

LINE CONCENTRATOR-IDENTIFIER SYSTEM
APPLIED TO TELEPHONE SECRETARIAL SERVICE
TESTS AND INSPECTIONS AT TIME OF INSTALLATION

1. GENERAL

1.01 This section covers tests and inspections required during installation of the line concentrator-identifier system.

1.02 This section is reissued to include the features and options available with the current CDs and SDs and make reference to Special Service Protection (SSP).

1.03 This issue of the section is based on the following drawings:

SD-95739-01, Issue 25D

SD-95748-01, Issue 23D

SD-95962-01, Issue 8B

SD-95964-01, Issue 15B

If this section is to be used with equipment or apparatus reflecting later issues of the drawings, reference should be made to the CDs and SDs to determine the extent of the changes and the manner in which the section may be affected.

1.04 Performance of the tests in this section will require testing at the central office originating equipment (concentrator), and the Telephone (Secretarial) Answering Service (TAS) location (identifier and switchboard).

1.05 Provisions have been made in the equipment to provide a talking connection between the central office (Switchman Jacks) and the Secretarial TAS location (Repairman Talking Jacks).

1.06 Special Service Protection (SSP) should be applied as required in Section 460-110-100.

2. TOOLS AND TEST APPARATUS

Central Office Originating Equipment

2.01 35-Type test set.

2.02 Patching cord, P2B cord, 6 feet long, equipped with two 310 plugs (2P4C cord).

2.03 Two testing cords, W2W cord, 10 feet long, equipped with one 310 plug, one 360B tool, one 360C tool (2W17C cord), and two 364 (spade terminal) tools.

2.04 Patching cord, P2P cord, 10 feet long, equipped with one 310 plug and one 309 plug (2P10B cord).

2.05 Percent break meter, KS-7361, or equivalent.

2.06 Impulse counter, KS-7608, or equivalent.

2.07 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip, and one 411A (test pick) tool (for use in testing ringing relays).

2.08 KS-14510, L1 volt-ohm-milliammeter, or equivalent, equipped with KS-14510, L2 and KS-14510, L3 test leads, or equivalent.

2.09 553A (lamp extractor) tool.

2.10 319B (lamp cap extractor) tool.

2.11 S1 Timer.

2.12 310-Type dummy plug.

2.13 Two patching cords, one conductor, 12.5 inches long, equipped with two 30 Mueller Mini-Gator clips and two 32 Mueller insulators (W1AP cord).

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TAS Location Terminating Equipment

- 2.14 Weston model 280 volt-ammeter equipped with test leads, or equivalent, having voltage scales of 60, 30, and 3 volts and current scales of 15, 3, and 0.3 amperes.
- 2.15 35-Type test set.
- 2.16 Two testing cords, W2W cord, 9 feet long, equipped with two 310 plugs, and two 59 cord tips, or equivalent, (2W12B cord).
- 2.17 319B (lamp cap extractor) tool.
- 2.18 553A (lamp extractor) tool.
- 2.19 KS-5499, List 1301, hydrometer or equivalent.

3. INSPECTION OF CROSS-CONNECTION APPARATUS

Central Office Originating Equipment

- 3.01 The cross-connections should be neatly dressed and all connections properly terminated.
- 3.02 The terminal lugs and terminal strips should be free from wire clippings and loose bits of solder, and the conductors should be carried through the proper fanning holes.
- 3.03 The central office alarm leads should be properly cross-connected.
- 3.04 The Switchman Talking Circuit, if provided, should be wired in multiple with other bays, as required.
- 3.05 The MDF should be checked for cross-connection of lines 00 through 99 and for proper turnover of cross-connections where applicable.
- 3.06 Cross-connections should be run for the trunks.

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- 3.07 The terminal box, connecting blocks, fanning strip, binding post chamber, or terminal strips should be firmly mounted and properly marked.
- 3.08 The interior of the terminal box should be clean and free from spare wire and wire

clippings. The nuts on spare terminal lugs should be turned down fingertight. The spare terminal lugs on terminal strips should be clean.

