

TABLE 1-4. TUBE, FUSE, AND SEMICONDUCTOR COMPLEMENT (Cont)

SYMBOL	TYPE	FUNCTION
POWER SUPPLY		
2V1	5U4GB	Rectifier L.V.
2V2	5R4G-YA	Rectifier H.V.
2F-1	1.5 or 3 amp slow blow	Primary power fuse.
2F-2	1.5 or 3 amp slow blow	Primary power fuse.
2F-3	1/16 amp, time-lag	PA screen fuse.
2CR-1	Selenium	Bias rectifier.

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2.1 UNPACKING AND INSPECTING EQUIPMENT.

Remove all packing material, and carefully lift the units from their crates. Be careful when uncrating; use a nail puller to open the crates. Check the equipment against the packing slips and list of equipment supplied (table 1-1 of this handbook). The CHANNEL SELECTOR knob and the handset cradle are packed in a separate carton in the rear of the equipment. Inspect each unit for physical damage. If damage exists, save packaging material and packing containers to substantiate claim with transportation agency.

2.2 INSTALLATION.

2.2.1 MOUNTING.

Transceiver 32RS-1C may be set on desk or bench as desired. To install the handset cradle, release panel fasteners and let front panel down. Reach in with the right hand, put thumb on panel and forefinger on the long leaf of the cradle switch and depress about one-fourth inch. Insert the handset cradle into the cradle switch from the front side of panel.

The blower for the 32RS-1C is removed for shipping and can be secured in place with four screws and lock washers (furnished).

2.2.2 WIRING CONNECTIONS.

Figure 2-1 shows interunit and external wiring connections. Transceiver 32RS-1C is shipped with all interunit connections made.

When shipped, the power supply is wired for 115-volt operation and with 3-ampere slow blow fuses in the fuse holders. For operation on a 230-volt primary, rewire jumpers in the power supply (three places) as illustrated on figure 7-2, and replace the 3-ampere slow blow fuses with 1.5-ampere slow blow fuses. The 1.5-ampere slow blow fuses are supplied in a spare fuse bag attached to the equipment.



Read the following paragraphs before applying power.

2.3 ANTENNA CONNECTIONS.

2.3.1 GENERAL.

There are four possible methods of coupling Transceiver 32RS-1 to the antenna feed-line system. Wiring connections are discussed for each method. Refer to figures 7-1 and 2-1.

2.3.2 DIRECT CONNECTION.

a. Obtain a BNC connector and enough cable (use RG-58/U) to reach from the 32RS-1 to the antenna or antenna coupler.

b. Connect the BNC connector to the cable, refer to figure 2-6, and connect the antenna cable directly to J5 on the jack panel on the rear of the 32RS-1 chassis.

2.3.3 DIRECT CONNECTION THROUGH WATTMETER.

Perform operations outlined in paragraph 2.5.1, steps a, b, and c.

2.3.4 MULTIPLE ANTENNA CONNECTIONS.

a. Refer to figure 2-1A. Use RG-58/U coax to run a lead from J5 on the jack panel on the 32RS-1 chassis to terminal B of switch S5.

b. Install one BNC connector, for each antenna used, in the extra holes provided in the jack panel on the 32RS-1 chassis.

c. Use RG-58/U coax to make connections from switch S5 to the newly installed BNC connectors as illustrated in figure 2-1A.

d. Obtain one mating BNC connector for each connector installed in the 32RS-1 jack panel and enough cable (RG-58/U) to reach to the antennas. Fabricate cables and connect from the jacks on the 32RS-1 chassis to the antennas. Make certain the proper switch terminal on S5 is coupled to the correct antenna.

