

Helicopter Maintenance Trainer



Introduction

The Helicopter Maintenance Trainer is a freestanding helicopter trainer enabling students to carry out practical training by performing standard maintenance procedures associated with rotary wing aircraft. There are a multitude of systems which the students can carry out functional testing, fault diagnosis and remove/install procedures.

The Helicopter Maintenance Trainer uses an optimum mix of high-fidelity replica and real aircraft components installed in a refurbished airframe representative of a generic rotary wing aircraft. The equipment enhances the training given by allowing the instructor to demonstrate at ground level, operation of systems e.g. cockpit layout, instrumentation, Gas Turbine Engine remove and install, flying controls etc. thereby underpinning the students' knowledge of these systems.



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Key Features

- Airframe structure with easily visible cockpit area;
- Gas Turbine Engine;
- Main Rotor and Tail Rotor Transmission;
- Rotors flight control system, with collective, cyclic and yaw channels visible during operation;
- Hydraulic power supply providing flight control via hydraulic assisted servo actuators;
- Electrical supplies;
- Generic glass cockpit featuring electronic flight instrument display;
- Replicated stand by analogue flight instruments;
- Students perform practical tasks using aircraft manuals, standard tools and test equipment;
- Instructor operating station provides overall control, monitors activity and input of faults during simulated engine and rotor start training tasks;
- Includes Ground Support Equipment and Specialist tools.





Aviation Regulations Alignment

| EASA/EMAR PT 66 | FAA | City & Guilds | CASA MEA Units |
|--|---|--|--|
| Module 6 Materials & hardware | ATA 05 Periodic Inspections | 2675-01 City & Guilds Level 2 Certificate in Aircraft Maintenance (Military Aircraft) Units 104, 105, 106 | Common core units MEA103, 107, 118, 151, 155 & 157 |
| Module 7 Maintenance practices | ATA 07 Lifting & shoring | | MEA202 Remove and install basic aircraft electrical system components |
| Module 10 Aviation legislation | ATA 09 Towing and Taxiing | 2675-02, 23 Level 2 Diploma in Aircraft Engineering: Unit 003, 102 | MEA203 Remove and install advanced aircraft electrical system components |
| Module 11 Aeroplane, aerodynamics, structures and systems | ATA 12 Servicing Routine Maintenance | 2675-03 Level 3 Diploma in Aircraft Maintenance (Military/Civil) Aircraft Mechanical/Avionics: Units 202, 204, 205, 206, 210, 216, 217 | MEA206 Remove and install aircraft basic radio communication and navigation system components |
| Module 12 Helicopter aerodynamics, structures and systems | ATA 24 Electrical power | | MEA210 Inspect, test and troubleshoot basic aircraft electrical systems and components |
| Module 13 Aircraft aerodynamics, structures and systems | ATA 25 Equipment / Furnishings | 2675-05 Level 3 Diploma in Aircraft Maintenance (Civil Aircraft Mechanical): Units 204, 205, 206, 216 & 217 | MEA223 Inspect aircraft electrical systems and components |
| Module 14 Propulsion systems | ATA 27 Flight controls | | MEA227 Test and troubleshoot aircraft electrical systems and components |
| Module 15 Gas turbine engine | ATA 28 Fuel | 4608-50 Level 2 Diploma in Aerospace and Aviation Engineering (Military Foundation Competence): Units 201, 202, 203 & 240, 258, 266 & 267 | MEA301 Perform aircraft flight servicing |
| | ATA 29 Hydraulic Power | 4608-60 Level 3 Diploma in Aviation Maintenance (Military Development Competence) Core Units 301, 302, 304 455 Plus – 357, 360, 368, 379, 381, 385, 386, 389, 390, 391, 392 & 395 | MEA304 Remove and install non-pressurised aircraft structural and non-structural components |
| | ATA 43 Tactical Communications | | MEA306 Remove and install engines and engine system components |
| | ATA 52 Doors | | MEA308 Remove and install rotary wing rotor and flight control system components |
| | ATA 62 Main Rotor(s) | | MEA316 Inspect, test and troubleshoot rotary wing rotor and control systems and components |
| | ATA 63 Main Rotor drive(s) | | MEA319 Inspect gas turbine engine systems and components |
| | ATA 64 Tail rotor | | MEA330 Maintain aircraft non-primary structural removable components or parts and internal fittings |
| | ATA 65 Tail rotor drive | | MEA346 Perform scheduled line maintenance activities on gas turbine engine rotary wing aircraft |
| | ATA 67 Rotors flight control | | MEA352 Maintain basic rotary wing aircraft systems |
| | ATA 70 Standard practices - Engine | | MEA398 Remove and install aircraft hydro-mechanical and landing gear system components |
| | ATA 71 Power plant | | |
| | ATA 77 Engine Indicating | | |



