested Area except to the extent that it is necessary to do so in order to take-off or land iaw normal aviation practice.

81. **Reporting Hazardous Conditions**. If an Aircraft Commander encounters hazardous conditions in the course of a flight, they **should** inform the appropriate ATC

[14] Refer to STANAG 3117 – Aircraft Marshalling Signals.
[15] ►Refer to RA 3500 Series: Aerodrome Design and Safeguarding.◄
[16] Refer to ICAO Annex 2 – Rules of the Air.

Acceptable Means of Compliance 2307(1)

unit of the particulars of such conditions that might be pertinent to the Safety of other ►Aircraft.◄

Guidance Material 2307(1)

Rules of the Air

Applicability of Rules of the Air

82. These Regulations reflect the Rules of the Air as applicable within the UK FIR and are based upon the UK ANO and any agreed military exemptions. For operations outside UK airspace, flights will be conducted iaw national procedures unless specific exemptions have been agreed.

83. For the avoidance of doubt, any reference to 'Competent Authority' within the wider SERA Regulations will mean the MAA in the first instance for any UK military registered Air System.

Avoidance of Collisions

84. **Right-Hand Traffic Rule**. The handling pilot of an Aircraft which is flying within the UK in sight of the ground and following a road, railway, canal or coastline, or any other landmarks, is recommended to keep such a line of landmarks on their left, except where promulgated locally or when acting upon instructions given by the appropriate ATC unit.

85. ►**Formations.** Civil Aircraft not subject to MAA Regulatory Publications (MRP) might treat Aircraft in formation as single Aircraft for the purposes of (UK) SERA.3210(b) Right-of-Way, and therefore not give way to formations. Military Formation Leaders are advised to assume that any Aircraft will follow (UK) SERA.3210(b) Right-of-Way rules (which does not explicitly mandate that Aircraft give way to formations) unless positively identified as subject to the MRP.◄

86. **Use of ACAS Equipment fitted with Resolution Advisory Mode**. The use of ACAS equipment in TA-only mode, or in standby / off mode, may be ordered where it would not be appropriate to use Resolution Advisory mode. These circumstances may include but are not restricted to: circuit flying; air intercept training; air to air refuelling; air combat training; formation flying; and high energy manoeuvring. ADH / AM(MF) will consider the impact of an unserviceable ACAS on Air System operating procedures.

87. **Prohibition or Restriction of Military Flying Within the UK FIR and UIR**. When necessary, the MOD may prohibit, restrict or impose conditions on flights by UK military ►Aircraft◄ or military ►Aircraft◄ of any visiting force in any airspace within the United Kingdom FIR / UIR. Prohibitions, restrictions or conditions imposed by the MOD may apply either generally or in relation to a specific class of Air System. Unless operationally necessary, UK military ►Aircraft◄ or military ►Aircraft◄ of any visiting force will observe all UK National and Military, Prohibited and Restricted Areas detailed within the UK AIP, UK MILAIP and UKMLFH.

88. '**Due Regard**'. Freedom of the high seas includes the right of ►Aircraft◄ of all nations to use the airspace over the high seas iaw the international Law of the Sea Convention of 1958 and 1982 which state that the freedom of the high seas includes the right of military ►Aircraft◄ to use the airspace above those seas without the permission of the Coastal States for over-flight and related military operations. The sovereignty of a nation state extends beyond its land area to the outer limit of its territorial seas. The airspace beyond the territorial sea is considered international airspace, where permission of the coastal state is not required for over flight and related military operations. Where for reasons of military contingencies or routine Aircraft carrier operations or other training activities over the high seas, the principles of 'Due Regard' apply.

89. **IFR Flight**. IFR flying may be conducted in VMC. Whenever possible, it is recommended that an appropriate radar service is used when operating under IFR, irrespective of meteorological conditions.

90. **Operational Pattern Flying**. Where an Aircraft is flying an operational pattern (eg on a Combat Air Patrol station or monitoring a Joint Engagement Zone barrier)

Guidance Material 2307(1)

and cannot maintain VMC, it will seldom be practicable to fly at appropriate cruising levels. In such cases, the Aircraft will be deprived of even the limited protection afforded by the semi-circular system. In these circumstances and when the EMCON policy permits, it is recommended that a radar service be sought wherever possible.

Airspace and Air Traffic Management – General

91. **International Categorization**. Airspace is subdivided into various classes and functional areas in order to meet national or international airspace management requirements. For the purposes of international standardization, certain of these subdivisions are classified according to an ICAO system within which minimum ATS are specified. The 7 airspace classifications (Classes A to G) agreed within ICAO have been adopted by the UK and are described in the UK AIP.

92. **UK FIR and UIR**. UK airspace, including that over the surrounding waters, is divided into 2 FIR. Above each of these FIR is a UIR. These 4 regions are collectively termed the London and Scottish FIR / UIR. The London and Scottish FIR / UIR are divided vertically into the following bands:

a. **UIR**. Upper Airspace (UAS) from FL245 to ►FL660.◄

b. **FIR**. Lower Airspace (LAS) from surface level to below FL245.

Full details of airspace boundaries are detailed in the UK AIP and RAF FLIPs.

93. **Controlled Airspace (CAS)**. This is a generic term which is used to describe airspace which is 'notified' as such in the UK AIP; within this airspace, civil pilots and military Aircraft Commanders are required to comply with ATC and other Regulations forming part of the UK ANO and Rules of the Air Regulations. In essence, CAS comprises different types of control zone and control area to which are assigned one of the ICAO Airspace Classifications A to E (classes F and G are reserved for 'uncontrolled' airspace). See UK AIP for a breakdown of UK airspace by class.

94. **Air Traffic Management**. In the UK, the system of ATC is based on a joint civil / military scheme in which the military aviation authorities observe such ICAO Regulations as have been accepted by the Civil Aviation Authority, provided they do not impair the operational freedom of military ►Aircraft.◄ UK flight information services, separation standards and procedures applicable to all classes of airspace are detailed in the ATM 3000 series and CAP 774[17].

95. **Cruising Levels**. Cruising Levels are detailed within the UK AIP.

[17] Refer to CAP 774 – The UK Flight Information Services.

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►This RA has been substantially re-written; for clarity, no change marks are presented - please read RA in entirety◄

RA 2309 - Flight Procedures: General

Rationale

Across the Defence Aviation Environment, numerous activities take place that whilst enhancing capability and operational effectiveness, also provide a complex set of Risks that need to be understood and carefully managed. If operational capability is delivered without appropriate precautions, planning, training and Authorization, then Risk to Life (RtL) would not be As Low as Reasonably Practicable (ALARP) and Tolerable. This Regulatory Article aims to detail some of the key activities that have inherent Risk in both military and general aviation, with clear direction to ensure that such activities are conducted safely.

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2309(17): Landing away from Active Airfields
2309(18): Embarked Aviation Operations
2309(19): Air Exercise Planning and Airspace Integration

Regulation 2309(1)

Aircraft Limitations

2309(1) Except in an emergency, the Pilot of an Aircraft **shall not** exceed the limitations quoted in the Release To Service (RTS) or the Military Permit To Fly (MPTF)[1].

Acceptable Means of Compliance 2309(1)

Aircraft Limitations

1. If the engine, airframe or handling limitations are exceeded at any time, or if the Aircraft has been subjected to abnormal loading, stress or strain in the air or on the ground, the pilot or Aircraft Commander **should** record the fact on the MOD Form 700 or Tech Log for the Aircraft concerned, and **should** inform their Authorizing Officer or Supervisor as soon as possible.

[1]Refer to RA 5880 – Military Permit to Fly (Development) (MRP Part 21 Subpart P) or refer to RA 1305 - Military Permit to Fly (In-Service), (Special Case Flying) and (Single Task).

Guidance Material 2309(1)

Aircraft Limitations

2. Nil.

Regulation 2309(2)

Smoking in or near Aircraft

2309(2) Smoking in or near[2] an Aircraft **shall** be prohibited and, as a precaution against fire, smoking-related items **shall not** be carried by occupants of, or by personnel working on, UK Military Aircraft.

Acceptable Means of Compliance 2309(2)

Smoking in or near Aircraft

3. The Aviation Duty Holder (ADH) or Accountable Manager (Military Flying) (AM(MF)) **should** issue orders that detail the prohibition of smoking in or near Aircraft. For reasons of fire safety they **should** further prohibit personnel from carrying smoking related items on their person into or onto Aircraft. The prohibition of such smoking items **should** include as a minimum:

a. Matches, other than of the safety type.

b. All types of petrol or gas lighters, capsules and cylinders.

Guidance Material 2309(2)

Smoking in or near Aircraft

4. The prohibition of smoking activities in or near Aircraft is also applicable to the use of electronic cigarettes and similar devices.

Regulation 2309(3)

Taxiing of Aircraft

2309(3) The ADH or AM(MF) **shall** define the training, Authorization and certification required by personnel who, by the nature of their duties, are required to taxi the Aircraft.

Acceptable Means of Compliance 2309(3)

Taxiing of Aircraft

5. Only trained, Authorized and certified personnel **should** taxi Aircraft.

6. When an Aircraft is being taxied, including when receiving Aircraft marshalling signals[3] or electronic guidance, the person at the controls **should** be responsibile for manoeuvring the Aircraft safely, taking into account nearby personnel or property that may be endangered by the taxiing operation. The Aircraft Commander[4] retains overall responsibility for the safety of the Aircraft.

Guidance Material 2309(3)

Taxiing of Aircraft

7. This regulation only applies to an Aircraft taxiing under its own power.

Regulation 2309(4)

Simulated and Practice Emergencies

2309(4) The ADH or AM(MF) **shall** issue orders governing the conduct of simulated and practice emergencies[5] when conducted in an Aircraft or Remote Pilot Station within their Area of Responsibility (AoR).

[2] For the purposes of this Regulation near is deemed as less than 50 metres.
[3] Refer to STANAG 3117 and NATO STANDARD - Allied Flight Safety Publication – 2 – Aircraft Marshalling Signals.
[4] Refer to RA 2115 – Aircraft Commanders.
[5] Refer to MAA02: MAA Master Glossary, for definitions.

Acceptable Means of Compliance 2309(4)

Simulated and Practice Emergencies

8. ADH and AM(MF) orders **should** include advice on what constitutes a Simulated or Practice Emergency on an Aircraft or a Remote Pilot Station within their AoR.

9. ADH and AM(MF) orders **should** reflect that:

a. During the conduct of a Practice Emergency, an Aircraft system or Remote Pilot Station controlled system may be degraded such that it is not immediately and fully available for use if required and;

b. During the conduct of a Simulated Emergency, an Aircraft system or Remote Pilot Station controlled system **should not** be degraded such that it is not immediately available for use if required.

10. ADH and AM(MF) orders **should** detail as a minimum:

a. The minimum crew requirements to conduct Practice or Simulated Emergencies;

b. Any restrictions on Aircrew qualifications, competencies or experience levels to be applied during Practice and Simulated Emergencies;

c. The Approval and Authorization process to conduct Practice or Simulated Emergencies;

d. Any restrictions to be applied during the conduct of Practice or Simulated Emergencies to include when carrying Supernumerary Crew, Supernumerary Support Crew and Passengers[6];

e. When the conduct of Practice or Simulated Emergencies is prohibited.

11. ADH and AM(MF) orders **should** consider the impact of any synthetic training conducted immediately prior to flight. Specifically, for the first flight, on the same day, immediately following simulator training, pilots **should not** conduct practice emergencies that have been exercised during the simulator sortie. The effect of conducting 'live' inputs during emergency handling in Flight Simulator Training Devices immediately prior to the conduct of the same or similar Simulated or Practice Emergency during a flight **should** be assessed by the ADH / AM(MF) and mitigations put in place to ensure the RtL associated with the subsequent flight is ALARP and Tolerable.

12. When Authorizing a flight, the Authorizing Officer[7] **should** consider the impact of any synthetic training conducted immediately prior to the flight on the Authorized sortie content.

Guidance Material 2309(4)

Simulated and Practice Emergencies

13. Aviation accident investigations have suggested a potential for Aircrew to make inadvertent inputs to emergency systems during the conduct of Simulated or Practice Emergency handling in flight immediately after conducting the same or similar exercise in a Flight Simulator Training Device. This cognitive phenomenon may be mitigated by appropriate Authorization, crew composition and other supervisory factors and will be considered by the ADH and AM(MF)s when publishing orders and instructions to their Aircrew.

14. See RA 2310[8] for regulation concerning the conduct of Asymmetric Flight.

Regulation 2309(5)

Handing over Control of Aircraft with Dual Flying Controls

2309(5) Handing over or taking over control of an Aircraft fitted with dual flying controls **shall** be conducted formally.

[6] Refer to RA 2340 – Supernumerary Crew, Supernumerary Support Crew and Passengers.
[7] Refer to RA 2306 – Authorization of Flights.
[8] Refer to RA 2310 – Flight Procedures: Role Specific Fixed Wing.

Acceptable Means of Compliance 2309(5)

Handing over Control of Aircraft with Dual Flying Controls

15. When it is necessary to hand over control of an Aircraft with dual flying controls, a formal instruction to take control and to accept control **should** be made. In some cases (eg during instruction) it is necessary to take control in the first instance - this **should** also be formally declared and accepted. Formal statements of 'I have control' and 'You have control' **should** be made and acknowledged as appropriate.

16. The ADH or AM(MF) **should** produce orders or instructions detailing actions in the event that verbal communication becomes impossible (eg intercom failure or suspected incapacitation).

Guidance Material 2309(5)

Handing over Control of Aircraft with Dual Flying Controls

17. Nil.

Regulation 2309(6)

Oxygen and Cabin Pressure

2309(6) A crewed Aircraft **shall not** be flown above Flight Level (FL) 100 unless it is fitted with serviceable oxygen equipment for all of the crew.

Acceptable Means of Compliance 2309(6)

Oxygen and Cabin Pressure

18. The ADH or AM(MF) **should** ensure that Aircrew are fully proficient in the use of the oxygen equipment, and emergency oxygen equipment available, on the particular Aircraft in which they are flying.

19. The ADH or AM(MF) **should** ensure that Aircrew receive training in the use of pressure breathing systems or partial pressure garments before they fly Aircraft so equipped.

20. In Aircraft fitted with oxygen equipment, oxygen **should** be used as follows:

a. In pressurized Aircraft where the cabin altitude does not normally exceed 10,000 ft, all flight deck crew **should** don and use oxygen equipment between 8000 ft and 10,000 ft cabin altitude. Oxygen equipment can be removed for occasional periods of up to 15 minutes, for example to eat or to conduct load checks. When cabin altitude is below 8000 ft, the crew **should** have their oxygen equipment available so that each of them are breathing oxygen within 5 seconds of cabin altitude exceeding 10,000 ft. When the Aircraft is at FL400 or above, the watch-keeping pilot **should** have oxygen immediately available. In the case of Aircraft where oxygen masks are suspended from a headset, crew **should** wear and use the oxygen equipment at all times. In those Aircraft equipped with quick don oxygen masks, this mask **should** be ready for immediate use.

b. In all Aircraft operating above a cabin altitude of 8000 ft and where the rate of climb exceeds 2000 ft per minute oxygen **should** be used from ground level. At lower rates of climb, including helicopters, the crew **should** use oxygen by a cabin altitude of 8000 ft and Passengers **should** use oxygen by a cabin altitude of 12,000 ft.

c. In pressurized Aircraft fitted with Passenger emergency oxygen systems the equipment **should** be presented to the Passengers before the cabin altitude exceeds 15,000 ft.

21. For crewed Aircraft not fitted with oxygen, the ADH or AM(MF) **should** specify in orders the circumstances, including limitations and mitigations, under which the Aircraft can be operated between FL80 and FL100.

Guidance Material 2309(6)

Oxygen and Cabin Pressure

22. The onset of hypoxia is dependent on many factors including cabin altitiude, acclimatisation and cabin temperature, as well as an individual's fitness, physiological tendances and fatigue. Whilst the effects of hypoxia may be present at lower levels, it

Guidance Material 2309(6)

is recognized that above 8000 ft Pressure Altitude there is a reduction in visual acuity, reaction speed, ability to learn new tasks, memory and hand eye coordination.

Regulation 2309(7)

Altitude Limitations

2309(7) Flight at altitude **shall** be confined to safe limits to protect against the effects of hypoxia.

Acceptable Means of Compliance 2309(7)

Altitude Limitations

23. The following limitations apply to flight at altitude:

a. Aircrew **should** minimize time above a cabin altitude of FL180 / 18,000 ft unless operationally required, and be alert to the onset of symptoms of decompression illness.

b. Unpressurized Aircraft **should not** be flown above FL250 in normal operations.

c. Unpressurized Aircraft **should not** fly above FL300 under any circumstance.

d. Pressurized Aircraft **should not** be flown with a cabin altitude above 25,000 ft in normal operations.

e. If cabin pressurization fails above FL400 an immediate descent at maximum rate **should** be made to bring the cabin altitude below 40,000 ft. The descent **should** continue at a rate and to an altitude consistent with safe operation of the Aircraft, preferably below FL180.

f. If flight test procedures require a pressurized Aircraft to be depressurized above FL300 the crew **should** breathe 100% pure oxygen from take-off until pressurization is restored. The time spent depressurized **should** be the minimum required for test purposes. Aircraft **should not** be intentionally depressurized above FL 380.

g. In the event of an operational or experimental requirement for pressurized Aircraft to be depressurized above FL250, the ADH or AM(MF) **should** obtain and adhere to the advice of the RAF Centre of Aviation Medicine on the precautions to be taken to protect personnel from decompression illness. As a minimum requirement, all personnel **should** breathe 100% oxygen (pre-breathe) at a cabin altitude below 16,000 ft prior to depressurization and limit the period of depressurization in accordance with (iaw) the following table:

Table 1. Pressurization Limits.

Depressurized to	Pre-breathe time	Depressurization time
FL250 to < FL300	60 minutes	60 minutes
FL300 to < FL350	60 minutes	30 minutes
FL350 to < FL380	90 minutes	30 minutes

24. Whenever an Aircraft is flown depressurized above FL250, a primary oxygen supply for all personnel **should** be provided. Above FL300 the handling pilot and any co-pilot **should** be provided with an independent emergency oxygen system in addition to the primary oxygen system.

Guidance Material 2309(7)

Altitude Limitations

25. Decompression illness may occur at cabin altitudes above FL180 / 18,000 ft, although it is rare below FL250 / 25,000 ft.

26. Exceptionally, the ADH or AM(MF) may Authorize unpressurized Aircraft to fly for not more than 10 minutes between FL250 and FL300. This Authorization may be

Guidance Material 2309(7)

delegated down to Commanders of 1-star rank and above or nominated Post Holders (Defence Contractor Flying Organizations).

Regulation 2309(8)

Night Vision Device Flying

2309(8) The ADH or AM(MF) **shall** publish orders regarding the conduct of Night Vision Device (NVD) flying on Aircraft within their AoR.

Acceptable Means of Compliance 2309(8)

Night Vision Device Flying

27. ADH and AM(MF) orders regarding NVD flying **should** include as a minimum:

a. The minimum illumination levels and weather limits for Aircraft within their AoR to conduct NVD flying, including consideration of training, tasking, operational flying and any flying involving high technical merit such as[9]:

(1) Operations to Temporary Landing Zones (TLZ), including Bare Minimum TLZ;

(2) Air refuelling;

(3) Formation flying;

(4) Embarked operations;

(5) Operations in a degraded visual environment such as dust or snow;

(6) Low level flying;

(7) Air intercepts;

(8) Weaponeering.

b. Aircraft / role-specific planning considerations to be applied to NVD operations within the operating AoR;

c. The minimum crew composition, experience, qualifications and currency required to operate on NVD;

d. The minimum serviceable Aircraft equipment and Equipment Not Basic to the Air System (ENBAS) required for NVD flying;

e. Procedures for pre-flight check of NVD serviceability and method of pre-flight calibration of individual equipment;

f. Actions to be taken in the event of NVD failure during flight;

g. Any restrictions to be applied during flight on NVDs;

h. The ground and airborne training required before Aircrew or Supernumerary Crew can fly or operate using NVD on Aircraft within their AoR.

28. NVD equipment planned to be used **should** be assessed to be serviceable and correctly set up for use prior to flight.

29. Aircrew routine 'check of fit' helmet assessments conducted in conjunction with Survival Equipment personnel **should** include an assessment of associated NVD equipment fit and function.

30. ADH and AM(MF) orders **should** state the requirement for Aircrew and Supernumerary Crew to attend the NVG Familiarization Course, at the RAF Centre of Aviation Medicine, prior to operating / flying Aircraft within their AoR.

31. Forecast illumination levels employed during planning for NVD flight **should** be relevant to the planned operating areas.

[9] This list is not exhaustive and the ADH or AM(MF) **should** provide additional detail as necessary.

Guidance Material 2309(8)

Night Vision Device Flying

32. Where operational or security implications prohibit the use of routine forecast products, consideration is to be given to the use of local Developed Vetting weather forecasters or liaison with the Joint Operational Meteorology and Oceanography Centre[10] at Northwood HQ who are able to provide products at a higher classification level.

Regulation 2309(9)

Carriage of Loose Articles and Stores

2309(9) The Aircraft Commander **shall** be responsible for the custody and stowage of any loose articles and equipment.

Acceptable Means of Compliance 2309(9)

Carriage of Loose Articles and Stores

33. The Aircraft Commander **should** ensure that all loose articles, stores and equipment carried in the Aircraft (or Remote Pilot Station) are properly stowed such that there is no possibility of them falling from the Aircraft, fouling the flying controls, ejection seat mechanisms or other equipment.

34. Aircrew, Supernumerary Crew and Supernumerary Support Crew **should** ensure that any loose articles, stores and equipment are stowed such that the Aircraft can continue to be operated safely, and that any such items are removed after flight.

35. Aircraft Commanders **should**, where practicable and operational considerations allow, ensure that any Passengers are checked for the carriage of loose articles, and that Passengers are made aware of the requirement to stow such articles safely during flight.

Guidance Material 2309(9)

Carriage of Loose Articles and Stores

36. 'Loose articles', for the purpose of this regulation, means any carry-on items, personal or otherwise, that have no formal stowage on an Aircraft. The Aircraft Commander may delegate the checks for loose articles, stores and equipment to a designated Suitably Qualified and Experienced Person, such as a Loadmaster.

Regulation 2309(10)

Dropping or Jettisoning of Articles

2309(10) Unauthorized dropping or jettisoning of articles from Aircraft **shall** be prohibited.

Acceptable Means of Compliance 2309(10)

Dropping or Jettisoning of Articles

37. The Aircraft Commander **should** only permit dropping or jettisoning of articles when Authorized:

a. For training;

b. For operational or trials purposes; or,

c. When the safety of the Aircraft is otherwise seriously endangered.

Guidance Material 2309(10)

Dropping or Jettisoning of Articles

38. Nil.

Regulation 2309(11)

Fuel Jettison

2309(11) The ADH or AM(MF) **shall** publish orders directing when Aircraft within their AoR may jettison fuel.

[10] Duty Forecaster: 9360 58111 / 01923 958111.

Acceptable Means of Compliance 2309(11)

Fuel Jettison

39. Aircraft **should** only jettison fuel when it is essential to mitigate RtL, or to meet operational requirements.

40. ADH and AM(MF) orders **should** detail recording and reporting actions for any fuel jettison. The local Environmental Agency **should** be informed at the earliest practical opportunity.

Guidance Material 2309(11)

Fuel Jettison

41. It is recommended that fuel jettison be conducted above 10,000 ft above ground or sea level. If fuel jettison above this height is impracticable (eg helicopters), fuel may be jettisoned at an altitude below 10,000 ft but as high as possible, consistent with safety. There is an exponential reduction in the amount of fuel reaching the ground as an Aircraft climbs up to 5000 ft, above which the reduction of fuel reaching the ground is linear. There is little additional benefit in jettisoning fuel from above 10,000 ft, but from any altitude there is a possibility of unevaporated fuel reaching the surface.

Regulation 2309(12)

Flying in the Company of Civil Aircraft

2309(12) The ADH or AM(MF) **shall** issue orders detailing when Aircraft within their AoR may be Authorized to fly in the company of civil Aircraft.

Acceptable Means of Compliance 2309(12)

Flying in the Company of Civil Aircraft

42. UK Military Aircraft **should** only be Authorized to fly in the company of civil Aircraft on the following occasions:

a. **Protection of Civil Aircraft**. When an escort is provided to protect civil Aircraft from hostile action, the arrangements made **should** include confirmation by the owners or operators of the civil Aircraft that they will comply with the instructions issued by the escorting Aircraft.

b. **Ceremonial or Publicity**. When flying in the company of civil Aircraft is required for ceremonial or publicity purposes, all Aircraft **should** operate to a pre-arranged plan that has been Authorized by the ADH or AM(MF) and, where appropriate, civil authorities. The plan **should** allow for safety of all participants and consider societal concerns, when applicable. Civil Aircraft carrying Very Important Persons[11] (VIPs) **should not** be escorted by UK Military Aircraft unless reliable two-way voice communication can be established and maintained, except in an emergency.

c. **Operational Training and Air Intercept Missions**. Orders **should** detail procedures and minimum separation criteria for these activites.

d. **Test and Evaluation**. Where it is necessary to fly in the company of civil Aircraft as part of a trials programme, the ADH or AM(MF) **should** ensure that full details of the activities involving civil Aircraft are detailed in the test plan.

Guidance Material 2309(12)

Flying in the Company of Civil Aircraft

43. Nil.

Regulation 2309(13)

Aerobatics

2309(13) Aircraft Commanders **shall** only undertake Aerobatic Manoeuvres permitted by the Air System Document Set (ADS).

[11] Refer to JSP 800 Vol 2 Table 2-2-1: Persons Defined as VIPs for Air Movement.

Acceptable Means of Compliance 2309(13)

Aerobatics

44. Aerobatic Manouevres **should not** be carried out:

a. When they are likely to endanger other Aircraft.

b. In formation, except when specifically Authorized by the Operating Duty Holder (ODH).

c. Over towns or congested areas.

d. At night or in cloud, or in conditions where recovery is likely to take place in cloud.

e. Within Controlled Airspace, including Military Aerodrome Traffic Zones, except with the permission of the appropriate Air Traffic Control authority.

f. At less than 3000 ft above ground or sea level unless specifically Authorized by the ODH.

Guidance Material 2309(13)

Aerobatics

45. Nil.

Regulation 2309(14)

Refuelling and / or Re-Arming Aircraft - Engines and / or Rotors Running

2309(14) The ADH or AM(MF) **shall** issue orders detailing how and when refuelling and / or re-arming Aircraft - engines and / or rotors running **shall** be permitted.

Acceptable Means of Compliance 2309(14)

Refuelling and / or Re-Arming Aircraft - Engines and / or Rotors Running

46. To refuel and / or re-arm Aircraft - engines and / or rotors running, the activity **should** be cleared in the Aircraft RTS or MPTF.

47. Rotors running refuelling and / or re-arming **should** be carried out iaw the Aircraft-specific procedure, sponsored and published in the ADS.

48. The ADH or AM(MF) **should** detail in orders the following, as a minimum:

a. Fire cover.

b. Guarding of flying controls.

c. Training and Authorization requirements for all personnel involved, including weapons teams, supervisors and fuel bowser drivers.

d. Safety procedures and hazard management, for example weapon arc considerations, earthing and safe distances.

Guidance Material 2309(14)

Refuelling and / or Re-Arming Aircraft - Engines and / or Rotors Running

49. Further safety advice and instructions are detailed in the Manual of Airworthiness Maintenance – Process (MAM-P)[12,13].

Regulation 2309(15)

Air to Air Refuelling

2309(15) The ADH or AM(MF) **shall** ensure the RtL associated with Air to Air Refuelling (AAR) is managed within their AoR.

[12] Refer to MAM-P Chapter 3.4.1 – Fuelling Operations for Aircraft on the Ground.
[13] Refer to MAM-P Chapter 8.1 – Armed Aircraft Safety Precautions.

Acceptable Means of Compliance 2309(15)

Air to Air Refuelling

50. ADH and AM(MF) orders **should** detail AAR procedures and relevant guidance, specific to Aircraft type.

51. All UK-managed AAR (where the donor is a UK military registered Aircraft) **should** be conducted iaw Allied Tactical Publication (ATP) 3.3.4.2[14] as amplified and supplemented by the National Standards Related Document - United Kingdom (NSRD-UK).

52. Where the donor or receiver is a non-NATO military registered Aircraft, the ADH or AM(MF) **should** only approve AAR subject to an auditable Risk Assessment based on a gap analysis of the intended operation with ATP 3.3.4.2 and NSRD-UK.

Guidance Material 2309(15)

Air to Air Refuelling

53. ATP 3.3.4.2 defines the North Atlantic Treaty Organization (NATO) standardized procedures, techniques and terminology for AAR.

Regulation 2309(16)

Electromagnetic and Cosmic Radiation

2309(16) Aircraft **shall not** be intentionally exposed to electromagnetic radiation outside of the limits specified in the RTS or MPTF.

Acceptable Means of Compliance 2309(16)

Electromagnetic and Cosmic Radiation

54. The ADH or AM(MF) **should** take appropriate measures to assess the exposure to cosmic radiation, when in flight, of those members of Aircrew who are liable to be subject to cosmic radiation in excess of 1 milliSievert per year.

55. Within the UK the avoidance criteria for High Intensity Radio Transmission Areas (HIRTA), as detailed in UK Military Low Flying Handbook, **should** be observed. Outside the UK where HIRTA details are published the avoidance criteria **should** be observed.

Guidance Material 2309(16)

Electromagnetic and Cosmic Radiation

56. Outside of the UK, only a limited number of countries publish HIRTA information in National Aeronautical Information Publications. Where no HIRTA information is available, Aircrew need to be aware that they may at any time experience the effects of external electromagnetic radiation.

Regulation 2309(17)

Landing away from Active Airfields

2309(17) The ADH or AM(MF) **shall** ensure that any Aircraft landings away from active Airfields **shall** be Authorized subject to appropriate permissions.

Acceptable Means of Compliance 2309(17)

Landing away from Active Airfields

57. Scheduled landings (non-emergency) on private property or public places **should** be Authorized in advance. Furthermore, the permission of relevant land owners or authorities **should** be gained, and when appropriate the local police informed. Landing on government property where no recognized Airfield or Helicopter Landing Site (HLS) exists **should not** be permitted without the permission of the appropriate government authority.

58. When a pilot is forced to make an unscheduled landing away from base, the parent Operating Unit **should** be informed at the earliest opportunity and the occurrence recorded in the flight Authorization records.

59. Sites that do not fall within the normal organic infrastructure of a Main Operating Base **should** be considered for the provision of appropriate support and safety

[14] Refer to North Atlantic Treaty Organization Standard - Allied Tactical Publication 3.3.4.2 – Air-To-Air Refuelling.

Acceptable Means of Compliance 2309(17)

services. Where necessary, the ADH or AM(MF) **should**, as a minimum, address the following in Orders:

a. Crash Fire and Rescue Services, and Medical Facilities.

b. Hangarage and Security.

c. Operating in Confined Areas.

d. Specific orders, instructions and guidance pertaining to the site for support personnel.

60. A safety assessment **should** be completed for those austere sites that cannot be described as a recognized Airfield or HLS.

61. Landings **should not** be made where damage or unnecessary nuisance is likely to be caused, unless in an emergency.

Guidance Material 2309(17)

Landing away from Active Airfields

62. Nil.

Regulation 2309(18)

Embarked Aviation Operations

2309(18) The ADH or AM(MF) **shall** provide orders for embarked aviation operations.

Acceptable Means of Compliance 2309(18)

Embarked Aviation Operations

63. Authorizing Officers and Aircraft Commanders conducting embarked aviation operations **should** comply with the relevant flying orders set out in BRd 766, Embarked Aviation Orders.

64. Where BRd 766 and other orders conflict, the more stringent **should** apply.

Guidance Material 2309(18)

Embarked Aviation Operations

65. Flying Supervisors will need to be aware of the particular Hazards and special requirements associated with embarked aviation operations as detailed in BRd 766.

Regulation 2309(19)

Air Exercise Planning and Airspace Integration

2309(19) Organizations completing air exercise planning that is of a complex nature and / or has a high potential for interaction with other airspace users, **shall** obtain specialist airspace advice.

Acceptable Means of Compliance 2309(19)

Air Exercise Planning and Airspace Integration

66. To ensure the Risks of unplanned interaction between exercise traffic and other airspace users are identified, and are ALARP and Tolerable, exercise Planners **should**:

a. Ensure that they have obtained specialist advice and consulted with relevant National Aviation Authorities covering the entire exercise area.

b. Complete an appropriate written Risk Assessment for the exercise iaw RA 1210[15].

c. Ensure that the principles of liaison and information exchange conducted in the exercise planning phase are continued during the execution phase of the exercise.

[15] Refer to RA 1210 – Ownership and Management of Operating Risk (Risk to Life).

Guidance Material 2309(19)

Air Exercise Planning and Airspace Integration

67. The UK Aeronautical Information Publication and UK Military Low Flying Handbook (Section 1 Annex A) provide details of the information required of Exercise Planners. The Joint and Integrated (J&I) arrangements for airspace and Air Traffic Service provision in the UK provides significant flexibility for military aviation activity in the airspace over the territory of the UK and the airspace outside the territorial limit for which the UK has responsibility to the International Civil Aviation Organisation. The J&I arrangements also result in a significant interaction between military activity and that of Commercial and General Air Traffic, especially in Classes C, F and G airspace.

68. Routine training and interaction is covered by RA 2307[16] and associated orders and regulations. However, given the nature of air exercise activity it is essential that those engaged in the planning, conduct and supervision of such training apply the highest standards of exercise preparation, flight planning, briefing and flying discipline.

[16] Refer to RA 2307 – Rules of the Air.

►This RA has been substantially re-written; for clarity, no change marks are presented - please read RA in entirety◄

RA 2310 – Flight Procedures: Role Specific Fixed Wing

Rationale

UK military fixed wing aviation offers capabilities and challenges that are distinct from other Air Systems. Failure to appropriately address the nuances of fixed wing Air System role specific hazards could lead to an increased Risk to Life (RtL). This regulation requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to detail in orders the conduct of these role specific activities to ensure that RtL is As Low As Reasonably Practicable and Tolerable.

Contents

2310(1): Supersonic Flight
2310(2): Spinning
2310(3): Asymmetric Flight
2310(4): Single-Engine Air System Engine Shutdowns

Regulation 2310(1)

Supersonic Flight

2310(1) ADH and AM(MF) **shall** publish orders detailing the conduct of supersonic flight for operations, training, tests and trials within their Area of Responsibility.

Acceptable Means of Compliance 2310(1)

Supersonic Flight

1. **Conduct and Positioning of Supersonic Flights in the UK Flight Information Region (FIR)**. In the UK FIR, all supersonic flights **should** be conducted over the sea, unless supersonic flight over land is operationally required. Aircraft Commanders **should** ensure their Aircraft is at least 10 nautical miles (nm) out to sea and along a line of flight at least 20º divergent from the mean line of the coast. When the purpose of a dive manoeuvre is to achieve supersonic flight, the angle of dive **should not** exceed the minimum necessary. Supersonic flights with the Aircraft pointing towards the land, turning or flying parallel to the coast **should** take place at least 35 nm from the nearest coastline. Low-level supersonic flight **should** only take place if a radar / visual search is maintained to avoid the following by the margins stated: 3 nm from shipping and fixed or mobile oil and gas installations; 6 nm from civilian or military transport Aircraft, helicopters, helicopter main routes and corridors. If more than one radar unit is controlling within the same airspace, close co-ordination **should** be effected before any supersonic runs take place. Aircraft Commanders that know or suspect that they have infringed any of these criteria **should** follow the reporting procedure for Inadvertent Supersonic Flight, below.

2. **Supersonic Flights outside the UK FIR**. Supersonic flight **should** only be carried out in accordance with (iaw) host nation regulations.

3. **Recording of Supersonic Flights**. With the exception of operational missions that require supersonic flight, Commanders **should** notify the appropriate radar station of all planned supersonic flights in advance. Where supersonic flights do not conform to the pre-flight briefing, Aircraft Commanders **should** retrospectively make a record of the details of the supersonic flight in the flight authorization record. Similarly, radar stations **should** maintain a permanent record of supersonic flights carried out under their control. The permanent record **should** contain the following details:

   a. Aircraft.

   b. Time period during which supersonic flight conducted.

   c. Heading and speed of Aircraft (where known).

   d. Position (area in the case of sustained supersonic flight).

   e. Altitude and attitude (where known).

Acceptable Means of Compliance 2310(1)

4. **Inadvertent Supersonic Flight**. If any Aircraft Commander knows or suspects that their Aircraft has inadvertently made a supersonic flight that breaches this regulation, they **should** make a permanent record, as listed above, of the breach in the flight Authorization record. In addition, it is the responsibility of their parent unit concerned to notify the appropriate Control and Reporting Centre or Control and Reporting Point, Military Supervisor at 78 Sqn, Swanwick Mil or Naval Radar Unit of the flight within 30 minutes of the Air System's landing. The radar station **should** maintain a record of all such occurrences.

Guidance Material 2310(1)

Supersonic Flight

5. **Supersonic Flights outside the UK FIR**. Where there are no host nation regulations, these UK regulations must be used.

Regulation 2310(2)

Spinning

2310(2) Intentional spinning **shall** be specifically approved and Authorized.

Acceptable Means of Compliance 2310(2)

Spinning

6. Intentional spinning **should** be permitted only where clearance is given in the Release To Service (RTS) for the Aircraft iaw procedures laid down in the Air System Document Set (ADS) or, for non-RTS flying operations the Military Permit to Fly (MPTF).

7. If still spinning by the minimum height given in the ADS or, for non-RTS flying operations, the MPTF, or higher if stipulated in ADH and AM(MF) orders, the Aircraft **should** be abandoned.

