

MEL

Gör rätt från början

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Sektionen för helikopter och allmänflyg

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Kan utrustning som krävs enligt Del-SPO få finnas med i MEL?

SPO.IDE.A.105 Minimum equipment for flight

A flight shall not be commenced when any of the aeroplane's instruments, items of equipment or functions required for the intended flight are inoperative or missing, unless either of the following conditions is fulfilled:

(a) the aeroplane is operated in accordance with the minimum equipment list (MEL)

MEL när?

GM1 ORO.MLR.105(a)

a) The Minimum Equipment List (MEL) is a document that lists the equipment that may be temporarily inoperative, subject to certain conditions, at the commencement of flight.

AMC2 ORO.MLR.105(d)(3)

EXTENT OF THE MEL

The operator should include guidance in the MEL on how to deal with any failures that occur between the commencement of the flight and the start of the take-off.

MEL till MMEL

ORO.MLR.105

(j) Subject to a specific case-by-case approval by the competent authority, the operator may operate an aircraft with inoperative instruments, items of equipment or functions outside the constraints of the MEL but within the constraints of the MMEL, provided that:

(3) a description of specific duties and responsibilities for controlling the operation of the aircraft under such approval is established by the operator;

MEL RIE

ORO.MLR.105(f)

Subject to approval of the competent authority, the operator may use a procedure for the one time extension of category B, C and D rectification intervals, provided that:

(1) the extension of the rectification interval is within the scope of the MMEL for the aircraft type;

Kassa MEL-exempel

- “One or more may be inoperative”, finns 1 installerad
- ”May be inoperative”, 1 installerad och 1 krävs för dispatch
- Installerad: “-”
- “May be inoperative provided alternate procedures are established and used”
- “Any in excess of those required by operational regulations may be inoperative”, “May be inoperative provided the system is not required by operational regulations”

Human Factors?

11. Altitude Encoder (If installed)	C	-	0	As required by Operating Requirements.
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34.11	Altitude Encoder	C	1	0	As required by Operating Requirements. -> Refer to OMA 12.1.27
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(O)-procedurer

GM1 ORO.MLR.105(g)

- Operational and maintenance procedures are an integral part of the compensating conditions needed to maintain an acceptable level of safety.
- Normally, operational procedures are accomplished by the flight crew; however, other personnel may be qualified and authorised to perform certain functions.
- Normally, maintenance procedures are accomplished by the maintenance personnel; however, other personnel may be qualified and authorised to perform certain functions in accordance with Commission Regulation (EU) No 1321/2014.

ATA-punkt i MMEL

2. OAT Sensor (AECMA 34-14)	C	2	1	One may be inoperative for VFR provided the ADC associated to the operative OAT sensor is operative
<u>Indication:</u> Master List:				OR
OAT SENSOR DEG	A	2	0	(O) One or both may be inoperative for one or a series of flights under VFR only for the purpose of finishing the mission and subsequently returning directly to a base where repairs or replacements can be made, provided pitot tube heater and static port heater are operative or the helicopter is not operated at any time in known or forecast conditions of visible moisture or precipitation, when the OAT is predicted to be below +5°C
and / or OAT Indication shows ***				

Guidelines i MMEL

34-2.	OAT Sensor	(O)	Procedure to determine OAT and V_{NE}
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Specific operating procedures i MMEL

OAT Sensor	<ul style="list-style-type: none">- V_{NE} is no longer automatically calculated. Backup V_{NE} tables shall be used based on a best estimate of the OAT.- If caution FADEC1 N2 DISAGREE FADEC2 appears, the V_{NE} shall be reduced by 20 kts and aggressive manoeuvres shall be avoided.- If no other means are available to determine OAT in flight, the engine T1 shown on the Status Page will provide an approximate OAT.
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Proceduren ”klipp och klistra”

28-41-00

Fuel Quantity Indicator System

Operating Procedure

1. To achieve a known quantity in the affected tank, the tank may defueled then fueled to a known quantity. It may be completely fueled, or fuel may be transferred out of the tank until it is empty.
2. To track fuel use, operators may use a fuel log or develop their own procedure. This can include matched fuel flow techniques, use of the FMS fuel quantity system or other means.

Får man hitta på MEL-procedurer själv?

AMC1 ORO.MLR.105(g)

- The operational and maintenance procedures referenced in the MEL should be based on the operational and maintenance procedures referenced in the MMEL.
- Modified procedures may, however, be developed by the operator when they provide the same level of safety, as required by the MMEL.
- Modified maintenance procedures should be developed in accordance with Commission Regulation (EU) No 1321/2014.

Fuel Low Level Indicating System

MMEL:

(O) One may be inoperative provided:

Alternate procedures for fuel level monitoring are established and used, and fuel quantity indicating system is operative.

Operational procedure:

- The flight crew must brief on the loss of a low fuel quantity annunciator.
- Prior to flight, the flight crew must review fuel imbalance limitations.
- During aircraft operation the fuel level must be monitored to make sure that adequate fuel is available.

Trim position indicators

MMEL:

(M) (O) May be inoperative provided:

- a) Trim is checked for full range of travel,
- b) Trim operation is not affected, and
- c) Trim is positioned to neutral prior to each departure.

Operational procedure:

Prior to each flight a member of the flight crew must lock the flight controls and verify that the affected system trim tab is in the neutral position.

Trim position indicators

MMEL:

(M) (O) May be inoperative provided:

- a) Trim is checked for full range of travel,
- b) Trim operation is not affected, and
- c) Trim is positioned to neutral prior to each departure.

Maintenance procedure:

1. Lock all flight controls in the neutral position and determine the “zero” reference for the affected system.
2. Using the most current revision of the Maintenance Manual, check for proper rigging of the affected system. (Aileron Trim, Rudder Trim, Elevator Trim).
3. Note the neutral position of the affected system trim tab.
4. Brief the flight crew aurally and visually on the correct trim tab setting.
5. Unlock the flight controls.

Varför saknas MMEL i OSD?

GM No 1 to 21.A.15(d) Application for the approval of operational suitability data – MMEL for ELA1 and ELA2

For ELA1 and ELA2, the applicant may develop a list of the required equipment to be included in the TCDS and/or AFM/POH.

This list, in combination with the equipment required for the flight by the applicable implementing rules for a given type of operations, establishes the list of equipment that must be operative for all flights.

The list of the other installed equipment that may be inoperative constitutes the MMEL.

Utdrag ur MFL OPS 2-2023

Finns ingen MMEL från tillverkaren att tillgå rekommenderas att operatören i första hand använder:

1. Tillverkarens utrustningslista (equipment list) i Pilot's Operating Handbook (POH) eller Aircraft Flight Manual (AFM) om det där framgår vad som kan vara ur funktion,

eller om ingen sådan lista framtagits av tillverkaren:

2. Luftfartsmyndighetens i USA (Federal Aviation Authority, FAA) generiska MMEL för Single Engine Airplanes.

GM1 ORO.MLR.105(a)

(b)[...]If a MMEL established as part of the operational suitability data is not available and items subject to operational requirements are listed in the available MMEL without specific relief or dispatch conditions but only with a reference to the operational requirements, the operator may refer to CS-MMEL or CS-GEN-MMEL guidance material, as applicable, to develop the relevant MEL content for such items.

MEL-ansökan

Man ansöker om godkännande av MEL genom att fylla i och mejla ansökningsblanketten, som finns på Transportstyrelsens hemsida **SPO-regler för specialiserad flygverksamhet** under rubriken ”Kom ihåg följande”, till luftfart@transportstyrelsen.se med kopia till respektive PI.