L3 AND L4 CARRIER
COMMON EQUIPMENT
J68820 AUTOMATIC LINE SWITCHING
TESTS
SWITCHING SIGNAL PHASE CORRECTION

At the receiving end of a switching section, the switching signal frequencies of all the lines in a particular group are combined at the output of the switching signal filters (Fig. 1). A low level on one or more of the incoming lines can be caused by a phase difference between the signals. Phase correcting networks (Fig. 2) are provided at the output of the filter to minimize the reductions in level. Network Z1 contains four sections, each having a 90-degree phase shift capability. Repeat coil T2 can introduce an additional 180 degrees. A maximum of 270 degrees can be added to one line by using one network and the repeat coil. By placing appropriate straps between LINE, PHASE CORR, and REL terminals on the cross connecting strip, 0, 90, 180, or 270 degrees may be inserted as required.

Failure to meet the requirements in this section on existing systems would indicate the need for individual line switching signal level adjustments. The equipment required for these level adjustments can be provided on an individual line basis.

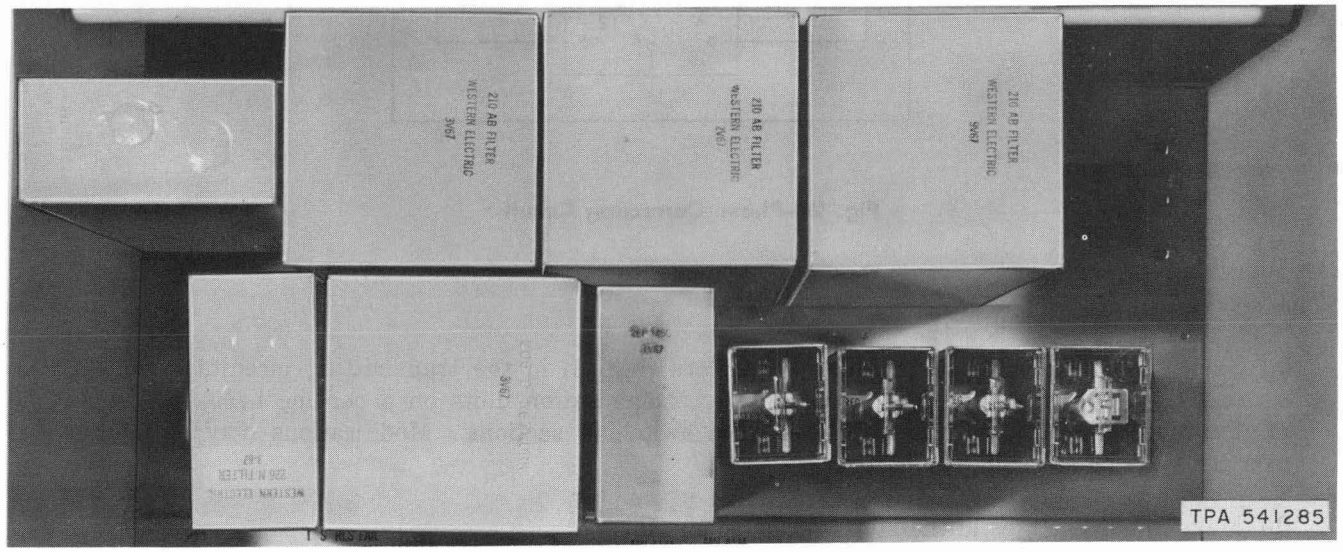

Fig. 1—Switching Signal Filter Unit

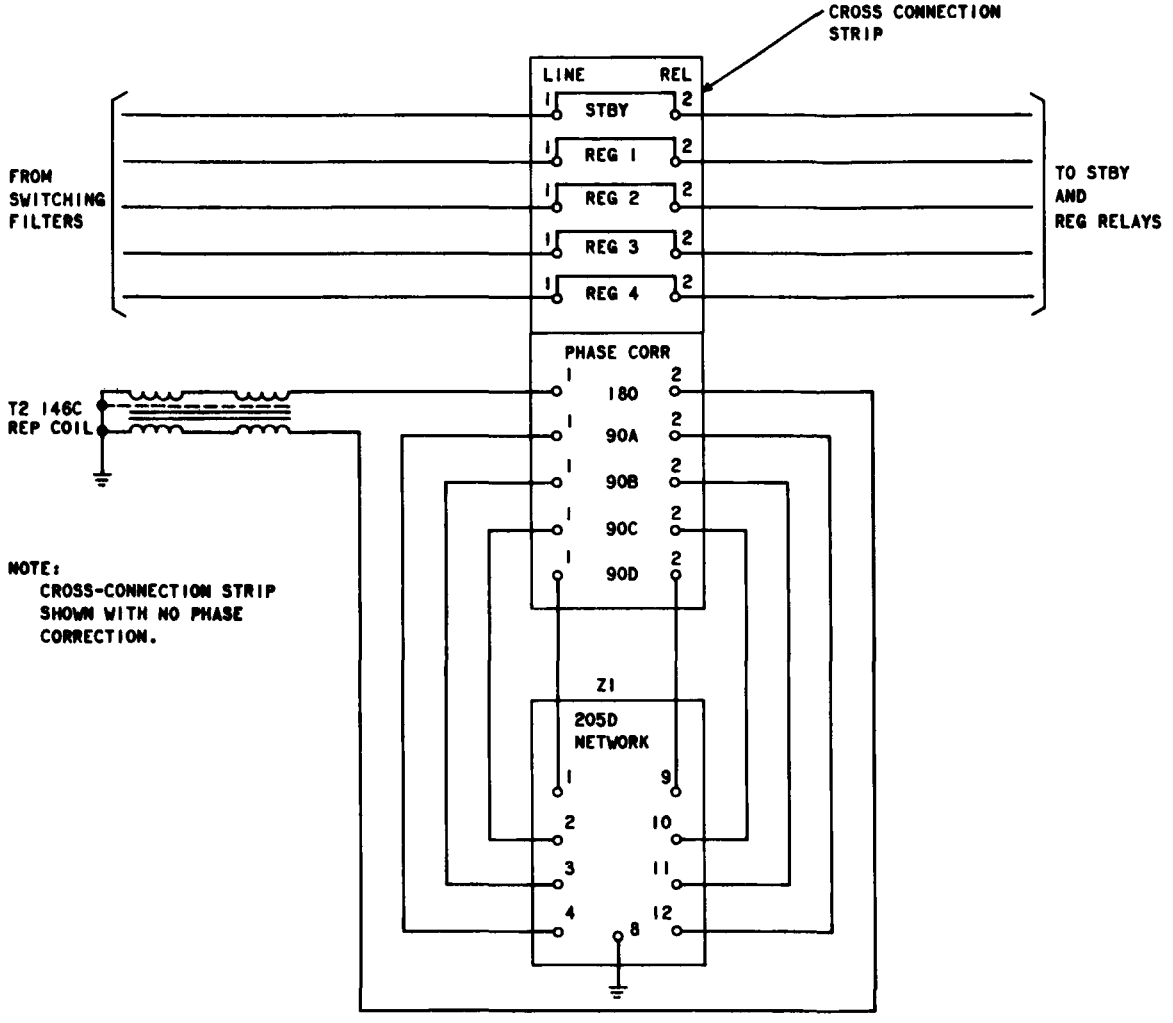

Fig. 2—Phase Correcting Circuit

This section is reissued to:

(a) Show the addition of switch tone amplifiers (Fig. 3) in the transmitting circuits of new L3 and L4 systems, also the addition of level compensation units on a per-line basis (Fig. 4 and 7) at the receiving end of existing L4 system switching sections. Modifications may be made to existing systems as required.

(b) Make minor changes in the step procedure charts.

(c) Revise limits at the SW FLT OUT or LVL COM OUT jacks due to the addition of an 8-dB cable pad at the input to the switching signal amplifier.

Arrows are used to indicate significant changes. ***Equipment Test Lists are not affected.***

Note 1: The tests in this section require operating personnel at the near and far terminals of the switching section under test. In this section the near end will be referred to as the receive, and the far end as the transmit.

Note 2: The following table gives the location of the keys and lamps mentioned in this section.

COMPONENT	BAY LOCATION
LOCK NORM key	L3 — miscellaneous bay L4 — control connecting bay
MSTR key	L3 — miscellaneous bay L4 — control connecting bay
LOCK NORM lamp	L3 — miscellaneous bay L4 — control connecting bay
OUT SERV lamp	Standby receive bay
TRSG SW DISC lamp	Switch control bay
TSC TST lamp	L3 — miscellaneous bay L4 — control connecting bay
RLS key	L3 — miscellaneous bay

Note 3: The tests in this section require that the adjustments in Section 359-100-510 be complete for L4 systems using the J988620AC level compensation units. For L4 systems provided with individual line switching signal level adjustments, the procedure in Section 359-100-509 must be completed.

CHART **PAGE**

APPARATUS

Transmission Test Equipment having the following capabilities (Section 356-010-500):

Receiving Test Equipment (RTE)

Input

Frequency range: 200 to 300 kHz

Power: 0 to −100 dBm

Impedance: 75 ohms

11B Attenuator (30 dB)

P2BJ Cords

CHART 1