- 3.09 The cross-connections should be neatly dressed and all connections properly terminated.
- 3.10 The terminal lugs and terminal strips should be free from wire clippings and loose bits of solder, and conductors should be carried through the proper fanning holes.
- 3.11 Cross-connections should be run for the trunks.
- 3.12 The fuse alarm and other optional alarms should be properly connected to the switchboard.
- 3.13 Lines 00 through 99 are cabled to frame for cross-connection to answering jack and lamp circuits at the switchboard.

4. INSPECTION OF CABLES

TAS Location Terminating Equipment

- 4.01 The cables should be run and fastened in accordance with standard PBX installation practices.
- 4.02 Plug-type connectors for optional equipment should be properly terminated and secured.
- 4.03 The entering cable should be properly fastened to the form supports.
- 4.04 The local flexible power cables and intercell connectors should be properly connected to the storage battery terminals.

5. INSPECTION OF FUSES

Central Office Originating Equipment

- 5.01 Coin control battery CC+ and CC- or telegraph battery (+) and (-) should be connected.
- 5.02 The proper fuses should be in place in each of the working circuits.
- 5.03 The spare fuse holders should be equipped with the proper fuses.

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- 5.04** The proper fuses should be in place in each of the working circuits.
- 5.05** The spare fuse holder, located on inside front cabinet door, should contain the proper spare fuses.

6. INSPECTION OF EQUIPMENT**TAS Location Terminating Equipment**

- 6.01** The equipment cabinet should be level and secured to the floor and other cabinets, as required by local installation instructions.
- 6.02** The base of the equipment cabinet should be caulked or sealed to the floor to keep out dust and water.
- 6.03** The interior of the equipment cabinet should be clean and free of wire clippings, solder splashes, foreign material, etc.
- 6.04** The exterior of the equipment cabinet should present a neat appearance without unsightly scratches or other defects. Both front and rear doors should hang freely and lock with normal effort.
- 6.05** All relay covers should be in place.
- 6.06** If batteries are provided, each of the white battery charge indicators should be at the top of the cage.
- 6.07** Verify that all required apparatus and wiring options have been installed and connected.
- 6.08** Verify that the current SD drawings, CD sheets, and cross-connection records have been filed.

7. RELAY TESTS**Central Office Originating Equipment**

- 7.01** Using the test procedures outlined in Section 040-009-501, test the pulse speed and percent break of pulse generator P and PG relays of A and B controllers. Pulse speeds from 18 to 20 pulses per second with percent break from 33 to 37 are normal. If the BA or CA resistor(s) is

adjusted to obtain either requirement (PPS or % break), the other requirement must be rechecked to insure that requirement remained within limits.

- 7.02** The FA relay (B-type), when provided, should be checked for both electrical and mechanical requirements.
- 7.03** Ringup relays RU00 through RU99 sometimes fail to release and result in a single ring being repeatedly processed, thereby connecting more than one trunk to a single call. Higher current flow release requirements are now specified in the circuit requirements for the Y328 relays.

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- 7.04** PN and PP relays should be checked for electrical requirements as specified in the circuit requirements table.
- 7.05** The following designated B-type relays should be checked for both electrical and mechanical requirements: DC, FA, TC, CIA, and TCA.
- 7.06** The remaining relays should not require mechanical adjustment or electrical test. However, if during subsequent testing, a relay operating failure should occur and it becomes necessary to readjust a relay, the requirements for the particular relay involved should be met.

8. BATTERY SUPPLY CIRCUIT**TAS Location Terminating Equipment****Central Office Feeder Battery Supply**

- 8.01** Verify that there is no connection between the ground bar and local ground.
- 8.02** Test for reversed polarity as follows.
- (a) Block operated the charge failure alarm (CF) relay.
 - (b) Remove CHG and CC fuses.
 - (c) Connect the (–) terminal of the voltmeter to terminal 1 of CC relay.
 - (d) Connect the (+) terminal of the voltmeter to the ground bar.

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- (e) Observe voltage readings for a few minutes to determine that the voltage is within the range of 20 to 26 volts DC.
- (f) If a reversed polarity is indicated, the condition should be corrected.
- (g) Disconnect voltmeter and replace the CHG and CC fuses.

8.03 Test for cross with foreign ground as follows.

- (a) Disconnect positive and negative charging leads at a convenient place (cross-connection terminals).
- (b) Connect the (–) terminal of the voltmeter to the (–) terminal of the battery.
- (c) Connect the (+) terminal of the voltmeter to local ground.
- (d) The needle of the voltmeter should not deflect.
- (e) Disconnect the voltmeter and reconnect the charging leads.
- (f) Remove blocking tool from the charge failure alarm (CF) relay.

