D3 CHANNEL BANK
SYSTEM LINEUP PROCEDURES WITH ITT T324
DIGITAL TRANSMISSION SYSTEMS

CONTENTS PAGE

1. GENERAL

1.01 This section includes overall tests with the banks out of service and single channel tests with banks in service. Transmission loss and idle channel noise should be measured for all channels added or reassigned to an in-service bank. Crosstalk and distortion should be measured on only one added channel. This procedure can also be found in ITT Telecommunication Section ITTR-15-523.

1.02 This section is reissued to revise the format and to update the apparatus used. Numerous minor changes are made throughout the procedures. Due to the extent of changes, revision arrows are omitted.

1.03 It is assumed that both banks have been installed and single-end tested per Section 365-150-501 and Section ITTR-15-503 (ITT). For complete information on signaling compatibility, refer to Section 179-100-310. Verify that the proper channel unit options and pad selection have been made in accordance with the circuit layout record card.

1.04 When T1 terminals are to be used for special services (for example, private line data service) and the special service requirements are stricter than those specified for the T1 System, then the more stringent requirements must also be met. See Section 365-010-500.

1.05 This procedure covers testing the carrier circuits only from the T324 tip and ring drop test points [T324 channel unit (CU) pin jacks] to the D3 internal level points (jacks on front of CU for 310-type plugs).

1.06 In this procedure the T324 T and R test points (Fig. 1) will be set to a level equal to the expected measured loss (EML) minus the office equipment loss (OEL). The D3 internal +2.5 and -7.5 level points on the front (D3 CU which reads 0 dB when using channel access unit) are checked. Slide attenuators are normally selected on the D3 CU to provide the correct drop levels. This procedure does not make certain that levels will be correct when measured from the test level point (TLP) in one office to the TLP in the interfacing office, since the D3 channel unit drop levels are not checked.

1.07 Figure 1 shows the equivalent T324 internal level points when an extender card is used.

1.08 When troubleshooting, each board removed because of suspicion of a defective network, but found not to be responsible for the trouble, should be reinserted in the bank into the original slot from which it was removed.

2. APPARATUS

2.01 The following test apparatus or the equivalent is required at the Western Electric D3 end:

1—Hot Spare and Maintenance Shelf (Section 365-150-100)

1—J94003A or C Noise Measuring Set (NMS) [Section 103-611-100 (3A) or 103-611-101 (3C)]

1—3-Inch Shorting Strap per Section 365-150-500

1—P6AA Cord or 2—P3BH Cords

2—P3BH Cords

2—262B Plugs (600-ohm termination) for working banks

24—258C Open Plugs for nonworking banks.

2.02 The following test apparatus or the equivalent is required at the ITT Telecommunication T324 end:

1—Volt-ohm-milliameter (VOM), WE KS-14510 or Triplett 630

1—Channel Extender Unit, ITT Part No. 623023-000-001 or 623371-000-001

1—Transmission Measuring Set (TMS), WE J94023

1—Noise Measuring Set (NMS), WE J94003 or Northeast Electronic Corporation TTS 37B

1—Test and Alignment Unit (TAU), ITT Part No. 623321-000-001, Issue D (or later)

1—P3BH or 3P6F (10 feet of P3E Cord with Type 310 Plugs)

2—P3BH or 3P7D (2 feet of P3E Cord with Type 310 Plugs)

2—Special Cords, ITT Part No. 600095-608-002 (for use with Test and Alignment Unit)

1—600 ohm + 2.15 μF Termination (for terminating 600-ohm channel unit T and R test points)

1—900 ohm + 2.15 μF Termination (for terminating 900-ohm channel unit T and R test points).

3. END-TO-END TEST PROCEDURES

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
A. Preparation for Tests		
1	Verify that all trunks to be tested are made busy and special services patched off or turned down for overall tests.	Verify that all trunks to be tested are made busy and special services patched off or turned down for overall tests.
2	No action.	Depress the TEST switches on channel units not in service.
3	Assemble test equipment and establish communication with other end.	Assemble test equipment and establish communication with other end.
4	Verify that all lamps on alarm control unit extinguished.	Verify that all lamps on power supply and alarm unit are extinguished. ***Note:*** The CU indicators may or may not be lighted depending on type, group number, and options selected.
5	No action.	Verify that TAU TX level is correct. See Section ITTR-15-503.

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
B. Transmission Test		
	Receiving End	***Transmitting End***
1	Connect the test circuit for channel to be checked as shown in Fig. 2B. ***Note 1:*** On the P6AA cord, the knurled edge is associated with the red sleeve on the other end. ***Note 2:*** Do not connect NMS at this time.	Connect the test circuit for channel to be checked as shown in Fig. 3.
2	Set switches on CAU as follows: REJ FL to OUT SEND LEVEL to OFF TEST to CHAN LINE.	On TAU depress one TX TERM switch (4W 600, 2W 600, or 2W 900) to match CU type and impedance.
3	No action.	Set TX ATTN switches on TAU as follows: CU TYPE — SWITCH SETTING 4 wire — 0.0 2 wire — OEL (see note). ***Note:*** For a 2-wire CU, the TX ATTN dB switches on the TAU are set to the near-end OEL. The OEL figure is obtained from the circuit order or is determined from Section ITTR-15-503.
4	Measure level on CAU meter. ***Requirement:*** The meter reading is in the green/black range (0.0 dBm ±0.25 dB). In addition, the speaker on the CAU should sound. ***Note 1:*** If meter is not in green/black range, sound will not be heard from speaker. ***Note 2:*** If the reading is out of range, an external meter may be used to check level.	No action.
5	If requirement of Step 4 is met, proceed to Step 11. If ***not*** met, proceed to Step 6.	If requirement at other end was met, proceed to Step 11. If ***not*** met, check INT TX level per Section ITTR-15-503.

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
6	No action.	If requirement at other end is not met, the transmit level was misadjusted in the looped lineup. Proceed to Step 11.
7	No action.	If requirement at other end is still ***not*** met, possible CU or common equipment problems exist. ***Note:*** Do not adjust T324 TX potentiometer to compensate for level problems elsewhere in the system.
8	If the requirement of Step 4 is still ***not*** met, and the D3 is suspected, replace the channel unit properly optioned and with proper pad selections. If the trouble is not cleared, perform D3 single-ended tests according to Section 365-150-501.	If the requirement at other end is still ***not*** met and the T324 is suspected, replace the channel unit properly optioned and perform T324 tests according to receive VF level adjustment (looped) and transmit VF level adjustment (looped) of Section ITTR-15-503. Set receive level first; then set transmit level.
9	No action.	If the requirement at other end is still ***not*** met and the T324 transmitter is suspected, change the T324 ENCODER unit.
10	If requirement is still ***not*** met, change the D3 receive unit.	If requirement at other end is still ***not*** met, trouble must be in the D3 terminal receive section.
11	Repeat Steps 1 through 4 for all channels to be tested.	Repeat Steps 1 through 4 for all channels to be tested.
	Transmitting End	***Receiving End***
12	Connect the test circuit for channel to be checked as shown in Fig. 2A.	Connect the test circuit for channel to be checked as shown in Fig. 4.
13	Set switches on CAU as follows: REJ FL to OUT SEND LEVEL to 0 TEST to CHAN LINE.	On the TAU, depress one RX TERM switch (4W 600, 2W 600, or 2W 900) to match CU type and impedance.
14	No action.	Measure level on TMS. ***Requirement:*** +7.0 dBm, 4-wire CU or EML minus OEL, 2-wire CU.
15	If the requirement at other end is met, proceed to Step 27.	If the requirement of Step 14 is met, proceed to Step 27. If the requirement is ***not*** met, depress 1 KHZ switch on the TAU.

