

RINGERS – C TYPE  
MAINTENANCE

1. GENERAL

1.01 This practice contains procedures, methods and requirements recommended for maintenance of C-type Ringers.

1.02 The 79938 ringer mechanism is a double wound coil, straight line, biased type of unit without gongs. (See Figure 1.) It is assembled on an open die-cast metal frame. In combination with type 79939 frequency selective ringer mechanism (See Figure 2) it provides a range of telephone line ringer mechanisms for use with separately mounted gongs. Flexible wire leads are provided for the coil connections of the mechanism and the frame is provided with a number of alternative mounting holes.

Item	Description
1	Mounting Frame
2	Coil
3	Magnet
4	Pole Piece Assembly
5	Core Lamination
6	Rd. Hd. Lockwasher Screw
7	Flat Fil. Hd. Mach. Screw
8	Clapper Assembly

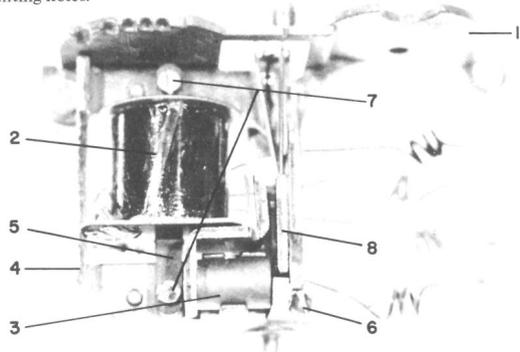


FIGURE 1. TOP VIEW

Item	Description
1	Mounting Frame
2	Coil
3	Magnet
4	Clamping Plate
5	Slide Plate & Lamination Assy.
6	Rd. Hd. Lockwasher Screw
7	Rnd. Hd. Lockwasher Screw
8	Clapper Assembly
9	Armature
10	Weight
11	Rnd. Hd. Lockwasher Screw
12	Shunt Bar
13	Washer
14	Eccentric Washer
15	Rubber Tubing (for Tuning Stem)
16	Headless Set Screw (for Weight)

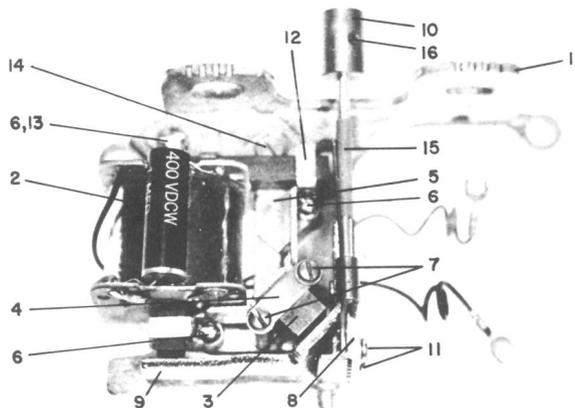


FIGURE 2. TOP VIEW

- 1.03 The 79939 Ringer mechanism is a single wound coil, frequency selective type of unit without gongs. It is assembled on an open die-cast metal frame. In combination with type 79938 straight line ringer mechanism, it provides a range of telephone line ringer mechanisms for use with separately mounted gongs. Flexible wire leads are provided for the coil connections of the mechanism and the frame is provided with a number of alternative mounting holes.
- 1.04 The 130 ringer is a double wound coil, two gong, straight line, biased type of unit equipped with a mechanical volume control and assembled on an open, die-cast metal frame. (See Figure 3.) In combination with types 131, 133, 141 and 142 frequency selective ringers, it provides a complete range of units which meets the requirements of every class of telephone line ringer. (See Figure 4.) Flexible wire leads are provided for the coil connections of the ringer. The unit is mounted to the telephone instrument base by a locating stud and two screws, each with a shock absorbing rubber bushing.

## 2. MECHANICAL REQUIREMENTS

- 2.01 The armature of C-type ringers, when manually displaced, shall restore to non-operate side of airgap, with bias spring in LOW notch and volume control wheel in high position. Should armature fail to restore, replace ringer.

