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AMA ACCURACY AND ROUTE VERIFICATION TESTS
NO. 4A AND 4M TOLL SWITCHING SYSTEMS

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 1. GENERAL		
1.01 This is a new section covering AMA accuracy and route verification procedures for No. 4A and 4M Toll Switching Systems.		
1.02 The following abbreviations are used in this section:		
CO - Central Office		
CPB - Circuit Provision Bureau		

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(f) Place a route verification call to the new or changed codes as outlined in Part 11.

(g) Perform alternate route verification tests as outlined in Appendix 1 to BSP 660-450-301.

NOTE: When facilities are not available until the code opening date, perform these tests not later than 24 hours after the code opening date.

2.02 Notify the CPB when cross-connect orders and testing are completed.

2.03 When a new terminating code is opened, report the completion of the tests to EBAC by telephone and on Form D-526. This form shall list:

(a) The new code opened.

(b) The tests performed.

(c) The signature of the responsible first-level supervisor.

2.04 The EDP Center and EBAC group procedures for new code openings are outlined in S.I. 132.

3. ESTABLISHING ALL NEW CODES IN A NEW 4A TOLL SWITCHING OFFICE

3.01 WECO will complete wiring and cross-connects on common control equipment and perform standard HB 67 tests.

3.02 The interdepartmental procedures for translator card templates and cards are outlined in S.I. 132, Section 4.

3.03 The CO forces will make translator verification tests on each card translator. These tests are covered in BSP 212-120-502.

3.04 Verify the accuracy of the decoder cross-connects from the decoder-marker and trouble recorder circuit. The required tests are covered in BSP 212-115-501.

3.05 Perform marker verification tests from the decoder-marker and trouble recorder circuit. The required tests are covered in BSP 212-103-501. They will determine if each marker can receive information from the decoder and will select the proper trunk groups.

3.06 Verify the accuracy of the billing indexer cross-connects as outlined in BSP 212-745-501.

3.07 Verify transverter code compression cross-connects from the incoming sender and register test frame. Perform test (AD) in BSP 212-745-501.

3.08 Place a route verification call to all codes as outlined in Part 11 of this section.

3.09 Perform alternate route verification tests (See 2.01, item (g).)

3.10 Each originating office with access to the new No. 4 office shall perform route verification tests as covered in Part 12.

3.11 The EDP Center will verify correct the message billing index for all calls within rating runs. Error cards will be produced for any discrepancy and will be forwarded to the EBAC group.

3.12 EBAC will notify local Plant of "OK" or error information.

3.13 The CO forces will notify the Contact Engineer of "OK" or error information. The Contact Committee will have WECO correct any cross-connect or wiring errors and reschedule tests after the trouble is cleared.

4. ESTABLISHING NEW ORIGINATING CODES IN NEW AND EXISTING 4A AND 4M TOLL SWITCHING OFFICES

4.01 Complete all billing indexer cross-connects before starting office index tests. Verify the accuracy of the billing indexer cross-connects, using the automatic incoming sender and register test frame as outlined in BSP 212-745-501.

4.02 The No. 4 CAMA office will assign a telephone number for each originating office code. This is the number that will be passed to the CAMA operator for each test call.

4.03 The tens and units digits of each telephone number should be the same as the office index number. This will assist the EDP Center in locating the test calls on the tape.

4.04 The CO forces will place a call from the CAMA incoming trunk test circuit for each office index in the No. 4 CAMA office. Dial any local multi-message unit code, using a charge verification number. These calls will place detailed entries on the AMA tapes to verify each office index.

NOTE: Direct these calls to only one AMA recorder. This will assist the EDP Center since only one verbatim printout will have to be produced.

4.05 Cut only those tapes containing office index test calls and forward them to the EDP Center. Fill out Form E-4104, listing:

- (a) The date and time test calls were placed on the tape.
- (b) The recorder group and recorder number used.
- (c) The calling and called numbers used in placing the test calls.

4.06 The EDP Center will convert each AMA tape to magnetic tape. A verbatim printout will then be produced and forwarded to EBAC.

4.07 The EBAC group will analyze the verbatim printout and give the CO forces the results.

4.08 When WECO has placed the office index cross-connections, the CO forces will notify the T&A Committee of any errors. The Committee will then have WECO make the necessary corrections in wiring or cross-connects.

