# OPERATOR DIALS AND ASSOCIATED DIAL MOUNTINGS PROCEDURES FOR CORDING

## 1. GENERAL

1.01 This section describes the procedures for cording operators dials and their associated dial mountings.

1.02 The section is reissued to cover additional cording information for dials having all terminals on the spring assembly. Detailed reasons for reissue will be found at the end of the section.

1.03 After gaining access to the dials and dial mountings and removing the old cords as covered in Part 3, cord the dial and dial mountings and reassemble them, as covered in the procedures listed in Table A.

| Type of Cord | Type of Dial Mounting | Dial Terminal Arrangement | Cording Procedures |
|---|---|---|---|
| D5AD Cord | 31A (or Similar), 34, and †44 | W Terminal on Spring Assembly | See 4.01, 4.02, and 4.05 |
| | 31A (or Similar), †44, and 34 (Except 34G and 34H) | W Terminal on Dial Casing or W Terminal Under Spring Assembly Mounting Screw | See 4.01, 4.03, and 4.05 |
| | 34G and 34H | | See 4.07, 4.08, and 4.09 |
| | 34 and 44 | All Terminals on Spring Assembly | See 4.01, 4.04, and 4.05 |
| *All Other Cords | 31A (or Similar) and 34 | W Terminal on Spring Assembly | See 5.01 and 5.04 to 5.07 inclusive |
| | | W Terminal on Dial Casing or W Terminal Under Spring Assembly Mounting Screw | See 5.02 and 5.04 to 5.07 inclusive |
| | | All Terminals on Spring Assembly | See 5.03 and 5.04 to 5.07 inclusive |

†Only the D5AD cord should be used to cord 44 dial mountings since it is impossible on these mountings to determine visually whether or not the leads of the cord interfere with the dial contacts. ←

*When it is necessary to replace a cord on any of the operators dial mountings, re-cord the dial, using a D5AD cord as outlined in Part 4.

## 2. LIST OF TOOLS

| Code No. | Description |
|---|---|
| | 3-inch Cabinet Screwdriver |

## 3. METHOD OF REMOVING CORDS

3.01 In order to gain access to the terminals of a dial or a dial mounting, remove the dial mounting locking screw, where provided, using the screwdriver, and then remove the dial mounting from the connecting block. When a dial is associated with a No. 31A or similar dial mounting, access can be gained to the terminals of the dial without removing the dial from the dial mounting. When a dial is associated with a 34- or 44-type (part of the 6000 type) or similar dial mounting, proceed as follows.

3.02 When a dial is associated with a dial mounting having a slotted frame, loosen the screws holding the dial to the mounting with the screwdriver and lift the dial out of place. Otherwise remove the screws to remove the dial.

3.03 When a dial is removed from its mounting, exercise extreme care in order to prevent injury to the mechanism or to the contact springs on the rear. Exercise care to avoid placing an excessive strain on the contact leads, since any shifting of the spring assembly may cause a change in the dial adjustment.

3.04 After gaining access to the terminals as outlined in 3.01 and 3.02, remove the old cord by loosening the cord tip mounting screws, using the screwdriver.

## 4. PROCEDURE FOR CORDING DIALS AND DIAL MOUNTINGS, USING D5AD CORDS

### A. All Types of Dials and All Types of Dial Mountings Except Nos. 34G and 34H Dial Mountings When Used as Indicated in Part 4B

**Method of Cording the Dial Mounting**

4.01 Connect the short ends of the cord to the terminals on the dial mounting in order, starting with the red lead, matching the color of the leads with the lettered abbreviations on the dial mounting; that is, R indicating red, G indicating green, B indicating blue, etc. Take care that the leads are in their proper positions and not tangled. Fasten the cord mounting screws securely.

**Method of Cording the Dial**

4.02 When the dial mounting has been corded, hold the dial above the mounting and at right angles to it as shown in Fig. 1. Where a dial has a W terminal as a part of the spring assembly, connect the leads to their proper terminals in order, starting with the green lead, matching the color of the leads with the lettered abbreviations on the dial or dial adapter.

The cord terminals should be angled approximately as shown in Fig. 1 to avoid interference with the dial mounting. Dress the leads as shown in Fig. 1 and securely fasten the leads to the terminals on the dial.