MEASUREMENT OF SWITCHING SIGNAL TRANSMIT POWER (MULTILINE, EXPANDED MULTILINE, AND SUPER MULTILINE)

STEP	PROCEDURE
	Receive Terminal
1	Establish a talk circuit between the terminals under test.
2	▶At the switch control bay, remove the patch plugs as follows: ***L3:*** Between SW FIL OUT and SW AMP IN ***L4:*** Between LVL COM OUT and SW AMP IN or SW FIL OUT and SW AMP IN, as provided.◀
	Transmit Terminal
3	▶If a switch tone amplifier is provided in the DIRECTOR, COMMON SW CONT, and TRSG SW CONT 1 panels, record the setting of the S1 switch on each amplifier, and then set the switches to the 0 position.◀

CHART 1 (Cont)

STEP	PROCEDURE
4	Prepare the RTE for a bridging measurement at the frequency and level shown in Table A.
5	Connect the RTE through the 11B attenuator (30 dB) to the jack shown in Table A.
6	Use Table A and Fig. 3 to test each transmitting signal level as directed by the receiving end.
7	◗Restore the S1 switch of each switch tone amplifier to the settings recorded in Step 3.
	Receive Terminal
8	Replace the patch plug removed in Step 2.◖

CHART 2

SWITCHING SIGNAL PHASE CORRECTION IN A MULTILINE ARRANGEMENT

STEP	PROCEDURE
	◗*Note:* Chart 1 of this section is a prerequisite to the following tests.◖
	A. Switching Signal Measurement (Group A)
	Receive Terminal
1	At the rear of the switch control bay, remove the cover from the switching signal filter unit.
2	On the cross-connection strip (Fig. 2), record the strapping arrangement now in use.
3	Remove any phase correction wiring and strap the lines directly across the cross-connection strip.
4	Prepare the RTE for a 75-ohm terminated measurement of 296 kHz at approximately −70 dBm.
5	At the switch control bay, remove the patch plug as follows: *L3:* Between SW FIL OUT and SW AMP IN *L4:* Between SW FIL OUT and SW AMP IN or LVL COM OUT and SW AMP IN, as provided.

TABLE A

TRANSMITTING SIGNAL LEVEL TESTS

SWITCHING SIGNAL (kHz)	SIGNAL PURPOSE	SWITCHING SIGNAL ACTIVATION	SIGNAL MEASUREMENT		SWITCHING SIGNAL RELEASE
			JACK*	REQUIREMENT	
296	Verification	Remove the TSH relay cover on the TRSG SW CONT 1 panel and manually operate the TSH relay.	TRSG SW CONT 1 MON [patch (1), Fig. 3]	—54 dBm ±0.2 dB	Slowly operate the TRSG SW key on the TRSG SW CONT 1 panel and return the key to normal. (Replace TSH relay cover.)
290	1st REG INIT Identification	Remove LO relay cover on the proper line initiator and operate the REC L SW key to DISC, operate INIT key to TST, block LO relay nonoperated, and operate TST SENS key.	TRSG SW CONT 1 MON [patch (1), Fig. 3]	—54 dBm ±0.2 dB (for each signal)	Return keys REC L SW, INIT, and TST SENS to their normal positions. Remove block from LO relay and operate it momentarily. (Replace LO relay cover.)
288	2nd REG INIT Identification				
286	3rd REG INIT Identification				
284	4th REG INIT Identification				
282	Release	Remove RLS relay cover. (RLS relay is on the COMM SW CONT panel.) Block the RLS relay in an operated condition.	TRSG SW CONT 1 MON [patch (1), Fig. 3]	—54 dBm ±0.2 dB	Remove block from RLS relay. (Replace RLS relay cover.)
280	Release check	Remove RCG relay cover. (RCG relay is on the director panel.) Block RCG relay in an operated condition.	RLS CHK MON [patch (2), Fig. 3]	—54 dBm ±0.2 dB	Remove block from RCG relay. (Replace RCG relay cover.)

