

Operation of Permit-to-Fly ex-military aircraft on the UK register

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Enquiries regarding the content of this publication should be addressed to:

General Aviation Unit, Safety and Airspace Regulation Group, Civil Aviation Authority, Aviation House,
Gatwick Airport South, West Sussex RH6 0YR

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Contents

Contents	3
Summary of revisions in Edition 7	9
Introduction	11
Overseas operations	11
Chapter 1	13
Applicability	13
Chapter 2	14
Scope of this CAA publication	14
Chapter 3	15
General requirements	15
Organisational Control Manual	15
Organisation	15
Safety management	17
Consultation with the CAA	18
Charges for the issue and renewal of a Permit-to-Fly	18
Chapter 4	19
Technical requirements	19
Chapter 5	21
Specialised equipment and systems	21
General	21
Oxygen systems	22
Piston aircraft	22
Turbine aircraft	22
Aircraft pressurisation	22
Ejection seats	22
Flying clothing	22
Emergency and back-up systems	22
External equipment	23

Chapter 6	24
Pilot/crew qualification	24
Pilot licensing - general requirements	24
Aircraft Type Rating Exemptions	25
Aircraft Type Rating Exemption (Training) ATRE(T)	25
Aircraft Type Rating Exemptions	25
Applications for Aircraft Type Rating Exemptions	26
Pilot training on jet and high-performance propeller-driven aircraft	27
Pilot currency	28
Human Factors	28
Experienced pilots - aircraft operated on an Aircraft Type Rating Exemption or Type Rating	28
Experienced pilots - aircraft operated on a Class Rating (SEP and MEP)	29
Experienced pilots - all aircraft	29
Inexperienced pilots	29
Chapter 7	30
Operational requirements	30
Flight test	30
Operational control	30
Operational limitations	30
Low flying	31
Aircraft fitted with live ejection seats and ejection policy	31
Aircraft fitted with drop tanks	32
Flying clothing	32
Flight in excess of 250 Kt below FL 100	32
Carriage of passengers	32
Essential Training Requirements	33
Chapter 8	36
Recording and audit procedure	36
Recording	36
CAA audit	36
Procedure for withdrawing agreement to an OCM agreement	36



Chapter 9	38
Safety standards acknowledgement and consent	38
Introduction	38
SMS – Risk Assessment	38
Passenger information	38
SSAC Operations Manual	38
Airworthiness requirements	39
Appendix A	
Guide to the compilation of the organisational control manual	41
Introduction	41
Overall organisation	41
Operational organisation	41
Maintenance considerations	43
Annexes	43
Appendix B	
CAP 632 Safety Management	44
SMS evaluation tool	44
Simple risk assessment procedure using a matrix system	46
Types of hazard	47
Assessment	47
Severity of hazard	48
Likelihood of occurrence	48
Risk tolerability table	49
Mitigation	50
Hazard Log production	50
Risk assessment audit trail	50
Appendix C	
Guidance on experience requirements to fly jet or high-performance piston engine aeroplanes	51
Introduction	51
Levels of experience	51

Minimum recommended experience required before a pilot should be considered for self authorisation	51
Self authorisation	52
Appendix D	
Specimen pre-flight briefing	53
1. General handling sorties	53
2. Navigation sorties (additional to 1 above)	54
3. Formation sorties (additional to 1 and 2 above)	54
Appendix E	
Guidance on appropriate flying clothing and safety equipment (dress to survive)	55
Flying clothing	55
Flying suits	55
Flying boots	55
Flying helmets	55
Flying gloves	56
Immersion suits	56
Other survival equipment	56
Life jackets	56
Life raft	56
Ejection seats	57
Parachutes	57
Other considerations	57
Training	57
Equipment serviceability	57
Appendix F	
Guidance on the conduct of the audit visit	58
Introduction	58
Frequency of inspection	58
The audit inspection	58
Operational organisation	58
General documentation	59

