CIVIL AVIATION AUTHORITY
OF NEW ZEALAND

Advisory Circular
AC66–2.30

Revision 1

xx xxxx 2021

Aircraft Maintenance Engineer Licence — Mechanical Group Ratings

General

Civil Aviation Authority (CAA) advisory circulars (ACs) contain information about standards, practices, and procedures that the Director has found to be an **Acceptable Means of Compliance (AMC)** with the associated rule.

Consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices, or procedures are found to be acceptable they will be added to the appropriate AC.

Purpose

This AC provides an AMC for the syllabus content in respect of written examinations for Mechanical Group Ratings.

This AC also provides GM for recommended study material in respect of the examination syllabi in this AC.

Related Rules

This AC relates specifically to Civil Aviation Rule Part 66 Subpart C — Aircraft Maintenance Engineer Licence.

Change Notice

This is a comprehensive revision of this AC that contains all the information (resource study material, scope and outline syllabus) for Mechanical Group Ratings. In particular, resource materials have been updated, and there is extra information about FRP and composite materials, general maintenance, radio systems, electrical systems and instrument systems.

As a result of the updates, some numbering has changed from the initial Revision, and all of the Oral subjects have been deleted.

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Note that the previous Aeroplane Group 4, Subject 66 (Written) & 67 (Oral) has been deleted and amalgamated into the Aeroplane and Rotorcraft Group 1 and 2 syllabi.

CAA has also taken the opportunity to add a Version History.

~~This is a new AC that contains, unchanged, all the information (resource study material, scope and outline syllabus) for Mechanical Group Ratings previously promulgated in AC66-2.7.~~

~~AC66-2.7 now contains the objectivised syllabus for Subject 7 (Piston Engines).~~

Version History

The record of Revisions to this AC are outlined below:

AC Revision No.	Effective Date	Summary of Changes
AC66-2.30, Rev 0	1 December 2008	A new AC that contains, unchanged, all the information (resource study material, scope and outline syllabus) for Mechanical Group Ratings previously promulgated in AC66-2.7
AC66-2.30, Rev 1	Xx xxxx 2021	A comprehensive revision of this AC that contains all the information (resource study material, scope and outline syllabus) for Mechanical Group Ratings. In particular, resource materials have been updated, and there is extra information about: • FRP and composite material • radio systems • electrical systems, and • instrument systems. Some numbering has changed from the initial Revision. All the Oral subjects have been deleted. The previous Aeroplane Group 4, Subject 66 (Written) & 67 (Oral) has been deleted and amalgamated into the Aeroplane and Rotorcraft Group 1 and 2 syllabi. Adds a Version History.

Table of Contents

Eligibility requirements

Rule 66.103(3) requires an applicant for an AME group or type rating to have successfully completed examinations acceptable to the Director or a course of training.

The examinations acceptable to the Director should comply with the syllabi contained in this AC.

Knowledge Levels

These syllabi provide for the subject material covered in the Mechanical Group Rating examinations.

Each topic within the syllabi has a level number which provides an indication of the degree or level of knowledge required. There are three level numbers and they are defined as follows:

Level 1: General appreciation of principles and a broad understanding of the subject.

Level 2: Comprehension of principles and salient features. Simple relevant calculations may be required.

Level 3: Detailed knowledge of all aspects of the subject including relevant calculations.

Aeroplanes Group 1

Subject 60 ~~(Written) & 61 (Oral)~~

Resource Study Material

This resource study guide is produced to show where suitable material may be obtained. CAA is not bound to use these books for examining purposes, nor is CAA liable if these books are unavailable at commercial bookshops. FAA and CAAUK publications may be found for download through an internet search. The suggested website links below were correct at time of AC release. Please note that this list is a sample only. Many other titles may be equally as helpful in preparing for this examination.

Scope of the Subject

1.	CAAUK CAP 562 Civil Aircraft Airworthiness Information and Procedures (CAAIP) and associated CAPs https://publicapps.caa.co.uk/docs/33/CAP562_Issue%204_Amendment3.pdf
2.	FAA AC43.13-1B Acceptable Methods, Techniques, and Practices- Aircraft Inspection and Repair https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_43.13-1B_w-chg1.pdf
3.	FAA AC43.13-2B Acceptable Methods, Techniques, and Practices-Aircraft Alterations https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2043.13-2B.pdf
4.	AMT Handbook General FAA-H-8083-30A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_general_handbook.pdf
5.	AMT Handbook Airframe Vol 1 - FAA-H-8083-31A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_airframe_hb_vol_1.pdf
6.	AMT Handbook Airframe Vol 2 - FAA-H-8083-31A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_airframe_hb_vol_2.pdf
7.	~~Maintenance or service manuals~~ Instructions for Continued Airworthiness (ICAs) applicable to the following aircraft types may be of assistance: • Cessna 100 series • Piper PA28 series • Cessna 172R • Diamond DA40
~~3.~~	~~EA-AC-65-9 General Handbook~~
~~4.~~	~~EA-AC-65-15 Airframe Handbook~~

~~*The following books are acceptable alternatives to the A & P Handbooks. EA-ITP-GB General, EA-ITP-AB Airframe, EA-ITP-P Powerplant.*~~

	Area of study	Level	Syllabus content
1.	AIRCRAFT STRUCTURES	1	Monocoque airframe structure. FRP and composite airframe structure and sub-structure.
		2	Structural inspection. Airframe symmetry and rigging.
		3	Inspection after abnormal flight or ground occurrences.
		2	Non-major repairs. Non-major FRP and composite repairs and, FRP and composite repair schemes. The effects of disturbed airflow. Corrosion control and surface finish. FRP and composite surface finish.
2.	FRP AND COMPOSITE MATERIALS	1	Properties of FRP and composite materials.
		2	Storage of materials.
		3	Safety precautions. Identification of material defects.
		2	Inspection techniques.
3.	STRUCTURAL REPAIRS	2	Spar cap and web repairs. Fuselage stringer repairs. Wing skin replacement. Wing rib repairs.
		2	Replacement of special fittings for wing and landing gear attachment.
		2	Repair of metal honeycomb panels, reinforced plastic honeycomb panels, FRP and composite-skin structure, plastic and polymer foam inserts and insulation. Integral fuel tank repairs including specialised self-sealing fasteners, sealing practices, leak testing and tracing.