* All jacks are in the switching control bay jack field.

Notes:

1. Repeat each step in Table A for TRSG SW CONT 2, 3, and 4 panels.
2. If the requirements of Table A are not met, refer to Section 359-100-505 for switch control bay tests.

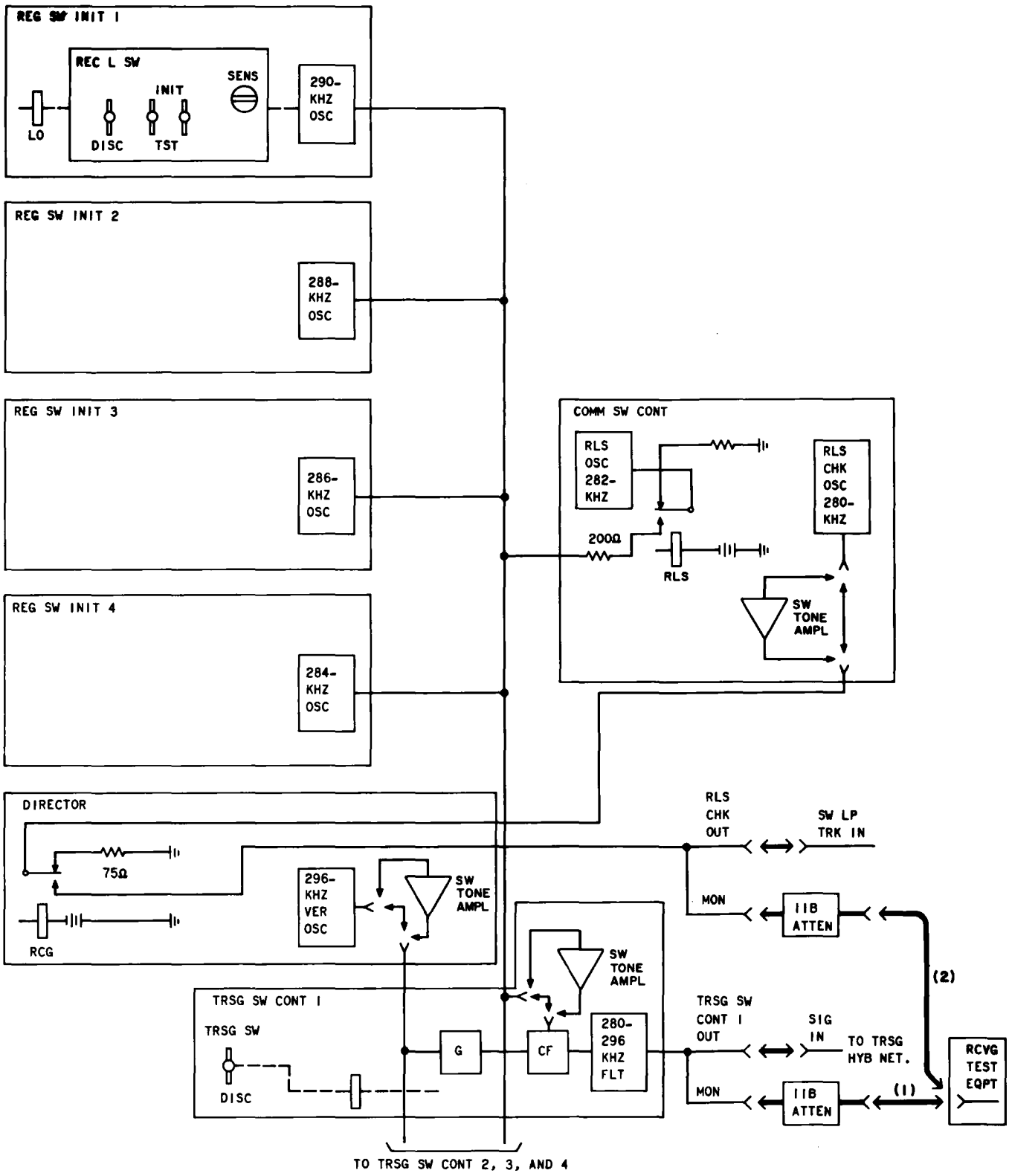

Fig. 3—Transmitting Signal Paths for a Multiline Switching System

CHART 2 (Cont)

STEP	PROCEDURE
6	Connect the RTE to the SW FIL OUT or LVL COM OUT jack [patch (1), Fig. 4].
7	At the switching signal filter, block operated all REG relays between the phase correction network and the SW FIL OUT or LVL COM OUT jack (Fig. 4).
8	Instruct the far end (transmit) to send a 296-kHz signal by the method described in Table A.
9	Record the RTE indication. ***Requirement:*** Between ▶−63◀ and −76 dBm
10	If the requirement of Step 10 is ***not*** met, determine the loss in the transmit and receive circuits by using the 296-kHz signal and Tables B, C, D, and E.
11	Instruct the far end (transmit) to remove the 296-kHz signal.
12	Instruct the far end (transmit) to send a 290-kHz signal by the method described in Table A.
13	Adjust the RTE to a frequency of 290 kHz at approximately −70 dBm.
14	Measure and record the power of the 290-kHz signal on the standby line. ***Requirement:*** Between ▶−63◀ and −76 dBm ***Note:*** Figure 5 shows a typical form which may be used to record the power of each switching signal and any possible combination of the switching signals. ***The number of possible combinations will depend upon the number of regular lines.***
15	Block operated the STBY relay and release the REG 1 relay.
16	Measure and record the power of the 290-kHz signal on regular line 1. ***Requirement:*** Between ▶−63◀ and −76 dBm
17	Block operated the REG 1 relay and release the REG 2 relay.
18	Measure and record the power of the 290-kHz signal on regular line 2. ***Requirement:*** Between ▶−63◀ and −76 dBm
19	Block operated the REG 2 relay and release the REG 3 relay.