Guidance Material 2310(2)

Spinning

8. Nil.

Regulation 2310(3)

Asymmetric Flight

2310(3) Airborne Practice and Simulated Asymmetric Flight **shall** be specifically approved and Authorized.

Acceptable Means of Compliance 2310(3)

Asymmetric Flight

9. ADH and AM(MF) **should** promulgate orders that apply to Practice and Simulated Asymmetric Flight and stipulate; the minimum height for each Aircraft; the frequency of training; weather limitations; and, operating conditions.

10. Asymmetric Flight approaches and landings **should** only be practised in weather conditions within the handling competence of the individual pilot under training. Other operating criteria for Asymmetric Flight training **should** be iaw specific Air System operating procedures. Practice Asymmetric Flight **should** only be permitted if approved in the ADS or, for non-RTS flying operations, the MPTF.

11. Simulated engine failure on take-off below 500 ft above ground or sea level **should** only be carried out under the direction of a suitably authorized Qualified Flying Instructor or when authorized under a trials instruction.

Guidance Material 2310(3)

Asymmetric Flight

12. Due to the increased risks associated with Asymmetric Flight, Practice and Simulated Asymmetric Flight training will be closely supervised; training will be regular and limited to the amount necessary to achieve the aim. The aim of Practice and Simulated Asymmetric Flying is to ensure that pilots are capable of making safe, competent and confident approaches and landings if a Real Asymmetric Flight situation arises.

Guidance Material 2310(3)

13. Practice Asymmetric Flight is flight in which a serviceable engine (or engines) is shut down, (eg: for training purposes), with the propeller(s) feathered (if applicable).

14. Simulated Asymmetric Flight is flight with all engines running, but with one or more engines set at “Zero Thrust” or “Flight Idle” to give a condition of asymmetry.

15. Practice and Simulated Asymmetric Flight will be conducted in such a manner that safe flight can be continued in the event of a real engine failure.

16. Full-stop landings and touch-and-go landings following Simulated Asymmetric Flight approaches and touchdowns may be carried out providing that approval for the Air System has been granted by the appropriate ADH or AM(MF).

Regulation 2310(4)

Single-Engine Air System Engine Shutdowns

2310(4) Engine shutdowns and re-lights in single-engine Air Systems **shall not** be carried out in the air, except where Authorized for Maintenance Test Flights or Test and Evaluation.

Acceptable Means of Compliance 2310(4)

Single-Engine Air System Engine Shutdowns

17. Engine shutdowns and re-lights **should** only be carried out in single-engine Air Systems when part of an approved Flight Test Schedule or MPTF (Development) programme.

Guidance Material 2310(4)

Single-Engine Air System Engine Shutdowns

18. This Regulation does not apply to self-launching motor gliders or Remotely Piloted Air Systems that can only recover by means of a parachute.

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►This RA has been substantially re-written; for clarity, no change marks are presented - please read RA in entirety◄

RA 2315 – Flight Procedures: Role Specific Rotary Wing

Rationale

UK military rotary wing aviation offers capabilities and challenges that are distinct from other Aircraft. Failure to appropriately address the nuances of rotary wing Aircraft role specific hazards could lead to an increased Risk to Life (RtL). This regulation requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to detail in orders the conduct of these role specific activities to ensure that RtL is As Low As Reasonably Practicable and Tolerable.

Contents

2315(1): Rotors Engaged Ground Runs

Regulation 2315(1)

Rotors Engaged Ground Runs

2315(1) ADH and AM(MF) **shall** define procedures for the conduct of ground runs on rotary wing Aircraft with rotors engaged.

Acceptable Means of Compliance 2315(1)

Rotors Engaged Ground Runs

1. The rotary wing Aircraft **should** be fully prepared for flight in so far as the purpose of the ground run permits.

2. Aircrew, and other personnel participating as crew members, for the purpose of the ground run, **should** be fully briefed and equipped for the possibility that flight may become necessary.

Guidance Material 2315(1)

Rotors Engaged Ground Runs

3. Ground resonance may occur during un-tethered ground runs with rotors engaged.

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►This RA has been substantially rewritten; for clarity no change marks are presented – please read RA in its entirety◄

RA 2320 – Flight Procedures: Role Specific S2 and Certified Remotely Piloted Air Systems

Rationale

Remotely Piloted Air Systems (RPAS) offer capabilities and challenges that are distinct from other Air Systems. Failure to appropriately address RPAS-specific Hazards could lead to an increased Risk to Life (RtL). This Regulatory Article requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) operate their RPAS with consideration of these Hazards, to ensure RtL is As Low As Reasonably Practicable (ALARP) and Tolerable.

Contents

2320(1): Remotely Piloted Air Systems Collision Avoidance
2320(2): Control of Remotely Piloted Air Systems
2320(3): Management of Remotely Piloted Air Systems data links
2320(4): Remotely Piloted Air Systems Operating Locations

Regulation 2320(1)

Remotely Piloted Air Systems Collision Avoidance

2320(1) ADHs / AM(MF)s **shall** operate RPAS with due consideration for the Safety of other Aircraft, vessels, vehicles, Structures and persons.

Acceptable Means of Compliance 2320(1)

Remotely Piloted Air Systems Collision Avoidance

1. ADHs / AM(MF)s **should** ensure RtL from collision between Aircraft and any vessels, vehicles, Structures, persons or the surface (land or sea) is ALARP and Tolerable. Where safe separation cannot be maintained through Visual Line of Sight (VLOS) operations or the use of an appropriate Detect and Avoid capability[1], this **should** be achieved using a Layered Safety Approach.

Inside UK Airspace

2. Beyond Visual Line of Sight (BVLOS) operations **should** only be conducted if:

   a. An appropriately approved[2] Detect and Avoid capability enables compliance with Rules of the Air[3] appropriate to the class of airspace, or;

   b. They are flown using a Layered Safety Approach that specifically requires flight in Segregated Airspace[1], or in Controlled Airspace (Classes A-D) with the informed consent of the Air Navigation Services Provider (ANSP)[4].

3. RPAS operations within designated UK Danger Areas[1, 5] **should** be approved by the relevant Danger Area Airspace Controlling Authority. Relevant ADH / AM(MF) orders **should** as a minimum:

   a. Meet the requirements of the Danger Area Airspace Controlling Authority.

   b. Meet the range Safety requirements[5] and any other orders or conditions issued by the Danger Area Airspace Controlling Authority.

   c. Where applicable, meet the requirements of Standard Agreement (STANAG) 2402 and take into account range / area specific advice. The details of STANAG 2402 are available to Defence Contractor Flying Organizations[6] by request to the MAA.

[1] Refer to MAA02 – MAA Master Glossary.
[2] Approved for use within the Letter of Endorsed Categorization (LEC) and appropriately certified.
[3] Refer to RA 2307 – Rules of the Air.
[4] Informed consent means prior permission from the ANSP based on a full understanding of RPAS behaviour and capability, including lost link procedures – such that an equivalent level of Air Safety to that of any other Aircraft permitted to enter that class of airspace can be demonstrated.
[5] Refer to DSA 03.OME Part 3 (Formerly JSP 403 Volume 2) – Defence Code of Practice (DCOP) for Ranges.
[6] Refer to RA 1028 – Contractor Flying Approved Organization Scheme – Responsibilities.

Acceptable Means of Compliance 2320(1)

Outside UK Airspace

4. ADH **should** ensure that RPAS operations within another sovereign nation's territorial Airspace are conducted either:

a. For operations conducted with the nation's consent, in accordance with (iaw) the relevant local, national, and international legal requirements, and satisfy diplomatic clearance requirements, or

b. For operations conducted without the nation's consent (ie conducted lawfully under the Law of Armed Conflict, UN Security Council resolution or other legal mandate), under 'Due Regard'[3] and outside Controlled Airspace[1]; unless the Controlled Airspace has been created or assigned for the purposes of the Operation.

5. AM(MF)s **should** ensure that RPAS operations within another sovereign nation's territorial Airspace and with that nation's consent are conducted iaw the relevant local, national, and international legal requirements and satisfy diplomatic clearance requirements[7].

6. ADH / AM(MF)s **should** ensure that RPAS operations in international Airspace are conducted iaw relevant international legal requirements and under 'Due Regard'[3].

Guidance Material 2320(1)

Remotely Piloted Air Systems Collision Avoidance

7. **Layered Safety Approach.** The Layered Safety Approach concept requires the following, as a minimum, to be considered by the ADH / AM(MF)[8]:

a. Utilization of Segregated Airspace which will be notified using the appropriate aeronautical notification methods[9, 10]. This will include a notified means of separating the Remotely Piloted Aircraft (RPA) from other Aircraft operating within the same Segregated Airspace including appropriate contingency actions.

b. Provision of suitable surveillance of the operating area which allows for the detection of intruding Aircraft during the period of operation of the RPA.

c. A method of communication between the surveillance provider(s) and the Remote Pilot (RP).

d. A method of providing the precise location(s) of the RPAS at all times.

e. A method of providing conspicuity to other airspace users (eg Automatic Dependent Surveillance-Broadcast (ADS-B)).

f. A method of maintaining safe separation from other Air Systems (ability to manoeuvre the RPAS out of harm's way, immediate termination in flight, etc) while remaining within the notified area.

g. Appropriate Assurance for equipment and training supporting the Layered Safety Approach.

8. **Segregated Airspace.** Segregated Airspace for RPAS operations will:

a. Be established with appropriate warnings issued for the purpose of RPAS operations (even if within an existing Danger Area or other airspace reservation)[10], and;

b. Have specific geographic, horizontal, vertical, and time boundaries, and;

[7] Refer to AP1158 – Approval and Diplomatic Clearance for Flights to Destinations Abroad.
[8] The MAA RPAS LEC may highlight additional areas for consideration.
[9] Except for those covered by paragraph 2b; without an approved Detect and Avoid capability, operations in the UK Flight Information Region (FIR) must be conducted in Segregated Airspace or approved on a case-by-case basis if there is an Operational Imperative to do so by the RPAS Commander (refer to RA 1020 – Aviation Duty Holder and Aviation Duty Holder-Facing Organizations - Roles and Responsibilities). The MAA may be contacted for further guidance ahead of approving such operations.
[10] A Notice to Aviation (NOTAM) will be issued. The Danger Area Authority (DAA) – usually through a Danger Area Airspace Manager, will provide advice on notification procedures specific to the Danger Area – details of approved Danger Areas and appropriate DAA may be found in the UK Aeronautical Information Publication (UK AIP Part 2, Enroute 5.1). Where RPAS (also known as Uncrewed Air Systems (UAS)) activities are not listed, Defence Airspace and Air Traffic Management (DAATM) can advise on submission of an Airspace Change request (see Civil Air Publication 1616).

Guidance Material 2320(1)

c. Where necessary, include transit corridors from / to the take-off / landing area to / from the planned operating area, and;

d. If outside a designated UK Danger Area, be agreed with the Civilian Aviation Authority (CAA) Safety and Airspace Regulation Group.

Regulation 2320(2)

Control of Remotely Piloted Air Systems

2320(2) ADHs / AM(MF)s **shall** detail the procedures to be followed for either piloted control or automated flight of RPAS.

Acceptable Means of Compliance 2320(2)

Control of Remotely Piloted Air Systems

9. Where periods of automated flight are planned:

a. The RP or RPAS Commander **should** be able to intervene immediately at any stage of the flight or;

b. Where it is not possible to intervene immediately (eg handover between Remote Pilot Stations (RPS) or automated take-offs and landings), ADHs / AM(MF)s **should** specify additional mitigation (eg lost link procedures) in orders.

10. Orders **should** specify the responsibilities and procedures for any Air System command and control transfers, including flight preparation, flight servicing, ground taxi, take-off, landing, and flight[11].

11. ADHs / AM(MF)s **should** detail in orders the emergency procedures applicable to each RPAS type, including any requirements for pre-planned emergency recovery sites.

Guidance Material 2320(2)

Control of Remotely Piloted Air Systems

12. Nil.

Regulation 2320(3)

Management of Remotely Piloted Air Systems data links

2320(3) ADHs / AM(MF)s of RPAS utilizing RPAS data links **shall** detail in orders, the protocols required to manage the RPAS data links.

Acceptable Means of Compliance 2320(3)

Management of Remotely Piloted Air Systems data links

13. **Electromagnetic (EM) Spectrum Management**. Appropriate spectrum management **should** be employed to minimize the probability of loss of, or interference to, the RPAS data links.

14. **RPAS Data Link Protection**. Measures **should** be implemented to protect the RPAS data link in areas such as: protection and / or redundancy of power supplies; ability to hand-off to another site and robust land-line communications.

15. **Management of RPAS data link loss**. Suitable lost link procedures **should** be implemented to maintain safe flight (or safe termination), safe separation from other Aircraft and to enable Aircraft recovery. In the event of an emergency in the RPS that requires abandonment, or the loss of return feed data link that precludes safe control, lost link procedures **should** be followed.

16. Orders to manage the loss of the RPAS data link **should** detail the following as a minimum:

a. Pre-flight planning of RPAS data link loss strategy, automated recovery routes and altitudes.

b. Deconfliction procedures.

[11] Refer to RA 2301 – Responsibility for an Air System.

Acceptable Means of Compliance 2320(3)

c. Communications, including:

(1) Transponder codes[12].

(2) Agencies to be contacted.

d. Emergency recovery protocols and locations.

e. Flight Termination protocols.

Guidance Material 2320(3)

Management of Remotely Piloted Air Systems data links

17. Nil.

Regulation 2320(4)

Remotely Piloted Air Systems Operating Locations

2320(4) ADHs / AM(MF)s **shall** detail in orders, RPAS specific Safety and administration considerations for all RPAS operating locations within their Area of Responsibility.

Acceptable Means of Compliance 2320(4)

Remotely Piloted Air Systems Operating Locations

18. ADHs / AM(MF)s **should** provide detailed orders for RPAS operating locations to include, as a minimum:

a. An operating Risk Assessment.

b. Airspace management, including: Air Traffic Control or surveillance provision; lost link protocols; and any NOTAM requirements.

c. EM Spectrum management (eg Electromagnetic Compatibility) and control links.

d. Ground operations, including: post crash management; ground manoeuvre; medical facilities; personnel and equipment Safety; and procedures for managing hazardous materials.

e. Flight plan requirements[3] and Diplomatic clearance requirements[13].

Guidance Material 2320(4)

Remotely Piloted Air Systems Operating Locations

19. Nil.

[12] When the RPA is required to be fitted with a Transponder.
[13] Refer to RA 2305 – Supervision of Flying.

RA 2325 - Air Weapons Carriage, Training and Demonstrations

Rationale

United Kingdom military ►registered Aircraft◄ may be required to carry weapons during training and operational flying. The carriage of air weapons can increase Risk to Life (RtL) for Aircrew, ground personnel and third parties. This Regulatory Article puts in place measures and procedures to mitigate this increase in RtL.

Contents

►**Definitions Relevant to this RA**◄
2325(1): Carriage of Air Weapons ►and Towed Targets◄
2325(2): Air Weapons Training and Demonstrations

Definitions

►Definitions Relevant to this RA

1. **Air Weapons**. For the purposes of this RA, air weapons are considered to include both live and inert variants of Air Launched Weapons (ALW)[1], captive carriage weapons (where the weapon is secured to the Aircraft and unable to be released or jettisoned), guns, ammunition, pyrotechnics and countermeasures containing Ordnance, Munitions and Explosives when installed on the Aircraft (not carried as cargo).◄

Regulation 2325(1)

Carriage of Air Weapons ►and Towed Targets◄

2325(1) Air weapons ►and towed targets◄ **shall** be carried in accordance with (iaw) the Release To Service (RTS) or, for non-RTS flying operations, the Military Permit to Fly ►◄.

Acceptable Means of Compliance 2325(1)

Carriage of Air Weapons ►and Towed Targets◄

2. The operation, handling and Maintenance of air weapons **should** be iaw approved data and procedures.

3. Aviation Duty Holders (ADH) or Accountable Managers (Military Flying) (AM(MF)) **should** publish orders laying down the safety precautions to be observed and procedures to be followed when ►air weapons and towed targets◄ are carried on, ►released, or jettisoned◄ from, ►Aircraft.◄

4. ADH and AM(MF) **should** ensure that warning notices detailing the dangers posed and precautions to be taken, are displayed at access points to any area where ►Aircraft◄ carrying weapons may be operating on the ground. Additionally, local bye-laws and other civil regulations that impose further restrictions **should** be adhered to.

Performance Failure of Air Weapons

5. After the performance failure of an air weapon, which includes inadvertent release of a towed target, the Aircraft Commander **should** ensure that:

a. The positions of all relevant switches / mechanisms are noted and then set to 'safe'.

b. All necessary actions are taken to minimize the risk of further hazard. In the event of a length of cable trailing from the ►Aircraft,◄ which cannot be retracted, the Aircraft Commander **should** take such action that will minimize the risk of damage to personnel and property and inform the controlling authority (if in receipt of an Air Traffic Service).

c. The incident is reported to the ground control with which the Air System is in communication, giving the location of the weapon / target and any other relevant information.

d. Air Traffic Control at the destination is informed of the incident so that the appropriate personnel may meet the ►Aircraft◄ on landing.

[1] ►ALW are defined in the MAA02: MAA Master Glossary; ALW are a subset of air weapons.◄

Acceptable Means of Compliance 2325(1)

e. A full investigation of the incident, iaw ►DSA 03 OME Part 2[2]◄, is made after landing. ►◄

Misfire and Hang-Up Precautions

6. When a misfire of ►guns,◄ ammunition, ►countermeasures,◄ rockets, guided missiles or ►stores◄ hang-up occurs, the Aircraft Commander **should** keep the weapon pointed into a safe area for the time required to allow for a late discharge. ►Thereafter, the Aircraft **should** be recovered to a suitable location appropriately able to deal with the misfire / hang-up.◄ The weapon **should** be assumed to be dangerous until rendered safe by appropriate armament personnel.

After-Flight Safety Precautions

7. At the end of every flight, the Aircraft Commander **should** ensure that ►they have◄ returned the ►Aircraft◄ to the ►appropriate◄ armed state iaw the Air System ►Document Set◄ or that no explosive armament stores are fitted.

Guidance Material 2325(1)

Carriage of Air Weapons ►and Towed Targets◄

Performance Failure of Air Weapons

8. The term 'performance failure' as stated in ►DSA 03 OME Part 2[2]◄ includes:

a. **Failure to Release or Launch**. A failure to release (ie hang-up) or launch (ie misfire) occurs when any ►air weapon or equipment◄ is retained by an ►Aircraft◄ after the normal or emergency release sequence has been completed.

b. **Irregular Release**. An irregular release occurs when any ►air weapon or equipment◄ is released, launched or fired from an ►Aircraft◄ in a different manner than that selected by the Aircrew. This includes premature or delayed releases / launches.

c. **Failure to Function**. A failure to function occurs when any ►air weapon or equipment,◄ after successful release / launch from an ►Aircraft,◄ fails to operate iaw the Aircrew pre-release selections ►(eg non detonation).◄

d. **Irregular Functioning**. Irregular functioning occurs when any ►air weapon or equipment◄ is released, launched or fired correctly, but operates in a manner different to that selected or programmed during preparation or loading. ►Such occurrences would include premature detonation of a bomb or missile warhead.

9. **Inadvertent Release**. An inadvertent release occurs when the Air System stores management system operates as selected, but not as intended (eg stores released by mistake, at the wrong instant, or as a result of incorrect switch selection).

10. Irrespective of whether a report is required by DSA 03 OME Part 2[2], a DASOR iaw RA 1410[3] may still be appropriate.◄

11. Where appropriate processes exist, the Aircraft Commander may ►delegate◄ responsibility for the replacement of safety pins to external stores to ►appropriately qualified◄ ground crew / engineers.

Regulation 2325(2)

Air Weapons Training and Demonstrations

2325(2) Air weapons training and demonstrations **shall** only be ►conducted◄ within approved areas or ranges.

[2] ►Refer to DSA 03 OME Part 2 (Formerly JSP 482), available on the gov.uk website.
[3] Refer to RA 1410 – Occurrence Reporting and Management.◄

Acceptable Means of Compliance 2325(2)

Air Weapons Training and Demonstrations

12. All air weapons training and demonstrations **should** be conducted iaw the published orders for the area to be used.

13. ►Outside a promulgated area or range, air weapons training and demonstrations **should** only be conducted at sea, iaw BRd 1043[4].◄

14. The marking of buildings for training or demonstrations **should** be iaw STANAG 3564[5].

15. Live air weapons demonstrations **should** be carried out iaw STANAG 3564[5].

Guidance Material 2325(2)

Air Weapons Training and Demonstrations

16. The details of STANAG 3564 are available to Defence Contractor Flying Organizations by request to the MAA.

[4] ►Refer to BRd 1043 - Gunnery and Guided Weapon Practices User Instructions.◄
[5] Refer to STANAG 3564 Rules for Live Air Weapons Demonstrations.

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►This RA has been substantially re-written; for clarity no change marks are presented - please read RA in entirety◄

RA 2327 - Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres

Rationale

Air Combat Manoeuvring (ACM), Basic Fighter Manoeuvres (BFM) and Basic Helicopter Manoeuvres (BHM) are core fundamental skill sets required to prepare Aircrew and Aircraft for operations in contested environments. Training for these activities is innately hazardous, involving high energy manoeuvres of Aircraft in close proximity to each other and obstacles or terrain. Therefore, those engaged in the conduct and supervision of such activity need to be appropriately qualified and must apply the highest standards of flying discipline, pre-flight preparation and briefing supported by robust orders and instructions.

Contents

Definitions Relevant to this RA

2327(1): Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres

Definitions

Definitions Relevant to this RA

1. For the purpose of this RA the following definitions apply:

   a. **Air Combat Manoeuvring (ACM)**. Multiple Aircraft conducting short range beyond visual range and within visual range tactics to defend against or engage one or more adversary Aircraft.

   b. **Basic Fighter Manoeuvres (BFM) and Basic Helicopter Manoeuvres (BHM)**. Visual manoeuvring of a single Aircraft in a simulated engagement with a single adversary Aircraft.

Regulation 2327(1)

Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres

2327(1) Supervision and conduct of ACM and BFM / BHM training **shall** be carried out by suitably qualified, competent and current Aircrew, who have been specifically authorized.

Acceptable Means of Compliance 2327(1)

Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres

2. Aviation Duty Holders and Accountable Managers (Military Flying) **should** issue orders and instructions for ACM and BFM / BHM training (as appropriate for their Area of Responsibility) stipulating the following as a minimum:

   a. The minimum height at which manoeuvring may be conducted.

   b. The minimum separation between Aircraft.

   c. The manoeuvring limits for the Aircraft.

   d. Authorizing personnel and their responsibilities.

   e. Initial qualifications, training and currency.

   f. Planning and briefing requirements, including tactics and procedures.

   g. Safety and emergency procedures.

   h. Dissimilar-type procedures.

3. Aircrew **should** only conduct ACM training once they have completed the appropriate BFM / BHM training.

Acceptable Means of Compliance 2327(1)

Joint Service and International Training

4. When ACM or BFM / BHM is part of exercises conducted between UK Armed Forces / Defence Contractor Flying Organizations (DCFO) or between UK Armed Forces / DCFO and foreign armed services, the most stringent ACM or BFM / BHM rules, applicable to any one of the participating Services / organizations, **should** be observed.

Guidance Material 2327(1)

Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres

Joint Service and International Training

5. To ease the coordination of ACM and BFM / BHM between UK Armed Forces, Air Training Rules 2020 will be used. In addition, Allied Command Europe Manual 75-2-1 ‘Fighting Edge’ air-to-air Training Rules may be used to regulate ACM and BFM / BHM between UK Armed Forces and other North Atlantic Treaty Organization nations.

RA 2330 - Low Flying

Rationale

Low Flying (LF) is a core Defence Aviation skill which delivers operational effects and reduces operational Risk. It is necessary both on operations and in training for operations and requires significant derogation from the Air Navigation Order (ANO). Historically, flight at low level has been a factor in a number of fatal Accidents and Mid-Air Collisions (MAC). It reduces the margin for error in Air System operations and can cause ►◄ annoyance to the public. To enable Risk to Life (RtL) to be managed to As Low As Reasonably Practicable (ALARP) and Tolerable, this Regulatory Article (RA) requires those engaged in the conduct and supervision of LF to ensure the highest standards of ►governance,◄ flying discipline, pre-flight preparation and briefing are maintained.

Contents

Definitions Relevant to this RA
2330(1): Low Flying Governance
2330(2): Aviation Duty Holders / Accountable Managers (Military Flying) Orders and Instructions
2330(3): Low Flying - General
2330(4): UK Low Flying System - Specific

Definitions

Definitions Relevant to this RA

Low Flying.

1. **Day.** By day, ►Aircraft◄ are to be considered to be conducting LF when:

   a. **Fixed Wing[1] (FW) ►Aircraft◄.** FW ►Aircraft◄ when operating at less than 2000 ft Above Ground Level (AGL) / Above Mean Sea Level (AMSL);

   b. **Light ►FW Aircraft[2]◄ and Rotary Wing (RW) ►Aircraft.** Light FW Aircraft◄ and RW ►Aircraft◄ are considered to be LF when operating at less than 500 ft AGL / AMSL.

2. **Night.** By Night, all ►Aircraft◄ are considered to be LF when operating at less than 2000 ft AGL / AMSL.

3. ►Aircraft◄ will not be considered to be LF:

   a. If they are ►being◄ directed by Air Traffic Control;

   b. During departure or arrival at an airfield, Helicopter Landing Site or maritime platform;

   c. During an emergency, or when making a precautionary or forced landing.

4. **►UK Low Flying System (UKLFS).** The UKLFS refers to military use of shared Class G airspace from surface to 2000 ft AGL / AMSL throughout the London Flight Information Region (FIR) and Scottish FIR. It does not include any airspace within Aerodrome Traffic Zones (ATZ), Military Aerodrome Traffic Zones (MATZ), Restricted Areas (except for EGR610; the Highlands Restricted Area) or Danger Areas. Civilian Air Traffic operates freely within the UKLFS. Aircrew planning to conduct LF should plan to do so under Visual Flight Rules (VFR) to ensure that see and avoid remains effective, unless specific circumstances accommodated within RA 2307[3] apply.◄

Regulation 2330(1)

Low Flying Governance

2330(1) LF and the UKLFS **shall** be governed.

[1] ►Excluding light Fixed Wing Aircraft – see footnote 2.
[2] Propeller driven Aircraft with a Maximum Take-Off Mass (MTOM) of 2730 Kg or less.
[3] Refer to RA 2307 – Rules of the Air.◄

Acceptable Means of Compliance 2330(1)

Low Flying Governance

5. ►Aircraft◄ **should** ►◄ comply with the LF rules of the country over which they are flying, unless UKLFS criteria or Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) orders and instructions are more restrictive, in which case the most restrictive **should** be applied.

Assistant Chief of the Air Staff (ACAS)

6. ACAS **should**:

a. ►As an ADH / AM(MF) Facing organization[4], provide a UKLFS that is appropriately managed in order to actively support ADHs / AM(MF)s to mitigate Risk in the delivery of LF;

b. Provide LF policy for use of the UKLFS by UK military-registered Aircraft;◄

c. Provide a data service to promulgate activity throughout the UKLFS and state the policy for its use;

d. Publish the policy and processes for use of the UKLFS in the UK Military Low Flying Handbook (UKMLFH), to include as a minimum:

(1) The geographic boundaries of the UKLFS by day and Night, including definitions of specific designated areas and their use;

(2) UKLFS operating hours;

(3) Booking and post-flight procedures;

(4) Action to be taken in the event of unauthorized LF;

(5) Communications procedures;

(6) Policy for airspace allocation priorities;

(7) Exercise restrictions;

(8) General and specific restrictions within the UKLFS;

(9) Airspace Reservations, Transit Areas, Avoidance Areas and warnings;

(10) Reporting of Hazards, Incidents and Accidents, including uncharted obstructions.

e. Provide a LF Booking Cell that is established as the co-ordinating authority for all UKLFS bookings; authority may be delegated to specified areas.

f. As the Defence Aeronautical Information Authority, ACAS **should** appoint an Aeronautical Information Service Provider (AISP) who will provide an Aeronautical Information Management Service (AIMS) in accordance with (iaw) RA 1030 and JSP 495[5].

►No 1◄ Aeronautical Information Documentation Unit (AIDU)

7. As ►an◄ AISP, ►No 1◄ AIDU **should** produce accurate planning documents as part of the AIMS.

Regulation and Compliance

8. RA 2307[3], RA 2335[6] and the Manual of Military Air Traffic Management (MMATM) also contain relevant supporting Regulations with respect to weather conditions and unusual air activity / exercises and **should** be followed.

[4] ►Refer to RA 1032 – Aviation Duty Holder-Facing Organizations and Accountable Manager (Military Flying)-Facing Organizations - Roles and Responsibilities.◄
[5] Refer to RA 1030 – Defence Aeronautical Information Management and JSP 495 - Aeronautical Information Policy.
[6] Refer to RA 2335 – Flying Displays and Flypasts.

Guidance Material 2330(1)

Low Flying Governance

9. ►The UKLFS may not always be a VFR environment. Rules for deviation from standard Instrument Flight Rules, conduct of tactical maritime sorties and non-tactical maritime sorties, operating in helicopter instrument practice areas and descent below Safety Altitude (SALT) are detailed in RA 2307[3].

10. Military Aircraft[7], including those conducting LF are exempt from the provisions contained in the◄ Air Navigation Order 2016 ►and the Standardized European Rules of the Air.◄ The UK Military LF Regulations described in this RA and the procedures described in the UKMLFH must be followed, including where ►military Aircrew are flying◄ civil registered ►Air Systems not owned by UK MOD or foreign military, or any other Air System not contained on the UK Military Aircraft Register.◄

11. There are several offences which may arise from the manner in which an Air System is flown. These offences include: dangerous flying (Section 33 Armed Forces Act 2006 or its amendments), LF (Section 34 Armed Forces Act 2006 or its amendments) and annoyance by flying (Section 35 Armed Forces Act 2006 or its amendments). In addition, an offence may be committed where Aircrew contravene standing orders (Section 13 Armed Forces Act 2006 or its amendments) or perform their duty negligently (Section 15 Armed Forces Act 2006 or its amendments).

12. The orders and instructions created by the ADH and AM(MF) together with the relevant parts of the Military Aviation Authority Regulatory Publications (MRP) and the Armed Forces Act 2006, provide the disciplinary framework governing ►the flying of UK military registered Aircraft.◄

13. Users of the UKLFS must be aware that the restrictions in this RA and the UKMLFH do not apply to General Aviation (GA) traffic ►and that GA is not obliged to recognize some elements such as flow arrows, MATZ, Danger Areas etc.◄

Regulation 2330(2)

Aviation Duty Holders / Accountable Managers (Military Flying) Orders and Instructions

2330(2) ADH and AM(MF) **shall** publish procedures, orders and instructions to ensure that the Risk associated with LF of ►Aircraft◄ in their Area of Responsibility (AoR) is ALARP and Tolerable.

Acceptable Means of Compliance 2330(2)

Aviation Duty Holders / Accountable Managers (Military Flying) Orders and Instructions

14. ADH and AM(MF) **should:**

a. Ensure that crews within their AoR are appropriately trained and competent to conduct LF;

b. Assure that the Risk associated with LF and use of the UKLFS is ALARP and Tolerable;

c. ►◄

15. ►ADH and AM(MF) **should** publish appropriate orders and instructions to ensure that crews within their AoR comply with LF policy.◄ As a minimum, ►these◄ orders and instructions **should** include:

a. The required Aircrew qualifications and competence levels to conduct LF on ►Aircraft◄ within ►their◄ AoR;

b. The Approval, Authorization and supervision process to conduct LF on ►Aircraft◄ within their AoR;

c. Any specific Authorization procedures for LF activity. As a minimum the Authorization **should** include;

(1) Details of the route or area of operation;

[7] ►Refer to MAA 02 – MAA Master Glossary.◄

Acceptable Means of Compliance 2330(2)

(2) **FW**[1] ►Aircraft◄. For all flying below 2000 ft AGL / AMSL the Minimum Separation Distance (MSD) **should** be stated;

(3) **Light ►FW Aircraft**[2]**◄ and RW ►Aircraft.◄** For all flying below 2000 ft AGL / AMSL, ►◄ the MSD, or Minimum Separation Criteria (MSC) ►in conjunction with AGL / AMSL,◄ **should** be stated;

d. Minimum heights for LF, ►◄ **should not** be ►less than◄:

(1) **FW ►**Aircraft[8]**◄.** 250 ft ►◄ MSD unless Authorized to conduct ►Operational Low Flying (OLF) or◄ OLF Training (OLFT);

(2) **RW ►**Aircraft**◄.** 100 ft AGL ►**/** AMSL◄ unless a lower minima is Approved within ADH or AM(MF) orders and instructions for specific ►manoeuvres[9]◄ (see Para ►16◄);

(3) **►Light FW Aircraft**[2]**.** 100 ft AGL / AMSL when conducting Practice Forced Landings (PFL).◄

e. The use and employment of ►Aircraft◄ Collision Avoidance Systems and Ground Collision Avoidance Systems, where fitted, including serviceability go / no-go criteria.

f. Any additional criteria to be applied for LF at Night in consideration of the following:

(1) Mitigation for unmarked obstacles;

(2) Additional minima to be applied to terrain and obstacle separation criteria;

(3) Equipment serviceability and minimum equipment requirements;

(4) Supervision, Authorization and currency;

(5) Minimum safe operating light levels (millilux) / environmental conditions pertinent to night vision systems used;

(6) ►Aircraft◄ de-confliction in time and space;

(7) ►Aircraft◄ lighting;

g. OLF, if applicable, as a minimum:

(1) OLF or OLFT may be Authorized lower than 250 ft MSD but **should not** be Authorized below 100 ft MSD;

(2) ►◄ OLFT **should** only be conducted within designated areas, such as Tactical Training Areas (TTA);

h. Weather minima for LF, which **should not** be less restrictive than the weather minima detailed in RA 2307[3] ►unless in possession of a valid Public Display Authorization (PDA) or Display Authorization (DA) when operating at a Flying Display or PDA work-up[10]◄;

i. Any prohibited flight profiles, training events or manoeuvres during the conduct of LF on ►Aircraft◄ within their AoR;

j. Reporting of uncharted obstructions;

k. Minimum avoidance criteria for ships and oil / gas installations;

l. For high energy FW ►Aircraft◄, detail the specific activities and maximum times when the speed limits at paras ►50a and 50b◄ can be applied;

m. Where the see and avoid principle is relied upon as a means of ►Aircraft◄ deconfliction, ADH and AM(MF) **should** define how this is to be employed and give directions on the use of other MAC, ►Controlled Flight into Terrain (CFIT) or Loss of Safe Separation (LoSS)◄ mitigation barriers.

[8] ►Including light FW Aircraft.
[9] Such as Concealed Approach and Departures, LF at 50 ft, winching activity etc.
[10] Refer to RA 2335 paragraph 103.◄

Acceptable Means of Compliance 2330(2)

16. Where the ADH or AM(MF) Approve RW ►Aircraft◄ within their AoR to operate below 100 ft ►AGL / AMSL / MSD◄ this activity **should** be specifically reflected within the Air System Safety Case (ASSC) iaw RA 1205[11].

Guidance Material 2330(2)

Aviation Duty Holders / Accountable Managers (Military Flying) Orders and Instructions

17. ►◄ ADH and AM(MF) orders and instructions will provide specific direction to their AoR as to how this RA is to be applied and define the minimum requirements to ensure that the RtL associated with the conduct of LF ►of Aircraft◄ within their AoR remains ALARP and Tolerable.

Authorization

18. Subject to MOD (ACAS)[12] Approval and allocation of airspace, ADH and AM(MF) may Authorize LF exercises in the UK or overseas subject to the following provisions:

a. ►Aircraft◄ will be routed so as not to cause unnecessary annoyance to the public, commensurate with meeting operational and training requirements.

b. ►Aircraft◄ may not be routed within:

(1) Danger Areas without the permission of the controlling authority;

(2) Any area subject to LF avoidance criteria as detailed in this RA, UKMLFH, RA 2307[3] or promulgated by Notice to Aviation (NOTAM).

19. Sponsors of all exercises within the UK FIR will notify OC Military Airspace Management Cell (MAMC) of the numbers and types of participating Air Systems together with details of proposed routes, targets, planned sortie rate and operating times, no later than 30 days in advance of the start of the activity / exercise. Procedures and information required are contained in the UKMLFH Annex A[13] ►and RA 2309[14].◄

Regulation 2330(3)

Low Flying - General

2330(3) LF **shall** be conducted to a common set of Regulations and processes.

Acceptable Means of Compliance 2330(3)

Low Flying - General

20. **Rules of the Air**. RA 2307[3] **should** also be complied with when conducting LF.

21. **LF Areas.** Unless written Authorization to the contrary has been obtained from ADH or AM(MF), LF **should** be conducted only within the confines of the UKLFS and along routes and in areas abroad which have been formally Approved by the appropriate national / local authority for use by UK military ►registered Aircraft.◄

22. **Communications**. LF crews **should** monitor a common Low Level frequency together with 243.0 MHz (Guard), whenever possible, iaw local or national procedures.

