"PULSE* 120" – SG-1A

ELECTRONIC PRIVATE AUTOMATIC BRANCH EXCHANGE

CONTROL LOGIC TESTS AND FAULT CLEARING PROCEDURES

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1. GENERAL

1.01 Central control logic faults are localized in the PULSE 120 Electronic Private Automatic Branch Exchange (EPABX) by performing test operations described in Tests A through E.

1.02 The fault clearing procedures must be completed in the sequence given in the flowchart.

1.03 A maintenance test QPJ97-type circuit pack (Fig. 1) is used to perform control logic tests on station lines and trunks. Call processing control test points are provided on the QPJ97-type circuit pack and transmission control logic test points are provided on the front end of line shelf 1. Station line number (2)39 is used to perform the transmission logic tests.

1.04 A description of the maintenance test circuit pack and the operations it performs is given in Section 553-5011-502, which must be thoroughly understood before control logic fault clearing procedures are attempted.

1.05 Fault clearing procedures for the maintenance test circuit pack are included in this section.

1.06 The NE-1011Q1A handset or equivalent is required to perform the logic tests with the maintenance test QPJ97-type circuit pack.

1.07 When the fault clearing procedure requires a shelf change, refer to Section 553-5011-202 for substitution.

1.08 Refer to Section 553-5011-501 for EPABX internal cable and plug arrangements.

1.09 The attendant headset/handset must be connected to the console before the EPABX is reset.

1.10 Where the procedures in the following pages call for dialing test lines (2)39 or (3)46, the numbers (7)761 or (7)763 respectively should be dialed to access the test lines if the PULSE 120 is configured for hotel/motel service. *Note:* In hotel/motel systems, before substituting a QPJ95-type circuit pack, ensure that the switch on the faceplate of the new pack is in the same position as that on the original pack.

REASON FOR REISSUE

1.11 This section is reissued to correct errors and to give information on optional features added since the previous issue. Change arrows indicate corrections and additions.

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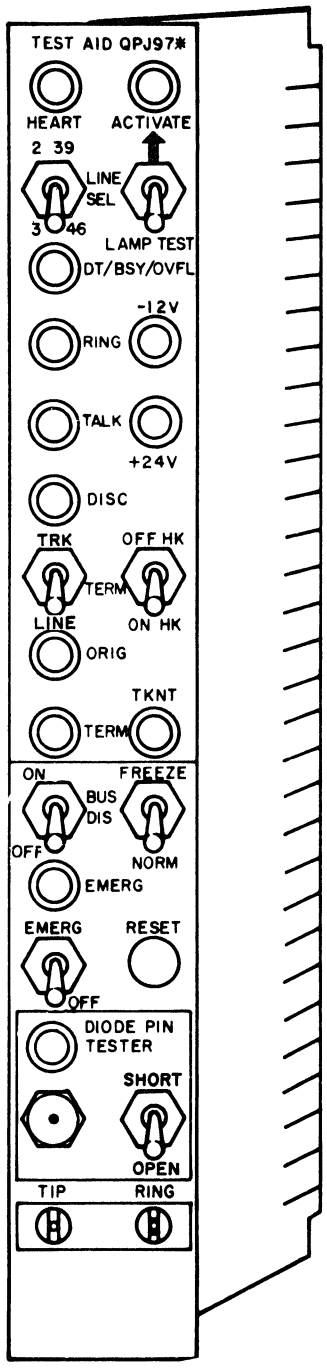


CAUTION:

1. **IF THE EMERG SWITCH IS NOT RESTORED TO IDLE CONDITION AFTER TESTS, THE EPABX WILL BE OUT OF SERVICE.**

2. **IF BUS DIS AND TRK SEL SWITCHES ARE NOT RESTORED TO IDLE CONDITION AFTER TESTS, STATION LINES (2)39 AND (3)46 WILL BE OUT OF SERVICE.**

3. **THE ACTIVE SWITCH ENERGIZES THE QPJ97. THEREFORE THE ACTIVE SWITCH MUST BE OPERATED TO THE UPPER POSITION BEFORE THE FREEZE, EMERG OR THE BUS DIS SWITCHES HAVE ANY EFFECT.**

Fig. 1 – Maintenance Test Unit (QPJ97*) in Idle Condition

2. STATION LINE LOGIC TESTS

2.01 Station line logic tests ensure that the logic circuitry, which controls station line call processing and transmission is functioning correctly.

2.02 The logic test described in Test A will reflect any faults in the control logic circuitry used to process a station-to-station call.

2.03 When the time interval between logic tests steps exceeds 19 seconds the EPABX will time-out. If this happens the test sequence must be repeated.

