INTRODUCTION

1. The Hunter T.Mk.8, 8B and 8C aircraft are two-seat, midwing, land-based monoplanes with swept-back wings and an electrically-operated swept-back tail plane which operates in conjunction with power-operated elevators and tail plane actuator. The ailerons are also power operated and the cabin is pressurised. The aircraft are powered by a Rolls Royce Avon 122 straight flow gas turbine engine, incorporating a cartridge starting system. The engine is installed centrally within the fuselage with its air intakes in the leading edge of the stub wings and a straight through jet pipe exhausting at the fuselage tail end. The Mk.8 aircraft is provided with one electrically-fired and controlled 30 mm Aden gun which is carried semi-buried in the bottom of the front fuselage on the starboard side of the aircraft, just aft of the cabin, with its ammunition in a removable container above. A gyro gun sight, fitted with alternative manual or radar ranging control is provided for each crew member; the sights being carried on fixed mountings, one on each side of the centre instrument panel. A cine camera installed in the extreme nose of the aircraft normally operates in conjunction with the gun. The camera can be operated separately if desired. No guns are installed in the Mk.8B and 8C aircraft and the gun sights of these aircraft have only manual ranging facilities. Pylons, to support overload fuel or external stores according to the aircraft's operational duties may be installed under each outer wing.

2. The pressurised cabin, which accommodates two fully automatic ejection seats complete with survival equipment, is provided with an electro-hydraulically operated hood which hinges upwards on its rear edge for entry and exit. In an emergency the hood may be jettisoned independently, or in conjunction with either ejection seat. The flying controls are of the normal stick and rudder bar type and operate the control surfaces by means of push-pull tubes. The rudder and port aileron are provided with small electrically operated trim tabs controllable from the cabin.

3. The fuselage structure is manufactured in three main portions, front, centre and rear. The front fuselage, which is provided with a detachable nose piece, is reinforced by keel members and four longerons. The centre fuselage and stub wings, which house the air intakes, are built as an integral structure. The rear fuselage is constructed with the lower portion of the fin as an integral part and is terminated by a detachable tail cone. An air brake is fitted underneath the rear fuselage.

4. The engine is mounted in the centre fuselage structure at four attachment points. The forward points are suspension linkages located on either side of the aircraft, which pick up with the engine compressor casing. The aft points consist of mounting blocks which engage with trunnions on the engine turbine nozzle box. An engine-driven accessories gearbox is mounted at the bottom of the engine bay just aft of the rear spar on the port side of the aircraft. This drives the hydraulic pump supplying the power for the hydraulic system and two generators which supply all the power for the aircraft's electrical services. A fire extinguisher bottle, accommodated between the air intakes just forward of the engine, is connected to the extinguisher connection on the engine.

5. 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. The ailerons are conventional structures, power-operated by hydraulic booster jacks located in the wings. Electro-hydraulically operated split trailing edge landing flaps extend along the underside of each wing to the inboard end of the ailerons.

6. The electrically operated flying tail is a multi-spar swept-back structure built in one piece, sandwiched between the upper and lower portions of the fin. It is hinged at the rear spar and is raised or lowered at the leading edge by an electrically-operated actuator controllable from the cabin. The elevators are of conventional design, power-operated from a hydraulic booster jack situated in the fuselage tail end. An interconnection between the full power elevators and tail plane trimming actuator ensures that a given control column displacement provides a pre-determined amount of tail plane and elevator movement when the units are functioning as an electrically-operated flying tail. A switch in the cabin is provided to cut out the electrical flying tail linkage in order to permit reversion to normal full power elevator with trimmable tail plane. The upper portion of the fin is a two-spar structure attached to the lower portion, which is integral with the rear fuselage. The rudder is hinged to the upper portion of the fin. A braking parachute is housed in a container located above the tail cone.

