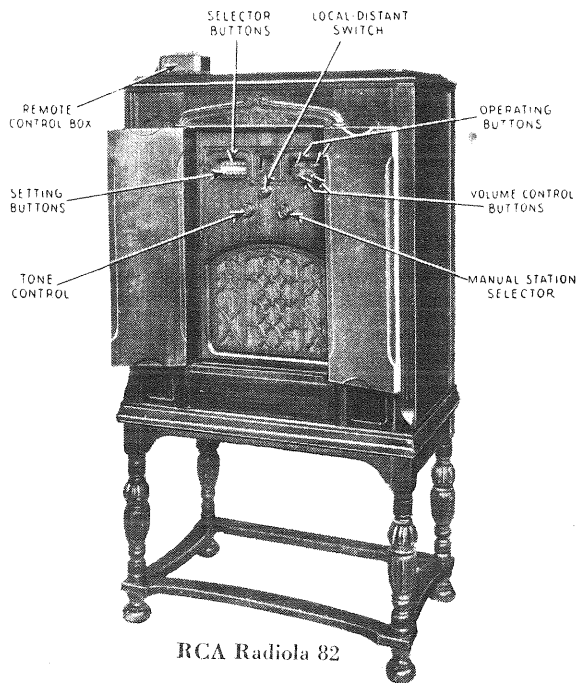


RCA

Radiolas 82 and 86

(With Remote Control)

SERVICE NOTES



RCA Radiola 82

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RCA Victor Company, Inc.
RADIOLA DIVISION
Camden, New Jersey

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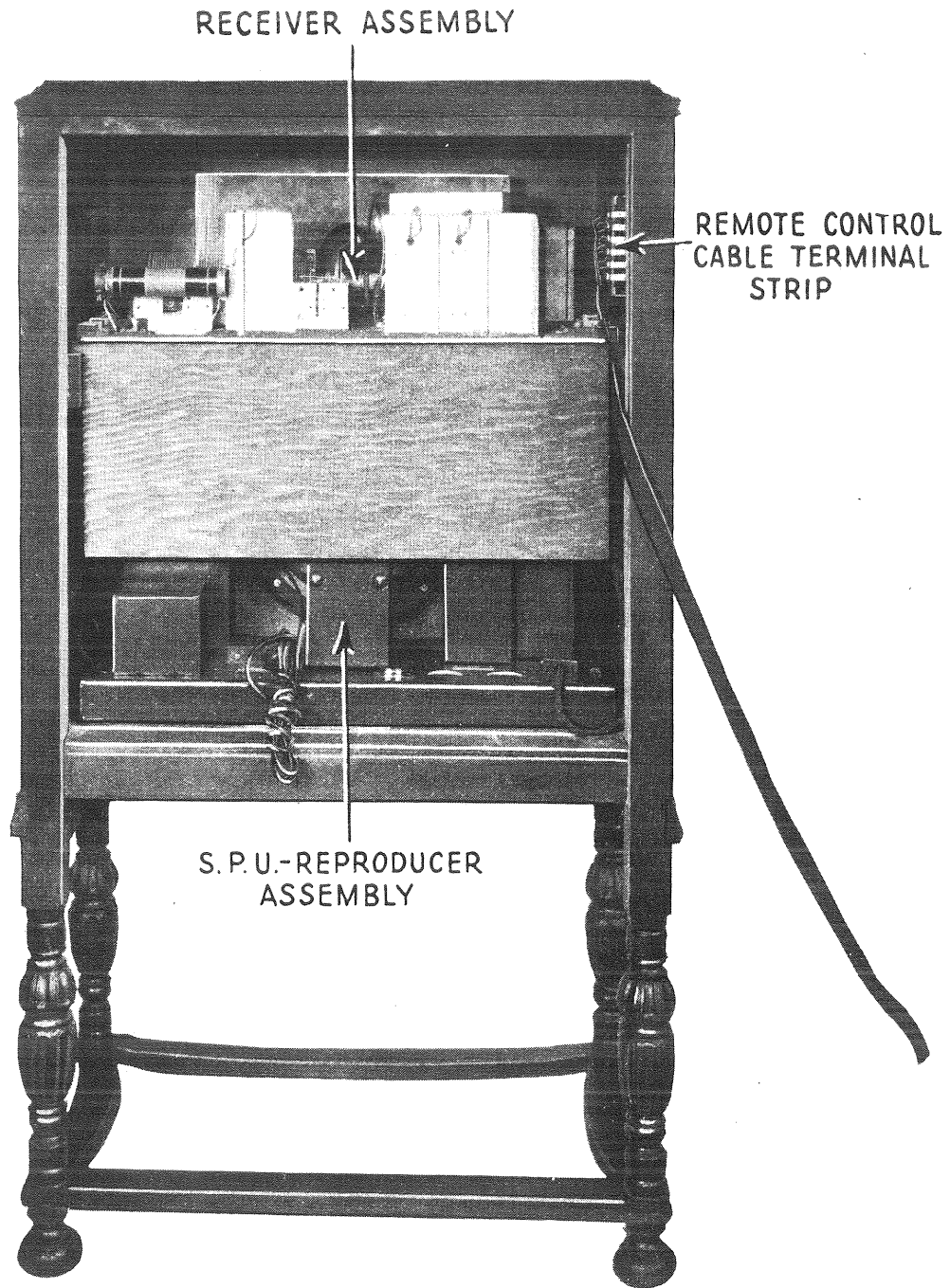