2.04 The logic test described in Test B will reflect any faults in the control logic circuitry used to process a station-to-busy station call.

2.05 The transmission logic test described in Test C monitors the sequence of all circuit operations during a station-to-station call.

2.06 The QPJ97-type circuit pack monitors central control logic station-to-station testing between (2)39 and (3)46 only. Station line number (2)39 test points on the end panel of line shelf 1 are monitored by the QPJ97-type circuit pack for station-to-station transmission tests.

2.07 Cancel call-forward requests on station lines (2)39 and (3)46, if applicable, before proceeding with station line and trunk logic tests.

3. TRUNK LOGIC TESTS

3.01 Trunk logic tests ensure that the logic circuitry, which controls trunk call processing and transmission, is functioning correctly.

3.02 The logic test described in Test D will reflect any faults in the control logic circuitry used to process a station-to-trunk call.

3.03 The transmission logic test described in Test E monitors the sequence of all circuit operations during a station-to-trunk call. Transmission logic tests are performed from station line test points (2)39 on the end panel of line shelf 1.

4. TEST SYMBOLS AND INDEXING

4.01 The following symbols are used in the test tables to signify the Light Emitting Diode (LED) indications which appear on the maintenance test circuit pack.

- ○ LED lamp steadily lighted
- (W) LED lamp "winking" (approx. 1.75 s ON, 0.25 s OFF)
- (60) LED lamp ON/OFF at 60 ipm
- (120) LED lamp ON/OFF at 120 ipm
- (10) LED lamp ON/OFF at 10 ipm (heart beat)

Note: The LED is brilliant when lit. A dim LED should not be considered as lit.

4.02 Index to logic tests:

TEST	TITLE	PAGE
A	Station-to-Station Logic	5
B	Station Busy Logic	8
C	Station Transmission Logic	10
D	Trunk Logic	12
E	Trunk Transmission Logic	15

4.03 The test has failed when LED indications on the QPJ97-type circuit pack differ from those shown in the test charts.

5. CONTROL LOGIC FAULT CLEARING PROCEDURE

5.01 The logic tests described in Parts 2 and 3 are performed, when applicable, during EPABX fault clearing procedures. These tests localize system faults between the central control logic and shelf logic.

5.02 Test A must be completed successfully before attempting to perform any of the other tests. Additional or failure of LED indications encountered during Test A is corrected by performing operation given in Flowchart 1.

5.03 The sequence for circuit pack and connector jack insertion during the fault clearing procedures is given in Table A.

5.04 On completion of fault clearing procedures, a visual check is made to ensure that all plugs and circuit packs are well seated and the screws are tight when applicable.

5.05 If a fault is cleared by circuit pack substitution and ***the original circuit pack, has not caused a fuse to blow and/or there is no visual evidence of burnt or damaged components,*** the contacts on this circuit pack and its associated connector must be cleaned. The original circuit pack is then inserted in the connector and if the fault reappears the new circuit pack is reinserted.

Note: The asterisk (*), after the circuit pack code, replaces the suffix letter.

5.06 If different and/or additional faults are created in the system by substituting a circuit pack, tag and return the replacement as a defective unit.

5.07 The original circuit pack must be inserted into the connector when the fault is not cleared by substitution.

TEST A – CONTROL LOGIC TEST (STATION TO STATION)

This test is performed between station lines (2)39 and (3)46 only. Using station lines (2)39 and (3)46 as test lines will exercise all the control logic combinations used in processing all types of calls in the EPABX. Test A must be completed successfully before attempting to perform other tests described in the following charts. If faults are encountered during this test refer to Flowchart 1 "START".

Apparatus required to perform test:

- QPJ97* circuit pack inserted in connector 2 in the control shelf
- QSE4-type handset or equivalent to dial in the EPABX

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
1	Inform station users at stations (2)39 and (3)46 that their station lines will be used for testing. The station users are to ignore incoming calls during tests.	(10)										
2	Flick handset switch to monitor mode and connect handset leads to TIP and RING test points on maintenance test aid (QPJ97*) circuit packs.	(10)										
→ 3	Set maintenance test aid switches to idle position as shown in Fig. 1.	(10)										
4	Operate LINE/TRK switch in the lower position.	(10)										Diode pin Tester LED does not light. Refer to Flowchart 1 page 19 if any LED fail to illuminate.
5	Operate LAMP TEST/ACTIVATE switch momentarily to lower position.	○	○	○	○	○	○	○	○	○	○	
6	Operate LAMP TEST/ACTIVATE switch to upper ACTIVATE position. One of the two following indications will be apparent.											
	(a) Test station lines (2)39 and/or (3)46 are in use.	(10)			○				○			The condition of the ORIG and TERM lamps depends on the status of the test station lines.
	(b) Test stations lines (2)39 and (3)46 are idle and can be used for testing.	(10)	○									

