

| | LEVEL | | | |
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| | A | B1 | B2 | B3 |
| 6.8 Bearings | 1 | 2 | 2 | 1 |
| Purpose of bearings, loads, material, construction; | | | | |
| Types of bearings and their application. | | | | |
| 6.9 Transmissions | 1 | 2 | 2 | 1 |
| Gear types and their application; | | | | |
| Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns; | | | | |
| Belts and pulleys, chains and sprockets. | | | | |
| 6.10 Control Cables | 1 | 2 | 1 | 2 |
| Types of cables; | | | | |
| End fittings, turnbuckles and compensation devices; | | | | |
| Pulleys and cable system components; | | | | |
| Bowden cables; | | | | |
| Aircraft flexible control systems. | | | | |
| 6.11 Electrical Cables and Connectors | 1 | 2 | 2 | 2 |
| Cable types, construction and characteristics; | | | | |
| High tension and co-axial cables; | | | | |
| Crimping; | | | | |
| Connector types, pins, plugs, sockets, insulators, current and voltage rating, coupling, identification codes. | | | | |

MODULE 7A. MAINTENANCE PRACTICES

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

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| | A | B1 | B2 |
| 7.1 Safety Precautions-Aircraft and Workshop | 3 | 3 | 3 |
| 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. | | | |
| 7.2 Workshop Practices | 3 | 3 | 3 |
| Care of tools, control of tools, use of workshop materials; | | | |

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| | A | B1 | B2 |
| Dimensions, allowances and tolerances, standards of workmanship; | | | |
| Calibration of tools and equipment, calibration standards. | | | |
| 7.3 Tools | 3 | 3 | 3 |
| 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. | | | |
| 7.4 Avionic General Test Equipment | — | 2 | 3 |
| Operation, function and use of avionic general test equipment. | | | |
| 7.5 Engineering Drawings, Diagrams and Standards | 1 | 2 | 2 |
| 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. | | | |
| 7.6 Fits and Clearances | 1 | 2 | 1 |
| 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. | | | |
| 7.7 Electrical Wiring Interconnection System (EWIS) | 1 | 3 | 3 |
| Continuity, insulation and bonding techniques and testing; | | | |
| Use of crimp tools: hand and hydraulic operated; | | | |
| Testing of crimp joints; | | | |
| Connector pin removal and insertion; | | | |

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| | A | B1 | B2 |
| 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. | | | |
| 7.8 Riveting | 1 | 2 | — |
| Riveted joints, rivet spacing and pitch; | | | |
| Tools used for riveting and dimpling; | | | |
| Inspection of riveted joints. | | | |
| 7.9 Pipes and Hoses | 1 | 2 | — |
| Bending and belling/flaring aircraft pipes; | | | |
| Inspection and testing of aircraft pipes and hoses; | | | |
| Installation and clamping of pipes. | | | |
| 7.10 Springs | 1 | 2 | — |
| Inspection and testing of springs. | | | |
| 7.11 Bearings | 1 | 2 | — |
| Testing, cleaning and inspection of bearings; | | | |
| Lubrication requirements of bearings; | | | |
| Defects in bearings and their causes. | | | |
| 7.12 Transmissions | 1 | 2 | — |
| Inspection of gears, backlash; | | | |
| Inspection of belts and pulleys, chains and sprockets; | | | |
| Inspection of screw jacks, lever devices, push-pull rod systems. | | | |
| 7.13 Control Cables | 1 | 2 | — |
| Swaging of end fittings; | | | |
| Inspection and testing of control cables; | | | |
| Bowden cables; aircraft flexible control systems. | | | |

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| | A | B1 | B2 |
| 7.14 Material handling | | | |
| 7.14.1 <i>Sheet Metal</i> | — | 2 | — |
| Marking out and calculation of bend allowance; | | | |
| Sheet metal working, including bending and forming; | | | |
| Inspection of sheet metal work. | | | |
| 7.14.2 <i>Composite and non-metallic</i> | — | 2 | — |
| Bonding practices; | | | |
| Environmental conditions; | | | |
| Inspection methods. | | | |
| 7.15 Welding, Brazing, Soldering and Bonding | | | |
| (a) Soldering methods; inspection of soldered joints. | — | 2 | 2 |
| (b) Welding and brazing methods; | — | 2 | — |
| Inspection of welded and brazed joints; | | | |
| Bonding methods and inspection of bonded joints. | | | |
| 7.16 Aircraft Weight and Balance | | | |
| (a) Centre of Gravity/Balance limits calculation: use of relevant documents; | — | 2 | 2 |
| (b) Preparation of aircraft for weighing; | — | 2 | — |
| Aircraft weighing. | | | |
| 7.17 Aircraft Handling and Storage | 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. | | | |

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| | A | B1 | B2 |
| 7.18 Disassembly, Inspection, Repair and Assembly Techniques | | | |
| (a) Types of defects and visual inspection techniques; Corrosion removal, assessment and re-protection; | 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 |
| 7.19 Abnormal Events | | | |
| (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 | — |
| 7.20 Maintenance Procedures | 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

Note: The scope of this module shall reflect the technology of aeroplanes relevant to the B3 category.

| | LEVEL |
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| | B3 |
| 7.1 Safety Precautions-Aircraft and Workshop | 3 |
| 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. | |