Figure 1—Rear interior cabinet view of door model

RCA RADIOLAS 82 and 86

(With Remote Control) SERVICE NOTES

INTRODUCTION

RCA Radiolas 82 and 86 are supplied in models fitted with remote control attachments when desired. These receivers are identical with the standard models except for small wiring changes necessary to accommodate the remote control feature. Figure 1 shows a rear interior view of the Radiola 82. Figure 2 shows a top view of the receiver assembly.

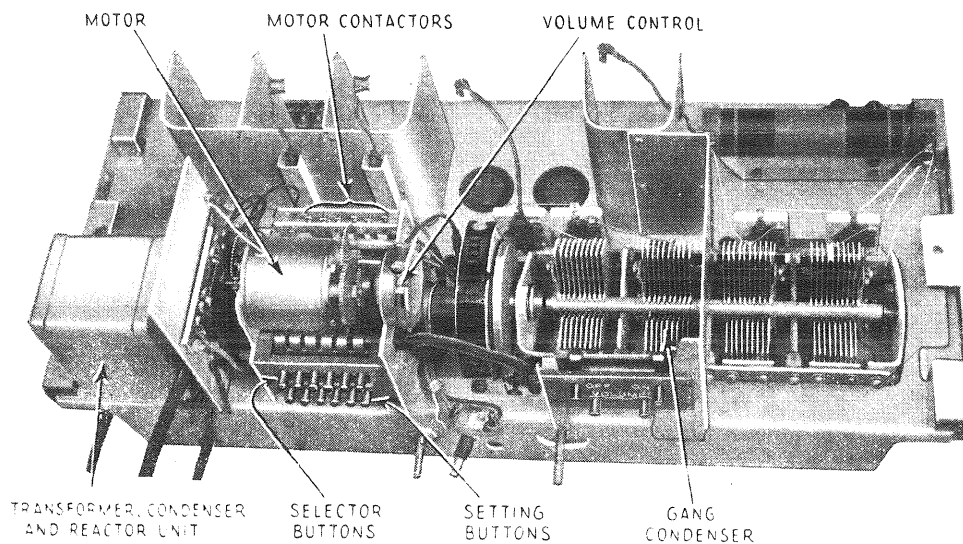


Figure 2—Top view of receiver assembly

The receiver assembly and S. P. U. of each of these models are exactly the same. The material in this booklet, therefore, refers equally well to either model. In the case of the phonograph combination instrument, the phonograph parts are connected exactly in the same manner as in the standard instrument. For service information other than on the remote control unit, the reader should refer to the Service Notes on the standard models of the receivers.

The remote control feature is unique in that it not only allows control of the receiver from a distant point but also pre-selects the desired station accurately. Manual tuning, other than necessary for the original setting of the selector buttons, is therefore eliminated. Selection of any one of six stations, adjustment of the volume control, or turning the receiver "on" or "off" may be accomplished at one or more remote points from the receiver. Operation of the tone control or local-distant switch must be done at the receiver.

One control box and twenty-five feet of flat cable are supplied. If desired, any number of additional units may be installed or the cable lengthened to seventy-five feet.