Physical Specifications

| PARTICULAR | VALUE | UNIT |
|-------------------------------------|------------------------|------|
| AIRFRAME | | |
| Length | 12000 | mm |
| Width | 2100 ^{Note 1} | mm |
| Height | 3200 | mm |
| Weight | 1000 | Kg |
| INSTRUCTOR OPERATING STATION | | |
| Length | 1650 | mm |
| Width | 1028 | mm |
| Height | 1594 | mm |
| Weight | 230 | Kg |

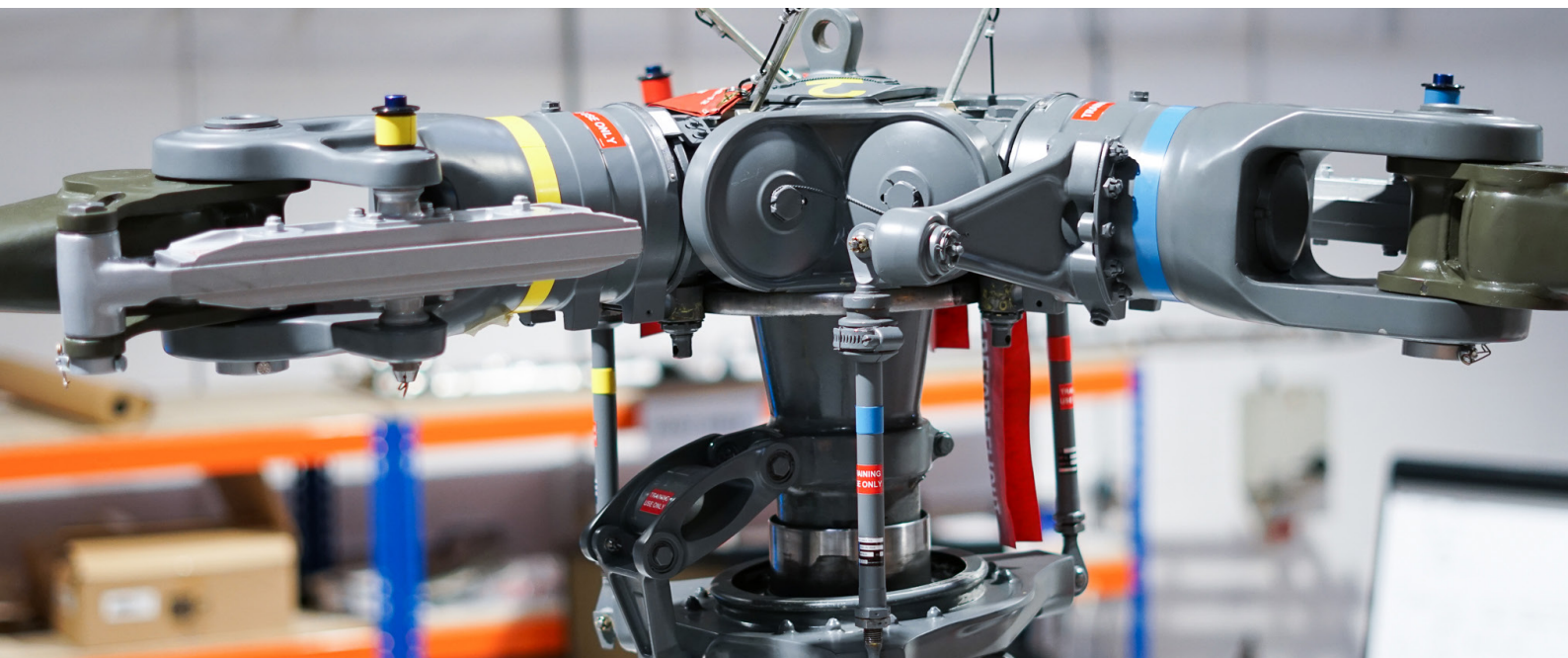
Note ¹ : Main airframe, not including blades or access staging (10500mm rotor disc diameter)

