

CODAR CR. 45 ALL BAND RECEIVER 30 Mcs - 150 Kcs.

ASSEMBLY AND WIRING INSTRUCTIONS

The following instructions have been compiled from the actual construction of the prototype receiver and should be followed exactly in the order shown. Check off each detail as it is completed. This will eliminate any omissions in the wiring. The drawings are supplied separately from the instructions to assist reference.

All radio and electronic equipment depends on good soldering for reliability and correct performance. Faulty soldering can cause intermittent results, poor performance or even complete circuit failure.

The soldering iron tip should be clean and well tinned with a smooth finish. Any pitting should be removed with either a file or sandpaper, and the new surface retinned by melting solder over the tip. Do not apply solder to the iron and transfer it to the joint. Always apply the iron to the joint, so that when the solder is applied direct, the temperature of the joint is high enough to make the solder run freely. Be sure to use only enough solder to just cover the joint. Directly the solder flows the iron should be removed taking care that the wire does not move while the solder is setting.

High grade resin core solder has been supplied and soldering pastes or acid core solder should not be used. Make certain that no excess solder or stray wire ends can cause short circuits. This applies particularly to the tube sockets and tag strip. Cover all wiring and component leads with the sleeving supplied, keeping the wiring short and direct.

ASSEMBLY. STEP 1. FIGURE 1. UNDER CHASSIS VIEW

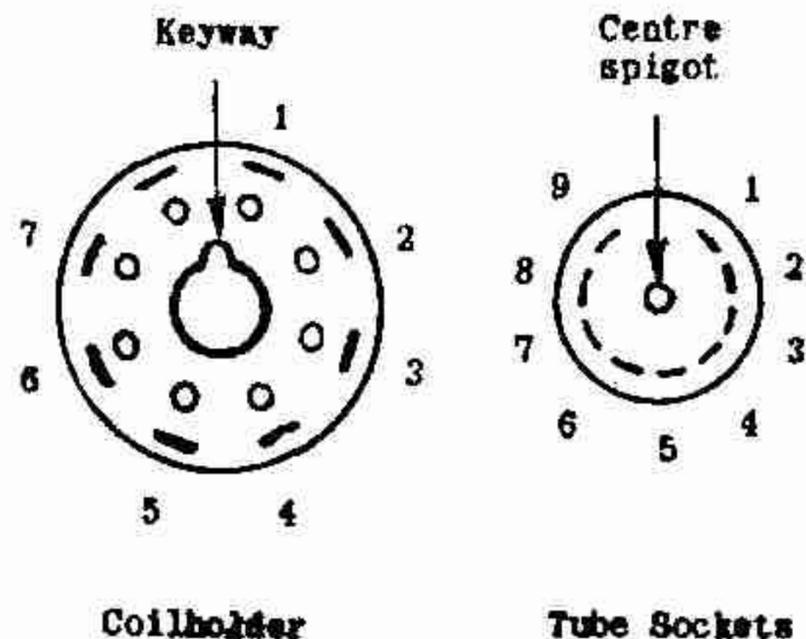
Fit antenna/ground (A/E) and loud speaker socket strips on rear of chassis, with solder tags under fixing nuts as shown.

Fit the three tube sockets, noting the correct position of the tags. The tube socket on extreme right (V3) has the gap between 1 and 9 facing right. Fit solder tag under left hand fixing nut.

The other two tube sockets (V1 and V2), are fitted with the gaps between tags 1 and 9 facing rear of chassis. Fit solder tags under both fixing nuts of each tube socket as shown.

Fit Octal Coilholder with solder tags under both fixing nuts.
NOTE: The keyway between tags 1 and 8 faces front of chassis.

Pin connections, viewed from underneath.



Fit 5 way tag strip as follows:-

First fit the two long bolts supplied and tighten the fixing nuts. Now fit extra nut on each bolt before placing the tag strip in position. To provide chassis clearance for the tag strip. This tag strip carries the full H.F. voltage and must be clear of the chassis.

Fit the Volume control On-Off switch (R8) on right hand front of chassis with the three side tags horizontal and facing to center of chassis. Locking washer is fitted on inside of chassis. Tighten front fixing nut temporarily, and do not fit Front panel at this stage.

Fit chassis grommets as shown, the small grommet being fitted in the hole near the Coilholder.