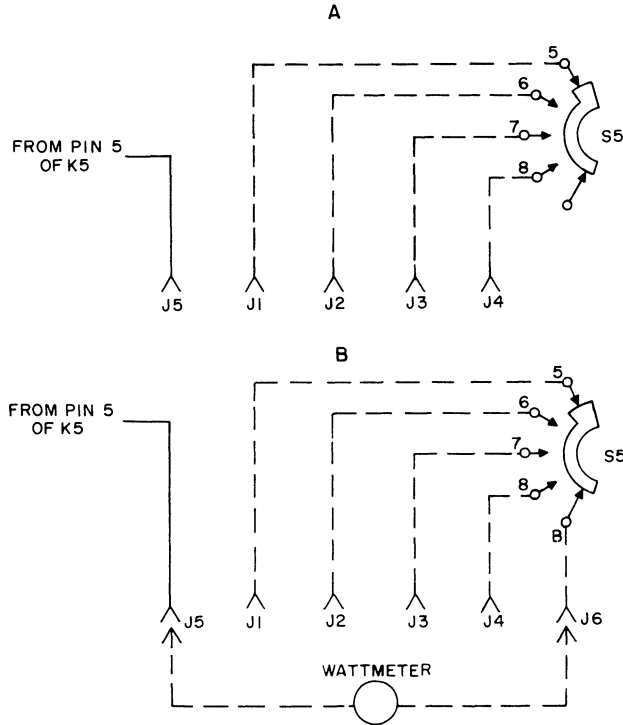


Figure 2-1. Transceiver 32RS-1 Antenna Connections

2.3.5 MULTIPLE ANTENNA CONNECTIONS THROUGH WATTMETER.

- Refer to figure 2-1B. Perform operations outlined in paragraph 2.5.1, steps a, b, and d.
- Obtain one BNC connector, for each antenna to be used, in the jack panel on the rear of the 32RS-1 chassis.
- Use RG-58/U coax to make a connection from J6 to terminal B of switch S5.
- Install one BNC connector, for each antenna used, in the extra holes provided in the jack panel on the 32RS-1 chassis.
- Use RG-58/U coax to make connections from switch S5 to the newly installed BNC connectors as illustrated in figure 2-1B.
- Obtain one mating BNC connector for each connector installed in the 32RS-1 jack panel and enough cable (RG-58/U) to reach to the antennas. Fabricate cables and connect from the jacks on the 32RS-1 chassis to the antennas. Make certain the proper switch terminal on S5 is coupled to the correct antenna.

2.4 TUNING PROCEDURE.

- Insert desired channel crystals into channel-crystal ovens, HR2 and HR3. Figure 2-2 is a partial photograph of the 32RS-1 chassis indicating possible crystal positions. Channel crystals are located according to oven pins as follows:

CHANNEL	CRYSTAL LOCATION
1	Pins 3 and 4 of HR3
2	Pins 7 and 8 of HR3
3	Pins 3 and 4 of HR2
4	Pins 7 and 8 of HR2

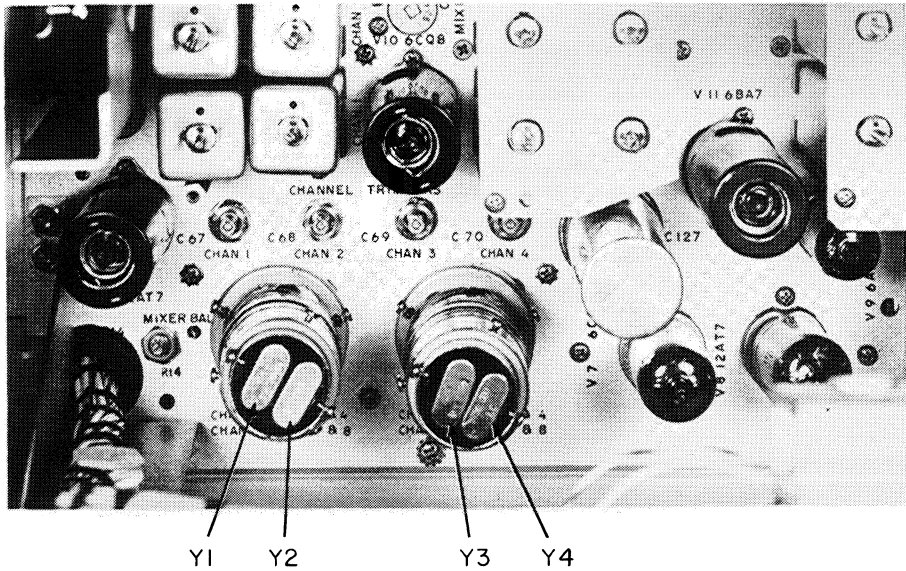


Figure 2-2. Channel Injection Crystal Positions

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For upper sideband, these crystals should be type CR-27/U, ground to a frequency 455 kc higher than the desired channel frequency.

b. Refer to figure 2-3. Insert the appropriate antenna, r-f, and PA coils. Check location against silk screening on chassis. Table 2-1 identifies the coils according to frequency range and Collins part numbers.

