

● 45A Continued

panel, so that the system can be readily adjusted for proper modulation.

Two separate power supplies furnish the necessary d-c voltages to the various tubes in the 45A. The low voltage power supply delivers 300 ma. at 350 volts to the speech amplifier and excitation tubes, and provides the telegraph and telephone bias voltages for the final amplifier. The high voltage power supply delivers a maximum current of 250 ma. at 1250 volts to the output tube. A separate transformer heats the filaments of the 866's, the C-830B and the C-211D so that these tubes may be turned on before the high voltage is applied. A time delay relay is not ordinarily furnished with the transmitter, because it was felt that most users would prefer to exercise the necessary caution with respect to heating the filaments before applying the high voltage, rather than pay the additional price necessary for a reliable time delay relay. Space is available for mounting such a relay on special order. Great care has been taken in designing the power supply circuits to assure reliable operation. The temperature rise of the transformers is held well within the standards adopted by the Underwriters Laboratory. The filter condensers are of an improved oil impregnated type, with a voltage rating approximately twice the normal voltages. All of the resistors are operated at approximately 50% of their rated dissipation. Wire wound resistors are of the vitreous enamel rather than the cement coated type because of their superior performance in tropical climates. Both the high and low voltage filter circuits have constants considerably larger than ordinarily employed in transmitters of this type and, as a result, the carrier is extremely quiet.

The Collins multi-band antenna was developed for use with the 45A transmitter in order that a single radiating system can be erected which will be effective over as wide a range of operating frequencies as the transmitter itself. The output system in the transmitter consists of an adjustable r-f transformer built as an integral part of the output coil for each frequency. The secondary of this r-f transformer is adjusted for the proper loading on each frequency, and these adjustments are not disturbed when changing from one band to an-

other. The output line current is read on an instrument on the panel. While the multi-band antenna will ordinarily give the best results with the 45A transmitter, other types of antennas having small reactance at the transmitter terminals may be used if desired.

45A TRANSMITTER
CONDENSED SPECIFICATIONS

POWER OUTPUT: 40 watts telephone
—125 watts telegraph.

FREQUENCY RANGE: 1500 kc. to 30,000 kc. Unless otherwise specified, quotations include frequency units for one band only.

RADIO FREQUENCY TUBES: 1—C-100 oscillator, 1—46 first amplifier, 1—RK-23 second amplifier, 1—C-830B third amplifier, and 1—C-211D output amplifier.

AUDIO FREQUENCY AMPLIFIER: 1—57 input (triode connection), 1—57 interstage (triode connection) and 1—2A3 power amplifier. The gain of the amplifier is 60 db. The input transmission level is minus 35 db, designed for a crystal microphone. The frequency response is essentially uniform from 40 to 10,000 cycles within plus or minus 1.5 db.

MODULATION: Control grid. Modulation capability, 100%.

AMPLITUDE DISTORTION: 10% maximum at 90% modulation.

POWER SUPPLY: The supply voltage is 110-115 v. 60 cycle a-c. The supply line current is 6.5 amperes for telegraph and 4.9 amperes for telephone operation at a power factor of 87%. Two power supply units are included. The low voltage supply employs 2 83V and a separate 2 section filter. The high voltage supply uses 2—866 mercury vapor rectifiers with a two section choke-input filter network. Heating elements may be supplied at extra cost for the envelopes of the 866's to permit operation of the transmitter at zero temperatures.

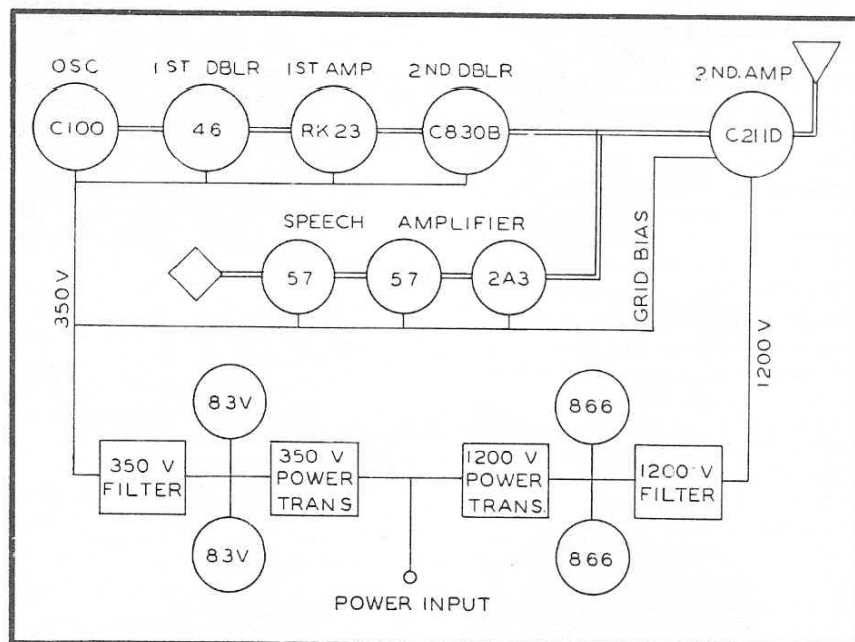
NOISE LEVEL: Approximately 55 db below output level.

DIMENSIONS: 21½" wide, 18" deep and 12" high.

WEIGHT: 130 pounds.

CABINET: Steel. Black crinkle finish outside. Satin aluminum finish inside. Sides and back are perforated to permit adequate circulation of air.

CONSTRUCTIONAL DETAILS: Transformers are oversize, as are also condensers, chokes and resistors. An unusually high degree of mechanical refinement has been accomplished in the construction of the transmitter, making the unit very compact as well as efficient electrically.



BLOCK DIAGRAM OF THE 45A TRANSMITTER