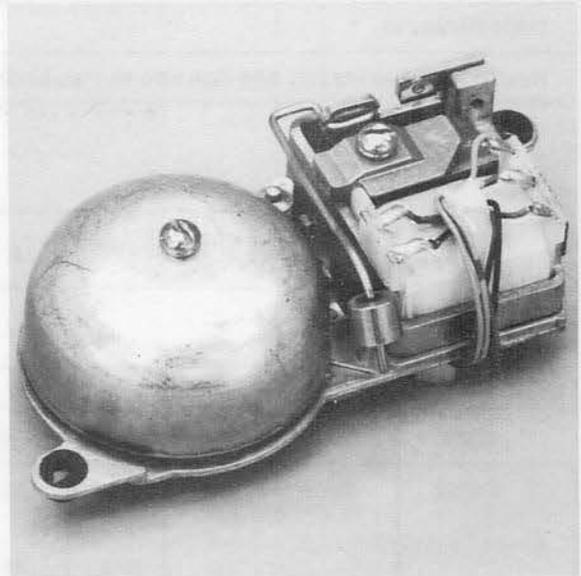


## MODEL 152 RINGER

CONTENTS	PAGE
1. INTRODUCTION .....	1
2. GENERAL DESCRIPTION .....	1
3. REMOVAL .....	2
4. DISASSEMBLY .....	2
5. REPLACEMENT PARTS .....	3
6. ASSEMBLY .....	3
7. INSTALLATION .....	3
8. ADJUSTMENTS .....	4
Volume Control .....	4
Clapper-to-Gong Clearance .....	4



AW 84-820

Figure 1: Model 152 Ringer

### 1. INTRODUCTION

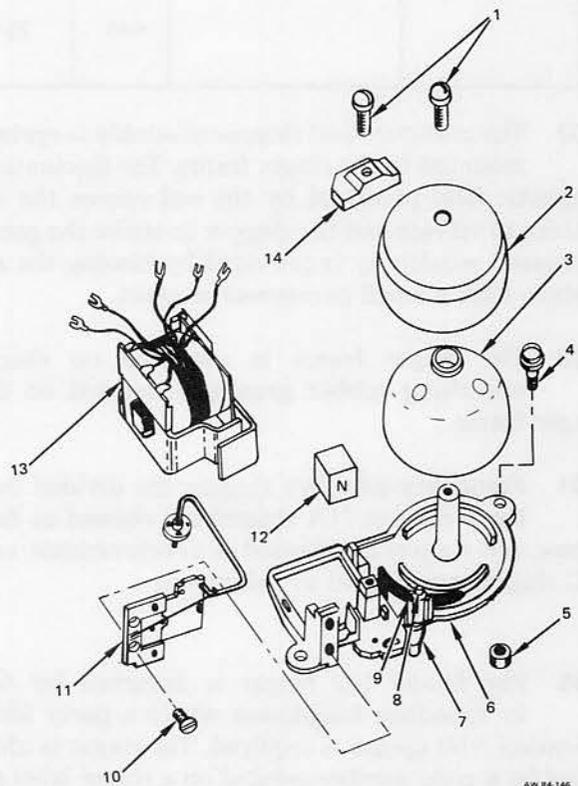
1.01 This document covers the Model 152 ringer. (See Figure 1.) A general description as well as information on removal, disassembly, replacement parts, assembly, installation, and adjustments is included.

1.02 Whenever this section is reissued, reason for reissue will be listed in this paragraph.

1.03 For applications of the Model 152 ringer in telephones, refer to the appropriate section in Volume 1 of the ITT Telephone Apparatus Practices Manual.

### 2. GENERAL DESCRIPTION

2.01 The Model 152 ringer (see Figure 2) is a miniature, single-gong, biased-armature type, frequency-selective ringer equipped with a mechanical volume control. It is assembled on a die-cast frame. Through the use of various clapper weights and capacitors, the ringer is tuned to ring at a specific frequency.



