

# **Military Aviation Requirements - Operations**

**MAR-OPS 2**

**Fighter operations**

Military Aviation Authority – The Netherlands

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## Status page

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Amendment to issue 3

- Terminology transferred to MAR-11
- Quality System and Safety Program amended to SMS
- Multiple editorial changes
- Incorporation of general responsibility article
- Adjustment of the Military Context Article in General Part

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## **TERMINOLOGY**

Terms used in this MAR-OPS 2 are explained in the MAR – 11.

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## **SUBPART A – APPLICABILITY AND ENTRY INTO FORCE**

### **MAR-OPS 2.001 Applicability and entry into force**

(a) MAR-OPS 2 prescribes requirements and conditions applicable to the operation of any fighter aircraft operated by Netherlands military Operators.

(b) This requirement shall enter into force on the day of signing by the Director of the Military Aviation Authority of the Netherlands. Operators who are in the process for certification for a Military Air Operator certificate will only be issued a certificate when they comply with this requirement. Operators certified as Military Air Operator need to show compliance, including adapting their (safety) management system, no later than 01 January 2019.

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## **SUBPART B – GENERAL**

MAR-OPS 2.002 Privileges  
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MAR-OPS 2.165 Leasing – transfer of aircraft

Appendix 1 to MAR-OPS 2.030 MEL – application and usage

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## **MAR-OPS 2.002 Privileges**

The holder of a MAOC is privileged to conduct fighter operations in accordance with terms and conditions of the MAOC.

## **MAR-OPS 2.003 Responsibilities**

(a) The requirements in this MAR-OPS do not absolve any person from using their best judgement to ensure the safety of the aircraft, personnel and surroundings. Where safety or operational imperatives demand, the requirements may be deviated from provided that a convincing case can be offered in retrospect. Where Authorised individuals issue their own amplifying orders or instructions, they must be based on these requirements and on a sound risk analysis.

(b) Nothing in these requirements shall exonerate an accountable manager, postholder, pilot in command, crewmember or other operations personnel from the consequences of any neglect to comply with these requirements, or of the disregard of any precaution which may be required by the ordinary practise of airmen, or by the special circumstances of the case.

(c) In construing and complying with these requirements due regard shall be had to any special circumstances, including those originating from the specific military context, which may make a deviation from the requirements necessary to avoid immediate danger.

## **MAR-OPS 2.005 General**

(a) The Operator shall operate any aircraft listed on his MAOC in accordance with this MAR-OPS 2.

(b) The Operator shall ensure that at all times clear and unambiguous instructions are issued to all crew members regarding the requirements, procedures and conditions applicable to the operation to be conducted. These instructions shall be substantiated by a formal authorization.

(c) For requirements in this MAR-OPS 2 that require alternative implementation by an Operator if deemed necessary 'due to the nature of the operation', the Operator shall include a verifiable decision-making procedure in his Operations Manual.

(d) The Operator shall operate any aircraft in compliance with the terms of its Certificate of Airworthiness and within the approved limitations contained in its Aircraft Flight Manual.

(e) All synthetic training devices (STD) replacing an aircraft for training and/or checking purposes are to be approved by the MAA. Approval can be obtained by following the recommendations as written down in the Advisory Circular FSTD or equivalent.

(f) The Operator shall have a passenger policy for transport of persons other than crew members with aircraft types operated under the terms of his MAOC. This passenger policy must be approved by the Military Aviation Authority.

## **MAR-OPS 2.010 Exemptions**

(a) When satisfied that there is a need the Military Aviation Authority may exceptionally and temporarily grant an exemption from the provisions of MAR-OPS 2. The exemption may include any supplementary condition the Military Aviation Authority considers necessary in order to ensure an acceptable level of safety in the particular case.

(b) When the Operator has a need to deviate from any MAR-OPS 2 requirement, a petition for exemption from the specific requirement shall be submitted to the Military Aviation Authority in accordance with MAR-11. The formal Military Aviation Authority approval shall be obtained before deviating from the requirement.

(c) When time does not permit compliance with sub-paragraph (b) above, deviation from specific MAR-OPS 2 requirements is only permitted in case of operational necessity and shall be based on an operational risk assessment. Subsequently, the Operator shall ensure that a report is submitted to the Military Aviation Authority as soon as possible, describing the:

- (1) MAR-OPS 2 requirements deviated from;
- (2) Operational circumstances and necessity to deviate;
- (3) Results from the operational risk and or safety assessment; and
- (4) Any supplementary conditions and or measures applied.

## **MAR-OPS 2.015 Operational Directives**

(a) The Military Aviation Authority may direct by means of an Operational Directive that an operation shall be prohibited, limited or subject to certain conditions, in the interests of safe operations (reference MAR-11).

(b) Operational Directives state:

- (1) The reason for issue;
- (2) Applicability and duration; and
- (3) Action required by the Operator.

(c) Operational Directives are supplementary to the provisions of this MAR-OPS 2.

## **MAR-OPS 2.020 Laws, regulations and procedures – Operator’s responsibilities**

The Operator shall ensure that:

(a) All operations personnel are made aware that they shall comply with the laws, regulations and procedures of those States in which operations are conducted and which are pertinent to the performance of their duties; and

(b) Crew members are familiar with the laws, regulations and procedures pertinent to the performance of their duties.

### **MAR-OPS 2.025 Common language**

- (a) The Operator shall ensure that all crew members are able to communicate in a common language.
- (b) The Operator shall ensure that all operations personnel are able to understand the language in which those parts of the Operations Manual which pertain to their duties and responsibilities, are written.

### **MAR-OPS 2.030 Minimum Equipment List**

(See appendix 1 to MAR-OPS 2.030 MEL – application and usage)

- (a) The Operator shall:

Apply and use the MEL in accordance with appendix 1 to this MAR-OPS 2 requirement.

- (b) The Operator shall not operate an aircraft:

(1) Other than in accordance with the applicable MEL unless permitted by the Military Aviation Authority; or

(2) After expiry of the rectification interval specified in the applicable MEL, unless:

(i) The defect has been rectified; or

(ii) The rectification interval is extended in accordance with appendix 1 to this MAR-OPS 2 requirement.

- (c) Where there is a conflict between the MEL and an Airworthiness Directive or any other mandatory requirement issued by the Military Aviation Authority, the data or information contained in the Airworthiness Directive or the mandatory requirement shall prevail.

### **MAR-OPS 2.034 Managerial requirements**

- (a) The organisation shall set up and manage its organisation according to a structure that supports the safe, efficient and continuous provision of flight operations under the terms of this MAR-OPS.

- (b) The organisation shall setup a management structure that ensures at least the following:

(1) An accountable manager is appointed who, on behalf of the organisation, has corporate authority to ensure that all required activities can be carried out to the standard required by this MAR-OPS. The accountable manager shall:

(i) establish and promote the management systems specified in MAR-OPS 2.035 & 2.037;

(ii) ensure that, in support of the organisation's approval, all necessary resources are available to accomplish the activities;

(iii) demonstrate a basic understanding of the MAR-OPS;

(2) A quality manager is appointed with the responsibility for monitoring the quality management system, including the associated feedback system as required by MAR-OPS X.035. The appointed person shall have direct access to the accountable manager to ensure that the accountable manager is kept properly informed about issues related to quality and compliance. The appointed person shall have access to all parts of the organisation and, as applicable, any (sub)contracted organisation;

(3) For flight operations under the terms of this MAR-OPS, the Military Aviation Authority may accept the nomination of two quality manager functions, one for operations and one for maintenance management, provided that the quality system is applied uniformly throughout the entire operation.

(4) A safety manager is appointed responsible to monitor compliance with, and adequacy of, procedures to ensure safe operational practices. The appointed person shall have direct access to the accountable manager to ensure that the latter is kept properly informed about safety affairs, compliance and improvement measures;

(5) Nominated postholders are appointed, whose job responsibilities includes ensuring that the organisation complies with this MAR-OPS. Such persons shall ultimately be responsible to the accountable manager. The nominated postholders:

- (i) shall represent the management structure of the organisation;
- (ii) shall be able to demonstrate relevant knowledge, background and satisfactory experience related to the flight operations executed under the terms of this MAR-OPS;
- (iii) shall demonstrate a basic active understanding of this MAR-OPS;

(6) For flight operations under the terms of this MAR-OPS, postholders responsible for the management and supervision of the following areas are required:

- (i) Flight operations;
- (ii) Maintenance management;
- (iii) Crew training; and
- (iv) Ground operations;

(7) A person may hold more than one of these nominated posts if acceptable to the Military Aviation Authority, but a minimum of two persons are required to cover the four areas of responsibility.

(c) The organisational structure shall define:

(1) the authority, duties and responsibilities of the accountable manager, the nominated post holders and in particular of the management personnel in charge of safety, quality, security and human resources related functions;

(2) the relationship and reporting lines between different parts and processes of the organisation.

(d) Personnel requirements:

(1) The organisation shall employ appropriately skilled personnel to ensure the provision of its services in a safe, efficient and continuous manner.

(2) The organisation shall have a man-hour plan showing that the organisation has sufficient personnel to plan, perform, supervise, inspect, and quality monitor the organisation in accordance with the approval.

(3) The organisation shall have a procedure to reassess work intended to be carried out when actual staff availability is less than the planned staffing level for any particular work shift or period or the work load is higher than expected.

(4) The organisation shall establish and control the competence of all personnel involved in provision of its services in accordance with a procedure and to a standard acceptable to the MAA-NLD. In addition to the necessary expertise related to the job function, the competence must include an understanding of the application of human factors and human performance issues appropriate to that person's function in the organisation.

(5) The organisation shall ensure that all personnel receive sufficient and appropriate continuation training according with a procedure and standard acceptable to the MAA-NLD.

(6) The organisation shall ensure that technical personnel including personnel of subcontracted operating organisations who operate and maintain equipment approved for its operational use have and maintain sufficient knowledge and understanding of the services they are supporting, of the actual and potential effects of their work on the safety of those services, and of the appropriate working limits to be applied.

#### **MAR-OPS 2.035 Quality system**

(a) The organisation shall develop a functional and effective system to manage quality such that it assures that products and services meet the required specification.

(b) The system shall include the following:

(1) A quality policy that meets the needs of different users as closely as possible;

(2) Procedures, taking into account human factors and human performance, to ensure good practices and compliance with this MAR-OPS. The procedures developed or to be developed shall address all aspects dealing with the performance of the activities and shall contain the standards which the organisation intends to meet;

(3) Independent checks, by means of audits, inspections, or investigations, in order to ensure the required standards and the adequacy of procedures according this MAR-OPS;

(4) A quality feedback reporting system to the nominated postholder and ultimately to the accountable manager that ensures proper and timely corrective actions are taken in response to reports resulting from the independent checks performed;

(5) Documentation and registration system.

(c) The organisation shall describe the system and procedures in the Operations Manual or Organisation Exposition.

(d) The organisation shall provide and keep up-to-date operations manuals relating to the provision of its services for the use and guidance of operations personnel. The organisation shall ensure that:

- (1) operations manuals contain instructions and information required by operations personnel to perform their duties;
- (2) relevant parts of the operations manuals are accessible to the personnel concerned; and
- (3) operations personnel are expeditiously informed of the amendments to the operations manual applying to their duties as well as of their entry into force.

### **MAR-OPS 2.036 Sub-contracting**

(a) The Operator may make arrangements with a sub-contractor Organisation to carry out any task and or activity within the scope of its MAOC.

(b) Arrangements between the Operator and a sub-contractor Organisation as mentioned in sub-paragraph (a) above, including all amendments to it, shall:

- (1) Be in the form of a verifiable agreement acceptable to the Military Aviation Authority;
- (2) Clearly define the products and or services and quality to be provided; and
- (3) Clearly define the sub-contractor's authorization and approval required to conduct the sub-contracted task and or activity.

(c) The ultimate responsibility for the product and or service provided by the sub-contractor always remains with the Operator. Therefore the Operator shall ensure that:

- (1) The sub-contractor's safety related activities relevant to the agreement shall be included in the Operator's quality monitoring program;
- (2) The sub-contractor has the necessary authorization and approval to conduct to sub-contracted tasks and or activities;
- (3) The sub-contractor commands the resources and has the competence to conduct the sub-contracted tasks and or activity; and
- (4) In the event that the Operator requires the sub-contractor to conduct activities which exceed the sub-contractor's authorization and approval, the sub-contractor's quality assurance takes account of additional requirements.

## **MAR-OPS 2.037 Safety Management System**

(a) The organisation shall develop an effective, explicit and proactive system to manage safety that comprises the following components:

- (1) Safety policy and objectives;
- (2) Safety assurance providing continuous monitoring and regular analysis of the safety level achieved;
- (3) Risk management to identify hazards and to ensure that remedial actions necessary to maintain an acceptable level of safety are implemented;
- (4) Safety improvement aiming to make continuous improvement to the overall level of safety.

(b) Regarding safety policy and objectives, the system shall contain the following elements:

- (1) a statement of the safety policy defining the organisation's fundamental approach to managing safety;
- (2) Safety strategy and planning, such as setting safety performance targets, allocating priorities for implementing safety initiatives and ensuring that the principal safety objective is to minimise the organisation's contribution to the risk of an aircraft accident as far as reasonably practicable.

(c) Regarding safety assurance, the system shall contain the following elements:

- (1) Staff training and competence, including the review and evaluation of the adequacy of training provided to staff on safety-related duties;
- (2) Documentation, registration and monitoring of all safety-related infrastructure, facilities and equipment;
- (3) The enforcement of an adequate justification of the safety of the externally provided services and supplies;
- (4) Safety surveys that are carried out as a matter of routine, to recommend improvements where needed, to provide assurance to managers of the safety of activities within their areas and to confirm compliance with the relevant parts of the safety management system.

(d) Regarding risk management, the system shall contain the following elements:

- (1) Registration, analysis, and handling of accidents, incidents, defects, faults, and discrepancies, including internal and external complaints with respect to safety, and ensure that any necessary corrective action is taken;
- (2) Demonstration of the implementation of the requirements on the reporting and assessment of safety occurrences in accordance with applicable national and international law and SMAR-1;
- (3) The identification, assessment and mitigation of risks to an appropriate level to ensure that due consideration is given to all aspects of the provision of its services including for changes to the functional system;

(4) Methods are in place to detect changes in functional systems or operations which may suggest any element is approaching a point at which the acceptable level of safety can no longer be met, and that corrective actions have to be taken.

(5) A flight data monitoring program which shall be systematic and allow proactive use of (digital) flight data from routine operations to improve aviation safety within an intrinsically non-punitive and just Safety Culture. This FDM shall contain adequate safeguards to protect the source(s) of the data and shall allow the Operator to:

- (i) Identify areas of operational risk and quantify current safety margins;
- (ii) Identify and quantify changing operational risks by highlighting when nonstandard, unusual or unsafe circumstances occur; and
- (iii) Use the FDM-information on the frequency of occurrence, combined with an estimation of the level of severity, to assess the safety risks and to determine which are or may become unacceptable if the discovered trend continues; and
- (iv) put in place appropriate risk mitigation to provide remedial action once an unacceptable risk (either actually present or predicted by trending) has been identified; and
- (v) confirm the effectiveness of any remedial action by continued monitoring.

(e) Regarding safety improvement, the system shall contain the following elements:

(1) All personnel is aware of the potential safety hazards connected with their duties;

(2) The lessons arising from safety occurrence investigations and other safety activities are disseminated within the organisation at management and operational levels;

(3) All personnel is actively encouraged to propose solutions to identified hazards, and changes are made to improve safety where they appear needed.

(f) The organisation shall systematically document the safety management system in the Organisation Exposition in a manner which provides a clear linkage to the organisation's safety policy.

(g) Accident and incident data requirements specified in MAR-OPS 2.160 shall take precedence over the requirements of a flight data monitoring program. In these cases the recorded data shall be retained as part of the investigation data, regardless of the Operators de-identification policy regarding the flight data monitoring program.

### **MAR-OPS 2.039 Facilities**

(a) The Operator shall ensure that operational support and ground handling facilities are appropriate for the area and type of operation and ensure the safe handling of its flights.

(b) The Operator shall provide sufficient and suitable office accommodation at appropriate locations for all operations personnel. Consideration must be given to the needs of ground staff, those concerned with exercising control over daily operations, the storage and display of essential records, and flight planning by crew members.

(c) Office services must be capable, without delay, of distributing operational instructions and other information to all concerned.

#### **MAR-OPS 2.040 Crew members**

- (a) The Operator shall ensure that crew members have been trained in and are competent to perform their assigned duties on board of an aircraft.
- (b) The Operator shall specify in the Operations Manual the qualifications of crew members, their corresponding duties and responsibilities, and their continuation and checking program.

#### **MAR-OPS 2.050 Search and rescue information**

The Operator shall ensure that crew members are familiar with the essential information pertinent to the intended flight concerning (combat) search and rescue services.

#### **MAR-OPS 2.055 Information on emergency and survival equipment carried**

The Operator shall ensure that lists containing information on the emergency and survival equipment carried on board of all of his aircraft, are available for immediate communication to (combat) rescue coordination centres.

#### **MAR-OPS 2.085 Crew responsibilities**

- (a) A crew member shall be responsible for the proper execution of his duties which are:
  - (1) Related to the safety of the aircraft; and
  - (2) Specified in the instructions and procedures laid down in the Operations Manual.
- (b) A crew member shall:
  - (1) Report to the Pilot in Command any fault, failure, malfunction or defect which he believes may affect the airworthiness or safe operation of the aircraft including emergency systems;
  - (2) Report to the Pilot in Command any incident that endangered, or could have endangered, the safety of operation; and
  - (3) Make use of the Operator's occurrence reporting schemes in accordance with MAR-OPS 2.037(d)(2). In all such cases, a copy of the report(s) shall be communicated to the Pilot in Command concerned.
- (c) Nothing in paragraph (b) above shall oblige a crew member to report an occurrence which has already been reported by another crew member.