Documentation - technical	59
Aircraft technical log	59
Permit maintenance release	59
Inspection Status	60
Deferred defects list	60
Authorisation sheets	60
Documentation - pilot and training	60
Pilot licence and personal details record	60
Aircraft documentation for training and reference purposes	60
Ground school technical record	60
Pilot flight training records	60
Pilot final handling test report	60
Further training report	60
Initial and Recurrent Training Records	60
Pilot maintenance authorisation	61
Documentation - other	61
Inspection of documentation - technical	61
Inspection of documentation - pilots and training	61
Maintenance arrangements	61
Airworthiness responsibility and co-ordination	61
Aircraft maintenance program	61
Aircraft documentation	62
Post inspection actions	62
Verbal debrief	62
Follow-up action	62
Observations made and notified for information purpose only	62
Identified significant non-conformities	62
Identified serious non-conformities in need of immediate remedial action	62
Annex 1 to Appendix F	63
Operational arrangements - check list	63
Annex 2 to Appendix F	66
Maintenance support arrangements - check list	66



Appendix G	
SSAC Operations Manual	68
Contents	68
General / basic	68
Administration and control of operations manual	68
Organisation and responsibilities	69
Operational control and supervision	69
Compliance monitoring system	69
Safety management system	70
Qualification requirements	70
Crew health precautions	71
Flight time limitations	71
Operating procedures	71
Maintenance considerations	72
Handling, notifying and reporting occurrences	73
Aeroplane operating matters — type related	73
General information and units of measurement	73
Normal procedures	73
Abnormal and emergency procedures	73
Performance	74
Flight planning	74
Mass and balance	74
Minimum equipment list	74
Aeroplane systems	74
Route / aerodrome instructions and information	74
Training	75

Summary of revisions in Edition 7

This document has been revised since Edition 5. For ease of use, all substantive revisions throughout this document are underlined in red.

The following sets out the broad topics throughout the document where *major* revisions have been made. This does not reflect small textual alterations (eg word changes etc):

Paragraph	Topic	Revision made
3.7-3.15	Organisation Control Manual - Organisation	New text clarifying the key positions within the OCM and describes the operational arrangements that must be in place: flight planning, pilot information, technical log records, convex and recurrent pilot training and continuing airworthiness.
4.5-4.6	Signpost to further guidance on continuing airworthiness	New text signposting to new CAA CAP1640 on Continuing Airworthiness Approval of Ex-Military Aircraft.
6.1-6.3	Pilot licensing general requirements	New text describing experience requirements in terms of general and display flying. For MEP, multi-pilot and turbine-powered aeroplanes, new text that OCM should detail experience levels and training requirements.
6.4-6.11	Aircraft Type Rating Exemptions	New text describing ATRE and process leading to the Final Handling Test, as well as initial and subsequent renewals of ATRE.
6.18-6.26	Currency for pilots of jet and high-performance propeller-driven aircraft	New text on currency and recency requirements for pilots of certain CAP632 aircraft and how this must be clearly set out by the operator.
6.27	Human factors	New text requiring pilots to undergo some training in human factors aspects of flying and signposting to CAA CAP1047 Civil Air Displays guide for pilots.
6.31-6.32	Experienced pilots	New text requiring 12-month dual check
6.34	Inexperienced pilots	New text regarding dual check guidance
7.29-7.35	Essential training requirements	New text setting out nature of training and requiring safety margins, with content on aerobatic training, training records (including what should be included).
8.5-8.7	Procedure for withdrawing an OCM agreement	New text setting out actions and process in the event the CAA finds serious non-compliance with OCM requirements

A5	OCM compilation guide	New provisions covering essential training requirements and pilot currency
C2	Levels of experience	<i>Inexperienced</i> definition increased from 50 to 200 hours PIC post-licence issue. Compatible amendment to the <i>Intermediate</i> definition.
E19	Training	Importance of including initial/refresher safety equipment training in pilot training record.
F3	Frequency of inspection	Amendment to F3 on basis of frequency using performance-based oversight.
F17	Initial and recurrent training records	New text summarising possible content of training folder for each pilot.
F – Annex 1	Operational arrangements – check list	New sections on Pilot training (both convex and recurrent) and Safety Management Systems.