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
16	No action.	Measure level on TMS. ***Requirement:*** +7.0 dBm, 4-wire CU or EML minus OEL, 2-wire CU. ***Note:*** The 2-wire CU is adjusted to provide a level equal to the EML minus the OEL. The OEL figure is obtained from the circuit order or is determined from OEL measurement of Section ITTR-15-503.
17	If the requirement at other end is met, proceed to Step 27.	If requirement of Step 16 is met, proceed to Step 27. If requirement of Step 16 is ***not*** met, adjust RX potentiometer until requirement of Step 16 is met.
18	No action.	If the requirement is still ***not*** met and the T324 is suspected, replace the CU (properly optioned) and perform T324 tests according to receive VF level adjustment (looped) and transmit VF level adjustment (looped) of Section ITTR-15-503. Set receive level first; then set transmit level.
19	No action.	Release 1 KHZ switch on TAU.
20	No action.	Measure level on TMS. ***Requirement:*** +7.0 dBm, 4-wire CU or EML minus OEL, 2-wire CU.
21	If requirement at other end is now met, proceed to Step 27. If requirement is ***not*** met, replace the CU properly optioned and with proper pad selection. If the trouble is still ***not*** cleared, perform D3 single-ended tests according to Section 365-150-501.	If requirement is now met, proceed to Step 27. If requirement is ***not*** met, the Western Electrics D3 is suspect.
22	If the requirements at other end are still ***not*** met, replace the D3 transmit unit.	No action.
23	No action.	Measure level on TMS. ***Requirement:*** +7.0 dBm, 4-wire CU or EML minus OEL, 2-wire CU.
24	No action.	If requirement is now met, the D3 transmit unit was defective. Proceed to Step 27. If requirement is still ***not*** met, replace the T324 DECODER unit.
25	No action.	Measure level on TMS.

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
		Requirement: +7.0 dBm, 4-wire CU or EML minus OEL, 2-wire CU.
26	No action.	If requirement is now met, the T324 DECODER was defective.
27	Repeat Steps 12 through 14 for all channels to be tested.	Repeat Steps 12 through 14 for all channels to be tested.
28	Disconnect test equipment.	Disconnect TAU from CU and release all switches on TAU and TEST switch on CU. Reset RX CH TEST selector swtches on TAU to 00. Disconnect test equipment.

C. Idle Channel Noise Test

1	Verify that Preparation for Tests and Transmission Test have been completed.	Verify that Preparation for Tests and Transmission Test have been completed.
2	Connect the test circuit for channel to be checked as shown in Fig. 2B.	Connect the test circuit for channel to be checked as shown in Fig. 5.
3	Place 258C open plugs in XMT jacks of all CUs not in service.	Terminate transmitting CU T and R test points on 4-wire CU with 600 ohms plus 2.15 μF.
4	Set switches on CAU as follows: REJ FL to OUT SEND LEVEL to OFF TEST to CHAN LINE.	Depress the TEST switches on the CUs not in service. On the TAU depress RX switch and one RX TERM switch (4W 600, 2W 600, or 2W 900) to match CU type and impedance.
5	Set switches on NMS as follows: DBRN to on scale WTG to C-MSG FUNCTION to 600/900 NM (3C) or 600 NM (3A) NORM/DAMP to DAMP.	Set switches on NMS as follows: DBRN to on scale WTG to C-MSG FUNCTION to 600/900 NM (3C) or 600 NM (3A) NORM/DAMP to DAMP.
	Note: The following portion of this test is performed independently of the other end.	***Note:*** The following portion of this test is performed independently of the other end.
6	Measure noise.	Measure noise.

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
	Requirement: 23 dBrnc or less.	***Requirement:*** 4-wire CU, 30 dBrnc or less; 2-wire CU, 20 dBrnc or less. For nominal receive levels of +7.0 dBm for 4-wire or -3.0 dBm for 2-wire (23 dBrnc0).
7	If requirement is met, proceed to Step 8. If requirement is ***not*** met, perform idle channel noise measurements single-ended per Section 365-150-501 and repeat this testt.	If requirement is met, proceed to Step 8. If requirement is ***not*** met, perform idle channel noise measurements single-ended per Section ITTR-15-505 and repeat this test.
8	Repeat Steps 2 through 6 for all channels to be tested.	Repeat Steps 2 through 6 for all channels to be tested.
9	Remove 258C open plugs.	Remove all terminations.
10	When the requirement is met for all channels tested, proceed to the next test or remove test connections.	When the requirement is met for all channels tested, proceed to the next test or remove test connections. Release all switches on TAU and TEST switches on CU.
D. Quantizing Distortion Test		
1	Verify that Preparation for Tests and Transmission Test have been completed.	Verify that Preparation for Tests and Transmission Test have been completed.
	Transmitting End	***Receiving End***
2	Connect the test circuit for channel to be checked as shown in Fig. 2A.	Connect the test circuit for channel to be checked as shown in Fig. 6B.
3	Set switches on CAU as follow: REF FL to IN SEND LEVEL to 0 TEST to CHAN LINE.	Depress the TEST switch on CU. On the TAU depress RX TERM INT and DIST switches. Insert CU in extender unit in multiplex shelf CU connector.
4	No action.	Set switches on NMS as follows: DBRN to on scale WTG to C-MSG FUNCTION to 600/900 NM (3C) or 600 NM (3A) NORM/DAMP to DAMP.

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
5	Select 10, 20, 30, and 40 dB attenuation, one at a time, by setting SEND LEVEL switch on CAU as follows: -10 -20 -30 -40	Adjust DBRN control on NMS as required to read meter for each attenuation selected at transmitting end. ***Requirement:*** 47 dBrnc or less 37 dBrnc or less 27 dBrnc or less 23 dBrnc or less
6	If requirements at other end are ***not*** met, perform distortion measurements single-ended per Section 365-150-501 and repeat this test.	If requiirements are ***not*** met, perform distortion (quantizing noise) measurements single-ended per Section ITTR-15-503 and repeat this test.
	Receiving End	***Transmitting End***
7	Connect the test circuit for channel to be checked as shown in Fig. 2B.	Connect the test circuit for channel to be checked as shown in Fig. 6A.
8	Set switches on NMS as follows: DBRN to 85 WTG to C-MSG FUNCTION to 600/900 NM (3C) or 600 NM (3A) NORM/DAMP to DAMP.	On TAU depress TX TERM INT.
9	Set switches on CAU as follows: REJ FL to IN SEND LEVEL to OFF TEST to CHAN LINE.	No action.
10	Adjust DBRN control on NMS as required to read meter for each attenuation selected at transmitting end. ***Requirement:*** 46 dBrnc or less 36 dBrnc or less 26 dBrnc or less 22 dBrnc or less	Select 10, 20, 30, and 40 dB attenuation, one at a time, by setting TX ATTEN dB switches on TAU as follows: 10 dB 20 dB 30 dB 40 dB

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
11	If requirements are ***not*** met, perform distortion measurements single-ended per Section 365-150-501 and repeat this test.	If requirements at other end are ***not*** met, perform distortion (quantizing noise) measurements single-ended per Section ITTR-15-503 and repeat this test.
12	When the requirements have been met, proceed to the next test or remove test connections.	When the requirements have been met, proceed to the next test or remove test connections. Release all switches on TAU and TEST switches on CU. Reset TX ATTN dB switches on TAU to 0.0 dB.

