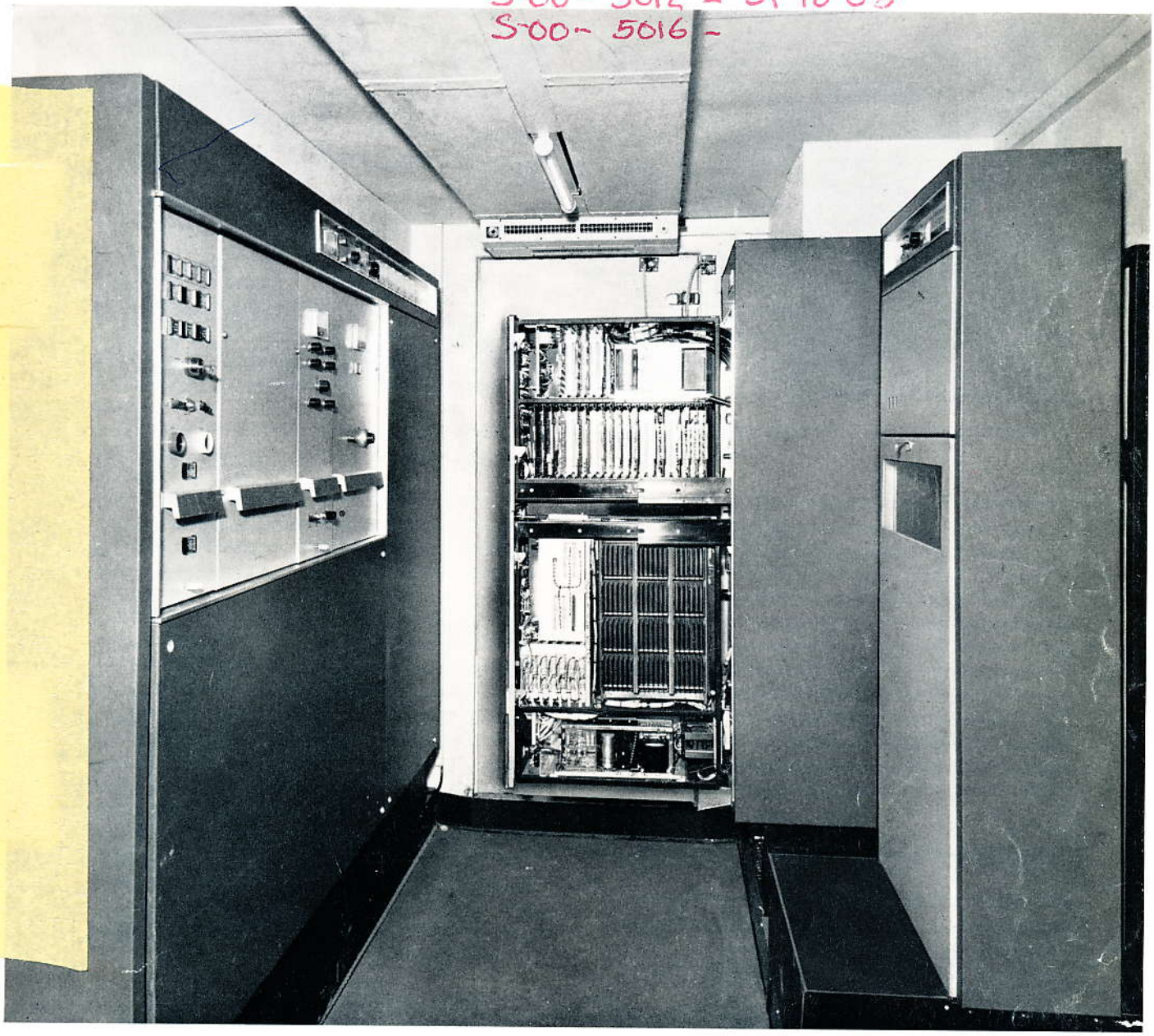
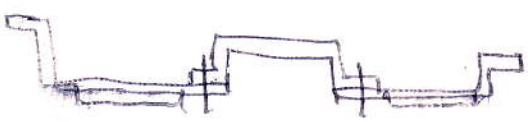
Marconi Radar Data Sheet E1

