

## LINCOLN MK 30

### Production Details

Serial Number of English AVRO Lancaster (Queenie V1)  
supplied to Australia ..... A66-1

First Australian assembled Lincoln (A73-1) first successfully  
flown ..... 12th Mar. 1946

First flown by Capt. C. Scott at ..... Fishermen's Bend

Date of delivery of A73-1 ..... May, 1946

First fully Australian built Lincoln ..... A73-6

Date of delivery of A73-6 ..... Nov, 1946

Total number produced ..... 73

Date of delivery of last Lincoln (A73-73) ..... 23rd Sept, 1953

Serial Numbers of the two V. I. P. Lincolns ..... A73-14, A73-18

Total number of Lincoln Mk 30's modified to L. R. N. aircraft..... 14

Prototype L. R. N. .... A73-38

Serial Numbers of others ..... A73-31, A73-32, A73-33, A73-34, A73-36,  
A73-37, A73-39, A73-40, A73-42, A73-43,  
A73-44, A73-45, A73-46.

Other specially modified Lincoln Mk 30's were ..... A73-15 which was  
converted to a long  
range navigational  
trainer for Air Navigation  
School at Sale (by deletion  
of gun turrets and fitment  
of fairings)

and ..... A73-2 ("Nyhuan")  
specially fitted for  
Antarctic surveys  
(Note:-Flown by Wing  
Commander G. Cuming)

### Leading Particulars

Power Plant: Four 1680 H.P. Rolls Royce Merlin 85's (on early aircraft)  
Four 1680 H.P. Rolls Royce Merlin 102's (on later aircraft)

Dimensions: Wing Span ..... 120 ft.  
Length ..... 78 ft. 3 in.  
Height ..... 20 ft. 3 in.  
Wing Area ..... 1421 sq. ft

Weights: Empty ..... 44,000 lb.  
Max. All-up ..... 82,000 lb.

Performance: Max. Speed ..... 310 mph  
Max. Range ..... 4,000 miles

Armament: Two .5 inch M/G in nose turret  
Two 20 mm cannon in dorsal turret  
Two .5 inch M/G in rear turret  
Bomb load - 22,000 lb.

## General Description

The Lincoln Mk 30 is an all-metal mid-wing monoplane, having four Merlin 85 power plants, fitted with variable-pitch constant speed propellers. The aircraft is designed and equipped for heavy bomber duties and carries a crew of seven consisting of a captain, second pilot, air observer (navigator-air-bomber), two wireless operator-air gunners and two air gunners.

The fuselage is constructed of light alloy and incorporates transverse formers braced with longitudinal stringers covered with a light-alloy skin. Two longerons carry the cross members of the main floor in which the bomb gear is housed. To facilitate transport the fuselage is divided into four sections, viz., front section comprising the nose and front centre sections, the intermediate centre section consisting of the fuselage between the spars and the centre part of the main plane, the rear centre section, and the rear fuselage which carries the tail unit.

The main plane is of the two-spar type and consists of two intermediate planes attached to the centre plane, which is integral with the fuselage centre section, and two outer planes. The intermediate and outer planes are tapered in plan and elevation. The skin covering is of light-alloy sheet. Six fuel tanks are housed in the main plane, one between each inboard nacelle and the fuselage and two in each intermediate plane. The two inboard fuel tanks are the rigid type, and the other four are the collapsible pattern and removable from the top side of the main plane. The main undercarriage units are housed in the inboard engine nacelles.

The tail plane construction is similar to that of the main plane. The twin fins and rudders are attached to the extreme ends of the tail plane, and these and the elevators are covered with light-alloy skin.

The entrance door is on the starboard side of the fuselage just forward of the tail plane. The door opens inwards and entry is made by means of a ladder, fitted with hooks for attachment to the bottom of the door frame.

The flying controls are conventional, pendulum-type rudder pedals operating the rudders and a handwheel type control column operating the ailerons and elevators. Tubular push-pull connections are used, except for the aileron controls in the fuselage, which consist of chains, tie rods and cables. Trimming tabs are inset in the trailing edge of the rudders, elevators and ailerons, and balance tabs are fitted to the elevators and ailerons. Mark VIII automatic controls are fitted. Hydraulically-operated split-trailing edge flaps extend from the fuselage sides to the ailerons.