	Area of study	Level	Syllabus content
4.	MAJOR STRUCTURAL INSPECTIONS	2	Identification of structural defects. Methods of FRP and composite inspection/testing IE tap tests Mass balancing of flying controls after major repair or modification. Use of special sealants and repair of sealants including polysulphides, RTV silicones, and polyurethanes. Wet assembly and faying surface sealing of structural repair.
		2	Structural fatigue identification and damage repair. Standard repair to tubular structures including welded joints and tube replacement. Windscreen and window replacement. Repair of smooth skin, panels, formers, stringers, longerons, leading and trailing edges.
5.	OVERHAUL & MANUFACTURING PROCESSES	2	Sheet metal bending, bend allowance calculation, bumping, crimping, stretching, shrinking, folding, duplication of patterns, joggling, rivet layout, rivet installation, rivet defects, rivet identification, and rivet removal. Blind fasteners: blind friction locked and blind mechanically locked types. High strength fasteners: Hi-Shear rivets, Hi-Lok pins, Lockbolts, Jo-Bolts, Taperlock pins.
		3	Inspection and installation of critical bolted joints.
		2	Heat treatment of aluminium alloys. Selection of alternative materials. Machining, milling, drilling turning, grinding, boring, spark erosion, shaping, sawing, shearing. Jigging, trestling, structural alignment, and levelling.
6.	SPECIAL INSPECTIONS	3	Heavy landings, severe turbulence, lightning strikes, taxiing damage, internal fire or explosion damage
7.	CONTROL SURFACES & SYSTEMS	1	Control system components.
		2	Systematic correction of flying faults.
		3	Installation and inspection of flying controls.
		3 ~~2~~	Repair and balancing.

	Area of study	Level	Syllabus content
8.	HYDRAULIC SYSTEMS	1	Components of simple hydraulic systems.
		2	Installation of rigid and flexible lines. Hydraulic system maintenance. Hydraulic fluid identification.
9.	LANDING GEAR	1	Types of landing gear including oleo, rubber, flat or tubular spring and fibre glass.
		2	Wheels. Brakes. Balancing of wheel assemblies. Landing gear maintenance.
10.	AIRCRAFT FUEL SYSTEM UP TO ENGINE BULKHEAD	1	Types of tanks including metal, integral, bladder.
		2	Installation of rigid and flexible fuel pipes. Fuel flow checks. Fuel gauge calibration.
		1	Fuel cocks, check valves. Non-return valves, boost pumps.
		2	Fuel system maintenance. Auxiliary systems.
11.	TRANSPARENT PLASTIC PANELS	1	Storage and installation. Effect of heat coefficient on installation. Approved methods of repair.
		2	Cleaning and protection from detrimental compounds.
12.	CABIN & COCKPIT FURNISHINGS & SAFETY EQUIPMENT	2	Seat installations. Safety harness.
		3	Testing of safety harnesses.
		2	Selection of furnishing fabrics. Axe, first aid kit, life jackets.
13.	ENVIRONMENTAL CONTROL	2	Cabin heating, defrosting, and ventilation.
		1	Carbon monoxide checks. Airconditioning systems.

	Area of study	Level	Syllabus content
14.	ELECTRICAL SYSTEMS	2	Aircraft batteries. Generators and charging circuits. Alternator circuits and protection. Electric pumps. Flap motors. Limit switches. Maintenance ~~installation~~ of wiring looms, connectors and junction boxes. Bonding. Electrical circuit drawings. Electrical system maintenance. Troubleshooting and defect rectification.
15.	INSTRUMENT SYSTEMS	1	Basic flight instruments. Engine and airframe instruments.
		2	Simple autopilot systems.
		1	Placarding.
		2	Pitot static systems. Pump and venturi vacuum systems.
		1	Use of common test equipment.
		3	Installation and compensation of Direct reading compasses.
16.	RADIO SYSTEMS	2	Maintenance of Group 1 Communications equipment including antenna and ELT. ~~Antenna maintenance~~ ~~ELT and antenna installation~~ Isolation of radio interference. ~~Fabrication, installation and~~ Maintenance of wiring looms and cables. Troubleshooting and defect rectification. ~~Installation of HF and VHF communications in VFR aircraft.~~

	Area of study	Level	Syllabus content
17.	MAINTENANCE GENERAL	3	Understanding of manufacturer's service information. Determination of overhaul lives. Significant Airworthiness Directives pertaining to above aircraft list. Finite life control. Weight and balance procedure. Computation of empty weight change.
		2	Ground handling. Jacking and levelling.
		3	Identification of bogus parts.
		2	Ground performance checking.
18.	ROLE EQUIPMENT	2	Dispersal systems in agricultural aircraft including but not limited to: hopper boxes, spray systems, and seeding systems. Towing Hooks Underwing Supply Dropping Equipment Air ambulance stretchers.

Aeroplanes Group 2

Subject 62 ~~(Written) & 63 (Oral)~~

Resource Study Material

This resource study guide is produced to show where suitable material may be obtained. CAA is not bound to use these books for examining purposes, nor is CAA liable if these books are unavailable at commercial bookshops. FAA and CAAUK publications may be found for download through an internet search. The suggested website links below were correct at time of AC release. Please note that this list is a sample only. Many other titles may be equally as helpful in preparing for this examination.

Scope of the Subject

1.	CAAUK CAP 562 Civil Aircraft Airworthiness Information and Procedures (CAAIP) and associated CAPs https://publicapps.caa.co.uk/docs/33/CAP562_Issue%204_Amendment3.pdf
2.	FAA AC43.13-1B Acceptable Methods, Techniques, and Practices-Aircraft Inspection and Repair https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_43.13-1B_w-chg1.pdf
3.	FAA AC43.13-2B Acceptable Methods, Techniques, and Practices-Aircraft Alterations https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2043.13-2B.pdf
4.	AMT Handbook General FAA-H-8083-30A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_general_handbook.pdf
5.	AMT Handbook Airframe Vol 1 - FAA-H-8083-31A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_airframe_hb_vol_1.pdf
6.	AMT Handbook Airframe Vol 2 - FAA-H-8083-31A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_airframe_hb_vol_2.pdf
5.	~~Maintenance or service manuals~~ ICAs applicable to the following aircraft types may be of assistance: • Cessna 310 • ~~Cessna 402~~ • Diamond DA42 • Piper PA 31 • Beech 58 • Progressive Care Manual as applicable • ~~Manual applicable to the candidate's basic aircraft type~~
~~2.~~	~~FAA or EA AC43.13.1 & .2 Aircraft Inspection and Repair~~
~~3.~~	~~EA AC 65-9 General Handbook~~
~~4.~~	~~EA AC 65-15 Airframe Handbook~~

