

## Ident Mode

The Lokata 7 automatically commences its operation programme in IDENT mode since the first step in RDF navigation is to correctly identify the morse signal of the beacon required. In IDENT mode, audio filters are employed to enable the morse characters of A2 and A2\* beacons to be heard most clearly. For further information on identifying other beacon types, see Basic RDF Navigation.

**IMPORTANT:** For the beginner, a basic rule to follow is to identify the beacon in IDENT mode and to take the bearing in NULL mode.

## Finding & Identifying The Beacon

The identification process is assisted by:

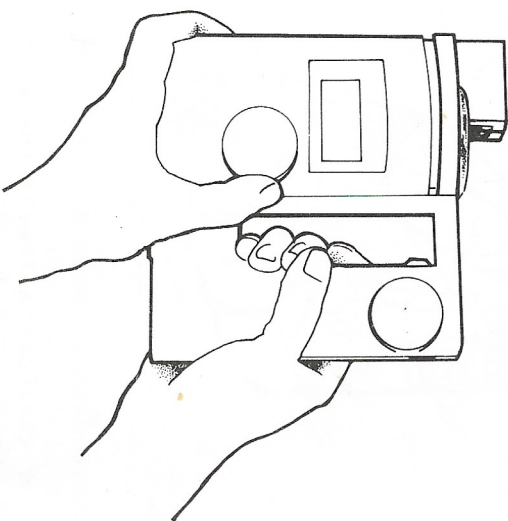
### The Beacon Clock & Count Up Timer

The two smaller numbers under BEACON are the Beacon Clock and Count-Up Timer. The left hand number is the Beacon Clock showing minutes from 1 to 6, following the marine beacon transmission cycle (See Basic RDF Navigation). Once the Beacon Clock has been set correctly, it aids the user to correctly identify a marine beacon by its position in the six minute cycle. Naturally, the user confirms the identity of the beacon by also listening to the morse identification signal. The second number shows tenths of a minute from ".0" to ".9" to indicate how much of the marine beacon's one minute transmission period has elapsed. This Count-Up Timer warns the user when insufficient transmission time is available for successfully taking a bearing. The Count-Up Timer is automatically re-set when setting the Beacon Clock.

The four larger numbers show the beacon transmission frequencies from 250 to 450 KHz (See Basic RDF Navigation).

## The Rotary Tuning Control

is located directly under the Information Display and is designed to operate most precisely when stroked gently with the ball of the thumb. Tune to the required frequency, taking particular care with the final tenths of a kilohertz digit.



## The Lokata 7 Headset

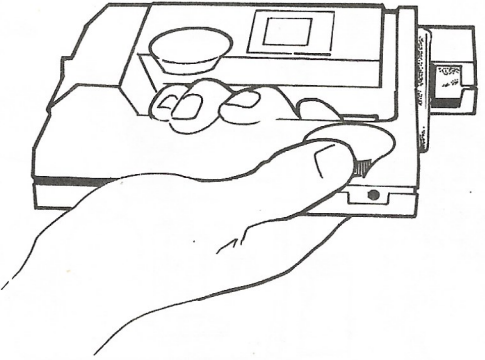
may be worn over the top of the head or under the chin. The jack plug should be inserted into the socket at the lower end of the handle. The user will now be able to listen to the beacon's morse signal.

**CAUTION:** The headset contains a small magnet in the ear-piece nearest to the cable connection: in use, this ear-piece should never be less than 400mm (16 inches) from the compass or compass deviation may result. (See "Taking a Bearing" below).

## The Volume/R.F. Gain Control

is at the top of the handle under the thumb of the

operator. The control is rotated upwards to increase volume; downwards to decrease it.