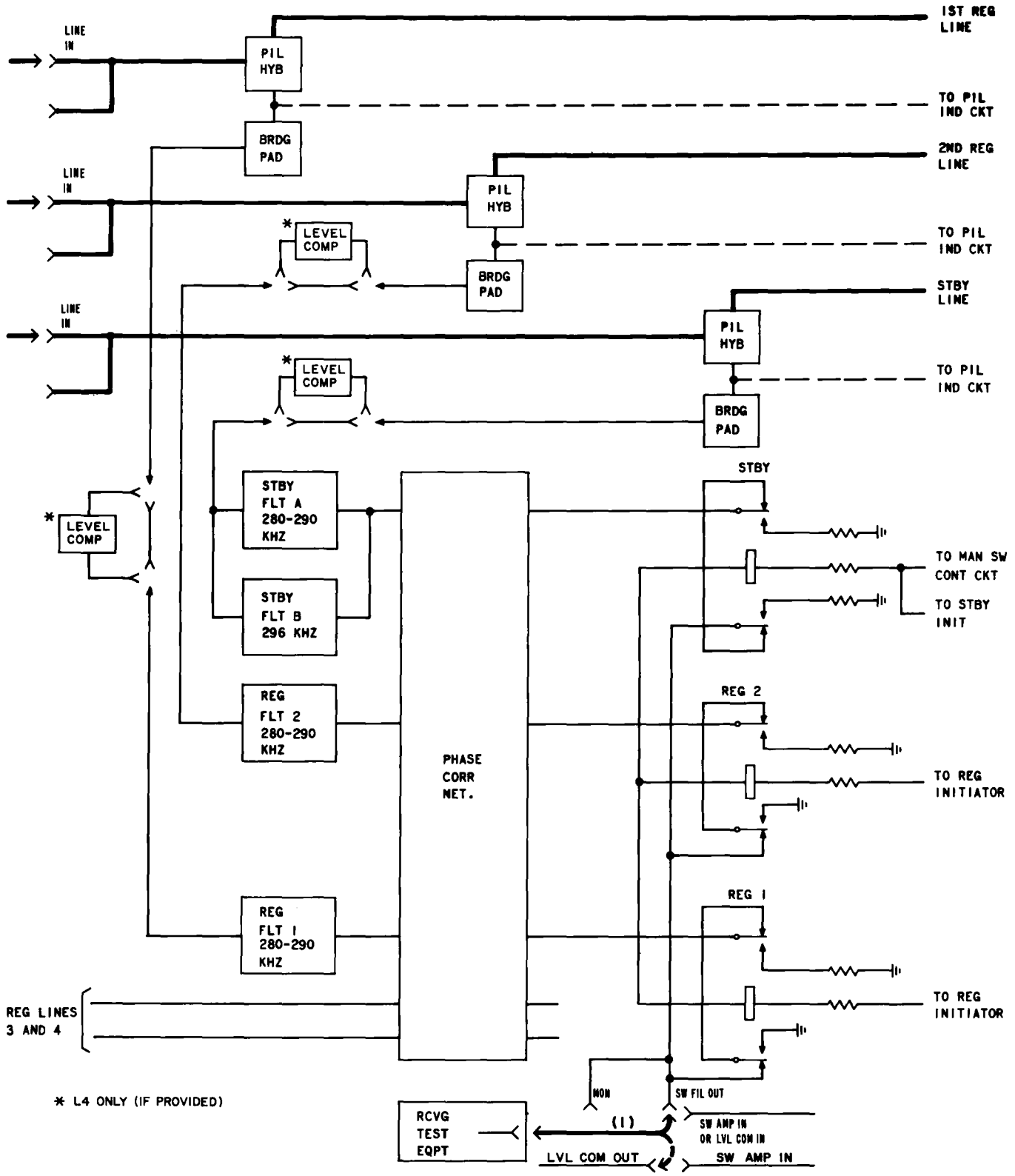

Fig. 4—Receiving Signal Paths for a Multiline Switching System

TABLE B

LOSS IN L3 TRANSMIT CIRCUITS

FREQUENCY (kHz)	FROM		TO		LOSS (dB)	
	JACK	LOCATION	JACK	LOCATION	A*	B*
296 290 288 286 284 282	TRSG SW CONT OUT	Switch Control Bay	TRSG HYB OUT B	Transmitting Bay	49.0 ±0.2†	36.0 ±0.2‡
280	RLS CHK OUT	Switch Control Bay	PIL LP OUT	Miscellaneous Bay	49.0 ±0.2‡	59.0 ±0.2‡

* Use column A for unmodified early installations of switching equipment and column B for modified early installations or for newly manufactured installations of switching equipment. See Section 359-100-500.

† With the TRSG HYB NET jack on the line transmitting bay terminated in 75 ohms or connected to pilot supply.

‡ With the SW LP IN jack at the miscellaneous bay terminated in 75 ohms.