(d) A crew member shall not perform duties in an aircraft:

- (1) While under the influence of any substance that may affect his faculties in a manner contrary to safety;
- (2) After scuba diving until 24 hours have elapsed;
- (3) After blood donation until 72 hours have elapsed;
- (4) If he is in any doubt of being able to accomplish his assigned duties;
- (5) If he knows or suspects that he is suffering from fatigue, or feels unfit to the extent that the flight may be endangered; or
- (6) After high altitude safety training or being exposed to an actual rapid aircraft decompression situation while at high altitude until 12 hours have elapsed or in case of symptoms of decompression are experienced 24 hours have elapsed.

(e) A crew member shall not:

- (1) Consume alcohol less than 10 hours prior to the specified reporting time for flight duty or the commencement of standby;
- (2) Commence a flight duty period with a blood alcohol level in excess of 0,2 promille; and/or
- (3) Consume alcohol during the flight duty period or whilst on standby.

(f) The Pilot in Command shall:

- (1) Be responsible for the safety of any occupant on board when operating the aircraft;
- (2) Be responsible for the operation and safety of the aircraft from the moment he accepts the aircraft for operations until he releases the aircraft back to maintenance;
- (3) Have authority to give all commands he deems necessary for the purpose of securing the safety of the aircraft and any occupant carried therein;
- (4) Not allow any occupant to be carried in the aircraft who appears to be under the influence of alcohol or any other substance;
- (5) Ensure that any occupant is briefed or trained on the safety and emergency procedures and the location and use of relevant emergency and survival equipment, as applicable;
- (6) Ensure that all operational procedures and checklists are complied with in accordance with the Operations Manual;
- (7) Not permit any crew member to perform any activity during take-off, initial climb, final approach and landing except those duties required for mission execution and the safe operation of the aircraft;

(8) Not permit, unless necessary for reasons of military security, the recording equipment (reference MAR-OPS 2.727) to be disabled, switched off or erased during flight nor permit recorded voice communications and or flight data to be erased after flight in the event of an accident or an incident subject to mandatory reporting;

(9) Decide whether or not to accept an aircraft with unserviceabilities allowed by the Operator's Minimum Equipment List or Configuration Deviation List, if available; and

(10) Ensure that the applicable pre-, thru- or post-flight inspection has been carried out.

(g) The Pilot in Command or the pilot to whom conduct of the flight has been delegated shall, in an emergency situation that requires immediate decision and action, take any action he considers necessary under the circumstances. In such cases he may deviate from rules, operational procedures and methods in the interest of safety.

### **MAR-OPS 2.090 Authority of the Pilot in Command**

The Operator shall take all reasonable measures to ensure that any aircraft occupant or ground staff, involved in ground operations, obey all lawful commands given by the Pilot in Command for the purpose of securing the safe operation of the aircraft.

### **MAR-OPS 2.095 Authority to taxi an aircraft**

The Operator shall take all reasonable steps to ensure that an aircraft in his charge is not taxied on the movement area of an aerodrome by a person other than a flight crew member, unless that person, seated at the controls:

(a) Has been duly authorised by the Operator or a designated agent and is competent to:

(1) Taxi the aircraft; and

(2) Use the radio telephone; and

(b) Has received instruction in respect of aerodrome layout, routes, signs, marking, lights, air traffic control signals and instructions, phraseology and procedures, and is able to conform to the operational standards required for safe aircraft movement at the aerodrome.

### **MAR-OPS 2.105 UnAuthorised carriage**

The Operator shall take all reasonable measures to ensure that no person secretes items on board an aircraft.

### **MAR-OPS 2.110 Portable electronic devices**

The Operator shall not permit any person to use, and take all reasonable measures to ensure that no person does use on board an aircraft, portable electronic devices which can adversely affect the performance of the aircraft's systems and equipment.

### **MAR-OPS 2.120 Endangering safety**

The Operator shall take all reasonable measures to ensure that no person recklessly or negligently acts or omits to act, so as to:

- (a) Endanger an aircraft or person therein; or
- (b) Cause or permit an aircraft to endanger any person or property.

### **MAR-OPS 2.121 Aircraft protection**

The Operator shall establish protective measures and security procedures in the Operations Manual to ensure that aircraft, when not operated, are protected against unlawful interference such as sabotage.

### **MAR-OPS 2.122 Flight and duty time limitations and minimum periods of rest**

The Operator shall include in the Operations Manual an arrangement for flight and duty time limitations and minimum periods of rest for all operations personnel, to include a reporting system with respect to violation of these arrangements. These arrangements shall be compliant with the Dutch Working Hour Act (ATW) and the subsidiary Working Hours Decree (ATB) and General Military Officials Regulations (AMAR).

### **MAR-OPS 2.125 Documents to be carried**

(a) Unless it is undesirable for reasons of military security:

(1) The Operator shall ensure that the following documents or copies thereof are carried on each flight:

- (i) The Certificate of Registration;
- (ii) The Certificate of Airworthiness;
- (iii) The original or a copy of the Noise Certificate (if applicable); and
- (iv) The Aircraft Radio Station licence (if applicable); and

(2) Each flight crew member shall, on each flight, carry a valid Flight Crew Licence with appropriate rating(s) for the purpose of the flight and a valid Military Medical Certificate.

(b) The Operator shall include a procedure in the Operations Manual by which the prevailing security situation as meant by sub-paragraph (a) above has to be assessed.

### **MAR-OPS 2.130 Checklists to be carried**

- (a) The Operator shall ensure that, crew members operating an aircraft have access to all relevant normal and emergency operating procedures as laid down in the latest version of the Aircraft Flight Manual and the Operations Manual.
- (b) The Military Aviation Authority may permit the information detailed in sub-paragraph (a) above, or parts thereof, to be presented in a form other than on printed paper. An acceptable standard of accessibility, usability and reliability must be assured.

### **MAR-OPS 2.135 Additional information and documentation to be carried**

- (a) Unless it is undesirable for reasons of military security, the Operator shall ensure that, in addition to the documents and checklists prescribed in MAR-OPS 2.125 and MAR-OPS 2.130, the following information and documentation, relevant to the type and area of operation, are carried on each flight:
  - (1) Mission essential information documentation containing at least the information required in MAR-OPS 2.1060(a);
  - (2) Aircraft Technical Log containing at least the information required in MAR-OPS 2.920(a);
  - (3) Mass and balance documentation as specified in MAR-OPS 2 subpart J;
  - (4) Current maps and charts and associated documentation as prescribed in MAR-OPS 2.290(c)(5); and
  - (5) Any other documentation required by the States concerned with this flight.
- (b) The Military Aviation Authority may permit the documentation and information detailed in sub-paragraph (a) above, or parts thereof, to be presented on board in a form other than on printed paper. A standard of accessibility, usability and reliability, acceptable to the Military Aviation Authority, must be assured.
- (c) The documentation and information mentioned in sub-paragraph (a)(1), (2) and (3) need not to be carried on board during local operations.
- (d) The Operator shall include a procedure in the Operations Manual by which the prevailing security situation as meant by sub-paragraph (a) has to be assessed.

### **MAR-OPS 2.140 Information retained on the ground**

- (a) The Operator shall ensure that:
  - (1) At least for the duration of each flight or series of flights:
    - (i) Information relevant to the flight and appropriate for the type of operation is preserved on the ground; and
    - (ii) The information is retained until it has been duplicated at the place at which it will be stored in accordance with MAR-OPS 2.1065; or

(2) If compliance with sub-paragraph (a)(1)(i) above is impracticable, the mentioned information is carried in a fireproof manner on board of the aircraft.

(b) The information referred to in sub-paragraph (a) above includes, at least a copy of:

- (1) Mission essential information documentation where appropriate;
- (2) Relevant part(s) of the Aircraft Technical Log;
- (3) Mass and balance documentation; and
- (4) Any other documentation required by the States concerned with this flight.

#### **MAR-OPS 2.145 Power to inspect**

The Operator shall ensure that a Flight Operations inspector of the Military Aviation Authority is permitted to witness an actual flight operated in accordance with the terms and conditions of his MAOC.

#### **MAR-OPS 2.150 Production of documentation and records**

(a) The Operator shall:

- (1) Give any person Authorised by the Military Aviation Authority access to any documents and records as prescribed by this MAR-OPS 2; and
- (2) Produce all such documents and records, when requested to do so by the Military Aviation Authority, within a reasonable period of time.

(b) The Pilot in Command shall within a reasonable time produce to a person Authorised by the Military Aviation Authority, the documentation required to be carried on board.

#### **MAR-OPS 2.160 Preservation, production and use of recorded flight data and voice communications**

(a) *Preservation of recordings (reference MAR-OPS 2.727)*

- (1) Following an accident the Operator shall, to the extent possible, preserve the original recorded data pertaining to that accident as retained by the recording equipment for a period of 60 days, unless otherwise directed by the investigating authority.
- (2) Following an incident that is subject to mandatory reporting the Operator shall, to the extent possible, preserve the original recorded data pertaining to that incident as retained by the recording equipment for a period of 60 days, unless otherwise directed by the investigating authority.
- (3) Additionally, when the Military Aviation Authority so directs, the Operator shall preserve the original recorded data as retained by the recording equipment for a period of 60 days unless otherwise directed by the investigating authority.

(4) The Operator shall for each individual aircraft:

(i) Save recordings as retained by the recording equipment for the period of operating time except that, for the purpose of testing and maintaining recording equipment, up to one hour of the oldest recorded material at the time of testing may be erased; and

(ii) Keep a document which presents the information necessary to retrieve and convert the stored data into engineering units.

(b) *Production of recordings.* The Operator shall, within a reasonable time after being requested to do so by the Military Aviation Authority, produce any (unclassified) recording made by the recording equipment which is available or has been preserved.

(c) *Use of recordings*

(1) The recorded voice communications may not be used for purposes other than for the investigation of an accident or incident subject to mandatory reporting except with the consent of all crew members concerned or for the purpose of operational debriefing.

(2) The recorded flight data may not be used for purposes other than for the investigation of an accident or incident subject to mandatory reporting except when such records are:

(i) Used by the Operator for safety management, airworthiness or maintenance purposes only;

(ii) Disidentified; or

(iii) Disclosed under secure procedures.

## **MAR-OPS 2.165 Leasing – transfer of aircraft**

(a) *Leasing - transfer of aircraft - between MAR-OPS approved Operators*

(1) *Wet lease-out.* An Operator providing an aircraft and flight crew to another Operator, and retaining all the functions and responsibilities related to his MAOC, shall remain the Operator of the aircraft.

(2) *All leases except wet lease-out*

(i) Except as provided by sub-paragraph (a)(1) above, an Operator utilising an aircraft from, or providing it to, another MAR-OPS approved Operator, must obtain prior approval for the operation from the Military Aviation Authority. Any conditions which are part of this approval must be included in a formal verifiable agreement.

(ii) Those elements of formal agreements concerning the transfer of aircraft which are approved by the Military Aviation Authority, other than formal agreements in which an aircraft and complete crew are involved and no transfer of functions and responsibilities is intended, are with respect to the transferred aircraft all to be regarded as variations of the MAOC under which the flights will be operated.

*(b) Leasing – transfer of aircraft - between an Operator and any entity other than an MAR-OPS approved Operator*

*(1) Dry lease-in*

(i) The Operator shall not dry lease-in an aircraft from an entity other than a MAR-OPS accredited Operator or an Operator Organisation within an aviation oversight system recognised by the Netherlands Military Aviation Authority, unless approved by the Military Aviation Authority. Any conditions which are part of this approval must be included in the formal verifiable agreement concerning the transfer of aircraft.

(ii) The Operator shall ensure that, with regard to aircraft that are dry leased-in, any differences from the requirements prescribed in MAR-OPS 2 subparts K and L, if applicable, are notified to and are acceptable to the Military Aviation Authority.

*(2) Wet lease-in*

(i) The Operator shall not wet lease-in an aircraft from an entity other than an MAR-OPS accredited Operator or an Operator Organisation within an aviation oversight system recognised by the Netherlands Military Aviation Authority, without the approval of the Military Aviation Authority.

(ii) The Operator shall ensure that, with regard to aircraft that are wet leased-in:

(A) The safety standards of the other Operator with respect to maintenance management and flight operations are equivalent to MAR-requirements; and

(B) Any requirement made applicable by the Military Aviation Authority is complied with.

*(3) Dry lease-out*

(i) The Operator may dry lease-out an aircraft to any Operator within an aviation oversight system recognised by the Netherlands Military Aviation Authority, provided that the following conditions are met:

(A) The Military Aviation Authority has exempted the Operator from the relevant provisions of this MAR-OPS 2;

(B) The Military Aviation Authority has removed the applicable aircraft from its MAOC, after the recognised foreign military or civil regulatory authority has accepted responsibility in writing for surveillance of the maintenance and operation of the aircraft; and

(C) A formal verifiable agreement between both Operators concerning the transfer of aircraft ensures that:

(a) The aircraft is maintained according to the Military Aviation Authority approved Aircraft Maintenance Program;

(b) The maintenance Organisation contracted by the other Operator to conduct aircraft maintenance is obligated to use any applicable aircraft maintenance data submitted by the applicable (supplementary) type certificate holder;

(c) The user requirements applicable to the other Operator, pertaining to the continued airworthiness of the aircraft, are not less restrictive than the applicable MAR-OPS 2 requirements; and

(d) The transferred aircraft maintenance records will be kept up to date by the other Operator.

(ii) The Operator may dry lease-out an aircraft to any Operator, provided that the following conditions are met:

(A) The Military Aviation Authority has exempted the Operator from the relevant provisions of MAR-OPS 2;

(B) The Military Aviation Authority has, after the applicable foreign maintenance and Operator Organisations are accredited by the Netherlands Military Aviation Authority, removed the applicable aircraft from its MAOC; and

(C) A formal verifiable agreement between both Operators concerning the transfer of aircraft ensures that:

(a) The aircraft is maintained in accordance with a maintenance program approved by the Netherlands Military Aviation Authority;

(b) The maintenance Organisation contracted by the other Operator to conduct aircraft maintenance is obliged to use any applicable aircraft maintenance data submitted by the applicable (supplementary) type certificate holder;

(c) The user requirements applicable to the other Operator, pertaining to the continued airworthiness of the aircraft, are not less restrictive than the applicable MAR-OPS 2 requirements; and

(d) The transferred aircraft maintenance records will be kept up to date by the other Operator.

(4) *Wet lease-out.* An Operator providing an aircraft and flight crew to another entity and retaining all the functions and responsibilities related to his MAOC, shall remain the Operator of the aircraft.

## **Appendix 1 to MAR-OPS 2.030 MEL – application and usage**

### **(a) General**

- (1) The MEL is applicable up to the commencement of the flight.
- (2) All items related to the type certificate of the aircraft type considered or required by operational regulations or the operating procedures as specified in the Operations Manual and not included in the MEL are automatically required to be operative.
- (3) The Operator shall establish an effective decision making process in the Operations Manual for failures that are not listed to determine if they are related to the type certificate, operational regulations and or operational procedures in the Operations Manual.

### **(b) Operational and maintenance procedures**

- (1) Operational procedures as specified in the MEL shall be accomplished in planning for and or operating with the listed item inoperative. These procedures shall be accomplished by the flight crew; however, the Operator may qualify and Authorise other personnel to perform certain functions. The satisfactory accomplishment of all procedures, regardless of who performs them, is the responsibility of the Operator. Appropriate procedures with respect to the accomplishment of the mentioned operational procedures are required to be published as a part of, or referenced in, the Operations Manual.
- (2) Maintenance procedures as specified in the MEL shall be accomplished prior to operating with the listed item inoperative. These procedures shall be accomplished by appropriately licensed and Authorised maintenance personnel. The satisfactory accomplishment of all maintenance procedures, regardless of who performs them, is the responsibility of the Operator. Appropriate procedures with respect to the accomplishment of the mentioned maintenance procedures are required to be published as a part of, or referenced in, the Operations Manual.
- (3) When dispatching an aircraft, an inoperative item may not be removed from that aircraft, unless specifically permitted in the applicable maintenance procedures.

### **(c) Rectification interval (RI) management programs**

- (1) The Operator shall establish an effective rectification program that includes tracking of the inoperative items and coordinating parts, personnel, facilities, and procedures in the Operations Manual necessary to ensure timely rectification within the specified rectification interval.
- (2) The Operator shall establish a program to reduce future unserviceability's of MEL-items as much as possible based on analysis of historic trends in the occurrence of inoperative items and rectification times achieved.

(d) *Rectification interval extensions (RIE)*

(1) Subject to the approval of the Military Aviation Authority, the Operator may grant a one-time extension of the applicable rectification intervals B, C or D for the same duration as specified in the MEL, provided:

(i) The type certificate holder for the aircraft type has explicitly declared that rectification interval extensions have been taken into account in the determination of the rectification intervals;

(ii) A completed Military Aviation Authority RIE request form (see Military Aviation Authority intranet website) is submitted to the Military Aviation Authority, including a motivation of the operational necessity and the actions taken to comply with sub-paragraph (d)(1)(iii) below; and

(iii) Rectification is accomplished at the earliest opportunity.

(2) Subject to the approval of the Military Aviation Authority, the Operator may use an internal procedure for the extension of the applicable rectification intervals B, C or D for the same duration as specified in the MEL, provided:

(i) The type certificate holder for the aircraft type has explicitly declared that rectification interval extensions have been taken into account in the determination of the rectification intervals;

(ii) A description of specific duties and responsibilities for controlling extensions is established by the Operator and accepted by the Military Aviation Authority;

(iii) The Operator only grants a one-time extension of the applicable rectification interval;

(iv) The Military Aviation Authority is notified on a monthly basis of all extensions granted including a motivation of the operational necessity and the actions taken to comply with sub-paragraph (d)(2)(v) below, in a format acceptable to the Military Aviation Authority; and

(v) Rectification is accomplished at the earliest opportunity.

