INTRODUCTION

1. The Hunter G.A. Mk. 11/P.R. Mk. 11 is a single-seat, mid-wing ground attack/ground attack and photographic reconnaissance aircraft with swept-back wings, variable incidence tail-plane, power-operated aileron and elevator controls and cabin pressurization. It is powered by a Rolls-Royce Avon straight flow turbo-jet engine with a twelve-stage axial flow compressor. The engine is installed centrally within the fuselage with its air intakes in the leading edges of the stub wings, and a straight-through jet pipe exhausting at the fuselage tail-end. A manually controlled gyro gun sight with a retractable mounting is carried above the centre instrument panel and a cine camera is installed in the nose of the G.A. Mk. 11 aircraft. Three F.95 cameras are installed in the nose and a camera control box is fitted in the cabin of the P.R. Mk. 11 aircraft. Provision is made for the carriage of rocket projectiles under the wings.

2. The pressurized cabin, which is provided with a fully-automatic ejection seat complete with survival equipment, is protected forward of the pilot by heavy plating. It is provided with an electrically-operated hood which slides rearwards for entry and exit. In an emergency, the hood may be jettisoned by means of a control in the cabin.

3. The flying controls are of the normal stick and rudder bar type from which the control surfaces are operated through the medium of push-pull rods. Hydraulic booster jacks are provided to fully augment the pilot's effort when operating the ailerons and elevators, and the rudder and the port aileron are each provided with a small electrically operated trimming tab controllable in flight from the cabin.

4. The fuselage is manufactured in three portions; front, centre and rear. The front fuselage, which is provided with a detachable nose piece, is reinforced by a keel member and four longerons. The centre fuselage and stub wings are built as an integral unit. The rear fuselage is constructed with the lower portion of the fin as an integral unit and is terminated by a detachable tail cone.

5. The engine is mounted in the centre fuselage at four attachment points. The forward points are port and starboard suspension linkages which pick up with the engine compressor casing, while the rear points situated one on each side of frame 40A consist of mounting blocks that are designed to allow for engine expansion and engage with trunnions on the engine turbine nozzle box. An engine-driven accessories gearbox mounted at the bottom of the engine bay, just aft of the rear spar on the port side of the aircraft, drives the hydraulic pump and two electrical generators which, together, supply all the hydraulic and electrical power for the aircraft services. A fire extinguishing system is provided and is operated by means of a switch in the cabin, or automatically in the event of a crash landing.

6. The swept-back outer wings are two-spar stressed-skin structures, the heavy gauge skin providing the necessary stiffness with a minimum of internal structure. Each wing is attached to the fuselage stub wings by joint pins and high tensile-steel plug-ends at the front and rear spars. Electro-hydraulically operated split trailing edge landing flaps extend along the underside of each wing to the inboard ends of the ailerons. The ailerons are conventional structures, their operation being assisted by hydraulically-operated booster jacks installed in the wings.

7. The tail plane is a multi-spar, swept-back structure built in one unit. Virtually sandwiched between the upper and lower portions of the fin, it has limited movement to allow for variable incidence. It is hinged at the rear spar and is raised or lowered at the leading edge by means of an electric actuator controllable from the cabin. The elevators are of conventional design, their operation being assisted by a hydraulic booster jack located in the fin. An interconnection in the form of a follow-up linkage between the tail plane actuator and full power elevator, makes provision for operation of the units as an electrically-operated flying tail. The upper portion of the fin is a two-spar structure attached to the lower portion at the front and rear spars, the lower portion being integral with the rear fuselage. The rudder is hinged to the upper portion of the fin. An air brake, when in the closed position, embraces the undersurface of the rear fuselage.

8. The tricycle alighting gear is electro-hydraulically operated, all three units being of the liquid spring shock-absorber type. The main wheel units are provided with hydraulically-operated brakes which operate differentially in conjunction with the rudder bar and, to permit the maximum braking effort to be applied without the risk of wheel skidding, Maxaret units are incorporated. The nose wheel, which is fully castoring and self-centring during retraction, retracts forward into the fuselage immediately forward of the cabin, while the main wheel units retract inwardly, one into each outer wing.

