



# NORWEGIAN DEFENCE MATERIEL AGENCY

## MILITARY AIRWORTHINESS AUTHORITY – NORWAY

### MAA-NOR Guidance for Occurrence Reporting

#### 1. PURPOSE

This document contains guidance on how MAA-NOR expects regulated organisations to comply with occurrence reporting requirements in EMAR 21, EMAR M, EMAR 145 and *Management and Maintenance Regulation (RMM)*.

#### 2. APPLICABILITY

This guidance document applies to personnel and organisations regulated by MAA-NOR. The document contains guidance for occurrence reporting, limited to occurrences related to airworthiness. Reporting of operational occurrences is not covered in this guidance.

#### 3. RESPONSIBILITY AND AUTHORITY

MAA-NOR is responsible to define the form and manner for Mandatory Occurrence Reporting (MOR).

Regulated organisations are responsible to establish an internal occurrence reporting system, and ensure reporting to MAA-NOR according to relevant requirements, through procedures described in expositions or equivalent quality systems.

#### 4. REPORTING GUIDANCE

##### 4.1. Objective of occurrence reporting

The objective of occurrence reporting is to improve aviation safety by ensuring that relevant safety information is reported, collected, stored, protected, exchanged, disseminated and analysed, and not to attribute blame or liability. MAA-NOR encourage all regulated organisations to enforce just culture principles in all occurrence reporting activities.

##### 4.2. Reporting requirement MOR

Occurrences, related to airworthiness, which endanger flight safety are subject to mandatory occurrence reporting to MAA-NOR in accordance with EMAR 21.A.3A(b), EMAR M.A.202(a), EMAR 145.A.60(a) or RMM D.2.1. Operational occurrences where airworthiness matters are confirmed not to be relevant, are not subject to mandatory reporting to MAA-NOR. Operational occurrences shall be reported according to the operating organisations procedures.

Requirement for Mandatory Occurrence Reporting for legacy systems is stated in Management and Maintenance Regulation RMM D.2.1. It states the NDMA management organisation and all regulated maintenance organisations shall report to MAA-NOR any identified condition of an aircraft or aircraft component which endanger flight safety.

The criteria for which occurrences are subject to mandatory reporting is stated equally in RMM and EMAR; occurrences which endangers flight safety. For commonality between legacy systems and EMAR systems, MAA-NOR expects legacy systems to interpret the RMM D.2.1 reporting requirement equally to reporting requirements in the EMAR M.A.202 (a) and EMAR 145.A.60 (a). Reporting procedures are expected to comply with these requirements.

Note: Reporting an occurrence to MAA-NOR will not satisfy any reporting requirements other than those listed above.

All regulated organisations (regardless of EMAR or legacy quality system) shall submit MOR to MAA-NOR.

MOR shall be produced and submitted to MAA-NOR within 72 hours of the organisation identifying the condition to which the report relates.

EMAR 145 edition 1.2 (04.10.2016) and EMAR M edition 1.0 (12.10.2015) does not require follow-up reports to be sent to National Military Airworthiness Authority, however MAA-NOR encourage all reporting organisations to send follow-up reports for all occurrences classified as MOR. Requirements for follow-up reports expected introduced with EMAR CAMO in 2023.

### 4.3. Reporting requirement VOR

Requirements for internal reporting systems, for collection of Voluntary Occurrence Reports (VOR) is stated in EMAR 145.A.60 (b) and EMAR M.A.202 (b) and EMAR 21.A.3A (a). Further guidance on how to comply with these requirements may be found in EMAD 20-8 and EASA 20-8. Legacy systems are expected to comply with relevant legacy requirements and procedures for reporting of occurrences, in addition to reporting of MOR according to the requirement stated in RMM.

### 4.4. Reporting procedures

Procedures for MOR shall be included in all regulated organisations expositions, or equivalent quality systems. Such procedure should include:

- Responsibilities
- Reporting requirements
- Format
- Content
- Time limits
- Communication with MAA-NOR

Procedures for internal occurrence reporting are expected to comply with relevant EMAR or legacy regulations/requirements as referenced in 4.3. MAA-NOR has not issued any further guidance on how to design such procedures.

#### 4.4.1. Responsibilities

Procedures should clearly state who is responsible to report to the authority. Reports should be written by personnel with sufficient knowledge of the occurrence, and sufficient technical knowledge.

#### 4.4.2. Reporting requirements

Procedures are expected to clearly state the reporting requirements described in 4.2 of this document, including the criteria for which occurrences are subject to mandatory occurrence reporting.