(e) *Procedures related to MEL application and usage*

The Operator shall establish procedures in the Operations Manual acceptable to the Military Aviation Authority, regarding:

(1) The accomplishment of operational and maintenance procedures as specified in the MEL;

(2) Rectification interval management programs;

(3) Rectification interval extensions;

(4) The deferral of MEL items, comprising a method for:

- (i) Deferral and or rectification of inoperative equipment;
- (ii) Placarding of items as required in the MEL;
- (iii) Dispatching of aircraft with deferred MEL items;
- (iv) Using a remote deferral system; and
- (v) Controlling the deferral times; and

(5) The review of deferred MEL items by the maintenance management and flight operations departments, in order to ensure that accumulated deferred items neither conflict with each other nor present an unacceptable increase in the workload of the flight crew or mission essential crew members.

## SUBPART C – OPERATOR CERTIFICATION

MAR-OPS 2.175 General rules for MAR-OPS certification

MAR-OPS 2.185 Application for a MAOC, a variation on or a renewal of an issued MAOC

MAR-OPS 2.190 Issue, variation and continued validity of a Special Approval

MAR-OPS 2.194 Application for a Special Approval or a variation on an issued Special Approval

### **MAR-OPS 2.175 General rules for MAR-OPS certification**

(a) The Operator shall not operate an aircraft otherwise than under and in accordance with the terms and conditions of his Military Air Operator Certificate (MAOC) and applicable Special Approvals.

(b) An applicant for a MAOC or a variation on an issued MAOC shall allow the Military Aviation Authority to examine all safety aspects of the operation or proposed change(s).

(c) The Operator shall grant the Military Aviation Authority access to his Organisation and aircraft and shall ensure that, with respect to maintenance, access is granted to any contracted maintenance Organisation in order to determine continued compliance with this MAR-OPS 2.

(d) Notwithstanding the provisions of MAR-OPS 2.185(h), the Operator must notify the Military Aviation Authority as soon as practicable of any changes to the information submitted in accordance with MAR-OPS 2.185(a).

### **MAR-OPS 2.185 Application for a MAOC, a variation on or a renewal of an issued MAOC**

(a) The Operator shall ensure that the following information is included in the initial application for a MAOC and, when applicable, any variation or renewal applied for:

- (1) The official name, contact information and business location(s) of the applicant;
- (2) A description of the scope of operation applied for, to include any required Special Approval, if applicable;
- (3) A description of the operational environment(s);
- (4) A description of the management Organisation;
- (5) The nominated function and name of the designated person to fulfil the function of accountable manager;
- (6) The nominated function(s) and name(s) of the designated person(s) to fulfil the function of quality manager;
- (7) The nominated functions and names of the designated persons to fulfil the function of major post holders, including those responsible for flight operations, the maintenance system, crew training and ground operations;
- (8) The aircraft type(s) and variants to be operated; and
- (9) Registration marking(s).

(b) The Operator shall ensure that the following documentation is included in the initial application for a MAOC and, when applicable, any variation or renewal applied for:

- (1) Operations Manual, Part A;
- (2) Operations Manual, Part B for each aircraft type to be operated;
- (3) Operations Manual, Part C, if applicable;
- (4) Operations Manual, Part D;
- (5) Operations Manual, Part E;
- (6) Operations Manual, Part F;
- (7) The Operator's customized Aircraft Maintenance Program, for each aircraft type to be operated;
- (8) The Aircraft Technical Log system, for each aircraft type to be operated;
- (9) Where appropriate, the technical specification(s) of the formal agreement with a contracted maintenance Organisation;
- (10) Where appropriate, the technical specification(s) of the formal agreement with any sub-contracted Organisation;
- (11) A copy of the self-evaluation report;
- (12) A MAR-OPS 2 compliance checklist, to include a specific MAR-OPS 2 subpart K and L compliance checklist for each individual aircraft to be operated;
- (13) A copy of Certificate(s) of Registration, for the aircraft to be operated;
- (14) A copy of Certificate(s) of Airworthiness, for the aircraft to be operated;
- (15) A copy of the Noise Certificate(s), for the aircraft to be operated if applicable;  
and
- (16) A copy of the radio station licence(s), for the aircraft to be operated if applicable.

(c) The application for an initial issue of a MAOC or any variation on an issued MAOC shall be made on a form and in a manner established by the Military Aviation Authority (see Military Aviation Authority intranet website).

(d) The application for an initial issue of a MAOC must be submitted at least 90 days before the intended certification date.

(e) The application for the variation on an issued MAOC must be submitted at least 30 days, or as otherwise agreed to by the Military Aviation Authority, before the date of intended approval.

(f) The application for the renewal of an issued MAOC must be submitted at least 30 days, or as otherwise agreed to by the Military Aviation Authority, before the end of the existing period of validity.

(g) Other than in exceptional circumstances, the Military Aviation Authority must be given at least 10 days prior notice of a proposed change to the nominated functions or names of the accountable manager, post holder and or quality manager, as meant in MAR-OPS 2.185 (a) (5), (6) and (7).

#### **MAR-OPS 2.190 Issue, variation and continued validity of a Special Approval**

(a) The Operator will not be granted a Special Approval, a variation on an issued Special Approval, or that Special Approval will not remain valid unless he has demonstrated to the Military Aviation Authority that:

- (1) The applicable MAR-OPS 2 subpart T requirement(s) are complied with;
- (2) The aircraft and required equipment comply with the applicable airworthiness requirements and approvals;
- (3) A training program has been established for all operations personnel involved in these operations; and
- (4) Operating procedures in accordance with the applicable requirement(s) have been specified in the Operations Manual.

(b) The Military Aviation Authority may require to witness one or more actual flights, operated as applied for.

(c) The Operator shall notify the Military Aviation Authority of any change to the items listed in sub-paragraph (a) above before such change takes place.

(d) Special Approvals remain valid subject to the Operator remaining in compliance with this sub-paragraph (a) above and MAR-OPS 2.175 (d).

(e) A Special Approval will be varied, suspended or revoked if the Military Aviation Authority is no longer satisfied that the Operator can execute operations under the terms of the Special Approval safely.

(f) The scope of activity that the Operator is approved to conduct under the terms of the issued Special Approval shall be specified on and added to the MAOC by the Military Aviation Authority.

#### **MAR-OPS 2.194 Application for a Special Approval or a variation on an issued Special Approval**

(a) The Operator shall ensure that the following information is included in the initial application for a Special Approval and, when applicable, any variation applied for:

- (1) The official name, contact information and business location(s) of the applicant;
- (2) A description of the proposed operation; and
- (3) The Operations Manual, or relevant (amended) parts thereof, and all other documentation relevant to the Special Approval applied for.

(b) An application for a Special Approval or any variation on an issued Special Approval shall be made using a form and in manner established by the Military Aviation Authority (see Military Aviation Authority intranet website).

(c) The application for an initial issue of a Special Approval must be submitted at least 90 days before the intended certification date, except that the Operations Manual may be submitted later but not less than 60 days before the intended certification date.

(d) The application for the variation on an issued Special Approval must be submitted at least 30 days, or as otherwise agreed to by the Military Aviation Authority, before the date of intended approval.

## **SUBPART D – OPERATIONAL PROCEDURES**

MAR-OPS 2.195 Operator's responsibility  
MAR-OPS 2.200 Operations Manual  
MAR-OPS 2.205 Competence of operations personnel  
MAR-OPS 2.210 Establishment of procedures  
MAR-OPS 2.215 Use of Air Traffic Services and Tactical Control Services  
MAR-OPS 2.220 Authorization of aerodromes by the Operator  
MAR-OPS 2.225 Aerodrome operating minima  
MAR-OPS 2.228 VFR departure and approach procedures  
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MAR-OPS 2.240 Routes and areas of operation  
MAR-OPS 2.241 Operations in airspace with Reduced Vertical Separation Minima  
MAR-OPS 2.243 Operations in areas with specified navigation performance  
MAR-OPS 2.248 Establishment of minimum VFR flight altitudes  
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MAR-OPS 2.255 Fuel policy  
MAR-OPS 2.270 Stowage of baggage and equipment  
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MAR-OPS 2.292 Formation flying  
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MAR-OPS 2.300 Submission of ATS flight plan  
MAR-OPS 2.303 Ground procedures – Pre,- thru- and post-flight inspections  
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MAR-OPS 2.350 Mission and aircraft acceptance  
MAR-OPS 2.355 Take-off and departure conditions  
MAR-OPS 2.365 Minimum flight altitudes  
MAR-OPS 2.375 In-flight fuel management  
MAR-OPS 2.385 Use of supplemental oxygen  
MAR-OPS 2.395 Ground proximity detection  
MAR-OPS 2.396 Use of aircraft lighting  
MAR-OPS 2.400 Approach and landing conditions  
MAR-OPS 2.415 Flight registration book and Aircraft Technical Log  
MAR-OPS 2.420 Occurrence reporting  
MAR-OPS 2.439 Aerial photography and filming  
MAR-OPS 2.447 Demonstration flights  
MAR-OPS 2.449 Low level flying  
MAR-OPS 2.454 Towing  
MAR-OPS 2.455 Operational Testing

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### **MAR-OPS 2.195 Operator's responsibility**

(a) The Operator is, in the interest of safety, responsible for the operation of any aircraft operated under the terms and conditions of his MAOC.

(b) The Operator shall establish and maintain a method for exercising the responsibility in sub-paragraph (a) above. This method is to be included in the Operations Manual.

### **MAR-OPS 2.200 Operations Manual**

The Operator shall provide an Operations Manual in accordance with MAR-OPS 2 subpart P for the use and guidance of operations personnel.

### **MAR-OPS 2.205 Competence of operations personnel**

The Operator shall ensure that personnel assigned to, or directly involved in, ground and flight operations, crew training and maintenance management, are properly instructed, have demonstrated their abilities in their particular duties and are aware of their responsibilities and the relationship of such duties to the operation as a whole.

### **MAR-OPS 2.210 Establishment of procedures**

The Operator shall:

(a) Establish procedures and instructions containing managerial, supervisors', ground staff and crew members' responsibilities and duties for all types of operation on the ground and in flight;

(b) Establish a checklist system to be used by crew members for all phases of operation of the aircraft under normal, abnormal and emergency conditions as applicable, to ensure that the relevant operating procedures in the Operations Manual and the Aircraft Flight Manual are followed. The design, contents and utilisation of checklists shall observe human factors and crew resource management principles;

(c) Make arrangements for the production of manuals, amendments and other documentation; and

(d) Ensure that no crew member performs any activity during take-off, initial climb, final approach and landing except those duties required for mission execution and the safe operation of the aircraft.

### **MAR-OPS 2.215 Use of Air Traffic Services and Tactical Control Services**

The Operator shall ensure that Air Traffic Services and/or Tactical Control Services are used for all flights requiring such services.

### **MAR-OPS 2.220 Authorization of aerodromes by the Operator**

The Operator shall only Authorise use of aerodromes that are adequate for the type(s) of aircraft and operation(s) concerned, by ensuring that all available documentation and information is used to establish the adequacy of the aerodromes for use, before commencement of the flight.

## **MAR-OPS 2.225 Aerodrome operating minima**

(a) The Operator shall establish a method in the Operations Manual to determine aerodrome operating minima for departure, destination or alternate aerodromes Authorised to be used in accordance with MAR-OPS 2.220. Such minima shall not be lower than any that may be established for such aerodromes by the State in which the aerodrome is located, except when specifically approved by that State, and shall take full account of:

- (1) The type, performance and handling characteristics of the aircraft;
- (2) Pilot's experience;
- (3) The dimensions and characteristics of the runways which may be selected for use;
- (4) The adequacy and performance of the available visual and non-visual ground and navigation aids;
- (5) The equipment available on the aircraft for the purpose of navigation and or control of the flight path, as appropriate, during the take-off, the approach, the landing, roll-out and the missed approach;
- (6) The obstacles in the approach, missed approach and the climb-out areas required for the execution of contingency procedures and necessary clearance;
- (7) The obstacle clearance altitude and or height for the instrument approach procedures; and
- (8) The means to determine and report meteorological conditions.

(b) The minima for a specific type of approach and landing procedure are considered applicable if:

- (1) The ground equipment shown on the respective chart required for the intended procedure is operative;
- (2) The aircraft systems required for the type of approach are operative;
- (3) The required aircraft performance criteria are met; and
- (4) The crew is qualified accordingly.

(c) The Operator shall specify in relation to the method of determining aerodrome operating minima as mentioned in sub-paragraph (a) above:

- (1) Applicable aircraft categories in accordance with tabel 1 below; and

**Tabel 1 - Aircraft categories corresponding to V<sub>AT</sub> values**

| Aircraft Category | V <sub>AT</sub>    |
|-------------------|--------------------|
| A                 | Less than 91 kt    |
| B                 | From 91 to 120 kt  |
| C                 | From 121 to 140 kt |
| D                 | From 141 to 165 kt |
| E                 | From 166 to 210 kt |

- (2) The corresponding landing configuration which is to be taken into consideration.

(d) If the Operator desires a permanent change of the aircraft category as defined in tabel 1 above:

(1) The Operator may impose a permanent, lower, maximum landing mass, and use this mass for determining the  $V_{AT}$  if approved by the Military Aviation Authority; and

(2) The category defined for a given aircraft shall be a permanent value and thus independent of the changing conditions of day-today operations.

#### **MAR-OPS 2.228 VFR departure and approach procedures**

(a) The Operator shall ensure that VFR departure and approach procedures established by the State in which the aerodrome is located are used.

(b) Notwithstanding sub-paragraph (a) above, the Pilot in Command may accept an ATC clearance to deviate from a published VFR departure or arrival route, provided obstacle clearance criteria are observed and full account is taken of the operating conditions.

#### **MAR-OPS 2.230 IFR departure and approach procedures**

(a) The Operator shall ensure that IFR departure and approach procedures are used which are designed in accordance with ICAO DOC 8168 vol 2 or equivalent, acceptable to the Military Aviation Authority.

(b) Different procedures to those required in sub-paragraph (a) above may be implemented by the Operator provided they have been coordinated with the State in which the aerodrome is located, and they are acceptable to the Military Aviation Authority.

(c) Notwithstanding sub-paragraph (a) above, the Pilot in Command may accept an ATC clearance to deviate from a published IFR departure or arrival route, provided obstacle clearance criteria are observed and full account is taken of the operating conditions. The final approach must be flown visually or in accordance with the established approach procedure.

#### **MAR-OPS 2.240 Routes and areas of operation**

(a) The Operator shall ensure that operations are only conducted along such routes or within such areas, for which:

(1) Air navigation facilities and services, including meteorological services, are provided which are adequate for the planned operation;

(2) The performance of the aircraft is adequate to comply with minimum flight altitude requirements;

(3) The equipment of the aircraft intended to be used meets the minimum requirements for the planned operation; and

(4) Appropriate maps and charts are available.

(b) In case operations have to be conducted in an adverse environment, the Operator shall take all possible precautions to ensure an acceptable level of safety for all aircraft occupants.

### **MAR-OPS 2.241 Operations in airspace with Reduced Vertical Separation Minima**

The Operator shall not operate an aircraft in designated airspace with reduced vertical separation minima under the terms and conditions applicable to that airspace, unless holding a Special Approval issued by the Military Aviation Authority for this type of operation (reference MAR-OPS 2.1335).

### **MAR-OPS 2.243 Operations in areas with specified navigation performance**

The Operator shall not operate an aircraft in designated airspace with specified navigation performance, under the terms and conditions applicable to that airspace, unless holding a Special Approval issued by the Military Aviation Authority for this type of operation (reference MAR-OPS 2.1330).

### **MAR-OPS 2.248 Establishment of minimum VFR flight altitudes**

(a) The Operator shall establish a method in the Operations Manual to determine VFR minimum flight altitudes, which provide the required terrain clearance taking into account the requirements of subparts G of this MAR-OPS 2. These minimum flight altitudes shall comply with 'Besluit Luchtverkeer 2014, article 19' and the subsequent 'Regeling minimale VFR vlieghoogten en VFR-vluchten buiten UDP voor militaire vliegtuigen en helikopters'.

(b) Where minimum VFR flight altitudes established by States are higher than those established by the Operator, the higher values shall apply.

### **MAR-OPS 2.250 Establishment of minimum IFR flight altitudes**

(a) The Operator shall establish a method in the Operations Manual to determine IFR minimum flight altitudes, which provide the required terrain clearance taking into account the requirements of subpart G of this MAR-OPS 2.

(b) Where minimum IFR flight altitudes established by States are higher than those established by the Operator, the higher values shall apply.

(c) The Operator shall take at least into account the following factors when establishing minimum flight altitudes:

- (1) The accuracy with which the position of the aircraft can be determined;
- (2) The probable inaccuracies in the indications of the altimeters used;
- (3) The characteristics of the terrain along the routes or in the areas where operations are to be conducted;
- (4) The probability of encountering unfavourable meteorological conditions; and
- (5) Possible chart inaccuracies.

(d) In fulfilling the requirements prescribed in sub-paragraph (c) above due consideration shall be given to:

- (1) Corrections for temperature and pressure variations from standard values;
- (2) Any ATC requirements; and
- (3) Any foreseeable contingencies along the planned route.

#### **MAR-OPS 2.255 Fuel policy**

(a) The Operator shall establish a fuel policy in the Operations Manual for the purpose of flight planning and in-flight replanning to ensure that every flight carries sufficient fuel for the planned operation and reserves to cover deviations from the planned operation, including final reserve fuel.

(b) The Operator shall ensure that the fuel planning of flights is at least based upon:

- (1) Procedures contained in the Operations Manual and data provided by the aircraft manufacturer; and
- (2) The operating conditions under which the flight is to be conducted including:
  - (i) Realistic aircraft fuel consumption data, taking into account planned on-load of fuel during air to air or ground refueling operations;
  - (ii) Anticipated masses;
  - (iii) Expected meteorological conditions; and
  - (iv) Air Traffic Services procedures and restrictions.

#### **MAR-OPS 2.270 Stowage of baggage and equipment**

The Operator shall establish procedures in the Operations Manual to ensure that only such hand baggage and equipment is taken into the cockpit as can be adequately stowed.

#### **MAR-OPS 2.285 Occupant briefing**

The Operator shall ensure that occupants are adequately briefed and trained about safety matters before commencement of the flight.

