INSTRUCTION MANUAL

AUTOMATIC ANTENNA TUNER Model CNA-1001

(1) Features

The Daiwa Automatic Antenna Tuner model CNA-1001 (Patents pending) marks an epoch in Amateur Radio. For the first time the Amateur is offered a fully automatic antenna tuner which will reduce the SWR to less than 1.5 to 1. This new development is made possible by Daiwa's advanced technology coupled with long experience in this field.

(2) Specifications

2.1 SWR/Power Meter Circuitry

(1) Frequency range : 3.5 MHz - 30 MHz
(2) Input/output impedance : 50 ohm
(3) Meter scale : FWD:REF/5:1
(4) Power meter range
   Forward : 20/200W
   Reflected : 4/40W
(5) Meter accuracy : ± 1% at full scale
(6) SWR range : 1:1 - infinity
(7) SWR detection : 5W minimum
(8) Power rating : 500W PEP
(9) Input power for automatic adjusting : 6-12V

2.2 Tuner Circuitry

(1) Frequency : 3.5, 7, 14, 21 & 28 MHz (5 bands)
(2) Input/output impedance
   Input impedance : 50 ohm (unbalanced)
   Output impedance : 3.5 MHz: 15 - 250 ohm (unbalanced)
   7, 14, 21 & 28 MHz: 10 - 250 ohm (1)
(3) Automatic operation time : 45 sec max.

2.3 Sundry

(1) Input/output connectors : 80259
(2) Dimensions : 225 (W) x 90 (H) x 245 (D) mm
(3) Weight : Approx. 3.6 kg
(4) Output terminal : Output for two antennas
(5) Dummy load : 10W (50W/1 minute rating)
   1 A detection fuse installed
3. Controls

3.1 Front Panel

(1) BAND change  : Set to band in use
(2) Antenna change over switch  : Set to antenna 1, 2 or Dummy load.
(3) RANGE indication LEDs  : Indicates the meter range when LINE switch is turned ON.
(4) OPERATION indication LED  : Lights up when the motor is in operation.
(5) Cross needles SWR/Power meter  : Forward power, reflected power and SWR can be read simultaneously.
(6) LINE switch  : Power is supplied to control circuitry and LEDs when turned ON and removed when turned OFF.
(7) RANGE switch  : Meter range is changed. Either 200W or 20W full scale.
(8) TUNER switch  : The tuner circuitry is connected between antenna and transmitter in the "ON" position and bypassed in the "OFF" position.
(9) OPERATION switch  : Activates the automatic tuner to bring the SWR to 1.5 to 1 or better.
(10) FINE TUNING, TR/ANT  : Enables fine tuning to reduce the SWR to the minimum possible.

3.2 Rear panel and connections

[Diagram of rear panel and connections with labels for 50 ohm Coax, ANT 1, ANT 2, Fuse, Ground, Transmitter, Transceiver, and leads labeled Black and Red with Regulated power supply indicated.]
(4) Operation

4.1 Connect as shown in Figure 3.2 with the transmitter OFF.

4.2 Set the BAND switch to the same band as the transmitter.
Set the ANTENNA switch to the DUMMY position. The CHA-1001 is equipped
with a 10W dummy load (50W/1 minute rating).

4.3 Switch the LINE switch ON. Set the RANGE switch (meter range selector)
to 20W (LHD on front panel lights up).

4.4 The transmitter may now be turned on and the output power adjusted to
about 8 - 12 W.

4.5 Switch off the transmitter. Set the antenna switch to position 1 or 2
which ever antenna is in use and switch the transmitter ON again.

NOTE

The automatic tuner can NOT handle an SWR higher than 5:1, so for an SWR
greater than this, the antenna must be improved to bring it within the
capability of the automatic tuner.

4.6 Turn the TUNER switch ON.

4.7 Keep the output power of the transmitter between 8 - 12W then switch the
OPERATION switch ON.

4.8 The motor mechanism will operate, lighting the front panel LCD, and will
stop when the SWR reached 1.5:1 or better.

4.9 Adjust the FINE TUNING knobs (FR and AN) for lowest SWR.

4.10 Set the RANGE switch to the appropriate power range and increase transmitter
output power to normal operating level.
NOTE

Automatic tuning feature operates only at the proper output power level. Whenever automatic tuning is to be done, the output power of your transmitter should be adjusted to about 10 W into the built-in dummy load.

CNA-1001
Circuit of the CNA-1001.

The circuit might be changed without notice.