Jindivik

WEAPONS TARGET

DEPARTMENT OF SUPPLY
GOVERNMENT AIRCRAFT FACTORIES
MELBOURNE, AUSTRALIA

TAKE-OFF

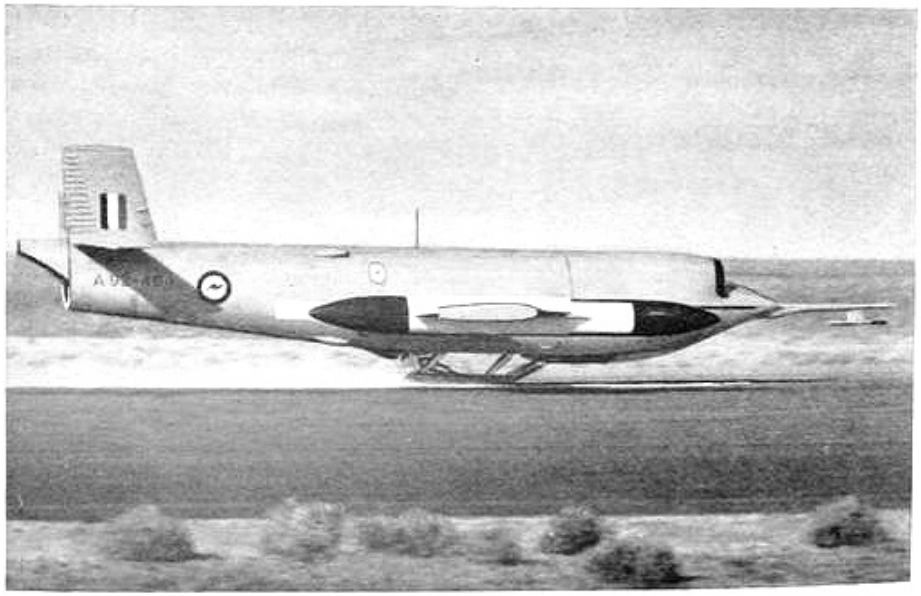
"Jindivik", the target aircraft designed and produced at the Government Aircraft Factories, Melbourne, is making increasingly important contributions to the missile development programmes of many nations. Consistently operated at the Woomera rocket range since 1952, Jindivik is also used at Llanbedr in Britain, Point Magu in America and at Jervis Bay in Australia. The Royal Swedish Air Board, recognising that high performance, versatility and reliability are essential target requirements, have also operated this aircraft.

Jindivik carries a variety of special equipment to enable it to simulate the radar echoing properties and infra-red radiation characteristics of very large aircraft. To provide realistic weapon engagement conditions, electronic counter-measuring equipment may be fitted and the target made to execute intricate evasive manoeuvres. Cameras fitted at the wing tips film the missile approach and accurately calibrate and assess the behaviour of the missile.

Jindivik is powered by a Bristol Siddeley Viper ASV11 engine of 2500 lb. thrust. The basic version has a take-off weight of 3200 lbs. and a wing span of 19 ft. Two sizes of wing extension panels are available which increase this span to 32 ft. and enable it to operate at altitudes up to 68000 ft.

A normal airstrip is used for take-off. The aircraft is mounted on a trolley, having a gyro steered nose-wheel and is automatically released at a speed of 120 knots. As the aircraft accelerates to 130 knots, the flaps retract and the aircraft sets itself in a steady climbing attitude. The trolley is braked to a stop 3,000 ft. from its starting point.

Alhough Jindivik may be directed from a shepherd aircraft, it is normally controlled from a ground station. It is operated by a skipper who "pilots" the aircraft once it is airborne and a navigator to track the flight pattern. A pilot beside the strip has control for take-off, and for landing is assisted by a batsman stationed at the end of the strip who maintains the correct heading.