#### **MAR-OPS 2.290 Flight preparation**

(a) The Operator shall ensure that all mission essential information documentation relevant to the type of operation (reference MAR-OPS 2.1060) is completed for each intended flight and the contents is briefed to all formation members before the commencement of flight, if applicable, even if MAR-OPS 2.135(a) or (c) does not require mission essential information documentation to be on board the aircraft during flight.

(b) For local operations, as meant in MAR-OPS 2.135(c), the Military Aviation Authority may exempt the Operator from complying with requirement (a) above, in case an alternate procedure is laid down in the Operations Manual.

(c) The Pilot in Command shall not commence a flight unless he is satisfied that:

- (1) The aircraft is airworthy;
- (2) The aircraft is not operated contrary to the provisions of the Operator's Configuration Deviation List, if available;
- (3) The instruments and equipment required for the flight to be conducted, in accordance with MAR-OPS 2 subparts K and L, are in operable condition except as provided in the Operator's Minimum Equipment List, if available;
- (4) The documents, checklists, additional information and documentation required to be available by MAR-OPS 2.125, MAR-OPS 2.130 and MAR-OPS 2.135 are on board;
- (5) Current maps, charts and associated documentation or equivalent data are available to cover the intended operation of the aircraft including any diversion which may reasonably be expected. This shall include any conversion tables necessary to support operations where metric heights, altitudes and flight levels must be used;
- (6) Air navigation facilities and Air Traffic and Tactical Control services required for the planned flight are available and adequate (reference MAR-OPS 2.215);
- (7) An ATS flight plan has been submitted in accordance with the Operations Manual (reference MAR-OPS 2.300);
- (8) Flight planning shows that the operation can be conducted in accordance with the Operations Manual;
- (9) The aircraft configuration is certified;
- (10) The mass of the aircraft, at the commencement of take-off roll, will be such that the flight can be conducted in compliance with MAR-OPS 2 subpart G;
- (11) Any operational limitation in addition to those covered by sub-paragraphs (8) and (10) above can be complied with; and
- (12) The operations can be conducted in compliance with relevant national and international rules and regulations.

### **MAR-OPS 2.292 Formation flying**

(a) The Operator shall appoint a qualified formation lead who is responsible for the coordination and safe execution of a flight with more than one aircraft in the formation.

(b) To conduct flights with more than one aircraft in the formation, the Operator shall establish procedures in the Operations Manual to minimize mid-air collision potential, covering at least:

- (1) Day, night and IMC procedures;
- (2) Different formation types;
- (3) Duties and responsibilities of flight members; and
- (4) Chase procedures, if applicable.

#### **MAR-OPS 2.295 Selection of destination and alternate aerodromes**

(a) The Operator shall establish procedures in the Operations Manual for the selection of destination and or alternate aerodromes in accordance with MAR-OPS 2.220 when planning a flight.

(b) The Operator must select a take-off alternate if it would not be possible to return to the aerodrome of departure for meteorological reasons. The take-off alternate shall be located within a specified flight time.

(c) The Operator must select at least one destination alternate for each VFR and IFR flight unless, both:

- (1) The duration of the planned flight from take-off to landing does not exceed 6 hours; and
- (2) Two separate runways are available and useable at the destination and the appropriate weather reports or forecasts for the destination aerodrome, or any combination thereof, indicate that for the period from one hour before until one hour after the expected time of arrival at destination, the ceiling will be at least 2000 ft or circling height + 500 ft, whichever is greater, and the visibility will be at least 5 km.

(d) The Operator must select two destination alternates for each VFR and IFR flight when:

- (1) The appropriate weather reports or forecasts for the destination, or any combination thereof, indicate that during a period commencing 1 hour before and ending 1 hour after the estimated time of arrival, the weather conditions will be below the applicable planning minima, determined in accordance with MAR-OPS 2.297; or
- (2) No meteorological information is available for the destination.

#### **MAR-OPS 2.296 Planning minima – VFR flights**

The Operator shall ensure that VFR flights are planned in accordance with the applicable (inter)national regulations, taking into account the most restrictive rules.

## **MAR-OPS 2.297 Planning minima - destination and alternate aerodromes**

(a) The Operator shall establish a method in the Operations Manual to select the required destination and alternate aerodromes with respect to the required weather conditions in accordance with sub-paragraph (b) and (c) below.

(b) *Planning minima for take-off alternates.* The Operator shall not select an aerodrome as a take-off alternate aerodrome unless the appropriate weather reports or forecasts or any combination thereof indicate that, during a period commencing 1 hour before and ending 1 hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the applicable IFR operating minima determined in accordance with MAR-OPS 2.225.

(c) *Planning minima for destination and destination alternate aerodromes.* The Operator shall only select the destination aerodrome and or destination alternate aerodrome(s) when the appropriate weather reports or forecasts, or any combination thereof, indicate that, during a period commencing 1 hour before and ending 1 hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the applicable planning minima as follows:

- (1) Planning minima for a destination aerodrome shall be at or above the IFR operating minima determined in accordance with MAR-OPS 2.225; and
- (2) Planning minima for destination alternate aerodrome(s) and isolated destination aerodromes shall not be below the operating minima for the approach as stated in the table below.

**Table Planning minima – destination alternates and isolated destinations**

| <b>Type of approach</b> | <b>Operating Minima</b>              |
|-------------------------|--------------------------------------|
| Precision               | Non-precision                        |
| Non-precision           | Non-precision<br>plus 200 ft/1 000 m |
| Circling                | Circling                             |

## **MAR-OPS 2.300 Submission of ATS flight plan**

The Operator shall ensure that:

(a) A flight is not commenced unless an ATS flight plan has been submitted, or adequate information has been deposited, or transmitted as soon as possible after take-off, in order to permit alerting services to be activated if required; and

(b) Instructions are included in the Operations Manual for completing and submitting an ATS flight plan, at least addressing a method for determination and filing of the required and or applicable 'type of flight' and 'flight rules' flight plan items.

### **MAR-OPS 2.303 Ground procedures – Pre,- thru- and post-flight inspections**

- (a) The Operator shall not operate an aircraft unless the pre-, thru- or post-flight inspection or equivalent has been completed.
- (b) The Operator shall establish procedures in the Operations Manual for the conduct of pre-, thru- or post-flight inspections including the duties and responsibilities of the required personnel.
- (c) Pre-, thru- and post-flight inspections shall be conducted by suitably qualified personnel.

### **MAR-OPS 2.304 Ground procedures – Loading/reloading/unloading**

(a) The Operator shall establish procedures in the Operations Manual for the loading, reloading and unloading of weapons, munitions, expendables and external stores with and without engine(s) running. These procedures shall at least specify:

- (1) Type and number of equipment required;
- (2) Type and number of personnel required;
- (3) Duties and responsibilities of the required personnel;
- (4) Communication procedures between flight crew and involved ground staff, if applicable;
- (5) Safe areas and safe distances;
- (6) Limiting conditions and or restrictions;
- (7) Contingency procedures; and
- (8) Emergency procedures.

(b) The loading, reloading and unloading of weapons, munitions, expendables and external stores shall be conducted by suitably qualified personnel.

### **MAR-OPS 2.305 Ground procedures - Refuelling/defuelling**

(a) The Operator shall establish procedures in the Operations Manual for refuelling and defuelling aircraft on the ground with and without engine(s) running. These procedures shall at least specify:

- (1) Type and number of equipment required;
- (2) Type and number of personnel required;
- (3) Duties and responsibilities of the required personnel;
- (4) Communication procedures between flight crew and ground staff, if applicable;
- (5) Safe areas and safe distances;

(6) Limiting conditions and or restrictions, to include the use of wide-cut fuel if applicable and weather limitations;

(7) Contingency procedures; and

(8) Emergency procedures.

(b) Refuelling and defuelling of aircraft shall be conducted by suitably qualified personnel.

#### **MAR-OPS 2.307 Ground procedures – Arming/dearming**

(a) The Operator shall establish procedures in the Operations Manual for arming and dearming aircraft armament. These procedures shall at least specify:

(1) Duties and responsibilities of the required personnel;

(2) Communication procedures between flight crew and ground staff, if applicable;

(3) Safe directions;

(4) Limiting conditions and or restrictions;

(5) Contingency procedures; and

(6) Emergency procedures.

(b) The arming and dearming aircraft armament shall be conducted by suitably qualified personnel.

#### **MAR-OPS 2.308 Ground procedures - Other**

The Operator shall establish procedures in the Operations Manual for:

(a) Aided and unaided aircraft movements on the ground;

(b) Handling of emergency aircraft; and

(c) Emergency evacuation of occupants.

#### **MAR-OPS 2.310 Air to air refuelling**

(a) The Operator shall establish a procedure in the Operations Manual for air to air refuelling. The procedure shall at least specify:

(1) Communication procedures between flight crew and the tanker aircraft;

(2) Limiting conditions and or restrictions, to include weather limitations;

(3) Contingency procedures; and

(4) Emergency procedures.

(b) The Operator shall ensure that equipment used for air to air refuelling is certified (for both supplier and receiver).

### **MAR-OPS 2.315 Ejection seat**

The Operator shall establish procedures to ensure that, during flight between take-off and landing and when safe and practicable to do so, the ejection seat is armed.

### **MAR-OPS 2.320 Safety belts and personal connections**

The Operator shall establish procedures in the Operations Manual for usage of safety belts and personal connections during flight operations.

### **MAR-OPS 2.321 Carriage of weapons, munitions, expendables and external stores**

(a) The Operator shall not carry any weapons, munitions, expendables and external stores as an integral part of the aircraft, unless these weapons, munitions, expendables and external stores are certified as an Authorised configuration by the Military Aviation Authority.

(b) Unless the Operator deems it unpracticable due to the nature of the operation, the Operator shall ensure that firearms carried in the aircraft are unloaded, unarmed, or set to safe.

(c) For the purpose of employment of any weapons and expendables during flight, the Operator shall ensure that these weapons and expendables are:

(1) Loaded or attached to the aircraft in accordance with the Operator's procedures, preventing inadvertent release or firing of weapons or release of (weapon) stores (reference MAR-OPS 2.304);

(2) Armed and de-armed in accordance with the Operator's procedure (reference MAR-OPS 2.307); and

(3) Operated in accordance with the Operator's procedures, preventing unintentional release or firing and unintended risk to third parties.

(d) The Operator shall establish a procedure for simulating weapon and or munition employment, while carrying live and or training weapons or munition.

### **MAR-OPS 2.322 In-flight dispensing**

The Operator shall:

(a) Establish procedures to ensure that during in-flight dispensing of expendables or external stores and employment of weapons or munitions:

(1) There is no unintentional hazard to third parties; and

(2) The risk to the airframe and the occupants of the aircraft is minimised; and

(b) Ensure that no external stores or expendables will be dispensed, or weapons and munitions employed from the aircraft without the permission of the Pilot in Command;

- (c) Establish contingency procedures, covering at least the handling of:
  - (1) Unsafe weapons and or munitions;
  - (2) Aircraft armament or dispensing system malfunction; and
  - (3) Battle damage; and
- (d) Ensure that in-flight dispensing of expendables or external stores and the employment of weapons or munitions is in compliance with relevant national regulations; and
- (e) Ensure that equipment is certified for in-flight dispensing of expendables or external stores and the employment of weapons or munitions.

### **MAR-OPS 2.323 Use of electro-magnetic systems**

The Operator shall:

- (a) Establish procedures in the Operations Manual to ensure that during the activation of electro-magnetic systems:
  - (1) There is no unintentional hazard to third parties; and
  - (2) The risk to any aircraft in the formation and its occupants is minimised; and
- (b) Ensure that no electro-magnetic system is activated without the permission of the Pilot in Command;
- (c) Specify with respect to the activation of electro-magnetic systems, safe areas and safe distances, where applicable;
- (d) Establish contingency procedures covering at least the handling of electro-magnetic system malfunctions; and
- (e) Ensure that the usage of electro-magnetic systems is in compliance with relevant national regulations.

### **MAR-OPS 2.324 Use of night vision systems**

- (a) The Operator shall establish a procedure in the Operations Manual for the use of NVIS-systems, covering at least:
  - (1) Specific flight planning requirements;
  - (2) The transition to and from NVIS flight conditions;
  - (3) Aircraft light settings;
  - (4) Formation contracts, if applicable; and
  - (5) Contingency procedures, to include the handling of system malfunctions and adverse environmental conditions.

(b) These procedures shall at least take full account of:

- (1) Pilot experience;
- (2) Type, performance and handling characteristics, to include system limitations;
- (3) Human factor limitations; and
- (4) Environmental conditions.

(c) The Operator shall ensure that equipment used for NVIS operations comply with MAR-OPS 2.844(a).

### **MAR-OPS 2.327 Safety rules**

(a) With respect to a safe mission execution, the Operator shall establish in the Operations Manual a coherent set of safety rules and procedures for all phases of flight, minimizing the risk of or hazard to:

- (1) Third parties, both on the ground and in the air;
- (2) Own aircraft or any occupant therein;
- (3) Mid-air or ground collision; and
- (4) Departing controlled flight.

(b) The Operator shall ensure that mission execution is in compliance with safety rules as meant by sub-paragraph (a) above, the relevant national safety rules and procedures or relevant safety rules and procedures established by a third party, whichever is higher.

### **MAR-OPS 2.340 Meteorological conditions – destination and destination alternate**

(a) The Pilot in Command shall not:

- (1) Commence take-off; nor
- (2) Continue beyond the point from which a revised flight plan applies in the event of in-flight replanning,

unless information is available indicating that the expected weather conditions at the destination and required alternate aerodrome(s), prescribed in MAR-OPS 2.295, are at or above the planning minima, prescribed in MAR-OPS 2.297.

(b) The Pilot in Command shall not continue towards the planned destination aerodrome unless the latest information available indicates that, at the expected time of arrival, the weather conditions at the destination, or at least one destination alternate aerodrome, are at or above the applicable aerodrome operating minima.

#### **MAR-OPS 2.342 Meteorological conditions - enroute**

(a) On a VFR flight the Pilot in Command shall not commence take-off nor continue towards the planned destination aerodrome unless the latest meteorological reports or a combination of current reports and forecasts indicate that the meteorological conditions along the route or that part of the route to be flown under VFR will, at the appropriate time, be such as to render compliance with visual flight rules possible.

(b) The Operator shall establish procedures in the Operations Manual with respect to encountering inadvertent IMC.

#### **MAR-OPS 2.345 Ice and other contaminants – ground procedures**

(a) The Operator shall establish procedures in the Operations Manual for ground de-icing and anti-icing and related inspections of the aircraft.

(b) The Pilot in Command shall not commence take-off unless the external surfaces are clear of any deposit which might adversely affect the performance and or controllability of the aircraft except as permitted in the Aircraft Flight Manual.

#### **MAR-OPS 2.346 Icing conditions– flight procedures**

The Pilot in Command shall not commence a flight nor intentionally fly into expected or actual icing conditions unless the aircraft is certificated and equipped to cope with such conditions.

#### **MAR-OPS 2.348 Adverse operating conditions – ground and flight procedures**

The Operator shall establish procedures and operating limits in the Operations Manual for operating in or in the vicinity of adverse weather and or environmental conditions, minimizing any hazard and risk to its personnel and equipment, covering at least:

- (a) Hot and cold weather conditions;
- (b) Dust or sand in atmosphere;
- (c) Volcanic ash in atmosphere;
- (d) Rough sea conditions;
- (e) Strong wind and windshear conditions;
- (f) Severe turbulence; and
- (g) Thunderstorms or lightning.

### **MAR-OPS 2.350 Mission and aircraft acceptance**

Before flight, the Pilot in Command shall accept:

- (a) The mission assignment by signing the flight registration book; and
- (b) The aircraft by signing the Aircraft Technical Log after having verified that the status of the aircraft is in compliance with flight planning as stated in MAR-OPS 2.290 and the pre-, thru- or post-flight inspection is completed in accordance with Operator's procedures (reference MAR-OPS 2.303).

### **MAR-OPS 2.355 Take-off and departure conditions**

(a) The Operator shall establish procedures in the Operations Manual to ensure a safe, take-off and departure. These procedures shall as a minimum take full account of:

- (1) Aircraft configuration(s);
- (2) Take-off performance (reference MAR-OPS 2 subpart G);
- (3) Airfield status;
- (4) Weather and runway conditions; and
- (5) Wake turbulence separation criteria.

(b) Before commencing take-off, the Pilot in Command must satisfy himself that, according to the information available to him:

- (1) The weather at the aerodrome and (if applicable) the condition of the runway intended to be used do not prevent a safe take-off and departure; and
- (2) The reported weather at the aerodrome is equal to or better than the applicable operating minima.

### **MAR-OPS 2.365 Minimum flight altitudes**

The Pilot in Command or the pilot to whom conduct of the flight has been delegated shall not fly below specified minimum flight altitudes except when necessary for take-off or landing or if required due to the nature of the operation.

### **MAR-OPS 2.375 In-flight fuel management**

(a) The Operator shall establish a procedure in the Operations Manual to ensure that in-flight fuel checks and fuel management are carried out.

(b) The Pilot in Command shall ensure that the amount of usable fuel on board is not less than the fuel required to proceed to an aerodrome where a safe landing can be made with final reserve fuel remaining.

### **MAR-OPS 2.385 Use of supplemental oxygen**

The Operator shall establish a procedure in the Operations Manual to ensure the use of supplemental oxygen whenever cabin altitude exceeds 10000 ft for a period in excess of 30 minutes and whenever the cabin altitude exceeds 13000 ft.

### **MAR-OPS 2.395 Ground proximity detection**

When undue proximity to the ground is detected by a ground collision avoidance advisory system, the Pilot in Command shall ensure that corrective action is initiated immediately to establish safe flight conditions.

### **MAR-OPS 2.396 Use of aircraft lighting**

The Operator shall establish a procedure in the Operations Manual for the use of aircraft lighting taking into account:

- (a) National regulations;
- (b) The nature of the operation;
- (c) The risk of in-flight collision; and
- (d) The provisions and requirements stated in the 'Regeling doven luchtvaartuiglichten militaire luchtvaartuigen'.