CHART 2 (Cont)

STEP	PROCEDURE
20	Measure and record the power of the 290-kHz signal on regular line 3. ***Requirement:*** Between ◗—63◖ and —76 dBm
21	Block operated the REG 3 relay and release the REG 4 relay.
22	Measure and record the power of the 290-kHz signal on regular line 4. ***Requirement:*** Between ◗—63◖ and —76 dBm
23	If the requirements of Steps 14, 16, 18, 20, and 22 are ***not*** met, determine the loss in the transmit and receive circuits by using the 290-kHz signal and Tables B, C, D, and E.
24	Measure and record the output power of the 290-kHz signal for all line combinations listed in Fig. 5. ***Note:*** Be sure that all relays are blocked operated except the combination under measurement. ***Requirement:*** Between ◗—63◖ and —76 dBm

TABLE C

LOSS IN L4 TRANSMIT CIRCUITS

FREQUENCY (kHz)	FROM		TO		LOSS (dB)*
	JACK	LOCATION	JACK	LOCATION	
296 290 288 286 284 282	TRSG SW CONT OUT	Switch Control Bay	TRMTG HYB OUT B	Transmitting Bay	—35.8 ±0.5
280	RLS CHK OUT	Switch Control Bay	SIG IN	Receiving Bay	—35.8 ±0.5

* With the TRSG HYB NET jack on the line transmitting bay terminated in 75 ohms.

TABLE D

LOSS IN L3 RECEIVE CIRCUITS FROM
FLAT AMP D LINE IN JACK TO SW FIL OUT JACK*

FREQUENCY (kHz)	LOSS (dB)†			
	REGULAR		STANDBY	
	A‡	B‡	A‡	B‡
280	33 to 36	44 to 46	32 to 34	42 to 43
282	33 to 35	43 to 45	32 to 34	42 to 43
284	33 to 35	43 to 45	33 to 34	43 to 44
286	34 to 35	44 to 45	33 to 34	43 to 44
288	33 to 35	44 to 45	33 to 35	44 to 45
290	33 to 37	44 to 47	33 to 35	44 to 45
291	—	—	30 to 32	41 to 42

* FLAT AMP D LINE IN jack is located in the receiving bay; SW FIL OUT jack is located in the switch control bay.
† Characteristic not flat with frequency because of switching signal filters.
‡ See * in Table B.

TABLE E

LOSS IN L4 RECEIVE CIRCUITS FROM
PIL HYB IN JACK TO SW FIL OUT JACK*

FREQUENCY (kHz)	LOSS (dB)†	NOTE
280 282 284 286 288 290	33 to 41 33 to 41 34 to 41 34 to 41 35 to 42 35 to 42	For regular lines in all switching arrangements or for standby line in a multiline arrangement
296	32 to 35	For standby line in all switching arrangements
280	33 to 36	For standby line in expanded multiline arrangement or super-multiline arrangement

* PIL HYB IN jack is located in the receiving bay; SW FIL OUT jack is located in the switch control bay.

† Characteristic not flat with frequency because of switching signal filters.

Note: If J968820AD level compensation units are provided on a per line basis, patch out the level compensation unit(s). The patch is placed between the LVL COM IN and LVL COM OUT jacks.

CHART 2 (Cont)

STEP	PROCEDURE
25	If the requirement of Step 24 ***is*** met, proceed to Step 31. If it is ***not*** met, proceed to Step 26.
	B. Phase Correction
26	Determine which line needs the phase corrector as follows:
	(a) List the combinations that measure less than −76 dBm (−77 dBm is less) and/or more than −63 dBm (−62 dBm is more).
	(b) Select the line that is common to the combinations which do ***not*** meet the requirement of Step 24.

STANDBY(S) AND TWO REGULAR LINES (1 AND 2)							
LINE OR LINE COMBINATION	LEVEL (DBM)						
	296 KHZ	290 KHZ	288 KHZ	286 KHZ	284 KHZ	282 KHZ	280 KHZ
S							
1							
2							
S-1							
S-2							
1-2							
S-1-2							

STANDBY(S) AND THREE REGULAR LINES (1, 2, AND 3)							
LINE OR LINE COMBINATION	LEVEL (DBM)						
	296 KHZ	290 KHZ	288 KHZ	286 KHZ	284 KHZ	282 KHZ	280 KHZ
S							
1							
2							
3							
S-1							
S-2							
S-3							
1-2							
1-3							
2-3							
S-1-2							
S-1-3							
S-2-3							
1-2-3							
S-1-2-3							

STANDBY(S) AND FOUR REGULAR LINES (1, 2, 3, AND 4)							
LINE OR LINE COMBINATION	LEVEL (DBM)						
	296 KHZ	290 KHZ	288 KHZ	286 KHZ	284 KHZ	282 KHZ	280 KHZ
S							
1							
2							
3							
4							
S-1							
S-2							
S-3							
S-4							
1-2							
1-3							
1-4							
2-3							
2-4							
3-4							
S-1-2							
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1-3-4							
2-3-4							
S-1-2-3							
S-1-3-4							
S-2-3-4							
S-1-2-4							
1-2-3-4							
S-1-2-3-4							

Fig. 5—Typical Form Which May be Used to Record Switching Signal Levels on a Multiline System

CHART 2 (Cont)

STEP	PROCEDURE

27 Add a 90° phase corrector as follows:

(a) Remove the strap from across the cross-connection strip of the common line listed in (b) of Step 26.

(b) Strap a 90° phase corrector in the common line (Fig. 6).