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Introduction

1. Ex-military aircraft or replicas thereof with either:
 1. a maximum Take-off Weight Authorised (MTWA) in excess of 2730 kg; or
 2. a piston engine with a rating of 800 hp or more; or
 3. a turbine or turbojet engine (excluding helicopters under an MTWA of 2730 kg);

on the UK register may be required to operate on a Permit-to-Fly. The Permit-to-Fly specifies various conditions, including:

‘The aircraft shall be maintained by an Approved Organisation (BCAR A8-23/24/25) in accordance with a recognised maintenance programme/schedule based on the manufacturers and/or the previous military authority’s published maintenance requirements.’

and

‘The aircraft shall be operated in accordance with CAP 632 unless the CAA has confirmed in writing that compliance with the conditions of CAP 632 is not required.’

NOTE 1: The BCAR A8-23/24/25 maintenance requirement applies to all ex-military helicopters.

NOTE 2: The CAP 632 operational requirements do not apply to ex-military helicopters with an MTWA below 2730 kg.

2. This publication details the operational requirements applicable to these ex-military aircraft.
3. Ex-military aircraft on the UK register may not be acceptable for the issue of a Certificate of Airworthiness. The CAA will grant a Permit-to-Fly if satisfied in accordance with British Civil Airworthiness Requirements (BCAR) Chapters A3–7, and A8-23/24/25.

Overseas operations

4. A UK Permit-to-Fly is only valid for flight in UK airspace in accordance with the conditions on the Permit-to-Fly, unless an Exemption has been granted by the CAA to fly abroad. Permit-to-Fly aircraft must not be operated outside UK airspace for more than **3 calendar months** in any calendar year, unless with the specific approval of the CAA. Flight in the airspace of any other State in a

Permit-to-Fly aircraft will also require the specific permission, in writing, of that State since the aircraft does not hold an ICAO recognised Certificate of Airworthiness.



Chapter 1

Applicability

- 1.1 The operational requirements set out in this publication are applicable to any ex-military aircraft or replicas thereof with either:
1. an MTWA in excess of 2730 kg; or
 2. a piston engine with a rating of 800 hp or more; or
 3. a turbine or turbojet engine (excluding helicopters under an MTWA of 2730 kg);
- operating on a Permit-to-Fly on the UK register except as outlined in paragraph 1.3 below (see also Introduction, Notes 1 and 2).
- 1.2 Owners and operators of these aircraft will also be required to meet the conditions set out in BCAR A8-23/24/25 and with conditions stated on the Permit-to-Fly for the aircraft concerned.
- 1.3 The provisions of this publication will not normally be applicable to aircraft that are military variants of civil designs which have, or are being operated on, a UK Certificate of Airworthiness. Where, in the opinion of the CAA, there are significant differences between the military variant and its civil-certificated counterpart, the CAA may insist that the procedures set out in this publication are followed.
- 1.4 Further guidance for the applicability of this document can be obtained under Chapter 4 Technical Requirements.

Chapter 2

Scope of this CAA publication

- 2.1 This publication specifies the operational requirements that an applicant for the issue of a Permit-to-Fly for an ex-military aircraft is required to meet. The maintenance requirements are set out in BCAR Chapters A3–7, and A8-23/24/25. Not only will certain provisions need to be met before the Permit to Fly can be issued, but a minimum operational and technical framework must remain in place for the Permit-to-Fly to remain valid.
- 2.2 This publication has been divided into separate parts covering:
- General requirements
 - Technical requirements
 - Specialised equipment and systems
 - Pilot/crew qualifications
 - Operational requirements
 - Recording and audit procedure
 - Safety Standards Acknowledgement & Consent