Check that all fixing nuts are tight to ensure good contact of the solder tags to chassis. Bend all solder tags up slightly to assist soldering.

COMPLETION OF STEP 1.

WIRING. STEP 2. FIGURE 1. UNDER CHASSIS VIEW

Use tinned copper wire and cover with sleeving.

Connect ground (E) socket to solder tag on left hand fixing bolt.

Connect right hand loudspeaker socket to solder tag on right hand fixing bolt.

Connect Tag 4 on tube socket V3 to Tag 5 of tube socket V2 and continue on to Tags 4 and 5 of tube socket V1 as follows:-

Cut a sufficient length of tinned copper wire and solder one end to Tag 4/V3. Cut a length of sleeving to reach Tag⁵/V2 and thread onto wire. Thread wire through hole in Tag 5/V2 and solder. Cover the remaining wire with sleeving and thread wire through Tags 4 and 5 of V1 linking both Tags as shown. Bend completed wiring down close to chassis.

Connect Tag 5/V3 to its chassis holder Tag.

Connect center spigot on V1 to Tag 3/V1 and to its chassis solder Tag.

Connect center spigot on V2 to Tag 4/V2 and to its chassis solder Tag.

Connect Tag 6 on Coilholder to Tag 8 on Coilholder and to its front chassis solder Tag. Thread wire through Tags 6 and 8 and solder to chassis solder Tag first. Keep wire short and tight and solder Tags 6 and 8.

~~Check~~ ALL JOINTS AND CONNECTIONS BEFORE COMMENCING STEP 3. COMPONENT WIRING.

COMPLETION OF STEP 2.

WIRING. STEP 3. FIGURE 1. UNDER CHASSIS VIEW

Connect 1 megohm resistor R1 (Brown/Black/Green) from Tag 2/V1 to chassis solder Tag.

Connect 100 pfd. capacitor C1 also from Tag 2/V1 to Tag 3 on Coilholder.

Connect 56 ohm resistor R2 (Green/Blue/Black) across Tags 2 and 4 of coilholder.

Connect .01 mfd. (10,000 pfd.) capacitor C4 across Tags 1 and 4 of 5 way tagstrip, keeping the capacitor under the tags as shown. Thread the wire ends up through the tag holes, making certain they cannot come into contact with any other tags.

Connect 10K resistor R3 (Brown/Black/Orange) to Tag 1/V1 and also to Tag 1 of 5 way tagstrip together with C4.

Connect Tag 1/V1 also to Tag 5 on Coilholder.

Connect .001 mfd. (1000 pfd.) capacitor C2 to other end of Tag 1 of 5 way tagstrip and to rear chassis solder tag under Coilholder fixing nut.

Connect 8 mfd. capacitor C3 to rear end of Tag 2 of 5 way tagstrip and to other chassis solder tag under same Coilholder fixing nut. NOTE: This capacitor must be connected with the + positive end connected to Tag 2 and the - negative end to the chassis solder tag.

Connect 56K resistor R7 (Green/Blue/Orange) from front of Tag 2 on 5 way tagstrip to Tag 6/V1.

Connect .01 mfd. (10,000 pfd.) capacitor C5 also to Tag 6/V1 and leave the other end of this capacitor free.

Connect 1K resistor R8 (Brown/Black/Red) to Tag 8/V1 and chassis solder tag.

Connect 220 ohm resistor R11 (Red/Red/Brown) to Tag 1/V2 and chassis solder tag.

Connect 470k resistor R10 (Yellow/Mauve/Yellow) to Tag 2/V2 and chassis solder tag.

Connect free end of C5 capacitor to Tag 2/V2.

CHECK ALL JOINTS AND CONNECTIONS BEFORE COMMENCING STEP 4.

COMPLETION OF STEP 3.

ASSEMBLY. STEP 4. FIGURE 1.

Fit power transformer with nuts and bolts supplied. The transformer must be fitted with the BLACK spot on the housing at rear of chassis. (See ABOVE CHASSIS VIEW FIGURE 3).

Connect wire also to YELLOW Tag of C7/8 and to rear of Tag 3 of 5 way tagstrip.
Run wire as shown.

Connect wire also to Tag 3 of 5 way tagstrip to Tag 9/V2.

Connect wire also from Tag 9/V2 to RED Tag on output transformer.

Connect wire from Tag 7/V2 to BLUE Tag on output transformer. Use the RED and BLUE flexible wire supplied for these two connections and twist together as shown.