ELECTRICAL DESCRIPTION OF UNIT

The remote control feature consists of a standard chassis with a special gang condenser; a capacitor motor coupled to the gang condenser through a series of gears; a series of drums and contactors by which the motor is started in the right direction for a given station and stopped at the right point; a special volume control geared to the motor; a relay to turn the set "on" or "off" and a remote control box by which these operations are controlled.

The motor is provided with a tapped reactor and condenser for changing the phase angle of the applied current so that operation in either direction may be secured. The motor operates at 23 volts for the station selector and 18 volts for the volume control.

Referring to Figure 3 we see the normal position of the motor armature. It will be noted that a spring holds the armature so that the gear at one end is meshed with the volume control gears. At 18 volts, the voltage used for volume control operation, the gears remain in

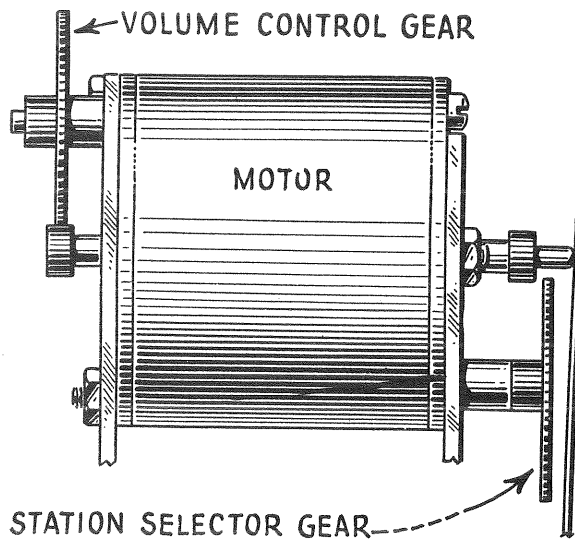


Figure 3—Motor with armature in volume control position

this position and operation of the volume control is secured. When the speed of the motor is increased by operating it at 23 volts, this voltage being used when the selector buttons are pressed, the end thrust of the armature causes it to move laterally, thereby disengaging the gear at the volume control end and engaging the gear at the station selector end. See Figure 4. The spring at the end of the armature causes it to always return to the volume control position when the current is "off" at the motor. As this action takes place with the motor operating in either direction, controlling the voltage at which the motor is operated determines its function. A sixty ohm resistor is placed in each motor circuit controlling the volume to reduce the voltage from 23 to 18 volts.

The proper direction of operation and stopping of the motor for selection of a desired station is controlled by a series of drums and contactors. Figure 5 shows a schematic circuit of the motor and its adjacent circuits. The drums hold the contactors in the proper position so that when a particular selector button is depressed, the motor will turn in the right direction. When the contactor is at the point on the drum where it is half way between each contact, the motor stops. This is 180° from the hole that is used to set the drum for a particular station.

The setting of the drums is made by the pins on the front panel. These are known as the "setting buttons." The selector button is pressed and the drum is moved by the motor until the corresponding contactor is midway between the contacts. The pin will now fall in the hole in the drum if pushed in by the finger. See Figure 7. Holding the pin firmly in the hole, the desired station is then accurately tuned in by means of the manual station selector knob. After tuning the pin is then released. As the point on the opposite side of the

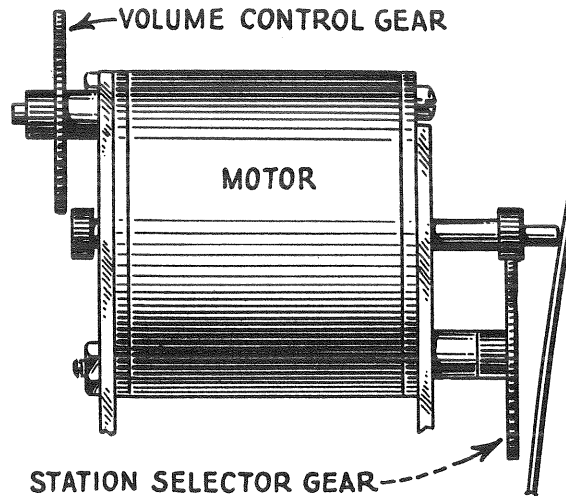


Figure 4—Motor with armature in station selector position

drum is where the diameter of the drum changes, the contactor is half way between the contacts. Pressing the selector buttons will therefore cause no movement of the motor. If another button is pressed and the drum moved, pressing the original button will always bring the drum back to the position for which it was set.