23. **Use of Identification Friend or Foe (IFF) / Secondary Surveillance Radar (SSR) Transponder.** ►Aircraft◄ **should not** LF without a serviceable IFF / SSR transponder. ►Aircraft **should** "squawk" the mode 3A / C conspicuity (and mode S where fitted) code appropriate to Aircraft type when conducting flights within the UKLFS or iaw local national procedures outside of the UKLFS.◄

24. ►◄

25. **Minimum Separation Considerations**. When Authorizing LF, the following **should** be used:

[11] Refer to RA 1205 – Air System Safety Cases.
[12] Approval can be sought via Officer Commanding (OC) Low Flying Operations Flight.
[13] Refer to UKMLFH Annex A - Use of the UK Low Flying System - A Planning Guide for Exercise Sponsors.
[14] ►Refer to RA 2309(19): Air Exercise Planning and Airspace Integration.◄

Acceptable Means of Compliance 2330(3)

a. **FW**[1] ►Aircraft◄. Flying below 2000 ft AGL / AMSL **should** be iaw MSD;

b. **Light ►FW Aircraft**[2]**◄ and RW ►Aircraft:** Flying below 2000 ft AGL / AMSL, **should** be iaw MSD or MSC in conjunction with AGL / AMSL.◄

(1) ►◄

(2) ►◄

26. **Low Flying over Congested Areas**[7] **and Public Assemblies**. ►The minimum height for Aircraft flying over Congested Areas of cities, towns and settlements **should** be 2000 ft AGL (1000 ft AGL in the case of Light FW Aircraft and RW Aircraft)[15]. Furthermore, if required, this height **should** be increased to permit a safe emergency landing or safe abandonment outside the Congested Area in the event of a power unit failure.◄

27. **Environmental, Industrial, Medical and Nature Sites**. ►Aircraft◄ **should** avoid environmental, industrial, medical and nature sites by a minimum of 2000 ft AGL and 0.25 nm laterally unless otherwise specified by local or national procedures.

28. **Free-fall Parachute Areas**. ►Aircraft◄ **should** avoid free-fall parachute areas by a minimum of 2000 ft AGL and 1 nm laterally unless otherwise specified by local or national procedures.

29. **Small Arms Ranges**. ►Aircraft◄ **should** avoid small arms ranges by a minimum of 500 ft AGL unless otherwise specified by local or national procedures.

Planning Considerations

30. All LF **should** be planned on the latest Special Air Chart (Low Flying Chart (LFC) or M5219-Air), applicable 1:50,000 series chart or ADH / AM(MF)-Approved electronic planning equipment.

31. All charts used for the planning of LF **should** include latest Chart Amendment Low Flying (CALF), NOTAM and any other relevant LF information.

32. Where an ADH or AM(MF) allows the use of electronic planning tools for LF on Air Systems within their AoR, the ADH or AM(MF) **should** ensure:

a. Electronic charts include the latest CALF, NOTAM and any other relevant LF information;

b. The information contained within electronic LFC has been appropriately Assured;

c. Electronic planning tools used on Air Systems within their AoR are appropriately Approved for flight;

d. The use of electronic planning tools is specifically reflected within the ASSC iaw RA 1205[11].

33. **Weather Limitations**. Weather limitations for LF outside UK Airspace **should** be iaw ADH or AM(MF) orders and instructions or RA 2307[3] unless the Regulations promulgated by the national or local authorities are more restrictive, in which case they **should** be adhered to

34. **Flying near Ships and Oil / Gas Installations at Sea**. ►ADH and AM(MF) **should** issue orders and instructions that specify the minimum avoidance criteria for warships[16], other shipping, and fixed and mobile oil / gas installations. When determining the minimum avoidance criteria, ADH and AM(MF) **should** consider: safe separation with any Aircraft operating to / from the ship / installation; the avoidance of interference with ship or Aircraft operations; the avoidance of any high-power radio / radar Hazards associated with the ship / installation; and any relevant local or national procedures. The following margins **should** be considered the minimum unless there is a justifiable and valid Service or Defence Contractor Flying Organisation (DCFO)[17]

[15] ►Refer to UKMLFH Section 2.
[16] ADHs and AM(MF)s **should** ensure that flights near any foreign warships are iaw with any relevant standing Operation Orders and / or Directives and that any relevant political and / or diplomatic considerations are observed.
[17] As approved under the Contractor Flying Approved Organization Scheme (refer to RA 2501 – Contractor Flying Approved Organization Scheme).◄

Acceptable Means of Compliance 2330(3)

requirement for lower and the Aircraft is specifically Authorized to operate to / from / with a particular ship for a particular sortie:◄

a. **Aircraft Carriers and ►Warships◄ Known to be Operating FW ►Aircraft**. Avoidance margin of◄ 5 nm laterally or above 3000 ft AMSL.

b. **Other Warships**:

(1) ►For◄ FW ►Aircraft,◄ 2 nm laterally or above 2000 ft AMSL ►◄.

(2) ►For◄ RW ►Aircraft,◄ sufficient to avoid interference with other ►Aircraft◄ operations.

(3) ►◄

c. ►**Shipping.** Avoidance margin sufficient to avoid interference, disturbance or disruption with any ship or Aircraft operations, but not less than 250 ft MSD, or as specified by local or national procedures (if more restrictive).

d. **Fixed or Mobile Gas Installations**. Avoidance margin sufficient to avoid interference, disturbance or disruption of operations including Aircraft operations, but not less than 1.5 nm laterally or 2000 ft AMSL, or as specified by local or national procedures (if more restrictive).◄

35. **Flying near Russian Ships**. In addition to the provisions above, Air System Commanders **should** be aware of Article IV of the Bi-lateral UK / Russia Agreement on the Prevention of Incidents at Sea, which states:

"Commanders of Air System of the Parties shall use the greatest caution and prudence in approaching Air System and ships of the other Party, in particular ships engaged in the launching or landing of Air System, and, in the interests of mutual safety, shall not permit simulated attacks by the simulated use of weapons against Air System or ships of the other Party, or dropping objects near them in such a manner as to be hazardous to ships or constitute a hazard to navigation. Such actions shall also not be taken by Air System of each Party against non- military ships of the other Party."

And

"Air System of the Parties flying in darkness or under instrument conditions shall, wherever feasible, display navigation lights.".

36. **Retention of Sortie Data**. Air System Head Up Display (HUD) and sensor data media **should** be retained for a minimum of 4 weeks, or iaw RA 1207[18], before re-use unless further retention has been requested. It is accepted that electronic data retention is limited by the volume of available electronic media; units **should** make best effort where a 4 week retention period is not achievable.

37. **Records of Flight**. A Record of Flight (RoF) for each low-level sortie **should** be completed prior to the sortie and amended post-flight to indicate any deviations. RoF **should** be retained for 6 months.

Guidance Material 2330(3)

Low Flying - General

38. **Minimum Separation Considerations**. In the sea areas of the UKLFS, outside 3 nm from the coastline, ADH and AM(MF) may Authorize LF below 250 ft MSD for specialised operational training or trials.

39. **Flying near Ships and Oil / Gas Installations at Sea**. ►For UK military ships and compatible UK military Aircraft, Embarked Aviation Orders, BRd 766[19] specifies the minimum approach distance when appropriate Electromagnetic field (EMF) Hazard mitigations may not have been applied and clearance to close has not been granted by the platform.◄

40. **Operations in support of HM Coastguard or Fishery Protection Tasks**. FW and RW ►Aircraft◄ briefed for sorties in co-operation with HM Coastguard or for

[18] Refer to RA 1207 – Air Safety Data Management and Exploitation.
[19] ►Refer to BRd 766 -Embarked Aviation Orders.◄

Guidance Material 2330(3)

fishery protection tasks may be Authorized to approach ships and fishing vessels not closer than 100 metres at a minimum height of 200 ft AMSL. Approaches will be made across the ship's quarter and on a diverging heading.

Regulation 2330(4)

UK Low Flying System - Specific

2330(4) ►Aircraft◄ operating in the UKLFS **shall** conform to common standards to minimize Risk and to avoid nuisance to the public.

Acceptable Means of Compliance 2330(4)

UK Low Flying System - Specific

41. ►**UKMLFH.** Aircraft LF in the UK **should** comply with the UKMLFH.◄

42. **Communication**. The full UKLFS communications procedures are detailed in the UKMLFH and **should** be used when operating in the UKLFS.

43. **IFF / SSR**. ►Aircraft◄ operating within the UKLFS **should** transmit iaw the UKMLFH.

44. **Exercises Involving Warships.** SSR **should** only be selected to standby if required for tactical purposes, and in this circumstance, only for the minimum time needed to achieve the aim.

45. **Avoidance Criteria**. The avoidance criteria contained in this RA, RA 2307[3] and the UKMLFH **should** be adhered to when operating in the UKLFS.

46. **TTA.** OLF **should** be pre-booked iaw the procedure detailed in the UKMLFH. When TTA are active, the airspace is allocated to a single military ►Aircraft◄ / Formation; activity in the overlapping LFAs **should** be subject to height restrictions and detailed in the UKMLFH.

47. **Transit Areas**.

a. FW ►Aircraft◄ **should not** overfly Transit Areas below 2000 ft AGL;

b. RW ►Aircraft◄ (Maximum All Up Mass >5700 kg) **should not** overfly Transit Areas below 1000 ft AGL;

c. All other ►Aircraft◄ **should not** overfly Transit Areas below 500 ft AGL in rural areas, and 1000 ft AGL in Congested Areas;

d. Transit Areas **should** be considered as Congested Areas for the purposes of conducting a flypast under RA 2335[6].

48. **Avoidance Areas.**

a. FW ►Aircraft◄ **should not** enter Avoidance Areas without the prior Approval of OC MAMC. When Approved, the ►◄ height **should not** be less than 2000 ft AGL, except when complying with RA 2335[6].

b. RW and light ►FW Aircraft[2]◄ may enter Avoidance Areas but, without the prior Approval of OC MAMC, **should** remain above 500 ft AGL in rural areas and 1000 ft AGL in Congested Areas.

49. When transiting the Thames Valley Avoidance Area (TVAA) under Controlled Airspace the limits from the UKMLFH apply. If sufficient height cannot be maintained (consider if forced down by weather or other cause), a flight path **should** be chosen to avoid overflight of the Congested Area, wherever possible, unless doing so would endanger the ►Aircraft.◄

50. Flying over any place where large numbers of people are assembled, or a public assembly is taking place **should** be prohibited below 1000 ft AGL except when:

a. Approved by MOD[12];

b. In connection with Flying Displays, Role Demonstrations or Flypasts conducted in iaw RA 2335[6];

c. It is necessary to do so while carrying out arrival or departure.

Acceptable Means of Compliance 2330(4)

51. Flypasts over Central London (eg R160 'the Specified Area') **should** obtain prior Approval from ACAS through OC MAMC.

52. **Speed Limitations Within the UKLFS**. ►The following speed limitations **should** be adhered to:

a. A maximum cruise speed of 450 Kts;

b. For specific tactical flying activities Approved by the ADH or AM(MF):

(1) Operating height at or below 150 ft MSD. Maximum speed for short-term activity **should** be 500 KIAS;

(2) Operating height above 150 ft MSD. Maximum speed for short-term activity **should** be 550 KIAS;

c. When in connection with Flying Displays, Role Demonstrations or Flypasts, these **should** be iaw with RA 2335[6].◄

53. ►◄

54. **Use of Reheat**. Reheat **should not** be used within the UKLFS except for essential training requirements, Air System emergencies or Authorized Flying Displays, Role Demonstrations or Flypasts conducted iaw RA 2335[6].

55. **UKLFS Warnings.** The UKMLFH lists warnings Aircrew **should** be aware of when operating within the UKLFS.

Guidance Material 2330(4)

UK Low Flying System - Specific

56. Nil.

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RA 2335 - Flying Displays, Display Flying, Role Demonstrations and Flypasts

Rationale

Military involvement in Flying Displays, Display Flying, Role Demonstrations and Flypasts[1] plays an important role in Defence Engagement in the UK and abroad. These activities also allow Heads of Establishment (HoE)►[2]◄ to engage with the families and friends of serving military personnel, and Commanders to engage with their local communities. Flying Displays, Display Flying, Role Demonstrations and Flypasts can involve Aircraft operating in close proximity to gatherings of people; this activity involves an increase in Risk to Life (RtL) over normal operating and if not managed effectively this Risk could become intolerable. This Regulatory Article (RA) regulates all UK military registered Aircraft[3] (when conducting Display Flying, Role Demonstrations and Flypasts (Mil) worldwide) and foreign military registered Aircraft (when conducting Display Flying, Role Demonstrations and Flypasts (Mil) in the UK); additionally, it regulates all Flying Displays held over MOD-Occupied Property[4] in the UK, and, Flying Displays held over non MOD-Occupied Property in the UK that involve military registered Aircraft only. It ensures that appropriate individuals are made responsible for all facets of planning, organizing, managing and delivering Flying Displays, Display Flying, Role Demonstrations and Flypasts (Mil) to ensure RtL remains As Low As Reasonably Practicable (ALARP)[5] and Tolerable.

Contents

Applicability of this RA
Definitions Relevant to this RA
2335(1): Flying Display Organization and Management
2335(2): Display Flying, Practises, Role Demonstrations and Flypasts (Mil)
2335(3): Separation Distances, Minima and Restrictions

Applicability

Applicability of this RA

Applicability of this RA. When conducting Flying Displays, Practises and validations this RA applies to the following:

a. The HoE, Event Organizers (EO) and Flying Display Directors (FDD) of Flying Displays held over MOD-Occupied Property.

b. Aviation Duty Holders (ADH), Accountable Managers (Military Flying) (AM(MF)), EO and FDD involved in Display Flying over non MOD-Occupied Property that involves UK military registered Aircraft only.

c. All personnel involved in conducting Display Flying, Role Demonstrations or Flypasts (Mil) utilizing military registered Aircraft[6].

d. All personnel involved in conducting Display Flying or Flypasts utilizing civil registered Aircraft over MOD-Occupied Property.

e. All foreign military registered Aircraft when conducting Display Flying, Role Demonstrations and Flypasts (Mil) in the UK.

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[1] Words and terms in this Regulation with capitalization are defined in either MAA 02: ►MAA Master Glossary◄ or ►UK◄ CAA CAP 403.

[2] ►Refer to MAA02 – MAA Master Glossary. Note that the MAA02 definition of HoE requires all MOD establishments to have a HoE and, for the context of this Regulation, where a Defence Contractor Flying Organization is also the operator of an unlicensed non-MOD Aerodrome then by definition a HoE will be in place. Additionally, the term HoE also includes Commanding Officers of aviation capable His Majesty's (HM) / MOD Ships.◄

[3] That is any Aircraft on the Military Aircraft Register or any Aircraft ►utilized and piloted◄ by the MOD.

[4] The term 'over MOD-Occupied Property' refers to Display Flying, Role Demonstration or Flypast activity conducted for personnel located within the boundaries of an MOD site even if the activity is conducted over civilian land or water.

[5] Refer to RA 1210 – Ownership and Management of Operating Risk (Risk to Life).

[6] This includes all military registered Remotely Piloted Air Systems (RPAS) detailed in the RA 1600 Series: Remotely Piloted Air Systems.

Definitions

Definitions Relevant to this RA

2. **Aerobatic Manoeuvres.** Intentionally performed manoeuvres which involve angles of pitch or bank greater than 90º to the horizon or yawing through angles greater than 20º. Exceptions to this definition are:

   a. Stalling and spinning.

   b. Operational training manoeuvres stipulated by ADH / AM(MF).

   c. Yawing turns in Rotary Wing Aircraft and Vertical and Short Take-Off and Landing (VSTOL) Aircraft.

   d. Trials or air weapons range manoeuvres stipulated by appropriate authorities.

3. **Car Parks.** Where the term 'Car Park' is used in this RA, it applies to Car Parks to which Spectators have access during Flying Displays, Role Demonstrations or Flypasts and as such will be considered in the same manner as the Spectator Area.

4. ►UK◄ **Civil Aviation Authority (CAA) Flying Display Permission.** A Permission granted by the ►UK◄ CAA for a Flying Display in accordance with (iaw) the Air Navigation Order (ANO) and Civil Aviation Publication (CAP) 403►[7]◄ through either an Article 86 Permission or a Standardised European Rules of the Air (SERA) 5005(f)(2) Private Flying Display Permission; throughout this RA these are referred to as a ►UK◄ CAA Flying Display Permission.

5. **Congested Area[8].** Any area which is substantially used for residential, industrial, commercial or recreational purposes.

6. **Crowd Line.** The line delineating the closest edge of any area, including Car Parks, accessible to Spectators with respect to the Display Area / Display Line.

7. **Display Area.** The Display Area is the ground area footprint of the airspace within which displaying Aircraft may be manoeuvred below the following heights; subject to the limits of the ►UK◄ CAA Flying Display Permission (if applicable), any restrictions imposed by the FDD, and the individual Participant's Public Display Authority (PDA) or Display Authorization (DA):

   a. Military Aircraft:

      (1) 500' Minimum Separation Distance (MSD) for Aerobatic Manoeuvres.

      (2) 250' MSD for Non-Aerobatic Manoeuvres in Fixed Wing Aircraft.

      (3) 100' MSD for Non-Aerobatic Manoeuvres in Rotary Wing Aircraft.

   b. Civilian Aircraft[9]:

      (1) SERA.5005(f)(1) and SERA.5005(f)(2).

8. **Display Authorization (DA).** A national document detailing the groups and categories of civilian Aircraft in which a pilot is authorized to display, together with any limitations and other specific endorsements.

9. **Display Datum.** The Display Datum is the point on the Display Line upon which individual displays are based and is normally the centre point of the crowd[10].

10. **Display Flying.** Any flying activity designed to demonstrate an Aircraft's performance beyond that normally carried out during routine operations and training, whether or not it is performed in front of the public. A DA, PDA or foreign equivalent is required (except during Display Flying work-up training as per RA 2335(2)).

11. **Display Flying Supervisor.** A Suitably Qualified and Experienced Person (SQEP) selected by the ADH / AM(MF) to supervise Display Flying Aircrew during their work-up period and throughout the display season.

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[7] ►Refer to CAP 403 – Flying Displays and Special Events: Safety and Administrative Requirements and Guidance.◄

[8] Refer to Schedule 1 of the ANO 2016 ►or UKMLFH.◄ For planning purposes and clarification, a golf course attached to a Congested Area is considered part of that Congested Area and must be treated as such when considering overflight restrictions.

[9] Civil registered Aircraft limitations and minima are detailed in the ANO, SERA.5005 Visual Flight Rules and CAP 403.

[10] FDD may elect not to mark the Display Datum if there is a suitable and easily recognisable physical feature in the correct position.

Definitions

12. **Display Team / Display Item.** A single, formation or group of Aircraft, flying as one single display 'act' throughout.

13. **Display Line / Display Axis.** A line defining the track along which displaying Aircraft may operate.

14. **Display Pilot.** A pilot who holds a DA, DA Exemption, or civilian equivalent issued by their National Aviation Authority, or a military PDA, which allows them to participate in a Flying Display.

15. **Display Sequence.** The Display Sequence is a complete list of all the individual manoeuvres, in chronological order, that are intended to be demonstrated by a Participant during a Flying Display[11].

16. ►**Display Site.** The Display Site is the combined area encompassing the Display Area and the surrounding airspace utilized for the Flying Display. ◄

17. **Event Organizer (EO).** The EO is the person responsible for all matters pertaining to the wider planning and execution of an event that includes a Flying Display and for the Safety of the general public, both at the event and those affected by the wider impacts of the event.

18. **Flying Control Committee (FCC).** A group of suitably experienced persons appointed to assist the FDD with the Safety Management of a Flying Display.

19. **Flying Display.** Any event at which Display Flying is deliberately performed for the purpose of providing an exhibition or entertainment. ►For the purpose of this RA a Flying Display commences when the first Aircraft begins Display Flying to the point the last Aircraft finishes Display Flying.◄

20. **Flying Display Director (FDD).** The person responsible for the safe conduct of a Flying Display[12].

21. **Flying Display Director Mentor (FDD Mentor).** A FDD that has been accredited under the joint ►UK◄ CAA / MAA FDD accreditation scheme so endorsed as to permit mentoring of aspiring FDDs[13].

22. **Flypast (Mil).** A Flypast (Mil) involves military registered Aircraft flying, either singly or in formation, over or past a gathering of Spectators along a pre-planned route without manoeuvring, other than when necessary for safe and accurate navigation ►or repositioning.◄ Accordingly, ►Flypasts◄ will not include Aerobatic Manoeuvres ►but may include up to 3 pre-planned passes.◄

23. **High and Low Energy Display Flying.** Display Flying is considered High Energy if it contains Aircraft with a Max Take Off Mass of >1200 kg or the Aircraft display at >150 Knots Indicated Air Speed (KIAS); all other Display Flying is considered Low Energy.

24. **MOD-Occupied Property[14].** An Aerodrome in the occupation of the MOD or of any visiting force in the UK[15] or any other premises in the occupation or under the control of the MOD.

25. **Participant.** An airborne performer or any person directly involved in the conduct of ►◄ Display Flying, Role Demonstrations or Flypasts.

26. **Public Display Authority (PDA).** A document detailing the Display Sequence or individual manoeuvres a military Display Pilot is authorized to conduct in a specific Aircraft, together with any limitations and other specific endorsements.

27. **Role Demonstration.** Any flying activity designed to demonstrate an Aircraft's performance commensurate with that normally carried out during routine operations and training.

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[11] The CAP 403 equivalent is a Display Routine - A series of linked manoeuvres to be performed during a Flying Display.
[12] The EO and FDD might in some cases be the same person.
[13] The ►UK◄ CAA and MAA review the FDD accreditation list annually and invite SQEP Tier 3 FDD's to become FDD Mentors. Whilst FDD Mentors are usually Tier 3, experienced FDDs from Tier 1 and Tier 2 will be considered but will not mentor a FDD of a higher Tier.
[14] As defined in CAP 403 and ANO 2016, Article 86 Para 15 (a).
[15] Visiting Force is any visiting foreign military in this context.

Definitions

28. **Secondary Spectator.** A person viewing a Flying Display from a location which has not been specifically designated for Spectators by the EO or FDD. This definition may include third parties.

29. **Spectator.** A person attending a Flying Display specifically to witness the event.

30. **Spectator Area.** An area specifically designated for Spectators by the EO or FDD and approved by the FDD for Flying Display Safety purposes which includes all areas to which Spectators have access during the Flying Display.

Regulation 2335(1)

Flying Display Organization and Management

2335(1) All Flying Displays, Practises and Validations **shall** be planned, managed, organized and delivered ensuring RtL is ALARP and Tolerable.

Acceptable Means of Compliance 2335(1)

Flying Display Organization and Management

31. **Applicability of this Regulation.** RA 2335(1) **should** apply to:

a. The HoE, EO and FDD of all Flying Displays held over MOD-Occupied Property;

b. ADH / AM(MF), EO and FDD for events held over non MOD-Occupied Property where the only Participants are military registered Aircraft.

HoE Responsibilities

32. **HoE**. The HoE **should**:

a. Be accountable for planning, managing, organizing and delivering a Flying Display, assuring themselves that RtL is ALARP and Tolerable.

b. Issue Terms of Reference (ToRs) to the EO and FDD that appropriately bound their responsibilities (see para ►63◄ for guidance).

c. Provide a safe operating environment within which Aircraft can conduct Display Flying.

d. As an ADH-facing ►and AM(MF)-facing◄ entity, actively support the relevant ADH / AM(MF), or equivalent, in their management of Air Safety and identify any decision, activity or change in circumstances that has the potential to introduce new or increased RtL to an ADH / AM(MF)'s operations, or which challenges the achievement of their ALARP and Tolerable status[16].

33. **Appointing Flying Display Executives.** The HoE **should** appoint suitably experienced Flying Display Executives as follows:

a. **EO.** The post of EO **should** be held by a suitably experienced person.

b. **FDD.** The post of FDD (and Deputy FDD, when appointed) **should** be held by a SQEP who **should not** be a Participant in the Flying Display. Additionally, the FDD **should**:

(1) Hold a valid FDD accreditation for the Tier of Flying Display being held, iaw para 40, ►66, 67 and 68.◄

(2) Be current for the Tier of Flying Display being held, iaw para 40, ►66, 67, 70 and 71.◄

c. The FDD **should** have primacy over the EO in all matters concerning Air Safety.

34. **Flying Displays held over non MOD-Occupied Property with military registered Aircraft only.** Where a Flying Display is held over non MOD-Occupied Property and / or there is no HoE, the EO ►or FDD◄ **should** accept Accountability for the HoE responsibilities listed at para 32, 33, 48 and 52 of this RA. If the EO ►or

[16] ►Refer to RA 1032 – Aviation Duty Holder-Facing Organizations and Accountable Manager (Military Flying)-Facing Organizations - Roles and Responsibilities.◄

Acceptable Means of Compliance 2335(1)

FDD◄ is unable or unwilling to accept Accountability the Flying Display **should not** involve military registered Aircraft.

ADH / AM(MF) Responsibilities

35. **ADH / AM(MF) Responsibilities.** ADH / AM(MF) **should** retain responsibility for the safe operation of Aircraft in their Area of Responsibility (AoR) when they are involved in Display Flying, Role Demonstrations and Flypasts (Mil).

36. ADH / AM(MF) **should** ensure that Display Flying conducted by Aircraft within their AoR is specifically included within the Air System Safety Case (ASSC)[17].

Authority and Permissions

37. **Authority to conduct Flying Displays.** Authority to conduct a Flying Display over MOD-Occupied Property **should** be given by the HoE and the MAA informed (DSA-MAA-Display-Forms@mod.gov.uk) at least 42 days prior to the event using RA 2335 Form 1 (Flying Display Notification Form). ►The HoE **should** detail in orders the◄ administrative arrangements for such events ►◄.

38. **Events over non MOD-Occupied Property in the UK.** Where an event is held over non MOD-Occupied Property, military registered Aircraft **should** only conduct Role Demonstrations or Flypasts (Mil), unless a ►UK◄ CAA Flying Display Permission is in place.

a. **Flying Displays over non MOD-Occupied Property in the UK with military registered Aircraft only.** Such events are MAA regulated for which a ►UK◄ CAA Flying Display Permission ►will not◄ be issued; in these circumstances a Participant's ADH / AM(MF) **should** (providing they assess the activity is appropriate, ALARP and Tolerable) apply to the MAA for a Waiver to para 38 iaw MAA03[18] having:

(1) Assured themselves that an EO and FDD have been appointed.

(2) Ensured that the EO understands and accepts Accountability for planning, managing, organizing and delivering the ►Event.◄

(3) Ensured that the FDD understands that this RA applies to the event and complies with its requirements fully.

(4) ►Assured themselves that the FDD has conducted a Risk Assessment in lieu of a HoE as per para 32.◄

(5) Confirmed that the venue is suitable for their Aircraft to conduct Display Flying.

b. Where there are multiple Participants and more than one ADH / AM(MF), the ADH / AM(MF) with the most Aircraft involved in the Flying Display **should** liaise with the other Participants ADH / AM(MF) prior to submission of a combined Waiver request, covering all Aircraft involved, to the MAA.

39. **Participation of non-Release to Service (RTS) UK military registered Aircraft.** Participation of non-RTS UK military registered Aircraft at Flying Displays, Role Demonstrations or Flypasts (Mil) **should** be approved by the Aircraft ADH / AM(MF). Such activity **should** conform with the Air System Military Permit to Fly ►◄. The MAA **should** be informed of such activity (DSA-MAA-Display@mod.gov.uk) at least 14 days prior to the event.

40. **Flying Display Categorization.** The following criteria **should** be used by HoE, EO and FDD in conjunction with Table 1 to categorize Flying Displays into Tiers[19]; FDDs **should** be accredited to at least the same Tier as that of the Flying Display:

a. **High ►and◄ Low Energy** ►Display Flying (as per para 23).◄

b. **Complexity.** HoE, EO and FDD **should** consider the following criteria when making a judgement on whether an event is High or Low complexity:

[17] Refer to RA 1205 – Air System Safety Cases.
[18] Refer to ►Annex B◄ of MAA03: MAA Regulatory Processes.
[19] The MAA may increase the Tier of event anticipated by the HoE, EO and FDD.

Acceptable Means of Compliance 2335(1)

(1) **Airspace.** Consider the complexity of the airspace surrounding the display venue, including proximity to Controlled Airspace or areas with specific limitations that may affect the type of Aircraft displaying.

(2) **Geography.** Consider the Hazards posed by the terrain along with the event layout.

(3) **Congested Areas.** Consider the proximity, density and size of Congested Areas.

(4) **Secondary Spectators and Third Parties.** Consider the likelihood and controllability of Secondary Spectators and third parties gathering outside the designated Spectator Areas►◄ and any effect the Flying Display might have on members of the public in the vicinity. Consider the proximity of major roads, railway lines and local infrastructure and how busy they are likely to be during the event.

(5) **Display Length.** Consider the effect of the Flying Display window on deconfliction issues, eg 3 items over 2 hours may be less complex than 3 items over 15 minutes.

(6) **Display Team►[20]◄ / Display Item Size.** Consider the number and type of Aircraft in a Display Team / Display Item with respect to the size and nature of the display venue.

(7) **Event Type.** Consider the type of event and how Display Flying activity is integrated; ►ie◄ is the Flying Display the focus of the event or just an additional attraction?

Table 1. Flying Display Tiers

No of Items[20]	Low Complexity Low Energy	Low Complexity High Energy	High Complexity Low Energy	High Complexity High Energy
1	Tier 1	Tier 1	Tier 1	Tier 1
2-3	Tier 1	Tier 2	Tier 1	Tier 2
4-7	Tier 1	Tier 2	Tier 2	Tier 2
8-12	Tier 2	Tier 2	Tier 2	Tier 3
13+	Tier 3	Tier 3	Tier 3	Tier 3

Note: Any Flying Display with a High Energy Display Team of 3 or more Aircraft **should** be categorized as a minimum Tier 2.

EO, FDD and FCC Responsibilities

41. **EO.** The EO **should** be responsible for all matters pertaining to the wider planning and execution of the event. As a minimum the EO **should**[21]:

a. Be responsible for the production of an event Risk Assessment.

b. Ensure that appropriate insurance arrangements are in place for all participating Aircraft, whether participating as a Static Display, Flypast, Role Demonstration or conducting Display Flying[22].

42. **FDD.** At events over MOD-Occupied Property the FDD is responsible to the HoE for the safe conduct of the Flying Display. As a minimum, the FDD **should** be responsible for[21]:

a. Designating a Display Area. Details of Obstacles, Hazards, Structures occupied by non-essential personnel and any anticipated areas of Secondary Spectators or third parties within the Display Area **should** be annotated on a 1:50,000 scale map which is promulgated to all Participants at least 42 days prior to the event.

[20] A Display Team is classed as a single Display Item.
[21] This list is not exhaustive, and the HoE may wish to expand responsibilities within ToRs.
[22] For insurance requirements see JSP 360 - ►Use of Military Aerodromes by Civil Aircraft◄, Part 2: ►Guidance◄, Chapter 2: ►Insurance and Fees◄, Para 4.

Acceptable Means of Compliance 2335(1)

b. Hazard identification and the subsequent assessment of Risk, application of control measures and mitigations associated with the Flying Display elements of an event;

c. Production and promulgation of a Flying Display Risk Assessment to all Participants at least 42 days prior to the event.

d. The coordination, control and Safety of all flying activities conducted as part of a Flying Display.

e. Monitoring flying discipline during a Flying Display.

f. The scrutiny of all Participants' DA, DA Exemption, PDA or foreign Participants national equivalents for regulatory compliance.

g. The briefing (including the production of written Display Pilots' notes) and debriefing of all Participants.

h. Control of the Flying Display programme and cancellation or modification of the programme in the case of adverse weather or other conditions that directly affect the Flying Display.

i. The appointment and management of a FCC, if applicable (see para ►43◄ and ►44◄).

j. Ensuring appropriate orders or instructions for the Flying Display are in place, including orders or instructions for Incident and Post-Crash Management.

k. Coordinating the completion and submission of RA 2335 Form 2 (Foreign Military Participant Application Form) seeking Approval from the MAA (DSA-MAA-Display-Forms@mod.gov.uk) for foreign military registered Aircraft involvement at least 42 days prior to the event and RA 2335 Form 3 (Foreign Military Participant Validation Form) iaw para 46 and ►77.◄

l. Event Occurrence reporting.

m. Ensuring the Local Authority Safety Advisory Group (SAG) is involved in the planning from the earliest opportunity possible.

n. Ensuring appropriate airspace reservations have been considered iaw CAP 403 and the relevant submissions are made using ►UK◄ CAA on-line Airspace Coordination and Obstacle Management form within the timescales specified[23].

o. Providing written feedback to the MAA (DSA-MAA-Display-Forms@mod.gov.uk) using RA 2335 Form 4 (Flying Display Director Post Event Feedback Form) within 7 days of the event.

p. When appointed, issue the FCC with ToRs that bound its responsibilities.

43. **FCC.** An FCC **should** be appointed by the FDD for Flying Displays where there are 4 or more Display Items.

44. **FCC Responsibilities.** As a minimum, the FCC's responsibilities **should** include:

a. Assisting the FDD with the safe ►delivery◄ of the Flying Display.

b. Assisting the FDD to monitor the standard and Flying Display related discipline of Participants.

c. Assisting the FDD in the validation of any display Participants, if required.

d. Providing the FDD with specialist knowledge regarding Display Items.

e. Providing the FDD with SQEP opinion in the case of any regulatory infringements or concerns regarding flying discipline.

f. Advising the FDD on restrictions or additional limitations if required.

[23] The establishment of a Restricted Airspace (Temporary) (RA(T)) requires the issue of a statutory instrument by the Department for Transport and ►requires notification◄ a minimum of 90 days in advance of the event. RA(T) applications ►are◄ requested from and submitted to the ►UK◄ CAA Airspace Regulation department at: AROps@caa.co.uk.

Acceptable Means of Compliance 2335(1)

g. Monitoring the conduct of all display Participants for regulatory compliance.

h. Intervening or stopping, on the grounds of Safety, any display Participant or, in extreme cases where the FDD cannot be consulted, the whole Flying Display.

i. Being available throughout the period of the Flying Display.

Foreign Military Participants at Flying Displays in the UK

45. **FDD Responsibilities.** If foreign military Aircrew[24] intend to participate at a Flying Display in the UK, the FDD **should** ensure that:

a. Foreign military Participants are approved to conduct Display Flying, Role Demonstrations or Flypast (Mil) at Flying Displays in the UK by the MAA.

b. Foreign military Participants are validated to conduct Display Flying, Role Demonstrations or Flypast (Mil) at Flying Displays in the UK, if required (see para ►46◄ and ►77◄).

c. A completed RA 2335 Form 2 (Foreign Military Participant Application Form) is submitted to the MAA (DSA-MAA-Display-Forms@mod.gov.uk) at least 42 days prior to the event.

d. The foreign military Participant submits the planned (zero wind speed) ►◄ Display Sequence ►◄ to the FDD ►which◄ **should** include detail on minimum heights and maximum speeds for each manoeuvre. The FDD **should** use this information to confirm the Participant complies with this RA ►and that◄ the Display Sequence is suitable for the Display ►Site. Confirmation that the sequence is suitable **should** be included within the RA 2335 Form 2 submission. A map showing the Display Site with the Display Sequence footprint overlaid may be included with the Form 2 submission or provided when requested by the MAA. The FDD **should** ensure◄ the Display Item ►is included within the◄ Flying Display Risk Assessment ►◄.

e. Where a foreign military display Participant has a nationally approved sequence (PDA or equivalent) which does not adhere to the limits within this RA then the ►HoE (or equivalent accountable individual for a UK CAA regulated event), working with the FDD or EO,◄ **should** consider which is safer; to request the foreign display Participant to change the approved display or to submit a Waiver request[18] to the MAA to allow the nationally approved sequence to be flown.

46. **Foreign Military Participant Validations.** If required by the MAA, HoE, EO or the FDD, the validation of such Participants **should** be conducted by the FDD, or a suitably experienced individual nominated by, and on behalf of, the FDD.

a. **Validation Reporting.** The FDD **should** complete and submit RA 2335 Form 3 (Foreign Military Participant Validation Form) to the MAA (DSA-MAA-Display-Forms@mod.gov.uk) prior to the Flying Display for which the validation is intended. For further guidance see para ►77.◄

b. **Validation during a Flying Display.** Validation of a Participant **should not** take place during the Flying Display for which the validation is intended. ►Validation may take place on the day of a Flying Display but in order to protect Spectators, Secondary Spectators and third parties, validation **should not** take place after the arrival on site of the first Spectator through to the departure from site of the last Spectator.◄

c. **Validation in areas where overflight of Third Parties or Secondary Spectators cannot be avoided.** When validating a Display Sequence at a venue where the display footprint either overflies or could overfly third parties or Secondary Spectators, then the FDD **should** assess the Risk to these persons and, if appropriate, conduct validation at an alternative location. If the Risk to third parties and Secondary Spectators cannot be avoided, then the HoE

[24] For further guidance ►on foreign military registered Aircraft Participating at UK Flying Displays◄ see para ►76-77.◄

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should ensure the Risk is ALARP and Tolerable and record the decision appropriately.

Foreign Military Registered Aircraft conducting Flypasts (Mil) at Other Events

47. **Foreign Flypast (Mil).** Foreign military registered Aircraft conducting a Flypast (Mil) at an event other than a Flying Display in the UK do not require formal MAA Approval; however, the relevant sections of RA 2335 Form 2 (Foreign Military Participant Application Form) **should** be submitted to the MAA (DSA-MAA-Display-Forms@mod.gov.uk) at least 14 days prior to the event and the activity **should** be conducted iaw RA 2330[25] and the UK Military Low Flying Handbook (UKMLFH)[26].