#### 4.4.3. Format

Standard format for MOR is MAA-NOR Form 44 (FMA-LUF-MAL-436) which may be found at [www.maanor.no](http://www.maanor.no), under [Occurrence report](#). Action Request (AR), Material Deficiency Report (MDR) and Remedy FOB format is also accepted, provided required content as specified in 4.4.4 is included.

Remark: MDR and the format exported from AR is accepted as reporting format, however such reports are submitted by email as described in 4.4.6 of this document. Reports may be sent to MAA-NOR via the Remedy FOB system.

The language in MOR is English or Norwegian, preferably English. Abbreviations and complex technical terms should be explained to reduce the level of system specific knowledge needed to understand reports.

#### 4.4.4. Content

When completing MAA-NOR Form 44, data should be entered to all relevant data fields. Completion guidance for MAA-NOR Form 44 is included in annex B to this document. The content of occurrence reports should be sufficient to support the identification of unsafe conditions, including possible consequences of defects or errors. No personal details should be included in reports. The amount of information should be commensurate with the severity of the occurrence.

Regardless of reporting format, the minimum content of a report, according to EMAD 20-8<sup>1</sup>, is:

- Organisation name
- Approval reference (if relevant)
- Information necessary to identify the aircraft or part affected
- Date and time if relevant<sup>2</sup>
- A written summary of the occurrence
- Any other specific information required

---

<sup>1</sup> Referenced from EASA AMC 20-8

<sup>2</sup> Date and time relative to any life or overhaul limitation in terms of flying hours/cycles/landings etc. as appropriate

Furthermore, for any occurrence involving a system or component, which is monitored or protected by a warning and/or protection system (for example: fire detection/extinguishing), the occurrence report should always state whether such system(s) functioned properly.

#### 4.4.5. Time limits

Reports shall be made as soon as practicable, but in any case within 72 hours of the organisation identifying the condition to which the report relates.

#### 4.4.6. Communication with the MAA-NOR

Reports are sent to MAA-NOR by e-mail either unclassified to [occurrence.maa-nor@mil.no](mailto:occurrence.maa-nor@mil.no), or classified (BEGRENSET) to "FMA LUFTKAP NML OCCURRENCE REPORT" ([ressurs\\_009022@mil.no](mailto:ressurs_009022@mil.no)). Furthermore, reports may be sent via the Remedy FOB system by checking the "EMAR MOR box" in the tab "Teknisk informasjon". If MAA-NOR needs further information or have any instructions on how to address an occurrence MAA-NOR will contact the reporting organisation.

### 4.5. Maintenance Organisation Exposition structure

MAA-NOR expects to find reporting to the authority (MOR) described in MOE subchapter 2.18.2, and internal occurrence reporting described in 2.18.1 according to EMAR 145 AMC&GM appendix V. If needed, subchapter 2.18.3 etc. should be assigned for other reporting descriptions.

### 4.6. Continuing Airworthiness Management Exposition structure

EMAR M AMC&GM does not designate a specific subchapter to MOR. MAA-NOR expects to find description of MOR in a separate subchapter, clearly designated to MOR.

### 4.7. Occurrence classification

The general reporting requirement as stated in the EMAR requirements is stated in 4.2 of this document, however classification of an occurrence as MOR or VOR may occasionally be challenging or subject to personal judgement.

EMAR AMC M.A.202 (a) states: 'Endanger flight safety' means any instance where safe operation could not be assured or which could lead to an unsafe condition. It typically includes, but is not limited to, significant cracking, deformation, corrosion or failure of primary structure, any evidence of burning, electrical arcing, significant hydraulic fluid or fuel leakage and any emergency system or total system failure. An Airworthiness Directive overdue for compliance is also considered a hazard to flight safety.

To assist classification generic lists of mandatory reportable occurrences are included in annex A to this document.

## 5. REFERENCES

- [1] EMAR 21, ed. 2.0
- [2] EMAR M, ed. 1.0
- [3] EMAR 145, ed. 1.2
- [4] EMAD 20, ed. 1.0
- [5] EASA AMC 20-8, amendment 22
- [6] Management and Maintenance Regulation (RMM), rev. 2.0

All referenced documents are published in [FOBID](#).

## 6. DEFINITIONS

**Endanger flight safety** (EMAR AMC M.A.202 (a)): Any instance where safe operation could not be assured, or which could lead to an unsafe condition. It typically includes, but is not limited to, significant cracking, deformation, corrosion or failure of primary structure, any evidence of burning, electrical arcing, significant hydraulic fluid or fuel leakage and any emergency system or total system failure. An Airworthiness Directive overdue for compliance is also considered a hazard to flight safety.