TEST A (Cont) – CONTROL LOGIC TEST (STATION TO STATION)

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
7	When both station lines (2)39 and (3)46 are idle, operate the BUS DIS switch to the upper "ON" position If the system is configured for hotel/motel service, unplug but do not remove the QPJ10*, 11*, 12*, or 13* in connector 13, option shelf providing there is also one in connector 14 If not, proceed to Step 8	(10)	○									The station line [(2)39 or 346] selected as the calling station line, is not available for service at station user
8	Select station line (2)39 by operating LINE SEL switch to upper position.	(10)	○									
9	Flick handset switch to talk mode.	(10)	○	○	○							
10	Do not perform any operation for 19 seconds (s).	(10)	○	○	○							Call will appear as a Permanent Signal (PS) indication on the console if QPJ61* is inserted in connector 9 of the control shelf
11	After 19 s, abandoned call times out.	(10)	○	(120)	○							
12	After a further delay of 19 s, call times out.	(10)	○		○		○					
13	Flick handset switch to monitor mode.	(10)										
14	Operate ACTIVATE/LAMP TEST switch to upper position	(10)	○									
15	Flick handset switch to talk mode.	(10)	○	○	○							
16	Dial digit "2" only and wait for 19 s.	(10)	○		○							
17	After 19 s, abandoned call times out.	(10)	○	(120)	○							
18	After a further delay of 19 s, call times out.	(10)	○		○		○					
19	Flick handset switch to monitor mode.	(10)										
20	Operate ACTIVATE/LAMP TEST switch to upper position.	(10)	○									
21	Flick handset switch to talk mode.	(10)	○	○	○							
22	Dial station line (3)46. [Dial (7)763 for hotel/motel system].	(10)	○		○	○			○			Ringing (RNG) lamp follows ringing cycle.

Note. Dial 33 for hotel/motel system
Non 7 plus dialing, dial 733
For hotel/motel system with 7 plus dialing

TEST A (Cont) – CONTROL LOGIC TEST (STATION TO STATION)

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
23	Operate OFF HK/ON HK switch to upper position.	(10)	○		○		○		○			
24	Operate OFF HK/ON HK switch to lower position.	(10)	○		○			○				
25	Do not perform any operation for 19 s.	(10)	○		○			○				
26	After 19 s abandoned call times out.	(10)	○	○	○							
27	Flick handset switch to monitor mode.	(10)										
28	Repeat Steps 6 through 25 using station line (3)46 as calling station and (2)39 as called station [For hotel/motel systems use (7)763 as calling station and (7)761 as called station]	(10)										
29	If the system is configured for hotel/motel service and both QPJ10*, 11*, 12*, or 13* circuit packs are equipped (option shelf) proceed Otherwise go to Step 32	(10)										
30	Reinsert the QPJ10*, 11*, 12* or 13* in connector 13, option shelf. Unplug but do not remove its twin in connector 14, option shelf Repeat Steps 7 through 28	(10)										
31	Reinsert the QPJ10*, 11*, 12*, or 13* in connector 14, option shelf	(10)										
32	Reset QPJ97* to idle condition (see Fig 3).	(10)										

TEST B – BUSY STATION LINE LOGIC TEST

Apparatus required to perform test

- QPJ97* circuit pack inserted in connector 2 in the control shelf
- QSE4-type handset or equivalent to dial in the EPABX

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
1	Inform station users at stations (2)39 and (3)46 that these station lines will be used for testing. Station users to ignore I/C calls during tests. Ensure that Test A is correct before proceeding with station busy logic test.	(10)										
2	With handset switch in monitor mode, connect leads to TIP and RING test points on maintenance test circuit pack QPJ97*	(10)										
3	Set QPJ97* switches in position as shown in Fig. 1.	(10)										
4	Operate LINE/TRK switch to lower position for station line selection.	(10)										
5	Operate LAMP TEST/ACTIVATE switch to lower position.	○	○	○	○	○	○	○	○	○	○	
6	Operate LAMP TEST/ACTIVATE switch to upper ACTIVATE position. One of two indications will be apparent. (a) Test station lines (2)39 and/or (3)46 are in busy condition	(10)			○				○			The condition of the ORIG and TERM lamps depends on the status of the test station lines.
	(b) Test station lines (2)39 and (3)46 are in idle condition and can be used for testing	(10)	○									
7	When station lines (2)39 and (3)46 are both idle, operate BUS DIS switch to upper position.	(10)	○									The station line [(2)39 or 346] selected as the calling station line, is not available for service at station user.

