

(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 :  $\pm 10\%$  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 : 1-12W

2.2 Tuner Circuitry

- (1) Frequency : 3.5, 7, 10, 14, 18, 21, 24 & 28MHz
- (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 (")
- (3) Automatic operation time : 45 sec max.

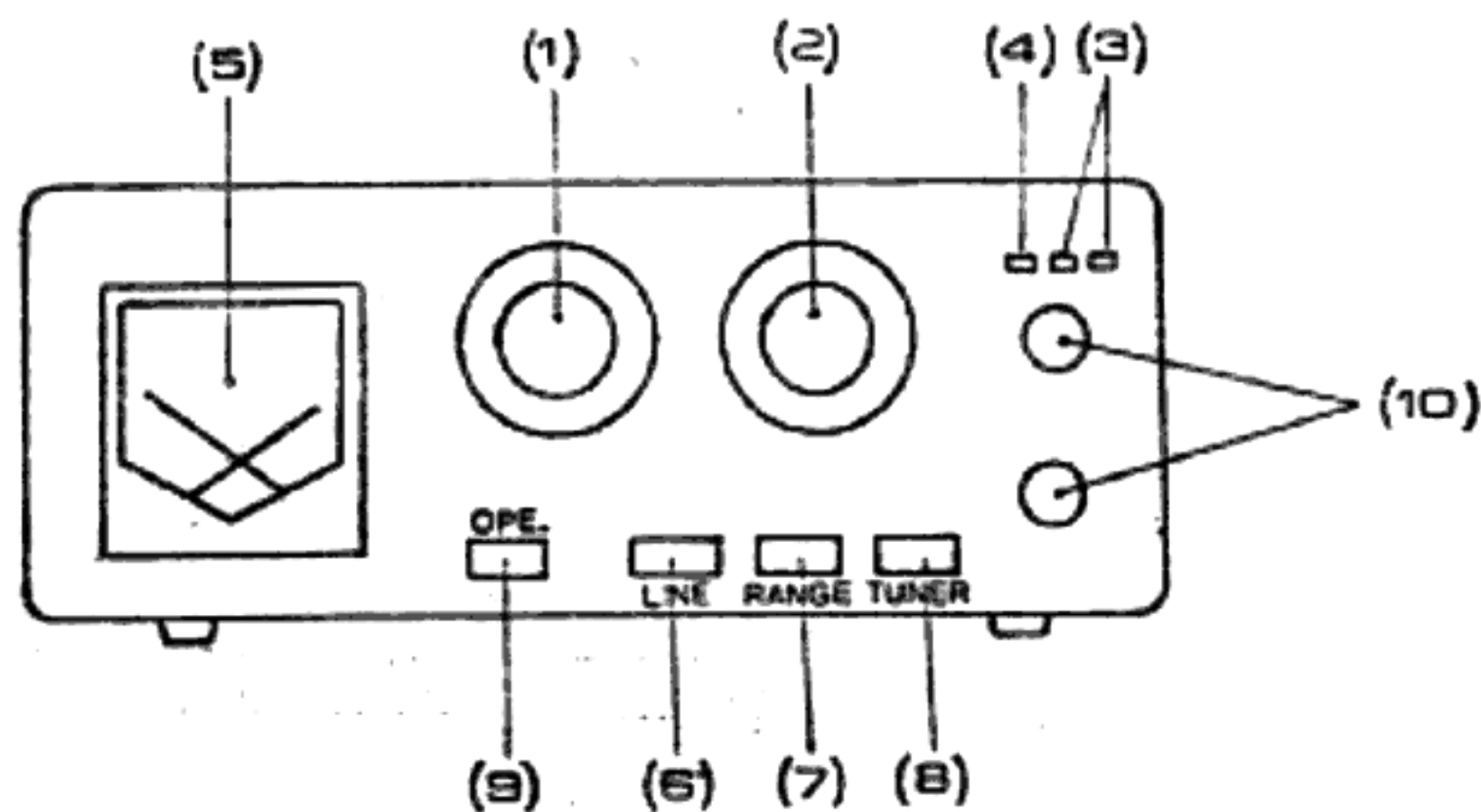
2.3 Sundry

- (1) Input/output connectors : SO239
- (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 minuit rating)  
1 A detection fuse installed

