

13

CROSSBAR SYSTEMS
NO. 3
OUTGOING INTERCEPT TRUNK
CIRCUIT
PLUG-ENDED

CHANGES

B. Changes in Apparatus

B.1	<u>Superseded</u>	<u>Superseded By</u>
	M - 18BH Resistor - App Fig. 3, Option Z	M - 533A Diode - App Fig. 3, Option Y

formerly was not designated and is rated Mfr Disc. Circuit Note 104 and CAD 1 have been revised to reflect this change.

D.2 The FS1 and CAD 3 reference to "Transmission and Signaling Facilities with Type I Interface" is added.

D. Description of Changes

D.1 The FS1 has been revised to show the addition of Y option. Option Z

F. Changes in CD SECTION II

F.1 In 15.10, change the reference to "The M lamp and resistor" to read: "The M lamp and diode".

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 5245-GFC

WE DEPT 25820-JRF-GWC-BT

CROSSBAR SYSTEMS
NO. 3
OUTGOING INTERCEPT TRUNK
CIRCUIT
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CHANGES

B. Changes in Apparatus

<u>B.1</u>	<u>Removed</u>	<u>Replaced By</u>
	437A Capacitor - PG 12-15 μ F	574A Capacitor - 535GL Capacitor PG 12.542 μ F - 12.998
	18 FH Resistor - PG2	18 FN Resistor - PG2

D. Description of Circuit Changes

- D.1 Contact 11(CT) changed to 9(CT) relay to provide an EMB contact to prevent buzzing.
- D.2 Contact 10(OA) changed to 6(OA) relay to provide an EMB contact to prevent buzzing.
- D.3 The PG capacitor and PG2 resistor changed to enable tuning of the pulse generator for the proper number of pulses-per-second (pps) and the correct percent break (PCB).

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DEPT 5245-LCB

WE DEPT 355-AJE-KLF-MH

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SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 This circuit provides trunk type supervision and transmission between a customer and a local announcement machine, and/or a distant announcement machine, and/or a distant universal intercept operator, and/or a regular intercept operator plus a trouble intercept operator. Both reverse high-low and E and M lead supervision are provided for communication with the distant announcement machine, and/or operator, and/or operators.

1.02 If a local announcement machine is used, a transfer feature to an assistance operator is provided.

2. GENERAL DESCRIPTION OF OPERATION

2.01 This circuit, reached through levels 8A or 8B of the trunk switch circuit, provides a very flexible arrangement for handling the various types of intercept calls. The following table indicates the various possible arrangements.

Intercept Call			Routed To				
BN	RI	TI	Local Ann Mach	Dist Ann Mach	Univ Oper	RI Oper	TI Oper
X	X	X	X				
X	X	X		X			
X	X	X			X		
X	X	X	X		X		
X	X	X		X	X		
X	X	X	X			X	X
X	X	X		X		X	X

BN = Blank Number
 RI = Regular Intercept
 TI = Trouble Intercept

2.02 If a local announcement machine is used, arrangements are provided for cut-through coordinated with the start of an announcement cycle, and to automatically transfer a holding customer to an assistance operator after either one or two announcement cycles.

2.03 Both reverse high-low and E and M lead supervision are provided for communication with the distant office.

2.04 This circuit can also be used for other types of intercept calls for which no charge is to be made to the calling customer.

SECTION II - DETAILED DESCRIPTION

1. SEIZURE

1.01 Blank number, regular intercept, and trouble intercept calls are handled by the marker as if being completed to a

local customer. The marker applies ground to the S and N leads, operating the SL1 and N relays, respectively, in accordance with the following table. The marker then proceeds to set up the associated intraoffice or incoming trunk to apply ringing to the R or T lead of this intercept trunk as indicated in the following table, which will cause the corresponding R or T tube to fire and operate the associated R or T relay.

	BN	RI	TI
S Lead and SL1 Relay	X	X	X
N Lead and Relay		X	X
R Lead, Tube and Relay	X	X	
T Lead, Tube and Relay			X

1.02 The operation of the SL1 relay:

- (a) Grounds the S lead to the traffic usage recorder.
- (b) Provides its own locking path ground a break-contact of the BY relay to prevent interference of a call in progress by the BY relay.
- (c) Provides a locking and release control path for later use by the R or T relay.
- (d) Closes a locking circuit for the N relay.
- (e) Operates the BY relay.
- (f) Opens the MB lead to the test circuit.
- (g) Shorts out the secondary winding of the H relay and its associated E resistor for later use as an off-hook signal (option 2).
- (h) Connects battery and ground to the windings of the TK relay for later use as a seizure signal on regular intercept and trouble intercept calls (option 2).
- (i) Partially opens the idle terminating D resistor path across the tip and ring leads (option 3).
- (j) Closes an operating path for later use by the PA relay (option 5).
- (k) On a blank number call, operates the LA relay (option 5) or the SX relay (option 6).