Chapter 3

General requirements

Organisational Control Manual

- 3.1 The operator will be required to compile and submit to the CAA an Organisational Control Manual (OCM) or an expanded Operations Manual for Safety Standards Acknowledgement & Consent (SSAC) Operations Manual (refer to Chapter 9 and Appendix G). It is not intended that the contents of this manual should follow the detailed requirements necessary for an Air Operator's Certificate, but rather that it will set out the operational procedures under which it is proposed to operate the aircraft. As a guideline, the OCM or SSAC Operations Manual should contain only the essential details necessary to comply with the requirements of this publication. Once the CAA is satisfied that the proposed operational procedures are acceptable, the OCM or SSAC Operations Manual will be agreed by formal letter issued by the CAA to the operator.
- 3.2 Any subsequent amendments to the OCM or SSAC Operations Manual must also be agreed by the CAA before they are incorporated. Any amendments must be clearly highlighted preferably with revision bars.
- 3.3 Detailed requirements to be considered when preparing the OCM are given in Appendix A and Appendix G for the SSAC Operations Manual.
- 3.4 Should the operator fail to adhere to the agreed operating procedure the CAA may withdraw the agreement to the OCM or SSAC Operations Manual until any deficiencies are addressed. This procedure is outlined in Chapter 8.

Organisation

- 3.5 The operator shall set up an organisation, acceptable to the CAA, capable of safely managing the day to day operation of the aircraft. This organisation shall be capable of reviewing the following:
- The maintenance standard of the aircraft in conjunction with the BCAR A8-23/24/25 approved organisation nominated as being responsible for the particular aircraft maintenance and continued airworthiness.
 - The suitability of the aircraft condition for any intended flight within the limitations laid down in the Permit-to-Fly.
 - Compliance with the conditions of the Permit-to-Fly in relation to any intended flight.

- The currency and recency of the crew (including any supernumerary crew) in relation to any intended flight.
- Operational planning for the intended flight such as weather conditions, fuel requirements, diversion requirements etc.

3.6 Qualification and terms of reference for key personnel within the organisation should be detailed within the OCM. Complexity and/or number of aircraft will dictate staffing requirements and balance of permanent and part time staff.

3.7 The roles and responsibilities for the following positions must be defined within the OCM:

1. Chief Pilot,
2. Chief Instructor and/or Instructor(s),
3. Pilots.

3.8 The operator must have the following operational arrangements in place:

3.9 **Flight Planning:** The operator must have a system for the supply and review of flight planning information and documentation for all pilots. The operator must have documentation specific to aircraft type, including aircrew manuals, pilot's notes, Permit-to-Fly. These must be available for the review of all pilots.

3.10 **Pilot Information:** The operator must have a system in place to be able to confirm a pilot's licence, personal details, currency, flight and daily maintenance authorisation status.

3.11 **OCM:** The operator must have a CAA agreed OCM which must be available to all pilots. A system must be in place to confirm that all pilots have read the OCM.

3.12 **Technical Log Records:** The operator must have a Technical Log for each aircraft operated. Pilots should be given guidance on its completion.

3.13 **Pilot Training – Convex:** The operator must have a CAA agreed training schedule. This must include a system for the recording of all pilot, ground and flight training, including results whether satisfactory or not.

3.14 **Pilot Training – Recurrent:** The operator must maintain detailed training records for any ground training, dual checks (on type or similar agreed type), Essential Knowledge Quizzes and Essential Training Requirements. Record dual check outcomes and any required corrective action.

3.15 **Continuing Airworthiness Arrangements:** The operator must have a Maintenance Agreement/Contract with an A8-23/24/25 organisation, a process for detailing the next maintenance due, a process for handling defects and a process for handling Letters to Operators (LTOs) and Mandatory Permit Directives (MPDs).

