

# WESTLAND WIDGEON

*A Five-seat Helicopter in Detail: "Quick-change" Features for Versatility*

**T**HE elaborately annotated sectional drawing on this page permits a particularly intimate study of a modern helicopter—for such is the Westland Widgeon.

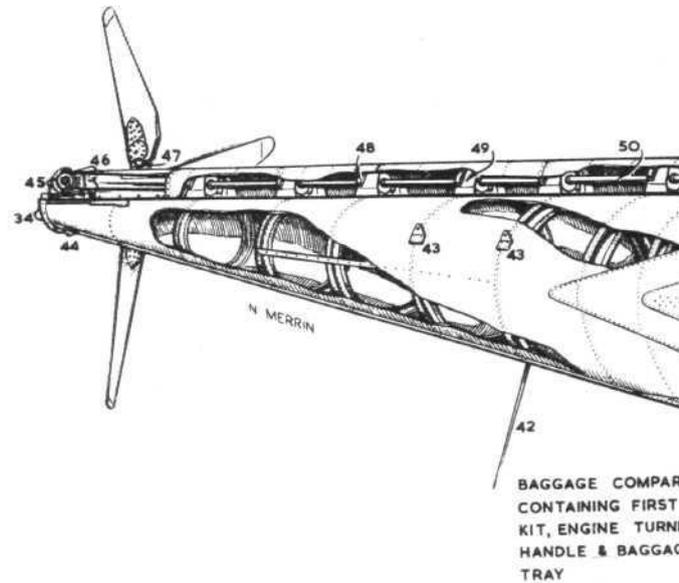
Literally the heart of the Widgeon is the Alvis Leonides 521/1 nine-cylinder radial engine, mounted with the crankshaft vertical in the centre-section of the fuselage. This unit has a maximum power rating of 515 h.p. at 3,000 r.p.m., and with 43in boost. The vertical shaft from the Leonides drives through a centrifugal clutch, incorporating an engine-cooling fan, to the main gearbox. This box has two-stage epicyclic gears giving a 14.85 speed reduction for the main rotor and a 2.25 reduction for the tail rotor.

The cabin has a floor area of 24½ sq ft, and the three rear seats and two adjustable forward seats are so fitted that they can be quickly and simply removed when the Widgeon is required for rôles other than passenger carrying. For pilot-training, dual controls and instruments can be installed.

For rescue duties an hydraulically-operated winch is fitted on the starboard side—a location which permits the pilot to control the winch and renders the presence of an additional crew-man unnecessary. The winch is suitable for rescue with various types of harness, as well as with the scoop net, and is stressed to hoist three adults simultaneously. Alternatively, it can serve as an aerial crane. For what the makers call "replenishment services" a substantial load can be carried in a special freight sling.

For ambulance work the Widgeon requires no modification. The triple rear seats are removed and the port-side front seat is transferred to a position behind the pilot, for the use of a medical attendant. Two stretchers are then positioned, one above the other, lengthways on the port side of the cabin. In the nose is a single clamshell door for stretcher loading.

The Widgeon has a maximum all-up weight of 5,900 lb. Its maximum permissible speed is 95 kt (109 m.p.h.), maximum cruising speed 88 kt (101 m.p.h.), and economical cruising speed 70 kt (80 m.p.h.).



FIXED MAIN UNDERCARRIAGE  
12 FT. TRACK (DUNLOP WHEELS  
TYRES & BRAKES)

"Flight" photograph



- |   |   |
|---|---|
| 1 Lateral-trimming actuator   | 28 Directional-control quadrant (cables run behind cabin bulkhead, over engine bay and along tail cone to 45) |
| 2 Main fuse block   | 29 Mixing unit—fore-and-aft lateral cyclic-pitch controls.  |
| 3 Fore-and-aft control torque tube  | 30 Jacking points   |
| 4 Platform extending cabin floor when door closed   | 31 Brake pipes  |
| 5 Hinged stretcher-guide rail (stowed)  | 32 Ventilator   |
| 6 Stretcher-guide rails   | 33 External freight carrier (loading up to 750 lb)  |
| 7 Gyrosyn compass corrector control box   | 34 Navigation lamps   |
| 8 Gyrosyn compass amplifier   | 35 Air-intake supplying cold air through transverse duct to carburettor                                       |
| 9 Weight and c.g. schedule  | 36 24 v, 25 amp hr battery  |
| 10 Toggle fastener  | 37 Hot-air valve  |
| 11 Picketing lug  | 38 Turner pneumatic shock-absorber leg  |
| 12 Air-charging valve   | 39 Oil tank (6.5 gal)   |
| 13 Westland oleo-pneumatic shock-absorber leg   | 40 Kick-in step   |
| 14 Footstep (bottom rung retracting)  | 41 Baggage tray   |
| 15 Directional-control pedestal   | 42 Aerial for STR 9X radio, installed above baggage compartment (port side)                                   |
| 16 Rudder pedals  | 43 Blade-folding-gear lugs  |
| 17 Fire extinguisher  | 44 Tail-rotor guard attachment point  |
| 18 Pedal leg-reach adjuster   | 45 Cable-drum and pitch-control shaft   |
| 19 Fore-and-aft trimmer handwheel   | 46 Tail-rotor gearbox   |
| 20 Fuel-pump circuit breakers   | 47 Counterbalance weights   |
| 21 Lateral trimmer switch   | 48 Fairleads for directional control cables   |
| 22 Hand controls (port to starboard, landing-lamp lever, air-intake bypass control, oil-cooler shutter control, oil and fuel cut-off control) | 49 Tail-rotor drive-shaft bearings  |
| 23 Collective-pitch control (housing starter button)  | 50 Tail-rotor drive shaft   |
| 24 Cyclic-pitch control   |   |
| 25 Rotor-brake control  |   |
| 26 Wheel-brake control  |   |
| 27 Wheel and rotor-brake reservoirs   |   |

The Westland Widgeon, as this "Flight" photograph bears witness, is among the best-looking rotating-wing aircraft in the air today.