**Occurrence** (EMAD1): Any failure, malfunction, defect or other occurrence which has resulted in, or may result in an unsafe condition.

**MOR**: Mandatory Occurrence Report. Report of occurrence reportable according to EMAR 21.A.3A(b), EMAR M.A.202(a) or EMAR 145.A.60(a).

**VOR**: Voluntary Occurrence Report. Report of occurrence not subject to reporting requirement according to EMAR 21.A.3A(b), EMAR M.A.202(a) or EMAR 145.A.60(a)

## ANNEX A

These lists are compiled from EASA AMC 20-8, EMAD 20-8 and Regulation (EU) No 2015/1018. Operational occurrences are left out of the lists, since only occurrences relevant to airworthiness is reportable to MAA-NOR. Procedures and documentation of the operating organisation should be consulted for reporting of occurrences with no airworthiness relevance.

### AIRCRAFT TECHNICAL

#### A. Structural

Not all structural failures need to be reported. Engineering judgement is required to decide whether a failure is serious enough to be reported. The following examples can be taken into consideration:

1. Damage to a Principal Structural Element that has not been qualified as damage tolerant (life limited element). Principal Structural Elements are those which contribute significantly to carrying flight, ground, and pressurisation loads, and whose failure could result in a catastrophic failure of the aircraft.
2. Defect or damage exceeding admissible damages to a Principal Structural Element that has been qualified as damage tolerant.
3. Damage to or defect exceeding allowed tolerances of a structural element which failure could reduce the structural stiffness to such an extent that the required flutter, divergence or control reversal margins are no longer achieved.
4. Damage to or defect of a structural element, which could result in the liberation of items of mass that may injure occupants of the aircraft.
5. Damage to or defect of a structural element, which could jeopardize proper operation of systems. See paragraph B. below.
6. Loss of any part of the aircraft structure in flight.
7. Hot bleed air leak resulting in structural damage.

#### B. Systems

The following generic criteria applicable to all systems are proposed:

1. Loss, significant malfunction or defect of any system, subsystem or set of equipment when standard operating procedures, drills etc. could not be satisfactorily accomplished.
2. Inability of the crew to control the system, e.g.:
  - a. uncommanded actions;
  - b. incorrect and or incomplete response, including limitation of movement or stiffness;
  - c. runaway;
  - d. mechanical disconnection or failure.
3. Failure or malfunction of the exclusive function(s) of the system (one system could integrate several functions).
4. Interference within or between systems.
5. Failure or malfunction of the protection device or emergency system associated with the system.
6. Loss of redundancy of the system.
7. Any occurrence resulting from unforeseen behavior of a system.
8. For aircraft types with single main systems, subsystems or sets of equipment: Loss, significant malfunction or defect in any main system, subsystem or set of equipment.
9. For aircraft types with multiple independent main systems, subsystems or sets of equipment: The loss, significant malfunction or defect of more than one main system, subsystem or set of equipment
10. Operation of any primary warning system associated with aircraft systems or equipment unless the crew conclusively established that the indication was false provided that the false warning did not result in difficulty or hazard arising from the crew response to the warning.
11. Leakage of hydraulic fluids, fuel, oil or other fluids which resulted in a fire hazard or possible hazardous contamination of aircraft structure, systems or equipment, or risk to occupants.
12. Malfunction or defect of any indication system when this results in the possibility of misleading indications to the crew.
13. Any failure, malfunction or defect if it occurs at a critical phase of flight and relevant to the operation of that system.
14. Occurrences of significant shortfall of the actual performances compared to the approved performance which resulted in a hazardous situation (taking into account the accuracy of the performance calculation method) including braking action, fuel consumption etc.
15. Abnormal functioning of flight controls such as asymmetric or stuck/jammed flight controls (for example: lift (flaps/slats), drag (spoilers), attitude control (ailerons, elevators, rudder) devices). Fuel system malfunctions or defects, which had an effect on fuel supply and/or distribution.

16. Fuel system malfunctions or defects, which had an effect on fuel supply and/or distribution.
17. Failure of any emergency system or equipment, including all exit doors and lighting, to perform satisfactorily, including when being used for maintenance or test purposes.
18. Significant malfunction, reliability issue, or recurrent recording quality issue affecting a flight recorder system (such as a flight data recorder system, a data link recording system or a cockpit voice recorder system) or lack of information needed to ensure the serviceability of a flight recorder system.