AW 84-146

Figure 2: Model 152 Ringer, Exploded View

TABLE A  
ORDERING INFORMATION

CODE NUMBERS								
RINGER CODE NUMBERS ARE FORMED IN TWO STEPS AS FOLLOWS:								
(1) Ringer Model Number (See Part 1)				000152				HB1
(2) Selective Frequency (See Part 2)								
PART 1 RINGER MODEL NUMBER				PART 2 SELECTIVE FREQUENCY				
CODE	DESCRIPTION	CODE	FREQUENCY	CODE	FREQUENCY	CODE	FREQUENCY	
000152	Model 152 Ringer	HA1	33 1/3 Hz	HB1	30 Hz (Same As HC3)	HC1	20 Hz	
		HA2	50 Hz (Same As HC5)	HB2	42 Hz	HC2	60 Hz	
		HA3	66 2/3 Hz	HB3	54 Hz	HC3	30 Hz (Same As HB1)	
		HA4	16 2/3 Hz	HB4	66 Hz	HC4	40 Hz	
		HA5	25 Hz	HB5	16 Hz	HC5	50 Hz (Same As HA2)	

AW B4 155

**2.02** The armature and clapper assembly is spring-mounted to the ringer frame. The fluctuating magnetic field produced by the coil causes the armature to vibrate and the clapper to strike the gong. Increased sensitivity is provided by biasing the armature with a small permanent magnet.

**2.03** The ringer frame is mounted on shock-absorbing rubber grommets located on the ringer frame.

**2.04** Frequency-selective ringers are divided into three classes: HA ringers are classed as harmonic, HB ringers are classed as synchronomic, and HC ringers are classed as decimonic.

**2.05** The Model 152 ringer is designed for use in Trendline telephones where a party identification ANI option is required. The ringer is identified by a code number printed on a ringer label attached to the gong. Refer to ordering information in Table A for an explanation of each code number and a list of available ringers.

### 3. REMOVAL

**3.01** To remove the ringer from the telephone, proceed as follows:

- (a) Remove the telephone housing.
- (b) Remove any telephone components that may obstruct access to the ringer.
- (c) Disconnect the ringer leads.
- (d) Loosen the two ringer mounting screws and lift the ringer from the telephone base.

### 4. DISASSEMBLY

**4.01** To disassemble the ringer, proceed as follows:

- (a) Loosen and remove the screw that holds the gong to the ringer frame.
- (b) Remove the gong and the resonator.

- (c) Using a permanent marker, place a reference mark on the magnet to ensure that proper polarity is maintained during reassembly. The end of the magnet nearest the armature and clapper assembly must attract the north-seeking pole of a compass.
- (d) Loosen and remove the two screws that hold the armature and clapper assembly to the ringer frame.
- (e) Lift the armature and clapper assembly from the ringer frame.
- (f) Loosen and remove the screw that holds the retaining plate to the ringer frame. Remove the retaining plate.
- (g) Remove the magnet.
- (h) Lift the pole piece assembly from the ringer frame.

## 5. REPLACEMENT PARTS

5.01 Replacement parts for the Model 152 ringer are listed in Table B. (Table B is located at the end of this section.)

## 6. ASSEMBLY

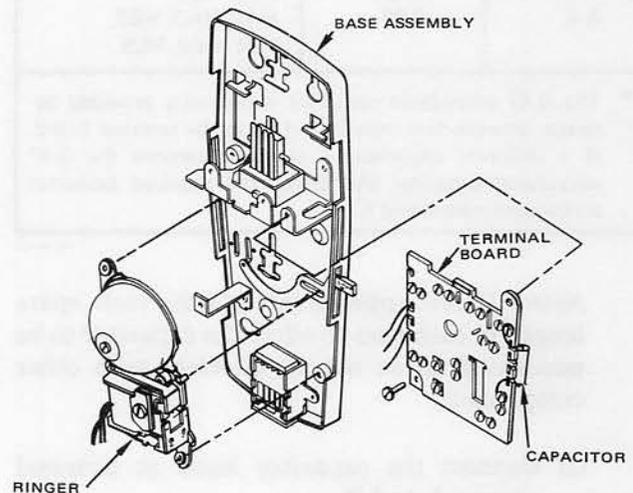
6.01 To assemble the ringer, proceed as follows:

- (a) Place the pole piece assembly on the ringer frame.
- (b) Place the magnet securely against the pole piece assembly. The end of the magnet nearest the armature and clapper assembly must attract the north-seeking pole of a compass.
- (c) Place the armature and clapper assembly into the gap of the pole piece assembly. Mount the armature and clapper assembly to the ringer frame using two screws.
- (d) Position the retaining plate so that it rests against both the pole piece assembly and the magnet. Mount the retaining plate to the ringer frame using one screw.
- (e) Position the resonator on the ringer frame and place the gong over the resonator.