*CAUTION: Never bend bias spring or stop rod or adjust armature clearance.*

- 2.02 With ringer lying flat (as mounted in 500-type set) or mounted vertically (gongs down, as in 700-type subscriber set mounted on wall), armature in nonoperate position, and volume control wheel in low position, the clapper shall clear movable gong by a minimum 1/64 inch, maximum 1/32 inch. If this requirement is outside its limits, ringer should be replaced. Clearance between clapper and fixed gong shall be 1/64 inch. Fixed gong may be repositioned to meet this clearance. Both these clearances may be gauged visually.

## 3. VOLUME CONTROL

- 3.01 The volume control wheel may be adjusted for ringer cut off when requested by customer or in accordance with local instructions.

*NOTE: When ringer cut off feature is requested, bend stop tab up and out to just clear stop on ringer frame.*

- 3.02 The volume control wheel shall operate smoothly over entire range. Detent spring shall have a positive detent action at each position of wheel. Lubricate detent spring by rubbing graphite from a soft lead pencil onto bearing surface.
- 3.03 The adjusted ringer must function in such a manner that both gongs are equally audible in the three loudest positions of the volume control when the maximum voltages specified are applied. This same condition is desirable, but not essential, in the lowest volume position of the control.
- 3.04 Rotate the "A" gong to the minimum loudness position. The stop rod must line up with the reference mark on the eccentric cam and, with the armature operated, must strike the rim of the cam in all volume positions except maximum loudness so that the clapper is held 1/16" away from the "A" gong. Bend the rod near its base to obtain these adjustments. Check that the stop rod does not touch the bias spring bracket or the "A" gong.
- 3.05 With the stop tab on the detent spring bent away from the frame and the control wheel rotated to the cut-off position check that the stop rod rests on the eccentric cam and prevents movement of the armature assembly.

- | Item | Description               |
|------|---------------------------|
| 1    | Mounting Frame Assy.      |
| 2    | Gong (A)                  |
| 3    | Gong (B)                  |
| 4    | Rescinator                |
| 5    | Rd. Hd. Lockwasher Screw  |
| 6    | Support Pole Piece Assy.  |
| 7    | Core Lamination           |
| 8    | Coil                      |
| 9    | Flat Fil. Hd. Mach. Screw |
| 10   | Magnet                    |
| 11   | Armature & Clapper Assy.  |
| 12   | Rubber Foot               |
| 13   | Mounting Screw            |