4.03 Where a dial has a W terminal mounted directly on the dial casing, connect the white lead to this terminal with the shank of the cord tip bent upward at an angle of about 75 degrees so as to clear the contact springs. Where a dial has a W terminal mounted under the spring assembly mounting screw, connect the white lead to this terminal with the shank of the cord tip bent upward at an angle of approximately 90 degrees so as to clear the contact springs. Under these conditions, connecting the cord will be facilitated if the dial is tipped from the vertical position shown in Fig. 1 towards the open face of the dial mounting.

4.04 Where a dial has all the terminals as a part of the spring assembly, connect the leads, starting with the yellow lead, matching the color of the leads with the lettered abbreviations on the dial terminals except as described in note 1 of Fig. 2. The cord tip terminals should be angled approximately as shown in Fig. 2. The cord tips of the red, blue, and green leads shall have their shanks bent slightly downward toward the dial casing. The cord tips of the yellow and white leads shall have their shanks bent upward at an angle of approximately 90 degrees. Bending the cord tip shanks in this manner will provide clearance between the cord tips and the various adapters and mountings. ←

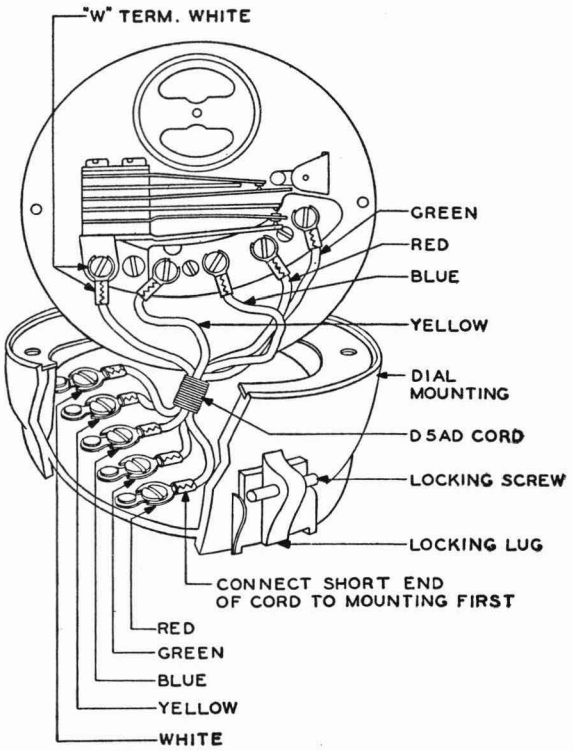
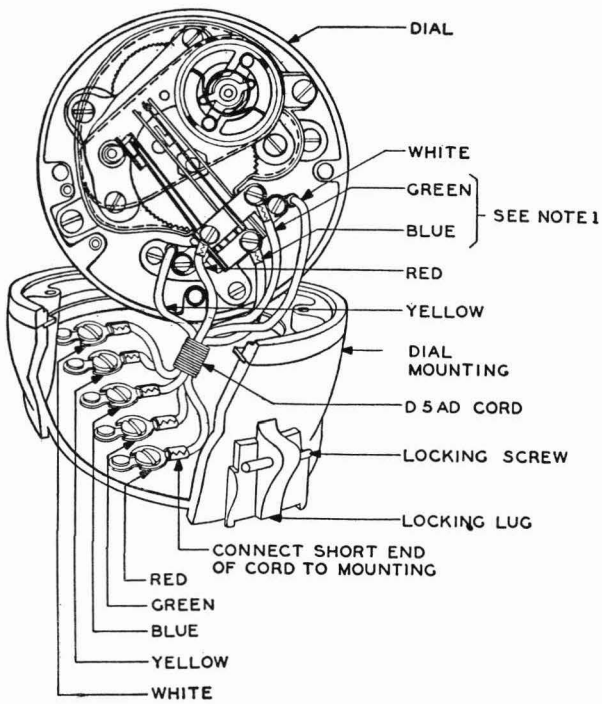



**Fig. 1—Method of Cording Dial Mountings and Dial, Using D5AD Cord (Dial Having a W Terminal as a Part of the Contact Spring Assembly)**




NOTE 1:
IF A 6A OR 6G DIAL IS USED, THE BLUE LEAD SHALL BE CONNECTED TO THE "BB" TERMINAL AND THE GREEN LEAD CONNECTED TO THE "BK" TERMINAL OF THE DIAL.