E. Crosstalk Test

In this test, tone is sent alternately on the two most likely interfering channels while noise caused by crosstalk is measured at the other end of the channel under test.

1	Verify that Preparation for Tests and Transmission Test have been completed.	Verify that Preparation for Tests and Transmission Test have been completed.
2	Select the channel to be tested.	From Table A determine the two most likely interfering channels for the channel under test.
	Receiving End	***Transmitting End***
3	Connect the test circuit as shown in Fig. 7B to channel under test.	Connect the test circuit as shown in Fig. 8A to the first most likely interfering channel.
4	Insert 262B plugs in XMT jack of channel under test and most likely interfering channels.	Terminate channel under test as shown in Fig. 8A.
5	Set switches on CAU as follows: REF FL to OUT SEND LEVEL to OFF TEST to CHAN LINE.	Depress the TEST switches on the CU comprising the ***channel under test*** and the ***interfering channels.***
6	Set switches on NMS as follows: DBRN to on scale WTG to C-MSG FUNCTION to 600/900 NM (3C) or 600 NM (3A) NORM/DAMP to DAMP.	On TAU, depress one TX TERM switch (4W 600, 2W 600, or 2W 900) to match type and impedance of interfering channel.
7	Measure crosstalk.	No action.

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
	Requirement: 27 dBrnc or less.	
8	No action.	Move test connection to the other most likely interfering channel (Table A).
9	No action.	On TAU depress one TX TERM switch (4W 600, 2W 600, or 2W 900) to match type and impedance of interfering channel.
10	Measure crosstalk. ***Requirement:*** 27 dBrnc or less.	No action.
11	If the requirement of Step 7 or 10 is ***not*** met, perform crosstalk measurements single-ended per Section 365-150-501 and repeat this test.	If the requirements at other end are ***not*** met, perform crosstalk measurements single-ended per Section ITTR-15-503 and repeat this test.
12	From Table A, determine the two most likely interfering channels for the channel under test.	Select the channel to be tested.
	Transmitting End	***Receiving End***
13	Connect the test circuit as shown in Fig. 7A to the first most likely interfering channel.	Connect the test circuit as shown in Fig. 8B to channel under test.
14	Set switches on CAU as follows: REJ FL to OUT SEND LEVEL to 0 TEST to CHAN LINE.	On the TAU depress XTLK and one RX TERM switch (4W 600, 2W 600, or 2W 900) to match type and impedance of channel under test.
15	Insert a 262B plug into the XMT jack of the channel under test.	Set switches on NMS as follows: DBRN to on scale WTG to C-MSG FUNCTION to 600/900 NM (3C) or 600 NM (3A) NORM/DAMP to DAMP.
16	No action.	Measure crosstalk. ***Requirement:*** 4-wire CU, 32 dBrnc or less; 2-wire CU, 22 dBrnc or less. For nominal receive levels of +7 dBm for 4-wire or -3 dBm for 2-wire (25 dBrnc0).
17	Move the test connection to the other most likely interfering channel.	No action.

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
18	No action.	Measure crosstalk. ***Requirement:*** 4-wire CU, 32 dBrnc or less; 2-wire CU, 22 dBrnc or less. For nominal receive levels of +7 dBm for 4-wire or -3 dBm for 2-wire (25 dBrnc0).
19	If requirements at other end end are ***not*** met, perform crosstalk measurements single-ended per Section 365-150-501 and repeat this test.	If requirement of Step 16 or 18 is ***not*** met, perform crosstalk measurements single-ended per Section ITTR-15-503 and repeat this test.
20	Disconnect patch cords and plugs from channel units.	Disconnect patch cords and termination from channel units.
21	Disconnect test setup and turn off power on test sets as applicable.	Release all switches on the TAU and the TEST switches on the CU. Disconnect all test equipment and turn off power on test sets as applicable.

F. Alarm Test

Caution: This test should not be performed on working banks unless all circuits have been made busy or removed from service.

Note: Disregard the lighting or extinguishing of lamps not specifically referred to in this test.

1	Connect a 3-inch wire equipped with pin plugs between the RNFAL and GRD jacks on the receiver unit. ***Requirement:*** The red AR lamp on the alarm control unit (ACU) lights.	Observe the power supply and alarm unit (PSAU). ***Requirement:*** The yellow REM lamp lights on the PSAU.
2	Depress ACO button on ACU. ***Requirement:*** The ACO lamp lights and the audible alarms silence.	Depress ACO button on PSAU. ***Requirement:*** The ACO lamp lights and the audible alarms silence.
3	If the lamp does ***not*** light, remove the lamp and check it with an ohmmeter. If there is continuity, replace the ACU.	If the lamp does ***not*** light, remove the lamp and check it with an ohmmeter. If there is continuity, replace the PSAU.
4	Remove the wire from between RNFAL and GRD jacks. ***Requirement:*** The red AR lamp extinguishes.	Observe the PSAU. ***Requirement:*** The yellow REM lamp extinguishes after about 15 seconds.
5	If the requirement is ***not*** met, replace the ACU.	If the requirement is not met, replace the PSAU.

STEP	WESTERN ELECTRIC D3 END	ITT TELECOMMUNICATION T324 END
6	Disengage the transmit unit. ***Requirement:*** The yellow AY lamp on the ACU lights.	Observe the PSAU. ***Requirement:*** The REC PCM or FR/CODEC lamp lights on the PSAU.
7	Depress ACD button on ACU. ***Requirement:*** The ACO lamp lights and the audible alarms silence.	Depress ACO button on PSAU. ***Requirement:*** The ACO lamp lights and the audible alarms silence.
8	Reinsert transmit unit. ***Requirement:*** The yellow AY lamp on the ACU extinguishes.	Observe PSAU. ***Requirement:*** The REC PCN or FR/CODEC lamp extinguishes.
9	If the requirement is ***not*** met, replace the ACU.	If the requirement is ***not*** met, replace the PSAU.
10	Depress MEM RESET button on TPU if provided.	No action.

