



Marine Radar Equipment

Type NR502



Main Display Unit.

THE CONTRIBUTION made by radar to the solution of marine navigation problems ranks among its highest achievements. By its aid the hazards and delays caused by fog and darkness are greatly reduced and standards of safety and efficiency consequently vastly improved.

The Marconi Radar Type NR 502 has proved its reliability over many years of world-wide service and has become renowned for its high standard of performance.

FEATURES

High definition PPI displays 5, 9 or 15 in. diameter.

Choice of 1, 3, 10, 20 or 40-mile ranges by single control.

Automatic pulse length switching for optimum performance on short and long ranges.

Automatic tuning of receiver.

A heading marker for indicating the ship's head, when desired.

'Centre expansion' available for observation of bearings of very close targets.

Gyro coupling provided for, for stabilising the display in a north-upwards position.

Two remote displays may be accommodated in addition to the main display.

The whole equipment is operational within 1½ minutes of operating a single switch.

EQUIPMENT

Transmitter. The major portion of the equipment is contained in the transmitter which is a very compact unit with withdrawable sections, allowing the fullest access for maintenance. There is a special ventilating and automatic heating system which ensures a consistent operating temperature under all climatic conditions. Pulse length and receiver bandwidth are automatically changed when moving from short to long ranges and *vice versa*, ensuring high discrimination and clearly painted targets on all ranges. Automatic frequency control obviates any variation in performance due to frequency drift. A waveform monitor is built in and there are comprehensive facilities for metering feeds and voltages.

Displays. The displays are compact and robust in construction. The 9-inch display (illustrated overleaf), which can be fitted to either a desk or a pedestal, is trunnion-mounted to provide adjustment of the viewing angle. Main and remote versions are similar apart from the omission of certain control facilities on the latter. The 15-inch

display is a floor-mounted console with the display tube mounted horizontally. It is designed for viewing in the standing position.

A transparent front screen is fitted on the 9-inch versions, engraved with a cursor line and mechanically rotatable to give bearing indication.

The bearing scales of the displays are illuminated, the brightness being controllable. Range information is provided by range rings and a variable range strobe with associated range scale. Viewing hoods can be supplied.

Aerial. The high-gain aerial consists of an offset-fed parabolic section rotated at 25 r.p.m. With the method of construction used no de-icing is necessary. The weight of the assembly has been kept to an absolute minimum and virtually no maintenance is required. In addition to its mechanical features of simplicity and robustness, the aerial has particularly good electrical performance, characterised by a very low side-lobe response.

Motor Alternator. A motor alternator, suitable for AC or DC mains is provided for power supplies, together with a control panel containing an automatic starter and voltage regulator.

DATA SUMMARY

Frequency band: 9360–9460 Mc/s.

Pulse repetition frequency: 2000 and 500 c/s.

Pulse length: 0.2 μ s on ranges 1 and 2.
1.4 μ s on ranges 3 and 4.

Azimuth beam width: 1.5°.

Vertical beam width: 20°.

Ranges: 1, 3, 10, 20 and 40 miles.

Range accuracy: $\pm 2\%$ of max. of range in use.

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

Peak output power: 50 kW.

Power supply: Motor alternator for operation from AC or DC mains.

Power consumption:

With 1 display unit 1.9 kW.

With 2 display units 2.05 kW.

With 3 display units 2.2 kW.

Dimensions:

	Height	Width	Depth	Weight
<i>Main display, 9-inch</i>				
	18 in. (46 cm)	19½ in. (49 cm)	31 in. (78 cm)	145 lb (65 kg)
<i>Main display, 15-inch</i>				
	36 in. (91.5 cm)	24 in. (61 cm)	24 in. (61 cm)	160 lb (72.6 kg)
<i>Remote display, 9-inch</i>				
	18 in. (46 cm)	19½ in. (49 cm)	31 in. (78 cm)	140 lb (63.6 kg)
<i>Transmitter</i>				
	52 in. (132 cm)	19¾ in. (50 cm)	28 in. (71 cm)	500 lb (227 kg)
<i>Aerial</i>				
	40 in. (102 cm)	Sweep 67 in. (170 cm)		155 lb (70 kg)

Marconi

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