Safety Considerations

48. **Secondary Spectators and Third Parties.** The HoE, EO and FDD **should** take all reasonable steps to minimize the Risk to Secondary Spectators and third parties. Particular consideration **should** be given to the following:

a. **Congested Areas.** Flight over Congested Areas **should** be conducted iaw RA 2330[25]. Where flight over Congested Areas cannot be undertaken iaw RA 2330[25] the HoE, working with the FDD ►and / or EO◄, **should** put in place appropriate mitigations to ensure RtL is ALARP and Tolerable and request a Waiver against RA 2330[25], iaw MAA 03[18].

b. **Roads and Railways.** The HoE, working with the FDD and EO, **should** put in place and record appropriate mitigations to ensure RtL is reduced to ALARP and Tolerable for third parties on busy roads and railways surrounding a Flying Display venue.

c. **Secondary Spectators.** The HoE, working with the EO, **should** identify areas likely to be occupied by Secondary Spectators and take all reasonable steps to prevent Secondary Spectators gathering in high-Risk areas**.** Prevention will not always be possible; in this case the EO **should** take all reasonable steps to inform Secondary Spectators of the Risk to them and record the mitigations taken.

d. ►**Third Parties.** The HoE, working with the EO, **should** identify areas likely to be occupied by third parties and take all reasonable steps to relocate them**.** This may not always be possible; in this case the EO **should** take all reasonable steps to inform third parties of the event. The HoE **should** ensure that any RtL is reduced to ALARP and Tolerable and record decisions made and mitigations taken.◄

e. **Curtailing a Flying Display due to Secondary Spectators or Third Parties.** The presence of Secondary Spectators or third parties may not automatically require a Flying Display to be curtailed or abandoned; an EO and / or FDD **should** use their judgement to assess the Risk against the mitigations taken and satisfy the HoE that all reasonable steps to ensure any RtL is reduced to ALARP and Tolerable.

49. **Arrivals and Departures at Flying Display venues.** All arrivals and departures at display venues **should** be conducted iaw Aerodrome procedures and / or extant Regulations.

50. **Use of PDA or DA privileges during arrivals and departures.** Participants **should not** use the privileges of their PDA or DA during arrivals or departures unless explicitly approved by the FDD; such Approvals **should** be limited to pre-arranged Display Flying practises or when the arrival or departure is conducted as part of the Display Sequence during the Flying Display itself.

51. **Minimum Public Safety Considerations.** HoE, EOs and FDDs **should** ensure that, as a minimum, the following specific requirements for public Safety are met:

a. Spectator Areas **should** be clearly delineated by barriers. At display venues where the Spectator Area also has defined sides, the Crowd Line, for the purpose of an Aircraft maintaining the correct lateral separation distances,

[25] Refer to RA 2330 – Low Flying.
[26] UKMLFH para 01.04.07 and 01.04.08 refers.

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should be considered to run along the front and down the sides of the Spectator Area.

b. Adequate markings **should** be set up in the Display Area to enable Participants to maintain appropriate separation from the Spectator Areas. Details of ground markings and lateral separation distances are at paras ►54◄ and ►112◄ respectively.

c. Aircraft approach and departure routes to the Display Area **should** be chosen to avoid overflight of Spectator Areas. These routes **should** minimize Risk for adjacent Congested Areas, see paras ►48a◄ and ►103.◄

d. Aircraft parking areas **should** be out of bounds to Spectators when engines are running or Aircraft are taxiing ►within the parking area.◄

e. Suitable routes for emergency vehicles **should** be established, clearly marked, and kept free from obstruction at all times.

f. Participants **should** advise the FDD of specific Hazards relating to their Aircraft. The EO and / or FDD **should** check the hazardous materials of military registered Aircraft on the MOD Aircraft Crash Hazards Document Set (accessible via MOD computer systems only)[27].

52. **Risk Management.** The HoE, working with the EO and FDD, **should** ensure that Hazards to public Safety specific to their event are identified and that Risk Assessments are carried out. The core elements of a Risk Assessment, that focuses on RtL, that **should** be conducted are:

a. Hazard identification.

b. Assessment of the Risk (likelihood, consequence, who is exposed, existing mitigation, and accountability).

c. Reduce Risk until ALARP. Ensure residual Risk is Tolerable.

d. Record significant findings.

e. Monitor and review.

53. HoEs **should** maintain clear, unambiguous and auditable records of each of their Risks including details of Risk decisions and periodic Risk reviews.

54. **Main Display Line and other Ground Markings.**

a. Full use **should** be made of existing ground features such as Runways or taxiways, supplemented as necessary by other visual means including markers (preferably with vertical extent) and lighting. Markers **should** be fixed firmly to minimize the effect of downwash.

b. The Main Display Line **should** be 230 m from the Crowd Line and parallel to it.

c. FDDs **should** consider recognizable and / or compelling features that may be a distraction to Participants when considering how to mark the Main Display Line, eg a non-parallel taxiway or Runway[28].

d. FDDs **should** mark the Display Datum if there is not a suitable and easily recognisable physical feature to identify the correct position[28].

e. FDD **should** provide additional markings to assist Participants ►to◄ identify appropriate minimum ►lateral◄ separation distances from the Crowd Line for various aspects of each Participants' Display Sequence, where these are different from the 230 m minimum separation distance. If used, FDD **should** ensure that Participants are fully briefed on their position and meaning iaw para ►42g.◄

[27] MOD Aircraft Crash Hazard information can be obtained from the RAF Events Team, Royal Navy or Joint Helicopter Command Flying Display Tasking Cells, from the Display Teams themselves or, in extremis via the RAF Regional Liaison Officer (RAFRLO).
[28] The FDD may elect not to mark features such as Display Datum, supplementary Display Lines and even the Main Display Line if there is a suitable and easily recognizable physical feature, at least the minimum required lateral separation distance from the Crowd Line, and in the correct orientation.

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55. **Control of Explosives and Pyrotechnics.** The use of explosives and blank ammunition for simulated ground-bursts, smoke, pyrotechnics or other special effects displays during a Flying Display **should** be strictly controlled by a competent person appointed by the EO. Debris from such effects **should not** impinge on Aircraft, Spectators, third parties or the Runway / taxiways and the scale of any effects **should** be known prior to the event. Briefings for ground officials and Participants **should** describe the hazardous nature of such devices. Furthermore, Participants **should** be appropriately authorized to conduct such activity.

Civil Registered Aircraft at Flying Displays over MOD-Occupied Property

56. The FDD **should** ensure that pilots flying civil registered Aircraft[29]:

a. Hold a valid DA, DA Exemption, or national equivalent as evidence of their competence to conduct Display Flying, even if only conducting a Flypast.

(1) If a civilian pilot does not hold a valid DA then they **should not** be permitted to utilize a SERA.5005(f)(2) Exemption as per para ►79.◄

b. Notify the FDD of their intended Display Routine at least 24 hours in advance;

(1) This **should** include the measures the pilot would take if they needed to diverge from the intended Display Routine (for example due to wind effects), and confirm that the intended Display Routine complies with the airspace restrictions (local avoids, the anticipated location of Secondary Spectators and third parties) derived from the event Risk Assessment.

(2) ►Civilian pilots who do not have a formal Display Routine for Display Flying **should** submit a list of approved manoeuvres to the FDD. Prior to the Flying Display briefing, the pilot and FDD **should** agree on the manoeuvres to be used for the display. The pilot **should** confirm that the Display Site is suitable for their display and that they can comply with any airspace restrictions (local avoids, the anticipated location of Secondary Spectators and third parties) derived from the event Risk Assessment.◄

c. Demonstrate that the intended manoeuvres comply with the conditions placed on their Aircraft's ►UK CAA◄ Certificate of Airworthiness, ►UK CAA Permit to Fly or national equivalent if not a UK registered Aircraft. ◄

d. Do not breach the minima permitted by their DA, DA Exemption or national equivalent.

e. Comply with the separation distances, minima and restrictions detailed within RA 2335(3).

57. **►UK◄ CAA Exemptions[30] at MAA-regulated events.** ►As part of a reciprocal arrangement (see para 121)◄ the MAA accepts a ►UK◄ CAA Permission for civilian Display Participants to display at MAA regulated events iaw their ►UK◄ CAA Display Authority, which may permit flight ►that is less restrictive than◄ the minima outlined in SERA.5005 and RA 2335. Consequently:

a. The FDD at a MAA-regulated event may accept a DA for a Participant flying a civil registered Aircraft where the DA would allow the Participant to breach any part of this RA. ►In such cases,◄ the FDD **should** identify the areas where the display ►routine◄ is not compliant with MAA Regulatory Publications (MRP) ►and inform the HoE.◄

b. The HoE **should** assess ►any◄ additional Risk caused by non-compliance and ensure that this Risk is ALARP and Tolerable. ►If the Risk cannot be reduced to ALARP and Tolerable, the HoE **should not** allow the display to take place.◄ The HoE **should** record the decision appropriately.

58. **Civil Registered Aircraft flown over MOD-Occupied Property by pilots without a DA for that Aircraft.** FDD **should not** allow civil registered Aircraft flown by

[29] For military Display Pilots flying MOD-owned civil registered Aircraft the requirements detailed in RA 2335(2) ►◄ apply.
[30] Other than a DA Exemption which permits a pilot to conduct Display Flying without a DA.

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pilots without a DA or DA Exemption for that Aircraft to conduct Display Flying, Role Demonstrations or Flypasts over MOD-Occupied Property without first seeking endorsement from the ►UK◄ CAA via GA@CAA.co.uk. The MAA **should** be informed of such activity (DSA-MAA-Display@mod.gov.uk) at least 14 days prior to the event.

59. **Minimum Lateral Separation Distances for civilian Participants.** The minimum lateral separation distances specified at para ►112◄ **should** apply to all Aircraft in all cases.

Warning and Stop Calls

60. **Standard Warning and Stop Calls.** If the FDD and / or FCC perceive minima are being encroached, breached or have Safety concerns that require the cessation of a Participants Display Sequence / Routine, the Standard Warning and Stop Calls and responses at Table 2 **should** be used. ►Where Safety critical circumstances require a radio call that is not listed below, the FDD or FCC member **should** make the radio call using clear unambiguous language. When such a call is made the FDD **should** ensure a Defence Aviation Safety Occurrence Report (DASOR) is submitted.◄

Table 2. Standard Warning and Stop Calls

FDD / FCC Warning Call	**Pilot Response**
'(Callsign) Too Low'	'Roger (Callsign)'
'(Callsign) Too Close'	'Roger (Callsign)'
FDD / FCC Terminate Call	**Pilot Response**
'(Callsign) Terminate'	'Wilco (Callsign)'
FDD / FCC Stop Call	**Pilot Response**
'(Callsign) Stop Stop Stop, Acknowledge'	'Wilco (Callsign)'

a. **Too Low Call.** A 'Too Low' Call **should** be made at an appropriate time if the FDD and / or FCC assess that an Aircraft has descended below the Participant's PDA or DA minima or the minima in place for the Flying Display.

b. **Too Close Call.** A 'Too Close' Call **should** be made at an appropriate time if the FDD and / or FCC assess that an Aircraft has breached the minimum lateral separation distance appropriate to that Display Item.

c. **Terminate Call.** A 'Terminate' Call **should** be used when a Participant is required to suspend Display Flying for a reason other than their fitness or competence (eg intruder Aircraft, birds, etc). A 'Terminate' Call can also be used by a Participant to notify their intention to halt a display if deemed necessary for any reason. At the discretion of both the FDD and the Participant, the Display Sequence / Routine may be resumed if safe to do so.

d. **Stop Call.** A 'Stop' Call **should** be made if the FDD and / or FCC has a Safety concern related to a Participants' fitness or competence; additionally, a 'Stop' Call **should** be made if a third Warning Call is required. Once a 'Stop' Call has been made, the Participant **should not** continue their display or recommence their Display Sequence / Routine. A 'Stop' Call can be made outright, or because of the need to issue a third Warning Call.

e. Where an event has a Participant with a non-radio capable Aircraft, a fully briefed procedure **should** be established to enable communication of Standard Warning and Stop Calls.

f. For 'Stop' Calls, once the Flying Display is complete (or earlier if safe and practicable) the FDD **should**:

(1) Confirm the Participant understands they have been stopped and explain why.

(2) Where the Participant is flying a civil registered Aircraft, inform the ►UK◄ CAA General Aviation Unit as soon as practicable on 01293

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573919 and, if appropriate, submit a Mandatory Occurrence Report (MOR).

(3) Where the Participant is flying a military registered Aircraft or the event is conducted over MOD-Occupied Property, submit a DASOR[31].

(4) Record the event on the RA 2335 Form 4 (Flying Display Director Post Event Feedback Form)[32].

►◄

61. ►**Action after the Issue of a Stop Call.** Where the FDD / FCC has issued a 'Stop' Call[33] due to a breach of minima or limits, or other Safety concerns surrounding military Display Participant fitness or competence, the Participant **should**:

a. Cease further Display Flying until approved by their ADH / AM(MF).

b. Submit a DASOR as soon as practicable.

62. **Action after the Issue of a Warning Call.** ADH / AM(MF) **should** issue orders or instructions which state the actions to be taken by Display Participants after a Warning Call is issued.◄

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Flying Display Organization and Management

Management of a Flying Display

63. **Boundaries of Responsibility.** When HoE are considering the ToRs for the EO and FDD, there are a number of responsibilities that they may wish to allocate. These ►may◄ include, but are not limited to:

a. The location of Car Parks.

b. The location and number of Spectator Areas.

c. Aircraft parking and marshalling areas.

d. Aircraft refuelling areas.

e. Emergency vehicle access and egress points.

f. Emergency control centre location and set up.

64. **FCC.** The FCC will consist of suitably experienced personnel appropriate for the Tier of Flying Display, the Aircraft participating, and will be issued with ToR from the FDD. The FCC may include the FDD, who may act as Chairperson of the FCC, and additional members who have the requisite experience of Display Flying and / or Flying Display planning, organization, management and delivery. Chairpersonship of the FCC may also be delegated.

65. **Categorization of an Event as a Flying Display.** The HoE (EO or FDD for events with no HoE), may categorize an event that only has Flypasts or Role Demonstrations as a Flying Display if they consider it necessary. Reasons for this may include:

a. The complicated nature of an event (such as very unusual mixed formations).

b. Large gatherings of people.

c. Complex geography or airspace restrictions.

FDD Accreditation

66. **FDD Accreditation Course.** The ►UK◄ CAA / MAA conduct joint FDD Accreditation Courses to qualify FDDs in the UK.

a. **Military Applicants.** The MAA approves military applicants to attend the FDD Accreditation Course. Military applicants will need to provide justification

[31] If a FDD is unable to access the Air Safety Information Management System (ASIMS) to submit a DASOR then they **should** contact the MAA via email (DSA-MAA-Display@mod.gov.uk) and request guidance on how to submit a DASOR.
[32] MAA equivalent to ►UK◄ CAA Form Safety Regulation Group (SRG) 1305.
[33] ►iaw para 60.◄

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for the application and their suitability for the FDD role, which will be endorsed by the relevant HoE or ADH[34].

b. **FDD Accreditation.** A joint ►UK◄ CAA / MAA FDD Accreditation Panel is convened after FDD Accreditation Courses to review each candidates' performance during the course. The FDD Accreditation Panel will consider their experience, preparation for and interaction during the course, and their examination results and then accredit them as a Tier 1, 2 or 3 FDD.

c. **'Mil' and 'Civ' Accreditation.** The FDD Accreditation Panel will also consider, based on the experience of individuals, and their knowledge and understanding of the Regulations as demonstrated during the course, whether they will be accredited as a 'Mil', 'Civ' or 'Civ / Mil' FDD.

(1) **Mil.** The individual is only permitted to be FDD / Deputy FDD at Flying Displays regulated by the MAA iaw RA 2335.

(2) **Civ.** The individual is only permitted to be FDD / Deputy FDD at Flying Displays regulated by the ►UK◄ CAA iaw CAP 403.

(3) **Civ / Mil.** The individual is permitted to be FDD / Deputy FDD at either ►UK◄ CAA or MAA regulated Flying Displays. The individual may be accredited to a different Tier for each category.

67. **Validity.** An FDD's qualification will remain valid for a period of 3 years from the date of accreditation.

68. **Deputy FDD.** An appropriately accredited FDD[35] may act as Deputy FDD to provide resilience for an event. The individual(s) ►will◄ be annotated as a Deputy FDD on the RA 2335 Form 1, or application for a ►UK◄ CAA Flying Display Permission.

69. **Currency.** To maintain currency, individuals will act as FDD at the appropriate Tier of event at least once every two years. However if, for example, a Tier 3 FDD only acts as FDD for a Tier 1 or Tier 2 Flying Display within the currency period, Tier 3 currency will be lost and currency at the lower Tier will be maintained. ►If an event is cancelled on the day due to inclement weather, currency credit will be given to the FDD.◄

70. **Deputy FDD Currency.** Currency may also be maintained by acting as a Deputy FDD provided that:

a. They are annotated on the RA 2335 Form 1 or application for ►UK◄ CAA Flying Display Permission.

b. They take an active part in the planning, organization, management and delivery of the Flying Display.

c. They are in attendance for the duration of the Flying Display.

d. The nature and extent of their Deputy FDD participation, and the intent to reset their currency, is annotated by the primary FDD on the RA 2335 Form 4 (Flying Display Director Post Event Feedback Form). ►◄

71. **Shadow FDD.** Tier 1 or Tier 2 accredited FDDs may shadow the FDD for a higher Tier event in order to build experience. This Shadow FDD role can be used to improve the level of competence to support an upgrade application to a higher Tier in the future. The primary FDD will record the level of participation of the Shadow FDD on the RA 2335 Form 4 (Flying Display Director Post Event Feedback Form) ►◄ which will enable the ►UK◄ CAA and MAA to properly assess the level of experience of the individual if an upgrade is requested at a later date.

a. If the primary FDD is an FDD Mentor, the Shadow FDD will ensure that their participation in the planning, organization, management and delivery of the Flying Display is appropriately logged and countersigned by the FDD Mentor so

[34] Military applicants will only be accepted when their qualification is primarily for military purposes; supported by the HoE or ADH. Serving military personnel who are not required to act as an FDD for military purposes may apply for accreditation through the ►UK◄ CAA.

[35] A FDD who is accredited for the Tier of Flying Display at which they are Deputising.

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that any experience gained can be demonstrated at the time of application for an upgrade.

72. **FDD Revalidation.** A qualified FDD may renew their accreditation following successful completion of a FDD Revalidation Course. The FDD Revalidation Course considers the same criteria as the FDD Accreditation Course and is also assessed by a joint ►UK◄ CAA / MAA FDD Accreditation Panel. Candidates' successful completion of the FDD Revalidation Course will extend their FDD qualification for a further 3 years. ►Exceptionally, the MAA may conduct in-field revalidations. The in-field revalidation process involves oversight of the preparations and delivery of a Flying Display. An FDD wishing to revalidate in the field will contact the MAA at least 3 months prior to the Flying Display at which the in-field revalidation will take place.◄

73. **FDD Upgrades.** To upgrade to a higher FDD Tier or from 'Mil' or 'Civ' to 'Civ / Mil', FDDs are required to provide the ►UK◄ CAA / MAA with ►evidence◄ of events they have been involved with. This is to demonstrate that they have gained the necessary experience to be considered for an upgrade to the higher Tier. Their submission is required to include detail on their involvement in the planning, organization, management and delivery of the events. ►FDD upgrade applications will be endorsed by the relevant HoE or ADH. FDDs can expect to upgrade on the next available FDD course and also expect an MAA Assurance visit to a Flying Display being undertaken at their new Tier. Exceptionally the MAA may conduct in-field upgrades. The in-field upgrade process involves oversight of the preparations and delivery of a Flying Display at the requested Tier. An FDD wishing to upgrade in the field will contact the MAA at least 6 months prior to the Flying Display at which the in-field upgrade will take place.◄

a. ►◄

b. ►◄

c. ►◄

74. **Revocation.** If ►Safety concerns are raised regarding◄ an FDD ►◄ an investigation will be undertaken iaw the Defence Aviation Flowchart Analysis of Investigation Results II (DA FAiR II) system detailed in the MAA Manual of Air Safety[36]. After the investigation, the following actions are available to the ►UK◄ CAA and / or MAA:

a. No action.

b. Downgrade Tier.

c. Further training.

d. Suspension.

e. Complete revocation.

75. **SQEP Recording.** ►◄ The MAA is responsible for administering military personnel ►◄ and will also ensure the correct competency is recorded on the military Joint Personnel Administration System. ►This data will detail an individual qualification (ie the Tier of Flying Display they are accredited to conduct) and will record the Flying Displays that they have directed[37]. Military accredited FDDs details can be provided on request by the MAA.◄

Foreign Military Registered Aircraft Participating at UK Flying Displays

76. **Responsibilities of the MAA.** The MAA maintains oversight of all foreign military registered Aircraft participating at UK Flying Displays on behalf of the MOD. The MAA ensures the Participant is SQEP, suitably approved at a national level and the proposed Display Sequence complies with this RA using the documentation supplied by the Participant and the FDD.

77. **Validation.** The MAA and / or the FDD can mandate the validation of any ►foreign military◄ display Participant ►in order to ensure the display Participant can fly a Display Sequence compliant with the MRP or in accordance of any provisions

[36] The ►UK◄ CAA also uses the Flowchart Analysis of Investigation Results (FAIR) System which is detailed in CAP 403.
[37] If recorded on the Flying Display Notification / ►UK◄ CAA Flying Display Permission Application and FDD Post Event Feedback Form.

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stipulated in Waiver Approvals where compliance cannot be demonstrated.◄ When the MAA mandates validation, then that validation may take place at any display venue within the same display season and, where a Participant has more than one authorized Display Sequence, then validation of any one of the Display Sequences is normally accepted by the MAA as sufficiently appropriate to validate the Participant to fly all Display Sequences.

a. **Requirement for Validation.** The first UK Display by a foreign Display Participant requires a validation. Subsequent venues and Displays may be required to be validated. The ►◄ decision on subsequent validations will be made by the MAA once the documentation for this venue has been supplied by the Participant and the FDD.

b. **Subsequent Display Validations.** FDDs may utilize information from any previous in-season validation as part of their documentation submitted to the MAA. The MAA may mandate validation if the new Display Site layout presents significantly greater limitations, or any Display Sequence has been changed since the original validation. Subsequent validations follow the same process as for the initial validation.

Public Safety

78. **Safety and Risk Assessment.** Guidance on managing and recording Risk is contained within RA 1210[5].

79. **Civil Participants Operating Minima.** The ►UK◄ CAA has granted the MOD a Permission for civilian Participants holding a DA or DA Exemption to operate ►to less restrictive◄ minima ►than that◄ stated in SERA.5005(f)(2) during Flying Displays held over nominated MOD-Occupied Properties. The Permission is obtained annually and is held by the MAA.

80. **CAP 403 – Flying Displays and Special Events: Safety and Administrative Requirements and Guidance.** CAP 403 provides additional guidance to EO and FDD for the Safety planning associated with a Flying Display, including working with Local Authorities, Emergency Services, Highways Authorities, SAG and wider Health and Safety Executive requirements.

Regulation 2335(2)

Display Flying, Practises, Role Demonstrations and Flypasts (Mil)

2335(2) ADH / AM(MF) **shall** ensure that personnel involved in conducting Display Flying, Practises, Role Demonstrations and Flypasts (Mil) are competent and appropriately trained, approved, authorized and supervised.

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Display Flying, Practises, Role Demonstrations and Flypasts (Mil)

81. **Applicability of this Regulation.** RA 2335(2) **should** apply to all personnel involved in conducting Display Flying, Practises, Role Demonstrations and Flypasts (Mil) in UK military registered Aircraft and, as far as reasonably practicable, foreign military registered Aircraft participating at events in the UK. Additionally, ►◄ the most restrictive limitations of this RA or the following **should** always be applied:

a. North Atlantic Treaty Organization (NATO) Standardization Agreement (STANAG) 3533 / Allied Flight Safety Publication (AFSP) 5, if applicable[38].

b. Orders or instructions issued by the ADH / AM(MF) for Aircraft in their AoR conducting Display Flying, Practises, Role Demonstrations or Flypasts (Mil).

c. Orders or instructions issued by the HoE, EO or FDD for a specific event.

d. CAP 403 where a ►UK◄ CAA Flying Display Permission exists for an event. Whilst the ►UK◄ CAA Flying Display Permission will be time bounded, any Participants flying military registered Aircraft on the same day **should** apply the limitations of the CAA Flying Display Permission and CAP 403 regardless of

[38] If a Flying Display involves Participants from two or more NATO Nations the NATO STANAG / AFSP 05 applies.

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what time they conduct their flying activity unless Approval is obtained from the MAA (DSA-MAA-Display@mod.gov.uk) at least 14 days prior to the event.

e. PDA, DA or DA Exemption.

f. Any host nation Regulations and orders or instructions when conducting Display Flying, Practises, Role Demonstrations or Flypasts (Mil) outside the UK.

Aircrew and Support Personnel

82. **Display Flying Aircrew.** ADH / AM(MF) **should** ensure that:

a. The Aircrew selected to conduct Display Flying are SQEP in both airborne and ground-based aspects of Display Flying.

b. Where Display Flying Aircrew are responsible for conducting Risk Assessments, they are appropriately trained and supported.

c. Display Flying Aircrew hold a valid PDA and / or DA prior to conducting Display Flying at a Flying Display.

83. **Display Flying Supervisor.** ADH / AM(MF) **should** nominate a SQEP Display Flying Supervisor.

84. **Display Flying Support Personnel**. ADH / AM(MF) **should** allocate sufficient support personnel and / or resource to allow Aircrew selected for Display Flying to safely and effectively conduct activity throughout the display season.

85. **Ground Knowledge.** ADH / AM(MF) **should** ensure that, in addition to the pre-season Display Flying work-up detailed in para ►88,◄ Aircrew and support personnel selected for Display Flying are appropriately trained in the relevant non-flying aspects of Display Flying, such as Human Factors, Fatigue Management, Supervision and relevant regulatory knowledge (ie RA 2335, the ANO, CAP 403 and CAP 1724).

Pre-Season and Practise Display Flying

86. **Practise Display Flying.** ADH / AM(MF) **should** assure themselves that practise Display Flying is conducted in such a way and at such a location as to ensure that RtL to Participants, Secondary Spectators and third parties is ALARP and Tolerable.

87. **Practise Display Flying Minimum Height**. ADH / AM(MF) **should** promulgate orders or instructions stipulating who can approve Display Flying Aircrew to operate at a height lower than those specified in orders or instructions for routine operations and training; this **should not** be delegated below Sqn Cdr / OF-4. The individuals detailed in orders or instructions are responsible for signing the Display Flying Aircrew's training ►record◄[39].

88. **Pre-Season Display Flying Work-Up and PDA.** Pre-season Flying Display practises **should** be personally authorized by the Display Flying Supervisor. The following points **should** be applied when authorizing and supervising Display Flying work-up flights:

a. The work-up **should** be of a progressive nature leading, in stages, down to the approved display heights, and initially conducted only over their own airfield unless the ADH / AM(MF) directs otherwise.

b. Consideration **should** be given to the use of appropriate Synthetic Training Devices for initial practise displays.

c. The previous season's Display Pilot **should** be used in an advisory and / or monitoring capacity during practise and validation.

d. Each practise Display Flying sortie **should** be monitored by the Display Flying Supervisor. If the Display Flying Supervisor is on the ground, they **should** be in a suitable position to ensure they are not a distraction to the Display Flying Aircrew.

e. All practise Display Flying below 2000' MSD **should** be video recorded.

f. A record of Display Flying practises detailing weather, Runway, etc. **should** be maintained in the Display Flying Aircrew's training ►record.◄

[39] Or electronic equivalent.

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Public Display Authority

89. **ADH / AM(MF) Display Sequence Approval.** The Display Flying Aircrew and the Display Sequence **should** be approved by the ADH / AM(MF) using RA 2335 Form 5 (Public Display Authority Form) as the mechanism to signify that final Approval has been granted to conduct Display Flying in front of the general public. The MAA **should** be provided with a completed copy of RA 2335 Form 5 (Public Display Authority Form) once the PDA has been awarded via DSA-MAA-Display-Forms@mod.gov.uk;

90. **PDA Form.** The PDA, as detailed on the approved RA 2335 Form 5, **should** detail all of the permitted activity, as well as any limitations, and **should** be made available to the FDD. Deviations **should not** be permitted without Authorization by the ADH / AM(MF). If a FDD is unable to accept the Participant's ►◄ PDA or Display Sequence the Participant **should not** perform.

91. **Deviations from PDA.** Deviations from the PDA or permitted modifications to the Display Sequence, as detailed on the approved RA 2335 Form 5 (Public Display Authority Form), **should not** be permitted without Authorization by the ADH / AM(MF). If a FDD is unable to accept the Participant's ►◄ PDA or Display Sequence the Participant **should not** perform.

92. **Role Demonstrations.** Role Demonstrations do not necessarily require a PDA, however, ADH / AM(MF) **should** issue orders or instructions that, as a minimum, detail the following:

a. Approved Role Demonstration manoeuvres that may be conducted by Aircraft within their AoR.

b. The approval mechanism, clearance procedures and Authorization process for Role Demonstrations.

c. Safety Management procedures, limitations and restrictions.

d. Competence / SQEP requirements of the Aircrew and other personnel in the air and on the ground.

93. **Flypasts (Mil).** Flypasts (Mil) do not constitute Display Flying so do not require a PDA. However, ADH / AM(MF) **should** publish orders or instructions detailing appropriate limitations specific to the conduct of Flypasts (Mil) on Aircraft within their AoR. ►A Flypast (Mil) **should not** exceed 3 pre-planned passes.◄

►◄

94. ►◄

a. ►◄

b. ►◄

95. ►◄

Display Venue Suitability

Display Venues. ADH / AM(MF) **should** take reasonable measures to assure themselves that display venues at which Aircraft within their AoR perform are suitable, safe and appropriate for the Aircraft and its intended Display Sequence. This **should** include being satisfied that:

a. The EO and FDD are suitably experienced or qualified iaw RA 2335(1).

b. RtL attributable to Display Flying, Role Demonstrations or Flypasts (Mil) remains ALARP and Tolerable including having reviewed the FDDs briefing material and Flying Display Risk Assessment.

Parachuting at Flying Displays

96. **Parachuting[40].** When participating at a Flying Display, MOD approved parachute display teams[41] **should** be deemed to be on duty. MOD personnel

[40] While parachuting itself does not constitute a Participant iaw RA 2335, this para is included for the assistance of the EO and FDD.

[41] ►MOD Parachute display teams◄ governed by the MRP (ie generation of Force Elements at Readiness parachuting ►◄) and ►◄ governed by the ►UK◄ CAA via CAP 660 – Parachuting ►◄.

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participating in non MOD-approved parachute display teams are deemed to be part of a civilian parachute display team and are not on duty►42◄.

97. **Parachuting Permission.** MOD ►approved◄ parachute display teams using ►UK◄ CAA display parachuting Regulation **should** be in possession of a valid Parachuting Permission or Exemption Certificate issued by the ►UK◄ CAA, and the parachute display **should** be conducted iaw that Permission or Exemption.

98. **Parachuting Governance.** MOD approved parachute display teams **should** comply with orders or instructions issued by their respective Duty Holder. ►MOD approved◄ parachute display team leaders **should** be responsible for parachuting and flying operations carried out by that display team, the provision of a qualified Drop Zone Safety Officer / Drop Zone Controller[43], and ensuring adequate liaison and co-ordination is conducted with the FDD.

Guidance Material 2335(2)

Display Flying, Practises, Role Demonstrations and Flypasts (Mil)

99. **Applicability of RA 2335 or CAP 403.** Tables 3 and 4 show Flying Display Participants which Regulations (relevant to Flying Displays) apply and therefore what flying activity is permitted.

Table 3. Events over MOD-Occupied Property

	MOD-Occupied Property			
	Military Registered Aircraft		**Civil Registered Aircraft**	
	Flying Display	**Other Event**	**Flying Display**	**Other Event**
Permitted Activity	Display Flying, Role Demonstrations and Flypast (Mil) (iaw para ►110◄ and ►111◄)	Role Demonstrations and Flypast (Mil) (iaw paragraph ►113◄)	Display Flying and Flypast	As per the ANO / SERA
Regulation (most restrictive of)	RA 2335	RA 2335	RA 2335 CAP 403	As per the ANO / SERA

Table 4. Events over non MOD-Occupied Property

	Non MOD-Occupied Property in the UK			
	►UK◄ CAA Flying Display Permission[44]			
	Yes		**No**	
	Military Registered	**Civil Registered**	**Military Registered**	**Civil Registered**
Permitted Activity	Display Flying, Role Demonstrations and Flypast (Mil) (iaw para ►110◄ and ►111◄)	Display Flying and Flypast	Display Flying[45], Role Demonstrations and Flypast (Mil) (iaw para ►113◄)	As per the ANO / SERA
Regulation (most restrictive of)	RA 2335 CAP 403	CAP 403	RA 2335	As per the ANO / SERA

Note: For Flying Displays outside the UK, military registered Aircraft must comply with the most restrictive of RA 2335 and relevant national Regulations[46].

100. **Role Demonstrations or Flypast (Mil) being Categorized as Display Flying**. ADH / AM(MF) may, if they deem appropriate, categorize Role Demonstrations or Flypast (Mil) as Display Flying.

[42] ►As defined in respective single Service policies concerning duty status.◄
[43] Drop Zone Safety Officers are not required to attain FDD Accreditation.
[44] Unless the MAA have approved a Flypast (Mil) to be conducted on the same day as the ►UK◄ CAA Flying Display Permission.
[45] For an event which involves military registered Aircraft only (see para 38a of this RA).
[46] NATO STANAG 3533, AFSP 5 ►or any host nation Flying Display Regulations.◄

Regulation 2335(3)

Separation Distances, Minima and Restrictions

2335(3) Authorized minimum vertical and lateral separation distances, and other applicable minima and restrictions **shall** be complied with at all times during Display Flying, Practises, Role Demonstrations and Flypasts.

Acceptable Means of Compliance 2335(3)

Separation Distances, Minima and Restrictions

General

101. ►**ADH / AM(MF) Approval for overflight of Congested Areas.** Display Flying, Practises, Role Demonstrations and Flypasts (Mil) over Congested Areas[25] **should** be approved by the Aircraft ADH / AM(MF) in advance. Where a Congested Area, as defined in MAA 02[47], is within the Display Site of a civilian event where the UK CAA has issued a Flying Display Permission then the ADH / AM(MF) **should** determine if the Display Sequence will overfly the Congested Area and if so, ensure a Waiver request iaw MAA 03[18] has been applied for.◄

102. **Congested Areas.** Display Flying, Practises, Role Demonstrations or Flypasts (Mil) below 2000' MSD over Congested Areas (as detailed in the UKMLFH) **should** be conducted iaw RA 2330[25] and the UKMLFH. If Display Flying, ►Role Demonstration or Flypast◄ over the Congested Area is considered appropriate, the ADH ►/ AM(MF) **should**◄ conduct a Risk Assessment considering Spectators, Secondary Spectators and third parties, and **should** ensure ►the◄ Participant's flight over the Congested Areas is ALARP and Tolerable. This **should** be recorded formally in the event's Risk Assessment. In addition:

a. **Military Regulated Events**. The HoE **should** seek a Waiver iaw MAA 03[18] for ►◄ Display Participants flying over the Congested Area at ►heights◄ less than those stipulated in RA 2330[25] para ►26.◄ Flight over the Congested Area may be part of a Display Sequence, positioning for a Display Sequence, transition to the Display Area, conducting a Display Practise or conducting a validation.

b. **Civilian Regulated Events**. ►UK and foreign military Aircraft participating at a UK CAA regulated event are military regulated and **should** operate to the most restrictive of RA 2335 or CAP403. For flight in Congested Areas RA 2335 is the most restrictive Regulation and Waivers **should** be sought as follows:

(1) **UK Military Participants.** In lieu of an HoE the ADH / AM(MF) **should** seek a Waiver iaw MAA 03[18] for UK Display Participants flying over the Congested Area at heights less than those stipulated in RA 2330[25] para 26. This Waiver is required when conducting a Display Sequence, positioning for a Display Sequence, transition to the Display Area, conducting a Display Practise or conducting a validation.

(2) **Foreign Military Display Participants.** Foreign military display participants do not operate under a ADH construct but are approved by the MAA. For flight over Congested Areas at heights less than those stipulated in RA 2330[25] para 26 the FDD **should** seek a Waiver iaw MAA 03[18]. This Waiver is required when conducting a Display Sequence, positioning for a Display Sequence, transition to the Display Area, conducting a Display Practise or conducting a validation.

c. **Events over Civilian Occupied Property involving only Military Display Items**. Where an event is held over civilian property involving only military Display Items the UK CAA will not issue an Article 86 Permission and the event will be military regulated. If the event is an Air Display the FDD **should** confirm that the ADH has conducted a Risk Assessment and obtained a Waiver iaw MAA03[18] for flight over the Congested Area at heights less than those stipulated in RA 2330[25] para 26. If the event is a Role Demonstration or Flypast

[47] ►MAA02 MAA Master Glossary.◄

Acceptable Means of Compliance 2335(3)

(Mil) then the ADH, in addition to conducting their Risk Assessment, **should** obtain a Waiver for flight over the Congested Area iaw MAA 03[18]◄

103. ►◄

104. **Performance Limitations - Speed.** An absolute true limit of Mach 0.90 or 600 KIAS (whichever is reached first) **should not** be exceeded.

105. **Performance Limitations - Multi-Engine Fixed Wing Aircraft.** Multi-Engine Fixed Wing Aircraft **should not** fly below the speed at which it is still possible to climb away, without change of configuration, if any one engine fails.