Note For hotel/motel, the system station number must be translated to hotel room number (refer to NTP 553-5011-151)

TEST B (Cont) – BUSY STATION LINE LOGIC TEST

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
8	Operate (2)39/(3)46 switch to the upper position to select (2)39 as the calling party.	(10)	◯									To select (3)46 as calling party, operate (2)39/(3)46 switch to lower position.
9	Flick handset switch to talk mode.	(10)	◯	◯	◯							
10	Dial station line (2)39 or (3)46 whichever station line is selected on QPJ97*.	(10)	◯	(60)	◯							
11	If faults are encountered during this test and Test A was completed satisfactorily, refer to Part 4 for continuation of fault correction procedure.	(10)	◯	(60)	◯							
12	Flick handset switch to monitor mode	(10)										
13	Reset QPJ97* in idle condition as shown in Fig 1	(10)										

TEST C – STATION TRANSMISSION LOGIC TEST

This test is performed with the handset connected to the station line (2)39 test points on line shelf no. 1. (New Para.)

Apparatus required for test:

- QPJ97* circuit pack inserted in connector 2 in the control shelf
- QPJ37* circuit pack inserted in connector 11 in the line shelf no. 1
- QPJ36* circuit pack inserted in connector 19 in the line shelf no. 1
- QPJ36* circuit pack inserted in the connector and shelf of the calling station line
- QSE4-type handset or equivalent to perform test from QPJ97* circuit pack
- Telephone set terminated on the called station line.

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
1	Inform station user at station (2)39 that his station line will be used to complete tests in the EPABX.	(10)										If faults are encountered during this test, complete Test A. If Test A is correct refer to Section 553-5011-507.
2	Flick handset switch to monitor mode and connect handset leads to T and R test points (2)39 on front end panel of line shelf no. 1. The test must originate from station line (2)39 to be monitored by the QPJ97* circuit pack.	(10)										Ensure that QPJ36* circuit pack is inserted in station line (2)39 connector 19 in line shelf no. 1. QPJ37* circuit pack must be present in connector 11 in line shelf no. 1.
3	Set maintenance test circuit pack QPJ97* switches in idle condition see Fig. 1.	(10)										

TEST C (Cont) – STATION TRANSMISSION LOGIC TEST

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
4	Operate LINE/TRK switch in lower position for station line selection.	⑩										
5	Select (2)39 by operating line select switch to upper position.	⑩										
6	Operate ACTIVATE/LAMP TEST switch to ACTIVATE upper position. One of two indications will be apparent. (a) Test station lines (2)39 and/or (3)46 are in use.	⑩			○				○			The condition of the ORIG and TERM lamps depends on the status of the test station lines.
	(b) Station lines (2)39 and (3)46 are idle and lines may be used for testing.	⑩	○									
7	The BUS DIS switch must be in the lower position.	⑩	○									
8	Flick handset switch to talk mode.	⑩	○	○	○							
9	Dial station line (3)46. Called station must be idle to receive proper indication.	⑩	○		○	Ⓦ			○			Ringing tone is heard in handset. If called station answers and indications are as shown for Steps 9 and 10. The system is functioning correctly and Steps 9 and 10 need not be performed.
10	Operate OFF HK/ON HK switch to upper position.	⑩	○		○		○		○			
11	Operate OFF HK/ON HK switch to lower position.	⑩	○		○			○				
12	If faults are encountered complete Test A.											
13	Flick handset switch to monitor mode.											
14	Reset QPJ97* to idle condition (Fig. 1).	⑩										

TEST D – TRUNK LOGIC TEST

This test is performed from the test station lines on the QPJ97* to trunks connected in the EPABX The trunks are selected by dialing special access cords given during the test. See Section 553-5011-512 to correct any fault encountered during this test

Apparatus required for test

- QPJ97* circuit pack in connector 2 in the control shelf
- QSE4-type handset to dial in the EPABX