1.03 The operation of the N relay:

- (a) Closes its own locking path.
- (b) Opens the operating path of the LA (option 5) or SX (option 6) relay.
- (c) Transfers one of the C relay operating paths from the BN punching to the RI punching (option 4).

1.04 The operation of the BY relay:

- (a) Closes a locking path for the OA relay.
- (b) Supplies the operating ground for the pulse generator circuit (option 4).
- (c) Opens the operating path of the SL1 relay.
- (d) Closes a locking path for the C relay (option 4).

2. BLANK NUMBER CALL (OPTION 5)

2.01 The operation of the LA relay:

- (a) Opens the T and R leads (option 3).
- (b) Removes battery and ground from the windings of the TK relay (option 2).
- (c) Opens the T and R leads to the trunk (option 2) and connects this circuit to the announcement machine.
- (d) Grounds the M lead (option 3).
- (e) Partially closes the operating path of the CT1 relay.
- (f) Partially closes the ST lead to the ST1 lead to the announcement machine.
- (g) Opens the operating path of the ST relay (option 4).

2.02 Ringing current is received on the R lead causing the R tube to fire across its starter gap. The main gap then breaks down and sufficient current flows during the negative half-cycles to operate relay R. The R diode is used to help the flux buildup in the R relay should it fail to operate on the first negative half-cycle.

2.03 The operation of the R relay:

- (a) Closes the ST and ST1 lead loop as a start signal to the announcement machine (option 5).
- (b) Partially closes the operating path of the CT1 relay (option 5).
- (c) Partially closes the operating path of the ST relay (option 4).
- (d) Connects the starter gap of the R tube across the T and R leads.
- (e) Provides its own lock path under control of the OA (option 2) and SL1 relays.
- (f) Connects the C relay operating path to the BN or RI punchings (option 4).
- (g) Opens the SX relay operating path (option 6).
- (h) Closes audible ringing on the ring lead towards the calling customer.
- (i) Partially places battery on the M lead (option 3).

(j) Partially connects battery to the tip lead and ground to the ring lead through the windings of the TK relay toward the trunk circuit as a seizure signal for a regular intercept operator (option 2).

2.04 The ringing voltage supplied by the preceding trunk is high enough during negative half-cycle peaks to break down the starter gap of tube R and keep it conducting to operate the trip relay in the preceding trunk. When ringing is tripped, the preceding trunk provides talking battery and ground to the tip and ring leads. This voltage is below the sustaining voltage of tube R. Tube R extinguishes but remains across the tip and ring leads in the event of subsequent ringing.

2.05 When the announcement machine starts up, it places a ground pulse on the CT lead approximately one second before the beginning of the announcement. This pulse is repeated on every announcement cycle as long as the machine is running. The CT relay follows this ground pulse and causes the following sequence of relay operations:

(A) (Option G - 1 announcement)

CT	PA	CTL	OA	W	Z	TR
+	+	+				
-	-		+			
+	+			+		+
-	-			-		

(B) (Option F - 2 announcements)

CT	PA	CTL	OA	W	Z	TR
+	+	+				
-	-		+			
+	+			+		
-	-				+	
+	+			-		
-	-				-	+

2.06 The operation of the CTL relay:

- (a) Operates the OA relay.
- (b) Provides the operating ground for the W, Z, and TR relays.
- (c) Provides a transfer contact in the AL lead so that a ground on this lead can operate the PA and TR relays as described in 4.
- (d) Provides its own locking ground.

2.07 The operation of the OA relay:

- (a) Cuts the incoming tip and ring leads through to the outgoing tip and ring leads.
- (b) Opens the idle terminating D resistor path across the tip and ring leads (option 3).
- (c) Removes audible ringing from the ring lead.
- (d) Places the H relay between the windings of the TK relay in place of battery and ground for use in high-low signaling (option 2).