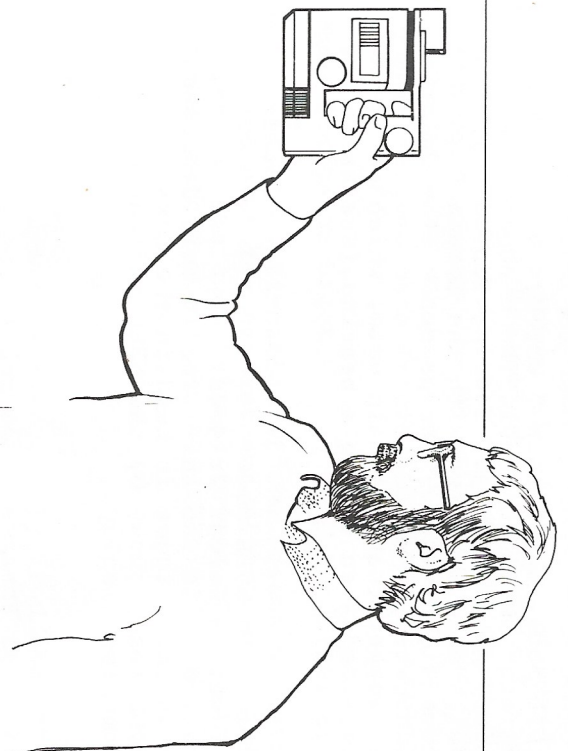


#### The "Morse At A Glance" Panel

on the back of the Lokata 7 will assist the beginner to identify the beacon identification signal.

When the beacon required has been successfully identified, the operator is ready to take a bearing.

#### Taking A Bearing



When taking a bearing, the operator holds the Lokata 7 with arm extended so that the compass is easily read and the Null Indicator Light is clearly visible, while maintaining a safe distance between the compass and the headphone magnet. The operator rotates his body to swing the Lokata 7 through an arc while watching the Null Indicator Light and listening to a continuous audio tone over the headset. The null is that small sector of the arc when the light and audio tone fade simultaneously. At this point the bearing is read off the compass.

(Note: If the operator were to rotate his body through 360 degrees, two nulls would be heard at points 180 degrees apart: one of these is the actual null and the other the reciprocal bearing. In practice, the operator will generally have a good idea which of these is the correct bearing but if a doubt remains when the bearing is transferred to the chart, a second bearing on a different RDF beacon will generally resolve the ambiguity).

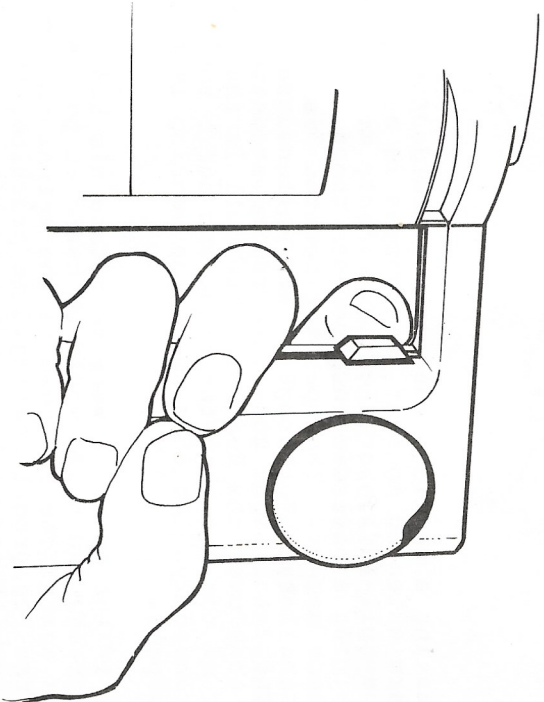
Bearings are taken with the Lokata 7 in NULL mode.



### Null Mode

In NULL mode, the Lokata 7 employs a Beat Frequency Oscillator (BFO) to enable the beacon's carrier wave to be heard most clearly. Bearings on all types of beacon signal should be taken with the Lokata 7 in NULL mode. On some signal types, the presence of modulation will be indicated by an additional note of different pitch, often weaker than the main note, which can be disregarded when taking a bearing. (See Basic RDF Navigation).

To change to NULL mode, **The Function Select Trigger** is pulled again and this time is held depressed: as long as the trigger is held in the Lokata 7 will remain in NULL mode, shown by the NULL indicator on the Information Display.