5. REARRANGING ORIGINATING CODES (OFFICE INDEXES) WITHIN OR TO ANOTHER RECORDER GROUP

5.01 When originating codes are rearranged within or to another recorder group, the billing indexer and office index tests shall be performed on each code moved. (See Part 4.)

6. CHANGING THE RATE STRUCTURE OF AN EXISTING 4A OR 4M TOLL SWITCHING OFFICE

6.01 Make required cross-connect changes in each billing indexer and test as outlined in BSP 212-745-501.

6.02 When transverter cross-connects are changed, test as outlined in BSP 212-735-501.

6.03 If trunk class translator cross-connects are changed, verify their accuracy with the trunk class verification tests as outlined in BSP 212-760-501.

NOTE: When scheduling the cross-connect work and tests outlined in the above paragraphs, consider traffic conditions. It will be necessary to keep part of the common equipment working the old way while changes are made.

6.04 Release CAMA equipment for service after all AMA accuracy tests in the No. 4 CAMA office have been verified.

6.05 The EDP Center will verify message billing index for all calls within rating runs. Error cards will be produced for any discrepancy and forwarded to the EBAC group.

6.06 The EBAC group will notify the No. 4 CAMA office of "OK" or error information.

6.07 When WECO has placed the cross-connects changing the rate structure, the CO will notify the Contact Engineer of "OK" or error information. The Contact Engineer will then have WECO correct any cross-connect or wiring errors and will schedule additional tests after errors are cleared.

7. INSTALLING NEW AMA RECORDERS AND PERFORATORS

7.01 The CO forces in the No. 4 CAMA office will arrange for all new AMA perforators to be sent to the Supply Department for dynamic checks. These checks are made before WECO performance tests, and include:

- (a) A complete lubrication of all required points.
- (b) Readjustment of all perforator magnets.
- (c) Readjustment of the paper advance magnet.
- (d) Readjustment of the stepper.

7.02 The CO forces will tag each perforator with Form P-2161SR (Red Ball tag), and write "Pre-installation - please test" under service instructions. Show the estimate or order number installing the new perforators and the appropriate work code.

NOTE: Paragraph 7.02 applies to areas using the Red Ball Plan. Areas that have not adopted this plan for AMA perforators will continue to use their local instructions.

7.03 WECO will prepare test tapes for each new AMA recorder with the following entries: (These tests are outlined in HB 67.)

- (a) All regular hours for a 24-hour period plus the 3 A.M. pattern.
- (b) Make-busy plug in - synchronous
- (c) Make-busy plug removed - synchronous

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- (d) Make-busy plug in - nonsynchronous
- (e) Make-busy plug removed - nonsynchronous
- (f) Make-busy plug in - nonsynchronous
- (g) Make-busy plug removed - synchronous
- (h) Transfer to emergency recorder - synchronous
- (i) Transfer from emergency recorder - synchronous
- (j) Transfer to emergency recorder - nonsynchronous
- (k) Transfer from emergency recorder - nonsynchronous
- (l) Transfer to emergency recorder - nonsynchronous
- (m) Transfer from emergency recorder - synchronous
- (n) Make-busy plug in - synchronous
- (o) Place recorder test pattern three times
- (p) Make-busy plug removed - synchronous
- (q) Window Splice
- (r) Irregular hour
- (s) Routine end of tape test

7.04 The T&A Committee will ask WECO to complete 7.03 (a) on a separate day's tape and 7.03 (b) through (s) on another day's tape, both without other entries.

7.05 The CO forces in each office shall:

- (a) Cut and mark the AMA test tapes.
- (b) Prepare Form E-4104, listing the exact sequence of test entries and any trouble conditions.
- (c) Send the AMA tapes and Form E-4104 to the EDP Center.

NOTE: Be sure transportation of the AMA tapes has been provided and that mailing tags are attached to each case.

7.06 The EDP Center will process the test tapes for each new recorder and forward the results on verbatim lists to the EBAC group.

7.07 The EBAC group will evaluate the information and notify the CO forces of "OK" or error conditions.

7.08 The CO forces will pass any trouble conditions to the T&A Committee. The Committee will have WECO make any corrections which are required to produce an accurate test tape for each new AMA recorder.

7.09 The T&A Committee will evaluate all corrections made by WECO and recommend additional tests if needed.

7.10 Make required tests to determine that each transverter can work with each new recorder. Perform test K, regular recorder test, as outlined in BSP 212-735-501.