~~*The following books are acceptable alternatives to the A & P Handbooks. EA ITP GB General, EA ITP AB Airframe, EA ITP P Powerplant.*~~

	Area of study	Level	Syllabus content
1.	AIRCRAFT STRUCTURES	1	Monocoque airframe structure. FRP and composite airframe structure and sub-structure.
		2	Structural inspection. Airframe symmetry and rigging.
		3	Inspection after abnormal flight or ground occurrences.
		2	Non-major ~~minor~~ repairs. Non-major FRP and composite repairs and, FRP and composite repair schemes. The effects of disturbed airflow. Corrosion control and surface finish. FRP and composite surface finish.
2.	FRP AND COMPOSITE MATERIALS	1	Properties of FRP and composite materials.
		2	Storage of materials.
		3	Safety precautions. Identification of material defects.
		2	Inspection techniques.
3.	STRUCTURAL REPAIRS	2	Spar cap and web repairs. Fuselage stringer repairs. Wing skin replacement. Wing rib repairs.
		2	Replacement of special fittings for wing and landing gear attachment.
		2	Repair of metal honeycomb panels, reinforced plastic honeycomb panels, FRP and composite -skin structure, plastic and polymer foam inserts and insulation. Integral fuel tank repairs including specialised self-sealing fasteners, sealing practices, leak testing and tracing.

	Area of study	Level	Syllabus content
4.	MAJOR STRUCTURAL INSPECTIONS	2	Identification of structural defects. Methods of FRP and composite inspection/testing IE tap tests Mass balancing of flying controls after major repair or modification. Use of special sealants and repair of sealants including polysulphides, RTV silicones and polyurethanes. Wet assembly and faying surface sealing of structural repair.
		2	Structural fatigue identification and damage repair. Standard repair to tubular structures including welded joints and tube replacement. Windscreen and window replacement. Repair of smooth skin, panels, formers, stringers, longerons, leading and trailing edges.
5.	OVERHAUL & MANUFACTURING PROCESSES	2	Sheet metal bending, bend allowance calculation, bumping, crimping, stretching, shrinking, folding, duplication of patterns, joggling, rivet layout, rivet installation, rivet defects, rivet identification, and rivet removal. Blind fasteners: blind friction locked and blind mechanically locked types. High strength fasteners: Hi-Shear rivets, Hi-Lok pins, Lockbolts, Jo-Bolts, Taperlock pins.
		3	Inspection and installation of critical bolted joints.
		2	Heat treatment of aluminium alloys. Selection of alternative materials. Machining, milling, drilling turning, grinding, boring, spark erosion, shaping, sawing, shearing. Jigging, trestling, structural alignment and levelling.
6.	SPECIAL INSPECTIONS	3	Heavy landings, severe turbulence, lightning strikes, taxiing damage, internal fire or explosion damage.
7.	CONTROL SURFACES & SYSTEMS	1	Control system components.
		2	Systematic correction of flying control faults.
		3	Installation and inspection of flying controls.

	Area of study	Level	Syllabus content
			Repair and balancing.
8.	HYDRAULIC SYSTEMS	2	Components of hydraulic systems. Installation of rigid and flexible lines. Hydraulic system maintenance. Hydraulic fluid identification.
9.	LANDING GEAR	2	Types of landing gear including oleo, rubber, springs and liquid spring. ~~flat or tubular springs and fibre glass~~ Retraction systems: electrical, hydraulic and compound. Emergency extension systems. Safety systems. Gear position indicator systems. Wheels. Brakes. Balancing of wheel assemblies. Landing gear maintenance.
10.	PNEUMATIC SYSTEMS	1	Types of compressors. Air bottles, relief valves, check valves.
		2	Filters, restrictors, selectors, and actuators. Pneumatic system maintenance.
11.	AIRCRAFT FUEL SYSTEM UP TO THE ENGINE BULKHEAD	1	Types of tanks including metal, integral, bladder.
		2	Installation of rigid and flexible fuel pipes. Fuel flow checks. Fuel gauge calibration.
		1	Fuel cocks, check valves. Non-return valves, boost pumps.
		2	Fuel system maintenance. Auxiliary systems.
12.	DE-ICING & ANTI-ICING	2	Pneumatic. Electrical.
		1	Heated air.

	Area of study	Level	Syllabus content
		2	Maintenance of systems.
13.	FIRE PROTECTION SYSTEM	1	Thermal switch system. Thermocouple system. Continuous loop.
		2	Maintenance.
14.	TRANSPARENT PLASTIC PANELS	1	Storage and installation. Effect of heat coefficient on installation. Approved methods of repair.
		2	Cleaning and protection from detrimental compounds.
15.	CABIN & COCKPIT FURNISHINGS & SAFETY EQUIPMENT	2	Seat installations. Safety harness.
		3	Testing of safety harnesses.
		2	Selection of furnishing fabrics. Axe, first aid kit, life jackets.
16.	ENVIRONMENTAL CONTROL	2	Cabin heating, defrosting, and ventilation. Combustion heaters.
		1	Carbon monoxide checks. Air conditioning systems.
17.	ELECTRICAL SYSTEMS	2	Aircraft batteries. Generators and charging circuits. Alternators, circuits and protection. Electric pumps. Flap motors. Limit switches. Maintenance ~~installation~~ of wiring looms, connectors and junction boxes. Bonding. Electrical circuit drawings. Electrical system maintenance. Troubleshooting and defect rectification.