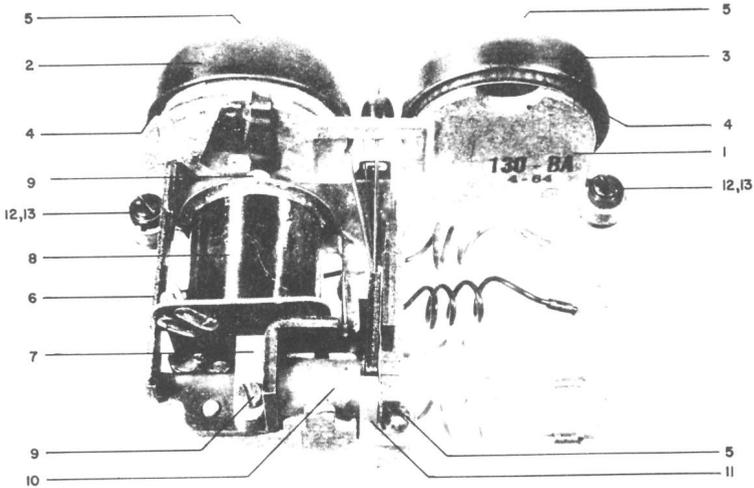


FIGURE 3. TOP VIEW

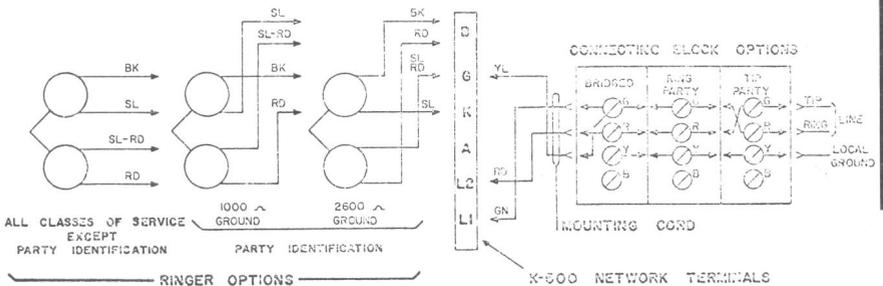


FIGURE 4. TYPICAL WIRING DIAGRAMS

- 3.06 Sensitivity (using moving coil meter and ERG source) the ringer should function strongly with the maximum voltages, steadily with the minimum voltages and just tinkle with the ultimate voltages applied across the coil and capacitor.

Condition	Frequency	Max. V	Min. V.	Ult. V
Low Bias	16 cps	44	36	26
	20 cps	63	48	37
	30 cps	88	56	40
High Bias	16 cps	67	58	47
	20 cps	87	77	61
	30 cps	120	107	81

#### 4. BIAS SPRING POSITION

- 4.01 Bias spring settings for class of service and number of ringing bridges are shown in Table A. High tension notch of bias bracket is adjacent to fixed gong. The low notch is adjacent to movable gong.

NOTE: Correct bias spring tension has been set at factory. *Do not bend bias spring.* Do not use tools when relocating bias spring.

#### 5. INSPECTION

- 5.01 Table B is a guide for requirements, tests, and procedures for C-type ringers when they are placed in service and on maintenance visits.
- 5.02 After completing work, obtain a ring for ringing tests according to local instructions. Check for bell tap while dialing.
- 5.03 If bell taps with bias spring in low notch and ringer properly poled, move bias spring to high notch. Repeat ringer test. If ringer fails to operate properly, change ringer.
- 5.04 When replacing C-type ringer, see that locating pin is inserted into rubber grommet before captive mounting screws are tightened. Check that ringer lead connections are tight.

**TABLE A**  
**BIAS SPRING POSITION**

Class of Service	Bias Spring Notch
Bridge Ringing Services	
Individual Line and PBX Stations*	High
Nonselective Party Lines	Low
Grounded Ringing Services	
2-party Flat and Message Rate	High
4-party Semiselective†	High
4-party Selective	{ High, C3A Ringer
8-party Semiselective }	
Divided Code	{ Low, C4A Ringer Low

\* When three or more ringers are bridged across line and operation is not satisfactory, bias spring may be placed in low notch on all ringers. If condition is not corrected, change ringer.

† Where five ringers are connected between same side of line and ground and operation is not satisfactory, bias spring may be placed in low notch on all ringers on that side of line. If condition is not corrected, change ringer.

**TABLE B**  
**C-TYPE RINGER TESTS AND REQUIREMENTS**

Subject	Remarks
Volume Control Wheel	See 4.01, 4.02 and 4.03.
Bias Spring	See 5.00 and Table A.
Ringer	<ol style="list-style-type: none"> <li>1. Leads dressed properly and connections tight.</li> <li>2. Positioned properly; mounting screws tight.</li> <li>3. Clean (see section entitled Ringers, General Maintenance and Ringing Tests).</li> <li>4. Gong mounting screws tight and clapper to gong clearance in accordance with 3.03.</li> <li>5. Ringer shall produce a steady ring on at least one gong when volume control wheel is in low notch and on both gongs as wheel is advanced to high notch.</li> </ol>
Airgap	With volume control wheel in high notch, displace armature manually toward inner pole piece; check for stop pins and see that they make contact with adjacent pole pieces. If stop pins are missing, replace ringer (C4A ringer has only one stop pin). If stop pins are present but fail to make contact, determine cause. Remove dirt if found (see section entitled Ringers, General Maintenance and Ringing Tests). If stop rod is deformed, replace ringer.