

- (f) Weight - Approximately 1150 pounds.
- (g) Dimensions - 38" wide, 76" high, and 27" deep.

SECTION 2

INSTALLATION

2.1. INSTALLATION.

2.1.1. PRELIMINARY.

(a) Unpacking. - Caution should be used when uncrating the transmitter and components to avoid damage to the equipment. All units should be inspected carefully. Inspect units for loose screws and bolts. Check all controls such as switches, etc., for proper operation as far as can be determined without the application of power. Inspect all cables and wiring and make sure all connections are tight and clear of each other and of the chassis. All claims for damage should be filed promptly with the transportation company.

(b) Location of the Transmitter. - It is recommended that the transmitter be placed in its permanent location before any of the units which were removed for shipping are replaced. The comparatively simple arrangement to accommodate the power and audio input, frequency monitoring, modulation monitoring and audio monitoring connections is illustrated in figure 2-1. The requirements of the illustration may be met by installing the necessary conduit in a concrete floor, or by installing a wiring trench of sufficient size. Another alternative would be to install a false floor under which the necessary wires and cables may be placed. The trench will have to accommodate a two wire power cable, a ground wire, two shielded twisted pairs, and two RG-8/U coaxial cables. It is also very desirable to have several ties from the transmitter cabinet to the building ground system.

Adequate clearance should be allowed in front of the transmitter for the operator to adjust the controls. There should be a clearance of 3-1/2 to 4 feet behind the unit to provide adequate ventilation and sufficient room to remove or install the units.

(c) Replacement of Units Removed for Shipping.

(1) General. - Nine major and several smaller units are removed from the transmitter prior to shipment. The smaller units include the crystals, tubes, and rf output connector. The major units include the modulation reactor, L-111; the modulation transformer, T-105; the high voltage transformer, T-108; the two high voltage filter chokes; L-114 and L-115; the three high voltage filter capacitors, C-169, C-170, and C-184; and the dc blocking capacitor, C-163. Figures 7-5, 7-9, 7-12, and 7-15 illustrate the placement of these units.

Wires and cables that are removed from the units to which they connect are tagged before shipment. Should any of these tags become lost, refer to the cabling diagram for assistance in identifying such leads.

The procedure to be followed for the installation of the above mentioned units is as follows:

(2) Iron Core Units.

a. Before attempting to install the five heavy iron core units, L-111, L-114, L-115, T-105, and T-108, refer to figure 7-15 to determine their proper placement.

b. Note the terminal numbers on the front of all of the components. Record these numbers. Identification of these terminals is rather difficult once the units have been installed.

c. Remove the lower panel on the rear of the transmitter.

d. Install and secure the five units carefully in their proper positions on the floor of the transmitter.

e. A check of the nominal station voltage should be made at this time. The wires to the primary of the high voltage transformer, T-108, should be connected to the terminals which most nearly correspond to this voltage. Refer to figure 7-3 to determine the proper terminal numbers.

f. Refer to figures 7-3, 7-4, and 7-15, and to the tags on the cables and make all possible connections to the components at this time.

(3) Capacitors.

a. Install and secure the four capacitors, C-169, C-170, C-184, and C-163, in their proper positions as shown in figure 7-15.

b. Refer to figures 7-3, 7-4, and 7-15, and to the tags on the wires and cables and make all connections to the capacitors.

(4) RF Output Network Compartment.

a. Refer to Table 4-1 to determine the proper settings of the taps on coils L-108, and L-109 for the desired operating frequency and adjust the taps accordingly.

b. Replace the rear panel of the compartment.

(5) RF Cans. - There are three rf tank cans associated with the oscillator, buffer and rf driver plate circuits. Refer to figure 3-1 for their correct positions and install them in their proper sockets.

(d) Internal Connections. - Make all internal connections at this time. These include connection of inter-chassis cables and the connections to terminal boards E-101 and E-102. Refer to the cabling diagrams, figures 7-3 and 7-4 and to the tags on the wires to ascertain their proper location.

(1) If the nominal station voltage is very low, the 208 volt taps on the 872A filament transformer, the main filament transformer, and the low voltage plate supply transformer should be used. These 208 volt taps are wire leads that have been cabled with the other transformer leads. The bias supply transformer primary is not tapped, but a correction may be made for a very low nominal line voltage by changing the value of the bias supply bleeder resistor, R-174, from 2000 ohms to 2500 ohms. (See figure 7-16.)