Referring to Figure 6, the schematic diagram, it will be noted that a common lead is used for the pilot lamp and the selector buttons in the remote control box. By doing this, when a selector button on the box is pressed, the current through the common lead is increased,

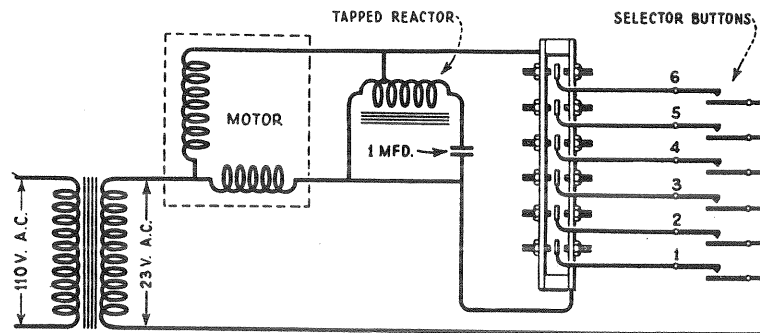


Figure 5—Schematic diagram of motor circuits

likewise the voltage drop in the lead is increased. The result is that while the motor is running the pilot lamp becomes very dim. As soon as the motor stops, the lamp flashes bright, thus indicating that the motor has stopped and the station is tuned in. If the station is not then heard, it is necessary to press the + volume control button a little at a time until the desired output level is obtained.

PART I—INSTALLATION

All the information contained in the regular Service Notes applies equally well to the remote control models. Reference to these booklets should be made when such information is required.

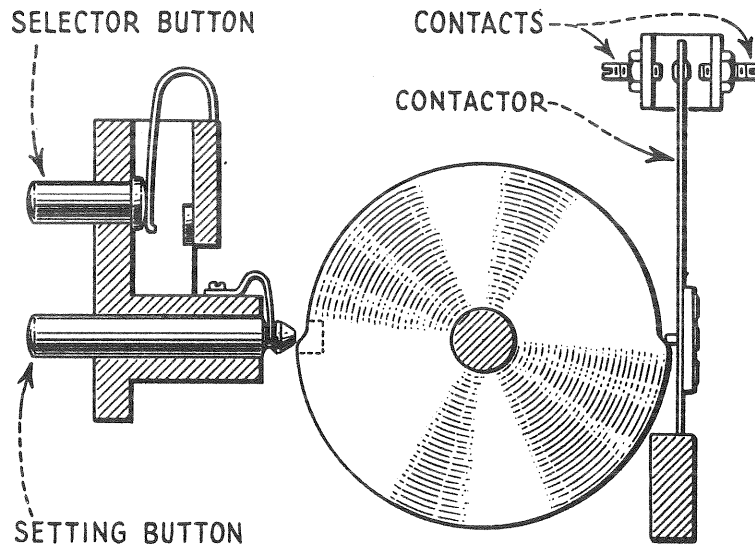


Figure 7—End view of drum and contactor

(1) INCREASING LENGTH OF REMOTE CONTROL BOX CABLE

The cable to the remote control box supplied with the remote control models is twenty-five (25) feet in length. This is ample for most rooms as it is very rare that a person wishes to listen to a program at a greater distance from the loudspeaker.

If, however, it is desired to place the remote control box at a greater distance from the set, any twelve conductor cable, the wires of which are No. 14 or larger in size, may be used to splice onto the regular cable and increase the total length up to seventy-five (75) feet. Figure 8 shows the method recommended for adding this additional cable.

