



3 cm Radar Sets

Types SNW43 and SNW44

THESE medium-power surveillance radar sets are of unique attraction, combining high-grade performance with maximum economy – both in initial and operating costs and also in accommodation space. Similar electronic equipment is employed on both Types, the difference between them being related to the display units.

FEATURES

High-gain multi-speed aerial, with power-operated tilting and tell-back facility, remotely controlled from the display site. Capable of normal operation in wind speeds up to 80 m.p.h. and of withstanding gusts up to 120 m.p.h.

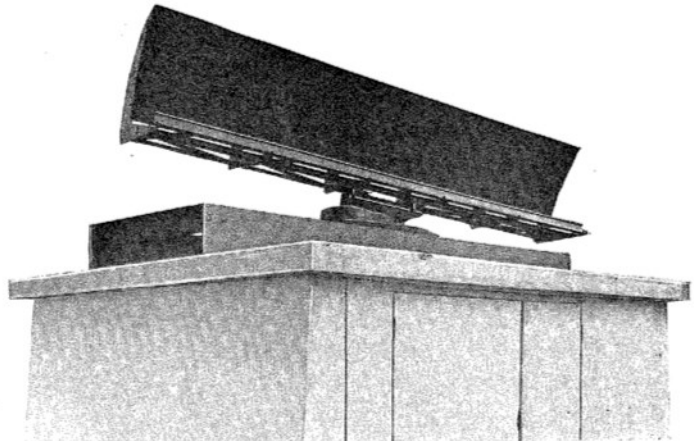
The power output is sufficiently low to nullify rebound and side-lobe echo effects and ensure particularly good performance on short ranges.

Automatic change of pulse length for short and long distance operation ensures high definition on all ranges.

Anti-clutter circuits improve performance when operating under bad weather or sea conditions and reduce permanent echo returns.

Expansion of display centre for short-range scrutiny.

Small electronic apparatus, robust and capable of working under extreme climatic conditions. Particularly reliable rain gate (circular polarisation type) available as an optional extra.



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EQUIPMENT

The apparatus consists of the following five units.

The transmitter unit is a very small wall-mounted box consisting of a strong metal frame enclosed by louvred panels. When the scanner is elevated on a tower for increased altitude, the transmitter unit which is contained in a water-tight case can also be mounted with it. Decrease in efficiency due to a long wave-guide feed is thus avoided.

The power unit, which also contains the main stages of the receiver, is another small wall-mounting unit with an easily-removable cover for quick servicing access. Fuses and indicator lamps are mounted on the front.

The scanner unit consists of an open section of parabolic cylinder fed by a slotted waveguide mounted in a flared horn. The aerial assembly is mounted on a pedestal unit and is driven by a 3-horsepower motor.

Display units. The display unit of the Type SNW 43 radar uses a 6-in. diameter tube and is desk or

pedestal mounted. Two versions are available, differing only in the ranges provided. Fixed range rings are produced in both editions. Any particular compass bearing can be marked by a pre-adjusted 'heading line'. An illuminated bearing scale is fitted and the rotatable perspex mask over the front of the tube is engraved with a cursor line. Viewing hoods are available and also a lens attachment which magnifies the display to 9 in. diameter.

The Type SNW 44 employs a 12-in. diameter.

display unit which can also be mounted on a pedestal or fitted to a desk. In addition to the facilities provided by the 6-in. display, this display incorporates a number of additional features, including a variable range strobe, picture orientation and (optionally) a reflection plotter.

The motor alternator unit provides supplies for the equipment at the required stabilisation. Motor alternators to suit any AC mains can be supplied. Operation is at 1000 c/s—a frequency at which power supply components can be kept to a practical size.

DATA SUMMARY

Radio frequency: 9345–9405 Mc/s.

Peak power output: 20 kW.

Pulse repetition frequency:

Ranges up to 3 miles: 1000 p.p.s.

Ranges over 3 miles: 500 p.p.s.

Pulse length: Ranges up to 3 miles: 0.1 μ s

Ranges over 3 miles: 1 μ s.

Aerial: Horizontal beamwidth $\frac{1}{2}^\circ$ } at half-
Vertical beamwidth 4° } power points.
Vertical tilt: -5 to $+12^\circ$ relative to the
horizontal.

Gain: 42.4 dB.

Rotation speeds:

7, 10, 14 and 21 r.p.m. with 3-phase drive.

21 r.p.m. with single-phase drive.

Continuous and clockwise.

Ranges: SNW 43: Up to 30 or 40 n.m. in 5 ranges.

SNW 44: Up to 36 or 48 n.m. in 6 ranges.

Range accuracy: Within 1% of max. of range in use down to a distance of 10% of range.

Bearing accuracy: Within 1° for objects at max. of scale in use.

Discrimination:

- (a) Objects on same bearing: Min. distance apart for visible separation 30 yards.
- (b) Objects at same range: Min. angle of separation for visual discrimination $\frac{3}{4}^\circ$ provided objects are not less than 22 yards apart.

Minimum range: Less than 25 yards.

Power supplies: Motor alternators supplied to suit any AC mains.

Power consumption: 4 kW approx.

Dimensions:

| | Height | Width | Depth | Weight |
|--------------------------------|---------------------|----------------------|---------------------|---------------------|
| <i>Transmitter unit</i> | | | | |
| | 18 in. (46 cm) | 17½ in. (44.5 cm) | 9¾ in. (24 cm) | 58 lb (26.3 kg) |
| <i>Power unit</i> | | | | |
| | 17 in. (44 cm) | 16 in. (41 cm) | 10¾ in. (28 cm) | 42 lb (19 kg) |
| <i>Motor alternator</i> | | | | |
| | 16 in. (41 cm) | 18¼ in. (46 cm) | 10¼ in. (26 cm) | 120 lb (54.5 kg) |
| <i>6-in. display (SNW 43)</i> | | | | |
| | 14 in. (36.5 cm) | 12 in. (30.5 cm) | 30 in. (76.5 cm) | 33 lb (15 kg) |
| <i>12-in. display (SNW 44)</i> | | | | |
| | 20 in. (51 cm) | 15 in. (39 cm) | 28½ in. (73 cm) | 93 lb (42 kg) |

Scanner unit:

Radius of rotation: 6 ft 9 in. (206 cm).

Height of aerial above pedestal seating: 3 ft (92 cm).

Total height of scanner unit: 7 ft 6 in. (229 cm).

Weight: 1400 lb (636 kg).

Marconi

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