

COIN SUPERVISORY CIRCUIT  
TESTS USING CMC 734  
TEST SET  
NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes various methods of testing the coin supervisory circuit in No. 1 crossbar offices using the CMC 734 test set.

1.02 Tests covered are:

- A. **Coin Collection During Conversation** — Checks that the coin is collected while a subscriber is connected.
- B. **Coin Collection After Disconnection** — Checks that the coin is collected and properly disposed of after a subscriber has disconnected.
- C. **Coin Return After Disconnection** — Checks that the coin is returned and properly disposed of after a subscriber has disconnected.
- D. **Stuck Coin Collect** — Checks the ability of the coin supervisory circuit to recognize a failure to remove coin ground when a coin is collected after a subscriber has disconnected.
- E. **Stuck Coin Return** — Checks the ability of the coin supervisory circuit to recognize a failure to remove coin ground when a coin is returned after a subscriber has disconnected.
- F. **Check Overtime With Coin Present** — Checks the ability of the coin supervisory circuit to test for the presence of a coin ground.
- G. **Operate Test of LT Relay** — Places an operate test on the LT relay.

H. **Failure on Initial Test For Overtime Coin Deposit** — Checks the ability of the coin supervisory circuit to recognize that an overtime deposit has not been made, connect to an overtime monitor who requests a deposit and finally to release when the deposit has been made.

I. **Subscriber Deposits Coin But Disconnects After Overtime Test Failure** — Checks the ability of the coin supervisory circuit to recognize that an overtime deposit has not been made, connect to an overtime monitor who requests a deposit and finally after the deposit has been made to return the coin when the repeat test for the overtime coin indicates that the subscriber has disconnected.

J. **Coin Collect With No Coin Present** — Checks the ability of the coin supervisory circuit to cancel the coin present test.

K. **Check Time Alarm** — Checks the ability of the coin supervisory circuit to hold to a grounded "DC" lead and to cause the timing circuit to function and bring in audible and visual alarms.

L. **Check Automatic Release** — Checks the ability of the coin supervisory release circuit to automatically release an overtime check failure or a recycled failure.

1.03 Before starting any tests, it should be ascertained that the circuit required to be tested is not made busy.

1.04 An operator or assistant at the switchboard is required when performing test I. This is also a requirement for test H when machine an-

**SECTION 216-233-900PT**

nouncement is not provided and for test E and F when sender monitor option is provided.

1.05 The action of the modified link and controller circuit in establishing crosspoint closure should be made using test A where the verification due to the action of operating the ST key is given in greater detail than other tests.

1.06 Tests A through K may be made under most traffic conditions. Test L should be made only under light traffic conditions.

1.07 **Lettered Steps** — The letters a, b, c, etc., are added to a step number to indicate that the steps cover an action which may or may not be required, depending on local conditions. The conditions under which a lettered step or series of steps should be made are given in the action column, and all steps governed by the same condition are designated by the same letter. Where a condition does not apply, the associated steps should be omitted.

**2. TEST SET ARRANGEMENT**

**2.01 Keys**

DESIGNATION	FUNCTION
ANS/LTO	ANS position — Connects the TEL jacks to simulate the called station. Normal position — Connects the TEL jacks to simulate the calling station. LTO position — Makes an operate test of the LT relay.
CR/CC	CR position — Indicates to the coin supervisory circuit that coin return is required. CC position — Indicates that coin collect is required. Normal position — Indicates that overtime check is required of the coin supervisory circuit.
SD/TA	SD — Simulates a condition of subscriber disconnect. TA — Simulates a condition of false ground on the "DC" lead which causes the coin super-

visory circuit to actuate a time alarm circuit.

STK CN/NC STK CN — Simulates a stuck coin condition.  
NC — Simulates a condition of no coin deposited.  
Normal position — Indicates that a coin is present.

RL/ST RL — Releases the test circuit.  
ST — Starts the test of a coin supervisory circuit.