TABLE A

CHANNEL UNDER TEST	MOST LIKELY INTERFERING CHANNELS		CHANNEL UNDER TEST	MOST LIKELY INTERFERING CHANNELS	
1	24	23	13	12	11
2	1	24	14	13	12
3	2	1	15	14	13
4	3	2	16	15	14
5	4	3	17	16	15
6	5	4	18	17	16
7	6	5	19	18	17
8	7	6	20	19	18
9	8	7	21	20	19
10	9	8	22	21	20
11	10	9	23	22	21
12	11	10	24	23	22

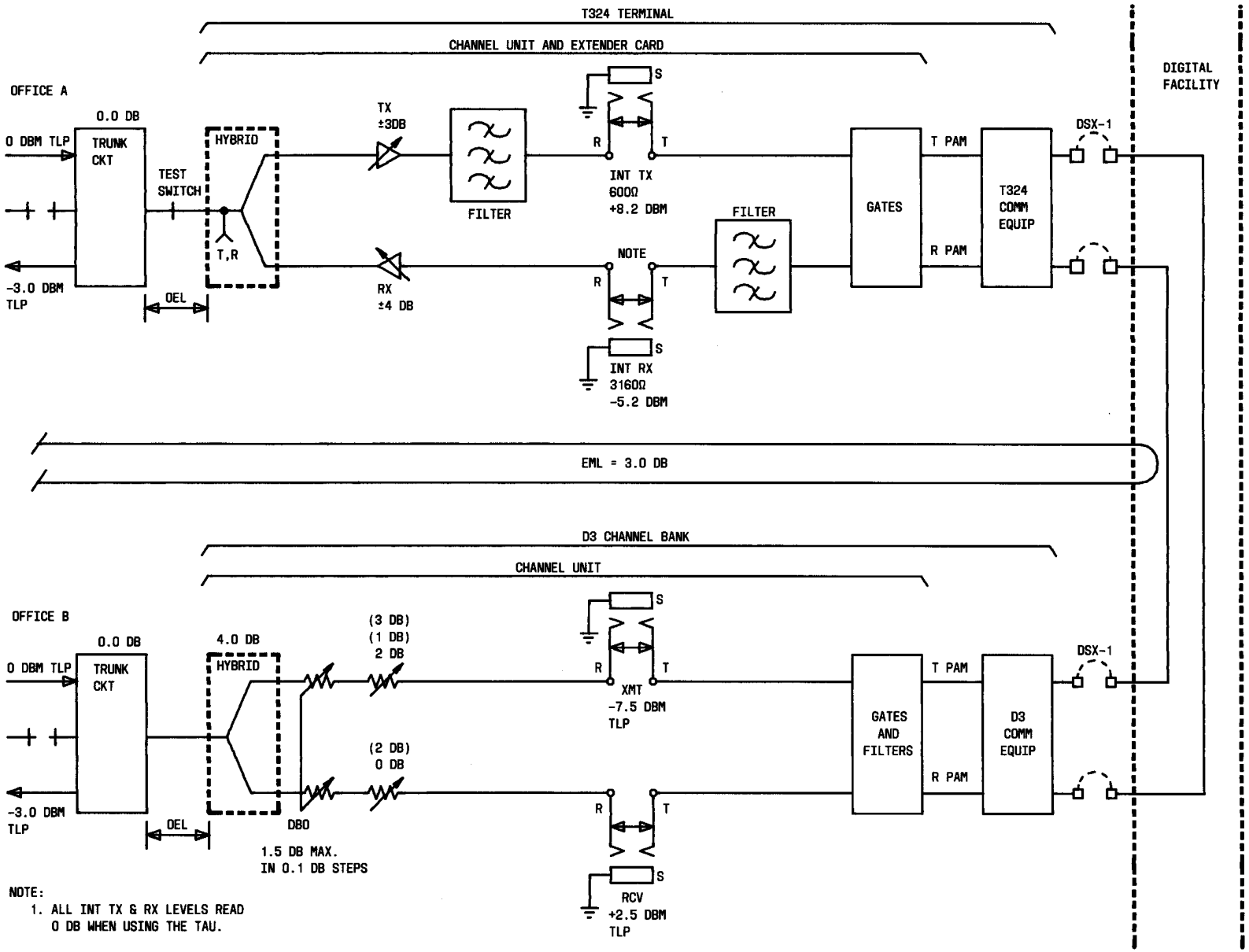
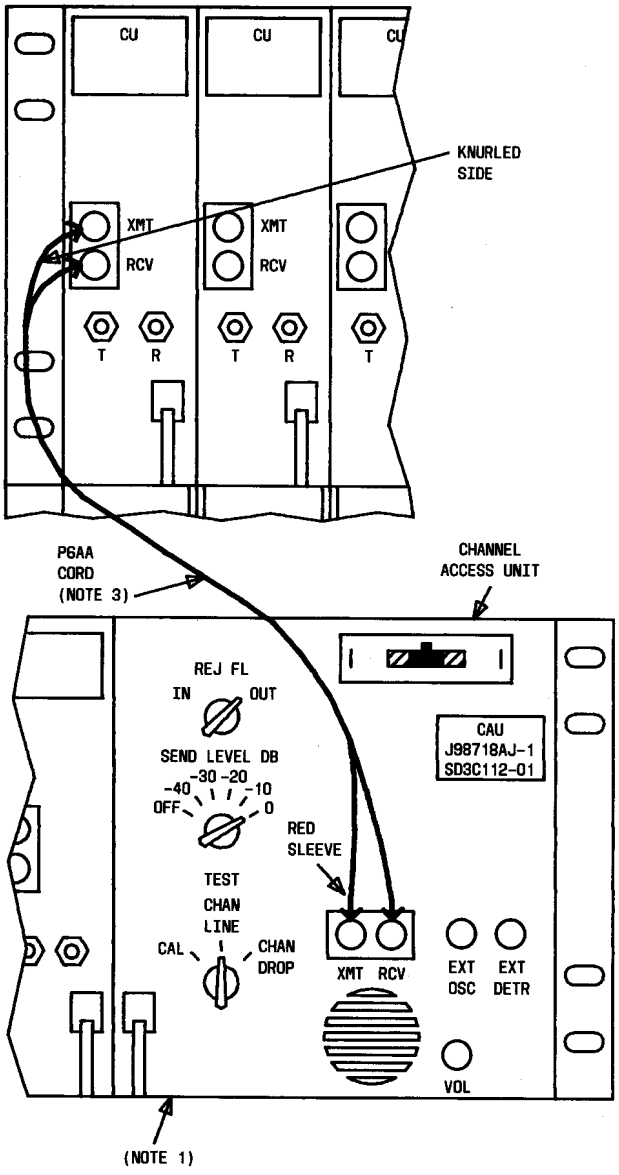
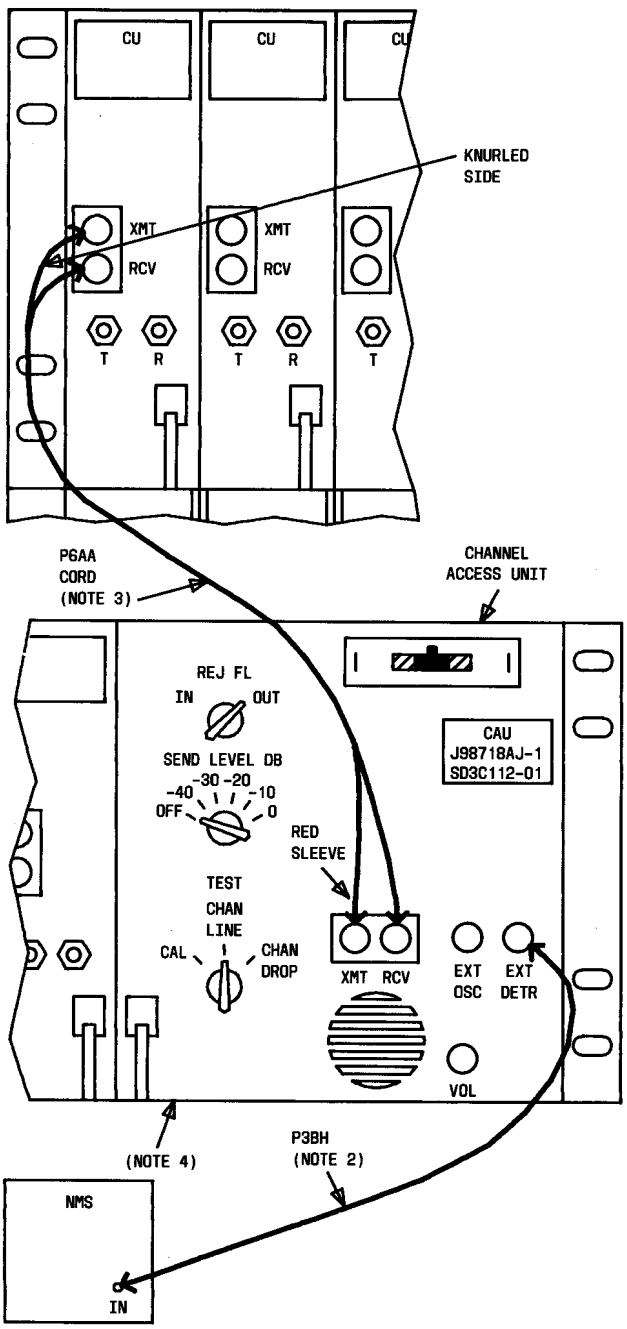