#### **C. Propulsion (including Engines, Propellers and Rotor Systems) and APUs**

1. Flameout, shutdown or malfunction of any engine.
2. Overspeed or inability to control the speed of any high speed rotating component (for example: Auxiliary power unit, air starter, air cycle machine, air turbine motor, propeller or rotor).
3. Failure or malfunction of any part of an engine or powerplant resulting in any one or more of the following:
  - a. non containment of components/debris;
  - b. uncontrolled internal or external fire, or hot gas breakout;
  - c. thrust in a different direction from that demanded by the pilot;
  - d. thrust reversing system failing to operate or operating inadvertently;
  - e. inability to control power, thrust or rpm;
  - f. failure of the engine mount structure;
  - g. partial or complete loss of a major part of the powerplant;
  - h. Dense visible fumes or concentrations of toxic products sufficient to incapacitate crew or passengers;
  - i. inability, by use of normal procedures, to shutdown an engine;
  - j. inability to restart a serviceable engine.
4. An uncommanded thrust/power loss, change or oscillation which is classified as a loss of thrust or power control (LOTG):
  - a. for a single engine aircraft; or
  - b. where it is considered excessive for the application, or
  - c. where this could affect more than one engine in a multi-engine aircraft, particularly in the case of a twin engine aircraft; or
  - d. for a multi engine aircraft where the same, or similar, engine type is used in an application where the event would be considered hazardous or critical.
5. Any defect in a life-controlled part causing retirement before completion of its full life.
6. Defects of common origin which could cause an in-flight shut down rate so high that there is the possibility of more than one engine being shut down on the same flight.
7. An engine limiter or control device failing to operate when required or operating inadvertently.
8. exceedance of engine parameters.
9. FOD resulting in damage.

#### Propellers and - transmission

10. Failure or malfunction of any part of a propeller or powerplant resulting in any one or more of the following:
  - a. an overspeed of the propeller;
  - b. the development of excessive drag;
  - c. a thrust in the opposite direction to that commanded by the pilot;
  - d. a release of the propeller or any major portion of the propeller;
  - e. a failure that results in excessive unbalance;
  - f. the unintended movement of the propeller blades below the established minimum in-flight low-pitch position;
  - g. an inability to feather the propeller;
  - h. an inability to command a change in propeller pitch;
  - i. an uncommanded change in pitch;
  - j. an uncontrollable torque or speed fluctuation;
  - k. The release of low energy parts.

#### Rotors and -transmission

11. Damage or defect of main rotor gearbox / attachment which could lead to in flight separation of the rotor assembly, and /or malfunctions of the rotor control.
12. Damage to tail rotor, transmission and equivalent systems.

#### APUs

13. Shut down or failure when the APU is required to be available by operational requirements, e.g. MEL.
14. Inability to shut down the APU.
15. Overspeed.
16. Inability to start the APU when needed for operational reasons.

#### **D. Damages/defects**

1. Any damage or deterioration (i.e. fractures, cracks, corrosion, delamination, disbonding etc.) resulting from any cause (such as flutter, loss of stiffness or structural failure) to:
  - a. primary structure or a principal structural element (as defined in the manufacturers' Repair Manual) where such damage or deterioration exceeds allowable limits specified in the Repair Manual and requires a repair or complete or partial replacement of the element;
  - b. secondary structure which consequently has or may have endangered the aircraft; the engine, propeller or rotorcraft rotor system.
2. Any defect in a life controlled part causing retirement before completion of its full life.
3. Any failure, malfunction or defect of any system or equipment, or damage or deterioration found as a result of compliance with an Airworthiness Directive or other mandatory instruction issued by a Regulatory Authority, when:
  - a. it is detected for the first time by the reporting organisation implementing compliance;
  - b. on any subsequent compliance where it exceeds the permissible limits quoted in the instruction and/or published repair/rectification procedures are not available.
4. Serious damage to Electrical Wiring Interconnection System (EWIS).
5. Identified burning, melting, smoke, arcing, overheating or fire occurrences.

#### **E. Other Occurrences**

1. Any occurrence where the human performance, including fatigue of personnel, has directly contributed to or could have contributed to an accident or a serious incident.
2. An occurrence not normally considered as reportable (for example, furnishing and cabin equipment, water systems), where the circumstances resulted in endangering of the aircraft or its occupants.
3. A fire, explosion, smoke or toxic or noxious fumes.
4. Any other event which could hazard the aircraft, or affect the safety of the occupants of the aircraft, or people or property in the vicinity of the aircraft or on the ground.
5. Failure or defect of passenger address system resulting in loss or inaudible passenger address system.
6. Loss of pilots seat control during flight.
7. Aircraft self-damage due to weapon release or detonation, including defensive aids;
8. External load malfunctions that led or could have led to a hazardous or catastrophic event

#### **DESIGN**

1. Any failure, malfunction, defect or other occurrence related to a product, part, or appliance which has resulted in or may result in an unsafe condition.
2. Any incident where any feature or inadequacy of the aircraft design could have led to an error of use that could contribute to a hazardous or catastrophic effect.

