3 cm Radar Sets
Types SNW40, SNW41, SNW42

THESE TYPES are medium-power land-based surveillance radar sets employing equipment which has for many years been a by-word for high-grade performance and reliability in the maritime world. Their special qualities fit them for heavy-duty usage under extreme conditions. They are especially valuable for coastal and harbour services and for airport duties in exposed positions.

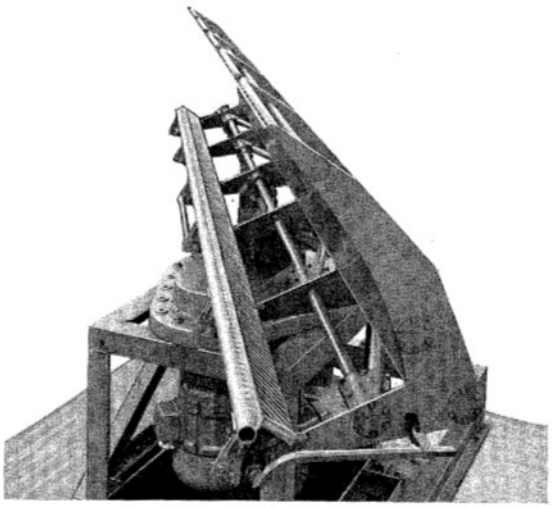
FEATURES

- Robust, high-gain scanner, multi-speed, with power-operated tilting and tell-back facility, remotely controlled from the main display site. Can operate normally in wind speeds up to 80 m.p.h. and withstand gusts up to 120 m.p.h.
- 40–50 kW transmitter with automatic frequency correction.
- Automatic change of pulse length for short and long distances, giving high definition on all ranges.
- Anti-clutter circuits to minimise weather effects and to reduce permanent echo interference.
- Expansion of display centre (Types SNW 40 and SNW 42) for accurate scrutiny at short range.
- Off-centring facility (Types SNW 40 and SNW 41) to permit sector working.
- Particularly reliable rain-gate (circular polarisation type) available as an optional extra.

EQUIPMENT

The apparatus consists of the following items. The first three are common to all equipments, the difference between the three Types being only with regard to the display gear employed.

The transmitter/receiver unit is constructed on a very narrow base for simplicity of installation.



7512

The scanner, with a circular polarisation filter fitted across the waveguide feed.

Its runner-mounted sub-sections are easily withdrawable for servicing, and a built-in waveform monitor and comprehensive test facilities are incorporated.

The scanner unit consists of an open section of parabolic cylinder fed by a slotted waveguide mounted in a flared horn. The scanner is mounted on a pedestal unit and is rotated by a 3 horse-power motor.

The power supply apparatus consists of a motor alternator and a control panel (wall-mounted) which contains its associated starting mechanism and automatic output control circuits.

Displays. The main features of the different display systems are as follows:

SNW 40: 9-in. dia. tube. Fixed coil deflection system. Trunnion-mounted and arranged for fitting to a desk or pedestal. Lens unit available which magnifies display to 12-in. diameter.

Manual orientation of picture provided. Range rings or adjustable diameter range-strobe can be selected. Off-centring available as an 'extra' facility. Two remote displays can be fitted in addition to the main display. Viewing hoods available.

SNW 41: 15-in. moving-coil display console Type SD 701 (see page 535).

SNW 42: 15-in. dia. tube. Fixed coil deflection system. Floor-mounted console with horizontal screen, designed to be viewed in the standing position. Facilities similar to those of the SNW 40 display except for off-centring. Two remote 9-in. diameter displays, as for Type SNW 40, can be provided.

DATA SUMMARY

Radio frequency: 9360–9460 Mc/s.

Peak power output: 40–50 kW.

Pulse repetition frequency:
Ranges up to 3 miles: 2000 p.p.s.
Ranges over 3 miles: 500 p.p.s.

Pulse length: Ranges up to 3 miles: 0·2 μs
Ranges over 3 miles: 1 μs.

Aerial:
Horizontal beamwidth: $\frac{1}{2}°$ } at half-power
Vertical beamwidth: 4° } points.
Vertical tilt: Between −5° and +12° 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).

Ranges (standard):
SNW40 and SNW42: Up to 40 n.m. in 5 ranges.
SNW 41: Up to 45 n.m. in 4 ranges.

Range accuracy: Within 2% of max. of range in use.

Bearing accuracy:
SNW 40 and SNW 42: Within 1° } for objects at max. of scale
SNW 41: Within $\frac{1}{2}°$ } in use.

Discrimination:
(*a*) Objects on same bearing: Min. distance apart for visible separation – 45 yards.
(*b*) Objects at same range: Min. angle of separation for visual discrimination – $\frac{3}{4}°$.

Power supply: Motor alternators to suit any AC supplies.

Power consumption: 5 kW approx.

Dimensions:

	Height	Width	Depth	Weight
Transmitter/receiver unit	52 in. (132 cm)	19¾ in. (50 cm)	28 in. (71 cm)	500 lb (227 kg)
Motor alternator unit	12 in. (30·5 cm)	12 in. (30·5 cm)	24 in. (61 cm)	310 lb (136 kg)
Auto-control panel	31 in. (78·7 cm)	22 in. (55·9 cm)	12 in. (30·5 cm)	70 lb (32 kg)
15-in. display unit	36 in. (91·5 cm)	24 in. (61 cm)	24 in. (61 cm)	160 lb (72·6 kg)
12-in. display console	42½ in. (108 cm)	25 in. (63 cm)	40 in. (100 cm)	550 lb (250 kg)
9-in. display units (main and remote – with viewing hood)	18 in. (45·7 cm)	19½ in. (49·5 cm)	31 in. (78 cm)	140 lb (63·6 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

MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED
Marconi House, Chelmsford
Telephone: Chelmsford 3221. Telex: 1953. Telegrams: Expanse Chelmsford Telex