When retracted, all three units are totally enclosed within the structure by fairings and are locked up by catches on the fairings. When extended, the main wheel units are locked down by internal mechanical locks in the hydraulic jacks that operate them, while the nose wheel unit is locked down by a mechanical lock at the top of the leg. The attitude of all three units is shown on an electrically-operated indicator in the cabin.

9. The fuel is contained in flexible pressurized bag-type tanks installed in the fuselage and in each outer wing. The centre fuselage tanks are mounted forward of the engine, two on each side, between and around the air intake ducts, while the wing tanks are installed in the leading edge of each outer wing just outboard of the wing root. Overload fuel may be carried on pylons under the wings. The fuel system is pressure refuelled and defuelled through a standard refuelling valve located in the port wheel bay. Fuel is fed to the engine from the two forward tanks, the fuel being transferred to these tanks from the other tanks by air pressure taken from a restricted tapping on the engine compressor. Electrically-driven booster pumps are installed, one in each front tank, to supplement the engine-driven fuel pumps and, to ensure correct distribution of fuel from each side of the system, their output is fed to the engine-driven pumps via a fuel flow proportioner. Each pump is fitted with inverted-flight valves and installed in a "negative G" fuel trap.

10. A pressure-demand oxygen system, utilizing two high-pressure oxygen cylinders, is incorporated in this aircraft. The cylinders are installed in the nose wheel bay on the starboard side of the aircraft, with an in-situ charging valve located below them. The oxygen regulator, together with a cylinder contents gauge, is mounted in the cabin, the supply pipe from the regulator being taken to a quick-release connection on the ejection seat. An emergency oxygen bottle is automatically brought into operation when ejection action is taken, and may also be used if the main oxygen system fails.

11. The radio installation consists of an ARI 18124/1 (pre Mod 1480) or an ARI 23301/80 (post Mod 1480) multi-channel UHF communication installation, with which is associated an ARI 23057 UHF standby installation and an ARI 18012 telebriefing system. Mod 1429 introduces an ARI 23288 (AD120) VHF communication installation in addition to the UHF installations. A system to give the pilot audio warning of loss of hydraulic pressure is linked with the UHF installation. The UHF radio installation is carried in the radio bay in the front fuselage just forward of the front transport joint, and is remotely controlled by switches and control units situated in the cabin. The main UHF transmitter-receiver employs a wide-band, blade type aerial, which projects upwards from the hood fairing, while the standby UHF transmitter-receiver uses a single whip type aerial that projects downwards from between frames 9 and 10 of the front fuselage. When Mod 1429 is embodied, a VHF transmitter-receiver and audio amplifier are located on the fuselage access door between frames 12 and 16. An associated whip aerial projects downwards from the port side of the access door. The installation is remotely controlled by a control unit situated in the cabin which, when selected ON, automatically isolates the mic-tel and press-to-transmit circuits from the UHF installations thus enabling VHF to be used. UHF is immediately available when the VHF control unit is switched off.

12. The radar equipment consists of an ARI 18107 TACAN installation and an ARI 5848 Mk.10 IFF transmitter-receiver. The TACAN installation is carried in the front fuselage and is accessible via a door in the underside of the fuselage. The single blade aerial is mounted just forward of the nose wheel bay. The Mk.10 IFF transmitter-receiver is carried in the radio bay, and employs two small blade type aerials, one of which projects upwards from the front fuselage just forward of the windscreen, and the other downwards from the centre fuselage between frame 22 and 23. Both radar installations are remotely controlled from the cabin. Modification 1319 introduces ARI 23134/3 (IFF/SSR 1520) in place of the IFF Mk.10. This radar installation is also remotely controlled from the cabin and utilises the two blade aerials installed for the IFF Mk.10. Modification 1383 introduces a height in-coding facility for all post Mod 228 aircraft. Modification 1378 introduces the same facility for the pre-Mod 228 GA aircraft.

13. Any essential differences between the GA Mk.11 and the PR Mk.11 aircraft are detailed either in the text of the relevant chapter or as an appendix to the chapter.