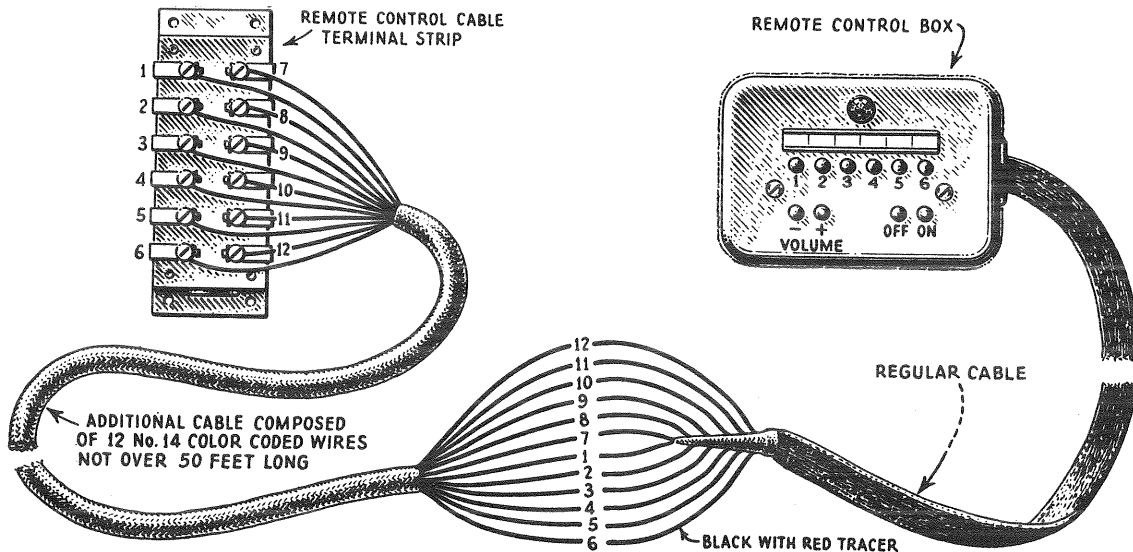
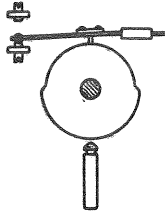
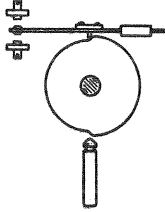
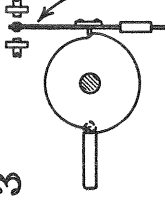
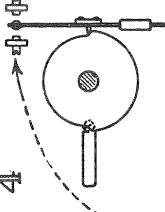
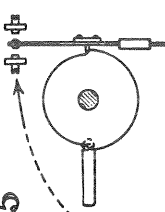
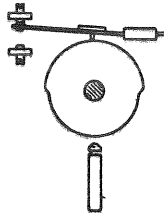
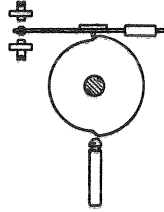
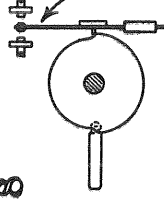
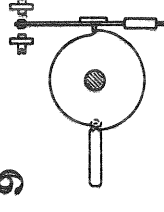
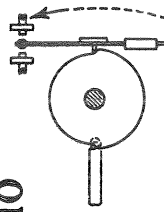