PT/PTR PT — Causes the test set to test for the false application of coin potential on the ring side of the line when coin supervisory circuits are arranged to collect or return on the tip side only.  
PTR — Cancels the test for the application of coin potential on the ring side of the line in offices which are arranged to apply coin potential to both sides of the line.

**2.02 Lamps**

DESIGNATION	FUNCTION
BY	Indicates the link and controller frame primary switch test level (when shared by a district junction) is busy on a service call. When testing coin supervisory circuits, it indicates the crosspoint sleeve closure.
CC	Indicates application of coin collect potential.
CND	Indicates proper coin disposal (ie, removal of coin ground).
CR	Indicates application of coin return potential.
RL	Indicates the operation of the RL relay in the coin supervisory circuit.
ST	After the ST key is operated momentarily, indicates the inter-

val taken by the link and controller circuit to close the cross-points between the CMC 734 test set and the coin supervisory circuit. The normal indication is momentary lighting of about one second duration. If the ST lamp remains lighted when progress lamps light, it indicates test circuit time out and a probable connection to other than the required circuit.

+48V

Indicates by means of a steady lamp that positive 48 volt potential has been applied to the ring and ground to the tip side of the line for at least 600 milliseconds prior to the application of coin potential or prior to making a test for the overtime deposit, if this option is provided in the coin supervisory circuit. (This is referred to in the verification column as the "+48 volt - 600 millisecond feature".) To indicate by means of a flashing lamp that coin potential has been applied to ring side of the line falsely if the option used in the coin supervisory circuit provides for coin potential application to the tip side of the line only.

2.03 Selector Switches

DESIGNATION	FUNCTION
GRP SEL	Selects the coin supervisory group in which the desired coin supervisory circuit appears.
CS SEL	Selects coin supervisory to be tested.

2.04 Jacks

DESIGNATION	FUNCTION
TEL	Telephone headset

3. APPARATUS

- 3.01 CMC 734 Coin Supervisory Circuit Test Set.
- 3.02 CST Test Cord (furnished with test set).
- 3.03 52A, or equivalent, telephone headset.
- 3.04 One 1W13B cord - Two 419A tools.

4. PREPARATION

STEP	ACTION	VERIFICATION
1	CONNECT THE OPERATOR'S TELEPHONE SET TO THE TEL JACKS OF THE CMC 734 TEST SET.	IF THE BY LAMP LIGHTS (DUE TO THE LINK AND CONTROLLER FRAME PRIMARY SWITCH TEST LEVER SHARED BY A DISTRICT JUNCTOR BEING BUSY ON A SERVICE CALL), WAIT UNTIL BY LAMP EXTINGUISHES BEFORE CONTINUING TESTING.
2	CONNECT THE CMC 734 TEST SET TO THE AMPHENOL SOCKET AT DESIRED LOCATION USING THE ASSOCIATED PATCH CORD.	

SECTION 216-233-900PT

STEP	ACTION	VERIFICATION
3	<p>SET THE GRP SELECT SWITCH TO THE COIN SUPERVISORY SELECT GROUP DESIRED.</p> <p><i>NOTE:</i> IF THE SELECT GROUP REQUIRED IS COMMON TO BOTH THE A AND B CONTROLLERS, SET THE ROTARY SWITCH SO THAT ONE OF THE BG 0-3 POSITIONS AGREES WITH THE GROUP LOCATIONS ON THE SECONDARY SWITCHES OF THE B CONTROLLER.</p>	
4	SET THE CS SELECT SWITCH TO THE COIN SUPERVISORY CIRCUIT DESIRED.	
5a	IF THE COIN SUPERVISORY CIRCUITS ARE ARRANGED TO APPLY COIN POTENTIAL TO THE TIP AND RING SIDES OF THE LINE, OPERATE PTR KEY.	SEE PURPOSE OF PTR KEY IN PART 2.
6b	IF THE COIN SUPERVISORY CIRCUITS ARE ARRANGED TO APPLY COIN POTENTIAL TO THE TIP SIDE OF THE LINE ONLY, OPERATE PT KEY.	SEE PURPOSE OF PT KEY AND +48V LAMP IN PART 2.