NOTE

If trouble is experienced with one set of coils detuning the adjacent channel coils, separate the interfering channels on the chassis by putting the interfering channels on the extreme outside coil positions.

TABLE 2-1. COIL KIT AND COIL PART NUMBERS

FREQ RANGE (mc)	PLUG-IN COIL KIT (1 ANT. COIL, 4 R-F COILS, AND 1 PA COIL) COLLINS PART NO.	ANT. COIL COLLINS PART NO.	FIRST R-F COIL COLLINS PART NO.	R-F COIL COLLINS PART NO.	PA COIL COLLINS PART NO.
1.6-2.0	567-4662-00	544-6102-00	546-6035-00	544-6103-00	567-4652-00
2.0-3.3	567-4663-00	543-7735-00	546-6036-00	543-4346-00	567-4653-00
3.3-5.5	567-4664-00	543-7736-00	546-6037-00	543-4347-00	567-4654-00
5.5-9.0	567-4665-00	543-7737-00	546-6038-00	543-4348-00	567-4655-00
9.0-12.0	567-4666-00	543-7738-00	546-6039-00	543-4349-00	567-4656-00
12.0-15.0	567-4667-00	545-3237-00	546-6040-00	543-3238-00	567-4656-00

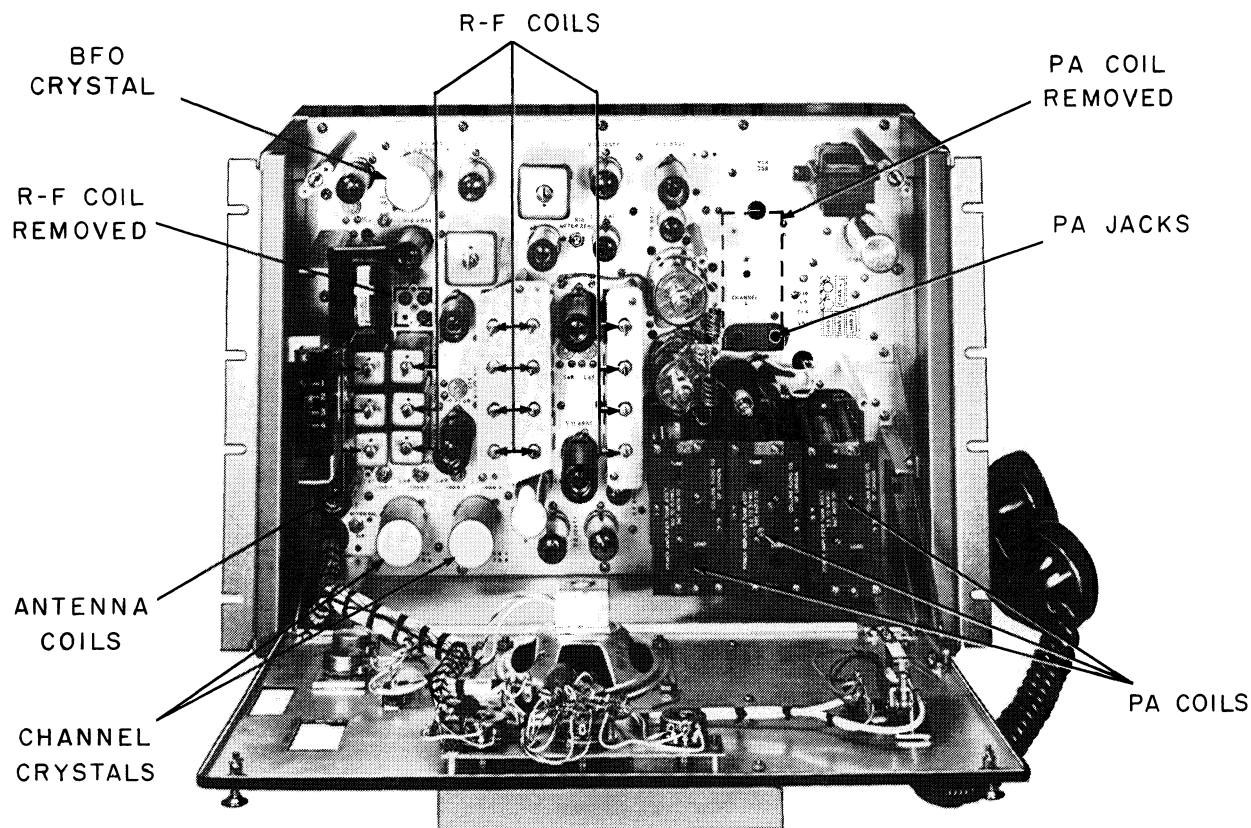


Figure 2-3. Coil Positions

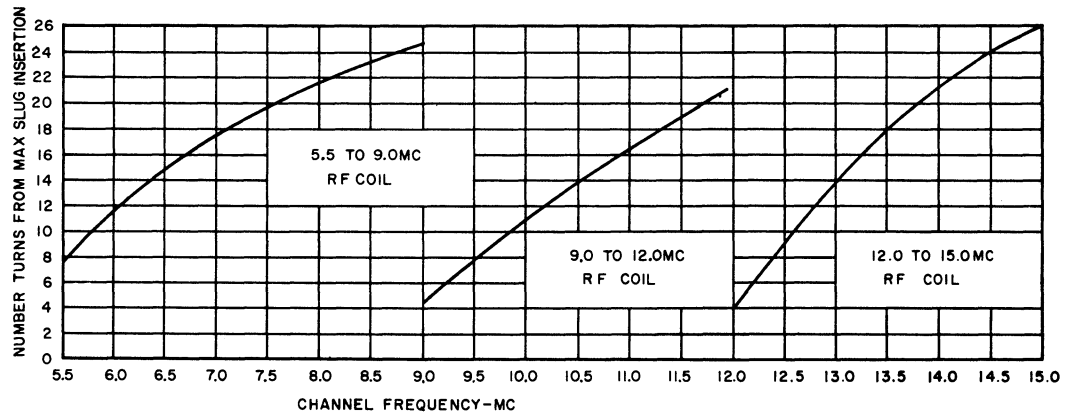
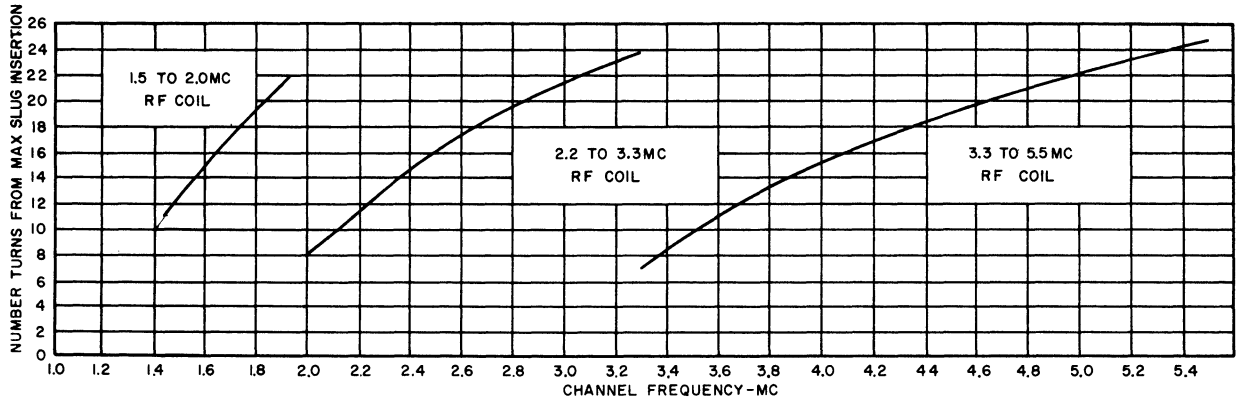


Figure 2-4. Calibration Curves for Antenna and R-F Coils

c. Secure the coils at the rear of the chassis with hardware supplied. The PA coils should be secured by the center bolt. Turn all slugs all the way in, and set the rollers on PA coils at maximum counterclockwise rotation. The rollers are then at the chassis end of the coil. Be careful not to run the roller off the coil.

d. Turn out the antenna and r-f coil slugs the number of turns indicated in figure 2-4.



