



Critical Task

Presentatör: **Thomas Nicklasson**

Sjö- och luftfartsavdelningen

Enheten för operatörer, fartyg och luftfartyg

Sektionen för underhålls- och tillverkningsorganisationer

- Commission Regulation (EU) 2015/1536 was issued on of 16 September 2015.

- It introduces **145.A.48 Performance of Maintenance** for maintenance organisations.
- **And 145.A.65(b)** adjusted to be consistent with 145.A.48.

145.A.48 Performance of maintenance

145.A.48(b)

an error capturing method is implemented after the performance of any critical maintenance task.

M.A.402 Performance of maintenance

M.A.402(h)

ensure that an error capturing method is implemented after the performance of any critical maintenance task;

Article 2 – Definitions

(n) “**critical maintenance task**” means a maintenance task that involves the assembly or any disturbance of a system or any part on an aircraft, engine or propeller that, if an error occurred during its performance, could directly endanger the flight safety.

Article 2 – Definitions

kritisk underhållsåtgärd ": en underhållsåtgärd som innebär att montering eller någon störning av ett system eller någon del på ett flygplan, motor eller propeller som, om ett fel uppstod under dess operation, kan direkt äventyra flygsäkerheten .

MOE 2.23 Control of Critical Tasks

This chapter shall identify the list of critical tasks or a process to define critical maintenance tasks.

MOE 2.28 Production planning procedures

Ref AMC 145.A.47

When establishing the production planning.

Try to planned critical task during period when staff are likely to be most alert.

MOE L 2.7 Control of Critical Tasks



Don't forget.

Competence assessment procedure

- Understanding Critical Task?
- Ability to identify and properly plan performance of critical task.
- ***Ref: GM 2 145.A.30(e)***

MOE 2.25

Procedures to detect and rectify maintenance errors

- Error capturing methods chosen by the organization?

MOE 2.25

Procedures to detect and rectify maintenance errors

AMC 145.A.65(b)(3)

Safety and quality policy, maintenance procedures and quality system

- Independent inspections
- Operational check
- Leak check
- Engine run/full power assurance test
- Check flight

What is the difference in ?

- Independent Inspection
- Re-inspection
- Double Inspection
- Required Inspection Item (RII)

What is the difference in ?

- **Independent Inspection:** (AMC M.A.402(a))
- **Reinspection:** AMC 145.A.65(b)
- **Double Inspection:** No description in Part 145/Part M
- **Required Inspection Item (RII):** FAA expression

If you use terms other than what is in the rule or in the AMC.

It must be defined clearly so all parties understand the content.

This applies to both Part 145 and CAMO (customer)

Oil services on an

- Engine
- APU
- CSD/IDG
- Air cycle machine

Critical task?

or

Not a critical task?



Lubrication

Critical task?

Or

Not a critical task?





Critical task

Is this really new?

Critical task
Or
Not a critical task.

Who is responsible ?



How does it look in real life



8.0 CRITICAL SYSTEMS LIST

The practice of performing maintenance on any critical multiple system may present opportunities for error. Maintenance of all multiple critical multiple critical airplane systems at the same time or by the same individual or team presents the potential for similar errors being introduced onto multiple systems. This risk of error can be offset through staggered maintenance, varying maintenance personnel, developing specific processes for critical system maintenance and educating maintenance personnel about critical systems.

System maintenance requirements should be purposely designed to avoid working on critical redundant systems during a single maintenance visit. Additional processes or instructions such as checklists, cross checking working performed, using tooling provided by the airframe manufacturers and engine companies or additional functional tests should be developed for those occasions when such maintenance cannot be avoided during maintenance visits

Boeing has long advocated that operators stagger scheduled maintenance on multiple critical systems such as engines. Boeing has emphasized such recommendations through Service Letter 737-SL-05-004-A. This service letter specifically discusses engines, however, other critical systems exist on the B737. The following B737 critical systems have scheduled maintenance requirements and are included in this section for consideration in the separation of tasks to address multiple system error potential.

- Air Conditioning
- Electrical Power
- Fire Protection
- Fuel
- Hydraulics
- Ice & Rain Protection
- Navigation
- Pneumatics
- Auxiliary Power
- Engines

This list is intended as an aid to help raise awareness for scheduled maintenance on critical systems. This section lists all scheduled maintenance requirements for the above critical systems that specifically require the mechanic to physically break into multiple critical systems (e.g. boroscope or filter changes on both engines). This list is intended to raise airline awareness at the maintenance planning level for critical system maintenance involving multiple similar systems. It provides all scheduled maintenance requirements that are applicable to critical systems and are recommended in the B737 MPD document. New Critical Systems Tasks added to this Approved Maintenance Programme are reviewed for their criticality at implementation and a critical systems review is carried out annually as part of the annual maintenance programme review.