28 Repeat Step 24 for all combinations which include the line into which the 90° phase corrector was inserted.

Requirement: Between ▶−63◀ and −76 dBm

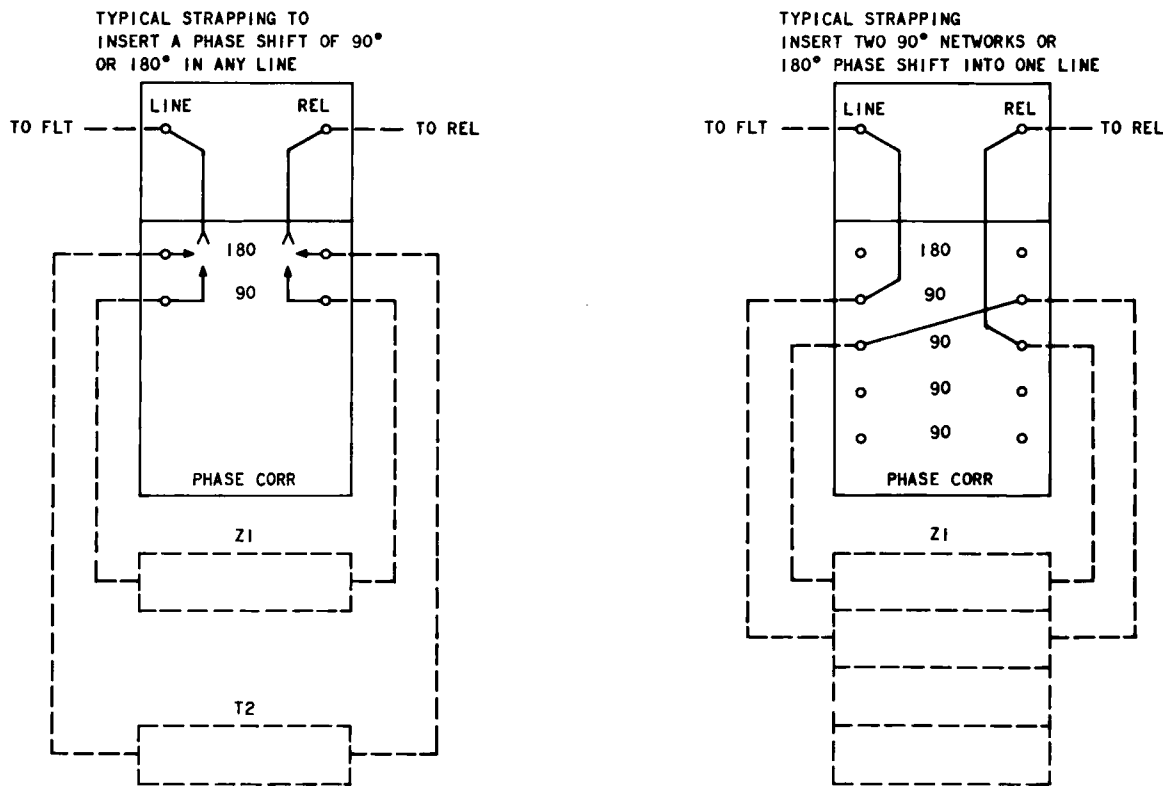

Fig. 6—Cross-Connection Strip for Adding Phase Correcting Networks into Regular or Standby Lines

CHART 2 (Cont)

STEP	PROCEDURE
29	If the requirement of Step 28 is met, proceed to Step 31. If it is ***not*** met, replace the 90° phase corrector with a 180° phase corrector (Fig. 5).
30	Repeat Step 24 for all combinations which include the line into which the 180° phase corrector was inserted. ***Note 1:*** It may be necessary to experiment between various values of phase correctors to meet the requirement. ***Note 2:*** Table F gives a typical illustration of adjustment of phase correction where one phase corrector is necessary to attain the necessary levels.

TABLE F

LINE COMBINATIONS*	NO PHASE	90° STANDBY
S	−72.8	−72.5
1	−72.6	−72.6
2	−74.0	−74.0
3	−72.8	−72.9
S-1	−69.6	−70.4
S-2	−78.2†	−72.8
S-3	−81.6†	−74.1
1-2	−70.8	−70.8
2-3	−72.7	−72.7
1-3	−70.2	−70.2
S-1-2	−70.8	−70.4
S-1-3	−71.2	−71.1
1-2-3	−72.8	−72.8
S-2-3	−72.5	−70.4
S-1-2-3	−73.6	−69.6

* Standby (S) and 3 regular (1, 2, and 3) lines available for test.

† These measurements are less than −76 dBm, and the associated lines in the line combination column indicate the standby line is present in both measurements; therefore, add a 90° phase corrector to the standby line.

CHART 2 (Cont)

STEP	PROCEDURE

Note 3: Table G give a typical illustration of adjustment of phase correction where a phase corrector in one line introduced the need for a phase corrector in another line.

TABLE G

LINE COMBINATIONS*	NO PHASE	90° REGULAR 2	180° REGULAR 2, 90° STANDBY
S	−70.0	−69.9	−69.8
1	−74.7	−74.7	−74.7
2	−73.0	−74.0	−73.4
3	−72.7	−72.8	−72.8
S-1	−74.3	−74.5	−73.9
S-2	−66.8	−71.9	−71.7
S-3	−74.7	−74.7	−70.8
1-2	−79.5	−76.4	−70.1
2-3	−80.6	−75.0	−69.2
1-3	−69.7	−69.7	−69.7
S-1-2	−70.8	−85.8	−67.8
S-1-3	−71.2	−71.2	−67.5
1-2-3	−75.5	−72.4	−67.8
S-2-3	−72.5	−95.1	−66.8
S-1-2-3	−73.6	−77.7	−66.4

* Standby (S) and 3 regular (1, 2, and 3) lines available for test.

31 Repeat Step 24 using 280, 282, 284, 286, 288, and 296 kHz, as required.

Note: The 296-kHz verification signal can be measured only on combinations containing the standby line.

Requirement: Between ◗−63◖ and −76 dBm

32 Instruct the far end (transmit) to release all switching signals as outlined in Table A.

33 Remove the RTE from the SW FIL OUT or LVL COM OUT jack.

CHART 2 (Cont)

STEP	PROCEDURE
34	Replace the patch plug as follows: *L3:* Between SW FIL OUT and SW AMP IN *L4:* Between SW FIL OUT and SW AMP IN or LVL COM OUT and SW AMP IN, as provided.
35	Remove blocks from all REG and STBY relays.

CHART 3

SWITCHING SIGNAL PHASE CORRECTION IN AN EXPANDED MULTILINE OR SUPER MULTILINE ARRANGEMENT

STEP	PROCEDURE
	Note: Chart 1 of this section is a prerequisite to the following tests.
	A. Switching Signal Measurement (Group A)
	Receive Terminal
1	At the rear of the switch control bay (Group A), remove the cover from the switching signal filter unit.
2	On the cross-connection strip (Fig. 2), record the strapping arrangement now in use.
3	Remove any phase correction wiring and strap the lines directly across the cross-connection strip.
4	Prepare the RTE for a 75-ohm terminated measurement of 296 kHz at approximately −70 dBm.
5	At the switch control bay, remove the patch plug as follows: *L3:* Between SW FIL OUT and SW AMP IN

CHART 3 (Cont)