**Fig. 2—Method of Cording Dial Mountings and Dial, Using D5AD Cord, With Dials Having All Dial Terminals Part of the Spring Assembly (6E and 6F Dials Only)**

**Method of Assembling Dial and Dial Mounting**

4.05 Press any slack against the base of the dial mounting and carefully fold the dial into the dial mounting, making sure that the rubber gasket, where provided, is properly in place. Securely fasten the screws which mount the dial mounting to the dial or dial adapter. On all but the 44 dial mountings it will be possible to inspect to make sure that the cord has not snagged on the contact springs of the dial and that the cord tips do not touch each other. Insert the dial mounting in the connecting block and screw the locking screw, where provided, into the locking lug. Check the dial for circuit operation.

**B. Nos. 34G and 34H Dial Mountings Used With Dials Having the W Terminal Mounted Directly on the Dial Casing (See Fig. 3) and Where the W Terminal Is Mounted Under the Spring Assembly Mounting Screw**

4.06 The Nos. 34G and 34H dial mountings are too deep to permit cording the dial and mounting as covered in 4.01 through 4.05 where the dial has the W terminal mounted directly on the dial casing or under the spring assembly mounting screw. To cord the combination of dial and mounting proceed as follows.

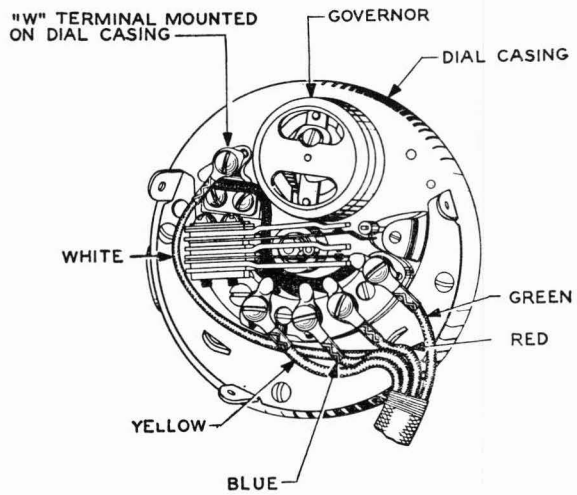



**Fig. 3—Method of Cording Dials Having a Separate W Terminal Mounted Directly on the Dial Casing, Using D5P or No. 765 Cords**

**Method of Cording the Dial**

4.07 After gaining access to the terminals of the dial and dial mountings as outlined in 3.01 and 3.02, remove the old cord by loosening the cord tip mounting screws, using the screwdriver. Connect the longer ends of the cord to the terminals on the dial, starting with the green lead and matching the color of the leads with the lettered abbreviations on the dial or dial adapter. Where the W terminal is mounted directly on the dial casing, connect the white lead to the W terminal of the dial with the shank of the cord tip bent upward at an angle of 75 degrees so as to clear the contact springs, while on dials where the W terminal is mounted under the spring assembly mounting screw, bend the cord tip upward at an angle of approximately 90 degrees. Securely tighten the terminal screws.

**Method of Cording the Dial Mounting and Assembling Dial and Mounting**

4.08 Mount the dial in the dial mounting and fasten the mounting screws securely. Detach the contact spring assembly, and dust shield where provided, from the dial mounting, using the screwdriver. Pass the cord tips through the opening in the dust shield, where provided, and connect the cord tips to the terminals of the contact spring assembly, again matching the color of the leads with the abbreviations on the contact spring assembly. Remount the contact spring asesmbly, and dust shield where provided, on the dial mounting and fasten the mounting screws securely.

4.09 Insert the dial mounting in the connecting block. Screw the locking screw, where provided, into the locking lug. Check the dial for circuit operation.