106. **Weather Minima.** ADH / AM(MF) **should** stipulate the minimum weather conditions for Display Flying, Practises, Role Demonstrations and Flypasts (Mil) by Aircraft in their AoR. The following table **should** be the absolute minimum weather conditions for Participants that hold a valid PDA or DA when operating at a Flying Display (or during PDA work-up iaw RA 2335(2)); the Visual Meteorological Conditions (VMC) minima in RA 2307[48] apply at all other times:

Table 5: Weather Minima

Type of Aircraft	Type of display		Weather Minima	
			cloud base (feet)	visibility
VSTOL[49], Rotary Wing and other Aircraft with a stalling speed below 50 KIAS	Flypasts, non-aerobatic Display Flying and Role Demonstrations	Solo Aircraft	500	1500 metres
		Formations	500	3000 metres
	Aerobatic Display Flying	Solo Aircraft	800	3000 metres
		Formations	1000	5 km
All other Aircraft	Flypasts, non-aerobatic Display Flying, 'flat' Aerobatic Display Flying and Role Demonstrations	Solo Aircraft	500	5 km
		Formations	1000	5 km
	Aerobatic Display Flying	Solo Aircraft	1000	5 km
		Piston Formations	1000	5 km
		Jet / Turboprop Formations	1500	5 km

Notes: (i) Where a 'flat aerobatic display' is a Display Sequence considered for the Aircraft it **should** be formally approved as part of the Participant's PDA.

(ii) Subject to FDD approval, Aircraft unable to display because of low cloud base may fly an instrument approach to land, touch-and-go or low approach.

Display Flying Separation Distances, Minima and Restrictions

107. **Overflight of Spectators.** All Participants **should** avoid overflight of the Spectator Areas unless a Waiver has been granted for a specific condition such as crowd rear arrival. The Risk created by overflight of Secondary Spectators and third parties during a Flying Display, validation or Practise **should** be assessed by the HoE to ensure RtL is ALARP and Tolerable. The associated Risks, mitigations and decisions **should** be documented.

108. **MSD Inside the Display Area.**

a. Participants **should not** perform Aerobatic Manoeuvres above any structures occupied by non-essential personnel, Secondary Spectators ►or third parties◄ within the Display Area.

b. Participants **should not** perform non-aerobatic overflight of any structures occupied by non-essential personnel, Secondary Spectators ►or third parties◄ during a Display Sequence at less than 500' MSD within the Display Area.

[48] Refer to RA 2307 – Rules of the Air.
[49] This only applies to VSTOL Aircraft operating in VSTOL mode.

Acceptable Means of Compliance 2335(3)

109. **MSD Outside the Display Area.** UK and foreign military Participants **should** adhere to the following MSD outside of the Display Area at Flying Displays in the UK[50]:

a. Aerobatic Manoeuvres – All Aircraft[51]. 500 feet MSD.

b. Fixed Wing Aircraft – Non-Aerobatic Manoeuvres. 250 feet MSD.

c. Rotary Wing Aircraft – Non-Aerobatic Manoeuvres. 100 feet MSD.

110. **Minimum Heights at a Flying Display.** ADH / AM(MF) **should** specify minimum heights for Display Flying, Role Demonstrations and Flypast (Mil) flown by their Aircrew, dependent upon the Aircraft type, Aircrew experience and location of the event. However, they **should not** be less than the MSD[52] specified in Table 6 ►unless para 109c applies◄:

Table 6. Minimum Heights Part 1

	MSD (feet) as part of PDA Display Sequence at a Flying Display			
	Fixed Wing	**Rotary Wing**	**Fixed Wing Close Formation**	**Rotary Wing Close Formation**
Flypast Only - Wings Level Flight ≤20° Angle of Bank (AOB)	100	50	250	100
Non-Aerobatic Flight ≤90° AOB	100	100	300	100
Aerobatic Manoeuvres, Inverted Flight and Link Manoeuvres	300	300	300	300

a. **Link Manoeuvres.** Where one Aerobatic Manoeuvre is linked directly to another, Aircraft **should** remain above the minimum height for Aerobatic Manoeuvres throughout the transition. Where an Aerobatic Manoeuvre is followed by a Non-Aerobatic Manoeuvre, Participants **should** be certain of capturing the minimum height for Aerobatic Manoeuvres during the recovery before continuing descent to the non-aerobatic minima specified in Table 6.

b. **Manoeuvre After Take-Off.** Once safely airborne and not below 50 feet MSD throughout the manoeuvre, the Participant may commence a turn away from the Crowd Line to capture the appropriate Display Line. No more than 60° AOB **should** be used and a positive climbing vector **should** be maintained throughout the manoeuvre. On crossing the appropriate Display Line (if the Runway is inside it) the Participant **should** be at or above 100 feet MSD.

c. **Rotary Wing and VSTOL Aircraft.** Rotary Wing and VSTOL Aircraft ►**should** operate iaw◄ the MSD in Table 6 ►unless conducting◄ hovering and transition manoeuvres►◄.

111. **Minimum Heights when not part of a PDA Display Sequence at a Flying Display.** ADH / AM(MF) **should** specify minimum heights for Role Demonstrations and Flypasts (Mil) when not part of a PDA Display Sequence at a Flying Display. These heights **should** be dependent upon the Aircraft type, Aircrew experience and the location of the event. However, they **should not** be less than the MSD specified in Table 7:

[50] Civilian Participants are to adhere to the ANO / SERA outside the Display Area.
[51] This limitation applies from when the Aircraft commences its run in for its Display Sequence, Role Demonstration or Flypast (Mil) to when it has completed its Display Sequence, Role Demonstration or Flypast (Mil).
[52] Where the Flying Display is outside the UK, the most restrictive of this Regulation and any applicable local / national orders ►apply.◄

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Table 7. Minimum Heights Part 2

	MSD (feet) when NOT part of a PDA Display Sequence at a Flying Display			
	Fixed Wing	**Rotary Wing**	**Fixed Wing Close Formation**	**Rotary Wing Close Formation**
Flypast Only - Wings Level Flight ≤20° AOB	100	50	250	100
Role Demonstration Manoeuvres - Non-Aerobatic Flight ≤90° AOB	250	100	500	250
Aerobatic Manoeuvres, Inverted Flight and Link Manoeuvres	500	N/A PDA Required	N/A PDA Required	N/A PDA Required

112. **Lateral Separation.** The following minimum lateral separation distances **should** apply to all military registered Aircraft at all Flying Displays and civilian registered Aircraft at Flying Displays over MOD-Occupied Property. Where a HoE, FDD, Participant or their ADH / AM(MF) considers that a greater separation is required for any specific Aircraft or manoeuvre, that minimum **should** be identified and complied with:

a. **Ground Operations.** During all ground operations, including refuelling, servicing and at any time when engines or rotors are running, a minimum ►lateral◄ separation distance of 15 m **should** be maintained between Spectator Areas and the nearest point of the Aircraft concerned. This limit applies to Aircraft taxiing or air-taxiing, except when such taxiing is away from a marked taxiway and without the assistance of a marshaller, when the minimum ►lateral◄ separation distance **should** be increased to 65 m.

b. **In-Use Runways.** The minimum ►lateral◄ separation distance between the near edge of any Runway used for conventional Fixed Wing take-off and landing (including 'touch and go' and 'low approach') and the Crowd Line **should** be 100 m ►except◄ for light Aircraft with a Maximum Take-Off Mass (MTOM) of ≤1200 kg, and a take-off and landing speed of less than 100 KIAS, this separation may be decreased to 65 m. Other than for emergencies, a Runway **should** only be used for non-standard take-off or landing (defined as one not practised as a Standard Operating Procedure conducted during routine operations and training for that Aircraft), if its near edge is at least 230 m from the Crowd Line at all points.

c. **In Flight.** The normal minimum ►lateral◄ separation distance between the Crowd Line and Aircraft conducting Display Flying, ►Role Demonstration or Flypast◄ including Rotary Wing displays that involve aerobatics, **should** be 230 m. However, the following additional minima apply for specific circumstances:

(1) **High Speed Aircraft.** Where the displaying Aircraft is at a speed in excess of 300 KIAS, and has a velocity vector towards a Spectator Area, the minimum ►lateral◄ separation distance **should** be increased to 450 m.

(2) **Low Energy Display Flying.** For Low Energy Display Flying, as defined in para 23, the minimum ►lateral◄ separation distance **should** be 150 m.

(3) **Rotary Wing.** For normal take-off and landing, and during transitional manoeuvres, the minimum ►lateral◄ separation distance **should** be 65 m. For other stages of non-aerobatic flight, or at any time when an underslung load is carried, the minimum ►lateral◄ separation distance **should** be increased to 100 m.

(4) **VSTOL Aircraft (including Tilt Rotor Aircraft).** For vertical take-off and landing, and during non-wing borne flight at low speed, the minimum ►lateral◄ separation distance **should** be 150 m. By the time

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conventional wing borne flight is achieved, the Aircraft **should** be at the normal minimum ►lateral◄ separation distance of 230 m.

(5) **Balloons.** At displays where balloons operate, FDD **should** follow the guidance in CAP 403 and CAP 1741[53].

(6) **Airships.** Airships are operated as lighter-than-air Aircraft, and as such **should** be subject to Regulations applying to Fixed Wing Aircraft.

(7) **Model Aircraft.** FDD **should** follow the guidance given in CAP 403 and CAP 722 Unmanned Aircraft System Operations in UK Airspace[54].

(8) **RPAS[55].** RPAS **should not** be operated in a manner that presents undue Risk or Hazard to any person, ►vehicle,◄ vessel ►or◄ Structure. ►The HoE **should** ensure RPAS are operated iaw CAP 1789A or any lateral separation limits specified in the applicable RA 1600 Series Regulation or the RPAS Letter of Endorsed Categorization. If this separation criteria differs from that in this RA, the most stringent limit **should** be applied.◄

d. **Dual Spectator Areas.** In the case of Flying Displays at airfields / locations where Spectator Areas (and / or concentrations of Secondary Spectators) are on, or expected to be on, both sides of the Display Axis, the minimum lateral separation distance between the Display Line and the Spectator Areas, specified above, **should** apply on both sides of the Display Line.

Role Demonstrations and Flypasts (Mil)

113. **Minimum Heights at any other event.** ADH / AM(MF) **should** specify minimum heights for Role Demonstrations and Flypasts (Mil) not conducted as part of a Flying Display. These heights **should** be dependent upon the Aircraft type, Aircrew experience and the location of the event. However, they **should not** be less than the MSD specified in Table 8:

Table 8. Minimum Heights Part 3

	MSD (feet) at any other event			
	Fixed Wing	**Rotary Wing**	**Fixed Wing Close Formation**	**Rotary Wing Close Formation**
Flypast Only – Wings Level Flight ≤20° AOB	250	100	500	250
Role Demonstration Manoeuvres - Non-Aerobatic Flight ≤90° AOB	250[56]	100[57]	500	250
Aerobatic Manoeuvres, Inverted Flight and Link Manoeuvres	500	N/A PDA Required	N/A PDA Required	N/A PDA Required

Other Restrictions when conducting Display Flying, Role Demonstrations or Flypasts (Mil)

114. **Control of Engines.** Engines **should not** be deliberately shut down or feathered in flight; symmetrical thrust **should** be maintained at all times. In the event of an engine failure or unintended shutdown, the Display Sequence, Role Demonstration or Flypast **should** be Terminated;

115. **Armament.** Live weapons **should not** be carried at Flying Displays and all weapons circuit-breakers and switches **should** be in the 'safe' condition (except for flares and pyrotechnics when approved under the conditions at para ►118◄).

116. **Rotary Wing and VSTOL Aircraft.** Rotary Wing and VSTOL Aircraft **should not** be flown ►or taxied◄ in such proximity to buildings or Aircraft on the ground as to

[53] Refer to CAP 1741 – Balloon Declared Operator Guidance.
[54] Refer to ►CAP 1789A – Unmanned Aircraft Systems.◄
[55] Refer to RA 1600 Series: Remotely Piloted Air Systems.
[56] VSTOL Aircraft may operate below the MSD in Table 8 during hovering and transition manoeuvres iaw para ►112.c (4). ◄
[57] Rotary Wing Aircraft may operate below the MSD in Table 8 during hovering and transition manoeuvres iaw para ►112.c (3).◄

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cause a Hazard from downwash. If conducting underslung load activity, due consideration **should** be given to the load becoming unstable or detached;

117. **Parachute Demonstration / Display.** During the whole period scheduled for parachuting, all flying activity within the descent airspace and Parachute Landing Area[58], except that which is necessary for dispatching parachutists, **should** cease. The engines of Fixed Wing Aircraft **should** be shut down and Rotary Wing Aircraft rotors **should not** be turning until the last parachutist has landed;

118. **Use of Flares and Pyrotechnics.** The use of flares and pyrotechnics during a Flying Display **should** be subject to a specific Risk Assessment and final approval by the ADH / AM(MF) of the participating Aircraft, the HoE, the EO and the FDD. Flares, signal and smoke cartridges, and pyrotechnics **should** only be fired from such a height and position that prevents any remnants of the device landing among Spectators, near taxiing or static Aircraft, supporting personnel, ground equipment or third parties.

Guidance Material 2335(3)

Separation Distances, Minima and Restrictions

119. ►**RPAS as part of a Flying Display.** Additional guidance on inclusion of an RPAS into a UK CAA regulated Flying Display can be found in CAP 403.

120. RPAS Safety guidance is the responsibility of the ADH / AM(MF) / RPAS Responsible Officers / RPAS Accountable Managers (AM) / Civilian Operator and the HoE, who, through the FDD, will ensure that RPAS displaying as part of a Flying Display maintain safe separation iaw the ADH / AM(MF) / RPAS Responsible Officers / RPAS AM / Civilian Operator's safe operating guidelines.

a. The HoE will record any Risks, ensure that the RtL caused by the operation of RPAS at a Flying Display is ALARP and Tolerable and will record the Risks and mitigations appropriately.

b. The FDD will:

(1) Ensure that all RPAS activity is appropriately deconflicted from any crewed Display Items.

(2) Review the RPAS safe separation minima prior to the event; where minima are unavailable, or the HoE deems them to be inappropriate then the FDD will apply the minima applicable to a fixed wing Display Item.

(3) Ensure RPAS used to provide media footage or live feeds are deconflicted from the Flying Display by either time or distance. If distance deconfliction is taking place, RPAS operating areas will be deconflicted from the Display Area and all display crews briefed on RPAS operations, locations and timings.

(4) Ensure that RPAS are not flown as part of a Display Item with a crewed Aircraft.

121. **UK Military Participants at UK CAA-regulated events**. The UK CAA accepts a PDA for UK military Display Participants to display at UK CAA regulated events. FDD for UK CAA regulated Flying Displays may accept the PDA of UK military registered Aircraft as proof that they are competent and current in all required facets of Display Flying, as detailed in CAP 403.◄

[58] Including planned alternate Parachute Landing Areas.

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RA 2340 - Supernumerary Crew, Supernumerary Support Crew and Passengers

Rationale

On occasion, personnel other than a military registered Air System's Aircrew are required to be employed or carried where there is a justifiable and valid Service or Defence Contractor Flying Organization (DCFO) requirement; the scope of activity varies greatly dependent on the Air System type and the task that is being conducted. Such personnel are not necessarily trained to the same level as Aircrew, nor do they undergo the same medical screening and as such there may be additional Risk to Life (RtL) associated with the activity. To enable RtL to be managed to As Low As Reasonably Practicable (ALARP) and Tolerable, this Regulatory Article (RA) details the regulatory framework to be applied when Supernumerary Crew, Supernumerary Support Crew and Passengers are employed or carried on military registered Air Systems. However, due to the broad nature of the type of employment of these personnel across the Regulated Community, this RA requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to provide further detail within their orders and instructions regarding the conduct of this activity in their Areas of Responsibility (AoR).

Contents

Definitions Relevant to this RA
2340(1): Supernumerary Crew
2340(2): Supernumerary Support Crew
2340(3): Passengers - General
2340(4): Routine Air Transport Passengers
2340(5): Tactical Passengers
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2340(8): Carriage of VIP Passengers
2340(9): Carriage of Cadets as Passengers
2340(10): Carriage of Working Dogs

Definitions

Definitions Relevant to this RA

1. For the purpose of the authorization of flights on military registered Air Systems, the following definitions apply:

a. **Aircrew.** Persons authorized to conduct duties concerned with: operating or flying the Air System or; with the management of Passengers or cargo when in flight; and who are also qualified in accordance with (iaw) RA 2101[1].

b. **Supernumerary Crew.** A Supernumerary Crewmember is an individual, military or civilian, who is employed[2] on an Air System and authorized to carry out a specific duty (that does not require an Aircrew qualification[3]) while in flight or ground taxiing. This specific duty is to have an active role in achieving the purpose of the authorized flight and may involve the operation of Air System equipment / systems or authorized Equipment Not Basic to the Air System (ENBAS)[4] under the supervision of the Air System's Aircrew. See RA 2340(1).

c. **Supernumerary Support Crew.** A Supernumerary Support Crewmember is an individual, military or civilian, carried on an Air System to conduct specific duties essential to the execution of the Air System's mission or

[1] Refer to RA 2101 – Aircrew Qualifications.
[2] This RA uses the term 'employed' on Air Systems as opposed to 'carried' to distinguish that Supernumerary Crew have a role on the Air System while Supernumerary Support Crew and Passengers are carried.
[3] Guidance for Aircrew who do not also hold a Certificate of Qualification on Type (CQT) is contained in RA 2101(2): Entitlement to Conduct Flying Duties.
[4] Refer to RA 1340 – Equipment Not Basic to the Air System.

Definitions

task, but not required to carry out those duties while in flight or ground taxiing. The specific duty is not to have an active role in achieving the purpose of the authorized flight but is to contribute to its overall conduct through pre or post flight activity. See RA 2340(2).

d. **Passengers.** All personnel, military or civilian, who are not authorized as the Air System's Aircrew, Supernumerary Crew, or Supernumerary Support Crew for a flight are deemed to be Passengers. See RA2340(3). Due to the broad nature of the method in which Passengers are carried, the following sub-divisions are to be used:

(1) **Routine Air Transport Passengers.** Those Passenger flights governed by JSP800 Defence Movement and Transport Regulations. See RA 2340(4).

(2) **Tactical Passengers.** Passenger flights, not governed by JSP800, where Passengers are required to fly on or in support of operations or exercises, to meet essential tasking or as essential elements of training (including, but not limited to, Parachutists). See RA 2340(5).

(3) **Familiarization Flight Passengers**[5]**.** A flight designed to familiarize Aircrew, who do not hold a CQT for the Air System, with the characteristics of an Air System or its systems. The Passenger is permitted to handle[6] Air System controls or operate systems and occupy a crew position that routinely[7] requires a CQT, provided that the Passenger is qualified Aircrew[8]. See RA 2340(6).

(4) **Air Experience Flight Passengers**[9]**.** A flight designed to give the recipient airborne experience where the Passenger occupies a seat that does not demand an Aircrew occupant. Such flights can include the handling of Air System flying controls by the Passenger but are subject to greater restrictions than Familiarization Flights. See RA 2340(7).

Regulation 2340(1)

Supernumerary Crew

2340(1) ADH and AM(MF) **shall** publish orders that detail the requirements regarding the employment of Supernumerary Crew on military registered Air Systems within their AoR.

Acceptable Means of Compliance 2340(1)

Supernumerary Crew

General

2. An individual, military or civilian, **should** be categorized and authorized as Supernumerary Crew when they are employed on an Air System and authorized to carry out a specific duty (that does not require an Aircrew qualification[3]) while in flight or ground taxiing, or is undergoing a recognized training course to be qualified to do so. This specific duty **should** have an active role in achieving the purpose of the authorized flight and may involve the operation of Air System equipment / systems or authorized ENBAS under the supervision of the Air System's Aircrew.

3. ADH and AM(MF) **should** publish orders that define the Supernumerary Crew roles within their AoR.

4. Supernumerary Crew **should not** be unnecessarily exposed to hazardous flight profiles.

[5] For the purposes of this RA, Familiarization Flights also cover those activities often referred to as Passenger demonstration flights for industry or commercial purposes. From this point on in this RA the phrase "Familiarization Flight" will be used.
[6] For the purposes of this RA, handling is the physical interaction between an individual and any Air System control that alters the Air System's flight path, height or speed.
[7] As per any applicable orders, instructions and rules such as the Air System Document Set, Release To Service, and any wider ADH or AM(MF) orders.
[8] Refer to RA 2101 – Aircrew Qualifications para 2. a(1), b, c, d or e.
[9] For the avoidance of doubt, this type of Passenger flight encompasses the carriage of Passengers of any age, whether military or civilian, Aircrew or non-Aircrew.

Acceptable Means of Compliance 2340(1)

5. ADH and AM(MF) **should** ensure that Supernumerary Crew are only employed on military registered Air Systems within their AoR where there is a justifiable and valid Service or DCFO[10] requirement.

6. ADH and AM(MF) **should** publish orders or instructions that detail, as a minimum:

a. The required Supernumerary Crew qualifications and competence levels within their AoR;

b. The approval and authorization process to be followed for Supernumerary Crew to be employed on Air Systems within their AoR;

c. When Supernumerary Crew are prohibited from being employed on Air Systems within their AoR (they **should not** be employed during Simulated Instrument Flying (IF) where no Suitably Qualified Experienced Person (SQEP) safety lookout is present)[11];

d. Restrictions on Supernumerary Crew operating Air System equipment, systems or ENBAS;

e. The minimum Aircrew qualifications, experience or currency required to operate with Supernumerary Crew;

f. Prohibited flight profiles, training events or manoeuvres for flights involving Supernumerary Crew;

g. The safety and survival drill requirements[12] for Supernumerary Crew;

h. The wearing and carriage requirements[12] of approved Aircrew Equipment Assemblies (AEA) and safety equipment including the level of survival equipment to be available to, or issued to, Supernumerary Crew according to the likely hazards that might be met in the event of an emergency.

7. To be authorized as Supernumerary Crew, the duty that an individual is performing on an Air System **should** take place while the Air System is in flight or ground taxiing. An individual whose role or duty is associated with activity pre or post-flight **should not** be authorized as Supernumerary Crew.

8. ADH and AM(MF) **should** detail in orders instances where Supernumerary Crew who are also appropriately qualified Aircrew[8] are permitted to handle Air System flying controls, and any changes to the orders and instructions at para 6. a-e that apply. Other Supernumerary Crew **should not** handle Air System Flying Controls during flight or ground taxi.

Medical Employment Standards for Supernumerary Crew

9. ADH and AM(MF) **should** determine the appropriate medical standard for Supernumerary Crew within their AoR based on the activity that is being conducted.

10. ADH and AM(MF) **should** detail in orders the required medical standard and any anthropometric requirements for Supernumerary Crew to be employed on Air Systems within their AoR.

11. The minimum medical standard for the employment of Supernumerary Crew are:

a. **Physiological Flight Categories 1 or 2** (see Annex A for definition). Military and civilian Supernumerary Crew employed on Air Systems classified as Category 1 or 2 iaw Annex A **should** meet the respective medical requirements listed for Category 1 and 2 Passengers at Annex A.

b. **Physiological Flight Category 3 and Remotely Piloted Air Systems (RPAS) – Military.** As a minimum, military Supernumerary Crew **should** hold a Joint Medical Employment Standard (JMES) of A4 L2 M4 E2.

[10] As approved under the Contractor Flying Approved Organization Scheme (Refer to RA 2501 – Contractor Flying Approved Organization Scheme).
[11] Refer to RA 2307 – Rules of the Air.
[12] Refer to RA 2130 – Safety Equipment, Survival Drills and Training.

Acceptable Means of Compliance 2340(1)

c. **Physiological Flight Category 3 and RPAS – Civilian.** As a minimum, civilian Supernumerary Crew **should** meet the medical standards for a Driver and Vehicle Licensing Agency (DVLA) Group 1 Licence and complete the Civilian Supernumerary Crew Medical Self Declaration form[13].

12. If any doubt exists regarding the required JMES for Supernumerary Crew within their AoR, ADH **should** consult with the Command Flight Medical Officer (CFMO)(RAF), SO1 Aviation Medicine (Joint Helicopter Command (JHC)) or respective Command Advisor Aviation Medicine (RN / Army); AM(MF) **should** consult with the CFMO(RAF).

Certificate of Competence

13. Supernumerary Crew **should** hold a Certificate of Competence[14].

14. ADH and AM(MF) **should** define the content of the Certificate of Competence for Supernumerary Crew within their AoR based on the activity that is being conducted.

15. ADH and AM(MF) **should** issue orders detailing the Supernumerary Crew competence levels required for the safe operation of Air Systems within their AoR in terms of experience, qualifications and skill sets for each Air System and role.

16. ADH and AM(MF) **should** issue orders that detail the format and content of the Certificate of Competence for Supernumerary Crew within their AoR.

17. The Certificate of Competence **should** be documented in a formal and auditable record to be determined by the ADH / AM(MF).

Guidance Material 2340(1)

Supernumerary Crew

General

18. Due to the range of activity that takes place on military registered Air Systems, ADH and AM(MF) orders will provide specific direction to their AoR as to how this RA is to be applied and define the minimum requirements to ensure that the RtL associated with the employment of Supernumerary Crew within their AoR remains ALARP and Tolerable.

Medical Employment Standards for Supernumerary Crew

19. Due to the range of activities in which Supernumerary Crew may be employed, this RA requires ADH and AM(MF) to consider the activities within their AoR in which Supernumerary Crew operate and to ascertain the correct medical and anthropometric requirements.

20. Military and civilian Aircrew holding an appropriate and valid Aircrew JMES may be employed as Supernumerary Crew without additional medical examination, subject to the anthropometric clearance required for the Air System.

21. The Medical Standard required for a DVLA Group 1 Licence is based on a 20% risk of incapacitation of the individual. Where Supernumerary Crew are likely to be employed in safety critical roles on an Air System, ADH / AM(MF) may wish to increase the minimum civilian Medical Employment Standard (MES) to DVLA Group 2 – HGV, which is based on a 2% risk of incapacitation of the individual.

Certificate of Competence

22. The Supernumerary Crew Certificate of Competence will provide auditable evidence that the individual has achieved the level of competency required by ADH / AM(MF) orders to operate / be employed on the Air System.

[13] This can be found on the MAA websites.
[14] A Certificate of Competence **should** be issued using the same process as for Aircrew; refer to RA 2102 – Aircrew Competence in Role.

Regulation 2340(2)

Supernumerary Support Crew

2340(2) ADH and AM(MF) **shall** publish orders that detail the requirements regarding the carriage of Supernumerary Support Crew on military registered Air Systems within their AoR.

Acceptable Means of Compliance 2340(2)

Supernumerary Support Crew

General

23. An individual, military or civilian, **should** be categorized and authorized as Supernumerary Support Crew when they are carried on an Air System to conduct specific duties essential to the execution of the Air System's mission or task, but are not required to carry out those duties while in flight or ground taxiing, and are not otherwise authorized as a Passenger iaw RA 2340(3). The specific duty **should not** have an active role in achieving the purpose of the authorized flight but **should** contribute to its overall conduct through pre or post flight activity.

24. ADH and AM(MF) **should** publish orders that define the Supernumerary Support Crew roles within their AoR.

25. Supernumerary Support Crew **should not** be unnecessarily exposed to hazardous flight profiles.

26. ADH and AM(MF) **should** ensure that Supernumerary Support Crew are only carried on military registered Air Systems within their AoR where there is a justifiable and valid Service or DCFO[10] requirement.

27. ADH and AM(MF) **should** publish orders or instructions that detail, as a minimum:

a. The required Supernumerary Support Crew qualifications and competence levels within their AoR;

b. The approval and authorization process to be followed for Supernumerary Support Crew to be carried on Air Systems within their AoR;

c. When Supernumerary Support Crew are prohibited from being carried on Air Systems within their AoR (they **should not** be carried during Simulated IF where no SQEP safety lookout is present)[11];

d. The minimum Aircrew qualifications, experience or currency required to carry Supernumerary Support Crew;

e. Prohibited flight profiles, training events or manoeuvres for flights involving Supernumerary Support Crew;

f. The safety and survival drill requirements[12] for Supernumerary Support Crew;

g. The wearing and carriage requirements[12] of approved AEA and safety equipment including the level of survival equipment to be available to, or issued to, Supernumerary Support Crew according to the likely hazards that might be met in the event of an emergency.

28. To be authorized as Supernumerary Support Crew, the duty that an individual is performing on an Air System **should not** take place while the Air System is in flight or ground taxiing. An individual whose role or duty is associated with activity during flight or ground taxiing **should** be authorized as Supernumerary Crew iaw RA 2340(1).

29. Supernumerary Support Crew **should not** handle Air System flying controls during flight or ground taxi.

Approval and Authorization

30. For all Supernumerary Support Crew flights, ADH and AM(MF) **should** appoint approving officers iaw Annex A.

31. Approving officers **should**, in the first instance, assure themselves that the flight is appropriate, before approving the flight iaw Annex A.

Acceptable Means of Compliance 2340(2)

32. Medical approval for the flight **should**:

a. Be iaw Annex A and;

b. Take into account the Supernumerary Support Crew's anthropometric fitness for the Air System.

33. The Authorizing Officer or Aircraft Commander **should** seek medical advice from a Military Aviation Medical Examiner (MAME) for any Supernumerary Support Crew whose fitness is in doubt.

Physiological Flight Categories

34. Physiological flight categories for all Supernumerary Support Crew **should** be iaw AP1269A – Assessment of Medical Fitness and Annex A).

Guidance Material 2340(2)

Supernumerary Support Crew

General

35. Due to the range of activity that takes place on military registered Air Systems, ADH and AM(MF) orders will provide specific direction to their AoR as to how this RA is to be applied and define the minimum requirements to ensure that the RtL associated with the carriage of Supernumerary Support Crew within their AoR remains ALARP and Tolerable.

Regulation 2340(3)

Passengers - General

2340(3) ADH and AM(MF) **shall** publish orders that detail the requirements regarding the carriage of Passengers on military registered Air Systems within their AoR.

Acceptable Means of Compliance 2340(3)

Passengers - General

General

36. All personnel, military or civilian, who are not authorized as the Air System's Aircrew, Supernumerary Crew or Supernumerary Support Crew for a flight **should** be categorized and authorized as Passengers. Due to the broad nature of the method in which Passengers are carried, the following sub-categories **should** be used:

a. Routine Air Transport Passengers.

b. Tactical Passengers.

c. Familiarization Flight Passengers[5].

d. Air Experience Flight Passengers[9].

37. ADH and AM(MF) **should** ensure that Passengers are only carried on Air Systems within their AoR where there is a justifiable and valid Service or DCFO[10] requirement.

38. Passengers **should not** be unnecessarily exposed to hazardous flight profiles.

39. ADH and AM(MF) orders or instructions **should** detail the following:

a. The application of RA 2340 (4), (5), (6) and (7) to activity within their AoR;

b. The approval and authorization process to be followed for Passenger flights;

c. Any limitations, based on physiology, to be applied to ensure the safe carriage of passengers on Air Systems within their AoR (ie age, weight, height, anthropometrics etc);

d. Aircrew qualifications and / or experience required to fly Passengers;

e. The prohibited flight profiles, training events or manoeuvres for flights involving Passengers within their AoR (they **should not** be carried during Simulated IF where no SQEP safety lookout is present)[11];

f. Safety and survival drill requirements[12] for Passengers;

Acceptable Means of Compliance 2340(3)

g. The wearing and carriage requirements[12] of approved AEA and safety equipment, including the level of survival equipment to be available to, or issued to Passengers according to the likely hazards that might be met in the event of an emergency;

h. Passenger approach, boarding and departure procedures.

Approval and Authorization

40. For all Passenger flights, ADH and AM(MF) **should** appoint approving officers iaw Annex A.

41. Approving officers **should**, in the first instance, assure themselves that the flight is appropriate, before approving the flight iaw Annex A.

42. Medical approval for the flight **should**:

a. Be iaw Annex A and;

b. Take into account the Passenger's anthropometric fitness for the Air System.

43. The Authorizing Officer or Aircraft Commander **should** seek medical advice from a MAME for any Passenger whose fitness is in doubt.

Physiological Flight Categories (Passenger)

44. Physiological flight categories for all Passengers **should** be iaw AP1269A – Assessment of Medical Fitness and Annex A.

Authority of the Aircraft Commander

45. Passengers **should** be made aware that, regardless of rank, they are subordinate to the Aircraft Commander and crew for the duration of the flight in all matters relating to the direction and handling of the Air System and the safety of its Passengers, crew and equipment.

Emergencies, Safety and Survival Equipment, and Briefing

46. Before any flight in military registered Air Systems, Passengers **should** receive a safety briefing that covers as a minimum[15]:

a. Air System emergencies (including ditching / ejection), safety and survival systems, methods of escape, and likely rescue methods;

b. Use of protective clothing, safety and survival equipment;

c. Forbidden items that are not to be carried or used in the Air System;

d. Baggage handling and stowage;

e. Procedures before and after flight;

f. Facilities and use of the Air System's emergency systems and pertinent survival drills;

g. Use of switches or other controls for comfort, or for the safe operation of the Air System;

h. Loose articles and Foreign Object Damage / Debris;

i. Any other safety-critical Air System equipment and systems that they might have cause to interact with either intentionally or unintentionally;

j. Dangers of interfering with Air System controls;

k. Air System approach, boarding and departure procedures.

l. The use of Portable Electronic Devices.

47. Safety and survival equipment briefings **should** be given by Aircrew with a CQT or Certificate of Competence for the Air System, or suitably qualified survival

[15] Due to the nature of Tactical Passenger flights it may not always be possible for some Tactical Passengers to receive a full pre-flight brief. See RA 2340(5) for details on reduced briefing requirements for some Tactical Passengers.

Acceptable Means of Compliance 2340(3)

equipment personnel. Emergency and ditching / ejection briefings **should** only be given by Aircrew with a valid CQT or Certificate of Competence for the Air System.

48. The Aircraft Commander **should** ensure that Passengers do not carry unrestrained articles that might affect the operation of Air System equipment, systems or flying controls[16].

49. Authorizing Officers, Aircraft Commanders or those responsible for safety briefings **should** deny or withdraw Passenger approval to fly if they are not satisfied that a Passenger has fully understood the safety briefing, or that a Passenger is incapable of carrying out briefed emergency procedures.

Carriage of Passengers During Display Flying, Flypasts and Role Demonstrations

50. Passengers **should not** be carried during Display Flying[17].

51. ADH / AM(MF) orders **should** detail when Passengers may be carried during Flypasts and Role Demonstrations within their AoR.

52. ADH / AM(MF) orders **should** detail the approval and authorization process to be followed when Passengers are carried on Flypasts and Role Demonstrations.

Boarding Procedures and Supervision for Helicopters

53. Passengers **should** board or depart the helicopter under the supervision of a crew member or suitably authorized personnel as detailed within ADH / AM(MF) orders.

54. Boarding procedures for helicopters **should** take into account rotor blade 'sail'.

55. Aircraft Commanders **should not** allow Passengers beneath rotor blades while they are engaging or disengaging.

56. Passengers **should not** be permitted under rotating rotor blades unless authorized by the handling pilot.

57. Passengers travelling in the cabin of a helicopter **should** be supervised by a member of the Air System's Aircrew. In helicopters where the cockpit is integral with the cabin, this supervisory requirement **should** only be relaxed at the discretion of the Authorizing Officer.

58. Passengers **should** be suitably secured at all times when the helicopter is moving, except when authorized by the Aircraft Commander. The Aircraft Commander **should** take the following into account when allowing Passengers to unstrap or move about the helicopter:

a. The security of cabin doors and hatches;

b. The availability of dispatcher harnesses and connection to a serviceable intercom system;

c. Essential mission or training requirements;

d. Poor weather, especially anticipated turbulence;

e. The ability of crew members to manage emergencies.

Guidance Material 2340(3)

Passengers - General

General

59. **Familiarization Flight Passengers**[5]**.** The Passenger may be permitted to handle[6] Air System controls or operate systems and occupy a crew position that routinely[7] requires a CQT, provided that the Passenger is qualified Aircrew[8].

60. **Air Experience Flight Passengers**[9]**.** Such flights may include the handling of Air System flying controls by the Passenger and will normally be subject to greater restrictions than Familiarization Flights.

[16] Refer to RA 2309(3): Carriage of Loose Articles and Stores; and RA 2360 – Portable Electronic Devices.
[17] Refer to RA 2335 – Flying Displays, Display Flying, Role Demonstrations and Flypasts.

Guidance Material 2340(3)

61. **Medical Examination**. Aircrew holding a valid Aircrew JMES may fly as Passengers without additional medical examination subject to anthropometric clearance[18] as required. Iaw RA 2135[19], consideration must be given to the relevance of their aviation medicine knowledge for the intended flight. The medical assessment and level of aviation medicine training required of all other Passengers is related to the category and frequency of flight as detailed in AP1269A and at Annex A.

Safety Responsibility for Passengers

62. The specific operational role, mission or task may dictate the level of safety and survival equipment to be provided to Passengers as there will be occasions where the requirement for troops to wear full safety and survival equipment may not be compatible with operational effectiveness. Where ADH / AM(MF) allow levels of safety and survival equipment to be reduced to facilitate a 'train-as-you-fight' approach, this activity must be specifically reflected within the Air System Safety Case iaw RA 1205[20].

Emergencies, Safety and Survival Equipment, and Briefing

63. **Passenger Briefing Cards and Videos.** Passenger Briefing Cards and video presentations may be used as an aid to Passenger briefing.

Carriage of Passengers During Display Flying, Flypasts and Role Demonstrations

64. Display Flying, Flypasts and Role Demonstrations can involve an increase in RtL over normal operating and must be managed appropriately, iaw RA 2335[17].