The undercarriage consists of two retractable main wheel units, one under each inboard engine nacelle, and a fully-castering non-retractable tail wheel unit. Each main wheel unit is retracted backwards into the engine nacelle by means of two hydraulic jacks. When retracted the units are completely faired in by doors which are inter-connected with the shock-absorber struts and automatically close when the wheels retract. A compressed air system is installed for lowering the main wheels in an emergency.

The four engines, which are equipped with two-stage, two-speed superchargers, are mounted on nacelle structures built out from the centre and outer plane spars, and are fitted with Rolls-Royce Bendix carburettors. The fuel supply is by gravity from the main tanks to distributor tanks mounted on the rear face of the inboard engine firewalls, and thence to the engines. Pulsometer pumps are mounted on the base of the distributor tanks. The normal supply to the engines on either side is from the relative tanks but when required all four engines may be fed from one side by means of a cross-feed system. The inboard oil tanks are mounted behind the front spar in the undercarriage compartments, and the outboard tanks in the engine sub-frames.

A single pump mounted on each inboard engine auxiliaries gearbox supplies power for the hydraulic operation of the retractable main wheel units, main plane flaps, bomb door jacks and fuel jettison system. An Arrow type compressor mounted on the port inboard engine auxiliaries gearbox, working at high pressure, operates the pneumatic brake system and the electro-pneumatic power plant controls. The latter comprise radiator shutter, supercharger, slow-running cut-out, air-cleaner controls and hot and cold air intake shutters. Two vacuum pumps on the port inboard engine gearbox operate the bomb sight and computer and another pump on the starboard inboard engine gearbox operates the gyroscopic instruments on the instrument flying panel.

The gun armament consists of two electro-hydraulically operated turrets located in the nose and tail, and one electrically-operated dorset turret. The first two each carry two .5 in. guns; the third is fitted with two 20 m.m. guns. Alternative armament may, in some cases, take the place of the nose turret. Various bomb loads may be carried in the bomb compartment in the lower portion of the fuselage. These include small-bomb containers, mines, and 250 lb. to 4,000 lb. bombs. Provision is made for under-defence when required.

An earth-return wiring system is used. The D.C. power supply is provided by four 30-volt, 6 k.w. generators, driven through the auxiliary gearboxes of each engine. The generators are connected in parallel for the charging of four 12 volt, 40 amp.hr. accumulators, the latter being interconnected to give a 24-volt, 80 amp.hr. supply to operate all the general electrical services. Two power distribution panels, situated port and starboard respectively in the fuselage centre section, carry four Type 23 voltage control regulators, four Type J cut-outs and Type D circuit breakers. The Type 23 regulators are connected in parallel to a master voltage-control regulator, Type 32. Type A circuit breakers control various banks of fuses to the general services. Three distributor boxes are provided. Two 2,000 watt, Type 1V motor driven alternators supply the current for the radio installations. The radio equipment consists of an electrically remotely-controlled transmitter/receiver installation for the pilot, with fire control facilities at the pilot's, air-bomber's and astro-dome stations, I.F.F. at the navigator's station, and a general purpose transmitter/receiver at the wireless operator's station. Inter-communication between members of the crew is provided by independent use of the amplifier and the pilot's transmitter/receiver. Independent fixed aeriels are fitted for all sets, and an additional trailing aerial for the general purpose set.