**From Boeing based on service letter:
This risk of error can be offset through staggered maintenance, varying maintenance personnel, developing specific processes for critical system maintenance and educating maintenance personnel about critical systems.**

This list is intended as an aid to help raise awareness for scheduled maintenance on critical systems. This section lists all scheduled maintenance requirements for the above critical systems that specifically require the mechanic to physically break into multiple critical systems (e.g. boroscope or filter changes on both engines). This list is intended to raise airline awareness at the maintenance planning level for critical system maintenance involving multiple similar systems. It provides all scheduled maintenance requirements that are applicable to critical systems and are recommended in the **B737 MPD** document. New Critical Systems Tasks added to this **Approved Maintenance Programme** are reviewed for their criticality at implementation and a critical systems review is carried out annually as part of the **annual maintenance programme review**

MPD ITEM NUMBER	ENGINE APPLICABILITY	TASK DESCRIPTION	TASK LIMITATIONS
72-120-01 / -02	CFMI Model CFM56-7B	Boroscope inspection of the left & right engine stage 1 through 9 HPC blades.	6000 FH/FC OOP Task – Stagger Inspection on each engine so both engines are not inspected at the same time Duplicate Inspection & Idle Leak Check required
72-180-01 / -02	CFMI Model CFM56-7B	Boroscope inspection of the left & right engine combustion chambers.	1600 FC OOP Task – Stagger Inspection on each engine so both engines are not inspected at the same time Duplicate Inspection & Idle Leak Check required
72-190-01 / -02	CFMI Model CFM56-7B	Boroscope inspection of the left & right engine double annular combustion chambers (if installed).	1600 FC OOP Task – Stagger Inspection on each engine so both engines are not inspected at the same time Duplicate Inspection & Idle Leak Check required
72-200-01 / -02	CFMI Model CFM56-7B	Boroscope inspection of the left & right engine HPT nozzles.	1600 FC OOP Task – Stagger Inspection on each engine so both engines are not inspected at the same time Duplicate Inspection & Idle Leak Check required
72-210-01 / -02	CFMI Model CFM56-7B	Boroscope inspection of the left & right engine HPT blades.	1600 FC OOP Task – Stagger Inspection on each engine so both engines are not inspected at the same time Duplicate Inspection & Idle Leak Check required
72-320-01 / -02	CFMI Model CFM56-7B	Detailed inspection of left & right engine AGB/TGB and aft & forward sump magnetic chip detector for particles (for engines with MCD's) or interrogate DMS for chip detector status (for engines with debris monitoring system)	500 FH A1 Check Task Duplicate Inspection & Idle Leak Check required Explanatory note stating : This task is to be accomplished by using two different persons on the left & right side of the aircraft
73-010-01 / -02	CFMI Model CFM56-7B	Replace the left & right engine fuel filter.	6000 FH C1 Check Task Duplicate Inspection & Idle Leak Check required Explanatory note stating : This task is to be accomplished by using two different persons on the left & right side of the aircraft

This AMP was approved ten years ago

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ETR : ETR207	DATE: 01 July 2012	A/C TYPE: Saab 2000	ATA: 12
EFFECTIVITY:			
Compliance: To be performed annually no later than OCTOBER		Repetitive/ 1-off : A check	
Description/Reason Why:			
Inspection of aerodynamically quiet areas for evidence of residual de-ice fluid in the vicinity of the control surfaces. Company Requirement.			
Title: Aerofoil residual De-ice fluid Inspection		Date	Sig
<u>Description:</u>			
<ol style="list-style-type: none"> 1. Perform Inspection of aerodynamic quiet areas as per AMM reference 12-30-30-200-801. 2. Perform Independent inspections as required IAW DMM/WPP/006 3. Perform close out inspections. 4. Certify for completion of ETR on work card 			
Name:	Date:	Work-pack/Tech-log:	
Additional Information:			
Man hours:	5		
Trade: B1 Mechanic	Tech Log Raised on:	Date:	
Planning:	Mavis Card No.:	Signed:	Date:
Tech Records:	DRN:	Signed:	Date:
Spares:	Tooling:	Special Equipment (NDT):	

How many signatures?
Maximum?
Minimum?



2.2 List of Safety Critical Tasks

The list of safety critical tasks is based on a review by the [redacted]. Any of the tasks in this list may become a critical task if it is done more than once during a maintenance event. This does not depend on whether it is a routine task or a non-routine task. If there is no note to the contrary, this list is effective for all aircraft types and engine types.