Local Rectifier Battery Supply

8.04 Verify that the 149N inductor and 4B ballast lamp are connected in the battery control circuit to prevent introducing hum on the trunks.

8.05 Verify that the rectifier is properly connected to the commercial power source.

8.06 Test for reversed polarity as follows.

- (a) Block operated the charge failure alarm (CF) relay.
- (b) Remove the CHG and CC fuses.
- (c) Connect the (–) terminal of the voltmeter to terminal 1 of CC relay.
- (d) Connect the (+) terminal of the voltmeter to the ground bar.

(e) Observe voltage readings for a few minutes to determine if voltage is within the range of 20 to 26 volts DC.

(f) If a reversed polarity is indicated, the condition should be corrected.

(g) Disconnect voltmeter and replace the CHG and CC fuses.

8.07 Verify that the ground bar is connected to local ground as follows.

- (a) Connect the (–) terminal of the voltmeter to the (–) terminal of the battery.
- (b) Momentarily connect the (+) terminal of the voltmeter to the ground bar and then to the local ground. The deflections of the voltmeter should be the same.
- (c) Disconnect voltmeter.
- (d) Remove blocking tool from charge failure alarm (CF) relay.

Building Battery Feeder Battery Supply

8.08 Test for reversed polarity as follows.

- (a) Remove BLD fuse.
- (b) Connect the (–) terminal of the voltmeter to the battery terminal of the fuse block.
- (c) Connect the (+) terminal of the voltmeter to the ground bar.
- (d) Observe voltage readings for a few minutes to determine if voltage is within the range of 20 to 26 volts DC.
- (e) If reversed polarity is indicated, the condition should be corrected.
- (f) Disconnect voltmeter and replace BLD fuse.

8.09 When the building battery is charged from the central office by a metallic feeder, test for cross between terminating equipment and foreign ground as follows.

- (a) Disconnect ground lead from battery at ground bar.

- (b) Connect (--) terminal of the voltmeter to the (-) terminal of the bus bar.
 - (c) Connect the (+) terminal of the voltmeter to the ground bar.
 - (d) The needle of the voltmeter should not deflect.
 - (e) Disconnect voltmeter.
 - (f) Connect ground lead from battery to ground bar.
- 8.10** When the building battery is charged by a local rectifier, verify that the ground bar in the terminating equipment is connected to local ground as follows.
- (a) Disconnect ground lead from battery at ground bar.
 - (b) Connect the (-) terminal of the voltmeter to the (-) terminal of the bus bar.
 - (c) Momentarily connect the (+) terminal of the voltmeter to the ground bar and then to local ground. The deflections of the voltmeter should be the same.
 - (d) Disconnect the voltmeter.
 - (e) Connect ground lead from battery to ground bar.

9. CIRCUIT OPERATIONS TESTS

A. Battery Charging Adjustments at TAS Location Terminating Equipment

- 9.01** Using the 3-ampere scale on Weston volt-ammeter, connect the (-) terminal of the ammeter to the middle terminal (load terminal) of the CHG fuse holder.
- 9.02** Connect the (+) terminal of the ammeter to the bottom terminal (bus terminal) of the CHG fuse holder.
- 9.03** Remove the CHG fuse.
- 9.04** Manually operate the CT relay in the battery control circuit if it is not operated.
- 9.05** Adjust R2 resistor (with CC relay released) for a high charging rate of approximately 0.600 ampere.
- 9.06** Manually operate CC relay in the battery control circuit if it is not operated.
- 9.07** Adjust R1 resistor for a trickle charge of 0.350 ampere.
- 9.08** Replace CHG fuse.
- 9.09** Disconnect ammeter from CHG fuse holder.
- 9.10** When a rectifier is used, use the lowest rectifier output which will give the required high-charging rate (0.600 ampere).
- 9.11** Check the specific gravity of the battery cells with the rating given for the particular battery used.