Fig. 1—Typical 2-Wire ITT T324/WE D3 Interface



A. TRANSMITTING END



B. RECEIVING END

NOTES:

1. SET THE SWITCHES ON THE CAU AS FOLLOWS:

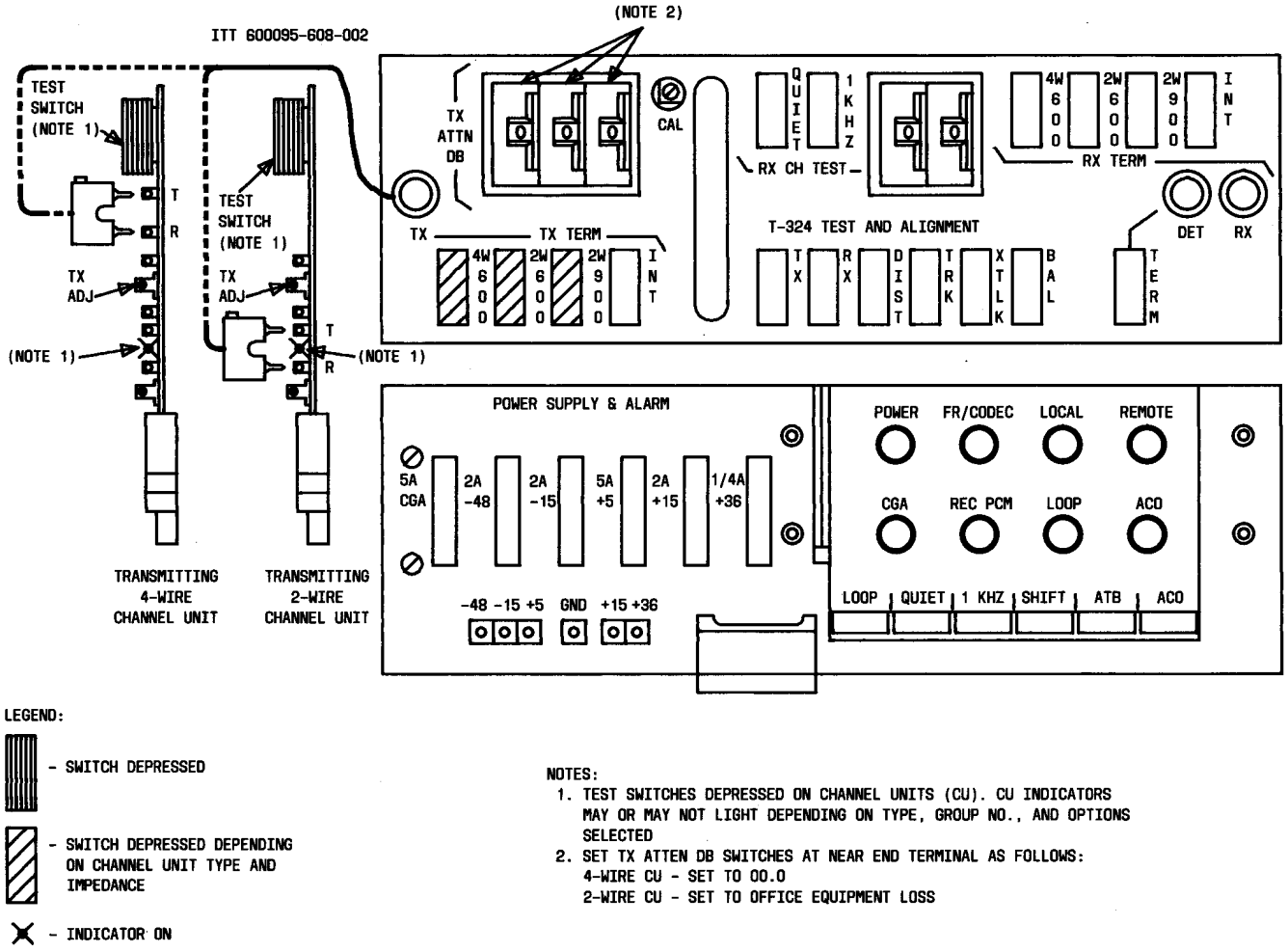
TEST	CAU SWITCHES		
	REJ FL	SEND LEVEL	TEST
NET LOSS	OUT	0	CH LINE
NOISE	OUT	OFF	CH LINE
DISTORTION	IN	0 TO 40	CH LINE

2. NMS REQUIRED FOR NOISE AND DISTORTION TEST.
3. PATCH KNURLED SIDE OF DOUBLE PLUG TO XMT JACK. PATCH RED 310 PLUG TO XMT AND BLACK 310 PLUG TO RCV.

4. SET THE SWITCHES ON THE CAU AS FOLLOWS:

TEST	CAU SWITCHES		
	REJ FL	SEND LEVEL	TEST
NET LOSS	OUT	OFF	CH LINE
NOISE	OUT	OFF	CH LINE
DISTORTION	IN	OFF	CH LINE

Fig. 2—Channel Net Loss, Noise, and Quantizing Distortion—WE D3 Terminals



LEGEND:

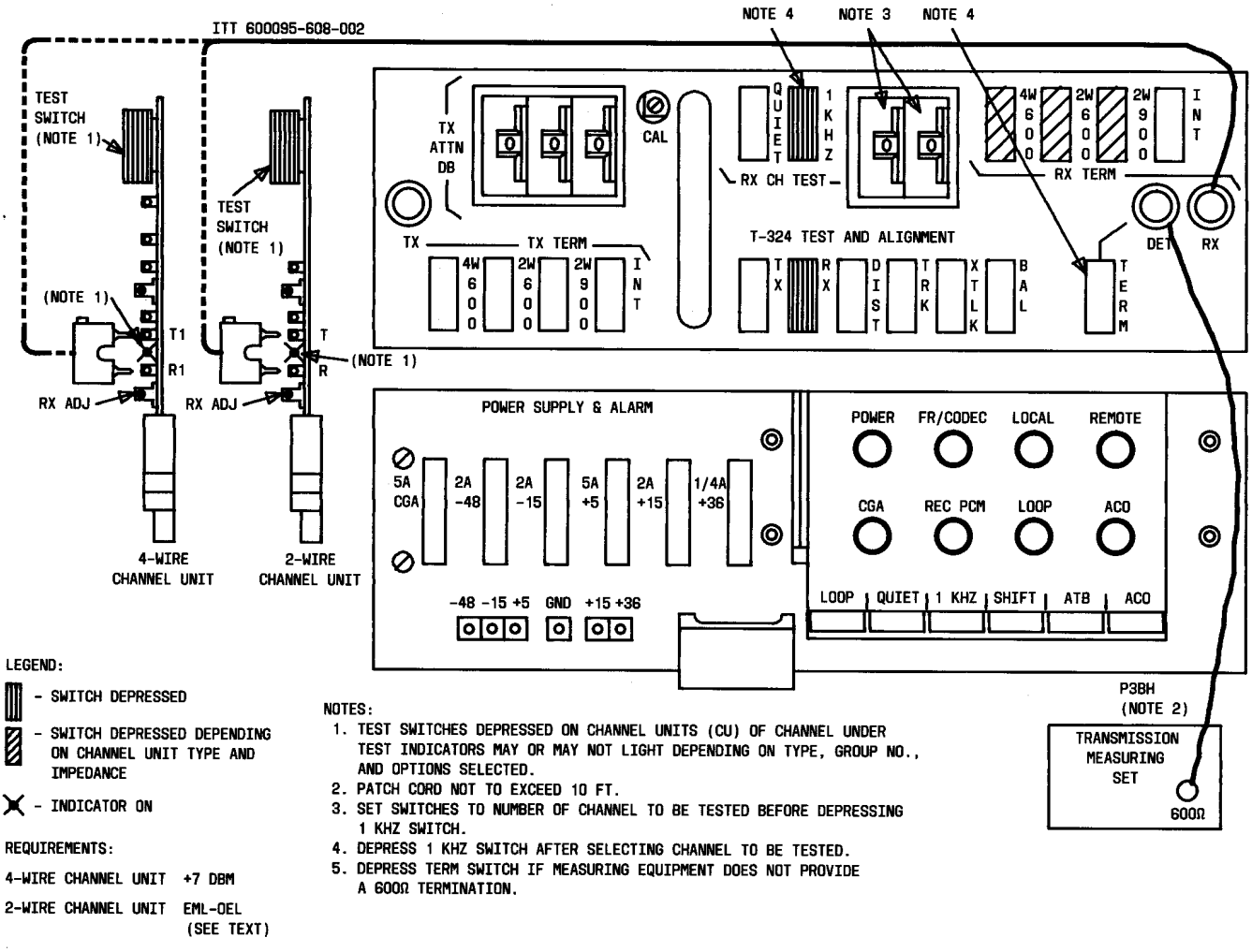
- SWITCH DEPRESSED

- SWITCH DEPRESSED DEPENDING ON CHANNEL UNIT TYPE AND IMPEDANCE

X - INDICATOR ON

NOTES:
1. TEST SWITCHES DEPRESSED ON CHANNEL UNITS (CU). CU INDICATORS MAY OR MAY NOT LIGHT DEPENDING ON TYPE, GROUP NO., AND OPTIONS SELECTED
2. SET TX ATTEN DB SWITCHES AT NEAR END TERMINAL AS FOLLOWS:
   4-WIRE CU - SET TO 00.0
   2-WIRE CU - SET TO OFFICE EQUIPMENT LOSS

Fig. 3—Transmit VF Level Adjustment—ITT T324 Terminal



LEGEND:

- SWITCH DEPRESSED
- SWITCH DEPRESSED DEPENDING ON CHANNEL UNIT TYPE AND IMPEDANCE
- INDICATOR ON

REQUIREMENTS:

4-WIRE CHANNEL UNIT +7 DBM

2-WIRE CHANNEL UNIT EML-OEL (SEE TEXT)

NOTES:

1. TEST SWITCHES DEPRESSED ON CHANNEL UNITS (CU) OF CHANNEL UNDER TEST INDICATORS MAY OR MAY NOT LIGHT DEPENDING ON TYPE, GROUP NO., AND OPTIONS SELECTED.
2. PATCH CORD NOT TO EXCEED 10 FT.
3. SET SWITCHES TO NUMBER OF CHANNEL TO BE TESTED BEFORE DEPRESSING 1 KHZ SWITCH.
4. DEPRESS 1 KHZ SWITCH AFTER SELECTING CHANNEL TO BE TESTED.
5. DEPRESS TERM SWITCH IF MEASURING EQUIPMENT DOES NOT PROVIDE A 600Ω TERMINATION.