7. The tricycle alighting gear is electro-hydraulically operated, all three units being of the liquid spring shock-absorber type. The main wheel units, which are fitted with recuperators, are provided with hydraulically operated brakes which operate differentially in conjunction with the rudder bar. The nose wheel unit, which is fully castoring and self-centring during retraction, retracts forward into the fuselage immediately in front of the cabin, while the main units retract inwardly into their respective wings. When retracted all three units are totally enclosed within the structure by fairings and are locked up by catches on these fairings. When extended, the main wheel units are locked down by internal mechanical locks in the hydraulic jacks which operate them. The nose wheel 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. A sting-type deck landing arresting hook is fitted beneath the rear fuselage between frames 50 and 57. It is fitted with a hydraulic damper unit and is electrically released and manually retracted.

8. The fuel is contained in flexible bag type tanks installed in the centre fuselage and each outer wing. The centre fuselage tanks are mounted two on each side, between and around the air intake ducts forward of the engine and the wing tanks in the leading edge of the outer wings just outboard of the wing roots. Provision is also made, on universal pylons under the wings, for the installation of drop fuel tanks which feed fuel to the wing tanks by means of air pressure from the fuel transfer system. The system is pressure refuelled from a standard refuelling valve in the port wheel bay and the fuel is fed to the engine from the two forward fuselage tanks, the fuel being transferred from the other tanks by means of air pressure obtained from a restricted tapping on the engine compressor. Matched electrically-driven fuel booster pumps are installed, one in each front tank, to supplement the supply to the engine-driven pumps and to ensure that, in conjunction with a fuel flow proportioner, fuel is delivered equally from either side of the system. Provision is also made for an adequate supply of fuel to be delivered under negative 'G' conditions. The fuel gauges are of the electronic type.

9. A pressure demand oxygen system consisting of four high-pressure oxygen cylinders is installed, with two cylinders, port and starboard, in the front fuselage. The system is charged in-situ via a charging valve located just aft of frame 16 on the starboard side of the aircraft. A pressure reducing valve is mounted above the starboard pair of cylinders; the regulators, together with a pressure gauge which registers the contents of the cylinders, are located in the cabin. The supply pipe from each regulator is taken to a break joint on the cabin floor to which the appropriate ejection seat piping is connected. Emergency oxygen bottles, one of which is fitted at the back of each of the seat, are automatically brought into operation when ejection action is taken. Provision is also made for the use of these in the event of main oxygen system failure.

10. The radio equipment of the Mk.8 aircraft consists of a multi-channel UHF communication installation with which is associated an intercommunication amplifier, a tele-briefing installation, ZBX homing beacon, and a standby UHF set. The radar equipment consists of a radar ranging installation. The UHF installation and its associated standby set use two blade aerials and one whip aerial. One of the blade aerials projects upwards from the starboard hood fairing, the other downwards from the centre fuselage and the standby whip aerial projects downwards on the port side of the fuselage between frames 12 and 14. The ZBX equipment employs one whip aerial which projects downwards from the engine starter access door which is situated in the lower surface of the centre fuselage. All the transmitter-receivers are carried in the radio bay located in the front fuselage just forward of the transport joint. The radar head and ranging unit are both situated in the nose of the aircraft. All the equipment is remotely controlled from the cabin.

11. The radio equipment of the Mk.8B and Mk.8C aircraft is similar to that of the Mk.8, but the ZBX homing beacon receiver has been replaced by a TACAN installation and the radar ranging installation has been removed. Mod 1430 introduces a VHF communication installation additional to the UHF installation ▶ and Mod 1481 introduces a V/UHF (main) communication system to replace the existing UHF (main) communication system in Mk.8C aircraft.

12. Mod 1484 introduces a multi-channel V/UHF communication system to the Mk.8B aircraft. The main UHF transceiver in the system utilizes the existing UHF aerial mounted on the hood fairing and the VHF transceiver in the system utilizes the VHF aerial mounted on the upper surface of the port wing. ◀