Electronics Cabins Type S5011, S5012 and S5016

S-00- 5011 - 01 to 03
S-00- 5012 - 01 to 03
S-00- 5016 -

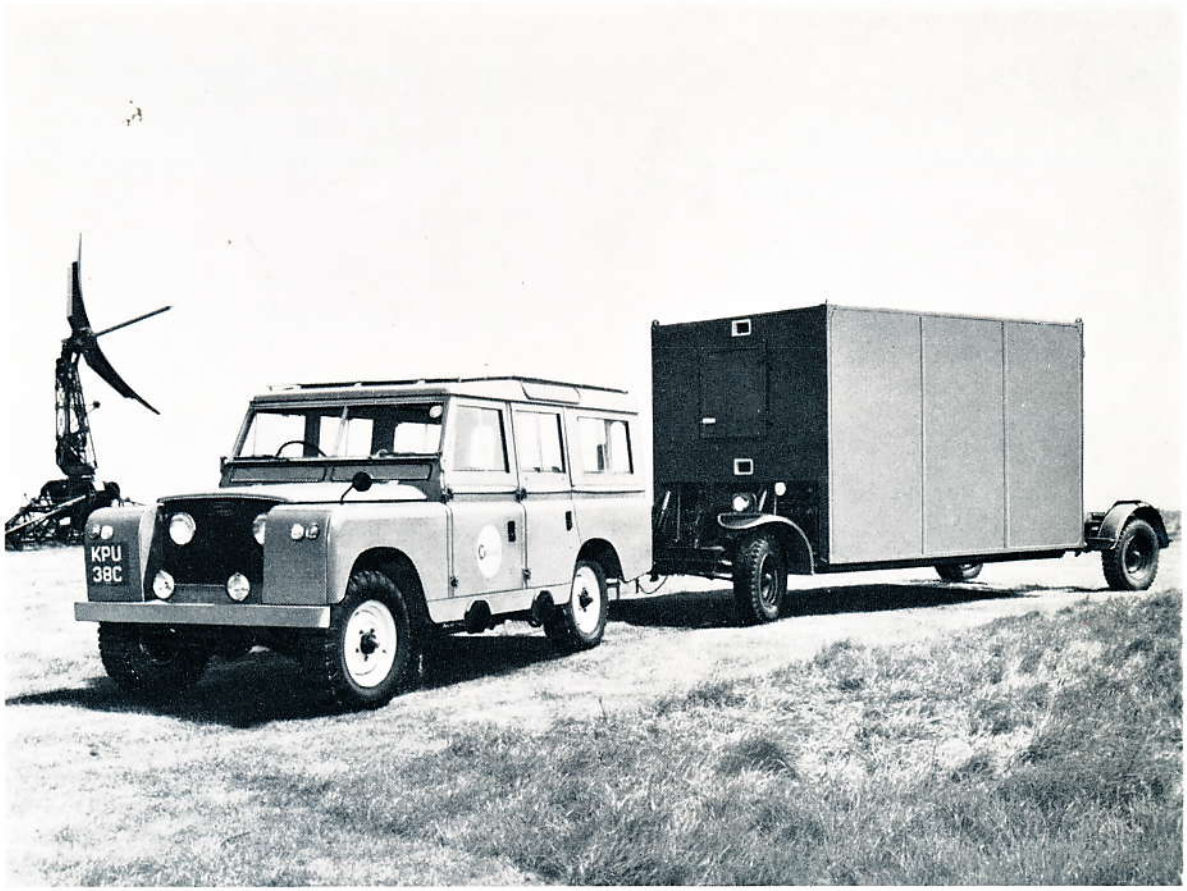




Transportable

Rapidly deployed

Extendable system capability



An electronics cabin of the S600 Series, mounted on running gear

The Marconi Electronics Cabins Types S5011 (S-band), S5012 (C-band) and S5016 (L-band) are transportable units housing Marconi S600 Series transmitter/receivers and signal processors, together with the necessary ancillary equipment and optional extra items to make a compact yet comprehensive radar surveillance system. Aerial turning control, waveguide pressurization and air conditioning are included in each cabin, which may also be fitted with a 16-inch fixed-coil radar display and IFF equipment. An interior view of the Type S5012 cabin appears on the front cover.