- (e) Locks to ground through a contact on the BY relay.
- (f) Provides a second locking path for the R and T relays (option 2).

2.08 If the calling customer does not hang up before the second (G option) or third (F option) operation of the PA relay, the TR relay will operate and cause the following:

- (a) Transfers the incoming tip and ring leads from the announcement machine to the manual class-of-service line switch appearance.
- (b) Opens the start loop to stop the announcement machine.
- (c) Locks to ground through a contact on the CTL relay.
- (d) Releases the PA and W or Z relays.
- (e) Starts the TD timer.
- (f) Partially closes the operating lead for the STO relay.
- (g) Partially closes the operating lead for the TN relay.

2.09 If the calling customer does not hang up before the end of the 4-second TD

timing interval, relay TD will operate.
The operation of relay TD:

- (a) Opens the operating path of the TN relay.
- (b) Opens one of two paths connecting the OP inductor across the tip and ring leads.
- (c) Operates the STO relay.

2.10 The operation of the STO relay:

- (a) Stops the TD timer and releases the TD relay.
- (b) Locks to ground through a contact on the TR relay.
- (c) Changes the timing of the TD timer from 4 seconds to 2 seconds.
- (d) Connects the OP inductor across the tip and ring leads as an off-hook signal on the manual class-of-service line circuit.

2.11 The off-hook signal causes the manual line circuit to be connected through the switching network to an outgoing trunk terminating at an assistance operators position. The outgoing trunk places a resistance ground (19 ohms) on the S lead. This resistance ground places a reverse bias on the input of the Q1 transistor preventing its operation and keeping the S1A relay in its idle state. The resistance ground does, however, operate the S1 relay. The operation of the S1 relay:

- (a) Closes a second path to keep the OP inductor across the tip and ring leads after the TD relay operates at a later time.
- (b) Connects the negative biasing resistor to the base of the Q1 transistor to prepare it for later operation.

2.12 When the operator answers, the outgoing trunk changes the resistance ground on the S lead to a direct ground. This direct ground places a forward bias on the input of the Q1 transistor, turning it on and operating the S1A relay. Resistor E is a current limiting resistor, and resistors K and L are used as a voltage dividing biasing network. The B capacitor and D1 diode provide surge protection for the Q1 transistor. The operation of the S1A relay:

- (a) Starts the TD timer.
- (b) Operates the TN relay.

2.13 The operation of the TN relay connects audible ringing tone to the line to identify the nature of this call to the assistance operator.

2.14 The TD timer operates after a 2-second interval operating the TD relay. This releases the TN relay removing the audible ringing tone from the line. The assistance operator may now talk to the calling customer.

3. DISCONNECT BLANK NUMBER CALL (OPTION 5)

3.01 When the calling customer hangs up, the associated intraoffice or incoming trunk removes ground from the S lead causing the following sequence of operations:

- (a) Relay SL1 releases.
- (b) Relays BY and LA release.
- (c) Start signal to announcement machine is turned off if still on.
- (d) Relay CT1 releases.
- (e) Relay OA releases.
- (f) Relay R releases.

3.02 If the call had progressed to connect to the assistance operator, the following sequence of operations will also occur:

- (a) Relay TR releases.
- (b) Relay TD releases if operated.
- (c) Relay STO releases.
- (d) The OP inductor is disconnected from its bridging connection across the tip and ring leads causing the channel to the assistance operator to be released.
- (e) Relays S1 and S1A release.
- (f) The circuit is now in its idle state.

4. ANNOUNCEMENT MACHINE FAILURE (OPTION 5)

4.01 The voice alarm and control circuit will ground the AL lead in the event of an announcement machine failure. This will cause the following sequence of operations when this circuit is seized for a blank number call:

- (a) Relay SL1 operates.
- (b) Relays LA, BY, and PA will operate.

- (c) Relay R operates.
- (d) Relay CT1 operates.
- (e) Relays OA and TR operate.
- (f) Relay PA releases.
- (g) From here on the operations are the same as in 2. starting with operation 2.09.

5. BLANK NUMBER CALL (OPTIONS 2 AND 6)

5.01 The operation of the SX relay partially closes +130 volts to the tip and ring leads for later use as a blank number seizure signal.

5.02 See 2.02 to 2.04.

- (a) Tube R fires.
- (b) Relay R operates and closes the +130 volt seizure signal to tip and ring leads.
- (c) Tube R extinguishes.