#### **MANUFACTURING**

1. Products, parts or appliances released from the production organisation with deviations from applicable design data that could lead to a potential unsafe condition as identified with the holder of the type-certificate or design approval.

#### **CONTINUING AIRWORTHINESS MANAGEMENT**

1. Products, parts, appliances and materials of unknown or suspect origin.
2. Incorrect control or application of aircraft maintenance limitations or scheduled maintenance
3. Wrong assessment of a serious defect, or serious non-compliance with MEL and Technical logbook procedures.

#### **AIRCRAFT MAINTENANCE**

1. Incorrect assembly of parts or components of the aircraft found during an inspection or test procedure not intended for that specific purpose.
2. Noncompliance or significant errors in compliance with required maintenance procedures.
3. Misleading, incorrect or insufficient applicable maintenance data or procedures that could lead to significant maintenance errors, including language issue.
4. Failure, malfunction or defect of ground equipment used for test or checking of aircraft systems and equipment when the required routine inspection and test procedures did not clearly identify the problem when this results in a hazardous situation.

5. Releasing an aircraft to service from maintenance in case of any non-compliance which endangers the flight safety.
6. Serious damage caused to an aircraft during maintenance activities due to incorrect maintenance or use of inappropriate or unserviceable ground support equipment that requires additional maintenance actions.
7. Foreign Objects (FO) or loose articles in areas where they dangerously interfere with aircraft operation and system functions, such as cockpits equipped with ejection seats

### **Reportable occurrences to specific systems**

1. Air conditioning/ventilation
  - a. complete loss of avionics cooling
  - b. depressurisation
2. Autoflight system
  - a. failure of the autoflight system to achieve the intended operation while engaged
  - b. significant reported crew difficulty to control the aircraft linked to autoflight system functioning
  - c. failure of any autoflight system disconnect device
  - d. Uncommanded autoflight mode change
3. Communications
  - a. failure or defect of passenger address system resulting in loss or inaudible passenger address
  - b. total loss of communication in flight
4. Electrical system
  - a. loss of one electrical system distribution system (AC or DC)
  - b. total loss or loss of more than one electrical generation system
  - c. failure of the backup (emergency) electrical generating system
5. Cockpit/Cabin/Cargo
  - a. pilot seat control loss during flight
  - b. interferences between the pilot seat and his flying gear, which cannot be compensated by the seat controls and which could result in a risk situation in flight
  - c. failure of any emergency system or equipment, including emergency evacuation signaling system, all exit doors , emergency lighting, etc.
  - d. loss of retention capability of the cargo loading system, including external loads
6. Fire protection system
  - a. fire warnings, except those immediately confirmed as false
  - b. undetected failure or defect of fire/smoke detection/protection system, which could lead to loss or reduced fire detection/protection
  - c. absence of warning in case of actual fire or smoke
7. Flight controls
  - a. Asymmetry of flaps, slats, spoilers etc.
  - b. limitation of movement, stiffness or poor or delayed response in the operation of primary flight control systems or their associated tab and lock systems
  - c. flight control surface run away
  - d. flight control surface vibration felt by the crew
  - e. mechanical flight control disconnection or failure
  - f. significant interference with normal control of the aircraft or degradation of flying qualities
  - g. switch to flight control degraded mode without any identified cause
  - h. flight outside the flight envelop normally protected by the fly by wire controls, except if it can be considered as normal as a result of a prior switch to degraded mode
8. Fuel system
  - a. fuel quantity indicating system malfunction resulting in total loss or erroneous indicated fuel quantity on board
  - b. leakage of fuel which resulted in major loss, fire hazard, significant contamination, malfunction or defects of the fuel jettisoning system which resulted in inadvertent loss of significant quantity, fire hazard, hazardous contamination of aircraft equipment or inability to jettison fuel
  - c. fuel system malfunctions or defects which had a significant effect on fuel supply and/or distribution including during and after the air to air refueling phase; exceedance of fuel imbalance limits
  - d. inability to transfer or use total quantity of usable fuel
9. Hydraulics
  - a. loss of one hydraulic system (extended range operations only)
  - b. failure of the isolation system to operate
  - c. loss of more than one hydraulic circuit

