

Generic Flying Controls Trainer

Introduction

The Generic Flying Controls Trainer (GenFly) is a facsimile airframe to enable fast, realistic, effective training and to impart a thorough understanding of the principles and practices related to aircraft hydraulic, landing gear and flying control maintenance.

GenFly training rigs enable students to do progressive and demanding exercises. The training rigs allow the instructor to demonstrate and for each student to perform realistic maintenance tasks with a high degree of independence to consolidate and complement their theoretical knowledge.



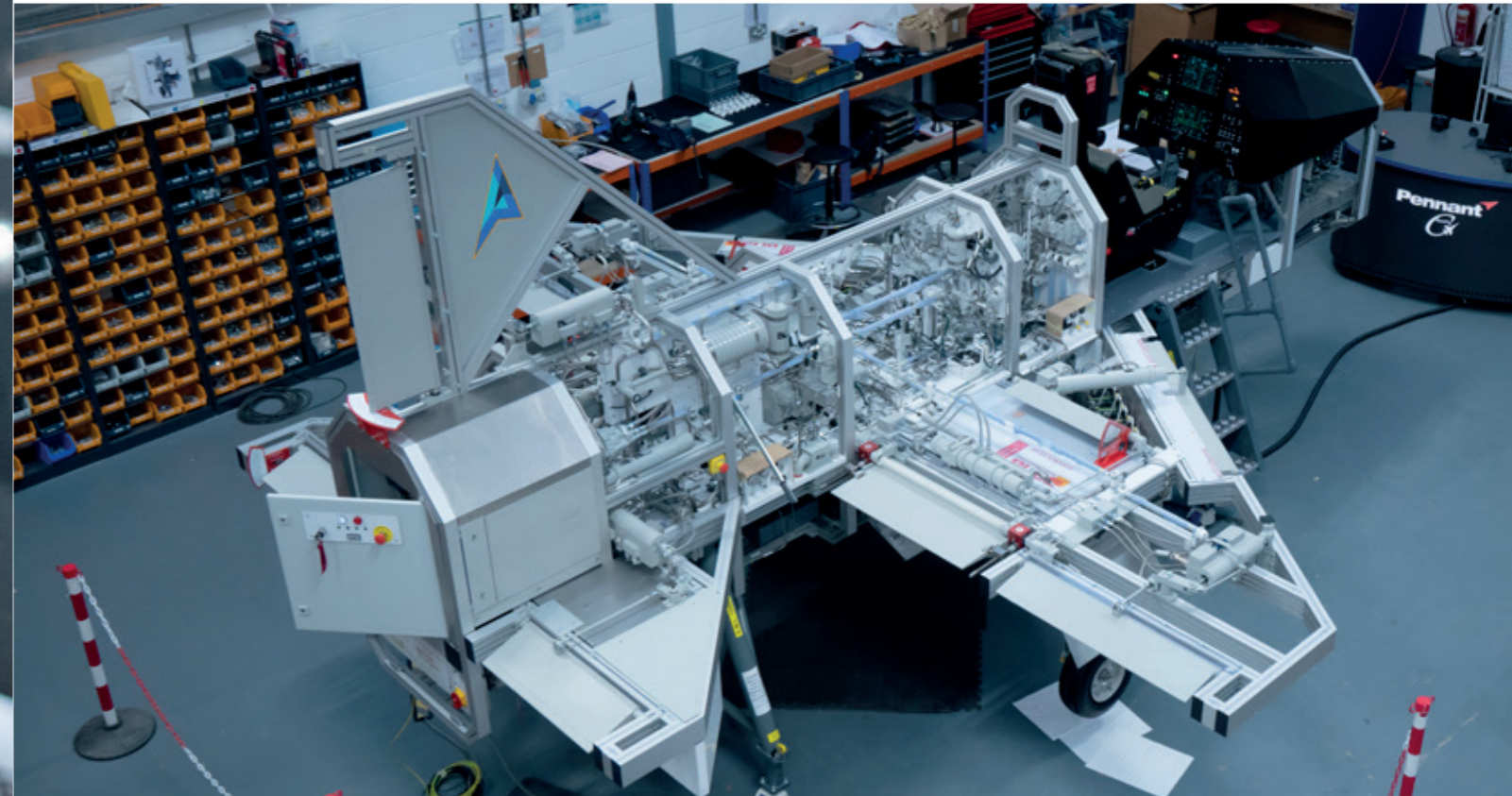
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Key Features

- Synthetic training device with modular open frame structure
- Representative cockpit incorporating controls and indicators
- Control surfaces and landing gear activated by electro-mechanical systems to simulate hydraulic actuators
- Access to the cockpit area is affected by the provision of servicing stepped platforms; all other areas are accessible from the floor level
- Simulated Ground Support Equipment (GSE) included
- Instructor Graphical User Interface (GUI) for control (including fault injection) and monitoring of training session
- Use of commercially available components to minimise life-cycle costs



