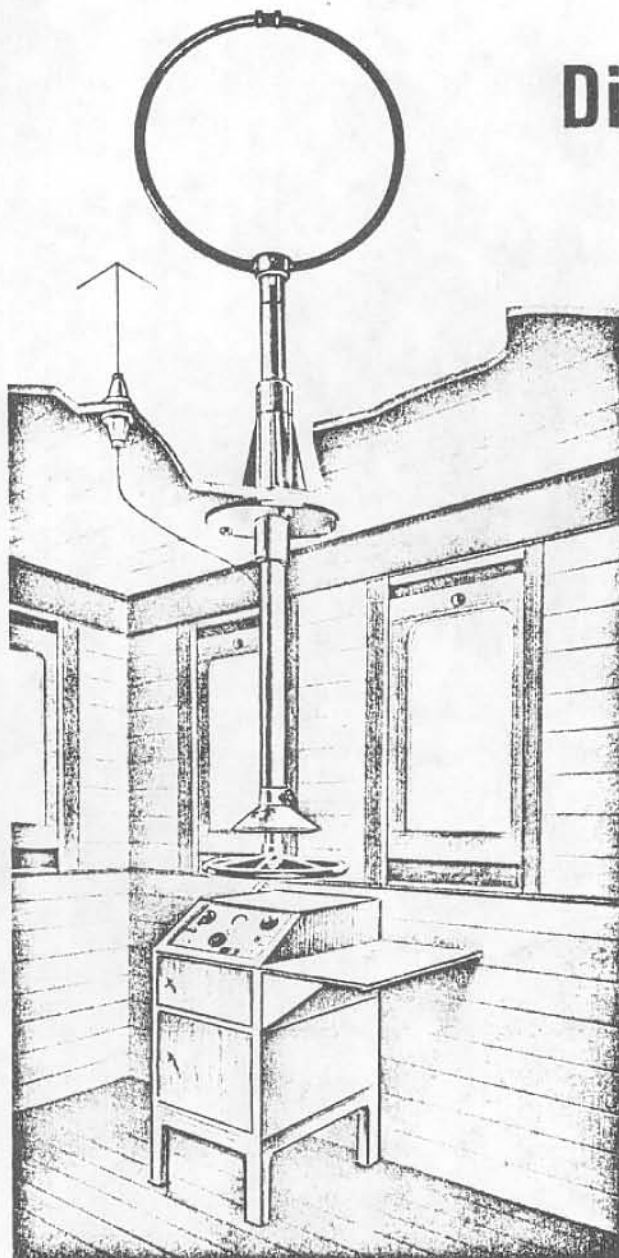


Direction Indicator

Types: 129 N and 162 N

mit Ae 16

mit Ae 17



Application:

Suitable for installation on small sea-going vessels which are not bound by international regulations to carry a Wireless Direction Finder, but which nevertheless do not want to forgo the advantages that can be derived from the use of a simple wireless navigation instrument.

Advantages:

- (1) Wireless navigation by setting the course towards known radio beacon transmitters (homing), hence increased safety.
- (2) Wireless navigation by setting the course towards other vessels equipped with transmitters operating on the same wavelengths as the Direction Indicator. Determination of the shortest route, resulting in increased economy.

Dimensions and weight:

	Height	Width	Depth	Weight
Receiver	8 $\frac{1}{4}$ " (210 mms.)	10 $\frac{7}{8}$ " (275 mms.)	10 $\frac{5}{8}$ " (270 mms.)	17 lbs. 10 ozs. (about 8 kgs.)
Frame installation	Diameter of frame 25 $\frac{5}{8}$ " (650 mms.)			39 lbs. 10 ozs. (18 kgs.)

Code words: Direction Indicator 129 N: vbsmg
 Direction Indicator 162 N: vbsnh



Technical data.

Frequency and wavelength ranges:

Equipment 129 N with receiver Ae 16: 222— 522 kc/s (1350—575 m)
and 1500—3333 kc/s (200— 90 m).
Equipment 162 N with receiver Ae 17: 222— 522 kc/s (1350—575 m).

Accuracy of D. F. operation:

With a field strength of 20 $\mu\text{V}/\text{m}$, the width of the minimum is $\pm 3^\circ$ when receiving C. W. signals (A_1) on a frequency of 300 kc/s.

Selectivity:

When receiving modulated signals (A_2) on a frequency of 300 kc/s (modulation note 400 c/s) the average reduction in output voltage is

20 db. (to $1/10^{\text{th}}$) when $\pm 2\%$ off tune, and
40 db. (to $1/100^{\text{th}}$) when $\pm 5\%$ off tune.

Sensitivity:

The following input voltages are required at the grid of the first valve in order to obtain an output voltage of 4 V in a load of 4000 ohms (headphones) when receiving C. W. signals (A_1):

Frequency range I (222— 522 kc/s): 3.5— 8 μV
Frequency range II (1500—3333 kc/s): 3.0—15 μV .

Electrical design:

Four-valve straight circuit receiver with 2 H. F. stages, 1 detector, and 2 L. F. stages. The set is designed for one-knob tuning and manual volume control.

Valves used: 4 valves MF 2.

Operation:

Reception: Switching on, selection of frequency band, tuning, adjustment of reaction and volume controls.

Direction finding: Rotating the frame to position of minimum signal strength; clearing the minimum by means of the knob labelled "Minimum Sharpening". Direction of transmitter to be read off from the frame scale.

Sense determination:

After rotating the frame through 90° from the minimum to the maximum position, ascertain with the aid of the "D. F. - Sense" switch the colour of the mark (red or blue) corresponding to the minimum sound; the side of the D. F. scale marked with the same colour then indicates the sense of the transmitter on which bearings are taken.

Aerial system:

Weather-proof rotating frame aerial with direct drive; diameter of frame $25\frac{5}{8}$ " (650 mms.); auxiliary aerial 10—13 ft. (3—4 m) long for sense determination and for minimum sharpening.

Power supply: Filament voltage: 2 V obtained from storage battery. Filament current: 0.75 A.
Plate voltage: 120 V obtained from dry cell battery. Plate current: about 25 mA.

Mechanical construction:

The receivers are enclosed in splash-proof boxes of light metal.