Mechanical Features

The cabins are based on a welded framework of rectangular tubular steel sections. Strengthening is supplied by lateral members on 610mm (2ft) centres welded across the floor, roof and sides.

In addition, the roof has a longitudinal member along the framework centre line and the two ends each have two vertical members spaced equally about the cabin centre line on 762mm (2ft 6in) centres.

The inner and outer skins of the cabins are formed from 1·25mm (0·048in) thick aluminium alloy sheet riveted to the steel framework, and the space between the skins is filled with 38mm (1½in) thick, closed-cell construction polyurethane foam having a density of 32kg/m^3 (2lb/ft^3). The foam is bonded to the framework and the two skins. To complete the external edges of the cabin, aluminium alloy L-section trimming strips are riveted to the main framework.

A common casting, incorporating lifting and lashing eyes, is attached to the eight corners, providing the required jacking points for the lower corners of the cabin.

For the attachment of running gear, two tine tunnels are fixed to the underside of the floor, running the full length of the cabin. The tunnels are fabricated from 4·78mm (0·188in) sheet steel bent into two 'Z' sections which are mounted back-to-back with a 25·4mm (1in) gap between. The gap is provided to assist in the clearance of dirt and stones from the tunnels. The tunnels are attached to the cabin through the front, rear, and all lateral floor members. Also attached to the underside of the floor are strengthening members. These and the tine tunnels are capped by a steel plate, and the assembly acts as a load bearer when the cabin is lowered to the ground from the running gear.

The cabin alone, excluding the sun canopy, is 2·26m (7ft 5in) high by 3·55m (11ft 8in) long, by 2·26m (7ft 5in) wide and weighs 1045kg (2300lb).

Access

A screened access door 1·83m (6ft) high, by 762mm (2ft 6in) wide is fitted centrally in one end wall. A quick-release escape hatch 762mm (2ft 6in) square is fitted in the opposite wall. Access to the cabin roof is by plate steps which fold away within the wall thickness when not in use.

Levelling

Each cabin is supplied with four detachable prop type legs and one hydraulic jack. The jack is used to raise each corner of the cabin in turn to allow the props to be fitted. Using this method, the cabin can be levelled to within 3·2mm (⅛in) on a ground slope not exceeding 1 in 20.

Solar Radiation

To minimize the effects of solar radiation, the cabin can be fitted with a sloping rectangular canvas sun canopy fitted to a frame which attaches to the roof. The canopy provides an overhang of 1·09m (3ft 7in) all round.

Ventilation

Equipment Cooling

Two apertures are provided in the wall on each side of the door. One of each pair is positioned 305mm (1ft) up from the floor and the other 127mm (5in) below the roof. These apertures are used respectively for the inlet and exhaust of the equipment cooling air, the blower units being clipped over them.

The cooling air is drawn through filters and ducted to two equipment plinths which are positioned one on each side of the door, running the full length of the cabin. The exhaust cooling air is carried away from the equipment through built-in overhead ducts.

The cooling air for the transmitter is provided by a recirculating blower unit which connects the exhaust duct to the inlet via a temperature-controlled flap valve. This recirculates the cooling air until the return air temperature exceeds 20°C, when the flap valve closes to prevent recirculation and both inlet and outlet are connected to the outside air. The S5016 cabin has a second recirculating unit fitted to the side of the cabin to provide the necessary cooling for the S2011 transmitter.

Air Conditioning

There are two external apertures, one above and one below the escape hatch, which are connected by flexible ducts to an S600 air conditioning unit, when full air conditioning is required.

The top aperture feeds into a 610mm (2ft) wide by 51mm (2in) deep duct running the full length of the cabin. The main internal cabin entry for the conditioned air is above the door, through louvres adjustable for air flow, direction and quantity. In addition to the main entry, there are adjustable louvres positioned along both edges of the duct.

The exhaust air exit is via louvres to the bottom aperture. These louvres are also adjustable for direction and quantity of air flow.

