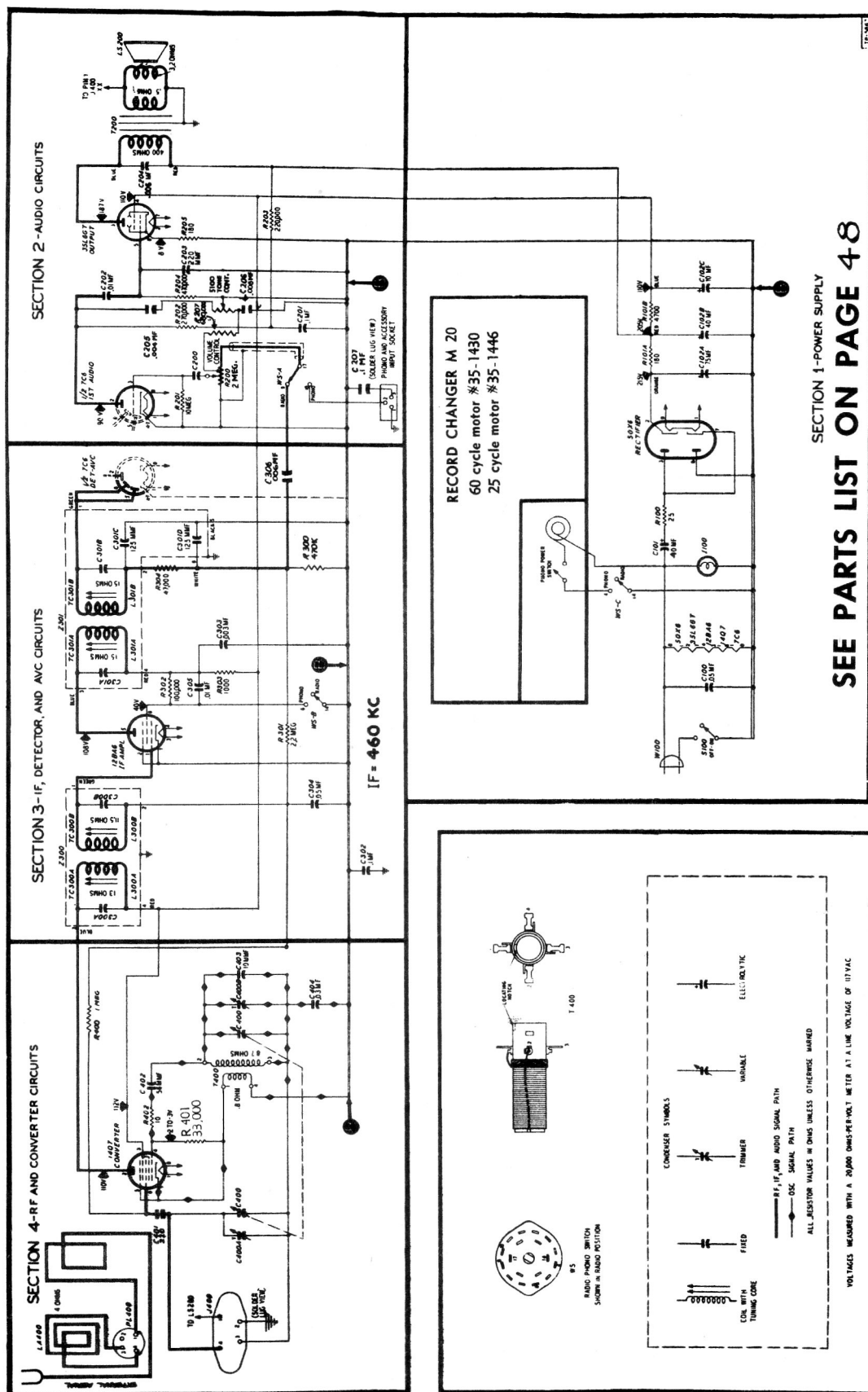




PHILCO RADIO-PHONOGRAPH MODELS 69 and 725, SECTIONALIZED SCHEMATIC DIAGRAM

SYMBOLIZATION

The components in the radio circuit are symbolized according to the types of parts and the sections of the radio in which the parts are located. The prefix letter of the symbol designates the type of part, as follows:

TC—tuning core
W—line-cord-and-plug assembly
WS—water switch
Z—electrical assembly

The number of the symbol designates the section in which the part is located, as follows:

100-series components are in Section 1—the power supply.
200-series components are in Section 2—the audio circuits.
300-series components are in Section 3—the i-f, detector, and a-v-c circuits.
400-series components are in Section 4—the r-f and converter circuits.

Figure 8. Drive-Cord Installation Details

Circuit Description

Philco Model 69 is a console radio. Model 725 is a radio phonograph combination, incorporating the Philco model M20 three speed record changer. Both sets are 5 tube superheterodynes, providing reception on the standard broadcast band. The built-in loop aerial normally provides adequate signal pickup. However, provision has been made for connecting an external aerial, if required.