In NULL mode, the function of

### The Volume/R.F. Gain Control

is also changed: the receiver automatic gain control is locked and the Volume/RF Gain Control now allows manual control of the receiver RF gain while keeping the

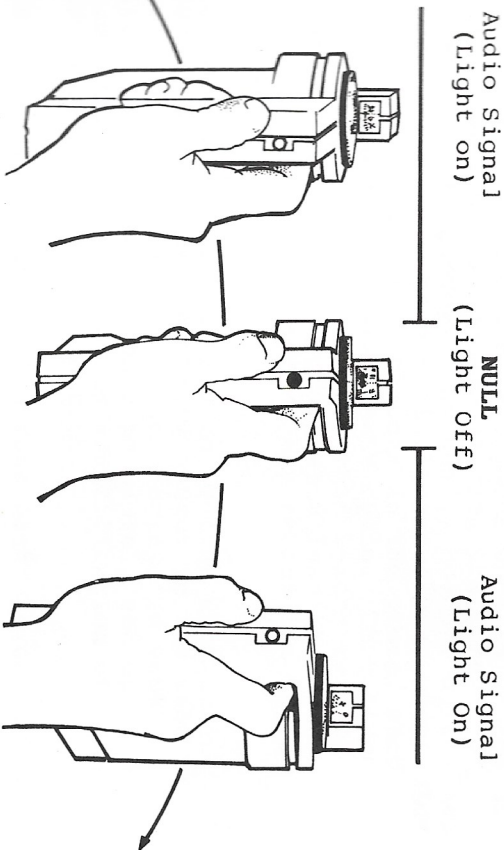
Volume level relatively constant. This gives optimum discrimination around the null point. To obtain the best results, the Function Select Trigger should be pulled in and held depressed when the Lokata 7 is facing well away from the anticipated direction of the beacon. Adjustment of the RF Gain Control when the null point is found will allow the operator to improve the resolution of the null, particularly on strong signals.

### The Null Indicator Light

provides visual confirmation of the beacon's audio signal heard over the headset and will go out at the null point, as the audio signal fades. Thus the operator uses both senses to accurately determine the null.

### On Hearing The Null

At first, the operator will probably find that the null - no audio tone; null light out - extends through an arc of several degrees. When taking a bearing, the Volume/Automatic Gain Control should be rotated upwards as the Lokata 7 is swung through the arc of the null: this will increase the brightness of the Null Indicator Light and narrow down the null arc to 3 to 5 degrees on a strong signal in easy range. The mean bearing is calculated and used as the basis for chartwork.



(In difficult sea conditions or when taking a bearing on a beacon at the extent of its range, the mean bearing will need to be interpolated from a wider null arc. On distant beacons (see Basic RDF Navigation), the user will find that the Null Indicator Light gives a sharper and more positive null indication than the gradual fading of the audio tone, particularly in the high ambient noise of more lively sea conditions.)

In normal use, the operator will now take bearings on a second and third RDF beacon in order to draw in the usual "cocked hat" on the chart.

**REMEMBER:** One minute after the Function Select Trigger has been released, the Lokata 7 will switch itself off automatically.

After use, the Lokata 7 should be stored safely and securely in an upright position: many yachtsmen may like to devise a convenient built-in bracket which allows the RDF to be mounted in a fore-and-aft position and act as tell-tale compass down below.

## Appendix 1 **BASIC RDF NAVIGATION**

Full details of RDF beacons for navigation - together with other useful information - may be found in a current edition of Reed's Nautical Almanac or the Admiralty List of Radio Signals, Vol 2, available from chart suppliers.

Tabulated information provides the name of the beacon, its morse call sign, its frequency, its operating characteristics and its range.

Both main types of beacon used for marine navigation transmit a morse call sign for identification purposes which is repeated, followed by a continuous tone which is used when taking the bearing. The two main types of RDF beacon are:

### **Marine Beacons**

Marine beacons are situated on or near coastlines and are shown on standard charts by a mauve circle and the letters: R C.

Most - but not all - marine beacons work in groups of between two and six beacons sharing the same transmission frequency. Obviously, beacons on the same frequency cannot transmit simultaneously so, regardless of the actual number of beacons in the group, each group transmits on a six-minute cycle. Thus beacon one will transmit for one minute, then beacon two for one minute and so on. In a group with less than six beacons, one or more beacons may repeat its transmission.

The navigator will not need to re-tune when taking a bearing on a second and third beacon in the same group but will be looking for these bearings in very different directions. Once accurately set up, the Beacon Clock will assist in identification of each beacon as it transmits in turn.

The navigator should always take bearings on marine