5. METHOD

STEP	ACTION	VERIFICATION
	<b>A. COIN COLLECTION DURING CONVERSATION</b>	
7	OPERATE CC KEY.	
8	OPERATE ST KEY MOMENTARILY.	<p>ST LAMP LIGHTS MOMENTARILY.</p> <p>IN THE LINK AND CONTROLLER CIRCUIT, RELAYS TG, TG1, PFA, TB, AND PFB OPERATE.</p> <p>ALL GB – RELAYS OPERATE IN A AND B CONTROLLERS EXCEPT FOR DESIRED GROUP CONTROLLER CIRCUIT CLOSES CROSSPOINT TO THE DESIRED COIN SUPERVISORY CIRCUIT.</p> <p>RELAYS TG, TG1, PFA, TB, AND PFB RELEASE.</p> <p>IN THE CMC 734 TEST SET, BY LAMP LIGHTS.</p> <p>+48V LAMP LIGHTS (IF THE +48 VOLT, 600 MILLISECOND FEATURE IS PROVIDED).</p> <p>CC LAMP LIGHTS MOMENTARILY AND LOW TONE IS HEARD.</p>

STEP	ACTION	VERIFICATION
8 (Cont'd)		CND LAMP LIGHTS. RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
9	OPERATE RL KEY MOMENTARILY.	ALL LAMPS EXTINGUISHED.
10	RESTORE ALL KEYS.	
	<b>B. COIN COLLECTION AFTER DISCONNECTION</b>	
7	OPERATE CC KEY.	
8	OPERATE SD KEY.	
9	OPERATE ST KEY.	ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. +48V LAMP LIGHTS (IF THE +48 VOLT, 600 MILLISECOND FEATURE IS PROVIDED).
10	OPERATE RL KEY MOMENTARILY.	CC LAMP LIGHTS MOMENTARILY. CND LAMP LIGHTS. RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
11	RESTORE ALL KEYS.	ALL LAMPS EXTINGUISHED.
	<b>C. COIN RETURN AFTER DISCONNECTION</b>	
7	OPERATE CR KEY.	
8	OPERATE SD KEY.	
9	OPERATE ST KEY MOMENTARILY.	ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. +48V LAMP LIGHTS (IF THE +48 VOLT, 600 MILLISECOND FEATURE IS PROVIDED).
10	OPERATE RL KEY MOMENTARILY.	CR LAMP LIGHTS MOMENTARILY. CND LAMP LIGHTS. RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
11	RESTORE ALL KEYS.	ALL LAMPS EXTINGUISHED.
	<b>D. STUCK COIN COLLECT</b>	
7	OPERATE CC KEY.	
8	OPERATE STK CN KEY.	
9	OPERATE ST KEY MOMENTARILY.	ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. CC LAMP LIGHTS MOMENTARILY. +48V LAMP LIGHTS.