(e) External Connections.

(1) Input Connections. - All input connections should be brought in through the grommets in the bottom of the cabinet. (See figure 2-1.) A large convenient hand access hole is located on the floor of the transmitter to facilitate handling of the wires from the wiring trench.

a. Power. - Refer to the Installation Diagram, figure 2-1, for proper wire sizes. Bring the power lead and ground wire in through the large grommet in the floor of the transmitter and run them forward between the high voltage filter chokes to the front panel. Connect the two power wires to the two outer terminals on terminal board E-100. Connect the ground wire to the center terminal on E-100.

b. Audio Input. - The audio input connections are made to terminal board E-103 located within the lower shelf of the modulator chassis. Connect the two leads of a twisted shielded pair to the two outer terminals on E-103. Connect the center terminal to the shield.

(2) Monitoring Connections. - All monitoring connections are brought in through the smaller grommets conveniently located between the heavy components and the cabinet wall. (See figure 2-1.)

a. Frequency Monitor. - Connect an RG-8/U coaxial cable to the frequency monitoring connector, J-104, which is located on the rf chassis.

b. Modulation Monitor. - Connect an RG-8/U coaxial cable to the modulation monitoring connection, J-100, which is located on the top of the rf output compartment.

c. Audio Monitor. - The audio monitoring connections are made to terminal board E-104 located in the rf chassis. Connect one wire of a twisted shielded pair to the terminal board. Connect the other wire and the ground shield to the remaining terminal.

(3) Transmission Line Connection. - The transmission line is connected to the short length of 7/8" rigid coaxial connector line which protrudes from the top of the transmitter cabinet. This connector is replaced through the hole in the top of the transmitter cabinet. The square metal plate on the lower part of the connector is attached by four screws. The brass strap on the feed-through insulator on the side of the RF network compartment is attached to the bottom of the coaxial connector.

(4) Remote Meter. - Holes are provided in the front portion of the RF tank box for mounting a bracket to hold the remote meter. This bracket (Collins Part Number 505 1831 002) may be obtained from the Collins Radio Company. The meter may also be obtained from Collins. Please state power output and antenna impedance when ordering.

(f) Tubes and Crystals. -

(1) Tubes. - All tubes have been removed from the transmitter prior to shipment. Place the tubes in their proper sockets as shown in figures 7-5, 7-9, and 7-12.

(2) Crystals. - Replace the two crystals in their sockets as shown in figure 7-12.

CAUTION

Extreme care should be exercised when handling the crystals. This new type of crystal is extremely fragile, more fragile than most vacuum tubes. The crystal may oscillate following rough handling but may have lost its highly important frequency vs. temperature characteristics.

TABLE 2-1. LIST OF WIRE SIZES AND TYPES

Letter	Type of Wire Code	Size of Wire Code (AWG)	
		Letter	Size
A	AN-J-C-48	A	22
B	Busbar, Round Tinned Copper	B	20
C	JAN Type WL (600 volts)	C	18
D	Miniature JAN Wire	D	16
F	Extra-Flexible Varnished Cambric	E	14
G	General Electric Deltabeston	F	12
K	Neon Sign Cable (15,000 volts)	G	10
N	Single Conductor Stranded (Not Rubber)	H	8
P	Single Conductor Stranded (Rubber Covered)		

<u>Letter</u>	<u>Type of Wire Code</u>	<u>Size of Wire Code (AWG)</u>	
		<u>Letter</u>	<u>Size</u>
R	JAN Type SRIR (1000 volts)	J	6
V	JAN Type SRHV (2500 volts)	K	4
		L	2
		M	1
		N	0
		P	00
		Q	000
		R	0000

A typical example of the designation of inter-unit cabling used on the cabling schematic is as follows: If a wire emanating from terminal number 2 on unit A is to be connected to terminal number 6 on unit C, an arrow on the diagram at terminal number two on unit A would indicate C6 and a similar arrow at terminal number 6 on unit C would indicate A2.

Color coding of wires is used to facilitate connecting cables to terminal strips. The code is indicated by a letter followed by a number. The letter designates the wire structure, size, amount and kind of insulation, and rating. The typical examples are shown below:

Unshielded Wire, JAN Type WL, #22 AWG, White with Red and Green Tracers.