Figure 8—Wiring diagram of method for connecting additional cable

MOTOR CONTACTOR ADJUSTMENT CHART

Repeat Entire Procedure For All Contactors

<p>TURN STATION SELECTOR KNOB UNTIL CONTACTOR IS TO ONE SIDE</p>  <p>1</p>	<p>PUSH SELECTOR BUTTON ON PANEL UNTIL THE MOTOR STOPS AND CONTACTOR IS CENTERED</p>  <p>2</p>	<p>THEN PUSH SETTING BUTTON. IF CONTACTOR DOES NOT MOVE, ADJUSTMENT IS O.K.</p>  <p>3</p> <p>DOES NOT MOVE WHEN SETTING BUTTON IS PRESSED</p>	<p>IF CONTACTOR MOVES IN THIS DIRECTION WHEN SETTING BUTTON IS PRESSED, ADJUST AS INDICATED.</p>  <p>4</p> <p>TURN THIS SCREW CLOCKWISE A LITTLE AT A TIME UNTIL CONTACTOR DOES NOT MOVE WHEN SETTING BUTTON IS PRESSED. (TURN SELECTOR KNOB AND RETUNE WITH SELECTOR BUTTON AFTER EACH TRIAL ADJUSTMENT)</p>	<p>IF CONTACTOR MOVES IN OTHER DIRECTION, ADJUST AS INDICATED.</p>  <p>5</p> <p>TURN THIS SCREW COUNTER CLOCKWISE A LITTLE AT A TIME UNTIL CONTACTOR DOES NOT MOVE WHEN SETTING BUTTON IS PRESSED. (TURN SELECTOR KNOB AND RETUNE WITH SELECTOR BUTTON AFTER EACH TRIAL ADJUSTMENT)</p>
<p>AFTER MAKING PRECEDING ADJUSTMENTS TURN STATION SELECTOR KNOB UNTIL CONTACTOR IS TO THIS SIDE</p>  <p>6</p>	<p>PUSH SELECTOR BUTTON ON PANEL UNTIL THE MOTOR STOPS AND CONTACTOR IS CENTERED</p>  <p>7</p>	<p>THEN PUSH SETTING BUTTON. IF CONTACTOR DOES NOT MOVE, ADJUSTMENT IS O.K.</p>  <p>8</p> <p>DOES NOT MOVE WHEN SETTING BUTTON IS PRESSED</p>	<p>IF CONTACTOR MOVES IN THIS DIRECTION WHEN SETTING BUTTON IS PRESSED, ADJUST AS INDICATED.</p>  <p>9</p> <p>TURN THIS SCREW CLOCKWISE A LITTLE AT A TIME UNTIL CONTACTOR DOES NOT MOVE WHEN SETTING BUTTON IS PRESSED. (TURN SELECTOR KNOB AND RETUNE WITH SELECTOR BUTTON AFTER EACH TRIAL ADJUSTMENT)</p>	<p>IF CONTACTOR MOVES IN OTHER DIRECTION, ADJUST AS INDICATED.</p>  <p>10</p> <p>TURN THIS SCREW COUNTER CLOCKWISE A LITTLE AT A TIME UNTIL CONTACTOR DOES NOT MOVE WHEN SETTING BUTTON IS PRESSED. (TURN SELECTOR KNOB AND RETUNE WITH SELECTOR BUTTON AFTER EACH TRIAL ADJUSTMENT)</p>

(2) INCREASING NUMBER OF REMOTE CONTROL BOXES

One remote control box is supplied as standard equipment. Any number of additional boxes may be installed if desired although only one box can be used at a time for controlling the receiver. The boxes should be connected in parallel at the terminal strip on the rear of the Radiola. Figure 9 shows such a connection.

PART II—SERVICE DATA

(1) ADJUSTMENT OF MOTOR CONTACTORS

The six motor contactors located at the rear of the motor may require adjustment due to changes in the amount of friction in the entire drive assembly. Need for adjustment is evidenced by the motor failing to stop at the exact point for a particular station.

In order to make these adjustments two tools are necessary. They may be constructed, see Figure 11, or obtained as a spare part, the replacement parts catalogue listing them. The

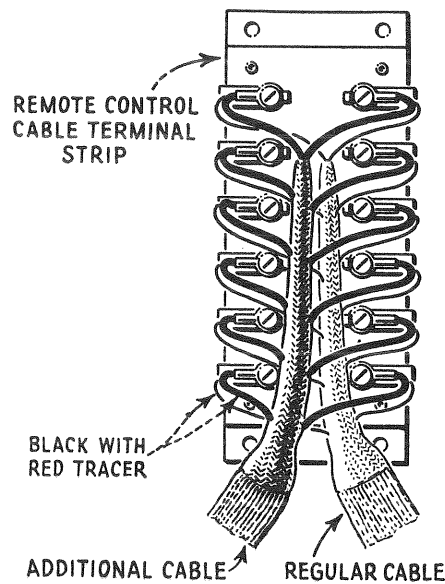


Figure 9—Connections for adding additional boxes

chart on page 10 gives the procedure to be followed for making adjustments. This procedure must be repeated on each contactor that is out of adjustment.

If all contactors are out of adjustment in a similar manner, then the friction screw, see Figure 12, requires adjustment. This should be either tightened or loosened, the exact adjustment to be determined by trial. The adjustment that is correct for one contactor will be correct for all, assuming the friction screw to be at fault.

(2) REPLACING OR ADJUSTING CONTACTORS

Six contactors are used for connecting the motor so that it rotates in the proper direction. To make this adjustment or replacement, a special offset screw driver will be required unless the unit is to be removed from the base. This is shown in Figure 11 and is also listed in the replacement parts catalogue.