SECTION 216-233-900PT

STEP	ACTION	VERIFICATION
9 (Cont'd)		<p>IF RECYCLE OPTION IS PROVIDED, CC LAMP LIGHTS MOMENTARILY AGAIN.</p> <p>IF AUTOMATIC NUMBER IDENTIFICATION OPTION IS PROVIDED AND STUCK COIN IS NOT CANCELED, A TROUBLE TICKETER RECORD (AND TELETYPE IF PROVIDED) IS PRINTED WITH A PREASSIGNED TEST NUMBER.</p> <p>COIN SUPERVISORY CIRCUIT IS AUTOMATICALLY PRIMED.</p> <p>CC LAMP LIGHTS MOMENTARILY. RL LAMP LIGHTS. BY LAMP EXTINGUISHED.</p> <p>IF AUTOMATIC NUMBER IDENTIFICATION OPTION IS PROVIDED AND STUCK COIN IS CANCELED, RL LAMP LIGHTS. BY LAMP EXTINGUISHED.</p> <p>IF SENDER MONITOR OPTION IS PROVIDED, FLASHING STUCK COIN LAMP AT SENDER MONITOR POSITION.</p>
10c	IF SENDER MONITOR OPTION IS PROVIDED, THE OPERATOR WILL PLUG INTO ANS JACK AT SENDER MONITOR POSITION.	FLASHING LAMP AT SENDER MONITOR POSITION EXTINGUISHED.
11c	ASK OPERATOR TO COLLECT.	CC LAMP LIGHTS MOMENTARILY.
12c	HAVE OPERATOR REMOVE CORD FROM ANSWERING JACK AND PLUG INTO RLS JACK MOMENTARILY.	CC LAMP LIGHTS MOMENTARILY. RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
13	OPERATE RL KEY MOMENTARILY.	ALL LAMPS EXTINGUISHED.
14	RESTORE ALL KEYS.	
<b>E. STUCK COIN RETURN</b>		
7	OPERATE CR KEY.	
8	OPERATE STK CN KEY.	
9	OPERATE ST KEY MOMENTARILY.	<p>ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. CR LAMP LIGHTS MOMENTARILY. +48V LAMP LIGHTS (IF THE +48 VOLT, 600 MILLISECOND FEATURE IS PROVIDED).</p> <p>IF RECYCLE OPTION IS PROVIDED, CR LAMP LIGHTS MOMENTARILY AGAIN.</p> <p>IF AUTOMATIC NUMBER IDENTIFICATION OPTION IS PROVIDED AND STUCK COIN IS NOT CANCELED, A TROUBLE TICKETER</p>

STEP	ACTION	VERIFICATION
9 (Cont'd)		<p>RECORD (AND TELETYPE IF PROVIDED) IS PRINTED WITH A PREASSIGNED TEST NUMBER.</p> <p>COIN SUPERVISORY CIRCUIT IS AUTOMATICALLY PRIMED.</p> <p>CR LAMP LIGHTS MOMENTARILY. RL LAMP LIGHTS. BY LAMP EXTINGUISHED.</p> <p>IF AUTOMATIC NUMBER IDENTIFICATION OPTION IS PROVIDED AND STUCK COIN IS CANCELED, RL LAMP LIGHTS. BY LAMP EXTINGUISHED.</p> <p>IF SENDER MONITOR OPTION IS PROVIDED, STEADY STUCK COIN LAMP AT SENDER MONITOR POSITION.</p>
10c	IF SENDER MONITOR OPTION IS PROVIDED, OPERATOR WILL PLUG INTO ANS JACK AT POSITION.	STUCK COIN LAMP EXTINGUISHED.
11c	ASK OPERATOR TO RETURN.	CR LAMP LIGHTS MOMENTARILY.
12c	HAVE OPERATOR REMOVE CORD FROM ANSWERING JACK AND PLUG INTO RLS JACK MOMENTARILY.	<p>CR LAMP LIGHTS MOMENTARILY. RL LAMP LIGHTS. BY LAMP EXTINGUISHED.</p>
13	OPERATE RL KEY MOMENTARILY.	ALL LAMPS EXTINGUISHED.
14	RESTORE ALL KEYS.	
	<b>F. CHECK OVERTIME WITH COIN PRESENT</b>	
7	OPERATE ST KEY MOMENTARILY.	<p>ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. +48V LAMP LIGHTS (IF THE +48 VOLT, 600 MILLISECOND FEATURE IS PROVIDED).</p>
8	OPERATE RL KEY MOMENTARILY.	<p>RL LAMP LIGHTS. BY LAMP EXTINGUISHED.</p> <p>ALL LAMPS EXTINGUISHED.</p>
	<b>G. OPERATE TEST OF LT RELAY</b>	
7	OPERATE LTO KEY.	
8	OPERATE ST KEY MOMENTARILY.	<p>ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. +48V LAMP LIGHTS (IF THE +48 VOLT, 600 MILLISECOND FEATURE IS PROVIDED).</p>
		<p>RL LAMP LIGHTS. BY LAMP EXTINGUISHED.</p>