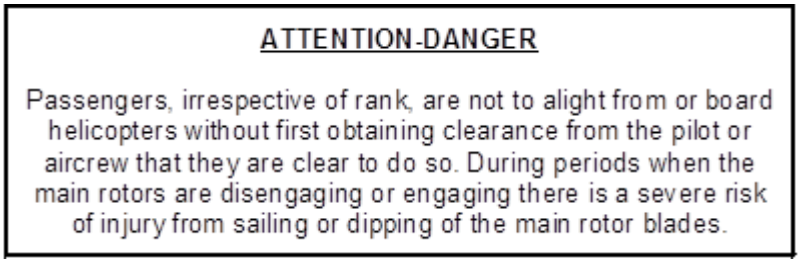
65. To provide assurance of the processes that manage this RtL, this RA prevents the carriage of Passengers during Display Flying unless MAA approval has been granted by following the AAMC / Waiver / Exemption processes described in MAA03[21].

66. This RA allows ADH and AM(MF) to determine the conditions where Passengers may be carried during Flypasts and Role Demonstrations. Where an ADH and AM(MF) allows the carriage of passengers during Flypasts and Role Demonstrations, this activity must be specifically reflected within the Air System Safety Case iaw RA 1205[20].

Boarding Procedures and Supervision for Helicopters

67. **Helicopter Safety Notice.** A notice will be prominently displayed in all helicopter cabins as follows:

Figure 1. Passenger Notice.



Note:

For Aircraft under-pinned by a civil Type Certificate, it may not be possible to affix the above notice to the Aircraft cabin. In this situation crews will ensure that a briefing card containing the information in the notice above is brought to the attention of all Passengers prior to or immediately after boarding the Aircraft.

68. **Helicopter Blade Sail.** In gusty or turbulent conditions some helicopter main rotors are liable to 'sail', and the effect of this has been known to make them dip low enough to hit the ground or deck. This can occur at any time, but the effect is particularly marked when the rotors are being engaged or disengaged.

[18] Refer to RA 2130(6): Ejection Seat Anthropometrics; and RA 2135 - Aircrew Medical Requirements.
[19] Refer to RA 2135 – Aircrew Medical Requirements.
[20] Refer to RA 1205 – Air System Safety Cases.
[21] Refer to MAA03: Military Aviation Authority Regulatory Processes.

Guidance Material 2340(3)

Passenger Records

69. The Passenger Briefing Form[13] is designed to capture the minimum details required to be recorded for Familiarization and Air Experience Flight Passenger flying. Locally produced variants of this form or local processes may be used provided they capture, as a minimum, all the details contained within the Passenger Briefing Form[13] for each Passenger. While the Passenger Briefing Form[13] is not mandated for Tactical Passengers, this form may be an appropriate template for Tactical Passenger flights where it is practical to complete.

Regulation 2340(4)

Routine Air Transport Passengers

2340(4) ADH and AM(MF) **shall** publish orders that detail the requirements regarding the carriage of Routine Air Transport Passengers on military registered Air Systems within their AoR.

Acceptable Means of Compliance 2340(4)

Routine Air Transport Passengers

General

70. The Authorizing officer and Aircraft Commander **should** be satisfied that:

a. The requirements of JSP800 are met for Routine Air Transport Passengers;

b. The names of Routine Air Transport Passengers have been recorded and retained outwith the Aircraft for the duration of the flight iaw JSP800.

Guidance Material 2340(4)

Routine Air Transport Passengers

71. This regulation must be read in conjunction with RA 2340(3).

Regulation 2340(5)

Tactical Passengers

2340(5) ADH and AM(MF) **shall** publish orders that detail the requirements regarding the carriage of Tactical Passengers on military registered Air Systems within their AoR.

Acceptable Means of Compliance 2340(5)

Tactical Passengers

General

72. ADH / AM(MF) orders **should** state the restrictions to be applied within their AoR when Tactical Passengers are carried.

73. Tactical Passengers **should not** handle Air System flying controls or operate Air System systems.

74. Tactical Passengers **should not** be carried during:

a. Practice emergencies;

b. ►Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres◄ (except for dedicated Special Forces training).

75. ADH / AM(MF) orders **should** detail the approval and authorization process and any applicable restrictions to be applied when Tactical Passengers are carried during:

a. Test and Evaluation flying;

b. Simulated emergencies;

c. Post-Maintenance test flights;

d. Dedicated Special Forces ►Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres.◄

Acceptable Means of Compliance 2340(5)

Passenger Briefing

76. It might not always be possible for Tactical Passengers to receive a pre-flight brief iaw RA 2340(3)[22]. ADH / AM(MF) **should** stipulate in orders:

a. The reduced briefing requirements to be applied in such situations;

b. When the reduced briefing can be applied;

c. Who is able to conduct such briefings where Aircrew with a CQT for the Air System or suitably qualified survival equipment personnel are not present.

77. The dispensation for reduced briefings **should not** apply to the carriage of Cadet Forces.

78. The Aircraft Commander **should** ensure that Tactical Passenger briefing arrangements are in place prior to the sortie.

Approval and Authorization

79. The Aircraft Commander **should** be satisfied that as far as practicable, Tactical Passengers:

a. Have received and understood the minimum briefing requirements stipulated by ADH / AM(MF) orders or instructions;

b. Are confirmed medically fit for the flight being undertaken iaw Annex A and their anthropometrics are within limits;

c. Who are carried as Aeromedical patients, are reviewed in advance by medical staff and deemed fit to either travel unassisted or assisted by additional Aeromedical escorts.

Passenger Records

80. **Passenger Manifest**. The names of all Tactical Passengers **should** be recorded and retained outwith the Aircraft for the duration of the flight by either:

a. The flight authorization record or on a suitable Passenger manifest[13], or;

b. When Passengers are carrying out a recognized military task or essential training and it is impractical to record their details, the parent authority of the Passengers or the tasking authority for such movements **should** retain a list of those personnel until the flight is complete and all personnel have been accounted for.

81. The Aircraft Commander **should** ensure that a suitable method of recording Passenger details is in place prior to flight.

Guidance Material 2340(5)

Tactical Passengers

82. This regulation must be read in conjunction with RA 2340(3).

Passenger Records

83. While the Passenger Briefing Form[13] is not mandated for Tactical Passengers, this form may be an appropriate template for Tactical Passenger flights where it is practical to complete before flight (ie the Passengers are collocated where the flight is commencing) to provide auditable evidence of pre-flight briefings and medical self-certification.

Regulation 2340(6)

Familiarization Flight Passengers

2340(6) ADH and AM(MF) **shall** publish orders that detail the requirements regarding the carriage of Familiarization Flight Passengers on military registered Air Systems within their AoR.

[22] Such situations might include where Passengers are collected from ships, field locations or other remote areas.

Acceptable Means of Compliance 2340(6)

Familiarization Flight Passengers

General

84. Familiarization Flight Passengers **should** be Aircrew[1].

85. ADH / AM(MF) orders **should** state the restrictions to be applied within their AoR when Familiarization Flight Passengers are carried. As a minimum, these orders **should** include:

a. The minimum flying qualifications, experience and skill sets required for Familiarization Passengers;

b. The training packages required for Familiarization Flight Passengers.

86. Familiarization Flights that include the handling of Air System flying controls by the Passenger **should** be carried out in an Air System fitted with dual controls and supervised from a control position by an appropriately qualified Aircrew Instructor.

87. Handling of an Air System's flying controls by a Familiarization Flight Passenger **should** only be undertaken when the characteristics of an Air System and / or its systems cannot be adequately demonstrated in a Flight Simulator Training Device. ADH / AM(MF) orders **should** state when it is more appropriate for the characteristics of an Air System and / or its systems to be demonstrated in flight.

88. Familiarization Flight Passengers **should not** handle Air System flying controls, operate Air System systems, or occupy a CQT crew position during any of the following profiles / events[23]:

a. Operational tasks;

b. Practice emergencies;

c. Post-Maintenance test flights;

89. If ADH / AM(MF) orders allows Familiarization Flight Passengers to be carried, consideration **should** be given as to whether it is appropriate for Familiarization Flight Passengers to handle Air System flying controls, operate Air System systems, or occupy a CQT crew position during the following profiles / events[23]:

a. Test and Evaluation test points;

b. When other Passengers or non-essential personnel are being carried;

c. Weaponry;

d. Simulated emergencies;

e. ►Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres;◄

f. Low Flying;

g. Mountain flying;

h. Air Drop - personnel or stores;

i. Night flying;

j. Formation flying;

k. Hovering in confined areas;

l. Flight in Instrument Meteorological Conditions (IMC);

m. Take-off and landing.

Approval and Authorization

90. The Authorizing Officer **should** confirm and indicate via signature on the Passenger Briefing Form[13] that the requirements listed within the form have been completed for Familiarization Flight Passengers.

[23] This list is not exhaustive and ADH / AM(MF) **should** provide additional detail as necessary.

Acceptable Means of Compliance 2340(6)

91. The Aircraft Commander **should** be satisfied that the Authorizing Officer has signed the Passenger Briefing Form[13] for Familiarization Flight Passengers.

Passenger Records

92. The flight authorization record **should** be used, or a suitable Passenger manifest[13] (to be retained with the flight authorization record).

93. A Passenger Briefing Form[13] **should** be completed before flight for all Familiarization Flight Passengers, which **should** be retained with the flight authorization record.

Guidance Material 2340(6)

Familiarization Flight Passengers

94. This regulation must be read in conjunction with RA 2340(3).

Regulation 2340(7)

Air Experience Flight Passengers

2340(7) ADH and AM(MF) **shall** publish orders that detail the requirements regarding the carriage of Air Experience Flight Passengers on military registered Air Systems within their AoR.

Acceptable Means of Compliance 2340(7)

Air Experience Flight Passengers

General

95. ADH / AM(MF) orders **should** state the restrictions to be applied within their AoR when Air Experience Flight Passengers are carried.

96. Air Experience Flight Passengers **should** only occupy a seat that does not demand an Aircrew occupant[7].

97. Air Experience Flight Passengers **should** only handle Air System flying controls in Air Systems fitted with dual controls.

98. The following profiles / events[23] **should not** be undertaken during flights with Air Experience Flight Passengers:

a. Operational tasks;

b. Practice emergencies;

c. Post-Maintenance test flights;

99. Air Experience Flight Passengers **should not** handle Air System flying controls or operate Air System systems during the following profiles / events[23]:

a. Test and Evaluation test points;

a. When other Passengers or non-essential personnel are being carried;

b. Weaponry;

c. Simulated emergencies;

d. ►Air Combat Manoeuvring, Basic Fighter Manoeuvres and Basic Helicopter Manoeuvres;◄

e. Low flying;

f. Mountain flying;

g. Air Drop - personnel or stores;

h. Night flying;

i. Formation flying;

j. Hovering in confined areas;

k. Flight in IMC;

Acceptable Means of Compliance 2340(7)

l. Take-off and landing.

Approval and Authorization

100. The Authorizing Officer **should** confirm and indicate via signature on the Passenger Briefing Form[13] that the requirements, as listed within the form, have been completed for Air Experience Flight Passengers.

101. The Aircraft Commander **should** be satisfied that the Authorizing Officer has signed the Passenger Briefing Form[13] for Air Experience Flight Passengers.

Passenger Records

102. The flight authorization record **should** be used, or a suitable Passenger manifest[13], (to be retained with the flight authorization record).

103. A Passenger Briefing Form[13] **should** be completed before flight for all Air Experience Flight Passengers, which **should** be retained with the flight authorization record.

Guidance Material 2340(7)

Air Experience Flight Passengers

104. This regulation must be read in conjunction with RA 2340(3).

Regulation 2340(8)

Carriage of VIP Passengers

2340(8) ADH and AM(MF) **shall** publish orders that detail the requirements regarding the carriage of VIP Passengers on military registered Air Systems within their AoR.

Acceptable Means of Compliance 2340(8)

Carriage of VIP Passengers

105. The approval of the Head of Royal Travel **should** be obtained before a Royal Flight is carried out in military registered Air Systems.

106. ADH and AM(MF) **should** take Societal Concern into account when approving the carriage of VIPs as Passengers in military registered Air Systems and:

a. **Should** provide guidance on persons deemed to hold VIP status[24];

b. **Should** define the specific experience level and qualifications required by Aircraft Commanders (and other crew as applicable) before they can be considered for flying VIPs.

Guidance Material 2340(8)

Carriage of VIP Passengers

107. The Head of Royal Travel is contactable via the Royal Household switchboard.

Regulation 2340(9)

Carriage of Cadets as Passengers

2340(9) ADH and AM(MF) **shall** publish orders that detail the requirements regarding the carriage of Cadet Forces as Passengers on military registered Air Systems within their AoR.

Acceptable Means of Compliance 2340(9)

Carriage of Cadets as Passengers

108. Members of Cadet Forces **should** only fly as Passengers in military registered Air Systems provided that:

a. The cadets are conducting authorized activities;

[24] Further tri-service guidance on VIP status is in Appendix 44 to J741, Queen's Regulations for the Royal Air Force.

Acceptable Means of Compliance 2340(9)

b. The flight does not extend beyond the UK territorial boundaries or the territorial boundaries of a military airfield / unit abroad unless approved by the appropriate Commander;

c. Flights in single-engine Aircraft do not proceed over water unless within range of a suitable forced landing area;

d. Each cadet has a certificate giving:

(1) The written consent of their parent or guardian and;

(2) For cadets still at school the written permission of the Head of School for any flying activity arranged by the school which takes place during school time.

109. The safety and duty of care arrangements for the carriage of cadets undertaken outside the Cadet HQ's AoR **should**:

a. Be reflected in the orders of the relevant ADH or AM(MF);

b. Include proof of membership of the respective Cadet Force organization and proof of parental / guardian permission to fly;

c. Include requirements for the briefing of cadets at least as stringent as those for other Passengers;

(1) The dispensation for reduced Tactical Passenger briefings at RA 2340(5) **should not** be used for the carriage of cadets.

110. Arrangements for the flying of Cadet Forces with Volunteer Gliding Squadrons, Air Experience Flights[25] or the Air Cadet Pilot Scheme **should** be iaw the detailed Cadet Force management arrangements specified by Cadet HQ and the relevant ADH or AM(MF) orders.

Passenger Records

111. A Passenger Briefing Form[13], or equivalent local variant / process, **should** be completed for the carriage of cadets, unless the flight is classified as a Routine Air Transport flight.

Medical Standards for Cadets Carried as Air Experience Flight Passengers

112. Cadets carried as Air Experience Flight Passengers **should** meet the medical standards defined in Annex A.

Guidance Material 2340(9)

Carriage of Cadets as Passengers

113. This regulation must be read in conjunction with RA 2340(3).

114. For the purposes of this RA, Cadet Forces are defined as

a. The MOD-Sponsored Cadet Forces listed in JSP 814[26];

b. The MOD-Recognized Youth Organizations listed in JSP 814 who have been formally recognized by the MOD through a RAF General Administrative Instruction or equivalent single-Service document.

115. Further guidance on the recognition of Cadet Forces can be found in JSP 814 and 2017DIN05-019 - Support to Non MOD-Sponsored Cadet Units and Organizations.

Regulation 2340(10)

Carriage of Working Dogs

2340(10) ADH and AM(MF) **shall** detail the requirements regarding the carriage of Working Dogs on military registered Air Systems within their AoR.

[25] This refers to specific Air Experience Units, not the type of Passenger flight.
[26] JSP 814 – Policy and Regulations for MOD - Sponsored Cadet Forces.

Acceptable Means of Compliance 2340(10)

Carriage of Working Dogs

116. In addition to the requirements of JSP800 for the movement of animals:

a. All dogs **should** be muzzled, restrained on a leash, and accompanied by a dog handler, while inside or in the vicinity of the Aircraft;

b. Dog handlers **should** occupy a rear seat in the Aircraft, with the animal restrained between their legs;

c. Aircraft Commanders **should** ensure that dog handlers are aware of the safe procedures for boarding and departing the Aircraft.

Guidance Material 2340(10)

Carriage of Working Dogs

117. Nil.

ANNEX A - PASSENGER AND SUPERNUMERARY SUPPORT CREW APPROVALS

Physiological Flight Categories	**1** (See Note 1)	**2**	**3** (See Note 2)
Definition	Cabin altitude exceeding 18,000 ft; and / or rates of ascent / descent greater than 10,000 ft / min; and / or acceleration forces exceeding +4.5 g or -1 g.	All flights in ejection seat Aircraft but of lesser severity than Category 1 flights. Due to the enhanced protection afforded by its AEA, Category 2 limits for Typhoon are extended to include cabin altitudes of up to 20,000 ft with no greater than 15 mins above 18,000 ft, and acceleration forces not exceeding +7 g or -1 g.	Flight conditions less severe than Category 2 and flights in normal Passenger carrying Air Systems.
Approval for Flight: Civilian Personnel (See Note 3)	Commanding Officers, of at least OF4 rank, who have been formally empowered to approve the carriage of civilian personnel within their AoR by ADH orders or instructions; or, Flight Operations post holders, who have been formally empowered to approve the carriage of civilian personnel within their AoR by AM(MF)[27] orders or instructions.	Commanding Officers, of at least OF4 rank, who have been formally empowered to approve the carriage of civilian personnel within their AoR by ADH orders or instructions; or, Flight Operations post holders, who have been formally empowered to approve the carriage of civilian personnel within their AoR by AM(MF)[27] orders or instructions.	
Approval for Flight: Service[28] Personnel (See Note 3)	Commanding Officers, of at least OF4 rank, who have been formally empowered to approve the carriage of Service personnel within their AoR by ADH orders or instructions; or, Flight Operations post holders, who have been formally empowered to approve the carriage of Service personnel within their AoR by AM(MF)[27] orders or instructions.	Commanding Officers, of at least OF3 rank, who have been formally empowered to approve the carriage of Service personnel within their AoR by ADH orders or instructions; or, Flight Operations post holders, who have been formally empowered to approve the carriage of Service personnel within their AoR by AM(MF)[27] orders or instructions.	
Medical Approval : Civilian and Service Personnel[28] (See Note 4)	**Occasional / Frequent** Examination/Anthropometry iaw AP1269A Lflt 3-03 Annex C. All individuals **should** hold a minimum JMES of A4 L2 M4 E2, MFD or meet this equivalent standard if civilian. Further advice on fitness and JMES can be sought from CFMO (RAF) Hd AvMed RN or CA AvMed (Army).	**Occasional / Frequent** Examination / Anthropometry iaw AP1269A Lflt 3-03 Annex C. All individuals **should** hold a minimum JMES of A4 L2 M4 E2, MFD or meet this equivalent standard if civilian. Further advice on fitness and JMES can be sought from CFMO (RAF) Hd AvMed RN or CA AvMed (Army).	Medical examination is not normally required. Familiarization Flight, Supernumerary Support Crew and Air Experience Flight Passengers self-certify using the Passenger Briefing Form[13]. Cadets carried as Air Experience Flight Passengers **should** meet the medical standard defined in AP1269A, Leaflet 3-03, Annex F. If the Aircraft Commander has any doubts regarding a Passenger's fitness to fly, a MAME **should** be contacted.

[27] Refer to RA 1024 – Accountable Manager (Military Flying).
[28] Regular and Reserve.

Notes:

1. The Passenger or Supernumerary Support Crew **should** have had the appropriate elementary practical instruction on hypoxia and the use of oxygen equipment.
2. Approval to fly and medical administration prior to flight for Routine Air Transport Passenger flights is governed by JSP800.
3. This responsibility may be delegated to an individual deemed to be suitably qualified and experienced to approve flight for passengers and Supernumerary Support Crew. Where this responsibility is delegated:
    a. It **should** be done in writing;
    b. An auditable record of the delegation **should** be retained with the flight authorization record;
    c. ADH / AM(MF) orders or instructions **should** detail the process within their AoR for delegating authority to approve flight for passengers.
4. A Passenger who undertakes no more than one flight in a four-month period is classed as undertaking an 'occasional' flight whereas Passengers who exceed this frequency are classed as undertaking 'frequent' flights. However, in the case of Service personnel flying as Passengers to undertake an operational task, the series of flights required to complete the task might be considered a single 'occasional' flight. Such personnel undertaking more than one operational task of this nature in a four-month period are considered to be undertaking 'frequent' flying.

RA 2345 - Aircrew Fatigue Management

Rationale

►*Fatigue is a significant factor in degrading the performance of Aircrew. Aircrew suffering from fatigue may not be fit to perform their duty and present a Risk to Flight Safety. This Regulation requires Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to manage Aircrew fatigue.*◄

Contents

2345(1): Management of Aircrew Fatigue

2345(2): Use of Temazepam in the Management of Work and Rest in Aircrew

Regulation 2345(1)

Management of Aircrew Fatigue

2345(1) ADH and AM(MF) **shall** define the maximum allowable flying hours and measures to provide for compulsory rest periods for Aircrew.

Acceptable Means of Compliance 2345(1)

Management of Aircrew Fatigue

1. ADH and AM(MF) **should** define in orders the 'crew duty day' that is allowable for Aircrew in any 24-hour period. ►These orders◄ **should** ►◄ take into account the aspects required to perform special operations and missions, and as a minimum ►address:◄

   a. Maximum flying times;

   b. Cockpit alert time;

   c. Standby duties ►and;◄

   d. Compulsory rest periods.

2. Periods of activity **should** alternate with compulsory rest periods. The maximum accumulated flying hours ►for pilots◄ **should not** exceed the hours ►given in Table 1◄[1]:

Table 1. Maximum ►Pilot◄ Accumulated Flying Hours.

	Type of ►Aircraft or Remote Pilot Station◄		
	Single Pilot	Multi Pilot (unpressurized)	Multi Pilot (pressurized)
Per Month	90	125	150
Per Quarter	240	330	400
Per Annum	850	1200	1400

3. ►Authorizers◄ **should** ►◄ enforce the fatigue management limits and measures stated in orders.

4. ►Where Aircraft or Remote Pilot Stations are also crewed by non-pilot Aircrew, ADH and AM(MF) **should** define in orders their maximum accumulated flying hours for non-pilot Aircrew per month, quarter and annum having considered the Flight Safety implications and stressors of their role.◄

5. ►◄ Aircrew **should** make full use of opportunities to rest and avoid activity detrimental to the next crew duty period. Non-military flying and other fatiguing activities **should** be considered ►by both Aircrew and Authorizers◄ when reviewing activity prior to the next planned duty cycle.

6. ADH and AM(MF) **should** define in orders the procedures for granting extensions or exceptions to fatigue management limitations.

[1] Table as per STANAG 3527 – ►◄ Fatigue Management ►in Air Operations.◄

Guidance Material 2345(1)

Management of Aircrew Fatigue

7. ►Factors that may be considered when setting◄ maximum flying times and compulsory rest periods ►include, but are not limited to:◄

a. The need for climatic or environmental acclimatization;

b. The type and distance of accommodation used by Aircrew from the operating base;

c. Disturbance and actual rest taken during the stand-down period;

d. The time that Aircrew arrived on duty;

e. Flying related ground activities (instructions, briefings, mission planning, simulator training etc);

f. Type of ►Aircraft◄ (in relation to ►Aircraft◄ performance, noise and vibration, workload and effort of the individual Aircrew);

g. Cumulative and / or split duty periods;

h. Extremes of temperature during ground operations;

i. The time taken to complete the task, delays incurred and expected (latest) landing time;

j. ►Flight across multiple time zones;

k. The◄ personal and social situation of individual Aircrew;

l. The fatiguing effect of non-military flying.

8. ►All in the supervisory chain◄ may impose more stringent Aircrew fatigue management limits in the interests of Flight Safety.

9. ►Aircrew have an individual responsibility in the avoidance of fatigue. Therefore, prior to their next planned duty cycle, individuals need to ensure that they achieve adequate rest and avoid activity detrimental to the next duty period.

10. Fatigue management training is beneficial to equip personnel at all levels with the skills to identify the signs and symptoms of fatigue, and to manage associated Hazards. Fatigue management is an essential objective of the Aviation Medicine course as described in RA 2135(5)[2]. A specific focus on fatigue related issues may also be included in pre-deployment training.

11. A Fatigue Risk Management System (FRMS) is a recognized civilian methodology, based on scientific principles, that allows operators to manage the fatigue related Hazards particular to their types of operations and context. An FRMS may assist ADH / AM(MF)s to manage fatigue Risk within the stipulations of Table 1.

12. Whilst not mandatory for Aircrew within the Defence Air Environment, ADH and AM(MF) may wish to refer to CAP 371[3] guidance to understand the commercial aviation view on avoiding Aircrew fatigue.◄

[2] ►Refer to RA 2135(5): Aviation Medicine Training.
[3] Refer to CAP 371 – The Avoidance of Fatigue In Aircrews.◄

Regulation 2345(2)

Use of Temazepam in the Management of Work and Rest in Aircrew

2345(2) ADH **shall** issue orders ►for◄ the use of Temazepam in ►their Area of Responsibility (AoR) to manage work and rest schedules.◄

Acceptable Means of Compliance 2345(2)

Use of Temazepam in the Management of Work and Rest in Aircrew

13. Temazepam **should** be prescribed and used in accordance with (iaw) AP1269A[4].

14. ADH **should** issue orders ►for◄ the ►◄ use of Temazepam within their AoR in consultation with Aviation Medical Subject Matter Experts and iaw AP1269A[4].

15. ADH orders **should** ►emphasize◄ that the use of Temazepam ►is◄ only ►to◄ be considered as an adjunct and ►is◄ not considered a substitute for effective scheduling and rest patterns.

16. Aircrew **should** undergo a successful ground trial[4] of Temazepam ►before any intended use to ensure they suffer no adverse side effects. The date of the trial and any limitations **should** be recorded in the medical section of their Flying Logbook.◄

17. Temazepam **should not** be taken for any longer than 5 days consecutively, and **should not** be taken for more than a total of 20 days in a 60-day period.

18. ►◄ Temazepam **should** only be used by Aircrew in the management of work and rest on operations, operational training and route flying. ►◄ The use of Temazepam **should not** be considered by Defence Contractor Flying Organizations.

Guidance Material 2345(2)

Use of Temazepam in the Management of Work and Rest in Aircrew

19. Military Aviation Medical Examiners may prescribe Temazepam for use by Aircrew in the management of work and rest in operational scenarios, operational training and route flying. The drug is effective in inducing sleep and leaves no residual conditions or complications when used judiciously. Its short duration of activity prevents significant accumulation in the body, and extensive testing has failed to detect any harmful effects on individuals' performance 6 hours after ingestion. However, the use of Temazepam is an adjunct to an effective management plan for work and rest schedules, it is not a substitute.

20. Further guidance on the management and employment of Temazepam can be found in AP1269A[4].

[4] Refer to AP1269A – ►RAF Manual◄ - Assessment of Medical Fitness, Leaflet 5-19 Annex C - Temazepam in the Management of Work and Rest in Aircrew.

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RA 2350 - Air System Emergencies

Rationale

►*During an Air System Emergency, Aircrew are required to make timely and safety critical decisions, and take the appropriate actions. Errors in emergency handling and management will lead to an unacceptable increase in Risk to Life*◄*. Aircrew must use a standard set of immediate actions during an emergency situation and support these with common verbal or visual instructions.*

Contents

2350(1): Air System Emergencies

Regulation 2350(1)

Air System Emergencies

2350(1) Aircrew operating UK military Air Systems **shall** have a thorough knowledge, appropriate to their Aircrew specialization, of the emergency procedures and drills specific to the Air System they are operating.

Acceptable Means of Compliance 2350(1)

►Air System◄ Emergencies

1. Emergency procedures and drills **should** be as detailed in the Air System Document Set ►◄.

2. **Emergency Codewords**. If the Aircraft Commander considers it probable that the Aircraft must be abandoned, or that a state of emergency exists, the emergency codewords in Table 1 **should** be used:

Table 1. Emergency Codewords.

EMERGENCY CODEWORDS	MEANING	OCCASION FOR USE
EJECT! EJECT!	Abandon the Aircraft immediately by ejection seat.	When necessary to abandon the Aircraft immediately.
JUMP! JUMP!	Abandon the Aircraft immediately by parachute.	As above.
DITCHING! DITCHING! PREPARE FOR DITCHING!	The Aircraft is about to touch down on water; take up ditching stations and prepare to abandon the Aircraft as soon as it is safe to do so.	When ditching is imminent.
BRACE! BRACE!	The Aircraft is about to be arrested violently, prepare for the impact by locking safety harness and bracing limbs and head.	By the first Pilot immediately prior to touchdown in a controlled ditching or forced landing.
OXYGEN! OXYGEN!	There is reason to believe a crew member is hypoxic or about to become hypoxic. Check equipment and descend.	When one crew member has reason to believe that another is displaying symptoms of hypoxia and / or ►their◄ equipment is malfunctioning. (Also used air / air and ground / air.)
CUT! CUT!	Operate the winch cutter thereby shearing the cable.	When the helicopter winch or target towing cable has been fouled to an extent that has jeopardized the safety of the Aircraft.
►STOP! STOP! or as specified in Type Standard Operating Procedures◄	The take-off run is being ►rejected.◄	►It is deemed unsafe to continue the take off. Information calls to Air Traffic Control (ATC) **should** be in accordance with CAP 413[1] ie. 'Callsign, stopping'◄.

[1] ►Refer to CAP 413 Radiotelephony Manual.◄

Acceptable Means of Compliance 2350(1)

EMERGENCY CODEWORDS	MEANING	OCCASION FOR USE
BARRIER! BARRIER! BARRIER!	The airfield emergency up-wind barrier for the appropriate runway is to be raised to the fully up position.	By the Pilot if required during take-off or landing. ►◄
CABLE! CABLE! CABLE!	A cable engagement is imminent.	By the Pilot if required during take-off and landing.

3. **Forced Landings**. When a forced landing incident occurs, the Aircraft Commander, or if ►they are◄ injured, the next senior uninjured member of the crew, **should** ensure that where it is safe to do so:

a. All ejection seats and weapons are rendered 'safe'.

b. The engine, fuel and electrical supplies are shut off.

c. Any classified equipment or material does not fall into unauthorized hands.

d. The incident is reported by the quickest means to the ►parent unit.◄

e. The ►Aircraft◄ is not left unguarded.

f. An Aircraft Commander of a Remotely Piloted Air System **should** comply where possible with the above, or delegate responsibility to the Post Crash Management Incident Officer.

4. When a forced landing is categorized as an accident, the Post-Crash Management Procedures detailed in the Manual of Post-Crash Management **should** be followed.

5. **Ditching and Salvage**. When an ►Aircraft◄ ditches and it is both safe and practical to do so, the Aircraft Commander **should** take every possible step to ensure the safety ►and potential salvage of their Aircraft.◄

6. **In-Flight Signals**. When it is necessary to pass information between a radio inoperative Aircraft and an assisting Aircraft or an ATC unit, the standard in-flight visual signals and procedures, detailed in STANAG 3379[2], **should** be used. Aviation Duty Holder and Accountable Manager (Military Flying) **should** issue additional in-flight visual signals or procedures to meet individual Aircraft needs but they **should** be consistent with, and not lead to confusion with, the signals and procedures detailed in STANAG 3379.

Guidance Material 2350(1)

Air System Emergencies

7. The details of STANAG 3379 are available to Defence Contractor Flying Organizations by request to the MAA.

8. ►ATC actions associated with the cancellation of take-off clearance and barrier activation responsibilities, are detailed in RA 3261(1)[3], RA 3268(2)[4] and CAP 413[1] Chapter 10.◄

[2] Refer to STANAG 3379 In Flight Visual Signals.
[3] ►Refer to RA 3261(1): Aerodrome Service – Cancelling take-off Clearances.
[4] Refer to RA 3268(2): Air System Arresting Systems - Barriers – Controller Responsibilities.◄

RA 2355 - Static Line and Freefall Parachuting

Rationale

Static line and freefall parachuting have resulted in numerous injuries. Failure to manage the activity appropriately could result in damage to the Aircraft and increase Risk to Life (RtL) to 1st and 3rd party personnel. This Regulatory Article (RA) relates to the Aircraft's clearance to conduct the activity and must be read in conjunction with RA 1150[1] which covers the end to end governance of the activity. Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) are to ensure Aircraft within their Area of Responsibility (AoR) are cleared for the activity and are to carefully manage the activity through specific approvals and detailed procedures.

Contents

2355(1): Approval for Static Line and Freefall Parachuting
2355(2): Procedures for Static Line and Freefall Parachuting
2355(3): Withdrawn – Incorporated into RA 2357

Regulation 2355(1)

Approval for Static Line and Freefall Parachuting

2355(1) ADH and AM(MF) **shall** approve all static line and freefall parachuting from UK Military Registered Aircraft.

Acceptable Means of Compliance 2355(1)

Approval for Static Line and Freefall Parachuting

1. ADH or AM(MF) **should** only approve static line and freefall parachuting from Aircraft within their AoR that are specifically cleared for the role in the Aircraft's Release To Service (RTS) or, for non-RTS operations, the Military Permit to Fly (MPTF) or Aircraft limitations document as referenced in the Certificate of Usage (CofU)[2].

2. ADH or AM(MF) Orders for non-RTS operations **should** specify the requirements for static line and freefall parachuting from UK Military Registered Aircraft taking account of the ►Headquarters 1 Group Air Staff Orders (HQ 1 Gp ASOs) and Air Mobility Operations Manual Parts A and B.◄

3. ADH or AM(MF) **should** assure that any UK Military Airborne Equipment[3] (AE) used for static line parachuting is approved for use within the RTS of the intended Aircraft.

4. ADH or AM(MF) **should** ensure that any non-UK Military static line AE is cleared for use on Aircraft within their AoR.

5. ADH or AM(MF) **should** assure that any non-UK Military freefall AE is safe to be carried on Aircraft within their AoR.

Guidance Material 2355(1)

Approval for Static Line and Freefall Parachuting

6. This RA relates to the Aircraft's clearance to conduct the activity and does not detail the complex RtL and Safety responsibilities. These responsibilities are divided between those pertinent to aviation and those pertinent to the specific conduct of the activity and are detailed in RA 1150[1], which must be read in conjunction with this RA.

Regulation 2355(2)

Procedures for Static Line and Freefall Parachuting

2355(2) ADH, AM(MF) and Commanders **shall** publish Orders for the conduct of all static line and freefall parachuting from Aircraft within their AoR.

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[1] Refer to RA 1150 – Airborne Equipment and Airborne Forces.
[2] ►Refer to RA 1160 – The Defence Air Environment Operating Framework; and RA 1305 – Military Permit to Fly (In-Service), (Special Case Flying) and (Single Task).◄
[3] Airborne Equipment can be split into Airborne Forces Equipment (AFE), equipment and ancillary items used to insert personnel into Drop Zones, and Aerial Delivery Equipment (ADE), equipment and ancillary items, including an Airdrop Platform where used, to deliver Cargo to Drop Zones.

Acceptable Means of Compliance 2355(2)

Procedures for Static Line and Freefall Parachuting

7. The ►HQ 1 Gp ASOs and Air Mobility Operations Manual Parts A and B◄ **should** be used as the definitive document for all Military static line and freefall parachuting.

8. Any Military static line and freefall parachuting activity that is required to deviate from the ►HQ 1 Gp ASOs and Air Mobility Operations Manual Parts A and B◄ **should** be discussed with ►HQ 1 Gp, RAF,◄ except Test and Evaluation conducted by an approved organization[4] in accordance with (iaw) their procedures. If the deviation is associated with the procedures for the Aircraft, it **should** be approved by the relevant ADH or AM(MF).

9. Parachuting programmes not conducted under ►HQ 1 Gp ASOs and Air Mobility Operations Manual Parts A and B◄ are designated sport parachuting. Sport parachuting from UK Military Aircraft **should** be specifically approved by the appropriate ADH or AM(MF).

10. Where approved, sport parachuting procedures **should** be promulgated by ADHs, AM(MF) and Commanders.

11. All reportable occurrences **should** be reported iaw RA 1410[5].

12. All units conducting parachuting operations **should** ensure that the correct Notice to Aviation (NOTAM) action has been put in place for the duration of the activity.

Guidance Material 2355(2)

Procedures for Static Line and Freefall Parachuting

13. Sport parachuting can be conducted for military purposes, eg engagement events such as air shows.

14. Where sport parachuting has been approved by the ADH or AM(MF) the National Governing Body procedures detailed in the British Skydiving Operations Manual may provide some guidance for orders and procedures. However, the procedures set out in the ►HQ 1 Gp ASOs and Air Mobility Operations Manual Parts A and B◄ for equivalent military parachute systems provide sound guidance on how the activity may be conducted which the ADH or AM(MF) may wish to consult prior to promulgating sport parachuting procedures.

Regulation 2355(3)

Procedures for Fast Roping and Abseiling

2355(3) Withdrawn – Incorporated into RA 2357[6].

Acceptable Means of Compliance 2355(3)

Procedures for Fast Roping and Abseiling

15. Withdrawn – Incorporated into RA 2357.

Guidance Material 2355(3)

Procedures for Fast Roping and Abseiling

16. Withdrawn – Incorporated into RA 2357.

[4] As recognized by the MAA.
[5] Refer to RA 1410 – Occurrence Reporting and Management.
[6] Refer to RA 2357 – Troop Insertions and Extraction Systems.

RA 2357 – Troop Insertions and Extraction Systems

Rationale

The use of Troop Insertions and Extraction Systems (TIES) is conducted to generate a range of military capabilities. However, these activities may be associated with increased levels of Risk to Life (RtL). This Regulatory Article requires that Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) understand the division of safety responsibilities and have robust orders and procedures in place to govern TIES activity.

Contents

2357(1): Troop Insertions and Extraction Systems Governance

Regulation 2357(1)

Troop Insertions and Extraction Systems Governance

2357(1) ADH and AM(MF) **shall** ensure the RtL associated with TIES is managed within their Area of Responsibility (AoR) and that safety responsibilities associated with the activity are properly defined.

Acceptable Means of Compliance 2357(1)

Troop Insertions and Extraction Systems Governance

1. The Joint Air Delivery Test and Evaluation Unit (JADTEU) **should** produce and maintain Digital Air Publication (DAP) 101A-1114 Troop Insertions and Extraction Systems Manual (hereafter referred to in this Regulatory Article as the DAP). This publication **should** set out the techniques, limitations, equipment and training to be undertaken by those units conducting TIES.