B. Measurement of Line Current at Central Office Originating Equipment

- 9.12** Block nonoperated PC1 relays in both controllers at terminating end.
- 9.13** Using the 120 milliamper scale on the KS-14510, L1 volt-ohm-milliammeter, connect the KS-14510, L3 test leads to the (+) and (-) terminals of the milliammeter.
- 9.14** Operate EA or CB key and insert the dummy plug into the LC jack associated with the A controller.
- 9.15** Block operated STA1 relay. CA lamp lights.
- 9.16** Insulate 5 and 6T of SS relay.
- 9.17** Using the W1AP cord, Grd 5B of SS relay (only required on concentrators related to Issue 14AR of SD-95964-01).
- 9.18** Connect (+) lead of ammeter to 5T and (-) lead to 6T of SS relay.

Caution: *The sleeve of the LC jack and the K and KA resistors have + 130V potential.*

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9.19 Patch the W1AP cord from terminal 1 to terminal 6 of the LC jack associated with the A controller.

9.20 If ammeter reading is not between 24 and 34 milliamperes, adjust the KA and K resistors.



If the requirement in 9.20 is not obtained, adjust the K and/or KA resistor(s) by sliding the collar to obtain more or less resistance. Observe the meter until the requirement is obtained.

9.21 Remove patching cord from terminals 1 and 6 of the LC jack associated with the A controller.

9.22 Remove blocking tool from STA1 relay. CA lamp extinguished.

9.23 Block operated STB1 relay. CB lamp lights.

9.24 Remove the plug from the LC jack associated with the A controller.

9.25 Insert the dummy plug into the LC jack associated with the B controller.

9.26 At the B controller, restore EA or CB key.

9.27 At the A controller, operate EB or CA key.

9.28 Patch the W1AP cord from terminal 1 to terminal 6 of the LC jack associated with the B controller.

9.29 If ammeter reading is not between 24 and 34 milliamperes, adjust the KA and K resistors.

9.30 Remove patching cord from terminals 1 and 6 of the LC jack associated with the B controller.

9.31 Remove the ammeter from 5T and 6T of SS relay.

9.32 Remove Grd on 5B of SS relay.

9.33 Remove the plug from the LC jack associated with the B controller.

9.34 At the A controller, restore EB or CA key.

9.35 Remove blocking tool from STB1 relay. CB lamp extinguished.

9.36 Remove insulating tool from 5 and 6T of SS relay.

9.37 Remove blocking tools from PC1 relays at the identifier.

C. General Tests

9.38 Perform the following tests in accordance with Section 473-501-501. If trouble is encountered, refer to the trouble analysis Part 7 of that section.

- (a) Call Through and Pretripping
- (b) Trunk Make-Busy and Trunk Allotter Sequence
- (c) Alternate Allotter
- (d) Pulsing Path Transfer
- (e) Indicator Make-busy
- (f) Talking Path Seizure
- (g) Alternate Use of Controllers
- (h) Double processing of a call
- (i) Timed Lockout Circuit
- (j) Units Timing
- (k) Tens Timing
- (l) Alarm Cutoff
- (m) Hold Magnet Check Relay
- (n) Fuse Alarms
- (o) Measurement of Line Current
- (p) All-Trunks-Busy (Calls Waiting), Calls Display, and Traffic Registers
- (q) Battery Charging Rate
- (r) Controller Time-Out

- (s) Trunk Capacity Discharge
- (t) Units and Tens Digits and Select and Hold Magnet Operation
- (u) Originating Tens Digit Association and Lockout.

D. Load Test

Note: This test is to be performed before the subscriber lines are connected for service. The test verification required in 9.42 through 9.46 should be observed while performing the requirements of 9.39 and 9.41.

- 9.39** At originating equipment, block operated TAC relay.
- 9.40** Manually operate all RU-relays in sequence starting with RU-00. It may be necessary to manually release the LO- relays to operate the UI- and TI- lamps.
- 9.41** Remove blocking tool from TAC relay.
- 9.42** As each ringup group is served, the associated UI- and TI- lamps will light and extinguish as follows.
- (a) TI-0 through TI-9 lamps are extinguished in sequence.
 - (b) UI-0 lamp extinguished.
 - (c) All TI-0 through TI-9 lamps are lighted.
 - (d) TI-0 through TI-9 lamps are extinguished in sequence.
 - (e) UI-1 lamp extinguished.
 - (f) Above steps continue until all the TI- and UI- lamps associated with the equipped lines have been lighted and extinguished.
- 9.43** Verify that during the operation of the ringup circuits, the TK- lamps of the equipped trunks are lighted consecutively and that the CA and CB controller lamps are alternately lighted.
- 9.44** Verify that the alarm lamp does not light during operation of the ringup circuit.