SECTION 216-233-900PT

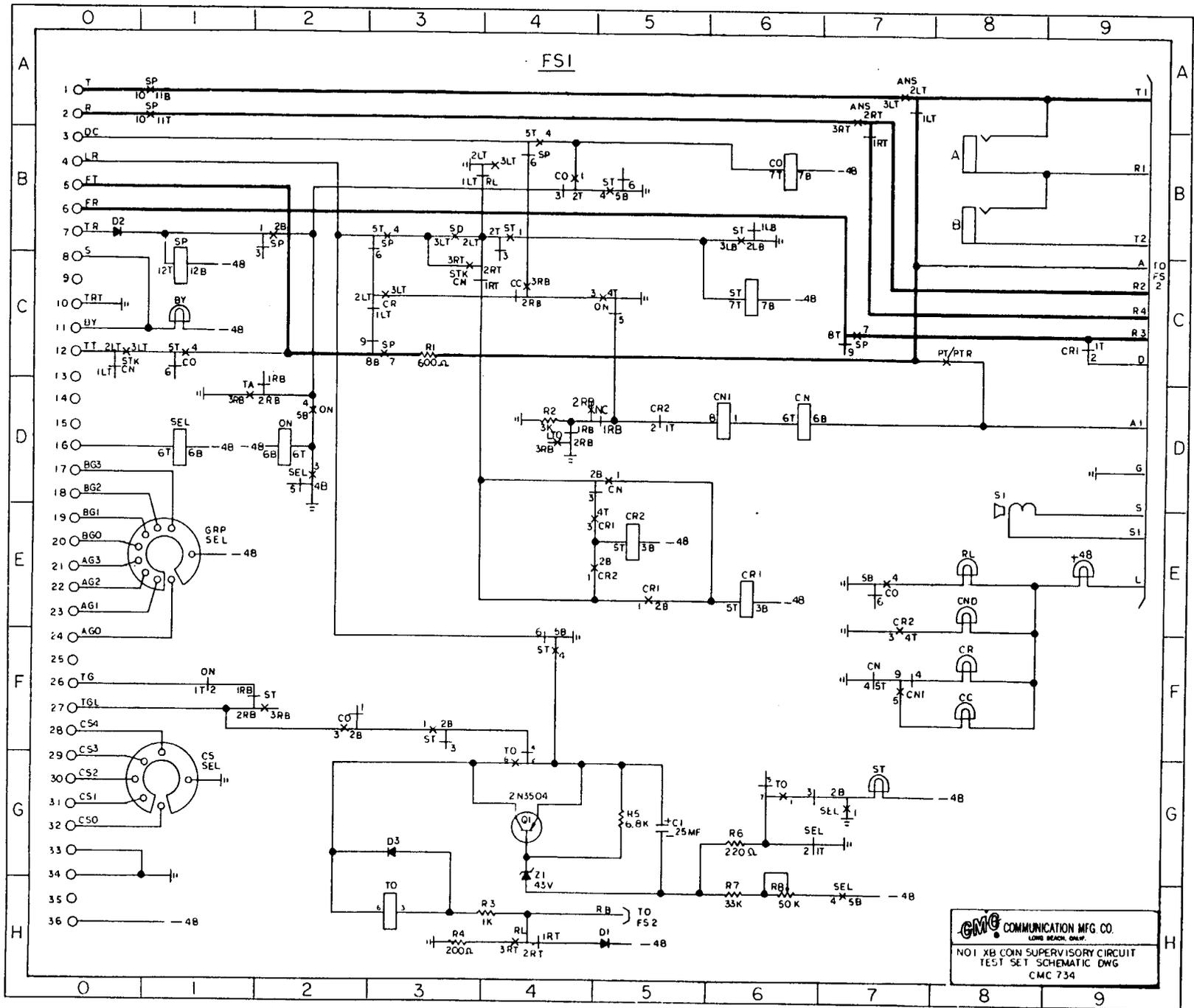
STEP	ACTION	VERIFICATION
9	OPERATE RL KEY MOMENTARILY.	ALL LAMPS EXTINGUISHED.
10	RESTORE ALL KEYS.	
<b>H. FAILURE ON INITIAL TEST FOR OVERTIME COIN DEPOSIT</b>		
7	OPERATE NC KEY.	
8	OPERATE ST KEY MOMENTARILY.	ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. +48V LAMP LIGHTS.
<p><i>NOTE: IF THE ST LAMP REMAINS LIT WHEN PROGRESS LAMPS LIGHT, OPERATE THE RL KEY TO RESTORE THE ATTACHED COIN SUPERVISORY CIRCUIT. REOPERATE RL KEY TO RESTORE THE TEST CIRCUIT.</i></p>		
9d	IF OVERTIME OPERATOR OPTION IS USED TO MONITOR INITIAL OVERTIME, OPERATOR CHALLENGES ON ANSWERING JACK AND REQUESTS INITIAL DEPOSIT.	IF OVERTIME OPERATOR OPTION IS USED TO MONITOR INITIAL OVERTIME, STEADY OVERTIME LAMP AT POSITION.
10d	RESTORE ANS KEY AND REQUEST OPERATOR TO REMOVE CORD FROM ANS JACK.	LAMP EXTINGUISHED AT POSITION.
10d	RESTORE ANS KEY AND REQUEST OPERATOR TO REMOVE CORD FROM ANS JACK.	RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
11e	IF MACHINE ANNOUNCEMENT OPTION IS PROVIDED FOR INITIAL OVERTIME MONITORING, AFTER ANNOUNCEMENT MACHINE REQUEST OVERTIME DEPOSIT, RESTORE NC KEY.	AFTER A BRIEF INTERVAL WHEN THE ANNOUNCEMENT PERIODS ENDS, RL LAMP LIGHTS.
<p>BY LAMP EXTINGUISHED.</p>		
12	OPERATE RL KEY MOMENTARILY.	ALL LAMPS EXTINGUISHED.
13	RESTORE ALL KEYS.	
<b>I. SUBSCRIBER DEPOSITS COIN BUT DISCONNECTS AFTER OVERTIME TEST FAILURE</b>		
7	OPERATE NC KEY.	
8	OPERATE ST KEY MOMENTARILY.	ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. +48V LAMP LIGHTS.
<p><i>NOTE: IF THE ST LAMP REMAINS LIT WHEN PROGRESS LAMPS LIGHT, OPERATE THE RL KEY TO RESTORE THE ATTACHED COIN SUPERVISORY CIRCUIT. REOPERATE RL KEY TO RESTORE THE TEST CIRCUIT.</i></p>		