	Area of study	Level	Syllabus content
18.	INSTRUMENT SYSTEMS	1	Basic flight instruments. Engine and airframe instruments.
		2	Simple autopilot systems.
		1	Placarding.
		2	Pitot & static systems. Pump and venturi vacuum systems.
		1	Use of common test equipment.
		3	Installation and compensation of direct- and remote-reading compasses.
19.	RADIO SYSTEMS	2	Maintenance of Group 1 Communications equipment including antenna and ELT. ~~Antenna maintenance~~ ~~ELT and antenna installation~~ Isolation of radio interference. ~~Fabrication, installation and~~ Maintenance of wiring looms and cables. Troubleshooting and defect rectification. ~~Installation of HF and VHF communications in VFR aircraft.~~
20.	MAINTENANCE GENERAL	3	Understanding of manufacturer's service information. Determination of overhaul lives. Significant Airworthiness Directives pertaining to above aircraft list. Finite life control. Weight and balance procedure. Computation of empty weight change.
		2	Ground handling. Jacking and levelling.
		3	Identification of bogus parts
		2	Ground performance checking.

	Area of study	Level	Syllabus content
21.	ROLE EQUIPMENT	2	Dispersal systems in agricultural aircraft including but not limited to hopper boxes, spray systems and seeding systems. Towing Hooks Underwing Supply Dropping Equipment Air ambulance stretchers.

Aeroplanes Group 3

Subject 64 ~~(Written) & 65 (Oral)~~

Resource Study Material

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2.	FAA AC43.13-1B Acceptable Methods, Techniques, and Practices- Aircraft Inspection and Repair https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_43.13-1B_w-chg1.pdf
3.	FAA AC43.13-2B Acceptable Methods, Techniques, and Practices-Aircraft Alterations https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2043.13-2B.pdf
4.	AMT Handbook General FAA-H-8083-30A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_general_handbook.pdf
5.	AMT Handbook Airframe Vol 1 - FAA-H-8083-31A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_airframe_hb_vol_1.pdf
6.	AMT Handbook Airframe Vol 2 - FAA-H-8083-31A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_airframe_hb_vol_2.pdf

~~*The following books are acceptable alternatives to the A & P Handbooks. EA-ITP-GB General, EA-ITP-AB Airframe, EA-ITP-P Powerplant.*~~

	Area of study	Level	Syllabus content
1.	AIRCRAFT STRUCTURES	2	Description of Structure, including semi-monocoque, wire braced, girder braced and welded tube.
		2	Airframe symmetry and rigging.
		3	Inspection after abnormal flight or ground occurrences.
		2	Non-major ~~minor~~ repairs. • The effects of disturbed airflow. • Corrosion control.
2.		1	Control system components.

	Area of study	Level	Syllabus content
	CONTROL SURFACES & SYSTEMS	2	Systematic correction of flying control faults.
		3	Installation and inspection of flying controls.
		2	Repair and balancing.
3.	LANDING GEAR	1	Types of landing gear, including oleo, rubber, flat or tubular spring, and fibre glass.
		2	Wheels. • Brake systems. • Balancing of wheel assemblies. • Landing gear maintenance.
4.	AIRCRAFT FUEL SYSTEM UP TO ENGINE BULKHEAD	1	Metal fuel tanks.
		2	Installation of rigid and flexible fuel tanks. Fuel flow checks. Fuel gauge calibration.
		1	Non-return valves, boost pumps.
		2	Fuel system maintenance. • Auxiliary systems.
5.	MAINTENANCE OF ASSEMBLIES	1	Types of wood and their properties.
		2	Permissible and non-permissible defects. • Storage of wood. • Moisture content and control. • Glue types and properties. • Gluing procedures. • Glue deterioration. • Water penetration.
6.	TUBULAR STEEL ASSEMBLIES	1	Material selection and identification.
		2	Tubular steel fabrication. Jigging techniques. Fatigue and stress identification. Corrosion control.

	Area of study	Level	Syllabus content
			Minor repairs.
7.	FABRICS	1	Fabric types and properties.
		2	Fabric repair technique.
		3	Fabric condition assessment.
8.	DOPING	1	Dope types, properties and uses.
		2	Doping procedures and precautions. • Storage of dopes.
9.	TRANSPARENT PLASTIC PANELS	1	Storage and installation. Approved methods of repair.
		2	Cleaning and protection from detrimental compounds.
10.	CABIN & COCKPIT FURNISHINGS & SAFETY EQUIPMENT	2	Seat installations. • Safety harness.
		3	Testing of safety harnesses.
		2	Selection of furnishing fabrics. Axe, first aid kit, life jackets.
11.	ENVIRONMENTAL CONTROL	2	Cabin heating, defrosting and ventilation.
		1	Carbon monoxide checks. Air conditioning systems.
12.	ELECTRICAL SYSTEMS	2	Aircraft batteries. Generators and charging circuits. Alternators circuits and protection. Electric pumps. Maintenance ~~installation~~ of wiring looms, connectors, and junction boxes. Bonding. Electrical circuit drawings. Electrical system maintenance. Troubleshooting and defect rectification.
13.	INSTRUMENT SYSTEMS	1	Basic flight instruments. • Engine and airframe instruments.

	Area of study	Level	Syllabus content
			• Placarding.
		2	Pitot static systems. Venturi vacuum systems.
		1	Use of common test equipment.
		3	Installation and compensation of Direct reading compasses.
14.	RADIO SYSTEMS	2	Maintenance of Group 1 Communications equipment including antenna and ELT. ~~Antenna maintenance.~~ ~~ELT and antenna installation.~~ Isolation of radio interference. ~~Fabrication, installation and~~ Maintenance of wiring looms and cables. Troubleshooting and defect rectification. ~~Installation and VHF communications in VFR aircraft.~~
15.	MAINTENANCE GENERAL	3	Understanding of manufacturer's service information. Determination of overhaul lives. Significant Airworthiness Directives pertaining to above aircraft list. Finite life control. Weight and balance procedure. Computation of empty weight change.
		2	Ground handling. Jacking and levelling.
		3	Identification of bogus parts.
		2	Ground performance checking.