9.45 Verify at the terminating equipment that during the operation of the ringup circuit, the T- lamps of the equipped trunks are lighted consecutively, and that the A and B controllers are alternately operated.

9.46 Verify that the switchboard lamps are lighted in the following sequence: 00, 10, 20, etc, through 90; 01, 21, 31, etc, through 91; and 02, 12, 22, etc, through 92; until lamp 99 is lighted.

9.47 Repeat 9.31 through 9.38 five times. If any lamp fails to light or an alarm occurs, correct the trouble and repeat the load test at least five times after no trouble occurs.

E. Exercise Test

9.48 Repeat the load test for a minimum of 30 minutes as an exercise test (9.31 through 9.39).

10. FEATURES AND OPTIONS

10.01 The features and options for the concentrator (SD-95964-01) are listed in Table A.

10.02 Power line interference can cause:

- Incorrect lamp display
- No lamp display
- False operation of Trunks 1 and 2 at moderate voltage
- Trunk 3 to 6 might operate falsely at higher voltages.

The YS option together with separate signaling pairs is the remedy for AC interference.

10.03 Proper lockout timing of the MA, MB, and MC relays is required. If timing is not adjusted correctly, a single ring will be processed twice or some rings will be missed. Improved timing control is added with the YU option. See Section 473-501-501 for timer adjustments.

10.04 The features and options for the identifier (SD-95962-01) are listed in Table B.

TABLE A
CONCENTRATOR SD-95964-01

SERVICE OPTION		WIRING OPTION	INITIAL VISUAL CHECKS TO VERIFY OPTIONS USED*
TIMED LOCKOUT		ZR	1 capacitor on 4T of MB relay
CONTROLLER LOCKOUT OR BUSY RELAYS		ZA	Strap from 1T of AA relay to 3B of TAD relay
TRUNK CONNECTOR TRKS. 5&6		R	Trks. 5&6 connected to SW 3 Vertical A, B, C, D
AC-DC POSITIVE RINGING		ZZ	Straps from Unit TS from Leads ZH, ZT and M, ZU
AC-DC NEGATIVE RINGING		YA	Straps from Unit TS from Leads M, ZH and ZU, ZT
ANI OR TWO PARTY FLAT RATE TESTS USING NEG COIN BAT.		YD, YG	Straps on Unit TS from Leads GTA, T AND ZT, GRD
SILENT INTERVAL BAT. IS 60-75V		X	Resistor across pins 5&6 of the GT tube
AUX PULSE AND DIGIT COMPLETE PAIRS	PROVIDED	YN	Trks. connected to (Subl) TS on P1R, P1T, P2R, P2T
	NOT PROVIDED	YM	Straps on (Subl) TS on Leads P1R, P2R, P1T, P2T
ONE - RING CODES		ZU	Capacitor TMB on Pins 5&6 of TMB Timer Capacitor TMA on Pins 2&3 TMA Timer
A&M ONLY			
PROTECTION AGAINST POWER LINE INTERFERENCE		YS	Addition of Filter Applique Unit
ADJUSTABLE LOCKOUT TIMING		YU	Addition of Timed Lock-Out Applique Unit

* The visual check shown is a general indication the option has been applied. For complete application of the option involved, see SD-95964-01 issue 15B or later for complete details.

10.05 *Pulsing problems* can cause wrong lamp or no lamp displays and may be remedied by:

(SD-95964-01, Issue 14AR).

- Using separate cable pairs for pulsing and supervision
- Providing wiring and apparatus changes in the concentrator and identifier to prevent false operation of the ST1 relay which can

result in false starts or out of sequence signaling.

10.06 The minimum power supply voltage required is -20VDC measured at the fuse panel on each identifier unit.

10.07 To reduce pulsing irregularities and to reduce effects of AC interference, it is important to maintain pairing within the same cable between the concentrator and identifier. See Fig. 1.