### **MAR-OPS 2.400 Approach and landing conditions**

(a) The Operator shall establish procedures in the Operations Manual to ensure a safe approach and landing. These procedures shall as a minimum take full account of:

- (1) Aircraft configuration(s);
- (2) Landing performance (reference MAR-OPS 2 subpart G);
- (3) Airfield status;
- (4) Weather and runway conditions; and
- (5) Wake turbulence separation criteria.

(b) Before commencing an approach to land, the Pilot in Command must satisfy himself that, according to the information available to him, the weather at the aerodrome and the condition of the runway intended to be used do not prevent a safe approach, landing or missed approach, having regard to the performance information contained in the Operations Manual.

### **MAR-OPS 2.415 Flight registration book and Aircraft Technical Log**

The Pilot in Command shall after each flight complete and sign the flight registration book and the relevant parts of the Aircraft Technical Log.

#### **MAR-OPS 2.420 Occurrence reporting**

The Operator shall comply with SMAR-1 (Special Military Aviation Requirements dealing with Occurrence Reporting).

#### **MAR-OPS 2.439 Aerial photography and filming**

(a) The Operator shall ensure that aerial photography and filming, other than with tactical reconnaissance equipment is:

- (1) In compliance with relevant national regulations of the state(s) overflown; and
- (2) Performed by personnel that have been Authorised by the Operator to do so.

(b) The Operator shall specify in the Operations Manual the conditions for the safe conduct of aerial photography or filming, to include:

- (1) Conditions under which aerial photography and filming may be performed by the pilot flying;
- (2) Mandatory procedures with respect to:
  - (i) Flight planning, to include contingency planning;
  - (ii) Required pre-flight and or in-flight briefing; and
  - (iii) Mission execution; and
- (3) Crew resource management aspects for all personnel involved; and
- (4) Limitations and or restrictions.

#### **MAR-OPS 2.447 Demonstration flights**

(a) The Operator shall ensure that demonstration flights are:

- (1) In compliance with relevant national regulations;
- (2) In compliance with STANAG 3533 or an equivalent standard acceptable to the Military Aviation Authority; and
- (3) Performed by personnel that are suitably qualified and Authorised by the Operator to do so.

(b) The Operator shall develop and approve special flight profiles, if applicable, which are in accordance with a standard acceptable to the Military Aviation Authority

(c) The Operator shall specify in the Operations Manual the conditions for the safe conduct of demonstration flights, to include:

- (1) Minimum safety margins and distances to minimize any hazards to:
  - (i) The flight crew itself;
  - (ii) Other aircraft in the formation; and
  - (iii) Third parties on the ground; and
- (2) Mandatory procedures with respect to:
  - (i) Flight planning, to include contingency planning;
  - (ii) Required pre-flight and or in-flight briefing; and
  - (iii) Mission execution; and
- (3) Minimum equipment and or aircraft system requirements;
- (4) Crew resource management aspects for all personnel involved; and
- (5) Limitations and or restrictions.

#### **MAR-OPS 2.449 Low level flying**

(a) The Operator shall ensure that flight operations in a low level environment are conducted:

- (1) In compliance with relevant national regulations of the state(s) overflown; and
- (2) By flight crew suitably qualified, trained and Authorised to do so by the Operator.

(b) The Operator shall establish a policy regarding and specify the conditions and procedures for the safe conduct of flight operations in a low level environment in the Operations Manual, covering at least:

- (1) Mandatory procedures with respect to:
  - (i) Flight planning, to include contingency planning;
  - (ii) Required pre-flight and or in-flight briefing; and
  - (iii) Mission execution; and
- (2) Minimum equipment and or aircraft system requirements;
- (3) Crew resource management aspects for all personnel involved; and
- (4) Limitations and or restrictions.

### **MAR-OPS 2.454 Towing**

- (a) The Operator shall ensure that for the safe conduct of tow flights:
  - (1) The aircraft configuration is approved by Military Aviation Authority;
  - (2) Towing equipment is certified; and
  - (3) The flight crew is suitably qualified.
- (b) The Operator shall specify in the Operations Manual the conditions for the safe conduct of tow flights, to include:
  - (1) Mandatory procedures with respect to:
    - (i) Flight planning, to include contingency planning;
    - (ii) Required pre-flight and or in-flight briefing; and
    - (iii) Mission execution; and
  - (2) Crew resource management aspects for all flight crew involved; and
  - (3) Limitations and or restrictions.

### **MAR-OPS 2.455 Operational Testing**

- (a) Before conducting operations beyond the scope of his MAOC or introducing new or modified aircraft hardware and or software, (role) equipment, or weapons, the Operator shall conduct operational testing and evaluation, to determine:
  - (1) Required changes to flight crew training, maintenance management procedures and operational concepts and procedures as described in the Operations Manual; and
  - (2) Required differences training for flight crew (reference MAR-OPS 2.950) and or other relevant operations personnel.
- (b) For the conduct of operational testing and evaluation, the Operator shall:
  - (1) Comply with this MAR-OPS 2 and the procedures as laid down in the Operations Manual, unless described otherwise in the operational test plan; and
  - (2) Comply with the operational test plan as required by sub-paragraph (c) below.
- (c) The Operator shall specify in an operational test plan, acceptable to the Military Aviation Authority, the conditions for the safe conduct of operational testing and evaluation.

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# **SUBPART G – PERFORMANCE OF SINGLE ENGINE FIGHTER AIRCRAFT**

MAR-OPS 2.485 General

MAR-OPS 2.490 Take-off

MAR-OPS 2.500 Enroute – engine failure

MAR-OPS 2.510 Landing – Destination and alternate aerodromes

## **MAR-OPS 2.485 General**

(a) The Operator shall ensure that the mass of the aircraft does not exceed the maximum gross weight as defined in the Aircraft Flight Manual.

(b) For compliance with the requirements of this subpart:

(1) Due account shall be taken of aircraft configuration, environmental conditions and the operation of systems which have an adverse effect on performance;

(2) Approved performance data in the Aircraft Flight Manual may be supplemented as necessary with other data acceptable to the Military Aviation Authority if the approved performance data in the Aircraft Flight Manual is insufficient in respect of items such as accounting for reasonably expected adverse operating conditions such as take-off and landing on wet and contaminated runways;

(3) A damp runway may be considered to be dry; and

(4) Allowance for the availability and use of a drag chute and arrestor hook may be made.

## **MAR-OPS 2.490 Take-off**

(a) The Operator shall establish in the Operations Manual a procedure to calculate take-off performance data allowing for a safe take-off within the take-off distance available or abort within the accelerate-stop distance available.

(b) The Operator shall ensure aircraft are operated within the take-off data calculated in accordance with (a) above.

## **MAR-OPS 2.500 Enroute – engine failure**

The Operator shall establish procedures with respect to engine failure including VMC, IMC, night and training conditions.

## **MAR-OPS 2.510 Landing – Destination and alternate aerodromes**

(a) The Operator shall establish a procedure in the Operations Manual to calculate landing performance data allowing for a safe landing within the landing distance available.

(b) The Operator shall ensure aircraft are operated within the landing data calculated in accordance with (a) above.

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## **SUBPART J – MASS AND BALANCE**

MAR-OPS 2.605 General

MAR-OPS 2.610 Configuration management, mass and balance

MAR-OPS 2.625 Mass and balance documentation

### **MAR-OPS 2.605 General**

(a) The Operator shall ensure that during any phase of operation, the loading, mass and centre of gravity of the aircraft complies with the limitations specified in the approved Aircraft Flight Manual, or the Operations Manual if more restrictive.

(b) The Operator shall establish the mass and the centre of gravity of any aircraft by actual weighing prior to initial entry into service and thereafter at intervals of 4 years or at intervals in accordance with the maintenance program, whichever is more restrictive. The accumulated effects of modifications and repairs on the mass and balance must be accounted for and properly documented. Furthermore, aircraft must be reweighed if the effect of modifications on the mass and balance is not accurately known.

(c) The Operator shall determine the mass of all operating items and crew members included in the aircraft dry operating mass by weighing or by using standard masses. The influence of their position on the aircraft centre of gravity must be determined.

(d) The Operator shall determine the mass of the fuel load by using the actual density or, if not known, the density calculated in accordance with a method specified in the Operations Manual.

### **MAR-OPS 2.610 Configuration management, mass and balance**

The Operator shall specify, in the Operations Manual, the principles and methods involved in the configuration management and mass and balance system that meet the requirements of MAR-OPS 2.605. This system must cover all types of intended operations.

### **MAR-OPS 2.625 Mass and balance documentation**

(a) The Operator shall establish mass and balance documentation prior to each flight specifying the mass and balance specification of the applicable aircraft configuration. The mass and balance documentation must enable the Pilot in Command to determine that the aircraft configuration is such that the mass and balance limits of the aircraft are not exceeded. The person supervising the loading of the aircraft must confirm by signature that the aircraft configuration is in accordance with the mass and balance documentation. This document must be acceptable to the Pilot in Command, his acceptance being indicated by signing for aircraft acceptance.

(b) The Operator shall specify procedures for last minute changes to the aircraft configuration.

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## **SUBPART K – INSTRUMENTS AND EQUIPMENT**

|               |                                                                                        |
|---------------|----------------------------------------------------------------------------------------|
| MAR-OPS 2.630 | General introduction                                                                   |
| MAR-OPS 2.640 | Aircraft operating lights                                                              |
| MAR-OPS 2.650 | Day VFR operations – Flight and navigational instruments and associated equipment      |
| MAR-OPS 2.652 | IFR or night operations – Flight and navigational instruments and associated equipment |
| MAR-OPS 2.655 | IMC or night operations - Autopilot                                                    |
| MAR-OPS 2.665 | Ground proximity warning system and terrain awareness warning system                   |
| MAR-OPS 2.675 | Equipment for operations in icing conditions                                           |
| MAR-OPS 2.685 | Flight crew intercom system                                                            |
| MAR-OPS 2.727 | Recording equipment                                                                    |
| MAR-OPS 2.800 | Emergency evacuation of occupants                                                      |
| MAR-OPS 2.820 | Emergency Locator Transmitter                                                          |
| MAR-OPS 2.828 | Pilot flight equipment                                                                 |
| MAR-OPS 2.835 | Survival equipment                                                                     |
| MAR-OPS 2.844 | Role equipment - NVIS equipment                                                        |

### **MAR-OPS 2.630 General introduction**

(a) The Operator shall ensure that a flight does not commence unless the aircraft's instruments and equipment are in accordance with the applicable national requirements for military aircraft of the airspace concerned.

(b) The Operator shall ensure that a flight does not commence unless the instruments and equipment required under this subpart are:

(1) Approved, except as specified in sub-paragraph (d), and installed in accordance with the requirements applicable to them, including the minimum performance standard and the military operational and airworthiness requirements;

(2) In operable condition except as provided in the Minimum Equipment List;

(c) Instruments and equipment minimum performance standards are those prescribed in the applicable EASA Technical Standard Orders (ETSO) as listed in CS-TSO or equivalent requirements acceptable to the Military Aviation Authority, unless different performance standards are prescribed in the military operational or airworthiness codes. Instruments and equipment complying with design and performance specifications other than ETSO on the date that MAR-OPS 2 enters into force may remain in service, or be installed, unless additional requirements are prescribed in this subpart. Instruments and equipment that have already been approved do not need to comply with a revised ETSO or a revised specification, other than ETSO, unless a retroactive requirement is prescribed.

(d) The following items shall not be required to have an equipment approval:

(1) Electric torches referred to in MAR-OPS 2.640(b)(4);

(2) An accurate time piece referred to in MAR-OPS 2.650(a)(2) & 2.652(a)(2);

(3) Small items being part of the survival equipment referred to in MAR-OPS 2.835

(e) The term 'equipped with' used in this subpart may either mean installed in, attached to or taken onboard to the aircraft. In case the equipment is not part of the standard aircraft equipment, the Operator shall establish procedures to ensure that the required equipment is installed, attached or onboard during flight, as appropriate.

#### **MAR-OPS 2.640 Aircraft operating lights**

The Operator shall not operate an aircraft unless it is equipped with:

- (a) An anti-collision light system for flights by day; or
- (b) For flights under IMC or by night, in addition to equipment specified in paragraph (a) above:
  - (1) Navigation and position lights;
  - (2) Lighting supplied from the aircraft's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the aircraft;
  - (3) A landing light; and
  - (4) An electric torch for each occupant.

#### **MAR-OPS 2.650 Day VFR operations – Flight and navigational instruments and associated equipment**

(a) The Operator shall not operate an aircraft by day under VFR unless it is equipped with the flight and navigational instruments and associated equipment and, where applicable, under the conditions stated in the following sub-paragraphs:

- (1) The means of measuring and displaying magnetic heading should be a magnetic compass or equivalent;
- (2) An accurate timepiece showing the time in hours, minutes, and seconds;
- (3) A sensitive pressure altimeter calibrated in feet with a sub-scale setting, calibrated in hectopascals or millibars, adjustable for any barometric pressure likely to be set during flight and;
- (4) An airspeed indicator calibrated in knots.

(b) In addition to the flight instruments required by sub-paragraph (a) above, aircraft must be equipped with the following flight instruments when operating over water out of sight of land or when the visibility is less than 1.500 m:

- (1) An attitude indicator;
- (2) A stabilized direction indicator; and
- (3) A radio altimeter when operating over water below 500ft AMSL.

(c) Whenever two pilot seats are available, the Pilot in Command shall have access to the instruments stated in sub-paragraphs (a) and (b) above.

(d) An aircraft must be equipped with means for indicating when power is not adequately supplied to the required flight instruments.

(e) An aircraft with compressibility limitations not otherwise indicated by the required airspeed indicators shall be equipped with a Mach number indicator.

(f) Each airspeed indicating system must be equipped with a heated pitot tube system or equivalent means for preventing malfunctioning due to either condensation or icing.

### **MAR-OPS 2.652 IFR or night operations – Flight and navigational instruments and associated equipment**

(a) The Operator shall not operate an aircraft under IFR or by night unless it is equipped with the flight and navigational instruments and associated equipment and, where applicable, under the conditions stated in the following sub-paragraphs:

(1) A magnetic compass;

(2) An accurate time-piece showing the time in hours, minutes and seconds;

(3) A sensitive pressure altimeter calibrated in feet with sub-scale settings, calibrated in hectopascals or millibars, adjustable for any barometric pressure likely to be set during flight. The altimeter must have counter drum-pointer or equivalent presentation;

(4) An airspeed indicator calibrated in knots;

(5) A vertical speed indicator;

(6) A turn and slip indicator;

(7) An attitude indicator;

(8) An additional, standby, attitude indicator (artificial horizon); and

(9) A stabilised direction indicator.

(b) In addition to the flight instruments required by sub-paragraph (a) above, aircraft must be equipped with a radio altimeter when operating over water below 500ft AMSL.

(c) Whenever two pilot seats are available, the Pilot in Command shall have access to the instruments stated in sub-paragraphs (a) and (b) above.

(d) The additional, standby, attitude indicator as mentioned in sub-paragraph (a)(8) above shall:

(1) Be powered continuously during normal operation and, after a total failure of the normal electrical generating system, powered from a source independent of the normal electrical generating system;

(2) Provide reliable operation for a minimum of 30 minutes after total failure of the normal electrical generating system, taking into account other loads on the emergency power supply and operational procedures;

- (3) Operate independently of any other attitude indicating system;
- (4) Operate automatically after total failure of the normal electrical generating system;
- (5) Be appropriately illuminated when required; and
- (6) Indicate evidently to the flight crew when it is being operated by emergency power.

(e) All aircraft must be equipped with means for indicating when power is not adequately supplied to the required flight instruments.

(f) All aircraft with compressibility limitations not otherwise indicated by the required airspeed indicators shall be equipped with a Mach number indicator.

(g) Each airspeed indicating system must be equipped with a heated pitot tube system or equivalent means for preventing malfunctioning due to either condensation or icing including a warning indication of pitot heater failure.

#### **MAR-OPS 2.655 IMC or night operations - Autopilot**

The Operator shall not operate an aircraft under IMC or night operations unless it is equipped with an autopilot with at least altitude hold and heading mode.

#### **MAR-OPS 2.665 Ground proximity warning system and terrain awareness warning system**

The Operator shall not operate an aircraft unless it is equipped with at least 1 ground collision avoidance advisory system.

#### **MAR-OPS 2.675 Equipment for operations in icing conditions**

The Operator shall not operate an aircraft in expected or actual icing conditions unless it is certificated and equipped to operate in icing conditions.

#### **MAR-OPS 2.685 Flight crew intercom system**

The Operator shall not operate an aircraft with more than one occupant unless it is equipped with an intercom system.

#### **MAR-OPS 2.727 Recording equipment**

The Operator shall not operate an aircraft unless it is equipped with recording equipment to continuously record, with a reference to a time scale, voice communications and relevant flight data in support of accident and incident data requirements (reference MAR-OPS 2.160) and the Operator's Safety Management System (SMS) (reference MAR-OPS 2.037).

## **MAR-OPS 2.800 Emergency evacuation of occupants**

The Operator shall ensure that the procedure for emergency evacuation of the occupants is clearly marked on the outside of the aircraft.

## **MAR-OPS 2.820 Emergency locator transmitter**

(a) The Operator shall not operate an aircraft unless it is equipped with an automatic emergency locator transmitter capable of transmitting on 406 MHz.

(b) The Operator shall not operate an aircraft over water unless in addition to sub-paragraph (a) above the survival equipment for each occupant is equipped with one emergency locator transmitter capable of transmitting on 406MHz.

(c) The Operator shall ensure that all emergency locator transmitters that are capable of transmitting on 406 MHz shall be coded in accordance with ICAO Annex 10 and registered with the national agency responsible for initiating Search and Rescue or another nominated agency.

(d) Whenever it is possible to disable the automatic activation functionality of an automatic emergency locator transmitter as mentioned in sub-paragraph (a) above, the Operator shall establish an operational procedure for enabling and disabling the automatic activation function.

## **MAR-OPS 2.828 Pilot flight equipment**

The Operator shall not operate an aircraft unless all occupants of that aircraft are equipped with 'pilot flight equipment', taking into account the actual and expected operational and environmental circumstances.

