

**MODULE 7A. MAINTENANCE PRACTICES**

Regulation (EU) 2018/1142

Note: This module does not apply to category B3. Relevant subject matters for category B3 are defined in module 7B.

MODULE 7A. MAINTENANCE PRACTICES	LEVEL		
	A	B1	B2 B2L
<p><b>7.1 Safety Precautions-Aircraft and Workshop</b> Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals. Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.</p>	3	3	3
<p><b>7.2 Workshop Practices</b> Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship; Calibration of tools and equipment, calibration standards.</p>	3	3	3
<p><b>7.3 Tools</b> Common hand tool types; Common power tool types; Operation and use of precision measuring tools; Lubrication equipment and methods. Operation, function and use of electrical general test equipment.</p>	3	3	3
<p><b>7.4 Avionic General Test Equipment</b> Operation, function and use of avionic general test equipment.</p>	—	2	3
<p><b>7.5 Engineering Drawings, Diagrams and Standards</b> Drawing types and diagrams, their symbols, dimensions, tolerances and projections; Identifying title block information; Microfilm, microfiche and computerised presentations; Specification 100 of the Air Transport Association (ATA) of America; Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL; Wiring diagrams and schematic diagrams.</p>	1	2	2
<p><b>7.6 Fits and Clearances</b> Drill sizes for bolt holes, classes of fits; Common system of fits and clearances; Schedule of fits and clearances for aircraft and engines; Limits for bow, twist and wear; Standard methods for checking shafts, bearings and other parts.</p>	1	2	1
<p><b>7.7 Electrical Wiring Interconnection System (EWIS)</b></p>	1	3	3

MODULE 7A. MAINTENANCE PRACTICES	LEVEL		
	A	B1	B2 B2L
Continuity, insulation and bonding techniques and testing; Use of crimp tools: hand and hydraulic operated; Testing of crimp joints; Connector pin removal and insertion; Co-axial cables: testing and installation precautions; Identification of wire types, their inspection criteria and damage tolerance. Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding; EWIS installations, inspection, repair, maintenance and cleanliness standards.			
<b>7.8 Riveting</b> Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints.	1	2	—
<b>7.9 Pipes and Hoses</b> Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes.	1	2	—
<b>7.10 Springs</b> Inspection and testing of springs.	1	2	—
<b>7.11 Bearings</b> Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.	1	2	—
<b>7.12 Transmissions</b> Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.	1	2	—
<b>7.13 Control Cables</b> Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.	1	2	—
<b>7.14 Material handling</b>			
<b>7.14.1 Sheet Metal</b> Marking out and calculation of bend allowance; Sheet metal working, including bending and forming; Inspection of sheet metal work.	—	2	—
<b>7.14.2 Composite and non-metallic</b> Bonding practices; Environmental conditions; Inspection methods.	—	2	—
<b>7.15 Welding, Brazing, Soldering and Bonding</b>			
(a) Soldering methods; inspection of soldered joints.	—	2	2
(b) Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.	—	2	—

MODULE 7A. MAINTENANCE PRACTICES	LEVEL		
	A	B1	B2 B2L
<b>7.16 Aircraft Weight and Balance</b>			
(a) Centre of Gravity/Balance limits calculation: use of relevant documents;	—	2	2
(b) Preparation of aircraft for weighing; Aircraft weighing.	—	2	—
<b>7.17 Aircraft Handling and Storage</b>	2	2	2
Aircraft taxiing/towing and associated safety precautions; Aircraft jacking, chocking, securing and associated safety precautions; Aircraft storage methods; Refuelling/defuelling procedures; De-icing/anti-icing procedures; Electrical, hydraulic and pneumatic ground supplies. Effects of environmental conditions on aircraft handling and operation.			
<b>7.18 Disassembly, Inspection, Repair and Assembly Techniques</b>			
(a) Types of defects and visual inspection techniques; Corrosion removal, assessment and reprotection;	2	3	3
(b) General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion control programmes;	—	2	—
(c) Non-destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods;	—	2	1
(d) Disassembly and re-assembly techniques;	2	2	2
(e) Trouble shooting techniques.	—	2	2
<b>7.19 Abnormal Events</b>			
(a) Inspections following lightning strikes and HIRF penetration;	2	2	2
(b) Inspections following abnormal events such as heavy landings and flight through turbulence.	2	2	—
<b>7.20 Maintenance Procedures</b>	1	2	2
Maintenance planning; Modification procedures; Stores procedures; Certification/release procedures; Interface with aircraft operation; Maintenance Inspection/Quality Control/Quality Assurance; Additional maintenance procedures; Control of life limited components.			