~~Subject 66 (Written) & 67 (Oral)~~

~~Aeroplanes Group 4~~

~~Resource Study Material~~

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~~Scope of the Subject~~

~~1~~	~~Civil Aircraft Inspection Procedures (UK CAIP)~~
~~2~~	~~Maintenance or repair manual for the candidate's *basic* aeroplane~~

~~The following books are acceptable alternatives to the A & P Handbooks. EA-ITP-GB-General, EA-ITP-AB-Airframe, EA-ITP-P Powerplant.~~

~~1.~~	~~FRP AIRCRAFT STRUCTURES~~	~~1~~	~~FRP airframe structure.~~
		~~2~~	~~Structural inspection.~~ ~~Airframe symmetry and rigging.~~
		~~3~~	~~Inspection after abnormal flight or ground occurrences.~~
		~~2~~	~~Minor FRP repairs and repair schemes.~~ ~~The effects of disturbed airflow.~~ ~~Surface finishes.~~
~~2.~~	~~FRP MATERIALS~~	~~1~~	~~Properties of FRP materials.~~
		~~2~~	~~Storage of materials.~~
		~~3~~	~~Safety precautions.~~ ~~Identification of material defects.~~
		~~2~~	~~Inspection techniques.~~
~~3.~~	~~CONTROL SURFACES & SYSTEMS~~	~~1~~	~~Control system components.~~
		~~2~~	~~Systematic correction of flying control faults.~~
		~~3~~	~~Installation and inspection of flying controls.~~
		~~2~~	~~Repair and balancing.~~

~~4.~~	~~HYDRAULIC SYSTEMS~~	~~1~~	~~Components of simple hydraulic systems.~~
		~~2~~	~~Installation of rigid and flexible lines.~~ ~~Hydraulic system maintenance.~~
~~5.~~	~~LANDING GEAR~~	~~1~~	~~Oleo landing gear construction.~~
		~~2~~	~~Wheels.~~ ~~Brakes.~~ ~~Balancing of wheel assemblies.~~ ~~Landing gear maintenance.~~
~~6.~~	~~AIRCRAFT FUEL SYSTEM UP TO ENGINE BULKHEAD~~	~~1~~	~~Fuel tanks.~~
		~~2~~	~~Installation of rigid and flexible fuel pipes.~~ ~~Fuel flow checks.~~ ~~Fuel gauge calibration~~
		~~1~~	~~Fuel cocks, check valves.~~ ~~Non-return valves, boost pumps.~~
		~~2~~	~~Fuel system maintenance.~~ ~~Auxiliary systems.~~
~~7.~~	~~TRANSPARENT PLASTIC PANELS~~	~~1~~	~~Storage and installation.~~ ~~Effect of heat coefficient on installation.~~ ~~Approved methods of repair.~~
		~~2~~	~~Cleaning and protection from detrimental compounds.~~
~~8.~~	~~CABIN & COCKPIT FURNISHINGS & SAFETY EQUIPMENT~~	~~2~~	~~Seat installations.~~ ~~Safety harness.~~
		~~3~~	~~Testing of safety harnesses.~~
		~~2~~	~~Selection of furnishing fabrics.~~ ~~Axe, first aid kit, life jackets.~~

~~9.~~	~~ENVIRONMENTAL CONTROL~~	~~2~~	~~Cabin heating, defrosting and ventilation.~~
~~10.~~	~~ELECTRICAL SYSTEMS~~	~~2~~	~~Aircraft batteries.~~ ~~Alternator circuits and protection.~~ ~~Electric pumps.~~ ~~Flap motors.~~ ~~Limit switches.~~ ~~Installation of wiring looms, connectors and junction boxes.~~ ~~Bonding.~~ ~~Electrical circuit drawings.~~ ~~Electrical system maintenance.~~ ~~Troubleshooting.~~
~~11.~~	~~INSTRUMENT SYSTEMS~~	~~1~~	~~Basic flight instruments.~~
		~~2~~	~~Engine and airframe instruments.~~
		~~1~~	~~Placarding.~~
		~~2~~	~~Pitot static systems.~~ ~~Vacuum systems.~~
		~~1~~	~~Use of common test equipment.~~
		~~3~~	~~Installation and compensation of direct reading compasses.~~
~~12.~~	~~RADIO SYSTEMS~~	~~2~~	~~Antenna maintenance.~~ ~~ELT and antenna installation.~~ ~~Isolation of radio interference.~~ ~~Fabrication, installation and maintenance of wiring looms and cables.~~ ~~Installation and VHF communications in VFR aircraft.~~

Powerplant Group I

Subject 70 ~~(Written) & 71 (Oral)~~

Resource Study Material

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Scope of the Subject

1.	CAAUK CAP 562 Civil Aircraft Airworthiness Information and Procedures (CAAIP) and associated CAPs https://publicapps.caa.co.uk/docs/33/CAP562_Issue%204_Amendment3.pdf
2.	FAA AC43.13-1B Acceptable Methods, Techniques, and Practices-Aircraft Inspection and Repair https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_43.13-1B_w-chg1.pdf
3.	FAA AC43.13-2B Acceptable Methods, Techniques, and Practices-Aircraft Alterations https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2043.13-2B.pdf
4.	AMT Handbook Powerplant Vol 1 – FAA-H-8083-32A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/FAA-H-8083-32-AMT-Powerplant-Vol-1.pdf
5.	AMT Handbook Powerplant Vol 2 – FAA-H-8083-32A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/FAA-H-8083-32-AMT-Powerplant-Vol-2.pdf
6.	EA-IGS Aviation Technical Training, Aircraft Ignition and Electrical Power Systems
7.	PWA-01-100 The Aircraft Engine and its Operation
8.	Continental, Lycoming, Rotax, Gypsy Major service manuals for normally aspirated engines
9.	Manuals applicable to the candidate's basic powerplant may be of assistance
~~1.~~	~~Civil Aircraft Inspection Procedures~~
~~2.~~	~~FAA EA-AC43-13-1 Aircraft Inspection and Repair~~
~~3.~~	~~EA-AC-65-12 Power Plant Handbook~~

~~*The following books are acceptable alternatives to the A & P Handbooks. EA-ITP-GB General, EA-ITP-AB Airframe, EA-ITP-P Powerplant.*~~

	Area of study	Level	Syllabus content
1.	ENGINE CONSTRUCTION & CONFIGURATION	3	Description of candidate's *basic* engine including: crankcase, crankshaft, camshaft, bearing arrangements, reduction gearing valve operating mechanism, cylinders, rear cover, component drive arrangements, breather systems and piston assemblies.
		1	Differences between the candidate's *basic* engine and other engines in the Group.
2.	LUBRICATION SYSTEMS	2	Wet and dry sump installations. Filter location and maintenance. Flexible and rigid pipelines. Oil coolers and thermostat systems. Pressure relief valves and cooling jets. Lubricant types, properties deterioration and identification. Hot oil priming procedures.
		3	Oil system troubleshooting including wear-debris analysis.
3.	IGNITION	1	Magneto construction.
		2	Internal timing procedure. Magneto installation and timing. Harness layout and maintenance. Auxiliary starting aids. Ignition switches and low-tension wiring. Spark plug maintenance. Radio interference.
		3	Ignition system maintenance and troubleshooting.
4.	FUEL SYSTEMS	1	Description and location of components.
		2	Carburettor types. Check valves, filters, pumps, non-return valves, fuel hoses, and pipes. Fuel injector systems. Fuel system maintenance, including running, mixture, & pressure adjustments.