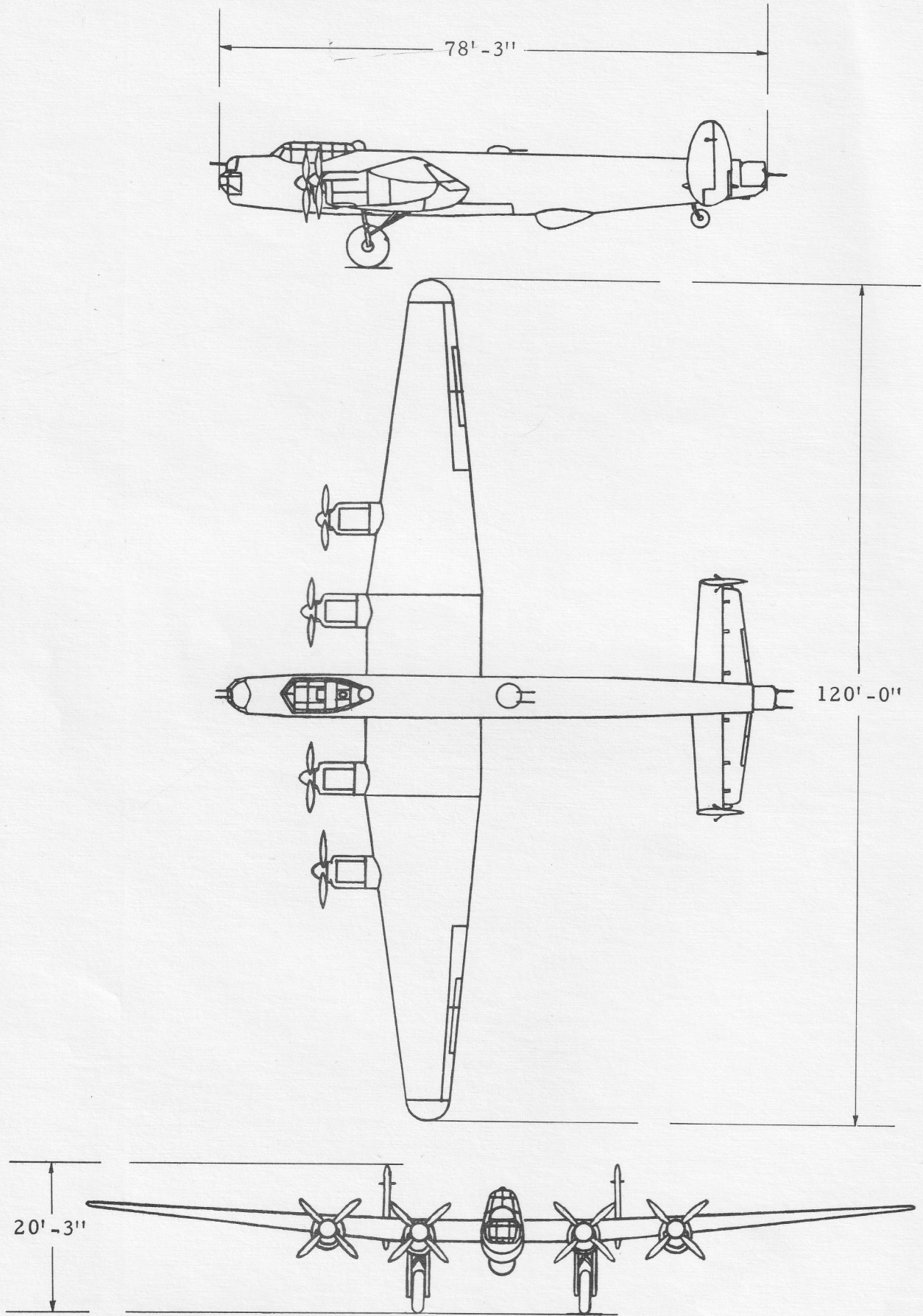
Hand-operated de-icing equipment is provided for the air-bomber's window and the pilot's windscreen.

Provision is made in the fuselage between the main plane spars for the fitting of armour-plate doors if required. The formers at certain positions are reinforced with armour plate. Emergency exits in the roof of the fuselage, and a parachute exit in the floor of the nose are provided.

Other equipment includes portable oxygen apparatus, F.24 camera, signal pistol, hand signal lamp, reconnaissance flares, sea markers, fireman's axes, first-aid outfits, fire extinguishers, Type Q flotation dinghy, Type K dinghies, pigeon containers and an Elsan sanitary closet.

#### L. R. N. Aircraft

In 1949, 14 Mk 30 Lincolns were modified to Longe Range Navigation(L. R. N) aircraft for special duties. Modifications included the fitment of radio and radar equipment, instrumentation and an extra crew station aft of the mid-upper turret.



GENERAL ARRANGEMENT - LINCOLN MK 30



LINCOLN MK. 30