- d. failure of the backup hydraulic system
  - e. inadvertent Ram Air Turbine extension
  - f. failure of an equipment (except indicating system) or hydraulic leakage which resulted in total or partial loss of the hydraulic circuit.
10. Ice detection/protection system
- a. undetected loss or reduced performance of the anti-ice/de-ice system
  - b. loss of more than one of the probe heating systems
  - c. inability to obtain symmetrical wing de icing
  - d. abnormal ice accumulation leading to significant effects on performance or handling qualities
  - e. crew vision significantly affected
11. Indicating/warning/recording systems
- a. malfunction or defect of any indicating system when the possibility of significant misleading indications to the crew could result in an inappropriate crew action on an essential system
  - b. loss of a red warning function on a system
  - c. for glass cockpits: loss or malfunction of more than one display unit or computer involved in the display/warning function
  - d. failure resulting to a lasting misinterpretation or incomprehension of the configuration, performances or status of the automatisms of the aircraft
12. Landing gear system/brakes/tyres
- a. brake fire
  - b. significant loss of braking action
  - c. unsymmetrical braking leading to significant path deviation
  - d. failure of the L/G free fall extension system (including during scheduled tests)
  - e. unwanted gear or gear doors extension/retraction
  - f. multiple tyres burst
  - g. untimely braking
  - h. significant path deviation due a nose-wheel steering system problem
  - i. failure of the landing gear emergency system (including during programmed tests)
13. Navigation systems (including precision approaches system) and air data systems
- a. total loss or multiple navigation equipment failures
  - b. total failure or multiple air data system equipment failures
  - c. significant misleading indication
  - d. Significant navigation errors attributed to incorrect data or a database coding error
  - e. Unexpected deviations in lateral or vertical path not caused by pilot input.
  - f. Problems with ground navigational facilities leading to significant navigation errors not associated with transitions from inertial navigation mode to radio navigation mode.
14. Oxygen
- a. for pressurised aircraft: loss of oxygen supply in the cockpit
  - b. loss of oxygen supply to a significant number of passengers (more than 10%), including when found during maintenance or training or test purposes
  - c. events requiring any use of emergency oxygen by any crew member
15. Bleed air system
- a. hot bleed air leak resulting in fire warning or structural damage
  - b. loss of all bleed air systems
  - c. failure of bleed air leak detection system
16. Ejection device:
- a. malfunction of the ejection seat or of associated devices (leg restraint straps, etc.) or any abnormal finding about them
  - b. abnormal contacts (with instrument panel, consoles, canopy, etc.) during the ejection
  - c. abnormal injuries following the use of the ejection seat
  - d. malfunction of the device for severing the canopy or any abnormal finding about them
17. Night vision devices
- a. Interferences or ergonomics issues of night vision goggles associated with other pilot equipment which resulted in risks situations
  - b. optical disturbance caused by aircraft equipment normally low-light treated
18. Military Aircrew equipment
- a. unsatisfactory functioning or inadequate ergonomics of the oxygen breathing mask and the supply hose



- b. unsatisfactory pressurization of the anti-g trousers
  - c. survival equipment interfering with the handling, accessibility or visibility of the flight controls or the recording/warning/information systems.
19. Air-to-air refueling equipment
- a. rupture of the refueling probe or of a part of it
  - b. fuel leakage or failure to shut of fuel flow, where it resulted or could have resulted in hazardous or catastrophic events (fuel ingestion for the refueled aircraft, visibility degradation, etc.)
  - c. sealing loss in the fuel system further to air-to-air refueling operations
  - d. collision between a receiver aircraft and parts of the AAR-System which separated from the tanker aircraft, with or without ingestion of the element by the air intake
  - e. untimely jettisoning of the refueling hose
20. Self-protection devices
- a. malfunctions of safety relevant aircraft equipment during the operation of the self-protection device(s)
  - b. untimely deployment or firing of decoys
  - c. any failure to safety pins and other means to secure self-protection systems, that resulted or may have resulted in unintentional deployment or firing
21. Airlift, airdrop, air roping
- a. any failure or incident related to cargo stowage and securing equipment, such as unusual load shifting
22. Stores and store devices
- a. unusual / unexpected wear or degradation of stores attachments and fittings
  - b. firing anomalies, such as "hot missiles"
  - c. malfunction of the emergency store separation
  - d. firing incident on weapons such as gun, rockets, machine gun which could result in catastrophic or hazardous consequences for the aircraft
23. Hoist
- a. findings or interference with the airframe within the normal operation limits
  - b. anomalies associated with the shearing devices, including in emergency devices
  - c. anomalies of structural integrity (cracks)
  - d. anomaly on the cable bearing the load
  - e. operation anomaly or locking of mechanisms
24. UAS specific systems / Equipment
- a. unavailability of C2 data link within the regular data link envelope
  - b. technical failures and malfunction within a Remote-Control Station with impact on the flight operation safety
  - c. unexpected flight termination including, controlled crash, emergency parachute deployment, etc.