	Area of study	Level	Syllabus content
		3	Fuel system defects and troubleshooting.
		2	Fuel system inhibiting.
5.	VACUUM SYSTEMS	1	System description.
		2	Maintenance of pump, oil separator regulator and filters.
		3	Troubleshooting and defect rectification.
6.	POWERPLANT	2	Engine mounting frames and rubbers. Cooling baffles and control systems. Induction filters and boxes. Exhaust systems including heater muffs and shrouds. Carburettor heat systems. Cabin heat systems including exhaust and oil cooler heat source.
7.	PROPELLERS	1	Construction and maintenance of wooden and metal fixed pitch propellers.
		1	Construction and differences between the various propeller types in the group.
		2	Blade and hub maintenance. Propeller governors and associated control mechanisms. Blade repair limits.
		3	Propeller system troubleshooting.
8.	ENGINE ELECTRICAL SYSTEM	1	Starting system description and maintenance.
		2	Charging system description and maintenance. Electrical wiring installation and maintenance. Interpretation of wiring diagrams.
		3	Electrical system troubleshooting.
		2	Use of common test equipment.
9.	ENGINE INSTRUMENTS	2	Description and maintenance of: tachometers, manifold pressure gauges, oil pressure and temperature gauges, cylinder head temperature gauges, and fuel flow systems.
		3	Troubleshooting engine instrument defects.

	Area of study	Level	Syllabus content
		2	Use of common test equipment.
10.	TOP OVERHAUL	3	Understand fully the top overhaul procedure for one engine in the group. This should include inspection and NDT, valve guide replacement, valve seat replacement, valve lapping, rectification of cooling fin damage and identification of cylinder bores.
11.	GENERAL POWERPLANT MAINTENANCE	2	Periodic inspection techniques. Engine change procedure. ADs applicable to candidate's *basic* engine. Ground testing procedures. Reference RPM procedure, including computation of correction factors. Engine running adjustments. Long- and short-term storage.
		3	Troubleshooting and defect rectification.
		2	Evaluation for engine life extensions. Compilation of work records, including logbook procedure. Engine *running-in* procedures.
		3	Duplicate inspection of engine controls.
		2	Inspection after abnormal flight occurrence. Flight test and test report analysis.

Powerplant Group 2

Subject 72 ~~(Written) & 73 (Oral)~~

Resource Study Material

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Scope of the Subject

1.	CAAUK CAP 562 Civil Aircraft Airworthiness Information and Procedures (CAAIP) and associated CAPs https://publicapps.caa.co.uk/docs/33/CAP562_Issue%204_Amendment3.pdf
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3.	FAA AC43.13-2B Acceptable Methods, Techniques, and Practices-Aircraft Alterations https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2043.13-2B.pdf
4.	AMT Handbook Powerplant Vol 1 – FAA-H-8083-32A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/FAA-H-8083-32-AMT-Powerplant-Vol-1.pdf
5.	AMT Handbook Powerplant Vol 2 – FAA-H-8083-32A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/FAA-H-8083-32-AMT-Powerplant-Vol-2.pdf
6.	EA-IGS Aviation Technical Training, Aircraft Ignition and Electrical Power Systems
7.	PWA-01-100 The Aircraft Engine and its Operation
8.	Pratt and Whitney R1340 and R1830 maintenance manuals
9.	Manuals applicable to the common Lycoming, Continental and Rotax turbocharged engines and their systems may be of assistance
~~1.~~	~~UK Civil Aircraft Inspection Procedures~~
~~2.~~	~~FAA EA-AC43-13-1 Aircraft Inspection and Repair~~
~~3.~~	~~EA-AC-65-12 Power Plant Handbook~~

~~*The following books are acceptable alternatives to the A & P Handbooks. EA-ITP-GB General, EA-ITP-AB Airframe, EA-ITP-P Powerplant.*~~

	Area of study	Level	Syllabus content
1	RADIAL POWERPLANTS	1	Basic construction and layout of cylinder and crankcase assemblies.
		2	Lubrication system. Ignition system. Fuel system. Exhaust system. Accessory gearbox. Reduction gear assemblies. Cooling system. Mounting frames. Periodic inspection and routine maintenance. Ground testing. Running adjustments.
		3	Troubleshooting and defect rectification.
		2	Long- and short-term storage. Oil priming. Reference RPM. Running-in procedure. Flight testing and performance analysis. Propellers and control systems.
2.	TURBOCHARGER SYSTEMS	2	Turbocharger construction. Lubrication system.
		3	Control systems fitted to Continental, Lycoming and Rotax engines.
		2	Waste gates. Density controllers. System pressure-relief valves. Over boost protection. Absolute pressure controllers (Ratio controller). Fire protection and sensing systems.

	Area of study	Level	Syllabus content
			EGT sensing and control. Intercoolers.
3.	TURBOCHARGER SYSTEM MAINTENANCE	3	Identification and rectification of typical turbocharger defects including burning, cracking, coking, carburising, oil starvation, warping, and buckling. Control system adjustments. Identification and rectification of performance defects in boosted systems. Routine maintenance.
4.	FUEL SYSTEMS	1	Understand the operation of the Teledyne Continental continuous flow fuel injection system fitted to boosted engines. Understand the operation of the (AlliedSignal) Bendix fuel injection system for turbocharged engines. Understand the operation of fuel pumps, metering units, manifold valves, nozzles, flow dividers, injectors, air throttle bodies, and automatic mixture controls as used in the above systems.
		3	Fuel system troubleshooting and defect rectification.
		2	Routine maintenance and adjustments. Fuel systems inhibiting.
5.	IGNITION SYSTEMS	1	Magneto pressurisation. Ignition harnesses.
		2	Ignition system maintenance.
		3	Ignition system troubleshooting and defect rectification.
6.	TURBO CHARGED ENGINES GENERAL	2	Engine ground testing and performance analysis. Over boost or overspeed inspections. Reference RPM checks.
		3	Troubleshooting.
		2	Routine periodic maintenance.
		3	Flight testing and performance analysis.

