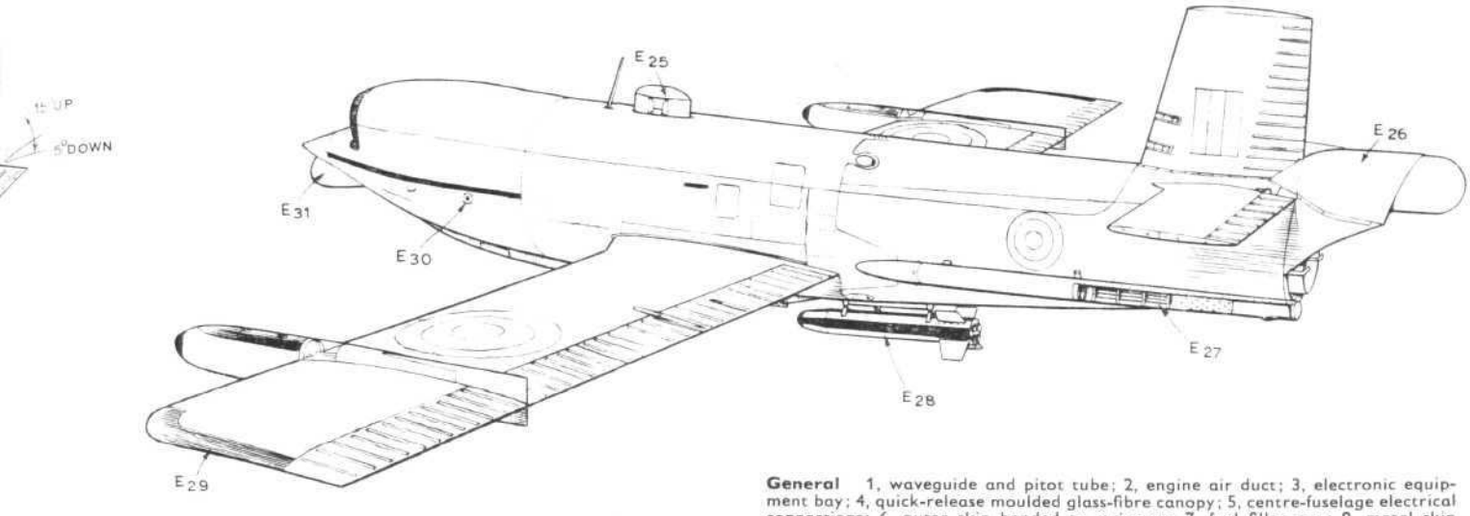

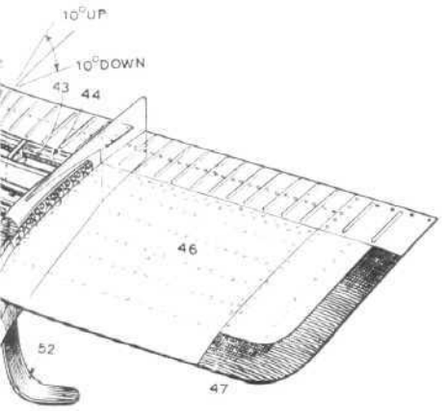

JINDIVIK 2B (Mk 102B)

Bristol Siddeley Viper 8, rated at 1,750lb thrust

Dimensions and weights Span, 25ft 7in; length, 23ft 4in; height (on skid), 6ft 3½in; gross wing area, 102 sq ft; t/c ratio, 6 per cent; structure, 886lb; power-plant, 628lb; fixed services, 169lb; control and navigation equipment, 272lb; Ampor Mk 4 nacelles, 80lb; trials equipment, 100lb (max, 280lb); fuel and oil, 783lb; gross weight, 2,918lb.

Performance Max speed, 605 m.p.h.; service ceiling, 55,500ft; operational endurance, with full allowances for climb, descent and landing, 40.5min; max endurance at 55,000ft, 66min; rate of climb at 40,000ft, 3,500 ft/min.

General 1, waveguide and pitot tube; 2, engine air duct; 3, electronic equipment bay; 4, quick-release moulded glass-fibre canopy; 5, centre-fuselage electrical connections; 6, outer skin bonded to stringers; 7, fuel filler cap; 8, metal skin between fuel cell and fuselage structure; 9, 64gal crash-proof fuel cell surrounding intake duct; 10, fairing over tachometer system and generator; 11, Bristol Siddeley Viper 8 turbojet; 12, engine oil tank; 13, air bottle, 2,000lb/sq in; 14, air charging valve; 15, pneumatic blow-off valve; 16, access to engine governor, h-p cock, starter socket and switches for booster pump and cameras; 17, accessory gearbox; 18, fuel filter; 19, fuel pump; 20, throttle actuator; 21, flap and aileron operating jack; 22, flap-jack release valve; 23, engine trunnion mount; 24, jetpipe cooling-air intake; 25, jetpipe shroud; 26, tail unit; 27, honeycomb-stabilized leading edge (no rudder); 28, tailplane and elevators; 29, elevator servo-motor; 30, fairing over tail ballast; 31, nozzle area trimmer; 32, rubber tail bumper; 33, main-frame locating spigots; 34, wings joined on centreline; 35, longitudinal wing-locating spigot; 36, spanwise quick-release pin; 37, fuel transfer pipe; 38, fuel booster unit; 39, three-spar wing; 40, combined flap and airbrake (max angle 20); 41, aileron; 42, aileron control rod; 43, piano hinge; 44, mass-balance; 45, integral tank, 16gal in each wing; 46, wing extension; 47, provision for aerial and navigation light; 48, provision for aerial; 49, inspection panel; 50, fuel transfer holes; 51, wing-root cuff; 52, landing skids; 53, trolley attachment; 54, parallel-link landing skid, stressed for 14ft/sec descent; 55, oleo-pneumatic shock strut; 56, touch-down sting retracts flaps, cuts engine and re-selects LAND GLIDE signal to prevent pitching during landing run; 57, stone guard; 58, trolley attachment; 59, nose ballast; 60, inverter cooling-air intake; 61, static vents