Connect one BLACK Tag of output transformer to one loudspeaker socket and the other BLACK Tag of output transformer to the other loudspeaker socket. Use BLUE and RED flexible wire also for these connections and twist together.
NOTE. The actual position of the output transformer tags may differ from those shown, but the colour coding will be as above, and must be connected as described.

Connect the 10 mfd. Electrolytic capacitor C6 to Tag 3/V2 and to chassis solder tag as shown.
NOTE. This capacitor must be connected with the + positive end to Tag 3/V2 and the - negative end to chassis.

Connect 100K resistor R4 (Brown/Black/Yellow) diagonally across Tags 1 and 2 of 5 way tagstrip as shown.

Connect 22K resistor R5 (Red/Red/Orange) diagonally across Tags 2 and 3 of 5 way tagstrip.

Connect 56K resistor R9 (Green/Blue/Orange) across rear of Tags 4 and 5 of 5 way tagstrip.

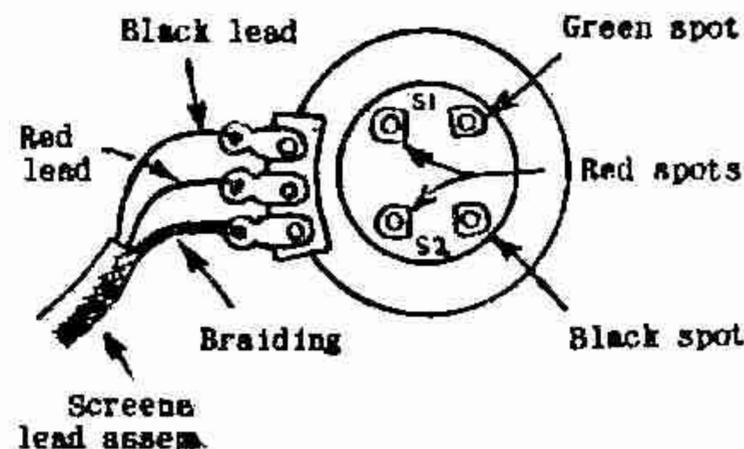
SCREENED LEAD ASSEMBLY.

This is supplied prepared ready and is connected as follows:-
The shortest ends connect to the side tags of the volume control.

Connect BLACK lead to top tag.
Connect RED lead to center tag.
Connect screened braiding to bottom tag.

Connect other end BLACK lead to front of Tag 5 of 5 way tagstrip.
Connect other end of RED lead to Tag 7/V1.
Connect screened braiding to chassis solder tag as shown

Connections to Volume Control and double-pole switch.
Viewed from rear.



FITTING VARIABLE CAPACITORS AND VERNIER DRIVES. STEP 6.

Fit the three Vernier Drive Units to the mounting brackets with the fixing lugs of the units on the front of the brackets. (FIG. 3).

Fit CV1 and CV2 variable capacitors above chassis with fixing bolts supplied. Note correct position and keep vanes fully closed to avoid damage. Do not fully tighten fixing bolts.

NOTE: One Vernier Drive Unit is longer than the other two. This Drive Unit is fitted to CV3 under chassis.

Fit Vernier Drive Units as follows:-

Slacken off both set screws in Drive Units. Fit on to capacitor shafts and bolt brackets to chassis. Do not fully tighten fixing bolts and leave shaft set screws slack.

Fit CV3 variable capacitor under chassis as follows:

Slacken off set screws in Vernier Drive Unit (longest shaft) and fit on to capacitor shaft first. Push Vernier Unit shaft through front chassis hole and fix CV3 with fixing bolt to chassis. Bolt bracket to chassis and fully tighten Drive Unit set screw on to capacitor shaft.

WIRING.

Connect left hand tag of CV1 to right hand tag of CV2 (ABOVE CHASSIS VIEW FIG. 3). Make certain that wire ends or solder cannot short circuit to chassis or capacitor frames.

Connect length of bare wire to right hand tag of CV1 and pass through small chassis grommet A. Slide over sufficient length of sleeving to reach Tag 3 on Coilholder and solder (together with C1) FIG. 1.

Connect right hand tag of CV3 to Tag 2 on Coilholder (together with R2) FIG. 1.

Connect antenna socket to Tag 1 on Coilholder. FIG. 1.