STEP	ACTION	VERIFICATION
8 (Cont'd)		<p>IF OVERTIME OPERATOR OPTION IS USED TO MONITOR INITIAL OVERTIME, STEADY OVERTIME LAMP AT POSITION.</p> <p>IF MACHINE ANNOUNCEMENT OPTION IS PROVIDED FOR INITIAL OVERTIME MONITORING, ANNOUNCEMENT MACHINE REQUESTS DEPOSIT. AFTER A BRIEF INTERVAL, FLASHING LAMP AT POSITION.</p>
9d	IF OVERTIME OPERATOR OPTION IS USED TO MONITOR INITIAL OVERTIME, OPERATOR PLUGS INTO OVERTIME ANSWERING JACK AND REQUESTS DEPOSIT.	
10	REQUEST OPERATOR TO TALK OVER SPLITTING JACK.	SIMULATE CONVERSATION; OPERATOR TO CALLING SUBSCRIBER.
11	OPERATE ANS KEY.  REQUEST OPERATOR TO TALK OVER ANSWERING JACK AGAIN.	SIMULATE CONVERSATION; OPERATOR TO CALLED SUBSCRIBER.
12	RESTORE ANS AND NC KEYS. OPERATE SD KEY, REQUEST OPERATOR TO REMOVE CORDS.	CR LAMP LIGHTS MOMENTARILY. CND LAMP LIGHTS. RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
13	OPERATE RL KEY.	ALL LAMPS EXTINGUISHED.
14	RESTORE ALL KEYS.	
	J. COIN COLLECT WITH NO COIN PRESENT	
7	OPERATE CC KEY.	
8	OPERATE NC KEY.	
9	OPERATE ST KEY MOMENTARILY.	ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. +48V LAMP LIGHTS.
		IF CANCEL COIN PRESENT OPTION IS PROVIDED, RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
		IF COIN PRESENT TEST IS PROVIDED (ANI MONITORING AND CANCEL STUCK COIN REQUIRED), TICKET IS PRINTED AT THE TROUBLE TICKETER FRAME WITH A PRE-ASSIGNED TEST NUMBER AND A TELETYPE PRINTOUT IS MADE IN THE REPAIR SERVICE BUREAU.