Fig. 4—Receive VF Level Adjustment—ITT T324 Terminal

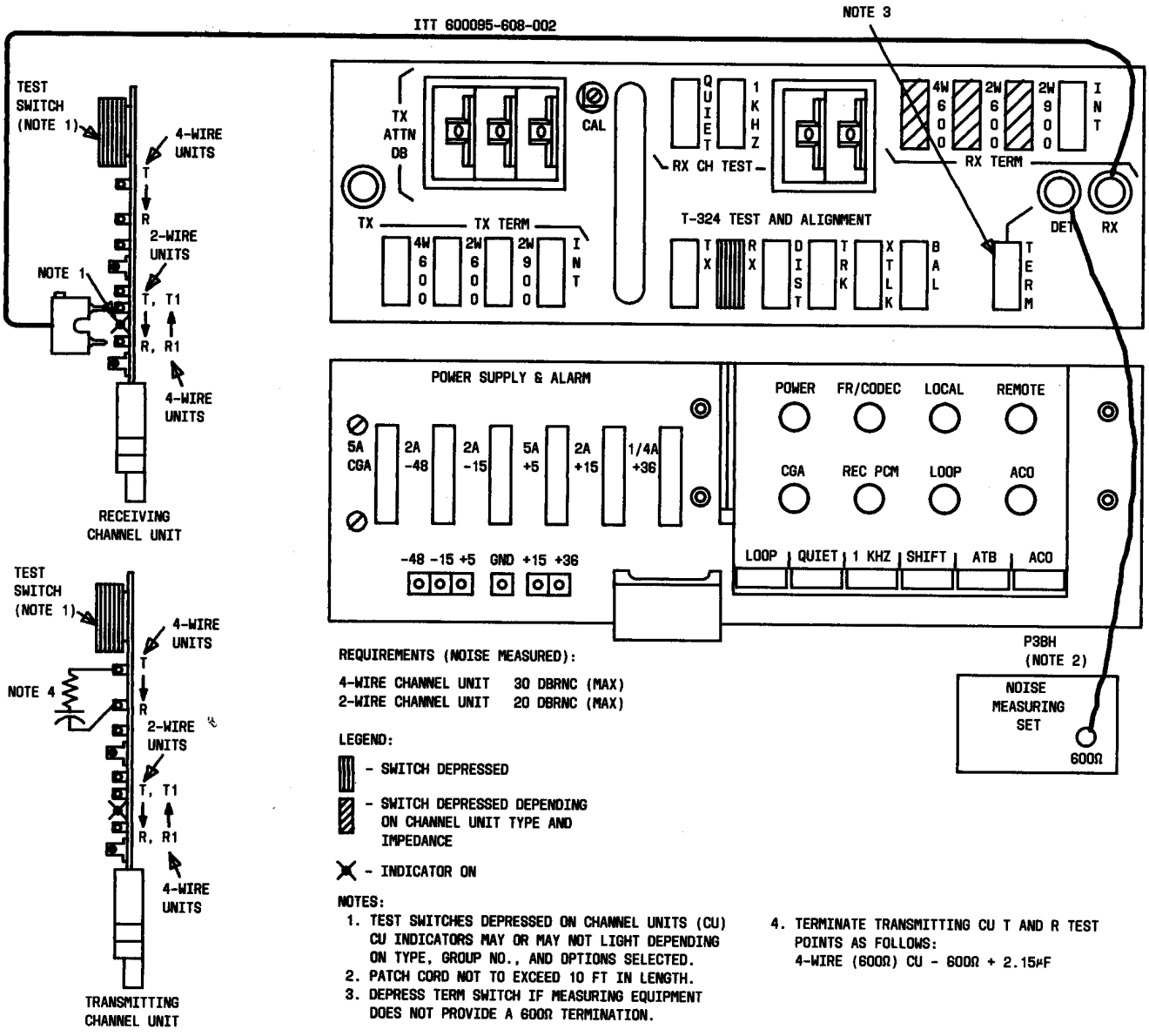
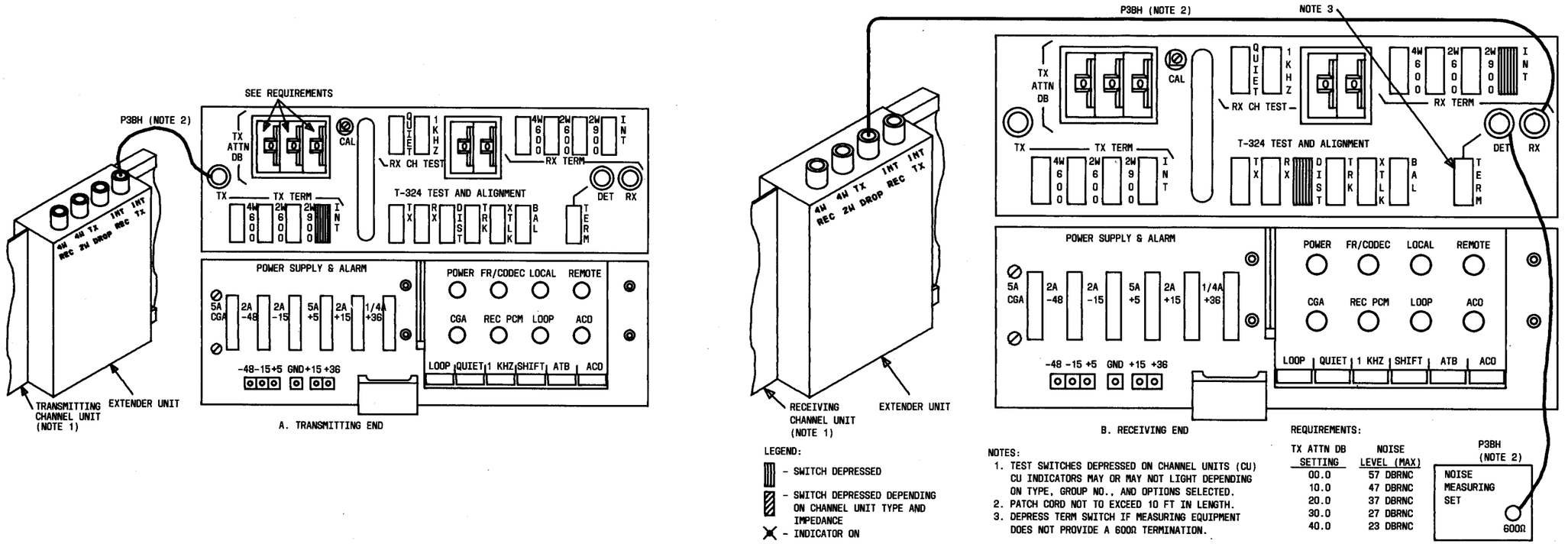


Fig. 5—Idle Channel Noise Measurement—ITT T324 Terminal



LEGEND:

- ▥ - SWITCH DEPRESSED
- ▨ - SWITCH DEPRESSED DEPENDING ON CHANNEL UNIT TYPE AND IMPEDANCE
- ✕ - INDICATOR ON

NOTES:

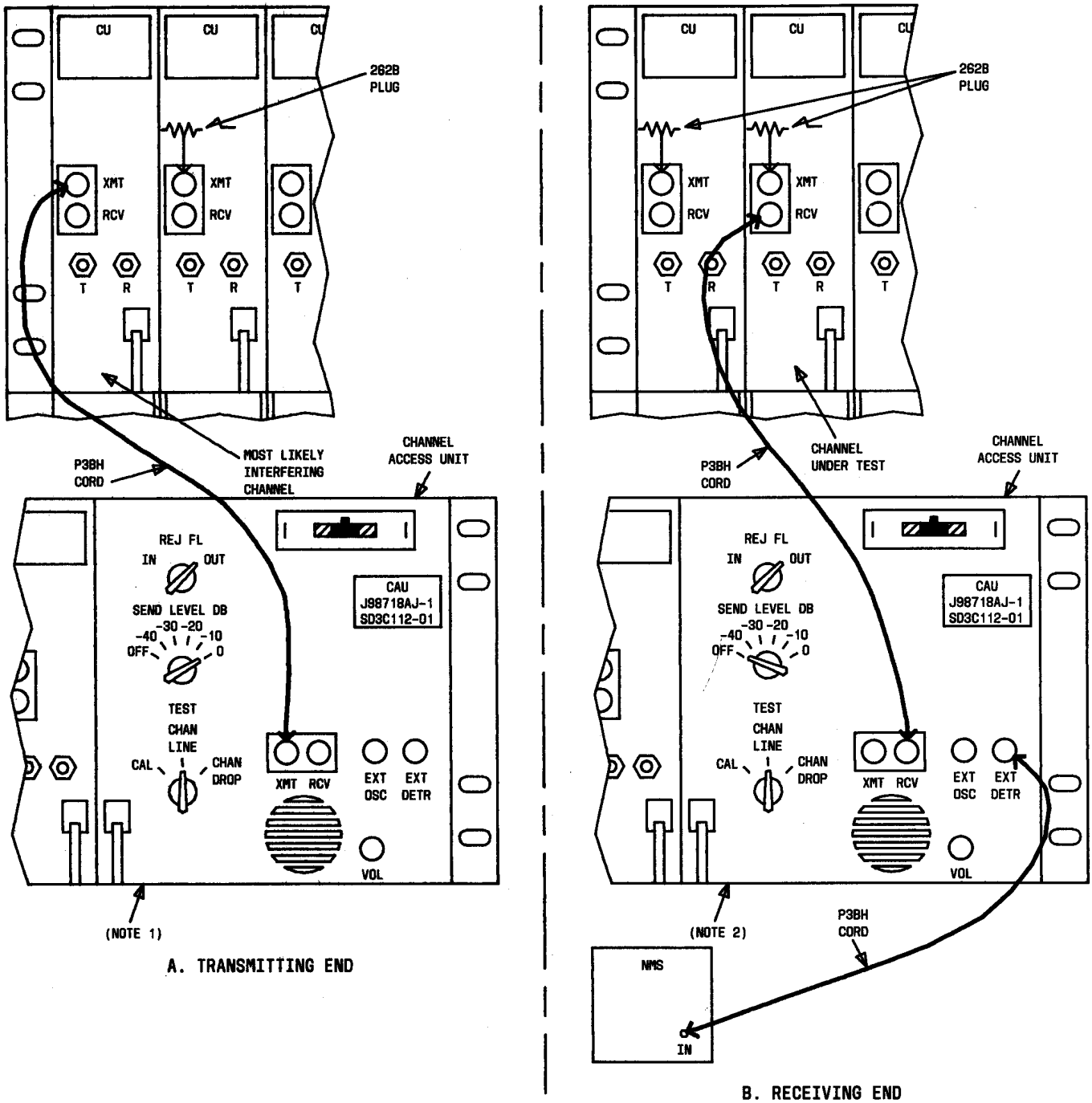
1. TEST SWITCHES DEPRESSED ON CHANNEL UNITS (CU) CU INDICATORS MAY OR MAY NOT LIGHT DEPENDING ON TYPE, GROUP NO., AND OPTIONS SELECTED.
2. PATCH CORD NOT TO EXCEED 10 FT IN LENGTH.
3. DEPRESS TERM SWITCH IF MEASURING EQUIPMENT DOES NOT PROVIDE A 600Ω TERMINATION.