## 5. PROCEDURE FOR CORDING DIAL AND DIAL MOUNTING, USING OTHER THAN D5AD CORDS

### Method of Cording the Dial

5.01 **Dials Having the W Terminal as Part of the Contact Spring Assembly (See Fig. 4):** After gaining access to the terminals as outlined in 3.01 and 3.02, remove the old cord by loosening the cord tip mounting screws, using the screwdriver. The dial end of the cord is that end not having insulating sleeves. Working from the green terminal, connect the leads to their proper terminals, matching the color of the leads (or the tracers in the leads in certain type cords) with the lettered abbreviations on the dial adapter, Y indicating yellow or yellow tracer, B indicating blue or blue tracer, etc. Run the white lead or the lead with the white tracer under the other leads to prevent snagging the lead on the contact springs of the dial. Where the No. 765 cord is used, run the white lead inside of the V-shaped embossing in the dial adapter as shown in Fig. 5. Angle the leads about as shown in Fig. 4 or 5, depending on the type of dial cord used. Set the cord tips so that the leads are approximately parallel and do not cross each other. Tighten the cord tip mounting screws firmly.

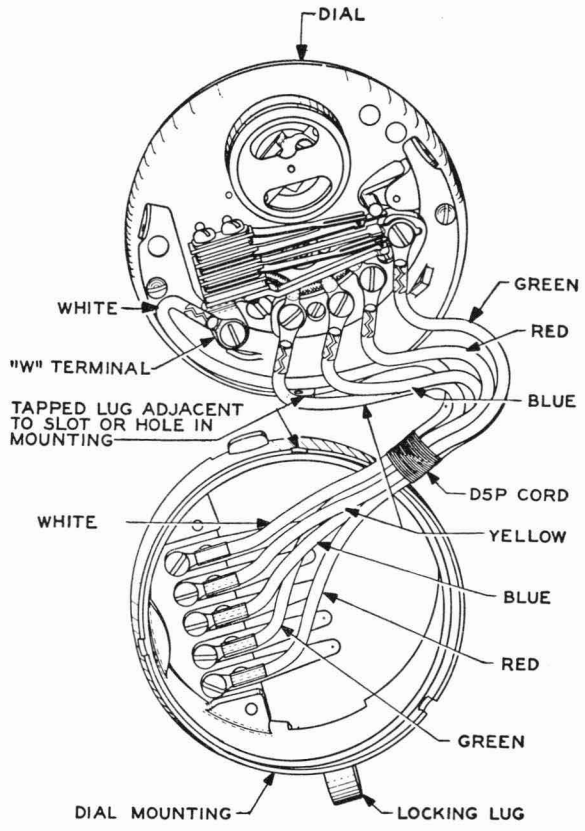



**Fig. 4—Method of Cording Dial Mountings and Dials Having Their W Terminal as Part of the Contact Spring Assembly, Using D5P Cords**

5.02 **Dials Having a Separate W Terminal Mounted Directly on the Dial Casing (See Fig. 3) and Dials Having a W Terminal Mounted Under the Spring Assembly Mounting Screw:** The procedure is the same as that outlined in 5.01 except that the white lead or the lead with the white tracer should be run to the left of the contact spring assembly as viewed from the terminal side of the dial with the governor uppermost.

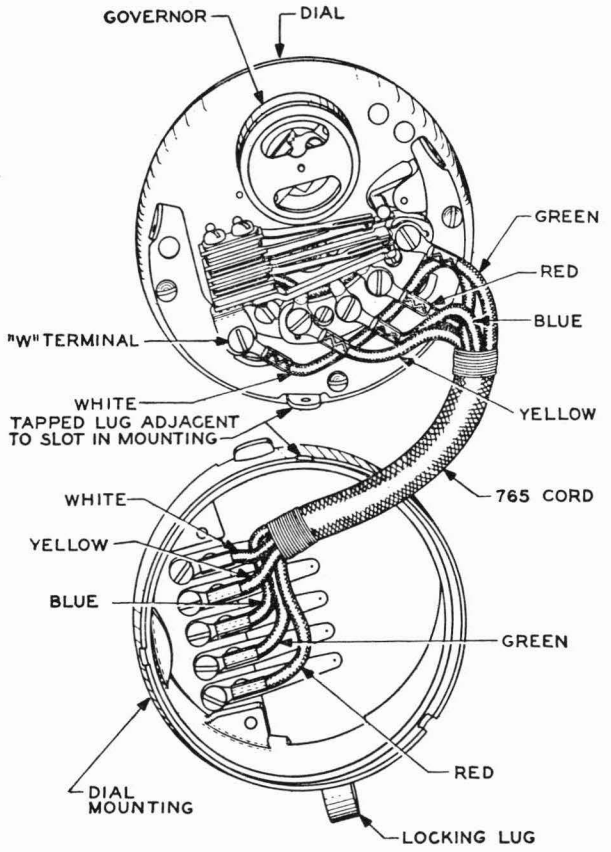



**Fig. 5—Method of Cording Dial Mountings and Dials Having the W Terminal as Part of the Contact Spring Assembly, Using No. 765 and Similar Cords**