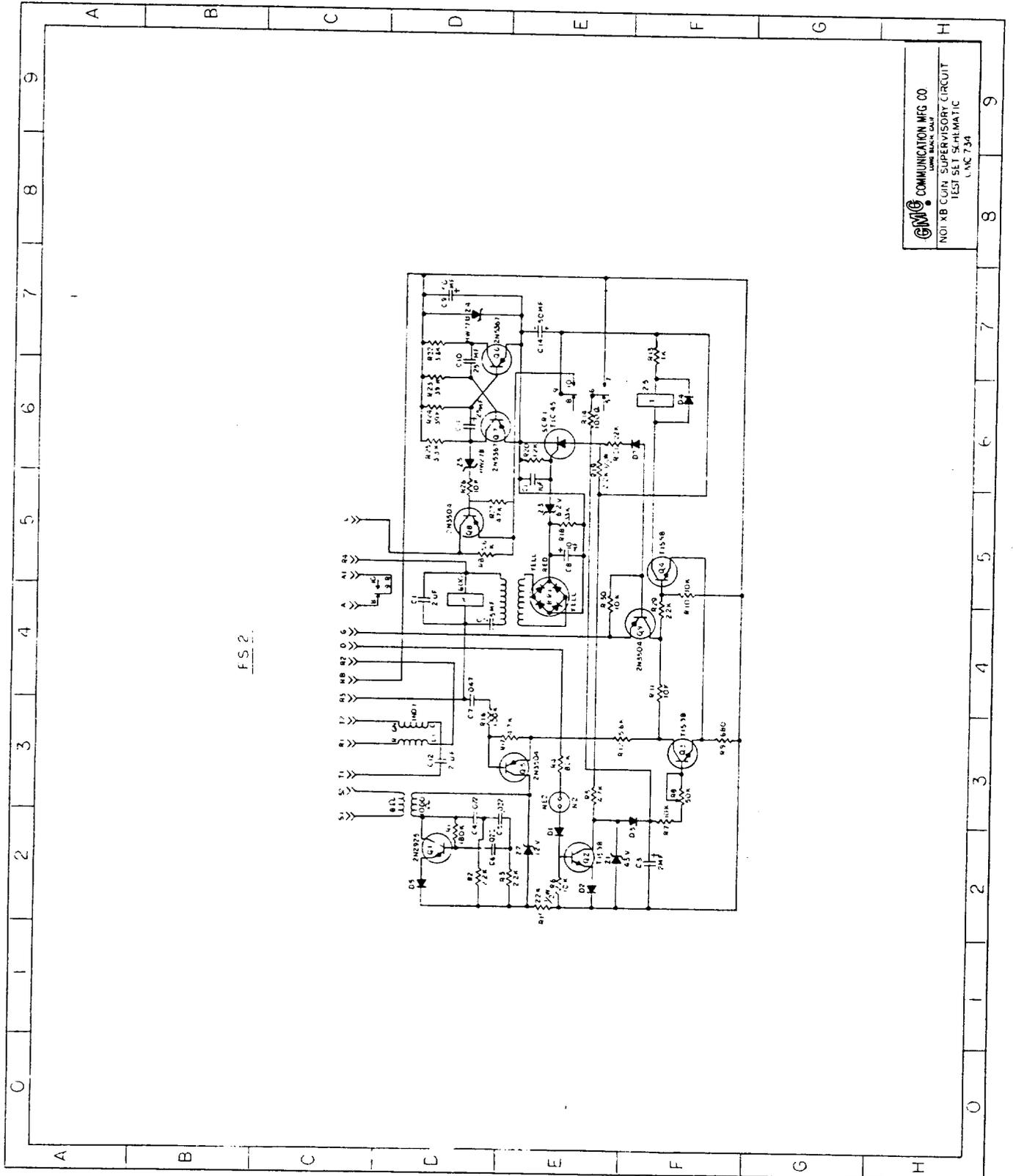
SECTION 216-233-900PT

STEP	ACTION	VERIFICATION
9 (Cont'd)		COIN SUPERVISORY CIRCUIT IS AUTOMATICALLY PRIMED, RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
10	OPERATE RL KEY.	ALL LAMPS EXTINGUISHED.
11	RESTORE ALL KEYS.	
	<b>K. CHECK TIME ALARM</b>	
7	OPERATE TA KEY.	
8	OPERATE CC KEY.	
9	OPERATE ST KEY MOMENTARILY.	ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. CC LAMP LIGHTS MOMENTARILY. +48V LAMP LIGHTS (IF THE +48 VOLT, 600 MILLISECOND FEATURE IS PROVIDED). CND LAMP LIGHTS. RL LAMP LIGHTS.  AFTER 45 SECONDS, MAXIMUM, FRAME AL LAMP LIGHTS. AISLE PILOT LIGHTS. AUDIBLE ALARM.
10	RESTORE TA KEY.	VISUAL AND AUDIBLE ALARM RETIRED. BY LAMP EXTINGUISHED.
11	OPERATE RL KEY MOMENTARILY.	ALL LAMPS EXTINGUISHED.
12	RESTORE ALL KEYS.	
	<b>L. CHECK AUTOMATIC RELEASE</b>	
7	AT LINK AND CONTROLLER CIRCUIT, CONNECT CONTACT 12 TO 12B, TG RELAY.	
8	OPERATE NC KEY.	
9	OPERATE ST KEY MOMENTARILY.	ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. +48V LAMP LIGHTS. RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