Aviation Regulations Alignment

EASA/EMAR PT 66	FAA	CITY & GUILDS	MEA UNITS
Module 6 Materials & hardware Module 7 Maintenance practices Module 10 Aviation legislation Module 11 Aeroplane, aerodynamics, structures & systems Module 13 Aircraft structures & systems	ATA 12 Servicing ATA 22 Auto flight ATA 27 Flight Controls ATA 29 Hydraulic Power ATA 31 Indicating / Recording systems ATA 32 Landing Gear ATA 51 Standard Practices & Structures ATA 55 Stabilizers ATA 57 Wings ATA 73 Engine Fuel & Control ATA 77 Engine Indicating	2675-01 City & Guilds Level 2 Certificate in Aircraft Maintenance (Military Aircraft) Units 104, 106, 109 2675-02, 23 Level 2 Diploma in Aircraft Engineering: Unit 102 2675-03 Level 3 Diploma in Aircraft Maintenance (Military/Civil) Aircraft Mechanical/Avionics: Units 202, 203, 204, 205, 206, 210 & 218 2675-05 Level 3 Diploma in Aircraft Maintenance (Civil Aircraft Mechanical): Units 203, 204, 205 & 206 4608-50 Level 2 Diploma in Aerospace and Aviation Engineering (Military Foundation Competence): Units 201, 202, 203 & 240 4608-60 Level 3 Diploma in Aviation Maintenance (Military Development Competence) units 301, 302, 304 & 455	MEA107 Interpret & use aviation industry manuals & specifications MEA118 Conduct self in the aviation maintenance environment MEA154 Apply work health & safety practices in aviation maintenance MEA155 Plan & organise aviation maintenance work activities MEA157 Complete aviation maintenance industry documentation MEA158 Perform basic hand skills, standard trade practices & fundamentals in aviation maintenance MEA303 R & I aircraft pneumatic system components MEA305 R & I aircraft fixed wing flight control system components MEA318 Inspect aircraft hydro-mechanical, mechanical, gaseous & landing gear systems & components MEA320 Test & troubleshoot aircraft hydro-mechanical, gaseous & landing gear systems & components MEA321 Test & troubleshoot aircraft fixed wing flight control systems & components MEA328 Maintain &/or repair aircraft mechanical components or parts MEA398 – R & I aircraft hydro-mechanical & landing gear system components

Physical Specifications

PARTICULAR	VALUE	UNIT
GenFly Airframe		
Length	6200	mm
Width	5100 ^{Note 1}	mm
Height	3340	mm
Weight	2300	Kg
Instructor Operating Station		
Length	1650	mm
Width	1028	
Height	1594	mm
Weight	230	Kg

Note¹: 5537m with the addition of Servicing Steps

Supplied Documentation

Operation Manual
Maintenance Manual
Student Manual (Technical Publications)

Supported Training

SIMULATED SYSTEMS	PRACTICAL TASKS	SIMULATED FAULTS
LANDING GEAR	1. Jacking	1. Landing Gear Depressurising Valve fails closed
	2. Inflate Shock Strut	2. Landing Gear Depressurising Valve fails open
	3. Functional Test of Selector Lever	3. Landing Gear Input NRV fails closed
	4. Extension and Retraction (Individual Gear)	4. Emergency Lowering Valve fails closed
	5. Extension and Retraction (All Gear)	5. Emergency Lowering Selector Valve failed open
	6. Remove and Install Main Gear Door Sequence Valves	6. Landing Gear One Way Restrictor NRV fails closed
	7. Remove and Install Main Gear Sequence Valves	7. Landing Gear One Way Restrictor NRV fails open
	8. Remove and Install Main Gear Pressure Regulating Valves	8. Landing Gear Selector Valve fails in down position
	9. Remove and Install Nose Gear Sequence Valve	9. Landing Gear Selector Valve fails in Up position
	10. Remove and Install Emergency Lowering Selector Valve	10. Main Gear RH Sequence Valve fails closed (de-energised position)
	11. Functional Test of Brake System	11. Nose Door Sequence Valve fails closed
	12. Bleeding of Brake Unit	12. Nose Door Sequence Valve fails open
	13. Brake Wear Inspection	13. Nose Gear Jack Fully Up Valve fails open
	14. Remove and Install Auto Brake Valve	14. Nose Gear Sequence Valve fails closed
	15. Remove and Install Brake Accumulator	15. Nose Gear Up Inhibit Valve fails closed
	16. Remove and Install Main Wheel	16. Nose Gear Up Inhibit Valve fails open
	17. Remove and Install Ant-Skid Sensor	17. LH landing gear leg not locked down
	18. Functional Test of Arrestor Hook	18. LH Door Sequence Valve failed closed
	19. Functional Test of Nose Wheel Steering	
	20. Functional Test of Emergency Lowering System	
FLYING CONTROLS	1. Remove and Install Elevator PFCU	1. Airbrake Emergency Control Valve fails closed
	2. Operational test of the pitch control system	2. Airbrake Emergency Control Valve fails open
	3. Rigging check of the pitch control system	3. Airbrake Flow Divider unbalanced flow
	4. Operational test of pitch artificial feel system	4. Airbrake Package NRV fails open
	5. Remove and Install Aileron PFCU	5. Airbrake Selector Valve fails open (extension)
	6. Remove and Install Spoiler PFCU	6. Airbrake Selector Valve fails open (retraction)
	7. Operational test of roll control system	7. Airbrake Selector Valve fails to open
	8. Operational test of spoiler system	8. Airbrake Throttle Valve blocked
	9. Rigging check of the roll control system	9. Flap Drive Unit No 2-motor seize