ATA Chapter	ITEM	Remarks
24	IDG scavenge filter element / multiple IDG failures	
	IDG air / oil heat exchanger shut off valve filter element / Multiple IDG failures	
28	Strut fuel line / multiple pylon fire / IFSD	
	Fuel spar valve / actuator / inability to shut down engines	
29	Hydraulic system fuses / multiple hydraulic system loss	
	Engine-driven hydraulic humps / multiple hydraulic system loss	
	Hydraulic lines / multiple hydraulic system loss	
32	Hydraulic filter / multiple hydraulic system loss	
	Two gravity extension actuators (A330/340) / loss of emergency extension system	
72	Gearbox access covers / multiple IFSD	Not N2 drive pad cover (see duplicate inspections)
73	Engine fuel filter / multiple IFSD	
	Check of fuel filter bypass warning system / multiple IFSD	
74	Engine fuel lines / multiple IFSD	
	Igniter plugs / multiple IFSD	
79	Oil pump scavenge screens / multiple IFSD	
	Oil pump scavenge filters / multiple IFSD	
	Main engine oil filters / multiple IFSD	
	Check of oil filter bypass warning system / multiple IFSD	
	Engine oil filler caps (oil servicing) Not for:	The engine types that are listed are designed according Ref. CS-E 570. According to CS-E 570 there must be design precautions to minimize the possibility of incorrect installation of the cap of the oil filling point, or installing the cap at any other access point, or there must be means to prevent loss of fluid if the cap is installed incorrectly.
	- CF6-80C2 & CF6-80E, all types	
- CFM56, all types		
- CF34, all types		
- IAE V2500, all types		
- Rolls Royce Trent, all types		
- RR RB211, all types		
- PW 2000 & 4000, all types		
- PW JT8D-7R4- D / D1 / E / E1 / E4 / H1 / G2		
- GE90, all types		
	Oil system Lines / multiple IFSD	
80	Engine Starter (GE90 only) / multiple IFSD	If the starter is replaced incorrectly, this can cause problems for the GE90 oil system.
	Check of Starter Chip Detector (GE90 only) / multiple IFSD	Duplicate inspection required: magnetic plugs

Critical task list from one MRO in Europe

List of independent/double inspection

From 2010



ATA	ITEM	INSP. CHECK				REMARKS	COMPLEX	SIMPLE
		REML.	INST.	REPAIR	ADJUST			
ALL	If an item is not in this list, use the evaluation matrix to check whether a duplicate inspection is required.	x	x	x	x	If necessary, document your decision about a duplicate inspection according to IQM.		x
ALL	Tasks that are marked in the Job Cards as requiring duplicate inspection.	x	x	x	x	The Job Card specifies whether this is a simple or complex activity.	x	x
ALL	Customer's requirements	→				Obey the customer's requirements. Examples: LMC; JPM; RII Required Insp. Item; Duplicate Insp.; etc.	x	x
ALL	If there is of severe damage to aircraft wiring		x	x		After severe damage (e.g. cable fire).		x
ALL	Electrical wiring with complex connections		x	x		Make a decision using the evaluation matrix.		x
ALL	Before closing the floor panels		x			Check that the area is clean and free of foreign bodies before closing the floor panels.		x
ALL	After cutting work near cable harnesses, control systems, and closed compartments (e.g. E&E compartment, pylon etc.)		x	x		Check that the work area and its immediate environment are clean and free of foreign objects.		x
ALL	First accomplishment of modifications	→				Obey the instructions from Engineering.	x	x
ALL	Painting in the area of pitot / static ports; lights; antennas; safety placards			x				x
11-00	Signs on emergency equipment		x			Check that the correct signs are correctly installed.		x
21-31	Cabin pressure automatic control		x	x	x	(customer's requirement).		x
22-00	Auto flight system, (significant defects in operation)	→				Un-commanded deflection, hard-over, stabilizer runaway).		x
24-00	On-board electrical power systems	→				Failure of multiple redundant systems.		x
25-00	Escape slides and related pressure bottles (if installed outside the slide)		x			Check for correct installation.		x
25-20	Passenger seats		x			Check that the seats are correctly installed. Check that the torque values are correct.		x

ATA	ITEM	I N P . C H E C K	R E M . / I N S T .	R E P A I R	A D J U S T	Remarks	COMPLEX	SIMPLE
72-00	N2 drive pad covers		x			A duplicate inspection is only necessary, if no leak check acc. SPM under chapter 72-00 is performed.		x
72-00	Borescope port plugs		x			Check that installation is correct.		x
78-00	Engine controls	→				Failure of multiple redundant systems.		x
78-00	Mechanical engine control components (cockpit to pylon)		x		x	Check that the work is done correctly.		x
78-00	Thrust reverser deactivation (not valid for aircraft with pneumatically activated reverser)	→				Check the MEL / AMM / MMP or SPM work steps for the reverser deactivation according to MEL / MMP.		x
79-00	Magnetic plugs		x			Check that installation is correct. Duplicate inspection only applies to quick-disconnect-type plugs. ALTERNATIVE PROCEDURE: Leak check using a RUN UP.		x