## **MAR-OPS 2.835 Survival equipment**

The Operator shall not operate an aircraft unless it is equipped with sufficient survival equipment for all occupants appropriate and suitable for the intended operating area and route.

## **MAR-OPS 2.844 NVIS equipment**

NVIS equipment. The Operator shall not operate an aircraft to conduct NVIS operations unless equipped with:

(a) Helmet mounted NVIS-equipment, not being an integral part of the aircraft configuration; and

(b) NVIS compatible lighting, flight instruments and equipment, comprising of at least:

(1) NVIS compatible instrument panel flood lighting to illuminate all essential flight instruments;

(2) NVIS compatible utility lights;

(3) A means for removing or extinguishing internal NVIS non-compatible lights; and

(4) A back-up power supply to prevent inadvertent loss of NVIS capability in case of an electrical power failure of the main electrical power source.

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## **SUBPART L – COMMUNICATION AND NAVIGATION EQUIPMENT**

MAR-OPS 2.845 General introduction

MAR-OPS 2.850 Radio equipment

MAR-OPS 2.860 Radio equipment for operations under VFR over routes navigated by reference to visual landmarks

MAR-OPS 2.865 Communication and navigation equipment for operations under IFR, or under VFR over routes not navigated by reference to visual landmarks

MAR-OPS 2.866 Transponder equipment

### **MAR-OPS 2.845 General introduction**

(a) The Operator shall ensure that a flight does not commence unless the aircraft's communication and navigation equipment are in accordance with the applicable national requirements for military aircraft of the airspace concerned.

(b) The Operator shall ensure that a flight does not commence unless the communication and navigation equipment required under this subpart is:

(1) Approved and installed in accordance with the requirements applicable to them, including the minimum performance standard and the operational and military airworthiness requirements;

(2) Installed such that the failure of any single unit required for either communication or navigation purposes, or both, will not result in the failure of another unit required for communications or navigation purposes; and

(3) In operable condition except as provided in the Minimum Equipment List.

(c) Communication and navigation equipment minimum performance standards are those prescribed in the applicable EASA Technical Standard Orders (ETSO) as listed in CS-TSO, or equivalent requirements acceptable to the Military Aviation Authority, unless different performance standards are prescribed in the military operational or airworthiness codes. Communication and navigation equipment complying with design and performance specifications other than ETSO on the date that MAR-OPS 2 enters into force may remain in service, or be installed, unless additional requirements are prescribed in this subpart. Communication and navigation equipment which has already been approved does not need to comply with a revised ETSO or a revised specification, other than ETSO, unless a retroactive requirement is prescribed.

### **MAR-OPS 2.850 Radio equipment**

(a) Where two independent (separate and complete) radio systems are required under this subpart, each system must have an independent antenna installation except that, where rigidly supported non-wire antennae or other antenna installations of equivalent reliability are used, only one antenna is required.

(b) The radio communication equipment required to comply with paragraph MAR-OPS 2.845 (a) above must also provide for communications on the aeronautical emergency frequency.

### **MAR-OPS 2.860 Radio equipment for operations under VFR over routes navigated by reference to visual landmarks**

The Operator shall not operate an aircraft under VFR over routes that can be navigated by reference to visual landmarks, unless it is equipped with the radio equipment necessary to fulfil the following:

- (a) Communicate with appropriate ground stations;
- (b) Communicate with appropriate air traffic control facilities from any point in controlled airspace within which flights are intended; and
- (c) Receive meteorological information.

### **MAR-OPS 2.865 Communication and navigation equipment for operations under IFR, or under VFR over routes not navigated by reference to visual landmarks**

(a) The Operator shall not operate an aircraft under IFR, or under VFR over routes that cannot be navigated by reference to visual landmarks, unless the aircraft is equipped with radio and navigation equipment in accordance with the requirements in the area(s) of operation (see also MAR-OPS 2.845 (a)).

(b) *Radio equipment.* The Operator shall ensure that radio equipment comprises not less than two independent radio communication systems necessary under normal operating conditions to communicate with an appropriate ground station from any point on the route including diversions.

(c) *Navigation equipment.* The Operator shall ensure that the aircraft is:

(1) Equipped with navigation equipment appropriate for the route to be flown, including departure, arrival and approach; and

(2) Sufficiently equipped to ensure that – in the event of the failure of one item of equipment – in any stage of the flight, the remaining equipment will enable the aircraft to navigate safely.

(d) The operator shall ensure that communication and navigation equipment installed on aircraft to be operated under IFR are of a type that has been approved as complying with the FM immunity performance standards.

### **MAR-OPS 2.866 Transponder equipment**

The Operator shall not operate an aircraft unless it is equipped with a SSR Mode S:

(a) Elementary Surveillance (ELS) transponder which operates in accordance with ICAO Annex 10, Volume IV; and

(b) Enhanced Surveillance (EHS) transponder which operates in accordance with ICAO Annex 10, Volume IV when flights are performed as GAT at FL245 or above.

## **SUBPART M – MAINTENANCE MANAGEMENT**

MAR-OPS 2.875 General  
MAR-OPS 2.887 Continued airworthiness responsibility  
MAR-OPS 2.892 Contracting aircraft maintenance  
MAR-OPS 2.905 Operator's Aircraft Maintenance Program  
MAR-OPS 2.910 Aircraft maintenance data  
MAR-OPS 2.915 Aircraft continued airworthiness record system  
MAR-OPS 2.920 Operator's Aircraft Technical Log system  
MAR-OPS 2.925 Transfer of aircraft maintenance Records

### **MAR-OPS 2.875 General**

The Operator shall ensure that all aircraft operated under his MAOC hold an applicable and valid Certificate of Airworthiness issued by the Military Aviation Authority or a recognised Authority and are maintained and released to service by an Organisation appropriately approved in accordance with MAR-145 or equivalent acceptable to the Military Aviation Authority.

### **MAR-OPS 2.887 Continued airworthiness responsibility**

(a) The Operator shall ensure the continued airworthiness of aircraft and the serviceability of operational and emergency equipment as prescribed by MAR-OPS 2 subpart K and L, by:

- (1) The accomplishment of pre-, thru- and post-flight inspections;
- (2) The rectification to an approved standard of any defect or damage affecting safe operation, taking into account the approved Operator's Minimum Equipment List (permissible unserviceability's) and the approved Operator's Configuration Deviation List, if available for the applicable aircraft type;
- (3) The accomplishment of all aircraft maintenance in accordance with the approved Operator's Aircraft Maintenance Program(s) (reference MAR-OPS 2.905);
- (4) The analysis of the effectiveness of the approved Operator's Aircraft Maintenance Program(s);
- (5) The accomplishment of any applicable:
  - (i) Airworthiness Directive;
  - (ii) Operational Directive with a continued airworthiness impact;
  - (iii) Any other continued airworthiness requirement established by the Military Aviation Authority; or
  - (iv) Measures mandated by the Military Aviation Authority in immediate reaction to a safety problem; and
- (6) The usage of data approved by the Military Aviation Authority or by an appropriately approved MAR-21 Military Type Certificate holder or equivalent, as appropriate, for assessing damage and carrying out modifications and repairs;

(7) The accomplishment of non-mandatory modifications and inspections;

(8) The establishment of an embodiment policy for non-mandatory modifications and inspections; and

(9) The accomplishment of maintenance to operational and emergency equipment, as far as not being subject to an approved Operator's Aircraft Maintenance Program, in accordance with applicable manufacturer's maintenance manuals and or instructions or equivalent, acceptable to the Military Aviation Authority.

(b) The Operator shall ensure that the Certificate of Airworthiness for each aircraft operated, remains valid in respect of:

(1) The requirements in sub-paragraph (a) above; and

(2) Any condition specified in the Certificate of Airworthiness.

(c) The tasks as mentioned in sub-paragraph (a) (2), (3), (5), (6) and (7) above, shall be conducted by an appropriately approved MAR-145 maintenance Organisation or equivalent.

(d) The Operator shall specify procedures in the Operations Manual (Part E - Maintenance management) acceptable to the Military Aviation Authority satisfying the Operator's continued airworthiness responsibility as specified in sub-paragraph (a) above.

#### **MAR-OPS 2.892 Contracting aircraft maintenance**

(a) The Operator shall make arrangements with an appropriately approved MAR-145 maintenance Organisation, or equivalent acceptable to the Military Aviation Authority, to carry out the continued airworthiness tasks as mentioned in MAR-OPS 2.887 (a)(2), (3), (5), (6) and (7).

(b) Arrangements between the Operator and a maintenance Organisation as mentioned in sub-paragraph (a) above to include all amendments, shall be in the form of a verifiable agreement acceptable to the Military Aviation Authority, at least:

(1) Detailing the contracted functions specified in MAR-OPS 2.887 (a)(2), (3), (5), (6) and (7);

(2) Detailing provisions in support of quality monitoring of contracted maintenance in accordance MAR-OPS 2.035; and

(3) Defining the responsibilities of both parties concerning aircraft maintenance data requirements as specified in MAR-OPS 2.910.

#### **MAR-OPS 2.905 Operator's Aircraft Maintenance Program**

(a) Every aircraft shall be maintained in accordance with the applicable Operator's Aircraft Maintenance Program approved by the Military Aviation Authority.

(b) The Operator shall ensure that its Aircraft Maintenance Program(s) is (are) reviewed at least every year and if necessary is amended accordingly.

(c) The Operator shall specify procedures in the Operations Manual (Part E – Maintenance management) describing how Military Aviation Authority approval is obtained regarding the development and changing of the Aircraft Maintenance Program(s).

(d) The Operator's Aircraft Maintenance Program(s) shall establish compliance with:

(1) Instructions for continued airworthiness issued by the applicable (supplementary) type certificate holder; and

(2) Instructions issued by the Military Aviation Authority, if they differ from or in the absence of the instructions mentioned in sub-paragraph (d)(1) above.

(e) The Operator's Aircraft Maintenance Program(s) shall contain details, including frequency, of all maintenance to be carried out and any specific tasks linked to specific operations.

(f) The Operator's Aircraft Maintenance Program(s) shall include a reliability program when:

(1) The maintenance program is based on maintenance steering group or reliability-centred maintenance methodology;

(2) The maintenance program contains components maintained conform a condition monitoring concept; or

(3) Not all revision time intervals of any major system components are incorporated.

(g) In case the Operator has less than 6 aircraft of one type or the MTOW of the aircraft type is less than 5700kg, a reliability program as mentioned in sub-paragraph (f) above is not mandatory.

## **MAR-OPS 2.910 Aircraft maintenance data**

The Operator shall ensure that:

(a) The contracted maintenance Organisation(s) (reference MAR-OPS 2.892) shall have access to and use only applicable current maintenance data in the performance of aircraft maintenance including modifications and repairs, being:

(1) Any applicable requirement, procedure, standard or information issued by the Military Aviation Authority;

(2) Any applicable Airworthiness Directive;

(3) Applicable instructions for continued airworthiness, issued by the applicable (supplementary) type certificate holder; and

(4) Any applicable data issued in accordance with MAR-145.A.45(d); and

(b) All applicable maintenance data is current and readily available for use when required by the contracted maintenance Organisation(s) (reference MAR-OPS 2.892); and

(c) The contracted maintenance Organisation(s) (reference MAR-OPS 2.892) establishes a work card or worksheet system to be used and shall either transcribe accurately the maintenance data onto such work cards or worksheets or make precise reference to the particular maintenance task or tasks contained in such maintenance data.

## **MAR-OPS 2.915 Aircraft continued airworthiness record system**

The Operator shall keep for each aircraft type a continued airworthiness record system and shall ensure that:

- (a) At the completion of any maintenance, the associated Certificate(s) of Release to Service are entered in the aircraft continued airworthiness records. Each entry shall be made as soon as practicable, but in no event more than 30 days after the day of the maintenance action;
- (b) The aircraft continued airworthiness records consist of, as appropriate, an aircraft logbook, engine logbook(s) or engine module log cards, (if applicable) propeller logbook(s) and log cards for any service life limited component and the Operator's Aircraft Technical Log;
- (c) The aircraft continued airworthiness records contain for each aircraft registration:
  - (1) The aircraft type and registration mark, the date, together with total flight time, flight cycles and or landings, as appropriate;
  - (2) The status of continued airworthiness related directives, requirements and or measures as mentioned by MAR-OPS 2.887 (a)(5);
  - (3) The status of modifications, repairs and inspections;
  - (4) The status of compliance with the applicable Operator's Aircraft Maintenance Program;
  - (5) The status of service life limited components;
  - (6) The mass and balance report; and
  - (7) The list of deferred maintenance; and
- (d) In addition to the Certificate of Release to Service, Defence Form 1 or equivalent, the following information relevant to any component installed is entered in the appropriate engine logbook, engine module or service life limited component log card:
  - (1) Identification of the component;
  - (2) The type, serial number and registration of the aircraft to which the particular component has been fitted, along with the reference to the installation and removal of the component;
  - (3) The particular component accumulated total flight time, flight cycles, landings and or calendar time, as appropriate; and
  - (4) The current information as mentioned in sub-paragraph (c) above, applicable to the component; and
- (e) All entries in the aircraft continued airworthiness records are accurate, made concurrently and permanent in nature. When it is necessary to correct an entry, the correction shall be made in a manner that clearly shows the original entry.

### **MAR-OPS 2.920 Operator's Aircraft Technical Log system**

(a) The Operator shall keep for each aircraft type an Aircraft Technical Log system containing for each aircraft registration the following information:

- (1) The aircraft type and registration mark, for each flight the date, name and signature of the Pilot in Command, together with total flight time, flight cycles and or landings, as appropriate;
- (2) Information about each flight necessary to ensure continued flight safety;
- (3) The current aircraft Certificate of Release to Service;
- (4) The current maintenance statement giving the aircraft maintenance status of what scheduled and out of phase maintenance is next due except that the Military Aviation Authority may agree to the maintenance statement being kept elsewhere;
- (5) A list of all deferred maintenance that affect the operation of the aircraft; and
- (6) Any necessary guidance instructions on maintenance support arrangements.

(b) The Aircraft Technical Log system and subsequent amendments shall be approved by the Military Aviation Authority.

### **MAR-OPS 2.925 Transfer of aircraft continued airworthiness records**

The Operator shall ensure that when an aircraft is permanently transferred from one Operator to another Operator the records specified in MAR-OPS 2.915 are also transferred.

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## **SUBPART N – FLIGHT CREW**

|               |                                                      |
|---------------|------------------------------------------------------|
| MAR-OPS 2.935 | General                                              |
| MAR-OPS 2.943 | Initial Operator's crew resource management training |
| MAR-OPS 2.946 | Mission qualification training                       |
| MAR-OPS 2.950 | Differences training                                 |
| MAR-OPS 2.957 | Flight lead qualification training                   |
| MAR-OPS 2.960 | Tactical instructor qualification training           |
| MAR-OPS 2.965 | Continuation training and checking                   |
| MAR-OPS 2.970 | Recent experience                                    |
| MAR-OPS 2.980 | Operation on more than one type or variant           |
| MAR-OPS 2.985 | Training records                                     |

### **MAR-OPS 2.935 General**

The Operator shall ensure that all flight crew members hold an applicable and valid licence and military medical certificate issued by the Military Aviation Authority or a recognised Authority and are suitably qualified and competent to conduct the duties and kind of operations, assigned to them.

### **MAR-OPS 2.943 Initial Operator's crew resource management training**

(a) When a flight crew member has not previously completed an initial Operator's crew resource management (CRM) training, then the Operator shall ensure that the flight crew member completes an initial CRM training program. New employed flight crew members shall complete initial Operator's CRM training within their first year of joining the Operator.

(b) If the flight crew member has not previously completed a human factors training course, then a theoretical course, based on the human performance and limitations program for the Military Pilot License (reference MAR-FCL 1&2) shall be completed before the initial Operator's CRM training or combined with the initial Operator's CRM training.

(c) Initial CRM training shall be conducted by suitably qualified personnel.

(d) Initial CRM training is conducted in accordance with a detailed course syllabus included in the Operations Manual and shall contain at least the following items:

- (1) Human factor in system safety;
- (2) Company safety culture, Standard Operating Procedures (SOPs), Organisational factors;
- (3) Stress, stress management, fatigue and vigilance;
- (4) Information acquisition and processing, situational awareness, workload management;
- (5) Decision making;
- (6) Communication and co-ordination inside and outside the cockpit;
- (7) Leadership and team behaviour, synergy;
- (8) Automation and philosophy of the use of automation;

(9) Case based studies; and

(10) Additional areas which warrant extra attention, as identified by the Safety Management System (SMS) (reference MAR-OPS 2.037).

### **MAR-OPS 2.946 Mission qualification training**

The Operator shall ensure that:

(a) A flight crew member completes an Operator's mission qualification training course as detailed in the Operations Manual to:

(1) Obtain an initial mission qualification; or

(2) Regain his mission qualification, when:

(i) Changing to another aircraft type after obtaining the appropriate Type Rating;

(ii) Changing to another Operator with different operating procedures; or

(iii) Changing type of operation.

(b) Mission qualification training with integrated elements of CRM is conducted by suitably qualified personnel in accordance with a detailed course syllabus included in the Operations Manual. This syllabus shall cover training for all operational duties and taskings applicable to the flight crew member undergoing mission qualification training;

(c) The amount of training required by the Operator's mission qualification training course is determined after due note has been taken of the flight crew member's previous training as recorded in his training records prescribed in MAR-OPS 2.985; and

(d) The minimum prerequisites required for flight crew members undertaking mission qualification training are specified in the Operations Manual.

### **MAR-OPS 2.950 Differences training**

(a) The Operator shall ensure that a flight crew member completes differences training which requires additional knowledge and training on an appropriate training device or the aircraft when:

(1) Operating another variant of an aircraft of the same type currently operated; or

(2) Changing hardware, software, equipment, weaponry and or procedures on types or variants currently operated.

(b) The Operator shall specify in the Operations Manual when such differences training is required.