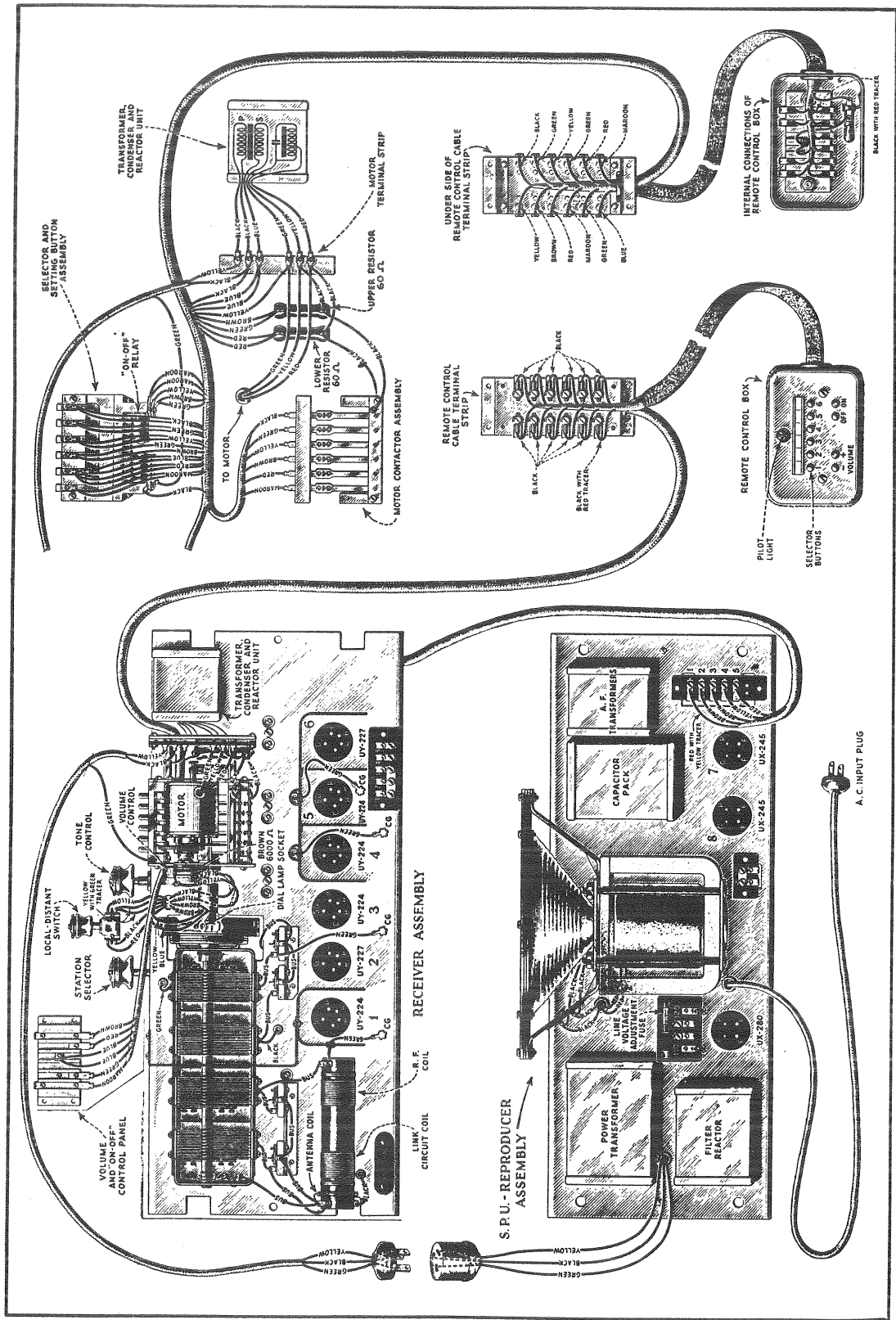


Figure 10—Complete layout and wiring diagram of remote control models

Referring to Figure 7 we see that when the setting button is in the hole in the drum, the contactor for that particular drum is exactly half way between the contacts. The holes that hold the contactors are elongated so that they may be raised or lowered until they rest exactly