Rotorcraft Group I

Subject 80 ~~(Written) & 81 (Oral)~~

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2.	FAA AC43.13-1B Acceptable Methods, Techniques, and Practices-Aircraft Inspection and Repair https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_43.13-1B_w-chg1.pdf
3.	FAA AC43.13-2B Acceptable Methods, Techniques, and Practices-Aircraft Alterations https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2043.13-2B.pdf
4.	AMT Handbook General FAA-H-8083-30A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_general_handbook.pdf
5.	AMT Handbook Airframe Vol 1 - FAA-H-8083-31A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_airframe_hb_vol_1.pdf
6.	AMT Handbook Airframe Vol 2 - FAA-H-8083-31A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_airframe_hb_vol_2.pdf
7.	Helicopter maintenance manuals and ICAs applicable to the following aircraft types may be of assistance: • Hughes 269 – https://issuu.com/chestnuts/docs/bhmi_part1a • Robinson R22 - https://robinsonheli.com/r22-maintenance-manual • Robinson R44 – https://rotorcorp.com/r44-maintenance-manual/ • Guimbal Cabri G2 – https://www.manualslib.com/manual/1193753/Guimbal-Cabri-G2.html#product-Cabri%20G2
~~1.~~	~~UK Civil Aircraft Inspection Procedures.~~
~~2.~~	~~EA-HF-1 Basic Helicopter maintenance.~~
~~3.~~	~~Hughes 269 Helicopter maintenance manuals.~~
~~4.~~	~~Robinson R22 Helicopter maintenance manuals.~~
~~5.~~	~~Hiller 12E Helicopter maintenance manuals.~~
~~6.~~	~~Enstrom Helicopter maintenance manuals.~~

~~7.~~	~~Bell 47G Helicopter maintenance manual.~~

The following books are acceptable alternatives to the A & P Handbooks. EA-ITP-GB General, EA-ITP-AB Airframe, EA-ITP-P Powerplant.

	Area of study	Level	Syllabus content
1.	ROTORCRAFT FUSELAGE STRUCTURE	1	General description of the fuselage including identification of primary, secondary, tertiary and crashworthy structure. FRP and composite airframe structure and sub-structure.
		2	Non-major ~~minor~~ repairs. Non-major FRP and composite repairs and, FRP and composite repair schemes. Cabin environment control. Transparent panels. Structural alignment checks. Corrosion control and surface finish. FRP and composite surface finish. Abnormal flight occurrence checks. Powerplant and transmission mounting structure. Identification of structural defects.
2.	FRP AND COMPOSITE MATERIALS	1	Properties of FRP and composite materials.
		2	Storage of materials.
		3	Safety precautions. Identification of material defects.
		2	Inspection techniques.
3.	MAIN ROTOR SYSTEM	2	Description of main rotor hub, blades, dampers, and mast. Main rotor hub maintenance. Blade maintenance. Damper maintenance.
		3	Main rotor balancing and tracking. Systematic correction of flying faults. Defect analysis and rectification.
4.	CONTROL SYSTEMS	2	Description and operation of main rotor control systems. Swash plates assemblies. Power or pitch correlation devices.

	Area of study	Level	Syllabus content
		3	Control system rigging and maintenance. Troubleshooting and defect rectification.
5.	MAIN ROTOR TRANSMISSIONS	1	Description and operation.
		2	Routine periodic maintenance. Components and accessories.
		3	Overspeed and over torque inspections. Troubleshooting and defect rectification.
		2	Transmission mounts. Engine and transmission drive trains. Lubrication system maintenance. Free-wheel devices.
6.	ANTI TORQUE SYSTEM	1	Description and operation.
		2	Tail rotor drive. Tail rotor gearboxes. Tail rotor pitch control and rigging. Tail rotor hub and blade assembly. Routine maintenance including tracking and balancing.
		3	Troubleshooting and defect rectification including maintenance after a tail rotor strike.
7.	LANDING GEAR	1	Description and operation.
		2	Maintenance procedure. Damage areas and limits. Defect rectification.
8.	FUEL SYSTEM	1	Description and operation.
		2	Tanks, pumps, non-return valves, filters, strainers, and vents. Maintenance procedures.
		3	Troubleshooting and rectification.
9.	ELECTRICAL SYSTEM	1	Location and identification of electrical components.
		2	Aircraft batteries.

	Area of study	Level	Syllabus content
			Generators and charging circuits. Alternator circuits and protection. Electric pumps. Maintenance of wiring looms, connectors and junction boxes. Bonding. Interpretation of electrical circuit drawings. Electrical system maintenance. Troubleshooting and defect rectification.
		~~2~~	~~Interpretation of wiring diagrams.~~ ~~Starting system.~~ ~~Charging system.~~
		~~3~~	~~Maintenance of electrical components.~~ ~~Troubleshooting and defect rectification.~~
10.	INSTRUMENT SYSTEM	1	Basic flight instruments. Engine and airframe instruments.
		2	Simple automatic flight stabilization systems.
		1	Placarding.
		2	Pitot static systems. Pump and venturi vacuum systems.
		1	Use of common test equipment.
		3	Installation and compensation of Direct reading compasses.
		3	Troubleshooting instrument defects.
		~~2~~	~~Pitot and static system.~~ ~~Maintenance of engine, airframe and flight instruments.~~
		~~3~~	~~Fuel system calibration.~~
11.	RADIO SYSTEMS	2	Maintenance of Group 1 Communications equipment including antenna and ELT. Isolation of radio interference. Maintenance of wiring looms and cables.

	Area of study	Level	Syllabus content
			~~Installation of VHF and HF radio systems.~~ Troubleshooting and defect rectification.
12.	ROTORCRAFT MAINTENANCE GENERAL	3	Understanding of manufacturers service information. Determination of overhaul lives. Significant ADs pertaining to above aircraft list. ~~candidate's basic rotorcraft~~ Finite life control. Sudden rotor stoppage inspections. Helicopter weight and balance procedure. Computation of empty weight change.
		2	Ground handling. Jacking and levelling.
		3	Identification of bogus parts.
		2	Ground performance checking.
13.	MAINTENANCE OF ROLE EQUIPMENT	2	Refuelling equipment maintenance.
		1	Firelighters. Cargo hooks. Spray gear. Monsoon buckets Stretchers. Spreaders.
		2	Safety equipment including fire extinguishers, first aid kits, and crash axe.