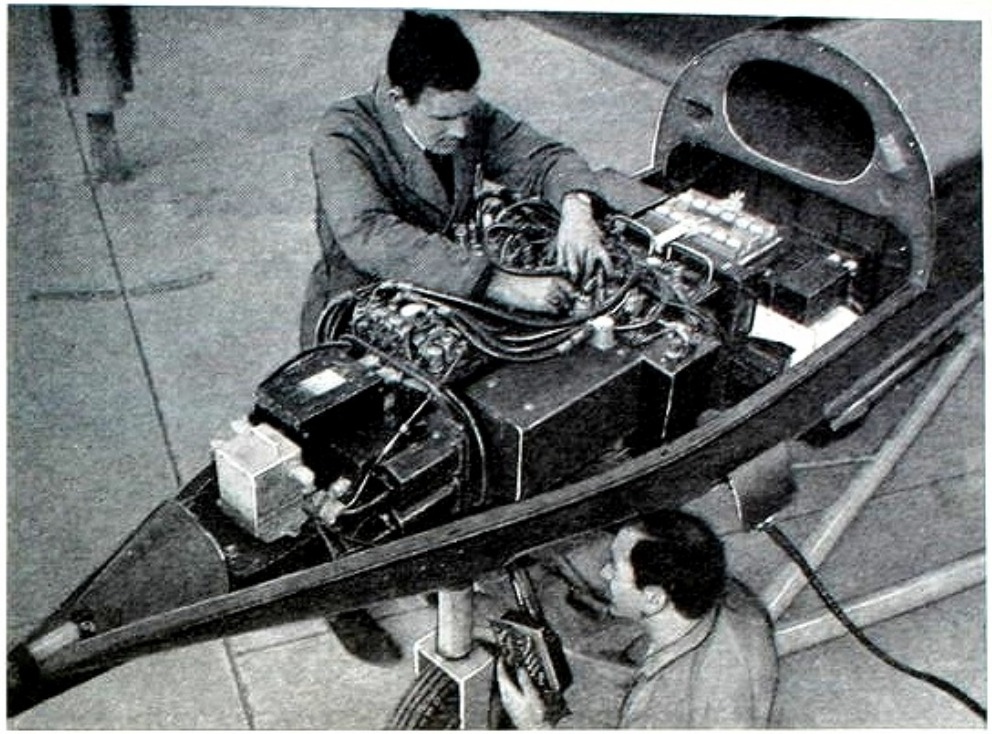
LANDING

Jindivik flies at Mach numbers of up to almost 0.90 and a fuel capacity of 130 imperial gallons allows flights of up to 140 minutes duration.

The remote control system is effective at ranges beyond 100 nautical miles from the ground station. Push button selection allows the automatic pilot to provide aileron, elevator and engine r.p.m. conditions for fixed climb, level flight, turning and descending conditions. Intermediate attitudes or engine conditions, adjusted by "beep" control, allow the aircraft to operate any flight pattern desired. The Telemetry system provides the ground controller with continuous indications of altitude, speed, climb, engine r.p.m. and other information.

By fitting a radio altimeter, Jindivik can be made to simulate the threat of very low flying aircraft and fly at high speeds at altitudes as low as 50 ft. Equipment and techniques have been developed to enable two Jindiviks to fly as a closely formated pair, station keeping accuracy being maintained to within a few feet.

