

RINGERS AND LOUD RINGING BELLS

GENERAL MAINTENANCE AND RINGING TESTS

1. GENERAL

1.01 This section covers, in general, the recommended procedures and methods to be followed for maintaining and testing ringers and loud ringing bells of all types. Ringing tests for various types of central office areas and specific classes of service are also included.

1.02 This practice is issued to group all general information relative to all types of ringers and loud ringing bells. In addition, existing standard ringing tests and a new series of tests associated with the #5 Crossbar office are listed for use upon initial installation visits and subsequent calls.

1.03 It is recommended that all ringers good or defective be carried protected by a suitable container.

Distinctive Signals

1.04 On installation and maintenance visits, it is recommended that "Gong Distinctiveness" be given due consideration especially at locations where a number of lines with associated ringers are installed and the subscriber is apt to encounter difficulty in distinguishing the various ringers.

Impaired Hearing

1.05 Since tone reception will vary with subscribers having impaired hearing, the craftsman may find it necessary to try a number of gong combinations to obtain satisfactory results.

2. CLEANING

2.01 When cleaning ringers or loud ringing bells proceed as follows:

(a) Employ a No. 7 sash tool or equivalent for brushing out dirt. If extensive cleaning is required detach ringer.

(b) Bell seal bond paper or other approved cleaning paper shall be used to clean points of contacts such as: between the armature or armature stop pins and pole faces. (Use clean piece of paper for each operation.)

(c) On C-type ringers the air gap, between inner and outer pole pieces and the armature shall be cleaned by sweeping the brush in one direction only, i.e., always towards the gongs.

(d) The air gap of C-type ringers between the end of the permanent magnet and the adjacent portion of the armature shall be cleaned by sweeping in one direction only, i.e., always away from the gongs.

(e) On numbered ringers and B-type ringers brush dirt away from the armature.

(f) Magnetic particles may be removed with scotch tape or a telephone company equivalent.

Caution: On C4A ringers in particular, extreme care shall be exercised when cleaning the gap between the outer pole face and the armature so as not to distort the thin reed which is part of the armature hinge between the armature and the center pole piece. Displace the armature manually and insert the cleaning tape between the reed and the outer pole piece, starting at the hinge of the armature.

3. OUTLINE OF WORK OPERATIONS—TABLE 1

3.01 The operations should preferably be performed in the order shown. If a ringer or loud ringing bell cannot be adjusted to meet all tests, it should be replaced.

3.02 Upon completion of work operations the necessary ringing tests shall be made in accordance with Part 4. If the ringer fails requirements, replace ringer.

TABLE 1
SERVICE ORDER VISIT **REPAIR VISIT**

Work Operations Sequence Items	Reference Section for Procedure	Sets From Shop or Store-room	Sets Reused or Reconnected	No. Ringer Trouble Reported or Suspected	Where Trouble Is Located or Suspected in Ringer
1. Check line and ringer connections and poling of ringer.	—	Yes	Yes	Yes	Yes
2. Check type of gong arrangements when 2 or more ringers are near enough to require distinctive tones.	C31.205 C31.206 C31.207	Yes	Yes	—	—
† 3. Check for presence of armature stop spring or chromium plated armature. (See Note 1)	C31.205	—	Yes	—	Yes
4. Clean Contact Surfaces between stop screw and armature or stroke limiting arm and yoke and between armature and pole faces if there is evidence of sticking.	C31.204	—	Yes	—	Yes
† 5. Check pivot screw adjustment. (See Note 1)	C31.205	—	Yes	—	Yes
6. Check air gap adjustment.	C31.205 C31.207 C31.208	—	Yes	—	Yes
7. Check for loose gongs and gong adjustment.	C31.205 C31.207 C31.208	Yes	Yes	Yes	Yes
8. Check position of cords and wiring to see that they do not interfere with ringer operation.	—	Yes	Yes	Yes	Yes
† 9. Check biasing spring for condition and type.	C31.205	—	Yes	—	Yes
10. (a) Set biasing spring position and make check for bell tapping... †(b) Make Test for cross ringing (See Note 2)	C31.205 C31.207 C31.208 C31.205	Yes	Yes	—	Yes
11. Make ringing test.	C31.204	Yes	Yes	Yes	Yes
†12. Make ringing and margin tests on dial conversion service order visits.	C31.204	Yes	Yes	—	—
13. Check ringing signal with subscriber to see that it is satisfactory, making any adjustments or changes required.	C31.205 C31.207 C31.208	Yes	Yes	—	Yes
†14. If armature stroke was adjusted repeat biasing spring adjustment (10) and ringing test (11).	C31.205	Yes	Yes	—	Yes