**MODULE 7B. MAINTENANCE PRACTICES**
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Note: The scope of this module shall reflect the technology of aeroplanes relevant to the B3 category.

MODULE 7B. MAINTENANCE PRACTICES	LEVEL
	B3
<b>7.1 Safety Precautions-Aircraft and Workshop</b> Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals. Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.	3
<b>7.2 Workshop Practices</b> Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship; Calibration of tools and equipment, calibration standards.	3
<b>7.3 Tools</b> Common hand tool types; Common power tool types; Operation and use of precision measuring tools; Lubrication equipment and methods; Operation, function and use of electrical general test equipment.	3
<b>7.4 Avionic General Test Equipment</b> Operation, function and use of avionic general test equipment.	1
<b>7.5 Engineering Drawings, Diagrams and Standards</b> Drawing types and diagrams, their symbols, dimensions, tolerances and projections; Identifying title block information; Microfilm, microfiche and computerised presentations; Specification 100 of the Air Transport Association (ATA) of America; Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL; Wiring diagrams and schematic diagrams.	2
<b>7.6 Fits and Clearances</b> Drill sizes for bolt holes, classes of fits; Common system of fits and clearances; Schedule of fits and clearances for aircraft and engines; Limits for bow, twist and wear; Standard methods for checking shafts, bearings and other parts.	2
<b>7.7 Electrical Cables and Connectors</b> Continuity, insulation and bonding techniques and testing; Use of crimp tools: hand and hydraulic operated; Testing of crimp joints; Connector pin removal and insertion; Co-axial cables: testing and installation precautions; Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding.	2
<b>7.8 Riveting</b> Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints.	2
<b>7.9 Pipes and Hoses</b>	2

MODULE 7B. MAINTENANCE PRACTICES	LEVEL
	B3
Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes.	
<i>7.10 Springs</i> Inspection and testing of springs.	2
<i>7.11 Bearings</i> Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.	2
<i>7.12 Transmissions</i> Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.	2
<i>7.13 Control Cables</i> Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.	2
<i>7.14 Material handling</i> <i>7.14.1 Sheet Metal</i> Marking out and calculation of bend allowance; Sheet metal working, including bending and forming; Inspection of sheet metal work.	2
<i>7.14.2 Composite and non-metallic</i> Bonding practices; Environmental conditions; Inspection methods.	2
<i>7.15 Welding, Brazing, Soldering and Bonding</i> (a) Soldering methods; inspection of soldered joints;	2
(b) Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.	2
<i>7.16 Aircraft Weight and Balance</i> (a) Centre of Gravity/Balance limits calculation: use of relevant documents;	2
(b) Preparation of aircraft for weighing; Aircraft weighing.	2
<i>7.17 Aircraft Handling and Storage</i> Aircraft taxiing/towing and associated safety precautions; Aircraft jacking, chocking, securing and associated safety precautions; Aircraft storage methods; Refuelling/defuelling procedures; De-icing/anti-icing procedures; Electrical, hydraulic and pneumatic ground supplies; Effects of environmental conditions on aircraft handling and operation.	2
<i>7.18 Disassembly, Inspection, Repair and Assembly Techniques</i> (a) Types of defects and visual inspection techniques; Corrosion removal, assessment and re-protection;	3
(b) General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion control programmes;	2

MODULE 7B. MAINTENANCE PRACTICES		LEVEL
		B3
(c)	Non-destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods;	2
(d)	Disassembly and re-assembly techniques;	2
(e)	Trouble shooting techniques.	2
<i>7.19 Abnormal Events</i>		
(a)	Inspections following lightning strikes and HIRF penetration.	2
(b)	Inspections following abnormal events such as heavy landings and flight through turbulence.	2
<i>7.20 Maintenance Procedures</i>		2
Maintenance planning; Modification procedures; Stores procedures; Certification/release procedures; Interface with aircraft operation; Maintenance Inspection/Quality Control/Quality Assurance; Additional maintenance procedures; Control of life limited components.		