Safety management

- 3.16 Safety is of paramount importance in all areas of aviation. High safety standards are achieved not by the imposition of rules and regulations but through the development of a positive safety culture in all connected with the operation of aircraft. The development of such a culture can be achieved in a number of ways, but that recommended by the CAA is the adoption of a Safety Management System (SMS). The SMS allows an operator to assess the approach to safety and the risks to which the operation is open.
- 3.17 SMS can be tailored to meet the needs of small and large operations and in some form may already exist in organisations. The test of any organisation and its embedded safety system is that it can withstand scrutiny in the event of incident and satisfy investigators that all reasonable safety measures have been taken.
- 3.18 The CAA website contains guidance for SMS including specific guidance for small non-complex organisations. This guidance is available at www.caa.co.uk/sms. The website includes templates for SMS manual contents, safety report forms and hazard logs. An example of a simple risk assessment procedure using the matrix system is shown in Appendix B.
- 3.19 The CAA website also includes an evaluation tool for assessing the organisations safety management processes. The tool can be used to self-analyse the safety management processes and identify where improvements can be made if necessary. The evaluation tool consists of a number of questions covering management commitment and responsibility, safety accountabilities, the appointment of key safety staff members, emergency response planning, safety documentation, hazard identification, risk assessment and mitigation, safety performance monitoring, management of change and incident management. The evaluation tool is available at www.caa.co.uk/sms under the Phase 1 SMS Evaluation Tool for Non-Complex Organisations and is also included at Appendix B.
- 3.20 Alongside the evaluation tool, and to be used in parallel with it, is a simple hazard log. This is based on a subjective assessment, based on experience and evidence, of the likelihood of each identified hazard occurring coupled with the severity of the outcome. Multiplying likelihood by severity provides an initial risk assessment. Mitigating factors can then be applied to give a final risk assessment.
- 3.21 During audits (see Appendix F) the CAA Inspectors will discuss SMS with operators. Their discussions will be based around the evaluation tool at Appendix B. The evaluation tool provides a suggested indication of how the effectiveness of a company SMS can be assessed.

Consultation with the CAA

3.22 Operators who propose to purchase an ex-military aircraft with the intention of obtaining a Permit-to-Fly are advised to consult the following CAA departments early in the planning cycle to determine if a Permit-to-Fly will be issued and under what limitations to operations.

- **Applications and Approvals Department** (Telephone Helpline 01293 768374 or email aanda@caa.co.uk) on application, maintenance and procedural matters;
- **Aircraft Certification** (Telephone 01293 573988 or ga@caa.co.uk) on matters associated with the design and eligibility of the type;
- **Operations and Authorisations** (Telephone 01293 573988 or email cap632@caa.co.uk) on operational and CAP 632 matters; and
- **Shared Service Centre (SSC)** (Telephone 01293 573700 or email fclweb@caa.co.uk) for licensing and training matters relating to turbine powered aeroplanes, multi-crew aeroplanes and all helicopters.

Charges for the issue and renewal of a Permit-to-Fly

3.23 The CAA may in the future levy charges which would be additional to the normal charges payable for the Issue or Renewal of any Permit-to-Fly. Charges apply to Aircraft Type Rating Exemptions issued by the General Aviation Unit, and details can be found in the Official Scheme of Charges. The applicant may be required to pay for any additional work that proves necessary.

Chapter 4

Technical requirements

4.1 The investigation of the aircraft by the CAA for the issue of a Permit-to-Fly will be carried out in accordance with BCAR Chapters A3–7, and or A8-23/24/25. Where the aircraft being considered is either:

1. above an MTWA of 2730 kg; or
2. has a piston engine with a rating of 800 hp or more; or
3. has a turbine or turbojet engine (excluding helicopters under an MTWA of 2730 kg);

4.2 The level of design investigation will be determined by the three groupings, Simple, Intermediate and Complex:

- **Simple:** single piston engine types.
- **Intermediate:** multiple piston engine or turbine (single or multiple) engine types with simple mechanical flying controls or with power controls having an independent back-up system which ensures continued safe flight.
- **Complex:** all other types, in particular those types having features which require a high degree of specialised knowledge and equipment to maintain (e.g. types with no independent backup system to powered flying controls or with auto-stabilisation systems or electronic engine controls).

NOTE: Classification of a particular aircraft type is the responsibility of the CAA.

4.3 Maintenance, continued airworthiness and Permit-to-Fly renewal of ex-military aircraft or replicas thereof with either:

1. an MTWA in excess of 2730 kg; or
2. a piston engine with a rating of 800 hp or more; or
3. a turbine or turbojet engine (excluding helicopters under an MTWA of 2730 kg);

are to be controlled by a suitable approved BCAR A8-23/24/25 Organisation.

- 4.4 It is the operator's responsibility to ensure that valid agreements are in place, and regular liaison is carried out with their BCAR A8-23/24/25 maintenance organisation agreed for the aircraft type(s) concerned. Maintenance arrangements must be agreed with the CAA.