Temperature control of the cabin is achieved by the use of a thermostat in the exit air stream and the humidity is controlled from a humidistat sensing the general cabin atmosphere.

For temperate climates, where full air conditioning is not required, the cabins can be fitted with a tangential fan and 3kW heater positioned in the roof duct at the internal exit point. Control of the air flow quantity is achieved by an adjustable flap on the fan assembly. In one extreme setting of the flap, the heating system is recirculatory within the cabin. At the other extreme setting, air is drawn through the upper aperture, heated, and force-extracted through adjustable louvres in the bottom aperture. The fan flap is fully adjustable between these two extremes. Temperature control is achieved by use of a thermostat mounted on the cabin wall.

Lighting

Internal cabin lighting is supplied by two fluorescent strip-lights recessed into the centre of the air conditioner inlet duct, and an emergency lamp situated below the escape hatch. The power supply for the emergency light is a 6V battery mounted on the outside of the cabin at the escape hatch end. The battery is continuously replenished during normal operation by a trickle-charger mounted inside the cabin.

Fire Extinguishers

Two bromochlorodifluoromethane (BCF) chemical fire extinguishers are housed one in each of the two waveguide air compressors which are deployed at the rear of the cabin. The extinguishers are connected to the cabin by flexible hoses, and operation of the extinguishers distributes the BCF within the cabin. A similar extinguisher for hand use is mounted at the left-hand side of the access door. The extinguishing agent is non-toxic and non-corrosive.

Maintenance Telephone

Ten telephone circuits are looped through the cabin with a jack connection to each. A self-powered handset may be plugged into any jack and used to call and speak to any other handset plugged to the same circuit.

Power Distribution

The cabin is wired to accept two separate 3-phase supplies, one being used for the transmitter/receiver and signal processor, the other for aerial turning gear, equipment cooling and air conditioning. Full control facilities are provided on a master panel located above the access door with the circuit breakers installed in the compartment below the escape hatch.

Terminations

All cables required for connecting to external equipment are terminated on three sloping panels recessed into the external wall of the cabin below the escape hatch.

The waveguide outlet is positioned through an aperture in the cabin side wall and immediately below this, near to the floor, is a deep recess containing a location post. This post is the attachment point for the aerial gantry.

External Finish

The cabin is undersealed and finished in drab-matt paint which conforms to protective requirements specified by the United Kingdom Defence Ministry.

Internal Finish

The interior walls and ceiling are finished in Silexine paint and the floor covered with a vinyl material. Both are hardwearing and present a good appearance.

General

The running gear, pallets, air conditioning, power and waveguide pressurization units are described in Marconi Radar Data Sheet E5. The optional extras that can be fitted are described in Marconi Radar Data Sheet E6.

The basic electronic equipments for each of these cabins are listed below, and details of each item are given in the Marconi Radar Data Sheet quoted in parentheses.

Electronics Cabin Type S5011

10cm S-band 1 MW Transmitter/Receiver Type S2010 (*Data Sheet B1*) or

10cm S-band 2·25MW Transmitter/Receiver Type S2012 (*Data Sheet B3*).

Signal processing equipment (*C series Data Sheets*).

Aerial Alternating Current Controller Type S6011 or Aerial Azimuth Servo Controller Type S6012 (*Data Sheet E3*).

16in Fixed-Coil Radar Display Type S3009 (*Data Sheet F4*).

Electronics Cabin Type S5012

5·5cm C-band 1 MW Transmitter/Receiver Type S2013 (*Data Sheet B4*).

Heightfinder Servo Controller and Height Extractor Type S6013 (*Data Sheet E4*).

Electronics Cabin Type S5016

23cm L-band 2 MW Transmitter/Receiver Type S2011 (*Data Sheet B2*).

Signal processing equipment (*C Series Data Sheets*).

Aerial Alternating Current Controller Type S6011 or Aerial Azimuth Servo Controller Type S6012 (*Data Sheet E3*).

16in Fixed-Coil Radar Data Display Type S3009 (*Data Sheet F4*).

The information given herein is subject to confirmation at the time of ordering.

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