## Completion guidance – MAA-NOR Form 44

These completion instructions relate to the use of MAA-NOR Form 44 Occurrence Report Form for the reporting of occurrences to MAA-NOR. Depending on the information available at the time an occurrence report is filled in, please enter data to as many data fields as possible. If the report contains restricted information, the appropriate classification level shall be indicated in the designated data field in the upper right corner of the report form.

### 1. REFERENCE INFORMATION

- 1.1. **Reporting organisation** – Name of the reporting organisation (or person), country/site of the occurrence, and the EMAR approval reference number (if relevant).
- 1.2. **Date of the occurrence** – Date when the occurrence was discovered by reporting organisation.
- 1.3. **Internal reference** – Reference number of internal report, and reference to internal reporting system (e.g. Remedy FOB, MDR etc.)
- 1.4. **Name and employee number of submitter** – Point of contact within the reporting organisation for this occurrence, and employee number if relevant.
- 1.5. **Telephone no.** – Telephone number, including country code.
- 1.6. **E-mail address** – Complete e-mail address.

### 2. REPORT TYPE

- 2.1. **Initial occurrence notification only** (follow-up report required) – Mark this box if the report is the first notification of the occurrence to MAA-NOR. Such notification should be followed up at a later stage with investigation results (report type 2.3)
- 2.2. **Notification of occurrence with complete investigation results** – Mark this box if the report includes both initial notification and complete investigation results (10.1 and 10.2). Note: Do not delay notification to include investigation results.
- 2.3. **Follow-up report, with investigation results, on earlier notification** – Mark this box if the report includes investigation results for an earlier submitted notification. Preferably amend initial notification file, including the occurrence details. The occurrence details may be amended/elaborated.

### 3. DETECTION PHASE AND NOTIFICATION

- 3.1. **Detection Phase Maintenance** – Mark the relevant box(es) to indicate when the detection of the failure, malfunction or other occurrence took place.
- 3.2. **Parties informed** – Indicate which entities has been informed of this occurrence in addition to MAA-NOR.  
*Design organisation (or equivalent)* is interpreted as Military Type Certificate Holder, design organisation, coordinating design organisation or other organisation responsible for the design in question.  
*State of A/C registry (foreign)* is interpreted as the military aviation authority, the military airworthiness authority or other appropriate authority in the state of aircraft registry, when airworthiness tasks are performed on foreign aircraft by the approved organisation.  
*Safety investigation authority (SHK)* is interpreted as the national safety investigation authority (Statens Havarikommisjon).  
 Remark: An entity is considered informed when appropriate personnel in the entity is notified in writing, or a report is filed to the entity according to applicable reporting procedures.

### 4. AIRCRAFT INFORMATION

This block contains information on the aircraft involved. In case there is no aircraft involved, this block does not need to be filled.

- 4.1. **Aircraft Manufacturer and Type/Model** – Aircraft manufacturer and type/model of the involved aircraft.
- 4.2. **Aircraft Serial Number** – The serial number of the involved aircraft.
- 4.3. **Operator / Owner** – Name of the operator or owner of the involved aircraft.
- 4.4. **Aircraft registration** – Registration mark of the involved aircraft.
- 4.5. **Aircraft Usage Details** – Information on the usage details of the aircraft in total time and total cycles since new, overhaul and inspection or defect found.

## 5. DEFECTIVE COMPONENT

This block contains information on the component involved. In case there is no component involved, this block does not need to be filled. In case there is more than one component involved, provide information about the most relevant component in 5, and information about other components under 8.4 "Description of Occurrence".