Replace PA shields - 800 V. During tuneup, DO NOT run the 32RS-1 with a cathode current indication above S5 for more than 15 seconds at a time or the PA tubes and PA coils may be permanently damaged.

e. Turn the TRANSMIT AUDIO gain control fully counterclockwise. Place the TUNE-OPERATE switch in TUNE position and the meter switch to PA CATH MA position. Connect the antenna.

NOTE

The antenna-feed system should not have an swr greater than 2.5 to 1.

f. Set OVENS and L.V. switches to the ON position. Wait for tube filaments to heat, and set the H.V. switch to the ON position. Turn the VOX GAIN control clockwise until the vox relays operate. Check that the no-signal PA cathode current is between S-1 and S-2. If it is not, adjust the BIAS ADJ potentiometer on the power supply. Return the VOX GAIN control to the counterclockwise position so that the VOX relays will de-energize.

NOTE

Do not set the no-signal PA plate current too low; amplifier linearity will be degraded. Do not set too high; PA tube life will be shortened.

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g. For the following adjustments, it is suggested that the unit be keyed by the telephone handset so that the PA may be allowed to cool while not being adjusted. Advance the TRANSMIT AUDIO gain control until PA cathode current is slightly increased. Adjust the antenna and r-f coils for maximum PA cathode current, keeping the PA cathode current below S-5 by using the TRANSMIT AUDIO gain control to limit tube dissipation.

NOTE

If no increase in PA cathode current is found, unscrew each r-f coil of the channel slug one turn at a time, keeping all slugs at approximately the same position. The TRANSMIT AUDIO gain control should control the level of PA cathode current. If it does not, the transmitter has been tuned 455 kilocycles higher than the desired frequency, and the correct tuning point will be found with the slugs turned further in. Plate circuit of V4 must be tuned with the PA coil detuned.

h. Refer to figure 2-5 for approximate PA coil settings for a 52-ohm resistive antenna. Adjust the TUNE coil in the appropriate PA tank coil assembly in a clockwise direction until PA cathode current dips. Adjust for current minimum.

i. With the meter switch in the ALC-S position, adjust the TRANSMIT AUDIO gain control to the point where a slight alc voltage is indicated (S-3). Return the meter switch to PA CATH MA position.

j. Adjust the LOAD coil in the appropriate PA tank coil assembly in a clockwise direction until the meter indicates S-9. Redip cathode current by adjusting the TUNE coil. Check that alc is still driven.

k. Repeat steps h, i, and j until the meter reads S-9 with the PA TUNE coil adjusted for cathode current dip as the final adjustment. The transmitter is now delivering full power, and all transmit and receive circuits are ready for operation on the channel.

l. Repeat steps g through k for each channel. Be sure the CHANNEL SELECTOR is set to the channel being aligned.

m. Factory-installed crystals are trimmed to the correct frequencies. However, if crystals are purchased separately, it may be necessary to trim them to channel frequency. If no frequency standard is available, the appropriate channel trimmer can be adjusted until the received signal from a station on the desired channel is received satisfactorily.

n. Refer to paragraph 3.2, steps f and h for VOX GAIN and ANTI-TRIP gain control settings.

2.5 ACCESSORY INSTALLATION.

2.5.1 DIRECTIONAL WATTMETER 302E-2.

a. Install the 302E-2 in the accessory panel as indicated in figure 1-1, using the screws that hold the filler panel cover plate in place. There are three filler panels on the accessory panel; the accessories may be mounted in any of the three panels.

b. Fabricate a cable (use RG-58/U) to connect J5 on the rear panel of the 32RS-1 to the transmitter connection (TRANS.) on the 302E-2. Use one of the supplied right-angle BNC connectors for attachment to the 302E-2. Use a straight BNC connector for attachment to the 32RS-1. Refer to figure 2-6 for cable fabrication diagram.

c. Fabricate a cable (use RG-58/U) to connect the output of the 302E-2 to the antenna or an antenna coupler. Use the supplied right-angle BNC connector to make a connection from the ANT. jack, on the 302E-2, to the antenna or antenna coupler.

d. If separate antenna output voltages are required, fabricate a cable (use RG-58/U) to connect the output of the 302E-2 (ANT.) back to J6 on the filter panel of the 32RS-1. Use the supplied right-angle BNC connector for attachment to the 302E-2. Use a straight BNC connector for attachment to J6 on the 32RS-1.