SIMULATED SYSTEMS	PRACTICAL TASKS	SIMULATED FAULTS
FLYING CONTROLS	10. Rigging check of the spoiler system	10. Flap Selector valve in flap down position (Note: Flap Selector valve fails at extend)
	11. Operational test of roll artificial feel system	11. Flap Selector valve in flap up position (Note: Flap Selector valve fails at retract).
	12. Operational test of yaw artificial feel system	12. Flap Selector failed
	13. Remove and Install Slat Actuator	13. PFCU Spoiler LH seized
	14. Operational Test of flap system	14. RH Aileron PFCU No. 2 By-Pass Valve fails open
	15. Operational Test of slat system	15. No.1 Slat Package Blow Back Valve fails closed
	16. Rigging check of the flap system	16. No.1 Slat Package Blow Back Valve fails open
	17. Rigging check of the slat system	17. No.1 Slat Package Flow Divider unbalanced flow
	18. Remove and Install airbrake actuator	18. No.1 Slat Package NRV No.1 fails open
	19. Remove and Install airbrake emergency control valve	19. Slat Selector Valve fails open (retraction).
	20. Operational test of airbrake system	20. Slat Selector Valve fails neutral
	21. Rigging check of the airbrake system	21. Slat Selector Valve fails open (extension).
	22. Remove and Install airbrake emergency control valve	22. Slat Throttle Valve No.2 system blocked
	23. Operational test of airbrake system	23. No.2 Slat Package PRV fails open
	24. Rigging check of the airbrake system	
	25. Functional test of autopilot system	
	26. Functional test of auto trim system	
	27. Functional test of auto stab system	
	28. Functional test of stall protection system	
	29. Operational test of pitch electrical signaling system	
	30. Operational test of roll electrical signaling system	
	31. Operational test of yaw electrical signaling system	
	32. Change of role – Mechanical to Electrical signaling	
	33. Change of role – Electrical to Mechanical signaling	

SIMULATED SYSTEMS	PRACTICAL TASKS	SIMULATED FAULTS
HYDRAULICS	1. Reservoir Replenishment	1. Hyd 1 Accumulator slow leak
	2. Remove and Install system filters	2. Hyd 1 Automatic Change Over Valve fails open
	3. Remove and Install Engine Driven Pump	3. Hyd 1 Automatic Change Over Valve relief pressure too low
	4. Remove and Install Accumulator	4. Hyd 1 EDP delivering too high a pressure output
	5. Remove and Install EDP Off-Load Valve	5. Hyd 1 EDP delivering too low a pressure output
	6. Remove and Install Pressure Maintaining Valve	6. Hyd 1 EDP drive shaft sheared
	7. Remove and Install Electric Hydraulic Pump	7. Hyd 1 EDP NRV fails shut
	8. Remove and Install EHP Auto Cut-Out Valve	8. Hyd 1 EHP NRV fails closed.
	9. Remove and Install Main Pressure Switch	9. Hyd 1 EHP NRV fails open
	10. Remove and Install Temperature Transmitter	10. Hyd 1 EHP Pump sheared shaft
	11. Functional Test No 1 Main System	11. Hyd 2 Hand Pump fails on downstroke
	12. Functional Test No 2 Main System	12. Hyd 2 Hand Pump fails on upstroke
	13. Functional Test No 1 Auxiliary System	13. Hyd 1 hand pump NRV fails open
	14. Functional Test No 2 Auxiliary System	14. Hyd 1 hand pump Pressure Relief Valve fails open
	15. Functional Test No 1 Indication System	15. Hyd 1 Off Load Valve fails closed ('offload' condition)
	16. Functional Test No 2 Indication System	16. Hyd 1 Off Load Valve fails open ('on load condition')
		17. Hyd 1 Pressure Release Valve fails open
		18. Hyd 1 Pressure Relief Valve fails open
		19. Hyd 1 supply line filter blocked (by-passed)
		20. Hyd 1 supply line filter partially blocked
		21. Hyd 2 brake accumulator slow leak
		22. Hyd 2 EDP delivering too high a pressure
		23. Hyd 2 EDP drive shaft sheared
		24. Hyd 2 Hand Pump NRV fails closed
		25. Hyd 2 Low-Level Isolating Valve fails closed (energised position)
		26. Hyd 2 Low-Level Isolating Valve fails open (de-energised position)
		27. Hyd 2 Pressure Maintaining Valve fails closed
		28. Hyd 2 Off Load Valve fails closed
		29. Hyd 1 Pressure Relief Valve fails closed
		30. No.1 EDP has high internal leakage
		31. Hyd 2 supply line filter blocked (by-passed)
		32. Slow leak on Hyd 1 Reservoir