TABLE B
IDENTIFIER SD-95962-01

SERVICE OPTIONS		WIRING OPTION	INITIAL VISUAL CHECKS TO VERIFY OPTIONS USED*
TRUNK CKTS FOR # 1 & 2 TRUNKS	WITH TERM END GRD	ZS	(Misc) TS
	WITH ORIG END GRD	ZR	31, 32, & 33 (Misc) TS
CONTROLLER CONNECTOR	WITH TERM END GRD	ZS	Strap on term 43 to 44 on (Misc) TS
	WITH ORIG END GRD	ZR	Strap on term 41, 42, & 43 on (Misc) TS
TRUNK CIRCUITS FOR # 3 & 4 TRUNKS TO EQUIPMENT	WITH TERM END GRD	ZS	A grd connected to BL- W lead of FGP Inductor
	WITH ORIG END GRD	ZR	Cable from orig end con- nected to BL-W Lead of FGP Inductor
TRUNK CIRCUITS FOR # 5 & 6 TRUNKS TO EQUIPMENT	WITH TERM END GRD	ZS	A grd connected to BL- W Lead of FGP Induc- tor
	WITH ORIG END GRD	ZR	Cable from orig end con- nected to BL-W lead of FGP Inductor
	TRUNK CONNECTOR	V	Trks connected to SW3
	UNITS SELECTOR	V	Cross connected to units sel. magnets
POWER SUPPLY	LOCAL RECTIFIER	Z,Y	Pos output of rest to L resistance lamp, neg to Pin 2 of F inductor
	EXPOSED FEED METALLIC GRD	Y	Strap from 3T of CF Relay to LB fuse
	BUILDING BATTERY	Z	20 to 26V battery to the 5A LB fuse
WHEN AUX PULSING PAIR IS REQ		ZT	PRA Lead from orig end connected to Term 28 of Misc Term Strip
WHEN AUX PULSING PAIR IS NOT REQ		ZU	Strap across PT, PTA and DCT, DCTA leads
ALL S AND T OPTIONS RELATING TO ORIGINATING AND TERMINATING END GROUNDS ARE RATED (MD).			
WHEN AUX PULSING PAIR IS REQ		X (MD)	
WHEN AUX PULSING PAIR IS NOT REQ		W (MD)	

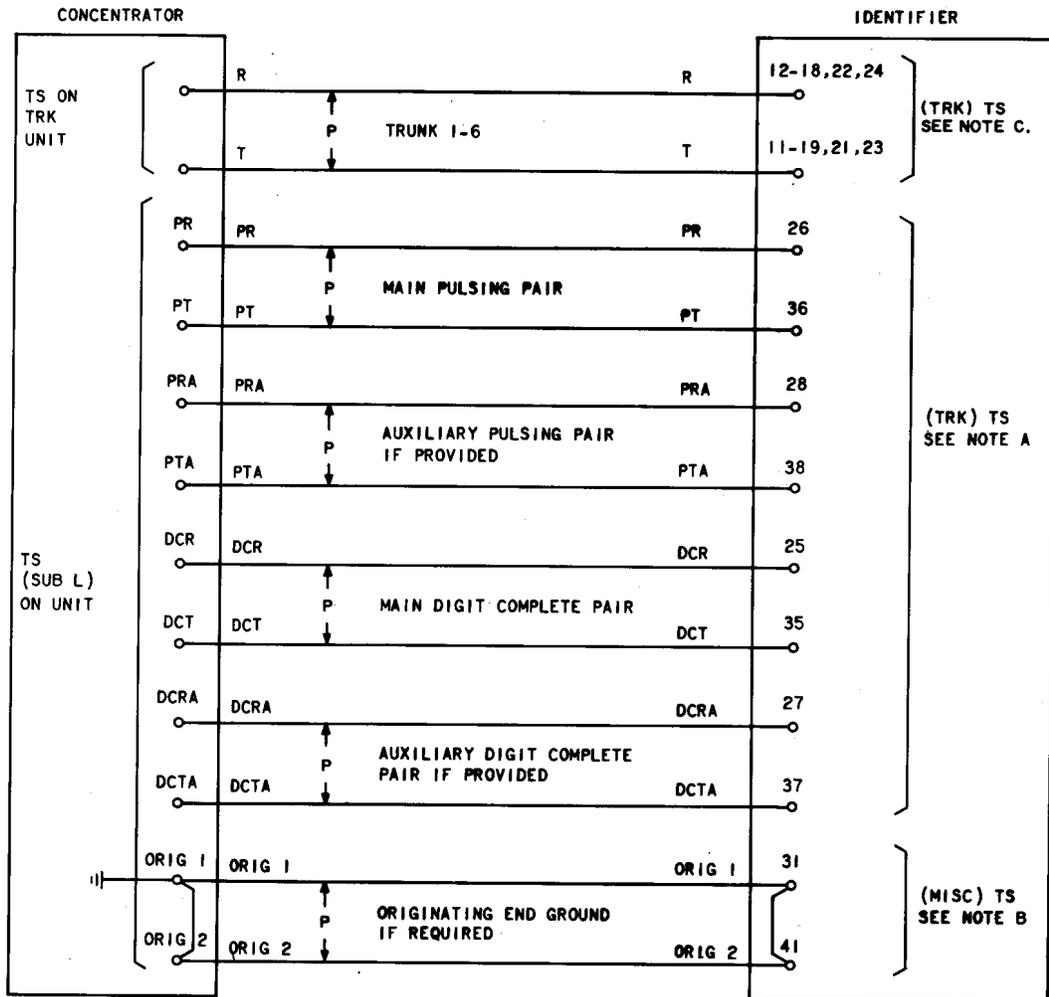
TABLE B (CONT)
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SERVICE OPTIONS		WIRING OPTION	INITIAL VISUAL CHECKS TO VERIFY OPTIONS USED*
PROTECTION AGAINST POWER LINE INTER-FERENCE	REQ	YB (STD)	Addition of J993021 FA Unit
	NOT REQ	YA (MD)	