5.03 When the slow-release SX relay releases, it replaces the +130 volt signal on the T and R leads with battery and ground, respectively, through the windings of the TK relay.

5.04 When the announcement machine is connected, the high-resistance dry bridge at the distant incoming trunk is replaced by an aiding battery and ground through a relay causing relay TK to operate.

5.05 Relay TK operates relay OA.

5.06 See 2.07.

- (a) Relay TK releases.
- (b) Relay H operates and provides a holding ground for the BY relay and opens the MB lead to the test circuit.

5.07 The customer now listens to the announcement from the distant announcement machine.

6. REGULAR INTERCEPT CALL (OPTION 2)

6.01 See 2.02 to 2.04.

- (a) Tube R fires.
- (b) Relay R operates and closes battery and ground to the T and R leads, respectively, through the TK relay windings as a regular intercept seizure signal.
- (c) Tube R extinguishes.

6.02 When the regular intercept operator answers, the high-resistance dry bridge at the distant incoming trunk is replaced by an aiding battery and ground through a relay causing relay TK to operate.

6.03 Relay TK operates relay OA.

6.04 See 2.07.

- (a) Relay TK releases.
- (b) Relay H operates and provides a holding ground for the BY relay and opens the MB lead to the test circuit.

6.05 The customer can now talk to the regular intercept operator.

7. TROUBLE INTERCEPT CALL (OPTION 2)

7.01 Ringing current is received on the T lead causing the T tube to fire across its starter gap. The main gap then breaks down and sufficient current flows during the negative half-cycles to operate relay T. The T diode is used to help the flux build-up in the T relay should it fail to operate on the first negative half-cycle.

7.02 The operation of the T relay:

- (a) Partially closes the operating path of the ST relay (option 4).
- (b) Connects the starter gap of the T tube across the T and R leads.
- (c) Provides its own lock path under control of the OA (option 2) and SL1 relays.
- (d) Connects the C relay operating path to the TI punching (option 4).
- (e) Closes audible ringing on the ring lead towards the calling customer.
- (f) Partially places battery on the M lead (option 3).
- (g) Partially connects battery to the ring lead and ground to the tip lead through the windings of the TK relay toward the trunk circuit as a seizure signal for a trouble intercept operator (option 2).

7.03 The ringing voltage supplied by the preceding trunk is high enough during negative half-cycle peaks to break down the starter gap of tube T and keep it conducting to operate the trip relay in the preceding trunk. When ringing is tripped, the preceding trunk provides talking battery and ground to the tip and ring leads. This voltage is below the sustaining voltage of

tube T. Tube T extinguishes but remains across the tip and ring leads in the event of subsequent ringing.

7.04 When the trouble intercept operator answers, the high-resistance dry bridge at the distant incoming trunk is replaced by an aiding battery and ground through a relay causing relay TK to operate.

7.05 Relay TK operates relay OA.

7.06 See 2.07.

(a) Relay TK releases.

(b) Relay H operates and provides a holding ground for the BY relay and opens the MB lead to the test circuit.

7.07 The customer can now talk to the trouble intercept operator.

8. DISCONNECT - CALLING END FIRST (OPTION 2)

8.01 When the calling customer hangs up, the associated intraoffice or incoming trunk removes ground from the S lead causing the following sequence of operations:

(a) Relay SL1 releases.

(b) Relays N and SX release if they are operated and an on-hook signal is sent to the distant office.

(c) The distant office releases the H relay.

(d) Relay BY releases.

(e) Relay OA releases.

(f) Relay R or T releases.

(g) The circuit is now in its idle state.

9. DISCONNECT - CALLED END FIRST (OPTION 2)

9.01 When the intercept operator releases the trunk, the following sequence of operations occur:

(a) Relay H releases.

(b) When the calling customer hangs up, the associated intraoffice or incoming trunk removes ground from the S lead.

(c) Relay SL1 releases.

(d) Relays BY, N, and SX release if they are operated.

(e) Relay OA releases.

(f) Relay R or T releases.

(g) The circuit is now in its idle state.

10. E AND M LEAD SUPERVISION - ONE CLASS (OPTION 3 WITHOUT 4)

10.01 See 2.02 to 2.04 or 7.01 to 7.03.

(a) Tube R or T fires.

(b) Relay R or T operates and replaces ground on the M lead with battery as an off-hook seizure signal to the distant office.

(c) Tube R or T extinguishes.