5.03 **Dials Having All Terminals as Part of the Spring Assembly (See Fig. 6):** The procedure is the same as that outlined in 5.01 except as follows. The cord tip shall be angled approximately as shown in Fig. 6. The cord tips of the yellow and white leads shall have their shanks bent upward at an angle of approximately 90 degrees. Bending of the terminals in this manner will provide clearance between the cord tips and various dial adapters and mountings.

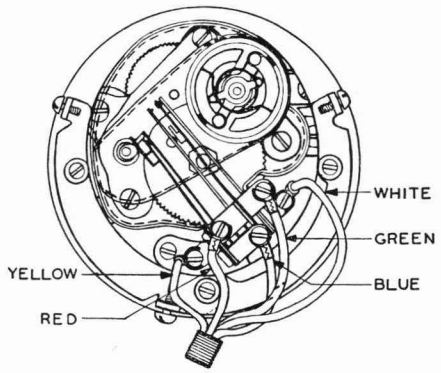



**Fig. 6—Method of Cording Dials Having All Terminals Part of Spring Assembly, Using D5P or No. 765 Cords**

### Method of Cording Dial Mounting

5.04 Place the dial mounting in front of the dial as shown in Fig. 4 so that the tapped lug in the dial adapter nearest the Y terminal is adjacent to the slot or hole in the dial mounting which is about opposite the locking lug. Cord the dial mounting as shown in Fig. 4, connecting the leads to their proper terminals, matching the leads with the lettered abbreviations on the dial mounting, as indicated in 5.01. Cord the dial

mounting, working from left to right, taking care that the leads are in their proper positions and not tangled. Fasten the cord tip mounting screws securely.

**Method of Assembling Dial and Dial Mounting**

5.05 **Dials Having D5P Cords:** After the cord has been firmly connected to the dial and dial mounting and with the dial and dial mounting placed adjacent to each other as described in 5.04 and illustrated in Fig. 4, fold the dial mounting over the dial, using the tapped lug in the adapter nearest the Y terminal of the dial as a pivot. While doing this, position the coiled part of the leads, particularly the white and yellow leads, so that they will not be clamped against the dial by the dial mounting. When the dial and dial mounting are assembled in this way, the individual leads of the cord should form a spiral which clears the contact springs of the dial. Be sure that the cord tips do not touch each other or the dial and dial mounting.

5.06 **Dials Having No. 765 and Similar Cords:** After the cord has been firmly attached to the dial and dial mounting, hold the dial mounting with the locking lug at the top so that the dial dangles by the cord. Turn the dial so that the terminals face you, if the dial has not already assumed that position, and then raise the dial to a horizontal position with the terminals to the rear. Then raise the dial so that the dial adapter lug nearest the Y terminal on the dial is adjacent to that slot or hole in the dial mounting which is opposite the locking lug on the mounting, as shown in Fig. 5. Then fold the dial into the dial mounting, using the tapped lug in the dial adapter as a pivot, taking care that the dial mounting does not clamp the leads of the cord. The cord will double back over the leads on the dial with the cord taking a position against the frame of the dial mounting away from the contact springs. Be sure that the cord has not snagged on the contact springs of the dial and that the cord tips do not touch each other or the dial and the dial mounting.

5.07 Fasten the dial mounting screws securely and mount the dial mounting in the connecting block. Screw the locking screw, where provided, into the locking lug. Check the dial for circuit operation.

## REASONS FOR REISSUE

1. To delete the code letter from code number of dial mounting referred to in footnote of Table A (1.03) and 4.05.
2. To correct Fig. 1 to show proper dial adapter and to delete code number of dial mounting.
3. To revise cording procedure to include additional cording information for dials having all terminals as a part of the spring assembly (4.04); and to add note to Fig. 2 to cover same.
4. To revise spring combination on dial and to delete code number of dial mounting. (Fig. 2)
5. To revise spring combination on dial. (Fig. 6)