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TASK	ZONE	TASK DESCRIPTION	TASK INTERVAL	CAT /CT	TASK TYPE	REFERENCE	TASK CARD NUMBER	EFF.
21-31-10-01		Operational Check of the cabin pressure control system	5000 FH	8,9/ CT	OP	21-31-00-710-802	000-21-900-101	ALL
21-31-13-01	140	Operational Check (BITE check) of the cabin pressure control system	1000 FH	9/ CT	OP	21-31-16-710-801	000-21-140-001	ALL
21-32-01-01	170	Discard of the cabin pressure control system primary outflow valve air filter	5000 FH	6	DS	21-32-01-000-802 21-32-01-400-802 TCI	000-21-170-100	ALL
21-32-01-02	170	Clean cabin pressure control system primary outflow valve	5000 FH	6	RS	21-32-01-110-801 TCI	000-21-170-101	ALL
21-32-04-01	170	Clean cabin pressure control system secondary outflow valve	5000 FH	6/ CT	RS	21-32-01-110-801 TCI	000-21-170-101	ALL
C21-50-115-01	280	Decompression equalizer rubber diaphragm. Visual inspection that diaphragm is positioned correctly and thus sealing off compartment. NOTE: May require removal of tunnel fairing or use of borescope	10000 FH	n/a	VI	53-61-17-210-801 CMR (**)	000-21-280-700	ALL
Air Conditioning System								
21-51-00-01	220 310	Operational Check of the air conditioning overpressure shutdown circuit	5000 FH	9	OP	21-51-00-710-802	000-21-900-102	ALL
21-51-04-01	310	Restoration of the precoolers by cleaning	16000 FH Note 14	9	RS	21-51-04-000-801 21-51-04-400-801 TCI	000-21-310-704	ALL
21-51-13-01	310	Detailed Inspection of the air cycle machine oil levels	100 FH Note 14	6/ CT	DI	21-51-13-220-801	000-21-310-705	ALL
21-51-13-05	310	Discard of the air cycle machine oil	1000 FH Note 14	6	DS	12-13-21-612-801 TCI	000-21-310-706	ALL
21-51-13-09	310	Restoration of the heat exchanger (core)	8000 FH Note 14	6	RS	21-51-07-000-801 21-51-07-400-801 TCI	000-21-310-707	ALL
21-51-16-01	310	Clean coalescers on water separators	1500 FH	6	RS	21-51-13-140-801 TCI	000-21-310-003	ALL
21-51-16-03	310	Operational Check of the air cycle machine water	500 FH	9	OP	21-51-13-710-801	000-21-310-004	ALL

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1.3. Page Description

The following table depicts the Maintenance Programs tasks listing- as detailed in Systems/Components Sections of Maintenance Program.

Task No	Zone	Task Description	Task Interval	Task Type	CAT/CT	Reference	Task Card No	Effectivity
A	B	C	D	E	F	G	H	I

A – Task Number from MSG–3 Analysis

B – Zone Number from Aircraft Maintenance Manual, Chapter 6

C – Task Description

D – Task Interval

The “NOTE” referenced in this column is defined in para 1.2. “Program Notes”.

FH – Flight Hours

EH – Engine Hours

FC – Flight Cycles

EC – Engine Cycles

APUH – APU Hours

W.C.F. – whichever comes first

W.I.G. – whichever is greater

E – Task Types are as follows:

VC – Visual Check

LU – Lubrication

GVI – General Visual Inspection

SV – Servicing

DI – Detailed Inspection

RS – Restoration

SDI – Special Detailed Inspection

DS – Discard

OP – Operational Check

FC – Functional Check

F – Logic path Category/Critical task identification (“CT” included in this column if YES)



SUBPART B ACCOUNTABILITY

M.A.201(a)

The owner is responsible for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless

1. the aircraft is maintained in an airworthy condition, and;

M.A.402 Performance of maintenance

AMC M.A.402(a)

4. Independent inspections

4.1 The manufacturer's instructions for continued airworthiness should be followed when determining the need for an independent inspection.

Summary

Part 145 is always responsible for its own process, regarding critical tasks and to implement a error capture method after the performance of any critical task.

If critical task is defined in aircraft maintenance programme, CAMO takes over some of the responsibility. CAMO need to ensure that the Part 145 org has capture and understand what to do with the critical tasks.

- **Effectively they are both accountable.**
- Part-145 to ensure the requirements are met and the Part-M to assure they are.





Thanks for me