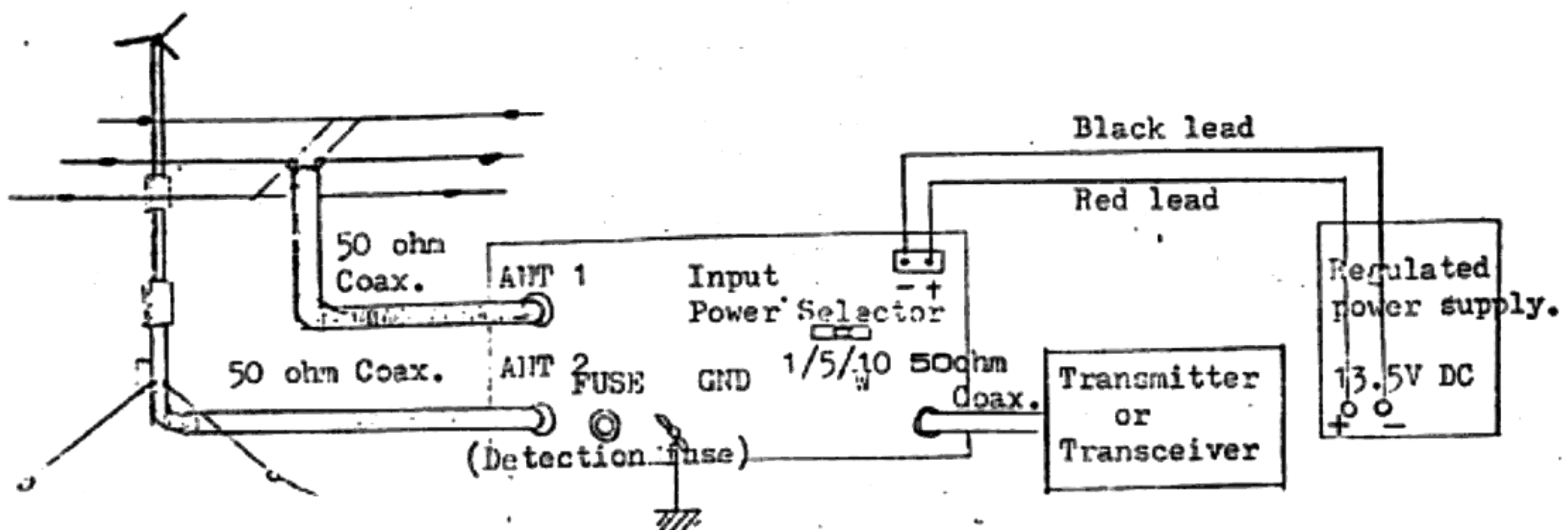
### (3) Controls

#### 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/AUT          | : Enables fine tuning to reduce the SWR to the minimum possible  |