Pass twin power lead through rear chassis grommet C. Tie knot on inside to prevent direct pull on connections, leaving sufficient to reach volume control switch tags. FIG. 2. Connect one wire of the lead to one of the RED switch tags, and the other wire to the remaining RED switch tag. NOTE: The actual position of the switch tag may differ from those shown, but the colour coding of the tags will be correct, and must be connected as described.

ALL WIRING IS NOW COMPLETED AND SHOULD BE CAREFULLY RECHECKED

FITTING FRONT PANEL AND DIAL CURSORS.

Remove Volume control front nut.

Fit front panel with the two 'Mushroom head' bolts supplied.

Replace Volume control nut and tighten carefully to avoid scratching the panel.

Fit Dial cursors on Drive Unit flanges with the small screws supplied.

ALIGNMENT OF DIAL CURSORS.

Check that the vanes of CV1 and CV2 are fully meshed clockwise.

Rotate drive shaft of CV1 clockwise until cursor hair line is exactly on the 150 Kc. calibration mark on Range 1.

Tighten set screws in Drive Unit on to capacitor shaft. If set screws are difficult to reach, continue rotating the Drive shaft clockwise until set screws are accessible. Tighten one screw slightly so that it just slips on the capacitor shaft. Now line up the cursor on the 150 Kc. mark, rotating clockwise only. The cursor can be rotated back to bring the set screw into position where they can both be tightened. Check that the cursor is on the 150 Kc. mark when capacitor is fully meshed.

Repeat on CV2 setting the cursor on the 100 degree mark.

Position the brackets and capacitors until the cursors are parallel with the front panel. Fully tighten all fixing bolts. If necessary reset the cursors.

FITTING PANEL INDICATOR LAMP. FIG. 1.

Fit lamp assembly in top centre panel hole. Pass flexible wires through chassis grommet B. Connect one wire to Tag 5/V2 and the other wire to chassis solder tag. Twist wires together and connect other ends to the tags on the bulb holder. (Bulb replacements should be either 6 or 8 volts .3 amp.).

FITTING PHONE JACK.

Fit phone jack in centre panel hole. FIG. 2.

Connect one end of 01 mfd. capacitor C9 to Tag 7/V2 and other end to rear tag of phone jack. Cover ends with sleeving and keep capacitor close down on chassis with the jack tags pointing down. No connection is required to the front jack tag.

FITTING TUBES: Receiver viewed from front.

6CC81/12AT7 in tube socket V1 left hand.

EL84/6P15-6BQ5 in tube socket V2 centre.

EZ80/6V4 in tube socket V3 right hand.

Connect 2/3 ohm Loudspeaker to loudspeaker sockets. NOTE: The receiver should not be used without either a loudspeaker or phones connected or damage may occur to the output valve or transformer. The loudspeaker can be disconnected for phones only use or both can be used together if required.

Plug in Coil for range required. All Coils are marked with a coloured spot between pins 1 and 8 and must be inserted correctly in the corresponding sockets of the Coilholder, the spot towards front of chassis. The front fixing bolt of the Coilholder serves as an indication for correct position of spot.

also affect reception considerably.

160-80-40-20-15-10 Meter Bands.
Radio Amateurs throughout the World.

13-16-19-25-31-49 Meter Bands.
North and South America, Far East, Australia, India, Russia, Africa, European and other Broadcast stations.

90-180 Meter Bands.
Shipping, Trawlers, Ship to Shore Telephone, Lifeboat, Lighthouse and Meteorological Services, Airport/Aircraft.

190-550 and 1000-2000 Meter Bands. Medium and Long waves.
Local and Continental Broadcast stations.

AERIALS.

The CR.45 is capable of giving excellent results under adverse conditions and good reception can be obtained with simple indoor antennas. However, for consistent long distance reception and improved signal/noise ratio, an outdoor antenna is far superior. With either indoor or outdoor aerials, a good ground connection will improve results on all bands. A suitable connection can be made to a water pipe or metal rod driven into the earth.

The actual length of an outdoor antenna is not critical, but it should be as high as possible and kept clear of buildings, trees, etc. Space limitations usually determine the total length that can be erected, but if possible an antenna about 30 feet long and at least 15 feet high will give good results. Avoid making joints in the wire as they will become noisy unless soldered, and use insulators at each end.