### **MAR-OPS 2.957 Flight lead qualification training**

The Operator shall ensure that:

(a) A flight crew member, appointed to carry out flight lead duties, completes an Operator's flight lead qualification training course to:

(1) Obtain a flight lead qualification; or

(2) Regain the flight lead qualification as referred to in the Operator Manual; and

(b) Flight lead qualification training is conducted by suitably qualified personnel in accordance with a detailed course syllabus included in the Operations Manual. This syllabus shall cover training for all flight lead responsibilities applicable to the flight crew member undergoing flight lead qualification training;

(c) The amount of training required by the Operator's flight lead qualification training course is determined after due note has been taken of the flight crew member's previous training as recorded in his training records prescribed in MAR-OPS 2.985;

(d) The minimum prerequisites required for flight crew members undertaking flight lead qualification training are specified in the Operations Manual; and

(e) All categories of flight leads, including specific duties and responsibilities, are specified in the Operations Manual.

### **MAR-OPS 2.960 Tactical instructor qualification training**

The Operator shall ensure that:

(a) A flight crew member, appointed to carry out tactical instruction, completes an Operator's tactical instructor qualification training course to:

(1) Obtain a tactical instructor qualification; or

(2) Regain a tactical instructor qualification as referred to in the Operator Manual; and

(b) Tactical instructor qualification training is conducted by suitably qualified personnel in accordance with a detailed course syllabus included in the Operations Manual. This syllabus shall cover training for all instructional duties and taskings applicable to the flight crew member undergoing tactical instructor qualification training;

(c) The amount of training required by the Operator's tactical instructor qualification training course is determined after due note has been taken of the flight crew member's previous training as recorded in his training records prescribed in MAR-OPS 2.985;

(d) The minimum prerequisites required for flight crew members undertaking tactical instructor qualification training are specified in the Operations Manual; and

(e) All categories of tactical instructors and their specific duties and responsibilities are specified in the Operations Manual.

## **MAR-OPS 2.965 Continuation training and checking**

The Operator shall ensure that:

- (a) Each flight crew member undergoes a yearly training program as specified in the Operations Manual, to maintain his qualifications and competence to conduct the duties and kind of operations, assigned to him;
- (b) Each flight crew member undergoes recurrent training relevant for the applicable type of aircraft and type of operations in accordance with a detailed recurrent training program specified in the Operations Manual, including at least:
  - (1) Ground training;
  - (2) Normal, abnormal and emergency procedure training;
  - (3) Survival training;
  - (4) Emergency and safety equipment training;
  - (5) Aero physiological training; and
  - (6) CRM training; and
- (c) A checking program, including contents and periodicity, is specified in the Operations Manual consisting of at least one proficiency check (reference MAR-FCL 1&2) and one Operator's check; and
- (d) Recurrent training and checking is conducted by suitably qualified personnel, nominated in the Operations Manual.

## **MAR-OPS 2.970 Recent experience**

The Operator shall establish minimum requirements for recent experience of flight crew members relevant to the applicable type of aircraft. These minimum requirements shall be included in the Operations Manual.

## **MAR-OPS 2.980 Operation on more than one type or variant**

- (a) The Operator shall ensure that a flight crew member does not operate on more than one type or variant, unless the flight crew member is competent to do so.
- (b) The Operator shall ensure that a flight crew member operating more than one type or variant complies with all of the requirements prescribed in this subpart for each type or variant unless the Military Aviation Authority has approved the use of credit(s) related to the qualification, continuation training and checking, and recent experience requirements.

(c) The Operator shall specify appropriate procedures and or operational restrictions in the Operations Manual for any operation on more than one type or variant covering:

- (1) The flight crew member's minimum experience level;
- (2) The minimum experience level on one type or variant before beginning training for and operation of another type or variant; and
- (3) The process whereby flight crew qualified on one type or variant will be trained and qualified on another type or variant.

#### **MAR-OPS 2.985 Training records**

The Operator shall maintain for each individual flight crew member:

- (a) Records of all training, checking and qualification prescribed in MAR-OPS 2.943, 2.946, 2.950, 2.957, 2.960, 2.965 undertaken by a flight crew member; and
- (b) Records of recent experience as meant by MAR-OPS 2.970.

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## **SUBPART P – MANUALS, LOG AND RECORDS**

MAR-OPS 2.1040 General Rules for Operations Manuals  
MAR-OPS 2.1045 Operations Manual – structure and contents  
MAR-OPS 2.1050 Aircraft Flight Manual  
MAR-OPS 2.1055 Flight registration book  
MAR-OPS 2.1060 Mission essential information documentation  
MAR-OPS 2.1065 Document storage

Appendix 1 to MAR-OPS 2.1045 Operations Manual - contents  
Appendix 1 to MAR-OPS 2.1065 Document storage - periods

### **MAR-OPS 2.1040 General Rules for Operations Manuals**

(a) The Operator shall ensure that the Operations Manual contains:

(1) All instructions and information necessary for operations personnel to perform their duties; and

(2) A compliance statement signed by the accountable manager.

(b) The Operator shall ensure that the contents of the Operations Manual, including all amendments or revisions, do not contravene the terms and conditions contained in his MAOC or any applicable regulations and are acceptable to or approved by the Military Aviation Authority.

(c) Unless otherwise approved by the Military Aviation Authority, the Operator must prepare the Operations Manual in the English language. In addition, the Operator may translate and use that manual, or parts thereof, into another language.

(d) The Operator may issue an Operations Manual in separate volumes.

(e) The Operator shall ensure that all operations personnel have easy access to a copy of each part of the Operations Manual which is relevant to their duties. In addition, the Operator shall supply all crew members with a personal copy of, or sections from, Parts A and B (reference MAR-OPS 2.1045) of the Operations Manual as are relevant for personal use.

(f) The Operator shall ensure that:

(1) The Operations Manual is amended or revised so that the instructions and information contained therein are kept up to date;

(2) All operations personnel are made aware of such changes that are relevant to their duties;

(3) When the Operations Manual is amended, the changes in the text relative to the previous issue are clearly marked; and

(4) Each holder of an Operations Manual or appropriate parts of it, keeps it up to date with the amendments or revisions supplied by the Operator.

(g) The Operator shall supply the Military Aviation Authority with intended amendments and revisions in advance of the effective date. When the amendment concerns any part of the Operations Manual which must be approved in accordance with MAR-OPS 2, this approval shall be obtained before the amendment becomes effective. When immediate amendments or revisions are required in the interest of safety, they may be published and applied immediately, provided that any approval required has been applied for.

(h) In addition to sub-paragraph (g) above the Operator may use an internal procedure for the implementation of amendments to the Operations Manual, provided:

(1) These amendments have no impact on the scope of operation conducted under the terms and conditions of its MAOC and the approved means of compliance of any MAR-OPS 2 requirement;

(2) A description of specific duties and responsibilities for controlling amendments is established by the Operator and accepted by the Military Aviation Authority; and

(3) The Military Aviation Authority receives a copy of each amendment issued.

(i) The Operator shall incorporate all amendments and revisions required by the Military Aviation Authority.

(j) The Operator must ensure that information taken from approved documents, and any amendment of such approved documentation, is correctly reflected in the Operations Manual and that the Operations Manual contains no information contrary to any approved documentation. However, this requirement does not prevent the Operator from using more conservative data and procedures.

(k) The Operator must ensure that the contents of the Operations Manual are presented in a form in which they can be used without difficulty. The design of the Operations Manual shall observe human factors principles.

(l) The Operator may be permitted by the Military Aviation Authority to present the Operations Manual or parts thereof in a form other than on printed paper. In such cases, an acceptable level of accessibility, usability and reliability must be assured.

## **MAR-OPS 2.1045 Operations Manual – structure and contents**

(See appendix 1 to MAR-OPS 2.1045 Operations Manual – contents)

(a) The Operator shall ensure that the main structure of the Operations Manual is as follows:

### *Part A. General/Basic*

This part shall comprise all non type-related operational policies, instructions and procedures needed for a safe operation.

### *Part B. Aircraft operating matters - type related*

This part shall comprise all type-related instructions and procedures needed for a safe operation. It shall take account of any differences between types, variants or individual aircraft used by the Operator.

Part C. *Detailed instruction and information for standard route, area and aerodromes.* This part may comprise detailed instructions and information needed for frequently used routes, areas of operation, and aerodromes.

Part D. *Training*

This part shall comprise all training programs, courses and instructions for personnel required for a safe operation.

Part E. *Maintenance management*

This part shall comprise all instructions and procedures related to the Operator's continued airworthiness responsibility.

Part F. *Ground operations*

This part shall comprise all instructions and procedures related to the Operator's ground operations responsibility.

(b) The Operator shall ensure that the contents of the Operations Manual are in accordance with appendix 1 to this MAR-OPS 2 requirement and relevant to the area and type of operation.

(c) The Operator shall ensure that the detailed structure of the Operations Manual is acceptable to the Military Aviation Authority.

## **MAR-OPS 2.1050 Aircraft Flight Manual**

The Operator shall keep a current approved Aircraft Flight Manual or equivalent document for each aircraft type operated.

## **MAR-OPS 2.1055 Flight registration book**

(a) The Operator shall retain the following information for each flight in the form of a flight registration book:

- (1) Aircraft registration;
- (2) Date;
- (3) Name(s) of crew member(s);
- (4) Assignment of Pilot in Command;
- (5) Place of departure;
- (6) Place of arrival;
- (7) Time of departure (off-block time);
- (8) Time of arrival (on-block time);
- (9) Hours of flight;
- (10) Type of operation and or Authorised mission;
- (11) Calculated take-off and landing data;
- (12) Incidents, deviations from Authorised mission, observations (if any);
- (13) The signature of the authorizing authority (or equivalent); and
- (14) The Pilot in Command's signature (or equivalent).

(b) The flight registration book may be used and retained in a digitized form.

(c) The Operator shall ensure that all entries are made concurrently and that they are permanent in nature.

## **MAR-OPS 2.1060 Mission essential information documentation**

(a) The Operator shall retain for each flight specific documentation containing at least the following mission essential information:

- (1) Aircraft registration;
- (2) Date of flight;
- (3) Flight identification;
- (4) Flight crew members;
- (5) Planned time of departure;
- (6) Destination;
- (7) Type of operation and or Authorised mission;
- (8) Coordinated data with other participating units, if applicable;
- (9) Other safety related operational information, if applicable;
- (10) Route and route segments with checkpoints or waypoints, distances, time and tracks;
- (11) Planned cruising speed, flying times between checkpoints or waypoints and or estimated times overhead;
- (12) Safe altitudes, minimum flight altitudes and or levels;
- (13) Planned altitudes and or flight levels;
- (14) Fuel calculations;
- (15) Aircraft configuration;
- (16) Calculated take-off and landing data;
- (17) Planned destination alternate and, where applicable, take-off and en-route alternate(s);
- (18) The filed ATS flight plan, if applicable;
- (19) Appropriate NOTAM and AIS information; and
- (20) Appropriate meteorological information.

(b) Items which are readily available from a separate retrievable source or are irrelevant to the type of operation, need not to be recorded as part of the mission essential information documentation as meant in sub-paragraph (a) above.

(c) The Operator must ensure that the mission essential information documentation and its use are described in the Operations Manual.

(d) The Operator shall ensure that the content of mission essential information documentation is concurrent and permanent in nature.

#### **MAR-OPS 2.1065 Document storage**

(See appendix 1 to MAR-OPS 2.1065 Document storage – periods)

The Operator shall ensure that:

(a) All documents, records and all relevant operational and technical information for each individual flight, are stored:

(1) For the periods prescribed in appendix 1 to this MAR-OPS 2 requirement, even if he ceases to be the Operator of the aircraft during that period;

(2) In a manner acceptable and accessible to the Military Aviation Authority; and

(3) In a manner that ensures protection from damage, alteration and theft; and

(b) All computer hardware used as backup is stored in a different location from the hardware containing the original data; and

(c) When aircraft continued airworthiness records are transferred from one Operator to another Operator (reference MAR-OPS 2.925), the document storage periods as prescribed in appendix 1 to this MAR-OPS 2 requirement, will continue to apply to the new Operator.

## **Part A. General/basic**

### **0. Administration and control of Operations Manual**

#### 0.1 Introduction

- Compliance statement signed by the accountable manager;
- Description of the various parts of the Operations Manual; and
- Explanations and definitions of terms and words.

#### 0.2 System of amendment and revision

- Person(s) responsible for the issuance and insertion of amendments and revisions;
- Record of amendments and revisions;
- Amendment and (temporary) revision policy and procedures;
- Annotation policy;
- List of effective pages;
- Distribution system for the manuals, amendments and revisions; and
- Notification procedure to the Military Aviation Authority.

### **1. Organisation and responsibilities**

#### 1.1 Scope of operation and operational environments

#### 1.2 Organisational facilities and locations

#### 1.3 Organisational and managerial structure

#### 1.4 Relationship concern directory

- Chains of responsibility between the accountable manager and concern director; and
- Chains of responsibility between quality manager and the applicable quality department at the concern directory level.
- Chains of responsibility between safety manager and the applicable safety department at the concern directory level.

#### 1.5 Accountable manager

#### 1.6 Quality manager

#### 1.7 Safety Managers

#### 1.8 Nominated post holders

#### 1.9 Supervisors

#### 1.10 Ground staff - pertaining to flight safety and the compliance with the applicable regulations

#### 1.11 Pilot in Command

#### 1.12 Mission essential crew members other than Pilot in Command

## **2. Operational control and supervision**

2.1 Supervisory system, structure and processes

2.2 System of promulgation of additional Operational Directives, instructions and information

2.3 Method for exercising the Operator's responsibility with respect to the safe conduct of operations

2.4 Passenger policy

2.5 Alternative implementation decision-making process

2.6 Procedure for assessment of prevailing security situations

2.7 Exemptions

- Procedures for submitting a petition for an exemption from any Military Aviation Requirement;
- Procedures for submitting a report regarding MAR-OPS 2 deviations; and
- Policy, procedures and the Operator decision-making process with respect to MAR-OPS 2 deviations without prior approval of the Military Aviation Authority.

2.8 Sub-contracting

- Policies and procedures concerning sub-contracting; and
- Sub-contractor selection process and procedure.

## **3. Quality system**

A description of the quality system adopted including at least:

3.1 Quality policy statement signed by the accountable manager;

3.2 Quality plan and objectives;

3.3 Basic structure of the quality system

3.4 Quality monitoring program;

3.5 Audit process, procedures and schedules;

3.6 A description of the quality department; and

3.7 Quality auditors' duties and responsibilities.

## **4. Safety Management System (SMS)**

### **4.1 Safety policy and objectives**

- Description of the management commitment and responsibilities
- Description of safety accountabilities
- Overview of designated key safety personnel
- Overview of established safety objectives
- Description of third party/contractor safety interfaces/activities
- Description and coordination of the emergency response plan
- Description of available SMS documentation

### **4.2 Safety risk management**

- Hazard identification processes and procedures
- Risk assessment and mitigation processes and procedures.
- Description of the FDM program implemented

### **4.3 Safety assurance**

- Safety performance monitoring and measurement procedures
- Internal safety investigation procedures
- Management of change procedures
- Continuous improvement of the safety system.

### **4.4 Safety training and promotion**

- Description of safety training and education
- Description of safety communication and promotion procedures and tools.

## **5. Qualification requirements**

5.1 Required license, rating(s), qualification and competency, experience, training checking and recency of operations personnel to conduct their duties;

5.2 Flight crew, to include operation on more than one type or variant;

5.3 Aircrew, to include operation on more than one type or variant;

5.4 Mission essential crew members;

5.5 Ground staff involved in flight operations;

5.6 Ground staff involved in crew training and checking;

5.7 Ground staff involved in ground operations; and

5.8 Ground staff involved in maintenance management.

## **6. Crew health precautions instructions**

6.1 Alcohol

6.2 Drugs and other substances;

6.3 Decompression, to include the effects of scuba diving and rapid decompressions;

6.4 Blood donation; and

6.5 Sleep and rest.

## **7. Flight time restrictions**

7.1 Flight and duty time limitations and rest scheme

7.2 Exceedances of flight and duty time limitations and or reductions of rest periods

## **8. Operating procedures**

### **8.1 Flight Preparation Instructions**

- Method of determination and application of minimum flight altitudes;
- Aerodrome authorization: criteria and responsibilities;
- Method of determination of aerodrome operating minima;
- Procedure(s) for the selection of destination and or alternate aerodromes;
- Planning minima or a method of determination of those minima with respect to the required weather conditions for VFR portions of a flight;
- Method to select the required destination or alternate aerodromes with respect to the required weather conditions;
- Interpretation of meteorological information;
- Fuel policy;
- Procedure to calculate take off and landing performance data;
- Principles and methods involved in the configuration management and mass and balance system;
- Procedures with respect to the use air traffic services and tactical control services;
- Procedures and responsibilities for flight planning and briefing;
- Instructions for preparation and submission of the ATS flight plan; and
- Documents, checklists and additional information and documentation to be carried on board.

### **8.2 Ground Handling instructions**

Instructions, to include appropriate checklists and use thereof, regarding:

- Refuelling and De-fuelling procedures;
- Arming and de-arming procedures;
- Passenger handling procedures related to safety;
- De-icing and anti-icing procedures;
- Loading, reloading and unloading procedures;
- Aircraft movements on the ground;
- Aircraft handling related to security; and,
- Ground operations under adverse operating conditions.

### **8.3 Flight Procedures**

- VFR and IFR policy;
- Navigation procedures, to include:
  - In-flight replanning;
  - System degradation;
  - Navigation in area's with specified navigation performance (if applicable); and
  - Navigation in RVSM airspace (if applicable); and

- Altimeter setting procedures;
- Inadvertent IMC procedures;
- Policy and procedures for in-flight fuel management;
- Procedure regarding adverse operating conditions;
- Take off and departure procedures and instructions;
- Approach and landing procedures and instructions;
- Wake turbulence separation criteria;
- Procedures for the usage of safety belts and personnel connections;
- Procedures for the usage of aircraft lighting;
- Procedures for stowage of baggage and equipment;
- Procedures for arming the ejection seat;
- Procedures for the usage of supplemental oxygen;
- Procedures for the usage of electro-magnetic systems;
- Procedures for the usage of NVIS-systems;
- Formation flying procedures
- Low level flying policy and procedures;
- Air to air refuelling procedures;
- Procedures for carrying weapons, munitions, expendables and external stores;
- Procedures for simulating weapon and or munition employment, while carrying live and or training weapons or munition;
- Procedures regarding unsafe weapons, munitions, and or armament system malfunctions; and
- Procedures for in-flight dispensing of expendables and external stores and, the employment of weapons and munitions.