10	OPERATE RL KEY MOMENTARILY.	ALL LAMPS EXTINGUISHED.
11	RESTORE NC KEY.	
12f	IF RECYCLE OPTION IS PROVIDED, OPERATE CR KEY.	
13f	OPERATE STK CN KEY.	

STEP	ACTION	VERIFICATION
14f	OPERATE ST KEY MOMENTARILY.	ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. CR LAMP LIGHTS MOMENTARILY (TWICE). RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
15g	IF RECYCLE COIN BEAT OPTION IS PROVIDED, OPERATE CC KEY.	
16g	OPERATE NC KEY.	
17g	OPERATE ST KEY MOMENTARILY.	ST LAMP LIGHTS MOMENTARILY. BY LAMP LIGHTS. RL LAMP LIGHTS. BY LAMP EXTINGUISHED.
18	OPERATE RL KEY MOMENTARILY.	ALL LAMPS EXTINGUISHED.
19	RESTORE ALL KEYS.	
20	AT LINK AND CONTROLLER CIRCUIT, REMOVE CONNECTION FROM 12 TO 12B TG RELAY.	



**GMC** COMMUNICATION MFG CO.  
 LONG BEACH, CALIF.  
 NOT XB COIN SUPERVISORY CIRCUIT  
 TEST SET SCHEMATIC DWG  
 CMC 734



FS 2

 COMMUNICATION MFG CO  
 1001 XB CUMMINS SUPERVISORY CIRCUIT  
 TEST SET SCHEMATIC  
 LMC 7-34