- (f) Mount the gong to the ringer frame using one screw.

## 7. INSTALLATION

7.01 To install the Model 152 ringer, proceed as follows. (See Figure 3.)



AW 83-454

Figure 3: Installation of Model 152 Ringer

- (a) Remove the telephone housing.
- (b) Remove the two screws securing the terminal board to the retaining brackets. (See Figure 3.)
- (c) Carefully rotate the terminal board to the right to expose the telephone base assembly.
- (d) Position the ringer with the gong near the cradle switch, both grommets over the base assembly mounting holes, and the tone lever inserted into the slot in the volume control lever.
- (e) Insert and tighten the two ringer mounting screws.
- (f) Referring to the appropriate circuit label, connect the ringer leads.
- (g) Install the ringer capacitor (see Table C) by placing the capacitor under the terminal board and inserting the leads through slots at terminal screws A and K.

TABLE C

RINGER SERIES CAPACITORS

NETWORK TERMINALS	CAPACITANCE (MFD)*	CODE SERIES
A-K	0.47	HA4, HA5, HB5, HC1
A-K	0.25	HA1, HB1, HC3
A-K	0.15	HB2, HC4
A-K	0.08	HA2, HA3, HB3, HB4, HC2, HC5

\* The 0.47 microfarad capacitor is normally provided between network terminals A and K on the terminal board. If a different capacitor is required, remove the 0.47 microfarad capacitor and bridge the required capacitor across terminals A and K.

AW 84-156

**Note:** Leave approximately 0.25 inch spare length in each lead to allow the capacitor to be positioned so as not to interfere with other components.

- (1) Connect the capacitor leads at terminal screws A and K.

- (2) Clip off excess length of capacitor leads.

- (h) Reinstall the terminal board.

- (j) Reinstall the telephone housing.

**8. ADJUSTMENTS**

**Volume Control**

**8.01** Ringer volume is controlled by moving the tone lever to one of the three selector positions provided on the ringer frame.

**Clapper-to-Gong Clearance**

**8.02** Clearance between the clapper and the gong may vary, but it should be between 0.030 inch and 0.10 inch. Coarse adjustment is made by bending the clapper arm. Fine adjustment is made by rotating the gong.

TABLE B  
REPLACEMENT PARTS LIST

INDEX NO	PART NUMBER	DESCRIPTION	QUANTITY USED														
			HA1	HA2	HA3	HA4	HA5	HB1	HB2	HB3	HB4	HB5	HC1	HC2	HC3	HC4	HC5
		Model 152 Ringer															
1	075408-102	Screw	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	075396-101	Gong	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	075372-101	Resonator	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	095966-102	Screw, Ringer Mounting	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	088209-101	Grommet, Rubber	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	088480-103	Frame	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	180122-101	Lever, Tone	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	095972-101	Nut, Push	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	088884-101	Spring, Damper	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	063975-101	Screw	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	088484-101	Armature And Clapper Assembly	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
	088484-102	Armature And Clapper Assembly	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	088484-103	Armature And Clapper Assembly	1	-	-	-	-	-	1	-	-	-	-	-	1	-	-
	088484-105	Armature And Clapper Assembly	-	1	-	-	-	-	-	1	-	-	-	-	-	1	1
	088484-106	Armature And Clapper Assembly	-	-	1	-	-	-	-	1	1	-	-	1	-	-	-
	088484-109	Armature And Clapper Assembly	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-
12	184176-101	Magnet	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	088484-101	Pole Piece Assembly	1	-	-	1	1	1	-	-	-	1	1	-	1	-	-
	088481-102	Pole Piece Assembly	-	1	1	-	-	-	1	1	1	-	-	1	-	1	1
14	088483-101	Plate Retainer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	095995-103	Capacitor, 0.47 MFD (Not Shown)	-	-	-	1	1	-	-	-	-	1	1	-	-	-	-
	095995-104	Capacitor, 0.25 MFD (Not Shown)	1	-	-	-	-	-	1	-	-	-	-	-	1	-	-
	095995-105	Capacitor, 0.15 MFD (Not Shown)	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
	095995-106	Capacitor, 0.08 MFD (Not Shown)	-	1	1	-	-	-	-	-	1	1	-	-	1	-	1

AW 84.15.7