8.4 Conditions and procedures regarding aerial photography and filming

8.5 Procedures and instructions regarding demonstration flights, to include air displays, 'paradevluchten', fly passes, etc.

8.6 Procedures and instructions regarding tow flights

8.7 Procedures and limitations regarding miscellaneous flights, such as ferry flights, chase flights and or escorting other aircraft

8.8 Conditions and procedures regarding operational testing

8.9 Safety rules: policy and instructions, to include the usages of the:

- Autopilot system during night and IMC operations; and
- Ground collision avoidance advisory system(s).

8.10 Procedures and instructions for the usage of pilot flight equipment

8.11 Procedures and instructions for the usage of the Operator's Aircraft Technical Log system

8.12 Procedures and instructions for the usage of the flight registration book

8.13 Procedures and instructions for the usage of the Operator's Minimum Equipment List with respect to the conduct of flight operations

8.14 Procedures and instructions for the usage of the Operator's Configuration Deviation List with respect to the conduct of flight operations

## **9. N/A**

## **10. Aircraft protection**

Protective measures and security procedures against unlawful interference

## **11. Handling, notifying and reporting occurrences**

Procedures for the handling, notifying and reporting occurrences

## **12. Rules of the air**

12.1 Visual and instrument flight rules

12.2 Territorial application of the Rules of the Air

12.3 Communication procedures including communication failure procedures

12.4 Information and instructions relating to the interception of civil and military aircraft

12.5 The circumstances in which a radio listening watch is to be maintained

12.6 Signals

12.7 Time system used in operation;

12.8 ATC clearances, adherence to flight plan and position reports

12.9 Visual signals used to warn an unAuthorised aircraft flying in or about to enter a restricted, prohibited or danger area

12.10 Procedures for pilots observing an accident or receiving a distress transmission

12.11 The ground and air visual codes for use by survivors, description and use of signal aids

12.12 Distress and urgency signals

## **13. Leasing**

13.1 Required operational arrangements for leasing

13.2 Procedures regarding leasing

13.3 Management responsibilities

13.4 Transfer of aircraft maintenance records

## **14. Documentation**

14.1 Document control process and procedures

14.2 Procedures and instructions for documentation storage

## **15. Appendices**

15.1 Sample documents

15.2 List of sub-contracted Organisations (if applicable)

15.3 List of quality auditors

## **Part B. Aircraft operating matters – type related**

Taking account of the differences between types, and variants of types, under the following headings:

### **0. General information**

- 0.1 Aircraft dimensions
- 0.1 Units of measurement
- 0.2 Conversion tables

### **1. Limitations**

Certified limitations and applicable operational limitations, including:

- Certification status;
- Aircraft related approved types of operation;
- Mass and centre of gravity;
- Speed limitations;
- Flight envelope(s);
- Wind limits;
- Performance limitations for applicable configurations;
- Runway slope;
- Limitations on wet or contaminated runways;
- Airframe contamination;
- System limitations; and
- Environmental limitations.

### **2. Normal procedures**

The normal procedures, the appropriate checklists and use thereof, including at least:

- Pre-flight
- Walkaround;
- (Pre-) Start-up
- Pre-departure;
- Altimeter setting and checking;
- Taxi, take-off and climb;
- Noise abatement;
- Cruise and descent;
- Approach and landing preparation;
- Visual approach and circling;
- Instrument approach;
- Missed approach;
- Normal landing;
- After-landing;
- (Pre-) Shut down; and
- Operation on wet and contaminated runways.

### **3. Abnormal and emergency procedures**

The abnormal and emergency procedures, the appropriate checklists and use thereof, including at least:

- Fire and smoke in the cockpit;
- Rapid decompression;
- Exceeding structural limits such as over G's;
- Lightning strikes;
- Distress communications and alerting ATC to emergencies;
- Engine failure;
- System failures;
- Guidance for diversion;
- Windshear;
- Emergency landing;
- Flame-out patterns and landing;
- Aircraft emergency egress;
- Bail-out and on scene commander duties;
- Departing hardened surface;
- Bird strikes;
- Physiological incident;
- Uncommanded flight manoeuvres;
- Activated EPU;
- Emergency fuel; and
- Icing procedures, to include emergency icing penetrations.

### **4. Performance**

4.1 Performance data including at least

- Aircraft Flight Manual approved performance data; and
- Supplementary performance data.

### **5. Flight planning**

5.1 Data and instructions necessary for pre-flight and in-flight planning

5.2 Method for fuel calculation

### **6. Mass and balance**

6.1 Data and instructions for the calculation of the mass and balance

6.2 Authorised standard configurations

### **7. Loading, reloading, unloading**

Procedures and provisions for loading, reloading and unloading weapons, munitions, expendables and external stores

## **8. Configuration Deviation List**

The Operator's Configuration Deviation List(s), if provided by the manufacturer

## **9. Minimum Equipment List**

The Operator's Minimum Equipment List(s)

## **10. Emergency and survival equipment**

10.1 List of emergency and survival equipment for the applicable operating area's

10.2 Procedures for checking the serviceability of this equipment

## **11 Emergency evacuation procedures**

Procedures and instructions for ground evacuation of aircraft occupants

## **12. Aircraft systems**

Description of aircraft systems, related controls and indications and operating instructions

## **Part C. Detailed instructions and information for standard route, area and aerodrome**

As required by the Operator, this Part C can be used for detailed instructions and information relating to frequently used routes, areas and aerodromes. The following aspects are to be considered:

- Minimum flight level and or altitude;
- Altitude and airspeed restrictions;
- Geographical restrictions;
- Coordination with third parties;
- EMCON;
- Controlling agency requirements;
- Operating minima for departure, destination and alternate aerodromes;
- Communication facilities and navigation aids;
- Runway data and aerodrome facilities;
- Approach, missed approach and departure procedures including noise abatement procedures;
- COM-failure procedures;
- Search and rescue facilities and procedures for the area over which the aircraft is to be flown;
- A description of the aeronautical charts that must be carried on board in relation to the type of flight and the area of operation, including the method to check their validity;
- Availability of aeronautical information and MET-services;
- En-route COM and NAV-procedures;
- Special aerodrome limitations (performance limitations and operating procedures etc.).

## **Part D. Training**

### **1. Training programs, courses, syllabi and checking programs**

- 1.1 Flight crew
- 1.2 Mission essential crew members
- 1.3 Ground staff involved in flight operations other than crew members;
- 1.4 Ground staff involved in crew training and checking;
- 1.5 Ground staff involved in ground operations; and
- 1.6 Ground staff involved in maintenance management.

### **2. Procedures**

- 2.1 Procedures for training and checking
- 2.2 Procedures to be applied in the event that personnel do not achieve or maintain the required standards
- 2.3 Procedures for training and checking of abnormal or emergency situations

### **3. Appendices**

- 3.1 Sample documents and forms
- 3.2 List of training staff
- 3.3 List of checking staff
- 3.4 List of contracted simulator Organisations (if applicable)

## **Part E. Maintenance management**

### **1. Continued airworthiness management procedures**

- 1.1 Aircraft Technical Log utilisation and MEL and CDL application
- 1.2 Aircraft Maintenance Program(s) - development, amendment and approval
- 1.3 Time and continued airworthiness records, responsibilities, retention, access
- 1.4 Accomplishment and control of directives
- 1.5 Analysis of the effectiveness of the maintenance program(s)
- 1.6 Non mandatory modification embodiment policy
- 1.7 Major modification standards
- 1.8 Defect reports
- 1.9 Engineering activities
- 1.10 Reliability programs
- 1.11 Aircraft weighing
- 1.12 Maintenance manual(s) for operational and emergency equipment as far as not being part of the Aircraft Maintenance Program(s) – development, amendment and approval

### **2. N/A**

### **3. Contracted maintenance**

- 3.1 Policies and procedures concerning contracting aircraft maintenance
- 3.2 Maintenance contractor selection procedure
- 3.3 Quality audit of performed aircraft maintenance

### **4. Appendices**

- 4.1 Sample documents, forms and labels
- 4.2 List of contracted maintenance Organisations

## **Part F. Ground operations**

### **1. Ground operations procedures**

- 1.1 Pre-, thru- and post-flight inspections
- 1.2 Loading, reloading and unloading
- 1.3 Refuelling and defuelling
- 1.4 Arming and dearming
- 1.5 De-icing and anti-icing, to include an Operator policy
- 1.6 Aided and unaided aircraft movements on the ground
- 1.7 Handling of emergency aircraft
- 1.8 Emergency evacuation of occupants
- 1.9 Adverse operating conditions, to include an Operator policy
- 1.10 Sub-contracted ground handling functions

### **2. Appendices**

Sample documents, forms and labels

## Appendix 1 to MAR-OPS 2.1065 Document storage - periods

**Table 1 – Information used for the preparation and execution of a flight**

|                                                               |          |
|---------------------------------------------------------------|----------|
| Mission essential information documentation                   | 3 months |
| Documentation required by States concerning a specific flight | 3 months |
| Mass and balance documentation                                | 3 months |

**Table 2 – Reports**

|                                                                                                                                   |          |
|-----------------------------------------------------------------------------------------------------------------------------------|----------|
| Flight registration book                                                                                                          | 3 months |
| Flight report(s) for recording details of any occurrence or any event which the Pilot in Command deems necessary to report/record | 3 months |
| Reports on deviations from MAR-OPS 2 requirements                                                                                 | 3 months |
| RIE request forms and monthly reports of Operator approved RIE's, if applicable                                                   | 3 months |
| Reports on exceedances of duty and or reducing rest periods                                                                       | 3 months |

**Table 3 – Flight crew records**

|                                                      |                                                                                                |
|------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Licence                                              | As long as the flight crew member is exercising the privileges of the licence for the Operator |
| Initial Operator's crew resource management training | 3 years                                                                                        |
| Conversion training: mission qualification training  | 3 years                                                                                        |
| Differences training                                 | 3 years                                                                                        |
| Flight lead qualification training                   | 3 years                                                                                        |
| Tactical instructor qualification training           | 3 years                                                                                        |
| Continuation training and checking                   | 3 years                                                                                        |
| Recent experience                                    | 15 months                                                                                      |

**Table 4 – Records for mission essential crew members**

|                                                                                                                                       |         |
|---------------------------------------------------------------------------------------------------------------------------------------|---------|
| Training/qualification records of mission essential crew members for whom a (qualification) training program is required by MAR-OPS 2 | 3 years |
|---------------------------------------------------------------------------------------------------------------------------------------|---------|

**Table 5 – Aircraft continued airworthiness records**

|                                                                                                                             |                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| All detailed maintenance records in respect of the aircraft, engine (modules) and any life-limited component fitted thereto | 36 months after the aircraft or component was permanently withdrawn from service      |
| The total time and flight cycles as appropriate, of the aircraft and all life-limited components                            | 36 months after the aircraft or component has been permanently withdrawn from service |
| The time and flight cycles as appropriate, since last scheduled maintenance of the component                                | at least until the component scheduled maintenance has                                |

|                                                                                                                                                                    |                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| subjected to a service life limit                                                                                                                                  | been superseded by another scheduled maintenance of equivalent work scope and detail                                                                  |
| The current status of compliance with the maintenance program such that compliance with the approved Operator's Aircraft Maintenance Program(s) can be established | at least until the aircraft or component scheduled maintenance has been superseded by other scheduled maintenance of equivalent work scope and detail |
| The current status of continued airworthiness related directives, requirements and or measures applicable to the aircraft and components                           | 36 months after the aircraft or component has been permanently withdrawn from service                                                                 |
| Details of current modifications, repairs and inspections to, as appropriate, the aircraft, engine(s), propellers, and any other component vital to flight safety  | 36 months after they have been permanently withdrawn from service                                                                                     |
| Aircraft Technical Log                                                                                                                                             | 36 months after the date of the last entry                                                                                                            |

**Table 6 – Aircraft and Organisational documents and manuals**

|                                                                                                 |                                                                                                     |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Military Air Operator Certificate                                                               | As long as the Operator is exercising the privileges of the MAOC                                    |
| The Certificate(s) of Registration                                                              | As long as the aircraft is operated by the Operator                                                 |
| The Certificate(s) of Airworthiness                                                             | As long as the Operator is exercising the privileges of the certificate                             |
| The Noise Certificate(s), if applicable                                                         | As long as the Operator is exercising the privileges of the certificate                             |
| Radio station license(s), if applicable                                                         | As long as the Operator is exercising the privileges of the certificate                             |
| Current version of the approved parts of the Operations Manual (including all amendments to it) | at least until the current version of the OM has been superseded by a new version                   |
| The approved Operator's Aircraft Maintenance Program(s) (including all amendments to it)        | at least until the current version of the maintenance program has been superseded by an new version |
| Applicable agreements with contracted maintenance and or simulator Organisations                | 36 months after expiration of the applicable agreement.                                             |
| Applicable agreements with sub-contracted Organisations                                         | 36 months after expiration of the applicable agreement.                                             |
| Quality monitoring program records                                                              | 36 months                                                                                           |
| Knowledge, experience and competence summary of AM, PH and QM                                   | 36 months after the AM, PH or QM is replaced                                                        |

## **SUBPART T – OPERATIONS REQUIRING SPECIAL APPROVAL**

MAR-OPS 2.1300 Scope

MAR-OPS 2.1315 Privileges of an Operator holding a specific approval

MAR-OPS 2.1330 Operations in areas with specified navigation performance

MAR-OPS 2.1335 Operations in airspace with reduced vertical separation minima

### **MAR-OPS 2.1300 Scope**

(a) The operations described in this subpart go beyond the scope of a basic MAOC approval and are therefore subject to Special Approval from the Military Aviation Authority.

(b) The Operator shall not conduct operations described in this subpart unless a Special Approval has been granted by the Military Aviation Authority (reference MAR-OPS 2 subpart C).

### **MAR-OPS 2.1315 Privileges of an Operator holding a special approval**

An Operator holding a Special Approval shall ensure that the privileges of the Special Approval as specified on the MAOC are included in the Operations Manual.

### **MAR-OPS 2.1330 Operations in areas with specified navigation performance**

(a) Operations in areas with specified navigation performance (SPN).

(1) An Operator shall not operate an aircraft in designated airspace under the terms and conditions applicable to that airspace:

(i) On routes or in accordance with procedures where navigation specifications are established; or

(ii) Based on ICAO Regional Air Navigation Agreement, where minimum navigation performance specifications are established,

unless holding a Special Approval issued by the Military Aviation Authority for this type of operation.

(2) To obtain such Special Approval, an Operator shall:

(i) Demonstrate that the navigation equipment of the aircraft type for which the approval is being applied, meets the required performance in terms of navigation functionality, accuracy, integrity, availability and continuity;

(ii) Establish in the Operations Manual and maintain a training program for the flight crew involved in these operations; and

(iii) Establish in the Operations Manual operating procedures specifying:

- (A) The equipment to be carried, including its operating limitations and appropriate entries in the Minimum Equipment List;
- (B) Flight crew experience requirements;
- (C) Normal procedures;
- (D) Contingency procedures;
- (E) Incident reporting;
- (F) Specific regional operating procedures, in case of MNPS;
- (G) Navigation database integrity, in case of PBN; and
- (H) Maintenance program.

(b) The aircraft equipment for operations in MNPS areas shall comply with the ICAO Regional Air Navigation Agreement.

(c) An Operator shall ensure that a flight does not commence unless the equipment required under this subpart is approved and installed in accordance with MAR-OPS 2.845 sub-paragraph (b) and (c).

**MAR-OPS 2.1335 Operations in airspace with reduced vertical separation minima**

(a) An Operator shall not operate aircraft in designated airspace where a reduced vertical separation minimum of 300 m (1000 ft.) applies above flight level (FL) 290, unless holding a Special Approval issued by the Military Aviation Authority for this type of operation.

(b) To obtain such Special Approval, an Operator shall:

- (1) Demonstrate that the aircraft type, for which the approval is being applied, has been issued with an RVSM airworthiness approval by the Military Aviation Authority in accordance with MAR-21 or equivalent;
- (2) Establish in the Operations Manual and maintain a training program for the flight crew involved in these operations; and

(3) Establish in the Operations Manual operating procedures specifying:

- (i) The equipment to be carried, including its operating limitations and appropriate entries in the Minimum Equipment List;
- (ii) Flight crew experience requirements;
- (iii) Flight planning;
- (iv) Pre-flight procedures;
- (v) Procedures prior to RVSM airspace entry;
- (vi) In-flight procedures;
- (vii) Post-flight procedures;
- (viii) Maintenance program;
- (ix) Incident reporting; and
- (x) Specific regional operating procedures.

(c) In addition to the equipment required by MAR-OPS 2 subpart K and L, aircraft used for operations in RVSM airspace shall be equipped with:

- (1) Two independent altitude measurement systems;
- (2) An altitude alerting system;
- (3) An automatic altitude control system; and
- (4) A Secondary Surveillance Radar (SSR) transponder with altitude reporting system that can be connected to the altitude measurement system in use for altitude control.

(d) An Operator shall ensure that a flight does not commence unless the equipment required under this subpart is approved and installed in accordance with MAR-OPS 2.630 (b) and (c) and MAR-OPS 2.845 sub-paragraph (b) and (c).

## Final clauses

This requirement is known as: MAR-OPS 2 – Military Aviation Requirements Operations 2  
– Fighter operations and is published on the intranet site of the Ministry of Defence.

Hoofddorp, 20 July 2017

Director Military Aviation Authority - The Netherlands



J.P. Apon  
Colonel