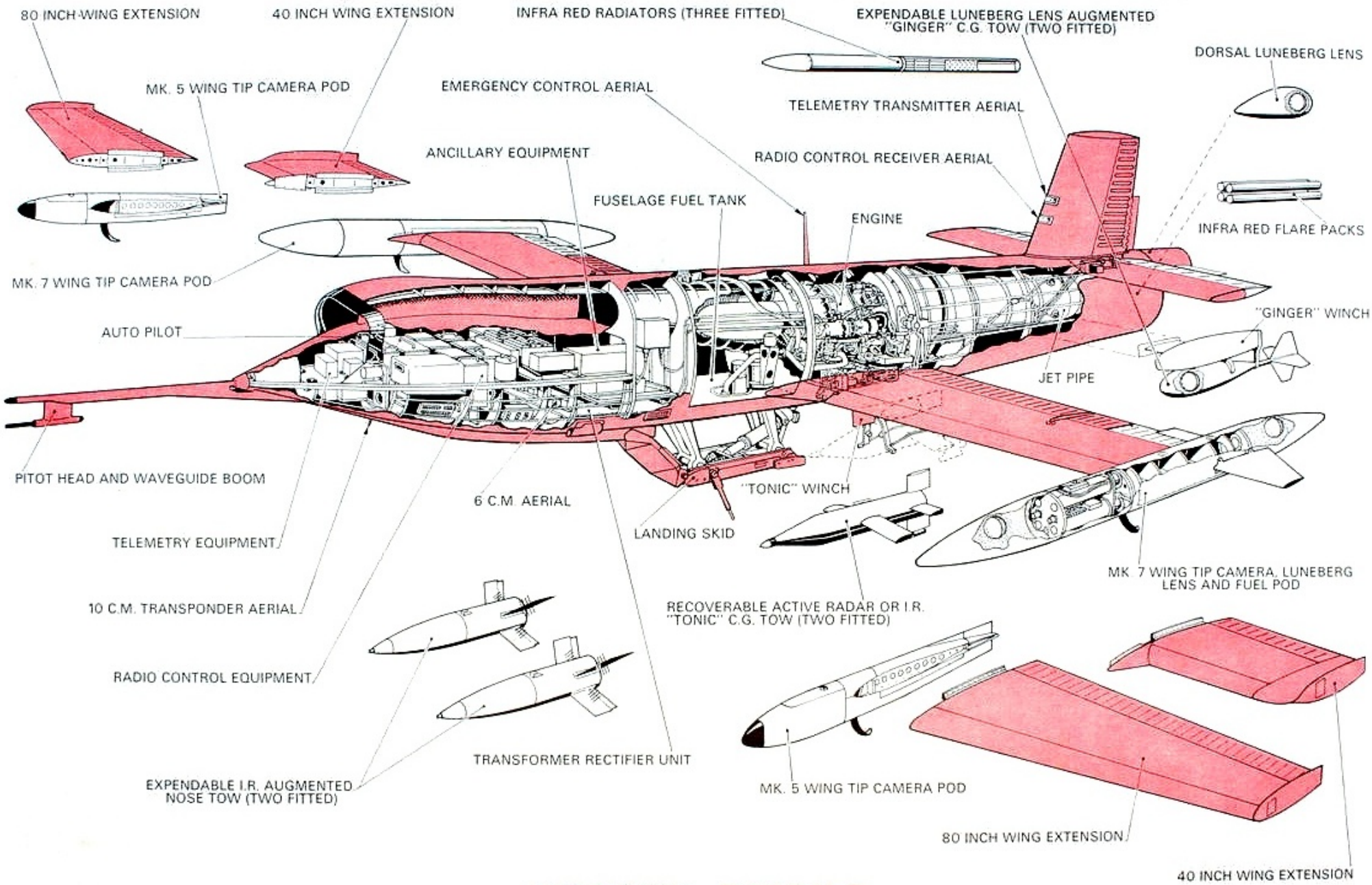
In weapon trials it is often desirable for the weapon to home not on Jindivik itself, but on an auxiliary target towed from Jindivik. A variety of such tows, augmented to enhance radar or infra-red characteristics have been developed in Australia. In particular "Tonic" has been designed to stream below Jindivik either as a single tow or as dual tows. These tows are winched back to Jindivik and recovered after the weapon exercise is complete.



FRONT FUSELAGE EQUIPMENT

Jindivik returns and lands at its base airstrip. When "land glide" is selected, the flaps and shock absorbing skid undercarriage are lowered and the aircraft is controlled to a conventional approach. On touch down the fuel supply to the engine is cut and the flaps are automatically retracted to keep the aircraft on the runway. The aircraft maintains a steady course and normally comes to a halt 1,500 ft. after touch down.

It is important in weapon trials for the target to be available as readily as instrumentation and other range facilities. Although Jindivik is a low cost expendable aeroplane it can be maintained at a peak of serviceability with minimum effort. A single lock nut fitted over the pitot tube releases the nose canopy to provide ready access to all control equipments, and a panel on the fuselage side permits all necessary adjustment of the engine controls. Release of three bolts separates the rear fuselage to expose all systems in the centre fuselage and the accessories mounted on the engine.



JINDIVIK DETAILS