* The visual check shown is a general indication the option has been applied. For complete application of the option involved, see SD-95962-01 issue 8B or later for complete details.

TABLE C

TALKING TRUNKS	TRUNK CONDUCTOR RESISTANCE	MAXIMUM ALLOWED RESISTANCE OF RETURN GROUND
2	400Ω	NOT TO EXCEED TRUNK CONDUCTOR RESISTANCE
	800Ω	
	1200Ω	
	1600Ω	1320Ω
	2KΩ	1240Ω
4	400Ω	NOT TO EXCEED CONDUCTOR RES.
	800Ω	760Ω
	1200Ω	640Ω
	1600Ω	600Ω
	2KΩ	480Ω
6	400Ω	NOT TO EXCEED CONDUCTOR RES.
	800Ω	375Ω
	1200Ω	370Ω
	1600Ω	330Ω
	2KΩ	310Ω



- (A) RESISTANCE SHALL NOT EXCEED 2000 OHMS PER CONDUCTOR. INDIVIDUAL PAIRING SHALL BE MAINTAINED. DO NOT PARALLEL CONDUCTORS TO MEET RESISTANCE LIMITATIONS.
 - (B) ORIGINATING END GROUND IS REQUIRED ONLY IF DC EARTH POTENTIAL EXCEEDS 20 VOLTS*. WHEN ORIGINATING GROUND IS REQUIRED, TALKING TRUNK PAIRS AND ORIGINATING GROUND LEADS SHALL BE IN THE SAME CABLE SHEATH. THE TOTAL RESISTANCE OF THE RETURN GROUND IS DEPENDENT UPON (A) THE NUMBER OF TALKING TRUNKS, (B) CONDUCTOR RESISTANCE OF THE TALKING TRUNKS. SEE TABLE C.
 - (C) END TO END RESISTANCE OF EACH CONDUCTOR (2-WIRE TRANSMISSION) OR EQUIVALENT SIMPLEX (4-WIRE TRANSMISSION), INCLUDING REPEATERS SHALL NOT EXCEED 2000 OHMS.
- * DC EARTH POTENTIAL SHALL BE MEASURED BY GROUNDING A SINGLE CONDUCTOR AT THE IDENTIFIER LOCAL GROUND. THE VOLTAGE AT THE CONCENTRATOR IS MEASURED FROM A SINGLE CONDUCTOR TO CENTRAL OFFICE GROUND.

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Fig. 1—Pairing of Trunks Between the Concentrator and Identifier