REQUIREMENTS:

TX ATTN DB SETTING	NOISE LEVEL (MAX)
00.0	57 DBRNC
10.0	47 DBRNC
20.0	37 DBRNC
30.0	27 DBRNC
40.0	23 DBRNC

P3BH (NOTE 2)
NOISE MEASURING SET
600Ω

Fig. 6—Quantizing Distortion Measurement—ITT T324 Terminals



NOTES:

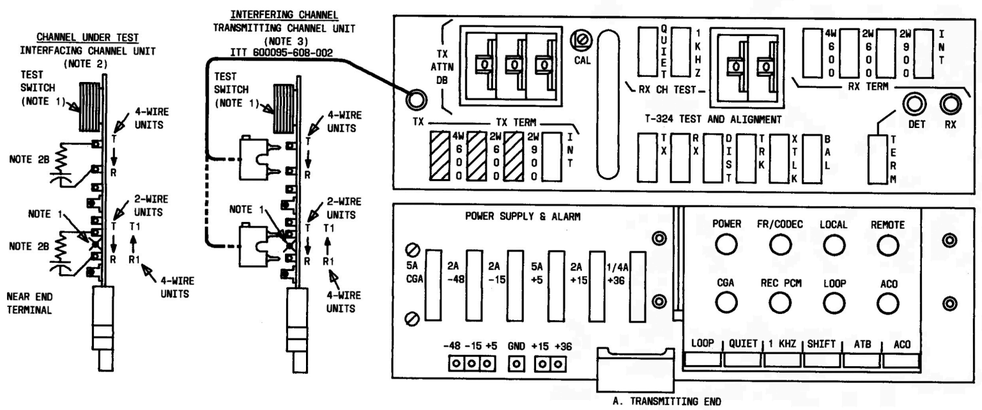
1. SET THE SWITCHES ON THE CAU AS FOLLOWS:

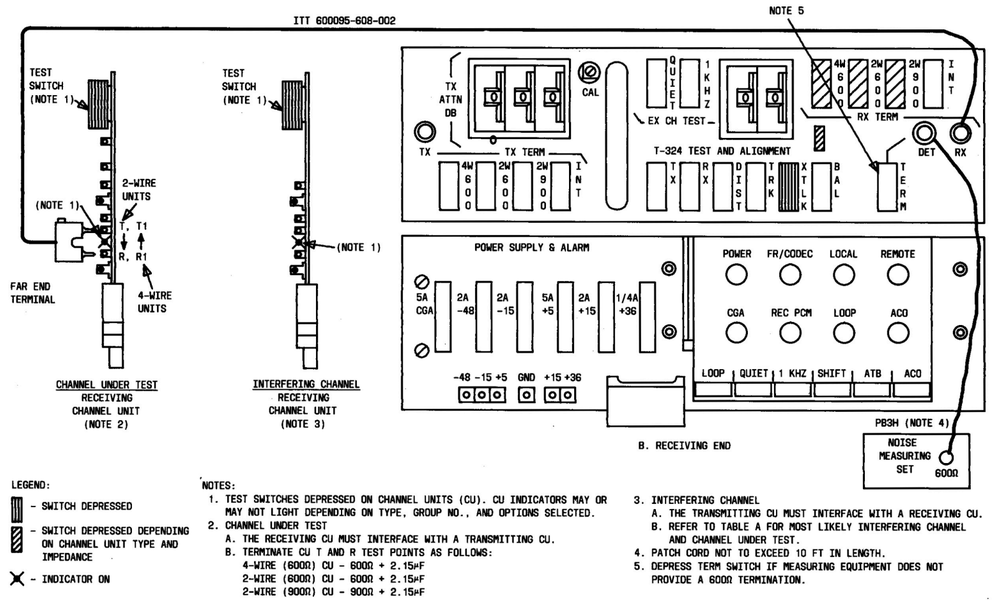
CAU SWITCHES		
REJ FL	SEND LEVEL	TEST
OUT	0	CH LINE

2. SET THE SWITCHES ON THE CAU AS FOLLOWS:

CAU SWITCHES		
REJ FL	SEND LEVEL	TEST
OUT	OFF	CH LINE

Fig. 7—Channel Crosstalk—WE D3 Terminals





LEGEND:

- ▥ - SWITCH DEPRESSED
- ▨ - SWITCH DEPRESSED DEPENDING ON CHANNEL UNIT TYPE AND IMPEDANCE
- X - INDICATOR ON

NOTES:

1. TEST SWITCHES DEPRESSED ON CHANNEL UNITS (CU). CU INDICATORS MAY OR MAY NOT LIGHT DEPENDING ON TYPE, GROUP NO., AND OPTIONS SELECTED.
2. CHANNEL UNDER TEST
   A. THE RECEIVING CU MUST INTERFACE WITH A TRANSMITTING CU.
   B. TERMINATE CU T AND R TEST POINTS AS FOLLOWS:
      4-WIRE (600Ω) CU - 600Ω + 2.15μF
      2-WIRE (600Ω) CU - 600Ω + 2.15μF
      2-WIRE (900Ω) CU - 900Ω + 2.15μF
3. INTERFERING CHANNEL
   A. THE TRANSMITTING CU MUST INTERFACE WITH A RECEIVING CU.
   B. REFER TO TABLE A FOR MOST LIKELY INTERFERING CHANNEL AND CHANNEL UNDER TEST.
4. PATCH CORD NOT TO EXCEED 10 FT IN LENGTH.
5. DEPRESS TERM SWITCH IF MEASURING EQUIPMENT DOES NOT PROVIDE A 600Ω TERMINATION.

Fig. 8—Crosstalk Measurement—ITT T324 Terminals