2. Where TIES activities are conducted, ADH and AM(MF) **should** publish orders and instructions that detail how TIES activity is to be conducted on Aircraft within their AoR.

3. TIES activity **should** be conducted in accordance with (iaw) the DAP, the relevant Air System Document Set or, for non-Release To Service flying operations, the Military Permit To Fly or Contractors Flight Limitations Document and applicable ADH/AM(MF) orders and instructions.

4. Any deviation from the DAP **should** be discussed with JADTEU. If the deviation is associated with activity on the Aircraft, it **should** be approved by the relevant ADH or AM(MF).

5. Where TIES activity is conducted within their AoR, ADH and AM(MF) **should** ensure that this activity is specifically included within the Air System Safety Case (ASSC) iaw RA 1205[1]. The ASSC **should** define the boundaries of safety responsibility between the ADH/AM(MF) and any ADH-Facing Organizations (such as the persons' Chain of Command) conducting the TIES activity.

6. The Chain of Command of the person(s) conducting TIES activity, as an ADH-Facing Organization, **should** ensure (through their Duty of Care responsibilities) that the person(s) are fully trained, competent, current, suitably equipped and fit to conduct the TIES activity iaw the DAP and any additional requirements stated in ADH/AM(MF) orders and instructions.

ADH/AM(MF) Orders and Instructions

7. Where TIES activities are conducted within their AoR, ADH and AM(MF) **should** publish orders and instructions that detail, as a minimum[2]:

   a. The required Aircrew and Supernumerary Crew qualifications and competence levels required to conduct TIES within their AoR;

   b. Aircrew and Supernumerary Crew training requirements prior to the conduct of TIES activity on Aircraft in their AoR;

[1] Refer to RA 1205 - Air System Safety Cases.
[2] This list is not exhaustive and ADH/AM(MF) **should** provide additional detail as necessary.

Acceptable Means of Compliance 2357(1)

c. The approval and authorization process to be followed for TIES activity on Aircraft within their AoR;

d. Restrictions or prohibited flight profiles, training events or manoeuvres for flights involving TIES;

e. The minimum Aircrew qualifications, experience or currency requirements to conduct TIES activity on Aircraft within their AoR;

f. The safety and survival drill requirements for TIES activity on Aircraft within their AoR;

g. The wearing and carriage requirements of approved Aircrew Equipment Assemblies (AEA) and Safety Equipment during TIES activity;

h. Training and operating requirements for ADH-Facing Organizations.

TIES Accident and Incident Reporting

8. TIES accidents or incidents **should** be reported iaw RA 1410[3]. Consideration **should** also be given to reporting under the respective single-service reporting mechanisms iaw JSP 375[4].

Guidance Material 2357(1)

Troop Insertions and Extraction Systems Governance

9. Safety responsibilities for TIES are divided between those pertinent to aviation and those pertinent to the specific conduct of the activity. For example, there are responsibilities regarding on-Aircraft safety and the air-delivery of personnel to within safe navigation parameters etc that would routinely be the responsibility of the ADH or AM(MF). Similarly, there are responsibilities regarding personnel and equipment, such as fitness and training etc that would be the responsibility of the Commander who holds Duty of Care responsibility for the personnel undertaking the specific activity.

10. Where TIES is conducted on Aircraft within their AoR, ADH and AM(MF) orders and instructions will have robust procedures and processes for the management of the RtL associated with the activity but also how the ADH-Facing/Duty of Care responsibilities of ground commanders or other organizations involved with the activity are to be conducted. Both the ADH (or AM(MF)) and the Commander will understand the division of responsibilities prior to conducting the activity.

11. For the purposes of this RA, TIES include the following techniques:

a. Fast Roping;

b. Abseiling from helicopters;

c. Deplaning Rope Descender;

d. Ladder Troop Extraction Systems, and;

e. Rope Troop Extraction Systems.

[3] Refer to RA 1410 – Occurrence Reporting and Management.
[4] Refer to JSP 375 - Management of Health and Safety in Defence.

►This RA has been substantially re-written; for clarity, no change marks are presented - please read RA in entirety◄

RA 2360 - Portable Electronic Devices

Rationale

Portable electronic devices (PED) are items of electrically powered equipment of a size that enables them to be portable. PED may constitute a hazard to Air System safety by means of electro-magnetic interference or battery pack fire. Consequently, carriage and operation of PED within UK military Air Systems needs to be controlled.

Contents

2360(1): Portable Electronic Devices

Regulation 2360(1)

Portable Electronic Devices

2360(1) Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) **shall** publish orders for the carriage and operation of PED in or near crewed Aircraft, Remotely Piloted Aircraft or Remote Pilot Stations within their Area of Responsibility (AoR).

Acceptable Means of Compliance 2360(1)

Portable Electronic Devices

Operation of Intentionally Transmitting PED

1. ADH and AM(MF) **should** ensure that all PED that are known, or suspected, to intentionally transmit radio frequencies are switched off for the entire duration of the flight, including start and shut down periods. This does not apply to intentionally transmitting PED that have been specifically cleared for use in the Release To Service (RTS)[1] or Military Permit to Fly (MPTF).

Operation of Unintentionally Transmitting PED

2. All other PED may be classed as unintentionally transmitting. ADH and AM(MF) **should** ensure that unintentionally transmitting PED are not used in the following phases of flight (as a minimum): taxi, take-off, approach, landing, fuelling and arming operations, during mission critical stages and during abnormal or emergency conditions. This does not apply to unintentionally transmitting PED that have been specifically cleared for use in the RTS[1] or MPTF.

Battery Pack Fire

3. ADH and AM(MF) **should** detail in orders, procedures for preventing or containing PED battery pack fires for all Air Systems within their AoR.

Guidance Material 2360(1)

Portable Electronic Devices

Intentionally Transmitting PED

4. Examples of intentionally transmitting PED include, but are not limited to two-way radios, mobile phones of any type, satellite phones, tablets, smart watches or other devices with WiFi or Bluetooth capability.

Unintentionally Transmitting PED

5. Examples of unintentionally transmitting PED include, but are not limited to:

   a. Calculators, cameras, radio receivers, audio and video players, electronic games and toys, when these devices are not equipped with a transmitting function.

   b. Mobile phones, tablets, smart watches or other devices in 'Flight Mode' with WiFi and Bluetooth disabled.

[1] Refer to 1300 Series: Release To Service.

Guidance Material 2360(1)

Negligible Transmitting PED

6. Some unintentionally transmitting PED, eg implanted medical devices or permitted medical equipment are of sufficiently low power that they may be regarded as negligible transmitters and therefore not subject to these restrictions. In cases where it is impossible or unreasonable to request the device be switched off for critical phases of flight, and where doubt exists about whether a device constitutes 'negligible' power status, advice may be sought from the appropriate Type Airworthiness Authority (TAA)[2].

Battery Pack Fire

7. Further information is available in International Air Transport Association Dangerous Goods Regulations Sect 2.3.5.9 and Table 2.3A in respect of PED containing lithium batteries.

[2] Where the Air System is Civilian-Owned, ownership of regulatory responsibility by either the TAA or Type Airworthiness Manager (TAM) needs to be agreed within the Sponsor's approved model for Type Airworthiness (TAw) management; refer to RA 1162 – Air Safety Governance Arrangements for Civilian Operated (Development) and (In-Service) Air Systems, or refer to RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air Systems. Dependant on the agreed delegation of TAw responsibilities TAM may be read in place of TAA as appropriate throughout this RA.

RA 2370 – Test and Evaluation

Rationale

Test and Evaluation (T&E) activity provides evidence that is used to support the Air System Safety Case (ASSC►1◄). The Risks to Life (RtL) associated with this activity are two-fold: firstly the process of evidence gathering has the potential to present a greater RtL than that associated with the routine operating environment, and secondly the generation of flawed evidence may negatively impact on the subsequent ASSC. Therefore T&E activity, and the associated evidence-generation, needs to be conducted and supervised by approved organizations and Suitably Qualified and Experienced Person (SQEP).

Contents

Applicability of this RA
2370(1): Test and Evaluation Governance
2370(2): Test and Evaluation Personnel
2370(3): Test and Evaluation Activity

Applicability

Applicability of this RA

1. The T&E activities covered by this Regulatory Article are defined as flights, ground taxi, ground runs and / or other on-Air System assessments that generate evidence in support of the ASSC►1◄.

Regulation 2370(1)

Test and Evaluation Governance

2370(1) T&E activity **shall** be subject to governance by SQEP.

Acceptable Means of Compliance 2370(1)

Test and Evaluation Governance

2. **Endorsement.**

a. Aviation Duty Holders (ADH), ►Remotely Piloted Air Systems (RPAS) Duty Holders (RPAS DH),◄ Accountable Managers (Military Flying) (AM(MF)), or ►RPAS Accountable Managers (RPAS AM)◄ who manage or conduct T&E activity **should** be endorsed by the Military Aviation Authority (MAA)[2].

b. When not themselves T&E SQEP; ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ **should** appoint SQEP to oversee T&E activity. In these cases ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ **should** provide evidence of said individual's SQEP when submitting their application for endorsement by the MAA[2] and note that accountability remains with the endorsed ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM.◄

c. ADH-Facing organizations that manage or conduct T&E activity **should** do so in accordance with (iaw) RA 1020[3] and RA 1205[4].

3. **Nomination of Units and organizations.** ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ **should**:

a. Nominate Units and organizations for T&E activity and its associated T&E category iaw the endorsement issued by the MAA.

b. Nominate SQEP[5] for T&E activity.

4. **Approval of T&E activity.** ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ **should**:

a. Detail in orders the manner in which T&E activity is to be approved as follows:

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[1] ►The means by which the ASSC is satisfied for RPAS operating in the Open Category and Specific S1 sub-category is detailed at RA 1601 - Remotely Piloted Air Systems Open A1 sub-category (Fly 'Over' People), RA 1602 – Remotely Piloted Air Systems Open A2 sub-category (Fly 'Close To' People), RA 1603 – Remotely Piloted Air Systems Open A3 sub-category (Fly 'Far From' People) and RA 1604 – Remotely Piloted Air Systems Specific S1 sub-category.

[2] The T&E Endorsement application form is available on the MAA's website.◄

[3] Refer to RA 1020 – ►Aviation Duty Holder and Aviation Duty Holder–Facing Organizations - Roles and Responsibilities.◄

[4] Refer to RA 1205 – Air System Safety Cases.

[5] ►iaw◄ Annexes ►A◄, B and C.

Acceptable Means of Compliance 2370(1)

(1) The scope of involvement of the ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ in the approval process.

(2) The composition and competency of the Approval Board, which is to be SQEP for the activity being conducted, include minimum T&E qualifications iaw Annexes B ►and C◄ and include representatives from the following areas as appropriate: Design Organization, T&E, Continuing Airworthiness, Type Airworthiness and flight operations.

(3) The categorization of T&E activity.

b. Detail in orders the process for allocating T&E activity to specific Units or organizations.

5. **T&E Approval Board**. The Approval Board **should**:

a. Approve T&E activity on behalf of the ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM.◄

b. Examine each trial before planning commences and endorse the proposed T&E categorization.

c. Ensure that those designing, planning, supervising and conducting T&E activity are SQEP.

d. Ensure that the trial design is capable of generating the appropriate level and fidelity of evidence.

e. ►Ensure that, for RPAS T&E, the trial design remains within the scope of the MAA RPAS Letter of Categorization (LEC).◄

6. **Combined Test Teams (CTT)**. CTT **should** operate under the governance of a single clearly identifiable ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ and within the boundaries of a governance arrangement agreed by all relevant participants / stakeholders (eg T&E Organizations, Design Organization, ►Delivery◄ Team).

7. ►**Open Category and Specific S1 sub-category RPAS T&E**. All T&E on RPAS operating in the Open Category and Specific S1 sub-category **should** be conducted under the authority of a RPAS DH / RPAS AM and supported by appropriate persons[6]. The RPAS DH / RPAS AM **should** ensure that the RPAS has been appropriately evaluated by SQEP for basic Airworthiness requirements[7], that it is "Safe to Operate" in the Defence Air Environment (DAE) and can be registered iaw RA 1161[8].◄

Guidance Material 2370(1)

Test and Evaluation Governance

8. **ADH-Facing organizations.** To ensure that evidence generated in support of the ASSC is reliable, ADH-Facing organizations that manage or conduct T&E activity may wish to consider adopting the processes described in this Regulation.

9. **RPAS categorization►[9]◄.** RPAS T&E activity may warrant a different RPAS ►categorization◄ to the eventual, envisaged or in-use RPAS categorization. The scope of any T&E activity will be considered during the ►RPAS◄ categorization process. ►Where the proposed T&E activity is outside the scope of an extant MAA RPAS LEC, a new RPAS Categorization Submission and corresponding LEC will be required.◄

[6] ►This explicitly includes the requirement for a RPAS DH / RPAS AM for T&E activities on Sub 250 g RPAS operating in the Open Category. Refer to RA 1601, RA 1602, RA 1603 and RA 1604 for the responsibilities of the RPAS DH / RPAS AM and supporting appropriate persons.

[7] For Open Category and Specific S1 sub-category RPAS this would normally be achieved through endorsement of the manufacturer by the Defence Equipment and Support (DE&S) Unmanned Air System Team (UAST) Type Airworthiness Authority (TAA); refer to RA 1601, RA 1602, RA 1603 and RA 1604. This RA 2370 derogation allows the RPAS DH / RPAS AM to ensure the basic Airworthiness of an RPAS in the early stages of experimentation and development via another route, appropriate to the context of the Air System and T&E activity to be undertaken.

[8] Refer to RA 1161 – Military Registration of Air Systems Operating within the Defence Air Environment.

[9] Refer to RA 1600 – Remotely Piloted Air Systems.◄

Regulation 2370(2)

Test and Evaluation Personnel

2370(2) T&E activity **shall** only be designed, planned, supervised and conducted by SQEP.

Acceptable Means of Compliance 2370(2)

Test and Evaluation Personnel

10. ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ **should** detail in orders the T&E competencies required of those designing, supervising and conducting T&E across the T&E categories. These T&E competencies **should** meet or exceed the minimum qualification requirements[5] and include appropriate experience in the following:

a. Test programme management, risk management and T&E governance.

b. The planning, conduct and reporting of T&E activity.

c. The intended functionality of the Air System and / or the system under test.

d. The application of relevant test techniques.

11. ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ **should** record evidence of T&E competencies (including training, qualifications, and experience) and T&E currency.

Guidance Material 2370(2)

Test and Evaluation Personnel

12. Nil.

Regulation 2370(3)

Test and Evaluation Activity

2370(3) ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ **shall** issue orders detailing the governance, categorization, planning, conduct and reporting of T&E activity.

Acceptable Means of Compliance 2370(3)

Test and Evaluation Activity

13. **T&E categorization.** ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ **should** categorize T&E activity as follows:

a. **Cat 1.** Experimental / Developmental T&E.

b. **Cat 2.** Flight Safety-critical T&E.

c. **Cat 3.** Production T&E.

d. **Cat 4.** Non-Flight Safety-critical T&E.

e. **Cat 5.** Operational T&E.

14. **T&E documentation.** ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ **should** detail in orders the processes for determining:

a. T&E objectives.

b. Hazard identification and risk management processes specific to T&E.

c. Test plans, flight test cards, post-flight reports and trial reports.

d. Ground, simulator and air trials specific training.

e. Specific currency requirements for the T&E activity.

f. Additional / specific safety and survival training requirements.

g. Any T&E specific procedures for engineering and flight line personnel.

h. SQEP to approve, supervise, plan and conduct T&E activity.

i. SQEP to author and release trials reports.

Guidance Material 2370(3)

Test and Evaluation Activity

15. **Determination of T&E objectives.** When formulating test plans containing the T&E objectives, ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ may refer to the Integrated Test and Evaluation Acceptance Plan.

16. **Categorizing T&E activity.** Advice for Contractor Flying Approved Organization Scheme (CFAOS) and MOD units and organizations is available from ►the◄ Air ►and Space◄ Warfare Centre (►ASWC◄) or the Maritime Warfare Centre.

17. **T&E categories.** The following provides guidance for determining the category of T&E Activity:

a. **Cat 1. Experimental / Developmental T&E.** T&E that expands the flight envelope, extends the flight limitations or develops the handling techniques of an Air System. This entails operations outside, or to the limits of, existing temporary or proposed airworthiness and flight limitations of the Air System. It may include, but is not exclusive to, assessment of:

(1) Initial flight or significantly modified Air Systems.

(2) Changes in flight characteristics or flight envelope definition or expansion.

(3) Novel or unusual design, features or techniques.

(4) Changes to handling qualities of an Air System that might include changes to visual references, flight instruments and symbology, flying controls, flying control systems, Air System performance, external stores and weapons carriage / release / jettison and underslung loads.

b. **Cat 2**. **Flight Safety-critical T&E.** T&E that is conducted on a production standard Air System that provides evidence for an airworthiness clearance of Flight Safety-critical systems. This will entail operating to the limits of existing, temporary or proposed airworthiness and flight limitations of the Air System. It may include, but is not exclusive to, assessment of:

(1) Communications systems.

(2) Navigation systems.

(3) Sensors that affect Flight Safety.

(4) Weapon integration.

(5) Collision avoidance systems.

(6) Secondary role systems.

c. **Cat 3. Production T&E.** This may be referred to as post-manufacture test flying or post-factory flight test. This activity assures the production standard of a newly built Air System and / or associated systems that have been newly installed; this activity is not Maintenance test flying. ►Production T&E may not be required for all RPAS, particularly those of smaller physical attributes and / or complexity.◄

d. **Cat 4. Non-Flight Safety-critical T&E.** Assessment of new systems or software whose operation ►is not considered Flight Safety-critical◄, but which requires T&E activity for clearance. Flying conducted by an Air System to facilitate the testing of a system with which it would not normally be fitted in order to assess that system in the airborne environment. It may include, but is not exclusive to, assessment of:

(1) New cabin installations.

(2) Passenger radio systems.

(3) Mission system software.

(4) Aircrew Equipment Assemblies.

Guidance Material 2370(3)

e. **Cat 5. Operational T&E.** T&E aimed at determining the performance or effectiveness of an Air System's non-Flight Safety-critical systems / software and developing or ensuring the validity of tactics, techniques and procedures of the Air System and associated doctrine, ►where they affect the ASSC.◄ It is normally carried out within the limits of existing or temporary Airworthiness limitations of the Air System. It may include, but is not exclusive to, assessment or development of the following:

(1) Tactics, Techniques and Procedures. ►◄

(2) Weapon effectiveness.

(3) The operational employment of mission systems.

18. **Trials supervisors.** Trial supervisors are responsible to the endorsed ADH, ►RPAS DH,◄ AM(MF), ►or RPAS AM◄ for ensuring that T&E Activity is carried out safely iaw the direction of the T&E Approvals Board. They are not required to be flying supervisors or authorisers.

►This Annex has been substantially re-written; for clarity no change marks are presented - please read Annex in entirety◄

ANNEX A

T&E QUALIFICATIONS

1. The T&E qualifications used in Annexes B and C are defined below:

Qualification	Description
Class A Test Pilot (TP)	Long Course Test Pilot graduate of Empire Test Pilot School (ETPS), United States Navy Test Pilot School (USNTPS), United States Air Force Test Pilot School (USAF TPS), L'Ecole du Personnel Navigant d'Essais et de Reception (EPNER) or an equivalent course that is approved and assured by ASWC on behalf of the Air T&E ADH or AM(MF).
Class B TP	Short Course Test Pilot graduate of ETPS or EPNER or an equivalent course that is approved and assured by ASWC on behalf of the Air T&E ADH or AM(MF).
Class A Flight Test Engineer (FTE)	Long Course Flight Test Engineer graduate of ETPS, USNTPS, USAF TPS, EPNER or an equivalent course that is approved and assured by ASWC on behalf of the Air T&E ADH or AM(MF).
Class B FTE	Short Course Flight Test Engineer graduate of ETPS or EPNER or an equivalent course that is approved and assured by ASWC on behalf of the Air T&E ADH or AM(MF).
Qualified AeroSystems (QAS)	Graduate of the ASWC AeroSystems Course or an equivalent course that is approved and assured by ASWC on behalf of the Air T&E ADH, RPAS DH, AM(MF) or RPAS AM.
Evaluator Aircrew (EA)	Aircrew who have successfully completed a dedicated training course that includes the competencies listed at paragraph 10 and who are deemed SQEP and are authorised to participate in T&E by the ADH, RPAS DH, AM(MF) or RPAS AM.
Production Pilot	Aircrew approved as SQEP, competent and endorsed by the ADH, RPAS DH, AM(MF) or RPAS AM to conduct Production T&E.

2. **Hierarchy**. For the purposes of Annexes B and C, when determining SQEP minima the qualification hierarchy is (in descending order): Class A TP / FTE, Class B TP / FTE, QAS, EA and Production Pilot.

ANNEX B

T&E CATEGORIES AND MINIMUM QUALIFICATION REQUIREMENTS FOR MANNED AIR SYSTEMS

T&E Category	**T&E Activity Description**	**Minimum DDH ►, AM(MF)◄ or CFAOS Post Holder Qualification**	**T&E Approval Board Qualification** (Minimum one per Approval Board)	**Trial Supervisor Qualification**	**Aircrew Qualification** (Minimum one per Air System Crew)
CAT 1	Experimental / Developmental T&E	Class A ►TP◄ / ►Class A FTE◄	Class A TP / ►Class A◄ FTE	Class A TP / ►Class A◄ FTE	Class A TP
CAT 2	Flight Safety-critical T&E	Class B TP /►Class B◄ FTE	Class B TP / ►Class B◄ FTE	Class B TP / ►Class B◄ FTE	If pilot workload or HMI assessment required: Class B TP. For all else: ►EA◄
CAT 3	Production T&E	N/A	N/A	N/A	Production Pilot
CAT 4	Non-Flight Safety-critical T&E	Nil	Class B TP /►Class B◄ FTE	EA	EA
CAT 5	Operational T&E	Nil	►QAS◄	EA	EA

►◄

►This Annex has been substantially re-written; for clarity no change marks are presented - please read Annex in entirety◄

ANNEX C

T&E CATEGORIES AND MINIMUM QUALIFICATION REQUIREMENTS FOR RPAS

Table 1. RPAS operating in the Certified Category.

T&E Category	**T&E Activity Description**	**Minimum DDH, AM(MF) or CFAOS Post Holder Qualification**	**T&E Approval Board Qualification** (Minimum one per Approval Board)	**Trial Supervisor Qualification**	**Aircrew Qualification** (Minimum one per Air System Crew)
CAT 1	Experimental / Developmental T&E	Class A TP / Class A FTE	Class A TP / Class A FTE	Class A TP / Class A FTE	Class A TP
CAT 2	Flight Safety-critical T&E	Class B TP / Class B FTE	Class B TP / Class B FTE	Class B TP / Class B FTE[1]	If aircrew workload or HMI assessment required: Class B TP[1]. For all else: EA
CAT 3	Production T&E	N/A	N/A	N/A	Production Pilot
CAT 4	Non-Flight Safety-critical T&E	Nil	Class B TP / Class B FTE	EA	EA
CAT 5	Operational T&E	Nil	QAS	EA	EA

Note:

1. Where appropriate for the nature of the T&E activity being conducted, the T&E Approval Board may approve lesser qualification requirements for the Trials Supervisor (but not below QAS) and Aircrew (but not below EA) on Cat 2 trials. The argument for using this clause **should** be articulated within the ASSC and the T&E Approval Board **should** notify the MAA with a summary of the decision at least 14 days prior to the T&E activity commencing. Contact: DSA-MAA-OpAssure-TEST-DepHd@mod.gov.uk, copied to DSA-MAA-OA-ACC@mod.gov.uk.

Table 2. RPAS operating in the Specific S2 sub-category.

T&E Category	**T&E Activity Description**	**Minimum DDH, AM(MF) or CFAOS Post Holder Qualification**	**T&E Approval Board Qualification** (Minimum one per Approval Board)	**Trial Supervisor Qualification**	**Aircrew Qualification** (Minimum one per Air System Crew)
CAT 1	Experimental / Developmental T&E	Nil	Class B TP / Class B FTE	Class B TP / Class B FTE[1]	Class B TP[1]
CAT 2	Flight Safety-critical T&E	Nil	Class B TP / Class B FTE	Class B TP / Class B FTE[1]	If aircrew workload or HMI assessment required: Class B TP[1]. For all else: EA
CAT 3	Production T&E	N/A	N/A	N/A	Production Pilot
CAT 4	Non-Flight Safety-critical T&E	Nil	Class B TP / Class B FTE	EA	EA
CAT 5	Operational T&E	Nil	QAS	EA	EA

Note:

1. Where appropriate for the nature of the T&E activity being conducted, the T&E Approval Board may approve lesser qualification requirements for the Trials Supervisor (but not below QAS) and Aircrew (but not below EA) on Cat 1 and Cat 2 trials. The argument for using this clause **should** be articulated within the ASSC and the T&E Approval Board **should** notify the MAA with a summary of the decision at least 14 days prior to the T&E activity commencing. Contact: DSA-MAA-OpAssure-TEST-DepHd@mod.gov.uk, copied to DSA-MAA-OA-ACC@mod.gov.uk.

Table 3. RPAS operating in the Specific S1 sub-category.

T&E Category	**T&E Activity Description**	**Minimum RPAS DH / RPAS AM or CFAOS(BR) Post Holder Qualification**	**T&E Approval Board Qualification** (Minimum one per Approval Board)	**Trial Supervisor Qualification**	**Remote Pilot (RP) Qualification** (Minimum one per Air System Crew)
CAT 1	Experimental / Developmental T&E	Nil	QAS	QAS	EA
CAT 2	Flight Safety-critical T&E	Nil	QAS	QAS	EA
CAT 3	Production T&E	N/A	N/A	N/A	Production Pilot
CAT 4	None-Flight Safety-critical T&E	Nil	QAS	EA	EA[1]
CAT 5	Operational T&E	Nil	QAS	EA	EA[1]

Note:

1. For Cat 4 and Cat 5 T&E, the minimum T&E qualification may be held by another individual, other than the RP, who is directly supporting the RP in the operation of the RPAS. The T&E qualified individual **should** be empowered to influence the conduct of the T&E activity, whilst recognising the authority of the RP, akin to a crew member on a manned Air System or a multi-crew RPAS.

Table 4. RPAS operating in the Open Category.

T&E Category	**T&E Activity Description**	**Minimum RPAS DH / RPAS AM or CFAOS(BR) Post Holder Qualification**	**T&E Approval Board Qualification** (Minimum one per Approval Board)	**Trial Supervisor Qualification**	**RP Qualification** (Minimum one per Air System Crew)
CAT 1	Experimental / Developmental T&E	Nil	QAS	EA	EA
CAT 2	Flight Safety-critical T&E	Nil	QAS	EA	EA
CAT 3	Production T&E	N/A	N/A	N/A	Production Pilot
CAT 4	Non-Flight Safety-critical T&E	Nil	QAS	EA	EA[1]
CAT 5	Operational T&E	Nil	QAS	EA	EA[1]

Note:

1. For Cat 4 and Cat 5 T&E, the minimum T&E qualification may be held by another individual, other than the RP, who is directly supporting the RP in the operation of the RPAS. The T&E qualified individual **should** be empowered to influence the conduct of the T&E activity, whilst recognising the authority of the RP, akin to a crew member on a manned Air System or a multi-crew RPAS.

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►This RA has been substantially re-written; for clarity, no change marks are presented – please read the RA in its entirety◄

RA 2375 – Qualification, Approval and Use of Aircrew Training Devices

Rationale

Aircrew Training Devices (ATD) are used across the Defence Air Environment as preparation, or substitution, for live flying. ATDs that misrepresent the real behaviour or performance or have significant material differences to the associated Air System could jeopardize the safe operation of the live Air System by Aircrew, and thereby increase Risk to Life (RtL). This RA requires Senior Responsible Owners (SRO), Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to ensure that ATDs within their Area of Responsibility (AoR) are appropriately qualified, fit for their approved use and either, ensure that their use does not jeopardize the safe operation of the live Air System, or understand how it could. Qualification and Approval of ATDs allows deficiencies to be understood and mitigated, by influencing the broader training design (such as amendments to the training objectives achieved in the ATD and the broader live versus synthetic balance).

Contents

Definitions Relevant to this RA
2375(1): Qualification of Aircrew Training Devices
2375(2): Approval of Aircrew Training Devices
2375(3): Use of Aircrew Training Devices

Definitions

Definitions Relevant to this RA

1. Simulator descriptors intentionally reflect civil terminology, amended to suit military application where appropriate, to allow industry partners to apply recognized civil standards where military standards are not codified or readily available.

2. **Aircrew Training Device.** A device used for Aircrew practical training which can support claims in the Air System Safety Case (ASSC)[1] which relate to Aircrew flying behaviours, qualifications, currency, or Competency. Such devices are categorized as either a Flight Simulation Training Device (FSTD) or Other Training Device (OTD).

3. **Flight Simulation Training Device (FSTD)**. Is a device which can provide Aircrew flying training credit, facilitate flying currency requirements, support claims about Aircrew behaviours in the ASSC or has the potential to provide negative training[2]. FSTD may be categorized as a Full Flight Simulator (FFS), a Flight Training Device (FTD) or a Flight and Navigation Procedures Trainer (FNPT).

   a. **Full Flight Simulator (FFS)**. Means a physical, true-to-life replica of a specific Air Systems flight deck or Remote Pilot Station (RPS), including the assemblage of all equipment and computer programmes necessary to represent the Air System in surface and flight operations, a visual System[3] providing an out of the flight deck / cockpit view and a force cueing motion System. FFS are qualified and approved as accurately replicating the crew environment and Air System performance of a single Aircraft type, with the most stringent Validation requirements. Remotely Piloted Aircraft System (RPAS) FFS only require a force queuing motion System where necessary to emulate performance of the flying controls within the RPS, or where the RPS is itself subject to motion (airborne, seaborne, or within a moving ground vehicle).

   b. **Flight Training Device (FTD)**. Means a physical replica of a specific Air Systems instruments, equipment, panels, and controls in an open flight deck / RPS / other crew station area or an enclosed flight deck / RPS / other crew

[1] Refer to RA 1205 – Air System Safety Cases.
[2] Where training devices are used for mission rehearsal, or other training not relating primarily to the safe conduct of flight, SROs / ADH / AM(MF) need to consider whether there is any Risk of transfer of negative training that could compromise claims in the ASSC.
[3] Visual Systems may include Augmented or Virtual Reality (AR / VR) Systems, subject to the same qualification and approval criteria as the overall ATD. This is also applicable when the AR / VR System is integrated to a live Air System.

Definitions

station, including the assemblage of equipment and computer software programmes necessary to represent the Air System in surface and flight operations to the extent of the Systems installed in the device. It does not require a force cueing motion or visual System. FTD are qualified and approved as accurately replicating performance and behaviour of a single Aircraft type but may not fully represent all Aircraft Systems. A visual System[3] (depicting the external environment) is not necessary, but if fitted must meet Validation criteria agreed by the Duty Holder or AM(MF) as acceptable for FFS.

c. **Flight and Navigation Procedures Trainer (FNPT)**. Means a training device which represents the flight deck / RPS or other crew station, including the assemblage of equipment and computer programmes necessary to represent an Air System's in-flight operations to the extent that the Systems represented appear to function as they would in the live Air System. Where civil standards have been used to aid Qualification any reference to a flight deck or cockpit is also applicable to another crew workstation. An FNPT may, or may not, be linked to an FFS or FTD for whole crew training. FNPT are qualified and approved to represent the generic environment and performance of a class of Aircraft, although the design itself may depict a specific type. Simulator performance criteria may be representative of a class of Aircraft (rather than validated as accurate to type as would be required for FFS or FTD).

4. **Other Training Device (OTD)**. Means an ATD other than an FSTD which facilitates flying training without representing flight characteristics or where a complete flight deck, RPS or Mission Crew Trainer environment is not necessary. OTD are not FSTD but, if they support claims in the ASSC (in accordance with (iaw) paragraph 2), or have the potential to provide negative training[2], then compliance with RA 2375 is required.

5. **Qualification Test Guide (QTG)**. Means a template document describing the series of functional tests that prove performance, handling qualities and synthetic environment of an ATD, including mission Systems, are within prescribed limits and that all applicable requirements have been met. The QTG includes both the flight data from the Air System and the acceptable criteria from an agreed Certification standard. The QTG is part of a wider set of compliance demonstration documentation (see Qualification Statement and release for training) designed to demonstrate all aspects of the device meet requirements.

6. **Master QTG (MQTG)**. The MQTG is a documented process which demonstrates that the performance, handling qualities and synthetic environment of an individual ATD (as installed in a given location), including mission Systems, are within the prescribed limits described in the QTG. It may refer to computer based tests designed into the ATD that support the MQTG output. It is derived from the QTG and records the performance of the ATD when qualified and approved. It may also provide a reduced minimum set of objective and subjective tests to assure continued performance of the ATD (see Acceptable Means of Compliance (AMC) for suitable management system).

7. **Qualification Statement (QS)**. Means an overarching statement developed, managed, and owned by the SRO, Operating Duty Holder (ODH) or AM(MF) on completion of the Qualification Process detailed at paragraph 10. The QS records the training for which the ATD may be used and any limitations. The QS explains the Certification standard agreed between the SRO and ODH and references the QTG against which the ATD has been assessed.

8. **ATD Operator**. Means the organization responsible for the provision of the ATD. Responsibilities may include availability, Maintenance, and testing. An ATD Operator may be different to the original manufacturer and any third party that provides instructional services.

Regulation 2375(1)

Qualification of Aircrew Training Devices

2375(1) The SRO[4] **shall** ensure that the ATD[5] within their AoR are Qualified for their intended use.

Acceptable Means of Compliance 2375(1)

Qualification of Aircrew Training Devices

9. The SRO **should** own, develop, and manage a QS for each ATD within their AoR:

a. Each QS **should** have a single owner at any one time.

b. For new Air Systems that require an ATD, the SRO **should** own the QS until transfer of the device to the ODH or AM(MF)[6].

c. Transfer from the SRO to ODH or AM(MF) **should** be before any routine In-Service employment of the ATD. Where the ATD is being used to train ahead of Air System delivery the SRO may retain ownership of the QS until the Air System is accepted into Service.

10. The QS **should** be produced on completion of the Qualification Process detailed below, which is also depicted pictorially at Annex A.

a. During the procurement process the SRO **should:**

(1) Define the category of device required.

(2) Define the intended use of the device, including any specific military or training tasks that may be performed in addition to, or are different to, that of an equivalent type of civil Air System.

(3) Define the desired training output and what level of fidelity is required for each training objective (with reference to a Certification specification – see Guidance Material in paragraph 23), including any environmental considerations.

(4) Ensure that the Air System or Commodity Delivery Team Leader (DTL) contracts the Design Organization to provide flight data[7], and the device manufacturer to use it together with available flight test data, to achieve the required fidelity levels.

(5) Assure that the Air System or Commodity DTL contracts the device manufacturer to apply the appropriate Design Standards for ATD[8].

(6) Ensure that a QTG is produced by the ATD Operator, in consultation with Test and Evaluation (T&E) Suitably Qualified and Experienced Person(s) (SQEP), that demonstrates compliance against the performance and tolerance criteria that has been agreed by the SRO. This **should** include any objective and subjective tests that are required to evaluate specific military tasks and capabilities.

b. The QTG **should** be designed and used to assess the procured device against the procurement requirement. It **should:**

(1) Be provided to the independent evaluating T&E SQEP to form part of their evaluation and support their statement of material differences and RtL assessment.

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[4] Where an SRO is not appointed, the ODH / AM(MF), or In-Service Capability Manager on behalf of the ODH / AM(MF), **shall** fulfil this responsibility, eg In-Service Modification where an SRO is not appointed or Contractor Flying Approved Organization Scheme (CFAOS) organizations.

[5] Where multiple devices of the same specification exist, they will need to be individually assessed and qualified.

[6] While the SRO will only own one QS, following transfer there may be more than one QS for a specific ATD, ie where that ATD is used by more than one ADH / AM(MF). In such cases the SRO will transfer the same QS to all ADH / AM(MF)s.

[7] RA 5810 – Military Type Certificate (MRP 21 Subpart B) requires that where Operational Suitability Data, which includes Air System validation source data to support the objective qualification of simulator(s), is available it **should** be included as part of the Military Type Certification or Changes in Type Design.

[8] International Civil Aviation Organization (ICAO), Federal Aviation Administration (FAA), European Aviation Safety Agency (EASA) or an equivalent agreed by the MAA.

Acceptable Means of Compliance 2375(1)

(2) Prescribe desired performance criteria and tolerances for assessment (based on the Certification specification referenced iaw paragraph 10.a.(3)).

c. Following the evaluation of the device using the QTG, three Artefacts[9] **should** be produced:

(1) A T&E report that includes the relevant material differences between the device and the live Air System, with an assessment of associated RtL that may occur in the live Air System.

(2) An MQTG that **should** be used as a baseline for future evaluations of the individual device.

(3) A recommendation for release to training by an Aircrew Instructor (AI) who is current on type and deemed SQEP by the ADH / AM(MF), underpinning what the device is and is not suitable to be used for, including any possible transfer of training Risk to the live Air System. This **should** be based on a review of the T&E report and identify and explain any training objectives identified in the procurement requirement (see AMC paragraph 10.a.(3)) for which the ATD is not suitable - and explain how this is mitigated (such as through adjustment to training design).

d. After review of the T&E report, MQTG and recommendation for release to training - the SRO **should** produce a definitive QS[10] which includes, as a minimum:

(1) The category of the device.

