

Ameri tron
RCS - 8V
Remote Coax Swi tch

I NSTRUCTI ON MANUAL

The Ameritron RCS-8V is a remote controlled coaxial RF switch that will operate with negligible loss, radiation and VSWR at all frequencies up to 250 MHz. Only a slight compromise in VSWR occurs at 450 MHz. Power rating is four kilowatts PEP below 30 MHz and one kilowatt PEP at 150 MHz.

The RCS-8V permits the operation of up to five separate antennas with only one coax feedline. A rotor or telephone type control cable with a minimum of five conductors is required. The control console contains the power supply and switching selector that supplies voltage for the relay box. The front panel has five LED's that indicate the antenna that is in use. The RCS-8V operates on 117 Vac 50/60 Hz line voltage. A 234 Vac 50/60 Hz model is available.

AMERITRON

INSTALLATION

MOUNTING

The relay box may be mounted on a tower leg, mast or building wall. The mounting hardware furnished will accept a tubular mast up to 1 1/2" diameter.

If the box is mounted on a building wall, discard the "U" bolt assembly and use two 4" screws to attach the bracket to the wall.

The relay box must be mounted with the connectors down. Do not attempt to air seal the relay box. Install drip loops below the box if the feedlines are brought in from a higher location. Lightning retarding loops are a recommended precaution on all cables (see Figure 1.)

RELAY BOX CABLE

inexpensive 5 or more conductor rotor or telephone cable can be used to connect the relay box to the control console. The only requirement is that the cable be physically able to survive the environment it is installed in. Wire gauge and voltage breakdown are not critical. Conductor and ground return (through the coax shield) resistances can total 80 ohms before operation becomes compromised.

Remove the four screws at the corners of the panel and remove the cover. Route one end of the control cable through the bushing in the panel and through the plastic cable clamp.

Connect 5 of the wires in the cable to terminals 1 to 5. Make a note of the color that is connected to each terminal. If a sixth wire is available in the control cable.

Re-install the cover on the panel using the self tapping screws previously removed.

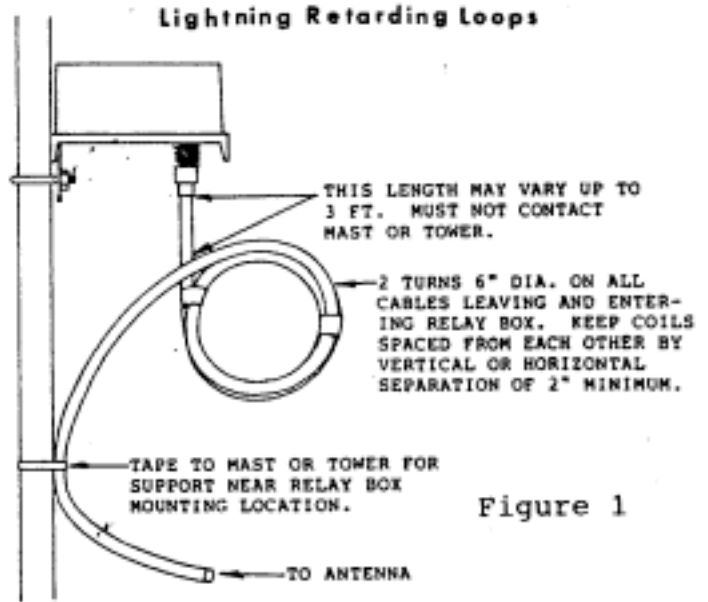


Figure 1

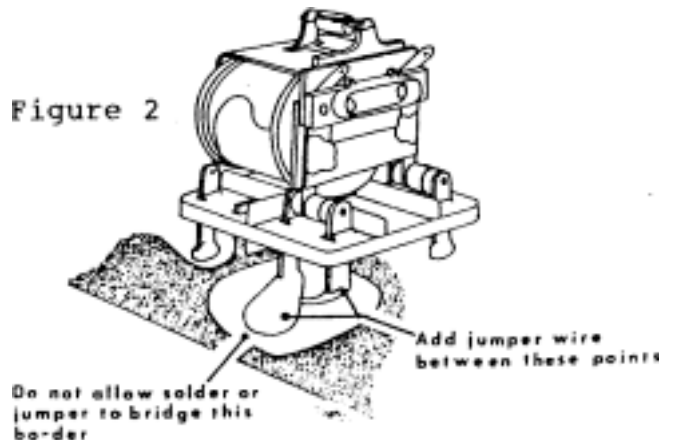
RELAY BOX ANTENNA

Connect your antennas to coax connectors numbered 1-5 and note which antenna is connected to each connector.

Connect the feedline to the connector marked "INPUT."

If control power is removed the relay box automatically disconnects the "input" feed connection from all antenna ports.

Unselected antenna ports may be automatically grounded or isolated. The RCS-8V is shipped with the ports isolated. To automatically ground the unselected port a short jumper must be installed as shown in Figure 2.



More than one antenna port can be "picked up" at one time by applying control voltage to more than one relay at one time. This allows the user considerable flexibility in stacking arrays of similar antennas.

CONTROL CONSOLE CABLE

Locate the RCS-8V control console at a convenient location on the station operating desk.

The control console supplies 12 volt DC control voltages. It has an internal 1 amp fuse in the transformer secondary circuit that protects the power supply if a short circuit occurs in the control cable.

The "input" port is the common connection port. It can also be used as an output. selecting up to five inputs or left floating if cross-matrix switching between the various "Ant" ports is desired.