†Not required on B and C Type Ringers—Notes

NOTES:

- If necessary to place armature stop spring or adjust pivot screw, readjust air gaps.
- Including tests and adjustments to prevent bell tapping and cross-ringing and to provide margin against failure to ring, where specified in Section C31.205. Where these tests are not called for, the "final adjustment" described should guard against these troubles.
- Check extension ringers and ringers at extension stations the same as at main stations.
- When a low impedance ringer is added to or removed from a series bridge, check biasing spring adjustment of other ringers in the bridge.
- In certain dial offices where the tip party is wired alone, when the hand test set is bridged across the line to test or establish a call, the tip side of the line must be grounded to break dial tone.

4. RINGING TESTS

Dial Selective Ringing Test

4.01 Method of Obtaining Dial Selective Ringing Test: Dial ringer test code, in accordance with local practice. When second dial tone is heard, dial proper digit as indicated in table below. About one second after dialing is completed, replace receiver on switchhook. Intermittent ringing clear and steady should occur as in regular calls. To trip ring, remove receiver from switchhook. If this method is not provided obtain ring through test desk as in 4.04.

Digit to be Dialed	Individual or 2-Party Station	4-Party Semi-Selective Station	4-Party Full Selective Station
6	Individual or Ring Party	1—ring party on ring	— Party on ring
7	Tip Party	1—ring party on tip	— Party on tip
8		2—ring party on ring	+ Party on ring
9		2—ring party on tip	+ Party on tip

NOTE: If connection is held too long, test circuit will automatically disconnect line.

Dial Stations in No. 5 Crossbar Office

4.02 Ringing test procedure

- (a) Dial the local assigned test code, followed by the assigned number of the station under test.
- (b) A loud tone (high tone) is heard in the receiver when the line is connected to the ringer test circuit (see note 1).
- (c) After receiving tone, flash the switchhook once or dial any digit and hang up. The ringer at the station will start and continue to ring until the receiver is removed and the ring tripped.
- (d) To restart the ringing cycle after tripping the ring, refresh the switchhook or redial any digit and hang up. This may be repeated as many times as necessary (see note 2).
- (e) Upon completion of adjustments, release the test circuit by hanging up.

NOTES:

1. If the ringer test circuit is equipped with the tip party identification feature (optional), interrupted high tone is heard in the receiver at the tip party station correctly wired for tip party identification. Steady tone is heard at all other stations.

2. The test circuit will release automatically if held beyond a certain period.

3. No provision is made for testing for bell tapping except where incidental to the ringer test, as outlined. In addition no provision is made for testing the dial speed.

4. A busy tone indicates that all test circuits are in use.

Manual Stations

- 4.03 Request operator to ring. Ringing should be clear and steady.

Dial Stations in Line Switch Step-by-Step Areas Giving Message Rate Service

- 4.04 Obtain ring through test desk as follows: Dial test desk and request ring from secondary ringing circuit by way of test connection established through test connector. Replace receiver to obtain the ring. The ringing should be clear and steady. Notify the test desk on completion of work.

NOTE: Ringing from the test desk is not satisfactory for offices tested from a test desk in a distant building, unless the test trunks are arranged for remote control of ringing, nor for offices in the same building having a ringing voltage not provided at the test desk. In these cases, have test deskman dial station over a talking trunk.

Dial Stations in Community Dial Areas

- 4.05 (a) In areas without reverting call switches (except as in (b)), obtain a ring by dialing the number of the station under test, note busy tone and hang up. Intermittent ringing should occur as in regular calls. To stop ringing, remove receiver from switchhook.
- (b) In CX type areas with 8-party semiselective ringing, dial number in accordance with local practices, note busy tone and hang up. Ringing should be heard and may be stopped as in (a).
- (c) In areas with reverting call switches, dial number in accordance with local practices, note busy tone and hang up. Ringing should be heard and may be stopped as in (a).

PBX Extension

- 4.06 At PBX extension stations which may be arranged for night connections, test for ringing from central office with night connection as regularly set up, in addition to ringing test from PBX.

Ringing and Margin Tests for Manual Stations Being Prepared for Cut-Over to Dial

- 4.07 It is recommended that the procedures and requirements as determined by local instructions be followed at time of cut-over preparations.