- 5.1. **Manufacturer + Address** – Name and address of the component manufacturer.
- 5.2. **IPC (Illustrated Part Catalogue) Name** – Name of the component, as provided in the Illustrated Part Catalogue or other manufacturer documentation.
- 5.3. **Type number** – Type number of the component.
- 5.4. **Part number** – Part number of the component. Also specify the amendment level, when relevant.
- 5.5. **Serial number** – Serial number of the component.
- 5.6. **ATA no.** – Ata chapter of the component (2 digits)
- 5.7. **(E)TSO no.** – Reference of the TSO or ETSO approval of the component, or the reference of another national equipment approval, when relevant.
- 5.8. **Time since new** – Usage time of the component since new.
- 5.9. **Cycles since new** – Cycles of the component since new.
- 5.10. **Date of manufacture** – Date of manufacture of the component.
- 5.11. **Time since overhaul** – Usage time of the component since overhaul.
- 5.12. **Cycles since overhaul** – Cycles of the component since overhaul.
- 5.13. **Date of overhaul** – Date of last overhaul of the component.
- 5.14. **Time since repair/inspection** – Usage time of the component since last repair/inspection.
- 5.15. **Cycles since repair/inspection** – Cycles of the component since last repair/inspection.
- 5.16. **Date of repair/inspection** – Date of the last repair/inspection.

## 6. CAUSE OF DEFECT / DEFECTIVE PART CONDITION

Mark the box(es) that best summarises the current knowledge available on the cause of the occurrence. Multiple choice is possible.

- 6.1. **Design** – The cause is related to design.
- 6.2. **Production** – The cause is related to the manufacturing/production process.
- 6.3. **Inadequate maintenance** – The cause is related to inadequate maintenance.
- 6.4. **Operational** – The cause is related to operational factors or exceedance of limitations.
- 6.5. **Fatigue** – The cause is structural fatigue of the material.
- 6.6. **Corrosion** – The cause is corrosion of the material.
- 6.7. **Unapproved parts** – The defective part was unapproved.
- 6.8. **Human factors** – The cause is related to human factors and human performance issues e.g. related to human capabilities and limitations on the interface between human and other system components in the field of design, certification, training, operations or maintenance. Example factors are human-machine interface, organisational and staffing factors, training, procedures, responsibilities, and communication.
- 6.9. **Airworthiness management error** – The cause is related to errors or inadequacies in airworthiness management.
- 6.10. **Regulatory inadequacy** – The cause is related to inadequacies in relevant regulations.
- 6.11. **Procedural inadequacy** – The cause is related to inadequacies in relevant procedures.
- 6.12. **Unknown** – The cause is unknown or not yet determined.
- 6.13. **Other, specify:** - The cause is related to other factors than the categories listed categories. Specify the cause in text.
- 6.14. **Part condition, specify:** - The cause is related to condition of a part, other than the categories listed. Specify the condition in text.

**Most significant cause:** - State the one most significant cause of the categories (6.1 – 6.14) listed above, when more than one cause is marked.

## 7. SYSTEM MONITORING

Mark one box to indicate if warning and/or protection systems functioned properly or not, or mark not applicable.

## 8. OCCURRENCE DETAILS

Details clearly identifying all relevant aspects of the occurrence. When submitting a follow-up report (checkbox 2.2 marked) to earlier notification, the details may be amended/elaborated.

- 8.1. **Place / Location of occurrence** – Details to clearly identify where the occurrence took place or was detected.

- 8.2. **Did the occurrence endanger flight safety** – Mark a box to indicate whether or not the occurrence did endanger flight safety (with reference to EMAD 20-8 / EASA AMC 20-8). If “No”, state the reason for still submitting the report to MAA-NOR at the beginning of block 8.4 “Description of Occurrence”.
- 8.3. **Occurrence title** – Short and descriptive title of the reported occurrence.
- 8.4. **Description of Occurrence** – Free text field to include, as a minimum, a written summary of the occurrence and any other specific information required. The amount of information in the description should be commensurate with the severity of the occurrence. If the form does not allow enough space for the description, consider sending it as an attachment to the report and state the file name of the attachment in block 8.4 and 9.2.

## 9. ATTACHMENTS

- 9.1. **Sketch(es)** – Specify filename(s) of attached sketch(es)
- 9.2. **Report(s)** – Specify filename(s) of attached report(s)
- 9.3. **Photo(s)** – Specify filename(s) of attached photo(s)
- 9.4. **Other** – Specify filename(s) of other attachment(s)

## 10. OCCURRENCE INVESTIGATION

- 10.1. **OCCURRENCE ASSESSMENT AND ROOT CAUSE ANALYSIS** – Free text field to describe the assessment/analysis process of the occurrence, and the conclusion of the root cause analysis. If the form does not allow enough space for the description, consider sending it as an attachment to the report and state the file name of the attachment in block 10.1 and 9.2.
- 10.2. **CORRECTIVE ACTIONS** – Corrective actions the reporting organisation is planning to implement to eliminate or mitigate the root cause(s) and prevent the recurrence of the occurrence.