STEP	PROCEDURE
	L4: Between SW FIL OUT and SW AMP IN or LVL COM OUT and SW AMP IN, as provided.
6	Connect the RTE to the SW FIL OUT or LVL COM OUT jack [patch (1), Fig. 7].
7	At the switching signal filter, block operated all REG relays between the phase correction network and the SW FIL OUT or LVL COM OUT jack (Fig. 7).
	Note: STBY relay remains in normal condition.
8	Instruct the far end (transmit) to send a 296-kHz signal by the method described in Table A.
9	Record the RTE indication.
	Requirement: Between ▶−63◀ and −76 dBm
10	Instruct the far end (transmit) to remove the 296-kHz signal.
11	Repeat Steps 8 through 10 using a 280-kHz signal.
12	If the requirement of Step 9 is ***not*** met, determine the loss in the transmit and receive circuits using a 280- or 296-kHz signal and Tables B, C, E, and H.
13	Instruct the far end (transmit) to send a 290-kHz signal by the method described in Table A.
14	Prepare the RTE to measure a frequency of 290 kHz at −70 dBm.
15	Block operated the STBY relay and release the REG 1 relay.
16	Record the RTE indication.
	Requirement: Between ▶−63◀ and −76 dBm
	Note: Figure 8 shows a typical form which may be used to record the power of each switching signal and any possible combination of the switching signals. ***The number of possible combinations will depend upon the number of regular lines.***
17	Block operated the REG 1 relay and release the REG 2 relay.
18	Record the RTE indication.
	Requirement: Between ▶−63◀ and −76 dBm
19	Block operated the REG 2 relay and release the REG 3 relay.

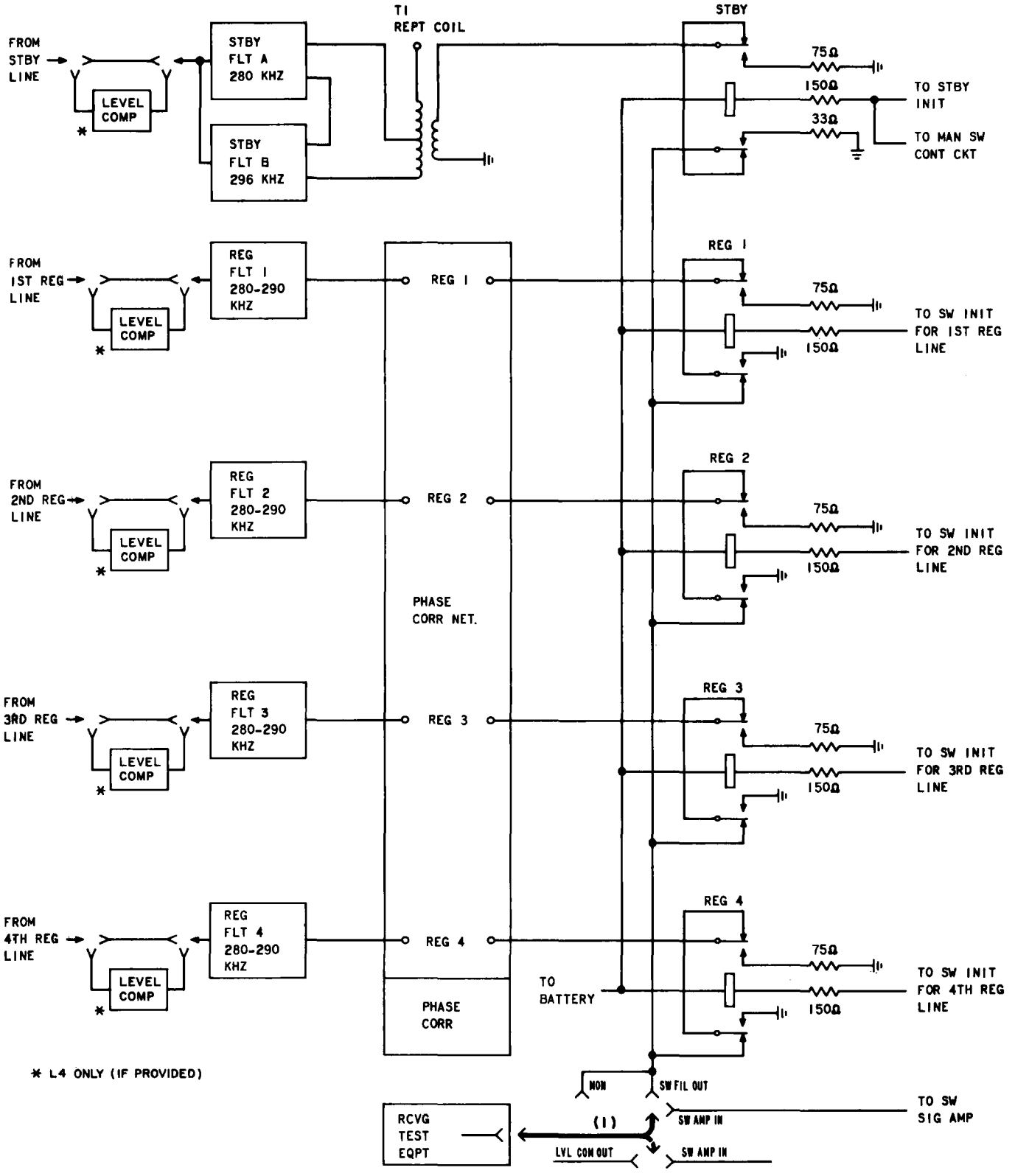

Fig. 7—Receiving Signal Paths for an Expanded Multiline and Supermultiline Switching System

TABLE H

LOSS IN L3 RECEIVE CIRCUITS FROM
FLAT AMP D LINE IN JACK TO SW FIL OUT JACK*

FREQUENCY (kHz)	LOSS (dB)†			
	REGULAR		STANDBY	
	A‡	B‡	A‡	B‡
288	33 to 35	44 to 45	—	—
290	33 to 37	44 to 47	—	—
296	—	—	30 to 32	41 to 42
280	33 to 36	44 to 46	30 to 33	40 to 43
282	33 to 35	43 to 45	—	—
284	33 to 35	43 to 45	—	—
286	34 to 35	44 to 45	—	—

* FLAT AMP D LINE IN jack is located in receiving bay; SW FIL OUT jack is located in switch control bay.