Where space is a consideration, vertical aerials are capable of giving excellent results if sufficient length can be erected. The vertical wire can be installed from upper and lower windows, but should be spaced away from the wall with stand-off lengths of wood. One advantage of a vertical antenna is that it is less directional than the horizontal type, although its pick up pattern may be affected by local buildings etc.

NOTE: C10 is the R.F. by-pass capacitor. In some districts, modulation hum from the mains supply may occur with regeneration fully advanced. This can be cleared by transferring C10 to Tag 7/V3, still leaving the other end connected to Tag 5/V3.

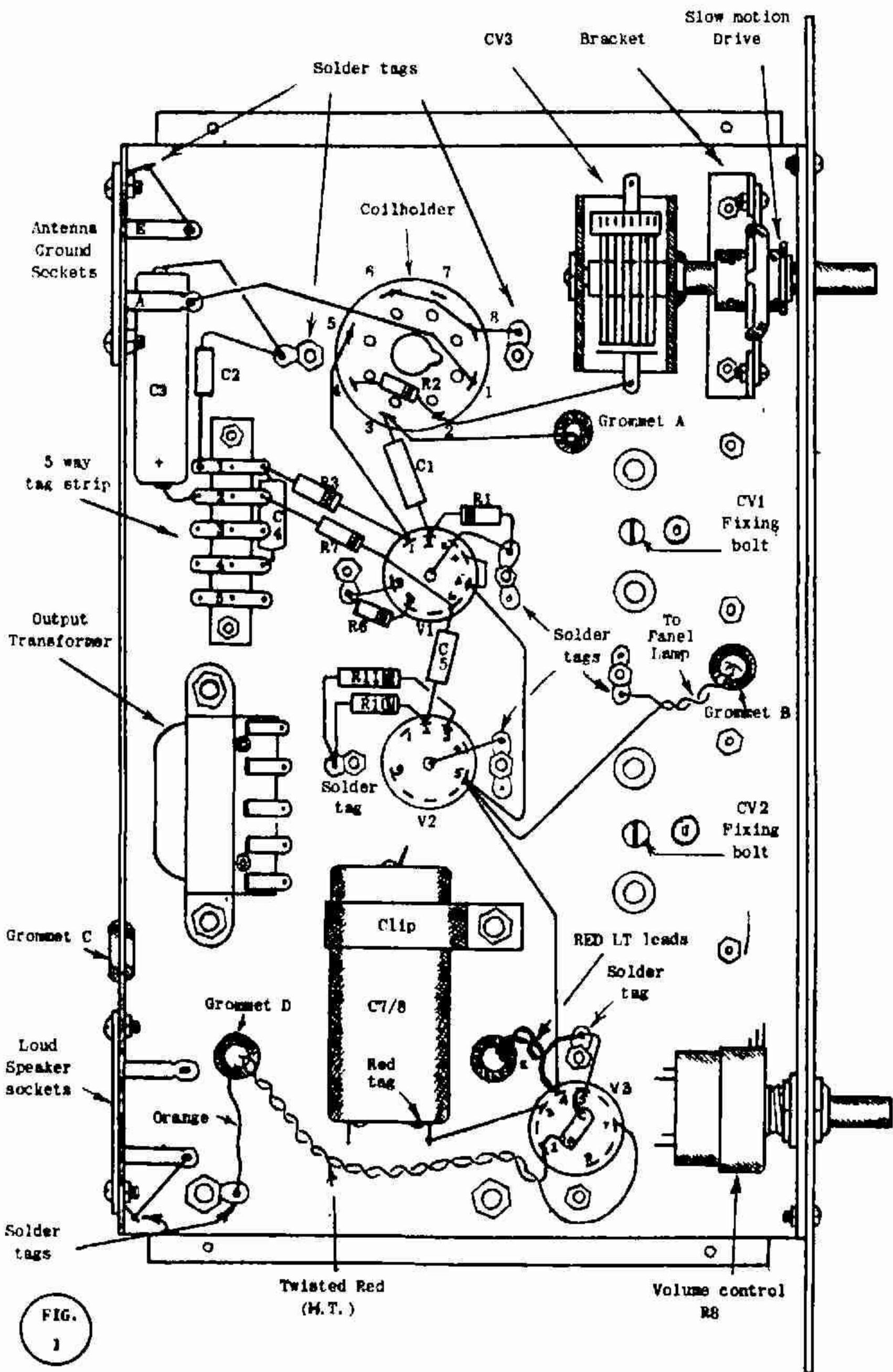
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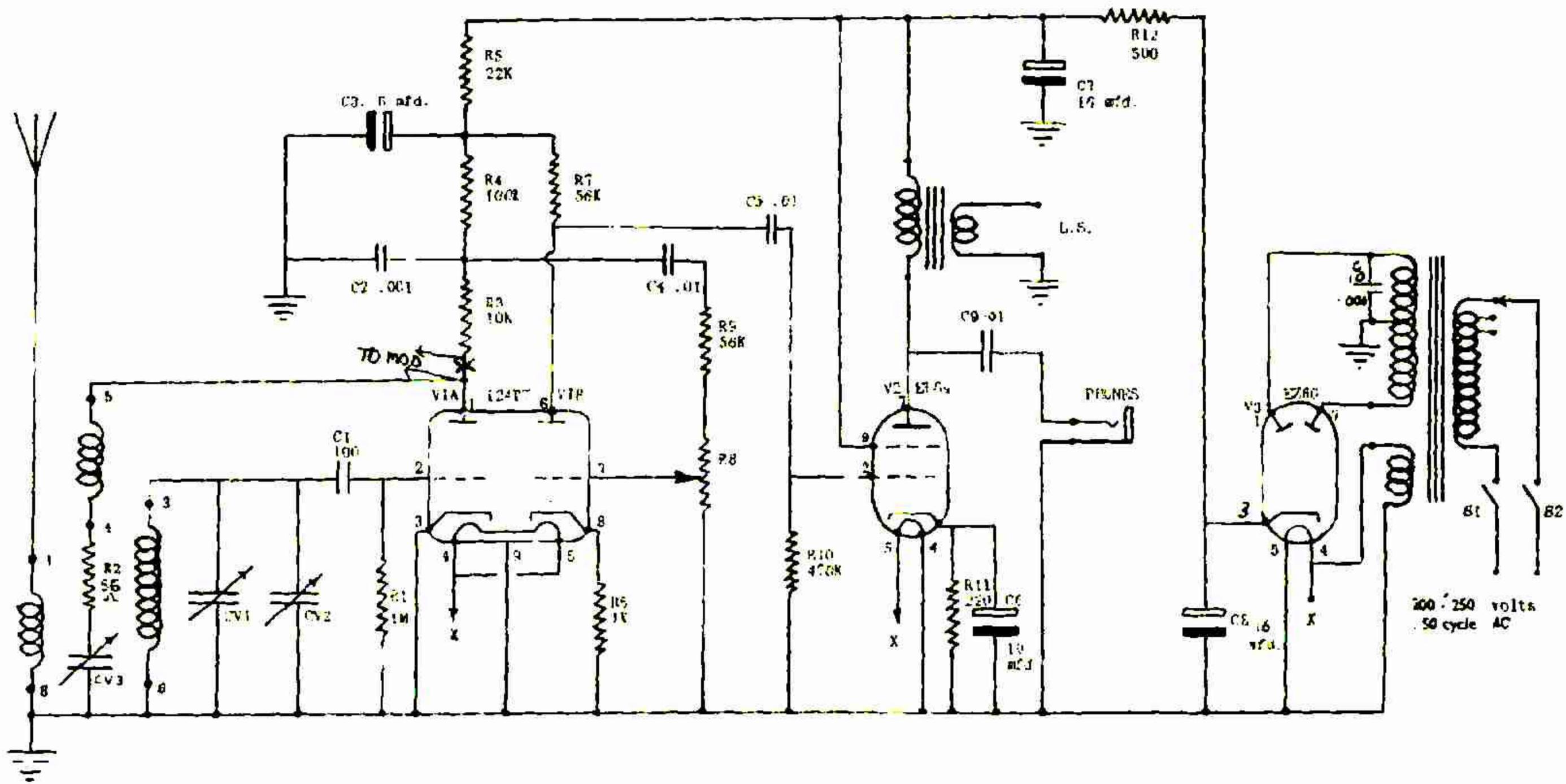
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Canadian Distributors. JAYCO ELECTRONICS • BOX 222 • TWEED • ONTARIO

WIRING INSTRUCTIONS FOR CLIPPER CR.43 ALL BAND RECEIVER

Under Chassis View





SCHMATIC DIAGRAM

CODAR CR.45

CODAR RADIO COMPANY

Southwick . Sussex . Eng