

Chapter 1 GENERAL DESCRIPTION

1.1 INTRODUCTION

TD-L1620A is a high grade VHF AUTOMATIC DIGITAL DIRECTION FINDER (VHF ADDF) covering a frequency range from 110MHz to 170MHz. Goniometers with rotation mechanism which has been widely employed in direction finders is replaced with a computer-controlled device which results in a high reliability.

The model is designed for H type Adcock antenna with a balanced modulation circuit. A computer-controlled synthesizer with a triple super-heterodyne circuit provides high sensitivity, accuracy and stability and consequently, the unit is very suitable for stand-by reception.

A new tracking technique is adopted for its display which gives a high stability in the display even for a weak signal with low S/N ratio. Both digital and direct bearing displays give the bearing when a signal is received. Holding function is also provided which maintain the last bearing data while receiving no signal. Bearing data is updated when the signal arrives irrelevant to whether the holding function is on or off.

There are 4 modes in selecting the frequency which are explained below:

1. MANU mode : Reception by manual frequency setting.
2. SPOT mode : Quick reception by channel selection. Max 30 frequencies can be stored in the memory.
3. SRCH mode : Search reception covers a frequency range, $F_c \pm 500\text{kHz}$, in 5kHz step, where F_c is the center frequency.
4. SCAN mode : Automatic scanning reception of SPOT frequencies in group. Max. 10 channels with the same group number can be scanned. Scan stops when a signal is received.

1.2 FEATURES

Features of the model are shown below.

- a) A wide range from 110 MHz to 170 MHz is covered.
- b) Computer-controlled circuits without mechanical movement give high reliability.
- c) The relative bearing is indicated on LCD with 36 LEDs in 10° step.
- d) LCD shows relative bearing in 1° step.
- e) Scanning reception over a frequency group is possible. Max 3 groups, and max.10 channels in a group.
- f) Clear voice is received both in DF and RCV mode.
- g) An LED level indicator shows the signal level.
- h) A light Adcock antenna has a high sensitivity.
- i) The unit is compact, easy to operate, and with a low power consumption.

- j) Various modes of reception are selectable, MANU, SPOT, SCAN and SRCH.
- k) The frequency and the bearing are maintained until next signal comes.
- l) A squelch circuit is built-in to suppress noise when no signal comes.

1.3 SPECIFICATIONS

● Antenna (EA-351A)

Type : H type Adcock Antenna
 Antenna Cable : Twin coaxial cable with armor
 16m or shorter : RG-58A/U, 17 - 29m : 5D-2V
 30m or longer : 8D-2V

● Receiving system

Amplification : Triple-superheterodyne with synthesized local frequency oscillator.
 Mode of reception : Manual, spot, search and scan.
 SPOT : max. 30 channels in the memory
 SRCH : center frequency ± 500 kHz, in 5 kHz step
 SCAN : max. 10 SPOT frequencies in the same group.
 Frequency : 110 - 170 MHz, in 5 kHz step
 Mode of modulation : AM or FM (waveform : A3 or F3)
 Sensitivity : For DF mode, minimum field strength $0.5 \mu\text{V/m}$.
 For RCV mode, 12dB SINAD $0.25 \mu\text{V}$.
 Selectivity : ± 6 kHz at -6dB or wider.
 ± 12 kHz at -60dB or narrower.
 Squelch Sensitivity : $0.25 \mu\text{V}$

● Output

Displays : Digital bearing display in 1° increment
 Analog bearing display with LED in 10° step
 Voice Output : 1.8W (impedance 4Ω)

● Power Supply : DC 11~35V, 0.6~1.5A

AC Power Supply is available as option.

● Back-up Battery : Built-in, Ni-Cd battery, rechargeable GB-5011-3

● Size and Weight

Main Unit : 175(H)x320(W)x350(D)mm, 8kg
 Adcock Antenna : 930(H)x410(W)x410(D)mm, 3kg