† Characteristics not flat with frequency because of switching signal filters.

‡ Use column A for unmodified early installations of switching equipment and column B for modified early installations or for newly manufactured installations of switching equipment. See Section 359-100-500.

CHART 3 (Cont)

STEP	PROCEDURE
20	Record the RTE indication. ***Requirement:*** Between ◗−63◖ and −76 dBm
21	Block operated the REG 3 relay and release the REG 4 relay.
22	Record the RTE indication. ***Requirement:*** Between ◗−63◖ and −76 dBm
23	If the requirements of Steps 16, 18, 20, and 22 are ***not*** met, determine the loss in the transmit and receive circuits by using the 290-kHz signal and Tables B, C, E, and H.
24	Measure and record the output power of the 290-kHz signal for all line combinations listed in Fig. 8. ***Note:*** Be sure that all relays are blocked operated except the combination under measurement.

TWO REGULAR LINES (1 AND 2)				
LINE OR LINE COMBINATIONS	LEVEL (dBm)			
	290 KHZ	288 KHZ	286 KHZ	284 KHZ
1				
2				
1-2				

THREE REGULAR LINES (1, 2, AND 3)				
LINE OR LINE COMBINATIONS	LEVEL (dBm)			
	290 KHZ	288 KHZ	286 KHZ	284 KHZ
1				
2				
3				
1-2				
1-3				
2-3				
1-2-3				

FOUR REGULAR LINES (1, 2, 3, AND 4)				
LINE OR LINE COMBINATIONS	LEVEL (dBm)			
	290 KHZ	288 KHZ	286 KHZ	284 KHZ
1				
2				
3				
4				
1-2				
1-3				
1-4				
2-3				
2-4				
3-4				
1-2-3				
1-2-4				
1-3-4				
2-3-4				
1-2-3-4				

Fig. 8—Typical Form Which May Be Used to Record Switching Signal Levels on an Expanded Multiline or Supermultiline Switching System

CHART 3 (Cont)

STEP	PROCEDURE
	Requirement: Between ▶−63◀ and −76 dBm
25	If the requirement of Step 24 ***is*** met, proceed to Step 31. If it is ***not*** met, proceed to Step 26.
	B. Phase Correction
26	Determine which line needs the phase corrector as follows: (a) List the combinations that measure less than −76 dBm. (77 dBm is less) ▶and/or more than −63 dBm (−62 dBm is more).◀ (b) Select the line that is common to the combinations which do ***not*** meet the requirement of Step 24.
27	Add a 90° phase corrector as follows: (a) Remove the strap from across the cross-connection strip of the common line listed in (b) of Step 26. (b) Strap a 90. phase corrector in the common line (Fig. 6).
28	Repeat Step 24 for all combinations which include the line into which the 90° phase corrector was inserted. ***Requirement:*** Between ▶−63◀ and −76 dBm
29	If the requirement of Step 28 is met, proceed to Step 31. If it is ***not*** met, replace the 90° phase corrector with a 180° phase corrector.
30	Repeat Step 24 for all combinations which include the line into which the 180° phase corrector was inserted. ***Note 1:*** It may be necessary to experiment between various values of phase correctors to meet the requirement. ***Note 2:*** Table F gives a typical illustration of adjustment of phase correction where one phase corrector is necessary to attain the necessary level. ***Note 3:*** Table G gives a typical illustration of adjustment of phase correction where a phase corrector in one line introduced the need for a phase corrector in another line.
31	Repeat Step 24 using 280, 282, 284, 286, and 288 kHz, as required. ***Requirement:*** Between ▶−63◀ and −76 dBm

CHART 3 (Cont)

STEP	PROCEDURE
32	Instruct the far end (transmit) to release all switching signals as outlined in Table A.
33	Remove the RTE from the SW FIL OUT or LVL COM OUT jack.
34	Replace the patch plug as follows: *L3:* Between SW FIL OUT and SW AMP IN *L4:* Between SW FIL OUT and SW AMP IN or LVL COM OUT and SW AMP IN, as provided.
35	Remove blocks from all REG and STBY relays in Group A.
	C. Switching Signal Measurement (Group AA and Group AB) **Receive Terminal**
36	At the rear of the switch control bay (Group AA), remove the cover from the switching signal filter unit.
37	Make a sketch of the existing strapping on the cross-connection strip.
38	Remove any phase correction wiring and strap the line directly across the cross-connection strip.
39	Remove patch plug as follows: *L3:* Between SW FIL OUT and SW AMP IN *L4:* Between SW FIL OUT and SW AMP IN or LVL COM OUT and SW AMP IN, as provided. ***Note:*** Jacks are located in switch control bay containing Group AA.
40	Prepare the RTE for a frequency of 290 kHz at −70 dBm.
41	Connect the RTE to the SW FIL OUT jack of Group AA.
42	At the switching signal filter unit, block operated relays REG 2, REG 3, and REG 4.
43	Instruct the far end (transmit) to send a 290-kHz signal from Group AA by the method described in Table A.
44	Record the RTE indication. ***Requirement:*** Between ◗−63◖ and −76 dBm

CHART 3 (Cont)

STEP	PROCEDURE
	Note: Figure 8 shows a typical form which may be used to record the power of each switching signal and any possible combination of the switching signals. ***The number of possible combinations will depend upon the number of regular lines.***
45	Repeat Steps 17 through 30 using the 290-kHz signal.
46	Repeat Steps 24 and 25 using 288, 286, and 284 kHz, as required. ***Requirement:*** Between ▶−63◀ and −76 dBm
47	Request that the far end (transmit) release all switching signals (Group AA) as outlined in Table A.
48	Remove the RTE from the SW FIL OUT or LVL COM OUT jack.
49	Replace the patch plug as follows: ***L3:*** Between SW FIL OUT and SW AMP IN ***L4:*** Between SW FIL OUT and SW AMP IN or LVL COM OUT and SW AMP IN, as provided.
50	Remove blocks from all REG relays in bay AA.
51	Ensure that the switching system is in a normal condition.
52	Repeat Steps 36 through 51 for all regular lines in bay AB.