10.02 When the intercept operator answers or the distant announcement machine is connected, ground is applied to lead E operating the E relay. The operation of the E relay:

(a) Locks the BY relay to ground.

(b) Opens the MB lead to the test circuit.

(c) Operates the OA relay.

10.03 See 2.07.

10.04 The customer can now talk to the intercept operator or listen to the recorded announcement.

11. E AND M LEAD SUPERVISION - 2 OR 3 CLASSES (OPTIONS 3 AND 4)

11.01 See 2.02 to 2.04 or 7.01 to 7.03.

(a) Tube R or T fires.

(b) Relay R or T operates and replaces ground on the M lead with battery as an off-hook seizure signal to the distant office, and also operates the ST relay.

(c) Tube R or T extinguishes.

11.02 The ST relay starts the pulse generating and counting circuit to operate in accordance with the sequence indicated in the following table. One, two, or three ground pulses are sent over the M lead to the distant office to advise the distant office to answer with either a recorded announcement, the regular intercept operator, or the trouble intercept operator. The number of pulses sent are determined by cross-connection between the CO1 and CO2 punchings and the BN, RI, and T2 punchings, and by the type of call in progress. A ground on the CO1 punching can be directed to operate the

C relay after one pulse. A ground on the CO2 punching can be directed to operate the C relay after two pulses. The C relay will always operate after the third pulse. The operation of the C relay restores the rest of the pulse generating and counting circuit to normal; it locks to ground through a contact on the BY relay.

Relays								M Lead Grd Pulse	C Rel Oper Grd
ST	PG	P	PO	P1	P2	P3	C		
+				+					
	+								
		+							
	-								
		-							
	+			-					
		+							
	-		+						
		-						ST1	
	+			+					
		+						END1	CO1
	-								
		-						ST2	
	+								
		+						END2	CO2
	-								
		-						ST3	
	+			+					
		+						END3	
	-								
		-							
							+		

11.03 When the intercept operator answers or the distant announcement machine is connected, ground is applied to the E lead operating the E relay. The operation of the E relay:

- (a) Locks the BY relay to ground.
- (b) Opens the MB lead to the test circuit.
- (c) Operates the OA relay.

11.04 See 2.07.

11.05 The customer can now talk to the intercept operator or listen to the recorded announcement.

12. DISCONNECT - CALLING END FIRST (OPTION 3)

12.01 When the calling customer hangs up, the associated intraoffice or incoming trunk removes ground from the S lead causing the following sequence of operations:

- (a) Relay SL1 releases.
- (b) Relay R or T releases and grounds the M lead as an on-hook signal to the distant office, and relay N releases if it is operated.
- (c) The distant office releases the E relay.
- (d) Relay BY releases.
- (e) Relay OA releases, and relay C releases if it is operated.
- (f) The circuit is now in its idle state.

13. DISCONNECT - CALLED END FIRST (OPTION 3)

13.01 When the intercept operator releases the trunk, the following sequence of operations occur:

- (a) Relay E releases.
- (b) When the calling customer hangs up, the associated intraoffice or incoming trunk removes ground from the S lead.
- (c) Relay SL1 releases.
- (d) Relay R or T releases and grounds the M lead as an on-hook signal to the distant office, relay BY releases, and relay N releases if it is operated.
- (e) Relay OA releases, and relay C releases if it is operated.
- (f) The circuit is now in its idle state.

14. TESTING

14.01 Testing of this trunk is performed by setting up a test connection to this trunk from a test line. Routine operations are performed from the test line in the same manner as for a regular service call.

14.02 A PG jack is provided for adjusting and testing the pulse generating circuit.

15. MISCELLANEOUS

- 15.01 The 185A networks are connected across the windings of the E, P, and CT relays and 186A networks are connected across the windings of the PO, P1, P2, and P3 relays to protect their operating contacts.
- 15.02 Capacitors T and R are provided to isolate the input circuit from the output circuit.
- 15.03 Capacitors T1, R1, and A are provided to isolate the AC tones and DC signals.
- 15.04 Resistors T and R are provided to match the trunk impedance with the local announcement machine impedance.
- 15.05 The C resistor provides a resistance battery holding circuit for the T and R relays.
- 15.06 The TD capacitor and F and G resistors are the timing elements of the TD time delay circuit.
- 15.07 The J resistor is provided for use in high-low signaling.
- 15.08 The B resistor is provided for use in the +130 volts signal to the distant office.
- 15.09 The D resistor provides idle circuit terminating impedance across the T and R leads.
- 15.10 The M lamp and resistor are used with the M lead signaling circuit.
- 15.11 The PG capacitor, P1, P2, PG1, and PG2 resistors, and PG3 and PG4 potentiometers are provided for use in the pulse generator and counting circuit.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

- 1.01 Reverse high-low supervision:
 - (a) Maximum external circuit loop - 3525 ohms.
 - (b) Minimum insulation resistance - 30,000 ohms.