2.5.2 PHONE PATCH 152J-1.

a. Install the 152J-1 on the accessory panel as illustrated in figure 1-1, using the screws that hold the filler panel in place.

b. Attach the 6-wire cable, furnished in the installation kit, from the 32RS-1 filter panel to TB1 on the 152J-1, as illustrated in figure 7-4.

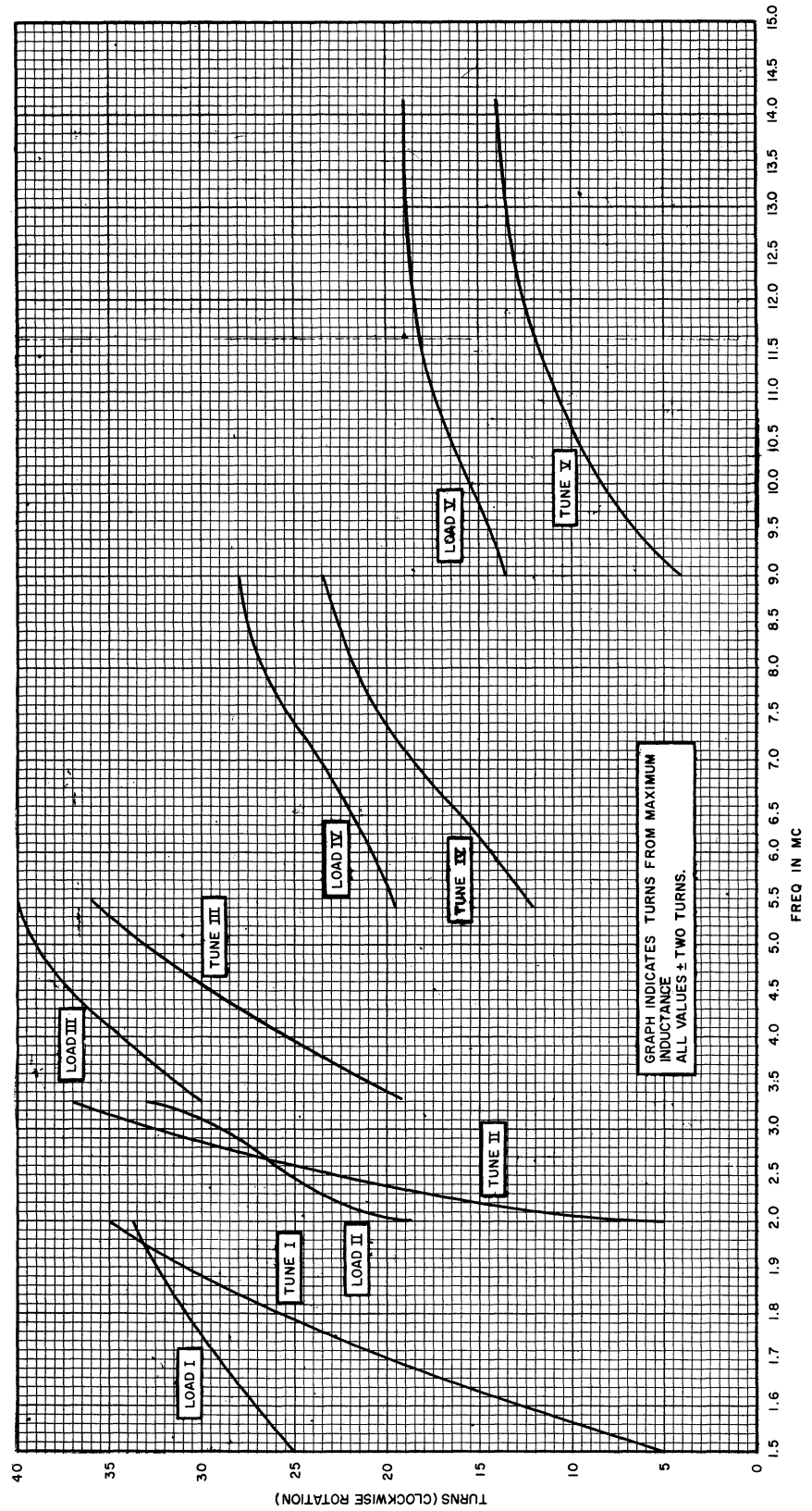


Figure 2-5. Calibration Curves for PA Coils

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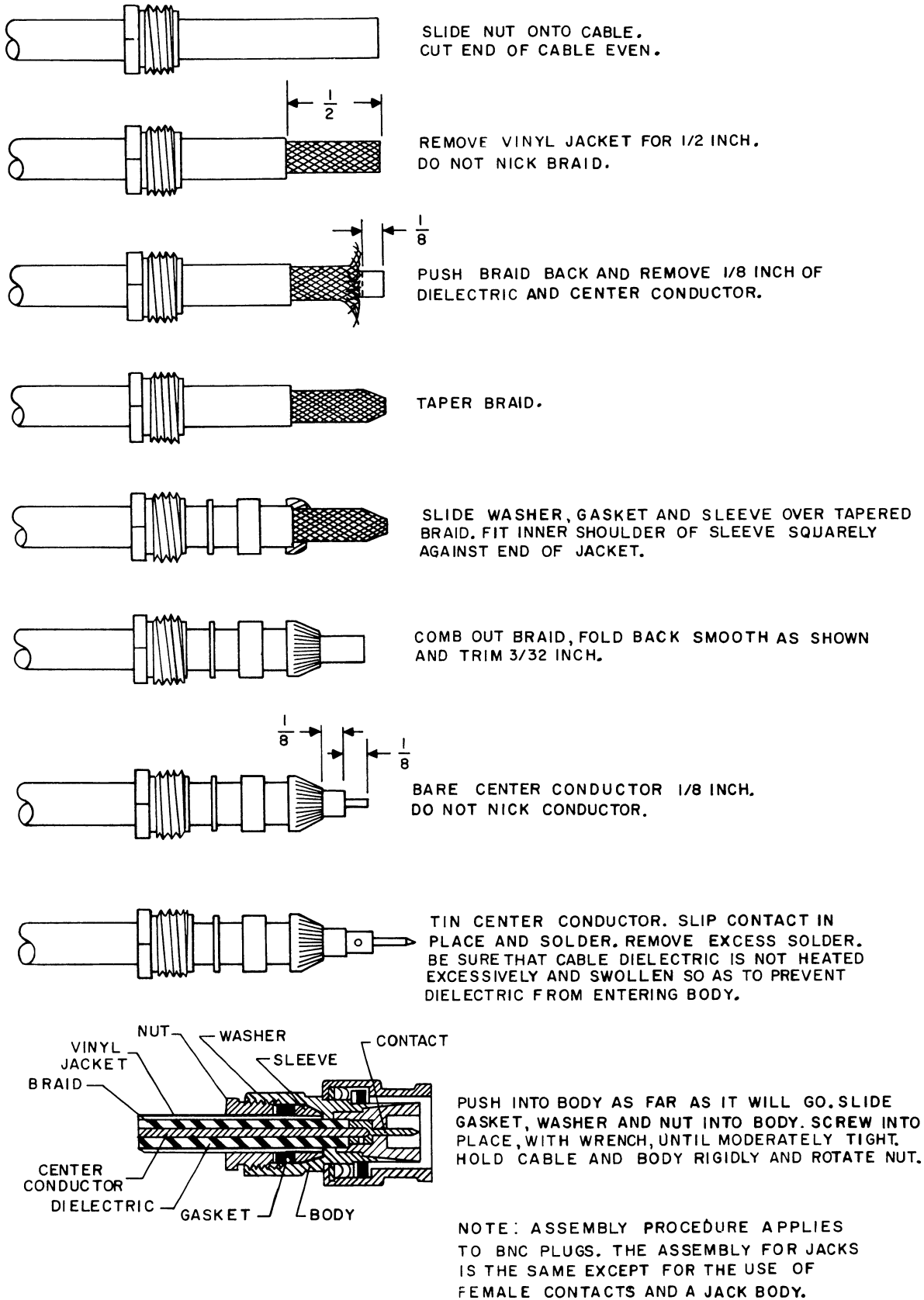


Figure 2-6. Cable Fabrication Diagram