#### 3.2 Rear panel and connections



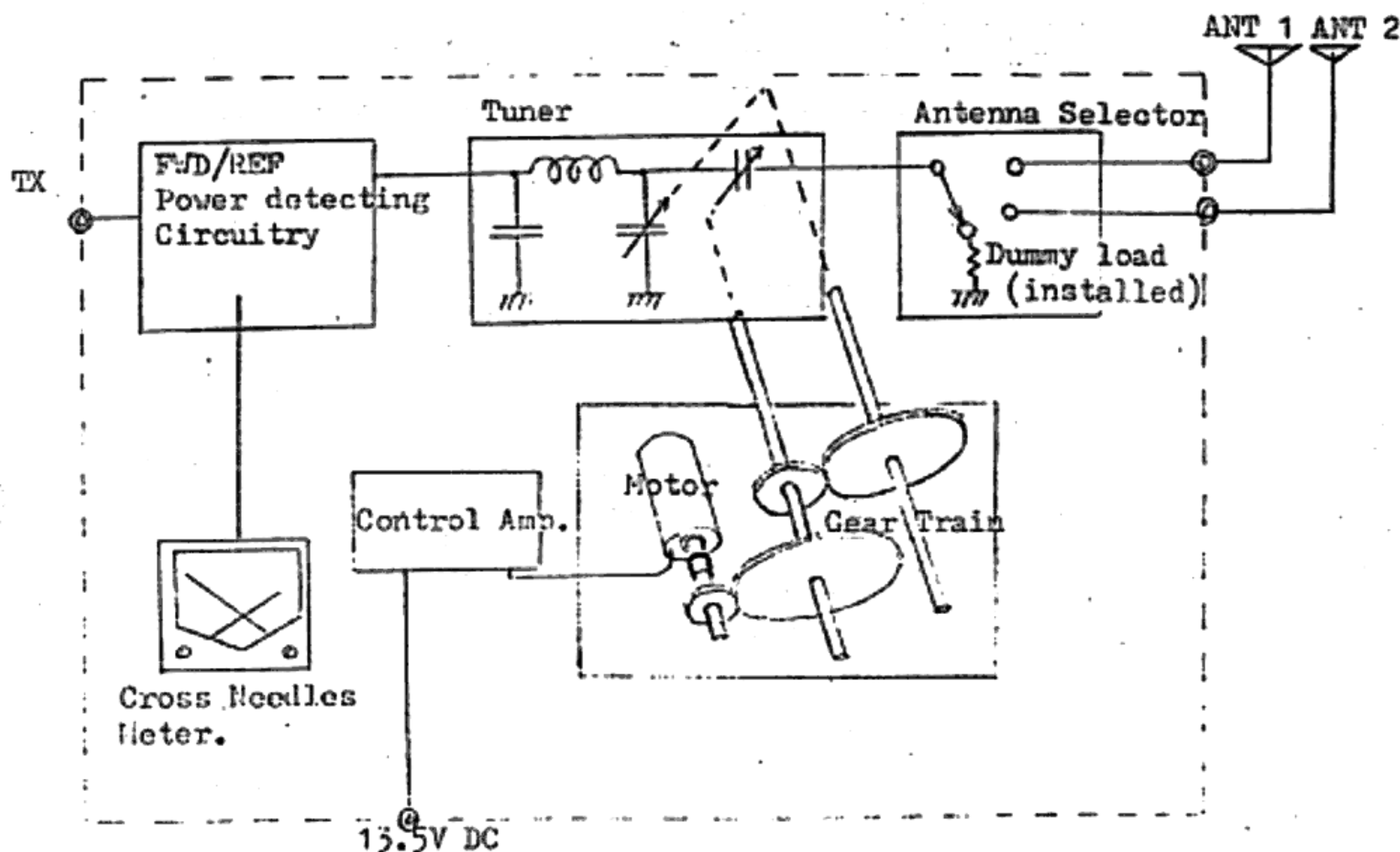
(4) Operation

- 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 CNA-1001 is equipped with a 10W dummy load (50W/1 minute rating).
- 4.3.1 Switch the LINE switch ON. Set the range switch (meter range selector to 20W (LED on front panel lights up).
- 4.3.2. Set the Input Power Selector on rear panel to 1, 5 or 10W position by your choice.
- 4.4 The transmitter may now be turned on and the output power adjusted to about 1 or 5 or 10 W according to the position of the Input Power Selector.
- 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