7.11 Test the new recorder and its associated call identity indexer as outlined in BSPs:

212-740-501 Recorder and Recorder Connector

212-750-501 Call Identity Indexer

7.12 The CO forces will place a call-through test from each trunk associated with a new recorder to verify each "DJ" lead. (See BSP 212-760-501.) The calls will be placed from the CAMA incoming trunk test circuit in the normal test frame sequence:

Recorder	Tens & Units
00	00 01 02
	90 91 92

7.13 The CO forces should use a calling telephone number with the thousands and hundreds digits the same as the recorder number. The tens and units digits should be the same as the call identity indexer trunk number. These numbers will be passed to the CAMA operator and can be read from the test frame lamp display.

7.14 The CO forces will cut and mark the tapes for the call-through test and send them, with Form E-4104, to the EDP Center. Form E-4104 will list the:

- (a) Recorder group and recorder number used.
- (b) Date, start, and complete time of tests.
- (c) Sequence of trunks tested.

- 7.15 The EDP Center will process the test tapes and forward the results on verbatim printouts to the EBAC group.
- 7.16 The EBAC group will verify the verbatim printout and notify the CO forces of the results.
- 7.17 The CO forces will pass any errors to the T&A Committee, who will have WECO make any needed corrections and will schedule additional tests.

8. INSTALLING NEW COMMON CONTROL EQUIPMENT; E.G., DECODERS, CARD TRANSLATORS, MARKERS, SENDERS, TRANSVERTERS, AND BILLING INDEXERS

- 8.01 WECO will complete wiring and cross-connects on common control equipment and perform standard HB 67 tests.
- 8.02 The CO forces in the No. 4 CAMA office will use these BSPs, as applicable.

<u>BSP</u>	<u>Subject</u>
212-115-501	Decoder - Tests Using Decoder - Marker and Trouble Recorder Circuit
212-115-502	Decoder - Miscellaneous Tests
212-120-301	Translator Card Template - Preparation
212-120-501	Card Translator - Tests Using Card Translator Test Set (SD-68458-01)
212-120-502	Card Translator Tests Using Trouble Recorder Frame
212-103-501	Marker - Tests Using Decoder - Marker and Trouble Recorder Circuit
212-103-502	Marker - Miscellaneous Tests
212-2 Layer in the 212-000-000 Index	Senders
212-735-501	Transverter - Tests Using Automatic Incoming Sender and Register Test Frame
212-737-501	Transverter Connector
212-745-501	Billing Indexer
212-745-502	Billing Indexer - Miscellaneous Tests
212-720-501	Master Timing Circuit

- 8.03 The interdepartmental procedures for translator card templates and cards are outlined in S.I. 132, Section 4.
- 8.04 Perform a route and alternate route verification test whenever decoders, card translators (home and foreign area), or markers are installed. These tests are outlined in Parts 11 and 2.01, item (g).

- 8.05 When new billing indexers are installed, verify the associated office index cross-connects as outlined in 4.02 through 4.08.

- 8.06 If traffic conditions permit, perform route verification tests and office index tests.

- (a) All but the new decoder, card translator, or marker will be made busy during the route verification tests.
- (b) All but the new billing indexer will be made busy during the office index tests.

- 8.07 The CO forces will release common control equipment for service after all AMA accuracy tests in the No. 4 office have been verified correct.

- 8.08 The EDP Center will verify correct message billing index for all calls within rating runs. Error cards will be produced for any discrepancy and forwarded to the EBAC group.

- 8.09 EBAC will notify the CO forces of "OK" or error information.

- 8.10 The CO forces will notify the Contact Engineer of "OK" or error information. The Contact Committee will have WECO correct any cross-connect or wiring errors and reschedule tests after the trouble is cleared.

9. INSTALLING INCOMING CAMA TRUNKS AND OUTGOING TRUNKS TO NEW AND EXISTING RECORDER GROUPS

- 9.01 Complete incoming CAMA trunk and trunk class translator cross-connects. Verify the accuracy of the cross-connects from the automatic incoming trunk test frame as outlined in BSP 212-760-501.

- 9.02 Verify the integrity of the "DJ" lead on each incoming CAMA trunk installed. Use the procedures outlined in 7.12 through 7.17 of this section.

