INTRODUCTION

1. The Hunter F.R.Mk.10 is a single-seat, high speed, fighter reconnaissance aircraft. It is powered by a Rolls-Royce Avon 207 turbo-jet engine with a fifteen 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. The armament consists of four electrically-fired and controlled 30 mm. Aden guns carried, together with their ammunition in a removable pre-armed armament package located in the underside of the front fuselage. The guns are sighted through the medium of a gyro gun sight. The gun sight, which is provided with a manual ranging control, is carried above the centre instrument panel. A cine camera, which normally operates in conjunction with the guns, but which can be operated independently if desired, is installed in the nose of the aircraft, just forward of frame 3, and focuses through a vision tube. A forward-facing F.95 photographic reconnaissance camera is installed in the extreme nose of the aircraft, where it focuses through a window that is provided with electrically-operated eyelids. Two further F.95 cameras are provided for sideways operation, these being mounted one above the other on a special mounting located on the forward face of frame 3 where they focus one port and one starboard through windows one on either side of the detachable nose piece of the aircraft. Pylons, to support drop fuel tanks, are provided for installation under each wing.

2. The pressurised cabin, which is provided with a fully automatic ejector seat complete with survival equipment, is protected forward of and below 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. It is jettisoned automatically when seat ejection is effected, a time delay ensuring that the hood is clear before the seat itself is ejected.

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 tubes. Hydraulic booster jacks are provided to fully augment the pilot's effort when operating the ailerons and elevators, and the rudder and port aileron are provided with small electrically-operated trimming tabs controllable in flight from the cabin.

4. The fuselage is a monocoque structure 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. It is terminated by a detachable tail cone which incorporates a fairing that houses a braking parachute.

5. The engine is mounted in the centre fuselage at four attachment points. The forward points, located on either side, are suspension linkages which pick up with the engine compressor casing. The rear attachment points consist of swivel bearings and caps at frame 40A which engage with trunnions on the engine turbine nozzle box. An engine-driven gearbox is mounted in the centre fuselage, forward of the rear spar frame. The drive to the gearbox is taken from the engine by a shaft to a turret drive arm, and thence by means of another shaft to the rear of the gearbox. The gearbox 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, It 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 a perfectly smooth finish and 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 end 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. It is provided with a small electrically-operated trimming tab. An air brake, which when in the closed position embraces the underside of the rear fuselage, is fitted to this aircraft.

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. The nose wheel is fully castoring and self-centring during retraction. It retracts forward into the fuselage immediately in front 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 pressurised bag-type tanks installed in the fuselage and in each outer wing. Two of the fuselage tanks are mounted in the centre fuselage forward of the engine, and the other two in the rear fuselage where, together, they surround the engine jet pipe. The wing tanks are installed in the leading edge of each outer wing, just outboard of the wing root. Provision is also made, on the wing pylons, for the installation of drop fuel tanks which, when installed, feed fuel to wing tanks by means of air pressure supplied from the fuel transfer system. The fuel system is refuelled and defuelled through a standard refuelling valve located in the port wheel bay, and fuel is fed to the engine from the fuselage front tanks, the fuel being transferred to these tanks from the other tanks by air pressure taken from a restricted tapping on the engine compressor. Matched 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. To ensure an adequate supply of fuel under negative "G" conditions, a fuel recuperator is installed in each front tank. The rear fuel tanks are provided with an explosion suppression system.

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

11. The radio installation consists of an A.R.I.18124/1 multi-channel U.H.F. communication installation, with which is associated an A.R.I.23057 U.H.F. standby installation and an A.R.I.18012 tele-briefing system. A system to give

the pilot audio warning of loss of hydraulic pressure is linked with the U.H.F. installation. An A.R.I.5877 radio compass and a Type 16606 voice recorder are also installed. The U.H.F. transmitter-receivers, voice recorder and the radio-compass I.F. amplifier unit are all carried in the radio bay in the front fuselage just forward of the front transport joint. The R.F. amplifier and bearing indicator of the radio compass installation are both installed in the cabin. All the radio installations are remotely controlled by switches and control units situated in the cabin.

12. The main U.H.F. transmitter-receiver employs two wide band, blade type aerials, one of which projects upwards from the hood fairing and the other downwards from the engine access door in the undersurface of the centre fuselage. The standby U.H.F. transmitter-receiver uses a single whip type aerial which projects downwards from between frames 9 and 10 of the front fuselage. The radio compass installation employs loop and sense aerials, the loop being situated in a fairing between frames 19 and 21 at the bottom of the centre fuselage and the sense aerial extends lengthwise along the lower port side of the centre fuselage.

13. The radar installation consists of an A.R.I.5848, Mk.10 I.F.F. transmitter-receiver which is carried in the radio bay. The installation employs two small blade 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, The installation is remotely controlled from the cabin.