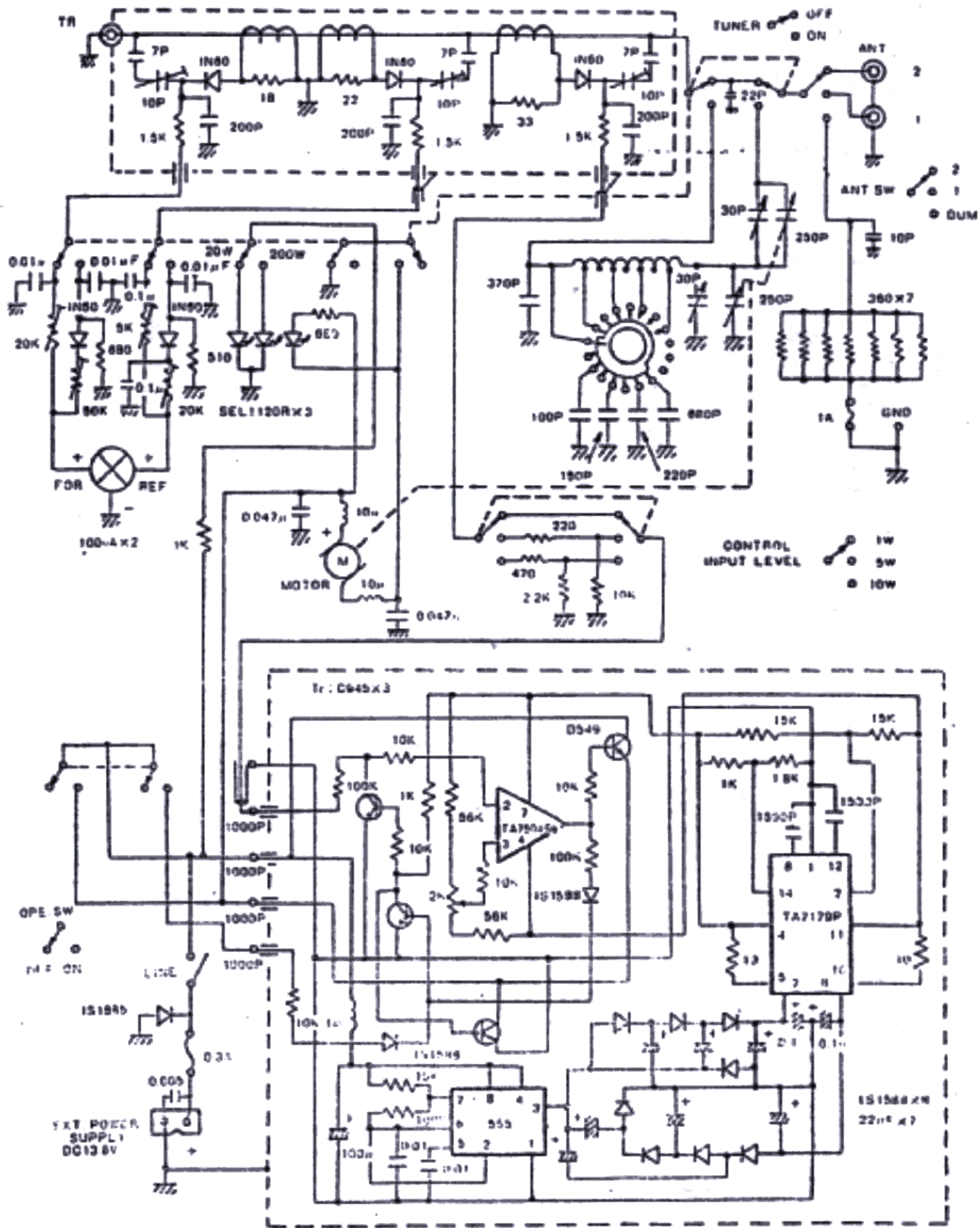
The automatic tuner can NOT handle an SWR higher than 5:1, so for an SWR greater than this, the antenna must be improved to bring it within the capability of the automatic tuner.

- 4.6 Turn the TUNER switch ON.
- 4.7 Keep the output power of the transmitter between 1 - 12W then switch the OPERATION switch ON.
- 4.8 The motor mechanism will operate, lighting the front panel LED, and will stop when the SWR reaches 1.5:1 or better.
- 4.9 Adjust the FINE TUNING knobs (TR and ANT) for lowest SWR.
- 4.10 Set the RANGE switch to the appropriate power range and increase transmitter output power to normal operating level.



Circuit of the CNA-1001

SCHEMATHEEK  
 Beh. T. Hultermans  
 Postbus 4228  
 5604 EE Eindhoven



The circuit might be changed without notice.