4.5 Further Guidance for the Airworthiness Requirements:

Design, Restoration and Continuing Airworthiness Approval of Ex-military Aircraft CAP 1640

This publication provides guidance for those who are seeking to obtain a Permit to Fly for an ex-military aircraft, or who wish to restore, maintain and operate such an aircraft issued with a Permit to Fly. It is applicable to an aircraft that may not have been designed and manufactured to specified civil standards as is generally the case of ex-military aircraft; and is ineligible for the issue of a Certificate of Airworthiness.

This publication is available from the CAA website www.caa.co.uk/cap1640

Chapter 5

Specialised equipment and systems

General

- 5.1 Many ex-military aircraft have specialised technical equipment or systems specific to the role of the aircraft or the conditions under which it was designed to operate, or both. From design considerations for intermediate and complex types, the CAA will grant a Permit-to-Fly on the basis of a reasonable military service accident record (discounting military action and high-risk training). To maintain or improve this record under civil control, it is expected that the aircraft will be operated as far as possible to the standards used in military service. For example, this would mean, that if a serviceable oxygen system was required in military service irrespective of the nature of the flight, the CAA would wish this to continue unless the CAA was totally satisfied that there were no hazards in operating without oxygen, even at low altitude (e.g. due to cockpit carbon monoxide levels). Specialised systems may include:
- Oxygen, either liquid or gaseous
 - Pressurisation
 - Ejection seats
 - Flying clothing
 - Emergency and back-up systems, brake-parachutes etc
 - External fuel tanks, pylons etc
- 5.2 To support this principle, the aircraft should be operated in accordance with the instruction manuals used whilst in military service, e.g. Pilots Notes, Flight or Aircrew Manuals, Operating Data Manuals etc.
- 5.3 In some cases additional limitations or procedures may be necessary for operation in the civil environment. Where required, all such manuals, additional limitations or procedures will be specified as a condition on the Permit-to-Fly. These must be fully detailed in the OCM.
- 5.4 Where specialised equipment, facilities or personnel are required to ensure the serviceability of the equipment (e.g. ejection systems) these will be provided by, or be under the control of, the appropriate BCAR A8-23/24/25 Organisation.

Oxygen systems

Piston aircraft

- 5.5 It is recommended that piston engine aircraft have serviceable oxygen systems when operating above FL 100, or at all heights when adverse environmental conditions may exist.

Turbine aircraft

- 5.6 It is recommended that the oxygen system be fully serviceable in all types of turbine-powered aircraft whether or not the operator proposes to fly the aircraft above FL100. In the case of high-performance aircraft, specific training, such as pressure breathing training, may be required.

Aircraft pressurisation

- 5.7 It is recommended that pressurisation systems should be fully serviceable.

Ejection seats

- 5.8 Where ejection seats are an integral part of the aircrew escape system, as specified in the relevant Pilots Notes, Flight or Aircrew Manuals, it is recommended that they be fully serviceable for all flights. Approval should be sought from the CAA (Application and Approvals) at the earliest opportunity if it is intended to operate with inert ejection seats (or other escape systems). It is unlikely that the CAA will allow swept-wing aircraft fitted with ejection seats to be flown unless the equipment is fully operational.
- 5.9 Ejection seat cartridge lives are typically 2 years installed, within a 6 year shelf life. To be fully serviceable the cartridges installed must be within their appropriate lives.

Flying clothing

- 5.10 Certain items of flying clothing and personal equipment form an integral part of the aircraft safety equipment; life-saving jacket with dinghy connections or Personal Equipment Connector with oxygen connections for example. Where the appropriate systems are required for flight, these additional items must also be available and fully serviceable.

Emergency and back-up systems

- 5.11 Such systems will invariably be an integral part of the aircraft build standard and will have been installed with certain emergencies in mind (i.e. emergency undercarriage lowering or hood opening/jettison). The CAA will require all such systems to be serviceable for all flights.

External equipment

- 5.12 The carriage of external weapons or stores during flight will not be allowed. Flight with external jettisonable fuel tanks will be subject to agreement with the CAA. Empty wing pylons, where their carriage does not materially affect the flight characteristics of the aircraft, will be allowed provided that the pylon jettison circuits are inhibited.