<u>C</u>	<u>A</u>	<u>9</u>	<u>25</u>
Type of Wire	Size of Wire	Color of Body	Colors of Tracers

Shielded Wire, JAN type WL, #22 AWG, White with Red and Green Tracers

<u>C</u>	<u>A</u>	<u>S</u>	<u>9</u>	<u>25</u>
Type of Wire	Size of Wire	Shielded	Color of Body	Color of Tracers

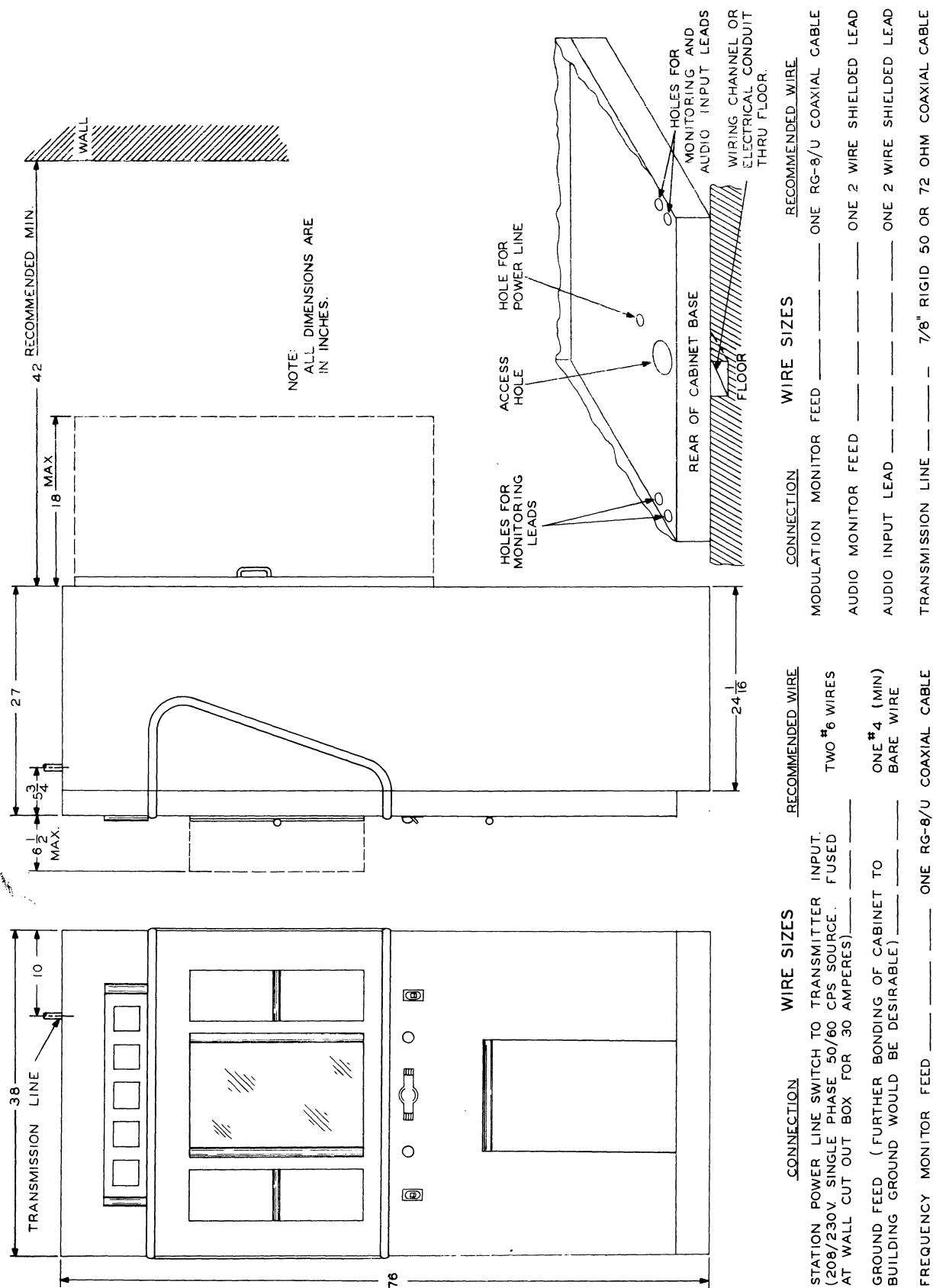


Figure 2-1. Typical Installation Diagram 20V Transmitter

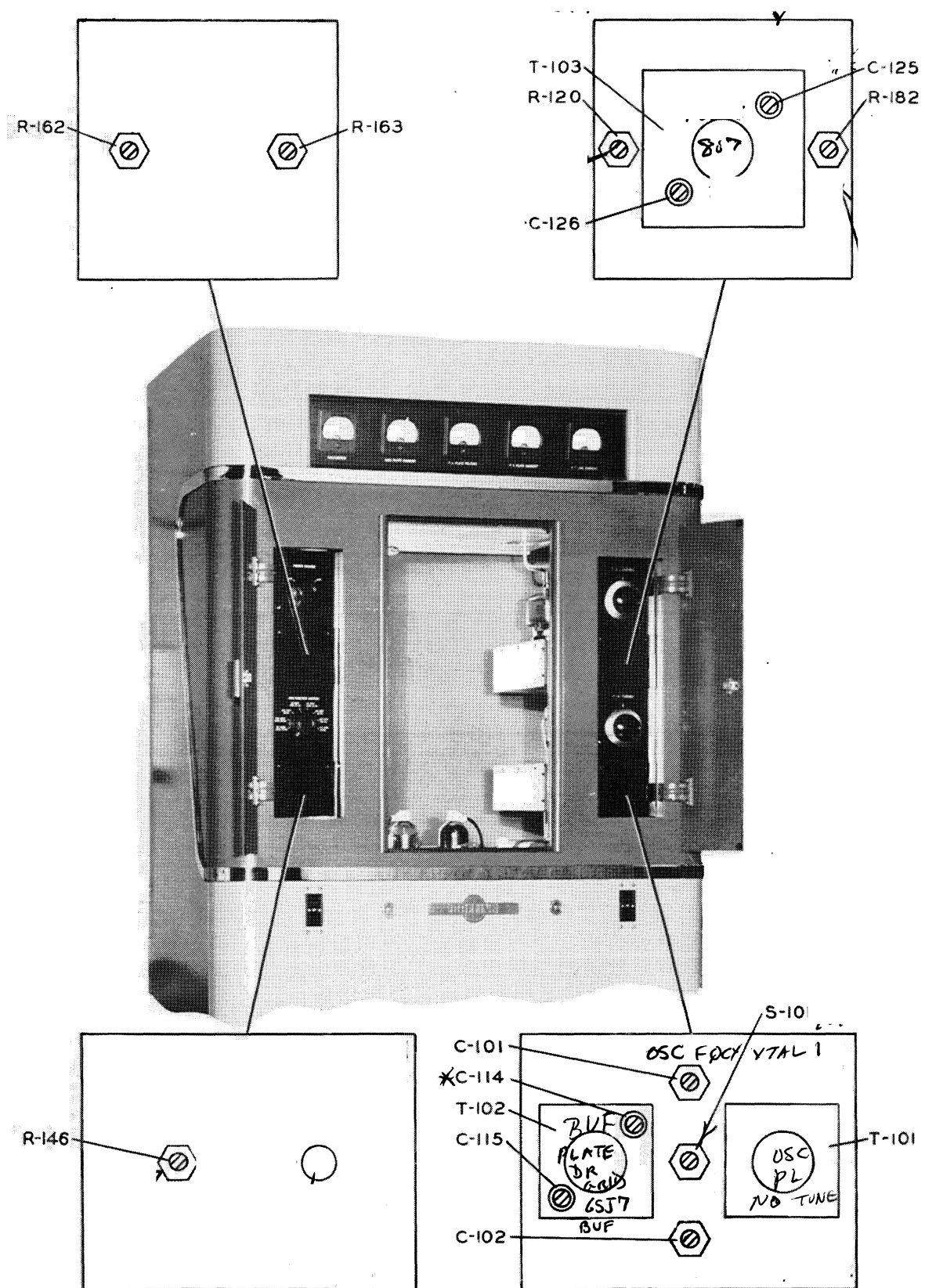


FIGURE 3-1 LOCATION OF CONTROLS BEHIND INSPECTION PLATES