Take-Off Trolley 1, 110kt flash-bulb; 2, steerable nosewheel; 3, bungee cord; 4, electro-magnetic release for front arm; 5, electro-magnetic release for telescopic strut; 6, telescopic nose strut, 6in travel; 7, reservoir pull-away plug; 8, master switch for ground electric power; 9, disc brake with Maxaret anti-skid unit; 10, brake-priming pump lever; 11, ancillary brake equipment; 12, brake microswitch; 13, ground anchor strop; 14, rear pivot roller; 15, adjustable rear arm, pulled forward upon completion of nose-up rotation; 16, tail cable; 17, electric steering gyro; 18, ground safety lock; 19, oleo-pneumatic suspension; 20, damper; 21, mudguard; 22, Dunlop wheels; 23, friction-fit impact-absorption arm; 24, Type 100b inverter for gyro power; 25, 24V batteries; 26, gyro-power distribution box; 27, front-support hold-back rod; 28, steering servo-motor, German K.12; 29, splash guard; 30, shock-absorber pad for front arm; 31, servo-steering link

Equipment E1, telemetry junction box; E2, telemetry flight-instrument panel; E3, engine-speed transducer unit; E4, autopilot junction box; E5, roll unit; E6, receiving relay; E7, instrumentation relay; E8, 10cm navigation transponder; E9, selector unit; E10, 25V battery; E11, receiver unit; E12, control-equipment switch-gear; E13, auxiliary junction box; E14, transmitting unit; E15, pitch unit; E16, yaw unit; E17, access to autopilot and control master switches; E18, height lock; E19, transponder aerial on ventral centreline; E20, aerial for DESTRUCT command signal; E21, telemetry transmitter; E22, command receiver; E23, Ampor Mk 4 nacelles; E24, special-equipment bay, 12 cu ft; E25, camera calibration unit; E26, 10in Luneberg lens; E27, flare-heated IR source; E28, towed flare carrier; E29, glass-fibre tips incorporate microwave transponder aerials; E30, 3cm transponder aerials (three); E31, X-band transmitter, may be replaced by internal Luneberg lens

flown in October 1959, the 2B is currently being delivered to the WRE Woomera and to the United Kingdom. About to fly is the Jindivik 3A, powered by a Viper 11 and fitted with an improved autopilot, telemetry equipment and power supplies better suited to the substantially increased altitude conferred by the greater thrust. The Jindivik 3A will be available in three months' time, and the same aircraft with the Viper 8 will be known as the Jindivik 3B. At present the next stage in development will be the addition of a liquid-propellant rocket unit to achieve still further increase in altitude.

Trials Equipment

As already noted, a modern target drone is likely to be required to perform many functions, and the diversity and complexity of modern weapon systems is such that their development cannot be facilitated by the existence in the sky of a simple airframe at which they can be fired. Even discounting the fact that modern guided missiles are far from being identical, the drone characteristics necessary for early R & D trials are likely to be very different from those needed during squadron practice.

Possibly the most fundamental factor is that at all times the drone must be under positive control. The provision of a suitable radio-link poses few problems, but the need to keep the drone in radar contact under all weather conditions is likely to necessitate the addition of devices which can amplify the reflected radar signal or increase the target's radar cross-section. Of a similar nature is the requirement that the target shall be capable of simulating a typical piloted aeroplane against which defensive missiles can be tested. This again demands the addition of means for increasing the radar reflectivity.

The most direct method of accomplishing these requirements is to add one or more radar transponders. A transponder is, as its name suggests, a transmitting responder, which, upon receipt of a radio or radar signal, sends back an enhanced return. For general surveillance purposes S-band (10cm) radar is used, in order to achieve good performance at extreme range and in adverse weather conditions. At least two such transponders are fitted to give all-round cover for navigational purposes. Each is a small polythene top-hat shielding a broad-band dipole of cylindrical form. Several of the most important AI radars carried by intercepters work in the S-band, and when such aircraft operate against a Jindivik the target is provided with an additional transponder sensitive to this band. In this case the transponder must be tuned exactly to the wavelength of the AI set.

Transponders can be grouped into two principal types. Pulse transponders are triggered by the receipt of a pulse of the correct wavelength, and immediately send out a reply which, although representative of the received pulse, need not necessarily have