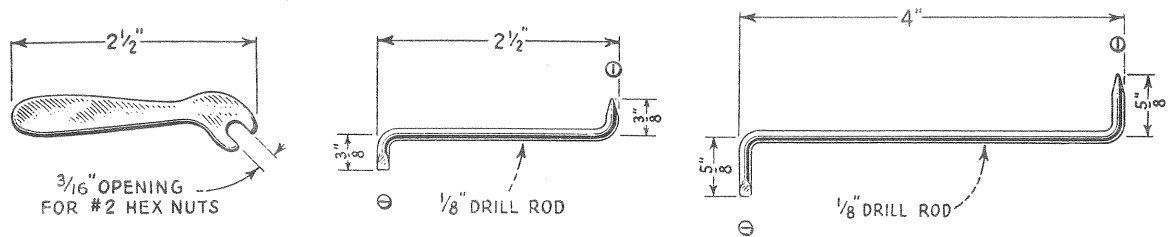


Figure 11—Constructional details of special tools used with remote control models

half way between the contacts when the setting button is inserted in the drum hole. This is the only adjustment required of these contactors, and with the special screw driver is quite easy to make.

(3) MAKING REPLACEMENTS

The operating relay, the resistors, the motor, the gears and other small parts may be replaced. The transformers when replaced must have the primaries so connected that the pilot light on the remote control box lights properly. If the transformers are improperly phased, the lamp will brighten instead of dim when a selector button is pressed. The drum assembly is specially fitted and assembled and any individual replacements can not be made. If trouble is experienced in this assembly, a complete replacement of the unit will be required. The parts replaceable are listed in the replacement parts catalogue.

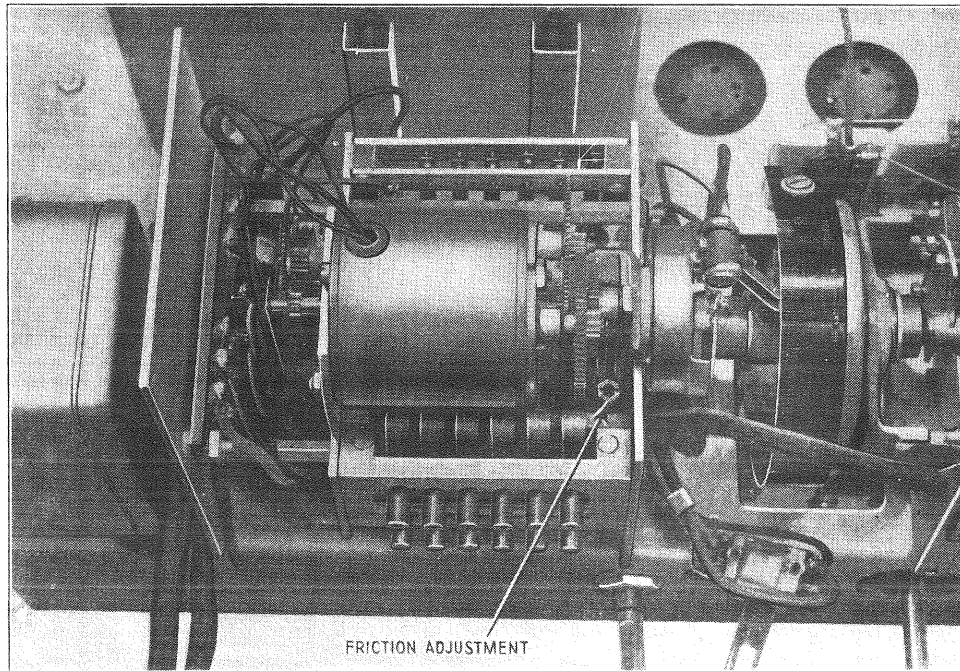
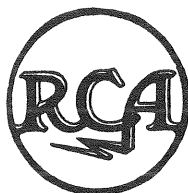


Figure 12—Location of friction adjustment

PART III—ELECTRICAL TESTS

The schematic circuit diagram is shown in Figure 6. The receiver assembly and S. P. U. wiring diagrams together with the complete layout diagram are shown in Figures 13, 14, and 10 respectively. These diagrams should be used for making any electrical tests necessary. All voltage readings, continuity tests and service information may be obtained from the service notes on the regular models of these receivers.



S.O. 7658