(2) The training objectives (TO) the device can and cannot support, including the currency limitations, qualifications, ratings, and supervisory checks that may be conducted in the device. This **should** be based on the recommendation for release to training (see AMC paragraph 10.c.(3)). Suitability of the device for the TOs **should** be assessed as effective, limited, or negative.

(3) The implications of any environmental misrepresentation and the environmental conditions in which the device may be used.

(4) Any relevant material differences between the device and the Air System. These may be reproduced in documentation that is available to Aircrew and training staff.

(5) Any areas where there is a reasonable prospect of negative training occurring, specifying any associated limitations or exceptions and where RtL may be increased in the live Air System as a result.

11. For a device that has been procured through Foreign Military Sales the SRO **should** ensure that an independent T&E SQEP is able to observe, where possible, and validate the T&E assessment conducted by the foreign military provider to enable an initial QS to be produced. If not possible or evidence gaps exist, the SRO **should** develop a plan, in consultation with independent T&E Aircrew[11], to gather the evidence required to support a full QS.

12. The initial assessment **should** be conducted by appropriately qualified T&E Aircrew[11] where accurate handling qualities, Quality of the mission System representation, synthetic environment or Air System performance and operation are material to the intended usage.

13. A device **should** be re-qualified following an expansion of the intended use, or a Modification to the device, which might have affected the accurate handling qualities, Quality of the mission System representation, synthetic environment, or Air System performance. This re-qualification **should** be conducted by T&E Aircrew[11].

[9] These artefacts **should** be maintained and updated, as required, throughout the life of the device.
[10] A suggested template for a Qualification Statement can be found on the MAA website.
[11] Refer to RA 2370 – Test and Evaluation.

Acceptable Means of Compliance 2375(1)

14. Where the representation of the operational performance of non-Flight Safety critical mission Systems is material to the intended usage, qualification of the device **should** be conducted by personnel deemed SQEP by the SRO[12].

15. An appropriate SQEP stakeholder group, which includes T&E Aircrew[11], **should** be established where unique and emerging technologies are involved and there is no end user expertise.

16. Qualified ATDs that are not designed by the manufacturer to be mobile **should** be requalified if they are moved, by validating the MQTG against pre-move data. If this Validation fails, the full qualification process in AMC paragraph 10 **should** be followed, using existing data where valid. The process **should** consider the device performance and the training environment when producing the recommendation for release to training.

17. Where an AI is expected to manage the Instructor Operating Station (IOS), whilst simultaneously monitoring the trainee, an assessment of the IOS functionality **should** be made against any impact on the supervision and training Risk.

18. Where a commercially Contracted civil Air System ATD is used to support a live Air System within their AoR the SRO **should** produce a QS based on the device's civil Qualification certificate. Unless the conditions of paragraph 19 are met, this **should** be supported by a T&E assessment of the device's suitability for military use. Whilst it may be the same type of Air System there may be significant material differences or intended use between the civil ATD and the Air System which **should** be quantified, assessed, and recorded (see AMC paragraph 10.c.(1)). In these circumstances the civil Qualification certificate **should** be used together with the T&E assessment to produce the recommendation for release to training and QS required by this RA (see AMC paragraph 10.c.(3)).

19. Where a civil ATD certified to level D, which simulates a type not on the Military Aircraft Register (MAR), is used to support currency on multiple types including Air Systems on the MAR, the SRO **should**:

a. Ensure the ATD's use remains within the scope of the FSTD Data Sheet.

b. Evidence why there is no potential for transfer of negative training to MAR Aircraft.

c. Produce a QS based on the ATD's civil Qualification Certificate. The level D Certification can be taken as the recommendation for release to training.

20. Where devices can be network linked, they **should** be assessed both independently and when linked. Where differences in performance or use exist, they **should** be included in the QS.

21. The ADH / AM(MF) **should** ensure that the ATD Operator:

a. Progressively tests the ATD against the Master QTG over a rolling 12 month period to identify any degradation in performance between annual Approvals.

b. Can demonstrate they have a suitable management system to enable compliance with this RA.

22. The ADH / AM(MF) **should** ensure that Modifications to live Air System within their AoR are communicated to the Type Airworthiness Authority[13] and / or Commodity DTL, and that Configuration differences between the live Air System and the ATD are identified and managed, quantifying any Risk posed by the differences.

[12] Considered on a case-by-case basis, eg tactical mission Systems may be more appropriately evaluated by an Operational Evaluation Unit or specialized role mission equipment may require end user SQEP advice during evaluation.
[13] Or Type Airworthiness Manager, if appropriate iaw RA 1163 – Air Safety Governance Arrangements for Special Case Flying Air System.

Guidance Material 2375(1)

Qualification of Aircrew Training Devices

23. EASA Certification Specifications (CS) for Aeroplane Flight Simulation Training Devices (CS-FSTD(A)) or Helicopter Flight Simulation Training Devices (CS-FSTD(H))[14], detail the civil legal and regulatory requirements for civil FSTD qualification; other equivalent civil CS are also available. These documents are derived from ICAO Doc 9625 Volume 1 and Volume 2 respectively, which provide a structured means of determining qualification criteria according to training requirement. These specifications may assist the SRO to determine the category of ATD and the qualifications, ratings and training output that can be conducted in the ATD. These documents provide guidance on the construction of a QTG and fidelity levels. However, the guidance is based on civil Air Systems, designed to conduct civil flying tasks and these may not fully satisfy military usage. Therefore, specific military tasks and capabilities may need to be included in the device QTG, such as Night Vision Device visual Systems, and acceptance criteria and tolerances adjusted to suit military usage.

24. Commercially contracted ATD that are level D certified CAA / FAA / EASA ATDs will have been subject to rigorous Assurance. However, when they are used for Aircrew training and currency for Air Systems on the MAR, there may be variation in the capabilities and fidelity of ATD, so SROs need to assure themselves that the differences from the Air System and its intended operation are understood and reflected in the Approval for training.

25. Where a Training Service Provider has been Contracted to provide end to end training requirements set by the SRO it is recognized that this may include the procurement and employment of one or more ATD. In this situation the SRO will still be the owner of the QS iaw paragraph 7 and 9, but the development and management of the QS may be the Responsibility of the Contracted Training Service Provider, subject to agreement by the SRO.

26. The following could be used to describe the qualifications, rating and types of training that may be conducted in an ATD and assist with the creation of a matrix of training objectives to be evaluated:

a. Formal Training Statement (comprising training objectives as they relate to Role Performance Standards) for the following Aircrew Qualifications:

(1) Initial Aircrew Qualification[15].

(2) Certificate of Qualification on Type (CQT)[16].

(3) Certificates of Competence[16].

(4) Instrument Rating (IR)[17].

(5) AI Training Requirements[18].

27. Where CS-FSTD(A/H), ICAO 9625 Vol 1/2 or other civil specifications do not provide sufficient guidance for assessing the fidelity of military devices the following considerations may be considered:

a. Handling characteristics throughout the flight envelope, including ground handling.

b. Flight model performance characteristics throughout the flight envelope.

c. Mission realism, including specific military role manoeuvres and tasks.

d. Accuracy of cockpit layout and Structure.

e. Accuracy of whole crew environment.

[14] CS-FSTD(A) is derived from ICAO Doc 9625 Volume 1, Manual of Criteria for the Qualification of FSTD — Aeroplanes and CS-FSTD(H) is derived from ICAO Doc 9625 Volume 2, Manual of Criteria for the Qualification of FSTD — Helicopters which could also be used to assist the qualification of an FSTD. Where the term 'cockpit representation' is used, this is equally applicable to mission Systems and mission workstations.
[15] Refer to RA 2101 – Aircrew Qualifications.
[16] Refer to RA 2102 – Aircrew Competence in Role.
[17] Refer to RA 2120 – Pilots' Instrument Rating Scheme.
[18] Refer to RA 2125 – Aircrew Instructor Training.

Guidance Material 2375(1)

f. Realistic Systems architecture (eg software menus etc).

g. Representative malfunctions, including isolated and compound degraded modes.

h. Representative visuals, sound, and motion cues.

i. Environmental characteristics to include Air Traffic Control, navigation, atmosphere, weather, Aerodromes, terrain, threats, and external players.

j. IOS operator and System interaction capabilities.

k. Linked capability or formation with entity / other ATD.

l. Mission planning, briefing and debriefing facilities.

m. Accuracy of sensor System simulations to be used for provision of Flight Safety critical activities such as Aircraft guidance.

n. Fidelity of Systems used to support weapon targeting.

28. There are several acceptable methodologies that could be used to determine the required fidelity level for specific training objectives[19]. These include, but not exclusively, ICAO 9625 Vol 1/2 and the Liverpool Rating Scale for Subjective Testing of Simulator Fidelity. Based on a modified version of the ICAO 9625 Vol 1/2 fidelity levels could be applied against each training objective, see Annex B for greater detail:

a. None or Not Required (N).

b. Generic (G).

c. Representative (R).

d. Specific (S).

29. CS-FSTD(A/H), ICAO 9625 Vol 1/2 or other civil specifications could be used to determine the statements of compliance and testing requirements for the ATD when constructing the QTG.

30. Relevant material differences could be extensive so may be referenced in the QS but recorded in an F700[20] style document, which will be familiar to Aircrew and training staff, for the device. Acceptable Deferred Faults could also be recorded and tracked with this document.

Regulation 2375(2)

Approval of Aircrew Training Devices

2375(2) The ADH and AM(MF) **shall** approve the use of the ATD within their AoR.

Acceptable Means of Compliance 2375(2)

Approval of Aircrew Training Devices

31. The ADH or AM(MF) **should** approve an ATD for use based on the QS specific to that device.

32. ATD **should** be approved on initial entry into service.

33. ATD Approvals **should** be renewed and recorded at least annually.

34. For ATD within their AoR, the ADH / AM(MF) **should** renew Approvals following an assessment of the progressive testing conducted by the ATD Operator, compared to the MQTG for that individual device. This assessment **should** be conducted by SQEP and a practical, subjective assessment of the ATD by SQEP Aircrew **should** also be conducted. The criteria for SQEP **should** be determined by the ADH or AM(MF).

a. The ATD Approval **should** be renewed following any Modification to the QS or ATD, subject to an assessment by SQEP Aircrew, determined by the

[19] Further guidance may be found in the RAF Air and Space Warfare Centre Trials Directive.
[20] Refer to the Manual of Airworthiness Maintenance - Documentation (MAM-D).

Acceptable Means of Compliance 2375(2)

ADH or AM(MF). Significant Modifications **should** be assessed by T&E Aircrew[11], and the ATD re-Qualified and the QS re-issued.

b. If at any time the performance of the device is suspected to have degraded, undermining the validity of the QS, the ATD Operator **should** conduct an assessment against the MQTG in addition to referral to T&E Aircrew[11], subject to paragraphs 13-16, to evaluate the device using the MQTG and the T&E report as a baseline.

c. The ADH or AM(MF) **should** assess the material differences between the ATD and the 'as flown' Air System as part of the ASSC[3] and ensure that any differences are published and reflected in the training documentation.

d. The ADH or AM(MF) **should** ensure that the ATD Operator can demonstrate they have a suitable management system in place to demonstrate compliance with this RA as part of the annual Approval process.

35. Where an ATD is a civil Contracted device The ADH / AM(MF) **should** ensure that any Modification to the ATD or QS, not reported by the civil Contractor, are identified during the annual Approval process in paragraph 32. Significant Modifications **should** be assessed by T&E Aircrew[11].

Guidance Material 2375(2)

Approval of Aircrew Training Devices

36. The ADH or AM(MF) could use appropriate SQEP Aircrew, eg the Air System STANEVAL or AI, rather than T&E Aircrew[11] to conduct some subjective assessment in order to validate the Approval for use annually, assuming there have been no Modifications to the live Air System, or the ATD, or its use, that have the potential to impact on the safe operation of the live Air System.

37. Re-qualification of the ATD, iaw RA 2375(1), will be required following any significant Modification to the live Air System, or the ATD, or its use, which has the potential to impact on the safe operation of the live Air System. The updated QS may be used to support the Approval for use of the ATD.

38. Where training objectives may be prohibited in the live Air System, eg practise single or multiple engine failures, and specific live Air System performance is unknown or the data is unavailable, a lower fidelity level may be acceptable if the training benefit achieved synthetically will enhance Safety in the live Air System. This will be specifically addressed in the ASSC.

39. Where High Risk Area or high-cost training is conducted in environmental conditions that would not be routinely practised, or would be highly undesirable to practise, in the live Air System, a lower fidelity level may be acceptable if, through T&E Verification, the training benefit achieved synthetically enhances Safety in the live Air System. This will be specifically addressed in the ASSC.

Regulation 2375(3)

Use of Aircrew Training Devices

2375(3) The ADH and AM(MF) **shall** determine the extent that ATD can be used as preparation for, or as a substitute for, live flying.

Acceptable Means of Compliance 2375(3)

Use of Aircrew Training Devices

40. The ADH or AM(MF) **should** use the QS to determine the suitability of an ATD to conduct Qualifications, ratings, and type of training, including currency and Competency requirements.

41. The ADH or AM(MF) **should** specify in orders and instructions the amount of synthetic flying time and the training objectives to be conducted in an ATD, the periodicity that applies and how the training is to be recorded.

42. Where a Training Service Provider has been Contracted to provide an end-to-end training solution, this may include the requirements stipulated in paragraphs 39 and 40 but **should** be agreed by the ADH or AM(MF).

Acceptable Means of Compliance 2375(3)

43. Where an ATD is used to support training credit or currency, hours flown in it **should** be recorded in the relevant section of the Aircrew logbook or training record.

44. The ADH or AM(MF) **should** specify in orders and instructions when Incidents during the use of an ATD are to be reported iaw RA 1410[21].

45. Where ATD substitute live flying training, currency, and Competency requirements, including CQT and Instrument Flying, consideration to other RA concerning live flying **should** be applied, where deemed appropriate by the ADH or AM(MF).

Guidance Material 2375(3)

Use of Aircrew Training Devices

46. It may not be appropriate to report all Incidents in the ATD as they would be in the live Air System. The stage of training or experience level is to be considered when deciding if reporting an Incident is appropriate. Where ATD Systems have been intentionally degraded for training to induce an emergency or the environmental conditions have been manipulated to create a scenario at the extremes, or even outside, of limits it may be anticipated that the likelihood of a mishap is increased, therefore reporting may not be appropriate. However, reporting is to be considered if an adverse outcome has resulted from incorrect procedures or poor handling. Equally, if there is value to other users from lessons identified, eg relevant material differences between the ATD and the live Air System or incorrect procedures, reporting will be considered.

47. Due consideration of other RAs will include areas such as:

a. RA 2307 – Rules of the Air

b. RA 2309 – Flight Procedures: General

c. RA 2310 – Flight Procedures: Role Specific Fixed Wing

d. RA 2315 – Flight Procedures: Role Specific Rotary Wing

e. RA 2320 – Flight Procedures: Role Specific S2 and Certified Remotely Piloted Air Systems

f. RA 2125 – Aircrew Instructor and Aircrew Examiner Training

g. RA 2350 – Air System Emergencies

48. However, consideration of some RAs may be less appropriate, eg:

a. RA 2306 – Authorization of Flights

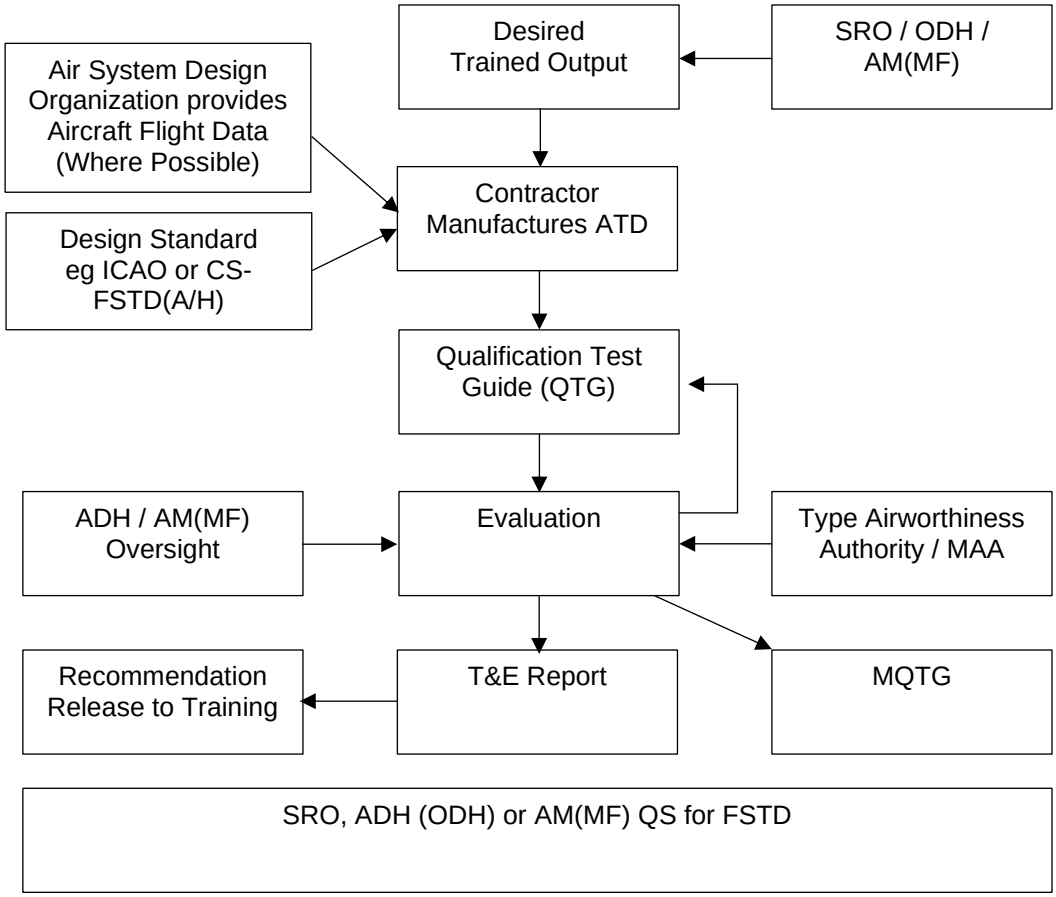
b. RA 2135 – Aircrew and Supernumerary Crew Medical Requirements

c. RA 2345 – Aircrew Fatigue Management

[21] Refer to RA 1410 – Occurrence Reporting and Management.

Annex A

Qualification Process



Annex B

Fidelity Level

Level	Air System Simulation	Cueing Simulation	Environmental Simulation
None	Not Required.	Not Required.	Not Required.
Generic	Not specific to Air System model, type, or variant. Can include skills not possible to replicate in Aircraft, eg Air to Ground Gunnery judgemental training engaging targets.	Generic to an Air System of its class. Simple modelling of key basic cueing features. For *visual cueing* only: generic visual environment with perspective sufficient to support basic Instrument Flying and transition to visual from straight-in Instrument Approaches.	Simple modelling of key basic environment features.
Representative	Representative of an Air System of its class, eg four-engine turbofan or tandem rotor helicopter. Indications can be incorrect, but subsequent technique is correct, an objective that can be contrived to produce a representative outcome. Can include malfunctions and conditions specific to type that do not require representative handling but cannot be initiated on the live Air System (cannot be turned off / CBs cannot be pulled etc).	For *sound and motion cueing* only: replicates the specific Air System to the maximum extent possible. However, physical limitations may only provide representative, not specific, cues. For *visual cueing* only: representative of the real-world visual environment and perspective.	Representative of the real-world environment.
Specific	Replicates the specific Air System. The desired objective can be accurately replicated on any sortie, such as those skills that do not require a failure mode or a specific environmental condition.	Applicable to *visual cueing* replicates the real-world visual environment and (infinity) perspective. However, is to be supported by the appropriate level of motion and sound cueing.	Replicates the real-world environment, as far as required to meet the training objectives, for any specific location.

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RA 2380 – Performance Based Navigation Operations

Rationale

Performance Based Navigation (PBN) is one of several enablers of an Air Traffic Management concept that offers enhanced use of airspace and reduces reliance on legacy fixed navigation aid installations. It has been widely adopted by international military and civilian operators, however, the incorrect use of PBN procedures could drive an increased Risk to Life (RtL) to all airspace users. This Regulatory Article (RA) requires that Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) have robust orders and procedures in place to enable PBN operations.

Contents

Definitions relevant to this RA

2380(1): Air System and Pilot Requirements

2380(2): Performance Based Navigation Procedures and Pilot Training

Definitions

Definitions relevant to this RA[1]

1. **Area Navigation (RNAV)**. RNAV is a navigation method that permits Air System operation on any desired flight path using ground and space based or on board navigation aids. This allows efficiencies over legacy direct Track navigation where the Air System was required to Track between ground based navigation aids as waypoints on a route.

2. **Required Navigation Performance (RNP)**. RNP is RNAV with the support of on board performance monitoring and alerting.

3. **PBN**. The PBN concept specifies that Aircraft RNAV and RNP system performance requirements are defined in terms of accuracy, integrity, continuity and functionality. It enables Air Systems to fly flexible, accurate and repeatable 2-dimensional and 3-dimensional flight paths. PBN encompasses both RNAV and RNP navigation specifications.

4. **Navigation Specifications (Nav Spec)**. Nav Specs are a set of Aircraft and Aircrew requirements needed to support PBN operations within a defined airspace. Nav Specs define lateral navigation accuracy in terms of total system error (TSE). For example, RNAV 10 / RNP 10, where the lateral TSE must be within 10 NM for at least 95% of the total flight time. These Nav Specs allow Certification of Air Systems for PBN operations based on their navigation system performance rather than equipment requirements.

Regulation 2380(1)

Air System and Pilot Requirements

2380(1) ADH and AM(MF) **shall** ensure PBN operations are only conducted by Air Systems within their Area of Responsibility (AoR) that are approved for PBN operations and by pilots who are appropriately qualified.

[1] More detailed definitions are in the International Civil Aviation Organization (ICAO) Doc 9613 PBN Manual – Chapter 1 – Description of PBN.

Acceptable Means of Compliance 2380(1)

Air System and Pilot Requirements

5. PBN operations **should** only be conducted on Air Systems approved in accordance with (iaw) RA 1380[2].

6. Pilots **should** only undertake PBN operations after they have been granted PBN privileges as an endorsement to their instrument rating iaw RA 2120[3].

7. Except for Air Systems capable of and approved for single pilot Instrument Flight Rules, all operating pilots **should** hold the same PBN endorsement, unless pilots are under training and / or are being supervised by an appropriately Qualified Aircrew Instructor or civilian equivalent.

Guidance Material 2380(1)

Air System and Pilot Requirements

8. Useful training material for PBN operations is available via the Eurocontrol PBN Portal[4].

Regulation 2380(2)

Performance Based Navigation Procedures and Pilot Training

2380(2) Where ADH / AM(MF) have PBN approved Air Systems within their AoR, they **shall** define in orders the requirements for PBN operating procedures and pilot training.

Acceptable Means of Compliance 2380(2)

Performance Based Navigation Procedures and Pilot Training

9. When defining PBN procedures and pilot training, ADH and AM(MF) **should** refer to ICAO Doc 9613[5]. Orders **should**, as a minimum, address the following subjects for each required Nav Spec, where applicable:

a. Aircraft Requirements.

b. Operating Procedures.

c. Navigation Equipment.

d. Flight Plan Designation.

e. En Route.

f. Pilot knowledge and Training.

g. Navigation Database.

Guidance Material 2380(2)

Performance Based Navigation Procedures and Pilot Training

10. A comprehensive syllabus for Pilot Knowledge and Training can be found in European Union Aviation Safety Agency (EASA) – Easy Access Rules for Flight Crew Licensing Annex I (Part FCL).

11. Further detailed Guidance Material for PBN operations and training can be found in the following publications:

a. ICAO Doc 9613 PBN Manual.

b. UK Civil Aviation Authority (CAA) Civil Aviation Publication (CAP) 1926 – RNAV Substitution.

c. EASA – Easy Access Rules for Air Operations, Annex V, Subpart B.

[2] Refer to RA 1380 – Performance Based Navigation.
[3] Refer to RA 2120 – Pilots' Instrument Rating Scheme.
[4] Eurocontrol PBN Portal at https://pbnportal.eu.
[5] Refer to ICAO Doc 9613 – PBN Manual Vol II.

RA 2401 - Documents and Records

Rationale

Documents pertaining to the operation of Air Systems and associated systems form a fundamental part of the Air System Safety Case. ►Without accurate documentation, personnel who operate military Aircraft and supervise military flying will not have access to essential information and Air Safety will be compromised. Accurate records are to be made and maintained to allow analysis and exploitation of data for the effective management of personnel and equipment in the Defence Air Environment (DAE).◄

Contents

2401(1): Air System Document Set

2401(2): Use and Carriage of Documents in the ►Aircraft / Remote Pilot Station◄

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2401(4): Aviation Duty Holders / Accountable Managers (Military Flying) ►Flying◄ Orders

2401(5): Authorization Record

2401(6): Meteorological Records

2401(7): Training Records

Regulation 2401(1)

Air System Document Set

2401(1) All Aircrew **shall** be familiar with the elements of the Air System Document Set (ADS)►[1]◄ relevant to operation of the Air System.

Acceptable Means of Compliance 2401(1)

Air System Document Set

1. Aircrew **should** be fully conversant with the following documents ►(where applicable)◄:

   a. ►The relevant flight release and limitations document[2] for the appropriate DAE Operating Categories[3].◄

   b. Aircrew Manuals / Pilot Notes.

   c. Flight Reference Cards.

   d. Operating Data Manuals.

Note: The limitations contained in the relevant flight release and limitations documents[2] at (a) above have primacy over (b), (c) and (d).

2. ►◄

3. ►◄

4. ►The ADS **should** be maintained in accordance with (iaw) RA 5406[4], and any deficiencies, omissions or inaccuracies reported. Subsequent amendments **should** be reviewed and Authorized.◄

Guidance Material 2401(1)

Air System Document Set

5. ►Nil.◄

[1] ►Refer to RA 1310 – Air System Document Set.
[2] Refer to RA 1300 – Release to Service; RA 1305 - Military Permit to Fly (In-Service), (Special Case Flying) and (Single Task); RA 5880 – Military Permit to Fly (Development) (MRP Part 21 Subpart P).
[3] Refer to RA 1160 – The Defence Air Environment Operating Framework.
[4] Refer to RA 5406 – Aircrew Publications.◄

Regulation 2401(2)

Use and Carriage of Documents in the ►Aircraft / Remote Pilot Station◄

2401(2) ►Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) **shall** ensure appropriate flight reference documentation is carried in all UK Military Aircraft / Remote Pilot Station within their Area of Responsibility (AoR), and that all appropriate operating checks and procedures are completed.◄

Acceptable Means of Compliance 2401(2)

Use and Carriage of Documents in the ►Aircraft / Remote Pilot Station◄

6. ►All operating checks and procedures **should** be completed iaw extant versions of the Aircrew Manual / Pilot Notes and associated Flight Reference Cards.

7. ADH or AM(MF) **should** detail the minimum flight reference documentation to be carried in Aircraft / Remote Pilot Stations within their AoR.◄

Guidance Material 2401(2)

Use and Carriage of Documents in the ►Aircraft / Remote Pilot Station◄

8. Nil.

Regulation 2401(3)

Flying Logbooks and Recording of Flying Times

2401(3) Accurate and detailed records of flying times **shall** be maintained by ►operating Aircrew or other personnel◄ as directed by ADH and AM(MF) orders.

Acceptable Means of Compliance 2401(3)

Flying Logbooks and Recording of Flying Times

9. ►Continuous flying records **should** be maintained by all Aircrew or other personnel directed to do so during their time in Service or during their employment with a Defence Contractor Flying Organization (DCFO). Flying records (both current and any previously held) **should** be available for inspection on demand eg by a Coroner's Inquest or Service Inquiry.◄

10. Aircrew serving in non-Aircrew posts, who are permitted to ►operate Aircraft◄ when facilities are available, **should** also maintain Flying Logbooks. When ►Aircrew◄ assume new appointments, they **should** take their Flying Logbooks with them.

11. Flying carried out by personnel not connected with the actual operation of the ►Aircraft◄ **should** be regarded as passenger flying and **should not** be recorded in Flying Logbooks.

12. Flying Logbooks **should** be completed iaw promulgated instructions and ►with reference to◄ the Guidance Material below, which **should** be amplified by ADH or AM(MF) orders when deemed necessary.

13. ►Flying Logbooks **should not** be carried in the Aircraft in which the individual concerned is Authorized to fly as a crewmember unless the ADH or AM(MF) specifically details in their orders the circumstances and mitigations when this is necessary.◄

14. **Calculation of Flying Times**. The period of flight for which flying hours are to be recorded **should** be specified by platform type in ADH or AM(MF) orders.

Guidance Material 2401(3)

Flying Logbooks and Recording of Flying Times

15. Throughout the MAA Regulatory Publications (MRP) 2000 series reference is frequently made to 'Flying Logbooks'. This term may be interpreted to mean 'flying record' where an alternative means of media is used. Where alternative methods to the hard copy Flying Logbook are used, they ►will◄ be: readily reproducible in hard copy; afforded protection from retrospective fraudulent entry (eg protected archive); and will be subject to the same level of supervisory scrutiny as traditional formats.

16. Flying Logbooks are for official use only. They are a comprehensive record of flying and ►will◄ be completed meticulously in order to provide an accurate record of all flights undertaken. Individuals will remain responsible for the accuracy of all entries in their Flying Logbooks. ►◄

17. Hours accrued flying non-UK military ►Aircraft◄ for purposes other than Defence outputs, ►eg civilian recreational flying,◄ will not be recorded in a military Flying Logbook. Where there is any doubt, ►the◄ ADH or AM(MF) will decide.

18. **Calculation of Flying Times.** Flying times will normally be calculated from the time of take-off to the time of landing. When undertaking circuits and landings, the flying times will ►normally◄ be reckoned as the time from the initial take-off to the final landing. For the purposes of recording night flying, 'night' is defined as the time between the end of evening civil twilight and the beginning of morning civil twilight.

Compilation of Flying Logbooks

19. All flying carried out either by a student pilot or a qualified pilot ►operating an Aircraft◄ fitted with dual controls and under the instruction / direct supervision of a Qualified Aircrew Instructor (Qualified AI) will be recorded as 'Dual'. Pilots flying with an Instrument Rating Examiner (IRE) / Instrument Rating Instructor (IRI) when undertaking an Instrument Rating Test will record the flying hours as 'Dual' unless the IRE / IRI does not occupy a pilot's seat during the sortie. In addition, any flying carried out by a qualified Test Pilot, but not qualified on type, ►operating an Aircraft◄ fitted with dual controls and under the direct supervision of a pilot qualified on type will be recorded as 'Dual'.

20. When a pilot is the ►◄ Aircraft Commander the whole period of the flight will be recorded, where appropriate in the 'Captain' column, in addition to the entry in the '1st Pilot' column. ►◄

21. Other pilots, when fully qualified on type, will log '1st Pilot' time for that part of the flight spent in charge of the flying controls unless specified ►below or in ADH or AM(MF)◄ orders. ►The '2nd Pilot' column in the Flying Logbook will be used where present and as appropriate.

22. If two pilots in the following categories fly together in an Aircraft fitted with dual controls, on which they are both qualified, they will both log '1st Pilot' time for the full duration of the flight in the following circumstances:

a. When pilots are flying together for Instrument Flying (IF) practice.

b. When Qualified Flying Instructors (QFI), Qualified Helicopter Instructors (QHI) or Qualified Gliding Instructors (QGI) are flying together for mutual instructional practice.

c. When qualified Test Pilots or qualified safety pilots are flying on test / trials sorties.

23. Non-pilot Aircrew will record flight time as follows:

a. Flying time as Aircraft Commander will be entered in the appropriate column.

b. Flying as a member of a crew, or when detailed to screen, check or examine an Aircrew member carrying out such duties, will be recorded in the appropriate 'Crew' flying section of the Flying Logbook.

24. **Live Aircraft IF.◄** IF time will be recorded as actual or simulated in the appropriate column of the Flying Logbook. Actual IF ►is recorded◄ when the Aircraft cannot be controlled by reference to external visual cues and all manoeuvres are carried out solely by reference to the Aircraft instruments. ►Actual IF is recorded by

Guidance Material 2401(3)

the handling Pilot only,◄ except when a QHI / QFI / IRE / IRI is giving instruction or examining in actual conditions. In such a case the QHI / QFI / IRE / IRI and pupil will both record the time. Simulated IF is conducted under artificially created conditions demanding that all manoeuvres be carried out solely by reference to instruments. ►Simulated IF is recorded by the handling Pilot only.◄

25. Simulator practices will be recorded in the relevant section of the appropriate Flying Logbook in the same manner as normal flying times ►unless specified otherwise in orders.◄

26. Instructions for the completion of periodic summaries ►will◄ be provided alongside whatever method of flying record is employed. ADH or AM(MF) will determine the timing of periodic summaries. Aircrew not in flying appointments will not be required to complete periodic summaries, unless required to do so to maintain currency.

27. Assessments of flying ability will be entered in the relevant flying record.

28. ►ADH or AM(MF) orders will specify the periodicity for inspection of Flying Logbooks of all Aircrew employed on flying duties. Monthly Flying Logbook inspection and certification as correct by the appropriate unit / sub-unit commander or Flight Operations post-holder[5] (DCFO) is recommended, but where appropriate ADH or AM(MF) may consider reducing this to quarterly as a minimum.◄

29. The Flying Logbooks of non-Aircrew personnel will be inspected as detailed in ADH and AM(MF) orders.

Retention and Disposal of Flying Logbooks

30. Flying Logbooks for military personnel are official documents and as such are the property of HM Government. Personnel ceasing to be employed on flying duties will, however, be allowed to retain their Flying Logbooks when all official action for which the books may be required is completed.

31. Flying Logbooks will be retained until the individual is no longer eligible for employment for flying duties. Flying Logbooks will then be disposed of iaw the directions below. At a coroner's inquest into a fatal accident the Flying Logbooks of the personnel concerned must be produced for inspection if required.

Security and Disposal

32. When Aircrew are deceased, missing, a prisoner of war, or declared to be illegally absent or insane, their ►Flying◄ Logbook(s) will be impounded by the appropriate ADH or AM(MF). It ►will◄ be scrutinized to ensure that no security risk is likely to arise from its disposal to the originator or ►their◄ next of kin, either immediately or in the future. ►Flying Logbooks may be retained by the appropriate ADH or AM(MF) pending resolution of all appeal or legal proceedings.◄ After scrutiny, the ►Flying◄ Logbook may be disposed of in one of the following ways:

a. It may be returned to the originator ►or their next of kin◄ on application. ►◄

b. Unless returned to the originator ►or their next of kin,◄ it will be security classified and retained by the appropriate authority.

33. The ►Flying◄ Logbook(s) of deceased personnel may be forwarded to the next of kin after scrutiny, provided that they contain no information of Secret or higher category, nor contain entries that might cause pain to the next of kin. Under no circumstances may ►Flying◄ Logbooks be forwarded to next of kin without permission of the appropriate command chain (normally not less than 2-star level).

Regulation 2401(4)

Aviation Duty Holder / Accountable Manager (Military Flying) ►Flying◄ Orders

2401(4) ADH and AM(MF) **shall** issue Flying Orders.

[5] ►Refer to RA 1024 – Accountable Manager (Military Flying).◄

Acceptable Means of Compliance 2401(4)

Aviation Duty Holder / Accountable Manager (Military Flying) ►Flying◄ Orders

34. ADH or AM(MF) ►flying◄ orders **should** detail specific activity required to enable compliance with the MRP, and any further orders and instructions deemed necessary by the ADH or AM(MF).

35. An auditable record of ADH or AM(MF) ►flying◄ orders **should** be maintained including details of any provenance for change.

Guidance Material 2401(4)

Aviation Duty Holder / Accountable Manager (Military Flying) ►Flying◄ Orders

36. ADH or AM(MF) ►flying◄ orders may also contain aviation-related material not directly relevant to the MRP, for the sake of providing a single source document for Aircrew.

Regulation 2401(5)

Authorization Record

2401(5) ADH and AM(MF) **shall** ensure that accurate and detailed records of flight authorizations are maintained.

Acceptable Means of Compliance 2401(5)

Authorization Record

37. Squadron or independent Flight Commanders, or Flight Operations post-holders[5] (DCFO) **should** ensure that authorization records are checked for content, accuracy and are certified as correct.

38. Completed authorization records **should** be retained by the unit for 12 months and ►the◄ ADH or AM(MF) **should** establish procedures for the continued retention and storage of these records, iaw the guidance contained in JSP441[6].

Guidance Material 2401(5)

Authorization Record

39. Nil.

Regulation 2401(6)

Meteorological Records

2401(6) All relevant meteorological data **shall** be archived to assist in post incident investigation.

Acceptable Means of Compliance 2401(6)

Meteorological Records

40. ADH and AM(MF) **should** detail in orders requirements for the retention and disposal of meteorological records ►◄.

41. Unit Meteorological Offices **should** retain records iaw instructions issued by the UK Meteorological Office.

Guidance Material 2401(6)

Meteorological Records

42. Nil.

Regulation 2401(7)

Training Records

2401(7) ADH and AM(MF) **shall** maintain training records for all Aircrew.

[6] Refer to JSP 441 - Managing Information in Defence.

Acceptable Means of Compliance 2401(7)

Training Records

43. Training records **should** be maintained by the supervisory chain that record all relevant training currencies and qualifications as required by the MRP 2000 series Regulatory Articles. An auditable record, normally referred to as the 'training folder', **should** be kept at least for the period of the current Aircrew flying appointment and where appropriate, retained for the subsequent appointments.

Guidance Material 2401(7)

Training Records

44. Where alternative methods to hard copy training records are used, they ►will◄ be readily reproducible in hard copy and afforded protection from retrospective fraudulent entry (eg protected archive).