Connect the 5 wires in the cable to terminals 1 thru 5. Use the same color code that was used on the relay box. If a sixth wire is available in the CON control cable, connect it to the "G" terminal.

IMPORTANT: Connect the "G" terminal to the station ground buss.

OPERATION

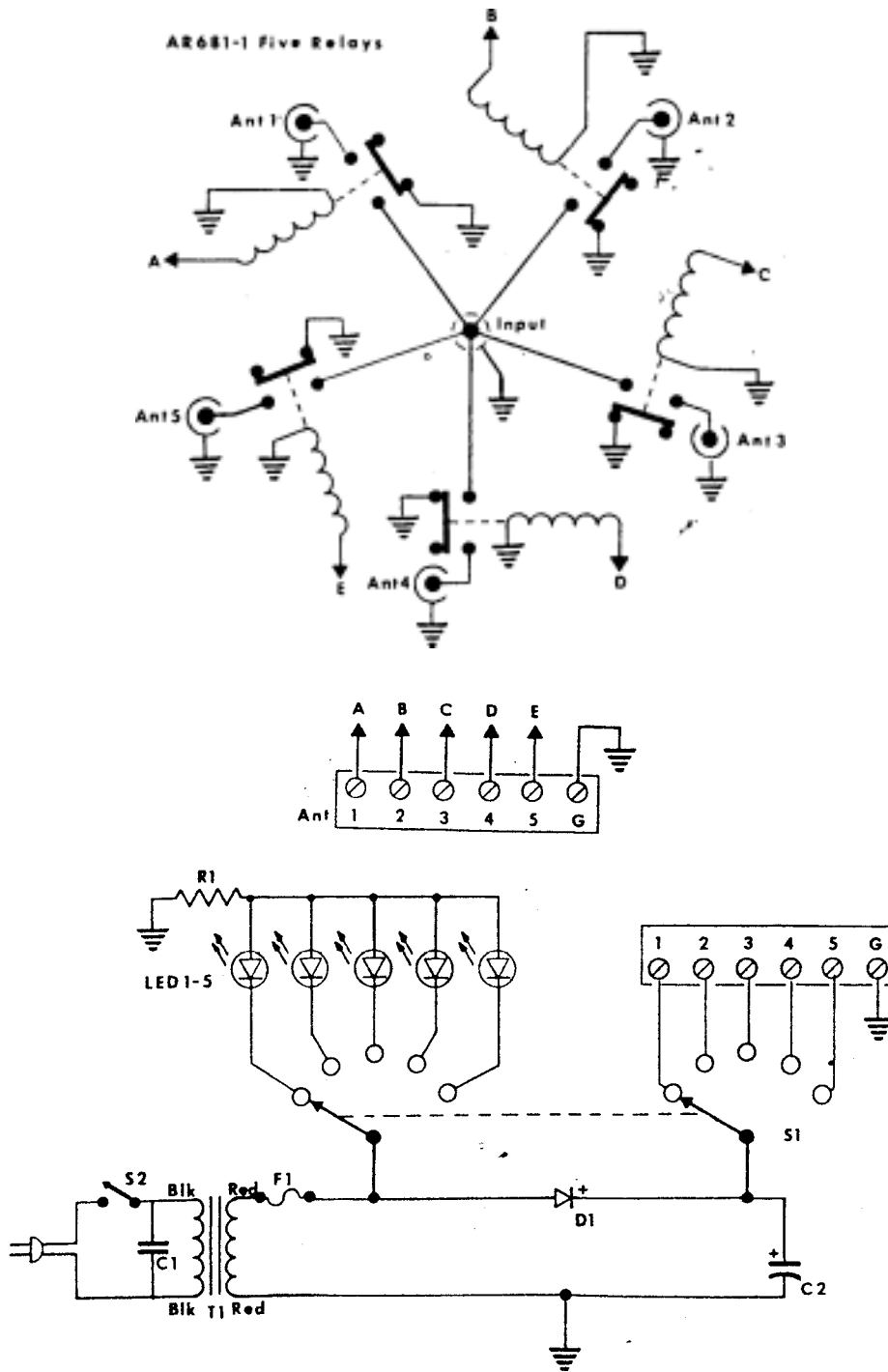
1. Plug the line cord into the proper voltage outlet.
2. Place the PWR switch in the "ON" position.
3. Rotate the SELECT control and observe the lights one thru

The switch positions are numbered on front of the control box and a space is provided above each position so you can pencil in a designation for each antenna.

IMPORTANT

1. NEVER switch antennas with RF power applied to the master feedline. Damage to the switching contacts may result from "hot switching".
2. If one of the lights is dimmer than the rest it is an indication of a short in the control cable or between terminal screws.

SCHEMATIC C



PARTS LIST

| | |
|---------|------------------------------------------------------|
| C1 | .01 μ f 1.4 kV DC (AR-122) |
| C2 | 100 μ f 25 Vdc (AR-565) |
| D1 | 1N4005 diode (AR-266) |
| F1 | 1 amp 3 AG fuse (AR-287) |
| LED 1-5 | Green LED (AR-523), Red LED (AR-522) |
| R1 | 470 ohm $\frac{1}{2}$ W (AR-564) |
| Relays | SPDT relay (form X) (AR-681-1) |
| S1 | Rotary switch (AR-563) |
| S2 | Off-on toggle switch (AR-233) |
| T1 | 117 V power transformer (AR-230-1), 234 V (AR-230-2) |