Supplied Documentation

Operational Manual

Maintenance Manual

Student Manual (Technical Publications)





Supported Training

| SYSTEM | PRACTICAL TASK | SIMULATED FAULTS |
|---|--|--|
| (00) AIR VEHICLE GENERAL | 1. Inspect Flying Control System. | No Faults |
| (07) LIFTING, SHORING, RECOVERING & TRANSPORTING | 1. Jack Aircraft. | No Faults |
| (09) TOWING AND TAXIING | 1. Ground handling equipment Remove and Install. | No Faults |
| (12) SERVICING | 1. Zonal Inspections (Zone 1); 2. Defuel Aircraft (Simulated); 3. Zonal Inspections (Zone 2); 4. Refuel Aircraft (Simulated); 5. Zonal Inspections (Zone 3); 6. Hydraulic Ground Power Unit connect / disconnect; 7. Hydraulic system replenishment; 8. Zonal Inspections (Zone 4); 9. Zonal Inspections (Zone 5). | No Faults |
| (24) ELECTRICAL POWER | 1. Battery Remove and Install; 2. External ground power connect / disconnect (Simulated); 3. Alternator Remove and Install; 4. Starter generator Remove and Install. | 1. Battery contactor, relay not energised; 2. Generator failure, no output voltage; 3. Alternator failure, no voltage output |
| (25) EQUIPMENT AND FURNISHINGS | 1. Pilot seat Remove and Install; 2. Heating duct and cover Remove and Install; | No Faults |





Supported Training

| SYSTEM | PRACTICAL TASK | SIMULATED FAULTS |
|---|--|---|
| (27) FLIGHT CONTROLS | 1. Tail Rotor servo Remove and Install. | No Faults |
| (28) FUEL | 1. Fuel Pump Remove and Install; 2. Fuel cut off valve control Remove and Install; 3. Fuel filter baffle Remove and Install; 4. Fuel filter element Remove and Install. | 1. Boost pump failure; 2. Partial filter blockage; 3. Complete filter blockage, bypass valve operated |
| (29) HYDRAULIC POWER | 1. Tail Rotor controls adjust; 2. Basic rigging check. | 1. Hydraulic pump fails to operate |
| (43) TACTICAL COMMUNICATIONS | 1. ARC 340 homer aerials Remove and Install. | No Faults |
| (52) DOORS | 1. Cabin door Remove and Install; 2. Main Rotor Gearbox Cowling Remove and Install; 3. Engine cowling Remove and Install. | No Faults |
| (62) MAIN ROTORS | 1. Main rotor blade examination; 2. Main rotor blade Remove and Install; 3. Damper Remove and Install; 4. Main Rotor Head examination; 5. Main Rotor Head Remove and Install; 6. Pitch Change Link Remove and Install; 7. Non-rotating scissor check Torque. | No Faults |
| (63) MAIN ROTOR DRIVES | 1. Clutch and freewheel assembly Remove and Install; 2. Main Rotor Gearbox examination; 3. Torque transmitter Remove and Install; 4. Main Rotor Gearbox Remove and Install; 5. Main Rotor Gearbox and Main Rotor Head Remove and Install; 6. Magnetic Plug inspection; 7. Rotor brake adjustment; 8. Rotor brake examination. | 1. Torque liaison sensor Detection Failure; 2. Clutch Failure |
| (64) TAIL ROTOR | 1. Tail Rotor Head Remove and Install; 2. Tail Rotor Gearbox Remove and Install; 3. Tail Rotor Head and gearbox examination; 4. Tail Rotor Head Remove and Install. | No Faults |
| (65) TAIL ROTOR DRIVE | 1. Tail Rotor Drives and Intermediate Gearbox Examination; 2. Inclined drive shaft Remove and Install; 3. Horizontal drive shaft Remove and Install; 4. Connecting shaft Remove and Install; 5. Intermediate gearbox Remove and Install. | No Faults |
| (67) ROTORS FLIGHT CONTROL | 1. Tail Rotor controls adjust; 2. Basic rigging check. | No Faults |
| (70) STANDARD PRACTICES - ENGINE | 1. Engine Remove and Install. | No Faults |
| (71) POWER PLANT | 1. Ground Run (Simulated). | No Faults |



Optional Accessories

Spares Kit

Ordering Information

| | |
|-----------------|--------------------------------------|
| 99310-000-0001A | Basic Maintenance Helicopter Trainer |
| 99310-3021 | Spares Kit |