The loop works directly into a 14Q7 converter, where the incoming signal is converted to the 460-kc. intermediate frequency. The oscillator section of the tuning-condenser gang has a specially shaped rotor to provide proper tracking without the use of a series padding condenser. The converter is transformer-coupled to a 12BA6 i-f amplifier, which, in turn, is transformer-coupled to the diode section of a 7C6. Both i-f transformers have permeability-tuned primary and secondary windings. The diode section of the 7C6 acts as a detector, and also provides a-v-c voltage, which is applied to the grids of the converter and the i-f amplifier. The triode section of the 7C6, the first audio amplifier, is resistance-coupled to a 35L6GT beam-power-output amplifier, which supplies approximately three watts of audio power to a permanent-magnet dynamic speaker.

The d-c operating voltages are furnished by a voltage-doubler circuit employing a 50X6 rectifier and a resistor-condenser filter.

Preliminary Checks

Before connecting the radio to a source of power, the following steps are recommended:

1. Inspect both the top and the bottom of the chassis. Make sure that all tubes are secure in the proper sockets, and look for any broken or shorted connections, burned resistors, or obvious sources of trouble.
2. Measure the resistance between B+ (pin 2 of the 50X6 rectifier tube) and B- test point B. When the ohmmeter test leads are connected in the proper polarity, the highest resistance reading will be obtained. If the reading is lower than 2700 ohms, check condensers C102A and C102B for leakage or shorts. The resistance value is much lower than normal, and is not intended as a quality check of these condensers; the value given is the lowest at which the rectifier will operate safely while the voltage checks of Section 1 (power supply) are performed.

ALIGNMENT PROCEDURE

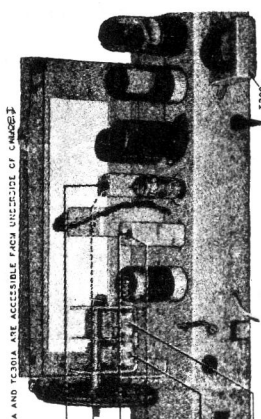
DIAL—Calibration and pointer-index measurements are shown in figure 7. SIGNAL GENERATOR—Connect as indicated in chart. Use modulated output.

OUTPUT METER—Connect across RADIO CONTROLS—Set volume control to maximum, and radio-phonograph switch to radio position. OUTPUT LEVEL—During alignment, adjust signal-generator output to maintain output-meter indication below 1.25 volts.

SIGNAL GENERATOR			RADIO		ADJUST
Step	Connection to Radio	Dial Setting	Dial Setting	Special Instructions	
1	Ground lead to B-; output lead through .1-mf. condenser to external aerial lead (loop aerial must be connected).	460 kc.	Tuning condenser fully meshed.	Adjust tuning cores, in order given for maximum output.	TC301B—2nd i-f sec. TC301A—2nd i-f pri. TC300B—1st i-f sec. TC300A—1st i-f pri.
2	Radiating loop (see note below).	1600 kc.	1600 kc.	Adjust trimmer for maximum output.	C400B—osc.
3	Same as step 2.	1500 kc.	1500 kc.	Adjust trimmer for maximum output.	C400A—aerial

RADIATING LOOP: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal generator leads and place near radio loop aerial. The loop aerial must be connected.

Figure 6. Top View, Showing Trimmer Locations

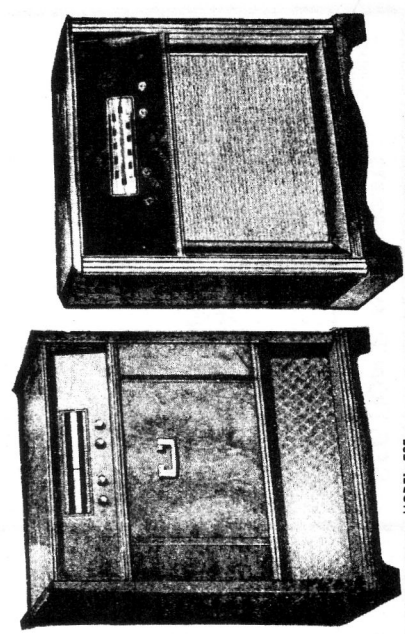


SPECIFICATIONS

CABINETS	Modern classical, wood console
CIRCUIT	Five-tube superheterodyne
FREQUENCY RANGE	540-1620 kc.
AUDIO OUTPUT	3 watts
OPERATING VOLTAGE	725-117 volts, 60 cycles A.C. 725-2-117 volts, 25 cycles A.C.

POWER CONSUMPTION

Model 69	35 watts, 110 volts, 25-60 cycles A.C.
Radio	35 watts
Phonograph	50 watts
AERIAL	High-impedance loop; also provision for external aerial.
INTERMEDIATE FREQUENCY	460 kc.
PHILCO TUBES (5)	14Q7, 12BA6, 7C6, 35L6GT, 50X6
RECORD PLAYER	Philco Automatic Record Changer Model M20 (For service information refer to PR 1731.)



MODEL 69

MODEL 725

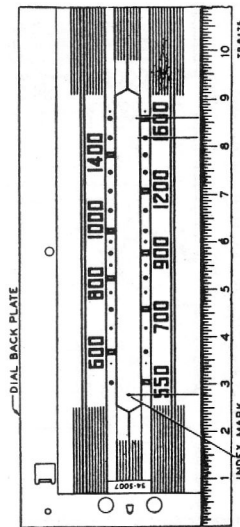


Figure 7. Calibration Measurements for Dial Backplate