2. FUNCTIONAL DESIGNATIONS

2.01 Relays

<u>Designation</u>	<u>Meaning</u>
BY	Busy
C	Complete (Pulsing)
CT	Cut-Through
CTL	Auxiliary Cut-Through
E	Ear
H	Hold
LA	Local Announcement
N	Intercept Operator
OA	Operator Answer
P	Pulsing
PO	Auxiliary Pulsing
P1	Auxiliary Pulsing
P2	Auxiliary Pulsing
P3	Auxiliary Pulsing
PA	Pulse (Announcement Machine)
PG	Pulse Generator
R	Ring
S1	Sleeve (Line)
SLA	Auxiliary Sleeve (Line)
SL1	Sleeve (Trunk)
ST	Start
STO	Start Operator
SX	Simplex
T	Tip
TD	Time Delay

<u>Designation</u>	<u>Meaning</u>
TK	Talk
TN	Tone
TR	Transfer
W } Z }	Walking

3. FUNCTIONS

- 3.01 Provides a means for indicating to the marker that this circuit is idle or busy.
- 3.02 Provides a means for connecting a customer line to:
- (a) A local announcement machine to receive one or two recorded announcements, with cut-through coordinated with the start of an announcement cycle.
 - (b) A distant announcement machine.
 - (c) A distant universal intercept operator.
 - (d) A distant regular intercept operator.
 - (e) A distant trouble intercept operator.
- 3.03 Provides a means to transfer the customer to an assistance operator if the customer does not hang up after one or two local announcement cycles or immediately if the local announcement machine is not functioning.
- 3.04 Provides a 4-second delay prior to transferring to the assistance operator (per 3.03) to encourage the customer to hang up.
- 3.05 Provides for either reverse high-low supervision or E and M lead supervision for communication with the distant office.

3.06 Provides a means for making this circuit busy by local or remote control.

4. CONNECTING CIRCUITS

- 4.01 When this circuit is listed on a key-sheet, the connecting information thereon shall be followed.
- (a) Trunk Switch and Connector Circuit - SD-26383-01.
 - (b) Line, Line Switch and Connector Circuit - SD-26382-01.
 - (c) Announcement Circuit - SD-26435-01.
 - (d) Voice Alarm and Control Circuit - SD-26390-01.
 - (e) Traffic Usage Recorder Circuit - SD-96494-01.
 - (f) Test Circuit - SD-26411-01.
 - (g) PRTD Circuit - SD-26414-01.
 - (h) Incoming Intercept Trunk Circuit (Typical) - SD-95789-01.
 - (i) N1 Carrier Applique Schematic (Typical) - SD-95121-01.
 - (j) Line and Balancing Composite Set and Repeating Coil Circuit - SD-95004-01.
 - (k) "A" Composite Signaling Circuit Type B (Typical) - SD-95032-01.
 - (l) Single Frequency Signaling Circuit - SD-56202-01.
 - (m) 4-Wire Terminating Circuit - SD-95489-01.

5. MANUFACTURING TESTING REQUIREMENTS

5.01 This circuit shall be capable of performing all of the functions listed in this Circuit Description and meeting the requirements listed in the Circuit Requirement Tables.

6. TAKING EQUIPMENT OUT OF SERVICE

6.01 If it is desired to remove this trunk from service for trouble or other reasons, the test circuit is arranged to ground the MB lead which operates the BY relay. This sets the trunk in the busy state.

6.02 The test circuit can ground the MB lead by either of the following methods:

(a) Insertion of a make-busy plug in the associated TRK MB- jack.

(b) Operation of the remote make-busy facilities if they are provided.

6.03 Removal of ground from the MB lead will restore this circuit to service.

BELL TELEPHONE LABORATORIES, INCORPORATED

DEPT 5245-LCB

WE DEPT 355-AJE-KLF-BA