- 9.03 Complete toll connecting cross-connects to distant office, trunk block connector, and trunk test connector. Verify the accuracy of the cross-connects from the automatic outgoing toll connecting test frame. Use standard BSP tests.

- 9.04 Complete intertoll trunk cross-connects on trunk test connector. Test incoming portion of the two-way and the one-way intertoll trunks with the wagon-type test set at the trunk relay equipment. Use standard BSP tests.

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9.05 Perform alternate route verification tests on new trunks as applicable.
(See 2.01, item (g))

10. Q-Z PROCEDURES

10.01 Complete all billing indexer cross-connects to establish the Q-Z code before starting AMA accuracy tests.

10.02 Verify the accuracy of the billing indexer cross-connects, using the automatic incoming sender and register test frame as outlined in BSP 212-745-501.

10.03 Place a call-through test from the CAMA incoming trunk test circuit for each Q-Z code placed in the No. 4 CAMA office. Dial a charge verification test number that will place a detailed entry on the AMA tape to verify the office index for each Q-Z code.

NOTE: The calls placed in 10.03 should be directed to only one AMA recorder. This will assist the EDP Center since only one verbatim printout will have to be produced.

10.04 These calling telephone numbers are reserved for Plant testing and are to be passed to the CAMA operator on Q-Z test calls:

XQX - 9999

XZX - 9999

10.05 The CO forces will cut the tapes containing office index test calls and send them to the EDP Center. Form E-4104 should be filled out, listing:

- (a) The date and time test calls were placed on the tape.
- (b) The recorder group and recorder number used.
- (c) The calling and called numbers used in placing the test calls.

10.06 The EDP Center will convert the AMA tapes to separate magnetic tapes. A verbatim printout will be produced after the conversion and sent to EBAC.

10.07 The EBAC Group will analyze the verbatim printout and notify the CO force of the results.

NOTE: Reschedule the office index tests in 10.03 through 10.07 if any errors were encountered.

11. ROUTE VERIFICATION TESTS FROM A 4A OR 4M TOLL SWITCHING OFFICE

11.01 Place a route verification call to all working local and NPA codes from the 4A or 4M office. A call shall also be placed to each code requiring 6-digit translation.

- (a) Place the calls from the CAMA incoming trunk test circuit from all customer classes of service.
- (b) Use the Chief Equipmentman's outgoing line for placing operation class calls.
- (c) Use standard route verification test numbers. Hold the calls only long enough to recognize the correct office tone for each terminating code.

NOTE: The General Plant staff in each Area will assist the 4A or 4M office in obtaining route verification numbers.

11.02 Coordinate route verification tests with switchboard-to-switchboard tests, when necessary, to avoid additional traffic releases of toll facilities.

11.03 If unable to complete a call on the first or second attempt, make a note of the trouble and proceed with the tests. Refer the trouble for clearance to the offices involved. When cleared, reschedule a route verification call.

12. ROUTE VERIFICATION TESTS FROM OFFICES WITH ACCESS TO 4A OR 4M TOLL SWITCHING OFFICE

Panel and Crossbar Offices

12.01 The day before cutover (as early as load conditions permit), the originating offices shall prepare for trunk group cutover to the toll switching office by:

- (a) Progressively removing markers and/or decoders from service, leaving one in each group.
- (b) Testing the markers and decoders, using the marker or decoder test frame.
- (c) Leaving the removed markers and decoders on make-busy.

12.02 The day of cutover, the originating office shall:

- (a) Release all the markers and/or decoders removed from service.

- (b) Make busy those markers and/or decoders which were not removed from service.
- (c) Complete route verification tests, using the released markers and decoders.
- (d) Complete trunk group changes, and test remaining markers and/or decoders.

Step-By-Step Offices

12.03 Before starting route verification tests, the originating offices will establish circuits to the new No. 4 office.

All Offices

12.04 When placing route verification calls:

- (a) Consider carefully the originating office trunking plan in order to eliminate unnecessary calls.
- (b) Place calls only to those codes which route to the new No. 4 office because of class of service or trunk group.
- (c) Use a regular CO telephone in the originating office to place the calls.
- (d) Place a call to all working local and NPA codes in each originating office.
- (e) Use standard route verification test numbers.
- (f) Hold the calls only long enough to recognize the correct office tones for each terminating code.