Rotorcraft Group 2

Subject 82 ~~(Written) & 83 (Oral)~~

Resource Study Material

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2.	FAA AC43.13-2B Acceptable Methods, Techniques, and Practices-Aircraft Alterations https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2043.13-2B.pdf
3.	AMT Handbook General FAA-H-8083-30A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_general_handbook.pdf
4.	AMT Handbook Airframe Vol 1 - FAA-H-8083-31A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_airframe_hb_vol_1.pdf
5.	AMT Handbook Airframe Vol 2 - FAA-H-8083-31A https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/amt_airframe_hb_vol_2.pdf
6.	Helicopter maintenance manuals and ICAs applicable to the following aircraft types may be of assistance: • Hughes 369 • Bell 206 • Airbus AS350 • Eurocopter EC120 • Robinson R66
~~1.~~	~~Civil Aviation Inspection Procedures UK CAA.~~
~~2.~~	~~EA HF-1 Basic Helicopter maintenance.~~
~~3.~~	~~Hughes 369 Helicopter maintenance manuals.~~
~~4.~~	~~Bell 206 Helicopter maintenance manuals.~~
~~5.~~	~~Aerospatiale AS350 Helicopter maintenance manuals.~~

~~*The following books are acceptable alternatives to the A & P Handbooks. EA-ITP-GB General, EA-ITP-AB Airframe, EA-ITP-P Powerplant.*~~

	Area of study	Level	Syllabus content
1.	ROTORCRAFT FUSELAGE STRUCTURE	1	General description of the fuselage including identification of primary, secondary, tertiary, and crashworthy structure. FRP and composite airframe structure and sub-structure.
		2	Inspection, non-major ~~minor~~ repair, and replacement of bonded panels. Non-major FRP and composite repairs and, FRP and composite repair schemes. Non-major metal repairs and metal repair schemes.
		2	Structural alignment checks. Identification of structural defects. Corrosion control and surface finish. FRP and composite surface finish. Powerplant and transmission mounting structure.
		3	Abnormal flight occurrence checks.
		2	Cabin environment control. Maintenance of transparent panels. ~~Minor metal and FRP repairs.~~
2.	FRP AND COMPOSITE MATERIALS	1	Properties of FRP and composite materials.
		2	Storage of materials.
		3	Safety precautions. Identification of material defects.
		2	Inspection techniques.
3.	MAIN ROTOR SYSTEM	1	Description of main rotor assembly types and construction.
		2	Maintenance of main rotor hub, blades, dampers, and mast.
		3	Main rotor balancing and tracking. Systematic correction of flying faults. Defect analysis and rectification.
4	CONTROL SYSTEMS	2	Description and operation of main rotor control systems.

	Area of study	Level	Syllabus content
			Maintenance of hydraulic power control systems. Swash plate assemblies. Power or pitch-correlation devices.
		3	Control system rigging and maintenance. Troubleshooting and defect rectification.
5	MAIN ROTOR TRANSMISSIONS	1	Description and operation.
		2	Transmission mounts. Lubrication systems maintenance. Free wheel devices. Components and accessories. Routine periodic maintenance. Engine and transmission drive trains.
		3	Overspeed and over torque inspections. Troubleshooting and defect rectification.
6	ANTI TORQUE SYSTEM	1	Description and operation.
		2	Tail rotor drive. Tail rotor gearboxes. Tail rotor hub and blades. Tail rotor pitch control and rigging.
		3	Routine maintenance including tracking and balancing. Troubleshooting and defect rectification including maintenance after a tail rotor strike.
7	LANDING GEAR	1	Description and operation.
		2	Maintenance procedure. Damage areas and limits. Defect maintenance.
8	FUEL SYSTEM	1	Description and operation.
		2	Maintenance of tanks and fuel cells. Maintenance of fuel pumps, non-return valves, filters, strainers and vents.

	Area of study	Level	Syllabus content
			~~Fuel system~~ Maintenance procedures.
		3	Troubleshooting and rectification.
9.	ELECTRICAL SYSTEM	1	Location and identification of electrical components.
		2	Aircraft batteries. Generators and charging circuits. Alternator circuits and protection. Electric pumps. Maintenance of wiring looms, connectors and junction boxes. Bonding. Interpretation of electrical circuit drawings. Electrical system maintenance. Troubleshooting and defect rectification
		~~2~~	~~Interpretation of wiring diagrams.~~ ~~Starting system.~~ ~~Charging system.~~ ~~Maintenance of electrical components.~~
10.	INSTRUMENT SYSTEM	2	Basic flight instruments. Engine and airframe instruments.
		2	Simple automatic flight stabilisation systems.
		1	Placarding.
		2	Pitot static systems. Pump and venturi vacuum systems.
		1	Use of common test equipment.
		3	Installation and compensation of Direct reading compasses.
		3	Fuel system calibration
		3	Troubleshooting instrument defects.
11.	RADIO SYSTEMS	2	Maintenance of Group 1 Communications equipment including antenna and ELT. Isolation of radio interference.

	Area of study	Level	Syllabus content
			Maintenance of wiring looms and cables. ~~Installation of VHF and HF Radio systems~~. Troubleshooting and defect rectification.
12.	ROTORCRAFT MAINTENANCE GENERAL	3	Understanding of manufacturer's service information. Determination of overhaul lives. Significant Airworthiness Directives pertaining to candidate's *basic* rotorcraft. Finite life control. Sudden rotor stoppage inspections. Helicopter weight and balance procedure. Computation of empty weight change.
		2	Ground handling. Jacking and levelling.
		3	Identification of bogus parts.
		2	Ground performance checking.
13.	MAINTENANCE OF ROLE EQUIPMENT	2	Refuelling equipment maintenance.
		1	Firelighters. Cargo hooks. Spray gear. Monsoon buckets. Stretchers. Spreaders.
		2	Safety equipment including fire extinguishers, first aid kits, and crash axes.