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
1	Inform station users at station (2)39 and (3)46 that these station lines will be used for testing. Station users to ignore I/C calls during tests.	(10)										
2	With handset switch in monitor mode, connect leads to TIP and RING test points on maintenance test circuit pack QPJ97*.	(10)										
3	Set QPJ97* switches to idle position as shown in Fig. 1.											
→ 4	Ensure that the LINE/TRK switch is in the **upper** position for trunk selection.											
5	Operate LAMP TEST/ACTIVATE switch to lower position.	○	○	○	○	○	○	○	○	○	○	
6	Operate LAMP TEST/ACTIVATE switch to upper ACTIVATE position One of two indications will be apparent (a) Test station lines (2)39 and/or (3)46 are in busy condition	(10)			○				○			The condition of the ORIG and TERM lamps depends on the status of the test station lines.
	(b) Test station lines (2)39 and (3)46 are in idle condition and can be used for testing	(10)	○									
7	Ensure that BUS DIS switch is in the lower position	(10)	○									
8	Ensure that EMERG switch is in lower position (OFF).	(10)	○									

TEST D (Cont) – TRUNK LOGIC TEST

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
9	Flick handset switch to talk mode.	(10)	○	○	○							
10	Dial desired trunk access code listed in remarks column for the desired trunk position number. One of two indications will be apparent											TRK. NO. / ACCESS CODE
	(a) Indicates that trunk has been accessed The indication are the same when the circuit pack is not present	(10)	○		○	(W)				○		1 77 2 76 3 75 4 74 5 73 6 72 7 71 8 68 9 67 10 66 11 65 12 64 13 63 14 62 15 61
	(b) Indicates that trunk is busy	(10)	○	(60)	○							16 57 17 56 18 55 19 54 20 53 21 52 22 51 23 48 24 47 25 46 26 45 27 44 28 43 29 42 30 41

TEST D (Cont) – TRUNK LOGIC TEST

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
11	Operate OFF HK/ON HK switch to upper position.	(10)	○		○		○			○		Operation of trunk relays is heard. Busy LED lights.
12	Flick handset switch to monitor mode.	(10)										Release of trunk relays is heard. Busy LED extinguished.
13	Operate OFF HK/ON HK switch to lower position.	(10)										
14	Repeat Steps 9 through 13 to check an odd and even trunk number location in each trunk shelf.	(10)										
15	If fault is encountered complete Test A. If fault is not cleared refer to Section 553-5011-512.	(10)										
16	Reset switches on QPJ97* to idle conditions as shown in Fig. 1.	(10)										

TEST E – TRUNK TRANSMISSION LOGIC TEST

This test is peformed from the station line (2)39 test points on the end panel of line shelf no. 1 The trunks are selected by dialing special access code given during the test. Test D must be completed successfully before attempting to perform this test.

Apparatus required to perform test

- QPJ97* circuit pack inserted in connector 2 in the control shelf
- QSE4-type handset or equivalent to perform the test
- QPJ37* circuit pack inserted in connector 11 in line shelf no. 1
- QPJ36* circuit pack inserted in connector 19 in line shelf no 1
- Circuit pack in the trunk connector under test

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
1	Inform station user at stations (2)39 or (3)46 that this line will be used for testing. Station user to ignore I/C calls during tests	ⓘ										QPJ37* must be present in connector location 11 on line shelf no. 1.
2	With handset switch in monitor mode, connect leads to (2)39 T and R test points on front end of line shelf no 1.	ⓘ										T and R test points provide speech facility when QPJ37* present in connector location 11.
3	Set QPJ97* switches to idle position as shown in Fig. 1	ⓘ										
4	Ensure that LINE/TRK switch is in upper position for trunks selection											
5	Operate LAMP TEST/ACTIVATE switch to lower position	○	○	○	○	○	○	○	○	○	○	
6	Operate LAMP TEST/ACTIVATE switch to upper ACTIVATE position One of two indications will be apparent. (a) Test station lines (2)39 and/or (3)46 are in busy condition	ⓘ			○				○			The condition of the ORIG and TERM lamps depends on the status of the test station lines.
	(b) Test station lines (2)39 and (3)46 are in idle condition and can be used for testing	ⓘ	○									

TEST E (Cont) – TRUNK TRANSMISSION LOGIC TEST

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
7	Flick handset switch to talk mode.	(10)	◯	◯	◯							
8	Dial trunk access code for desired trunk position shown in remarks column. One of two indications will be apparent:	(10)	◯									TRK. NO. / ACCESS CODE
	(a) Indicates that trunk has been accessed. The indication are the same when the circuit pack is not present.	(10)	◯		◯	(W)				◯		1 77 2 76 3 75 4 74 5 73 6 72 7 71 8 68 9 67 10 66 11 65 12 64 13 63 14 62 15 61 16 57 17 56 18 55 19 54 20 53 21 52 22 51 23 48 24 47 25 46 26 45 27 44 28 43 29 42 30 41
	(b) Indicates that trunk is busy.	(10)	◯	(60)	◯							

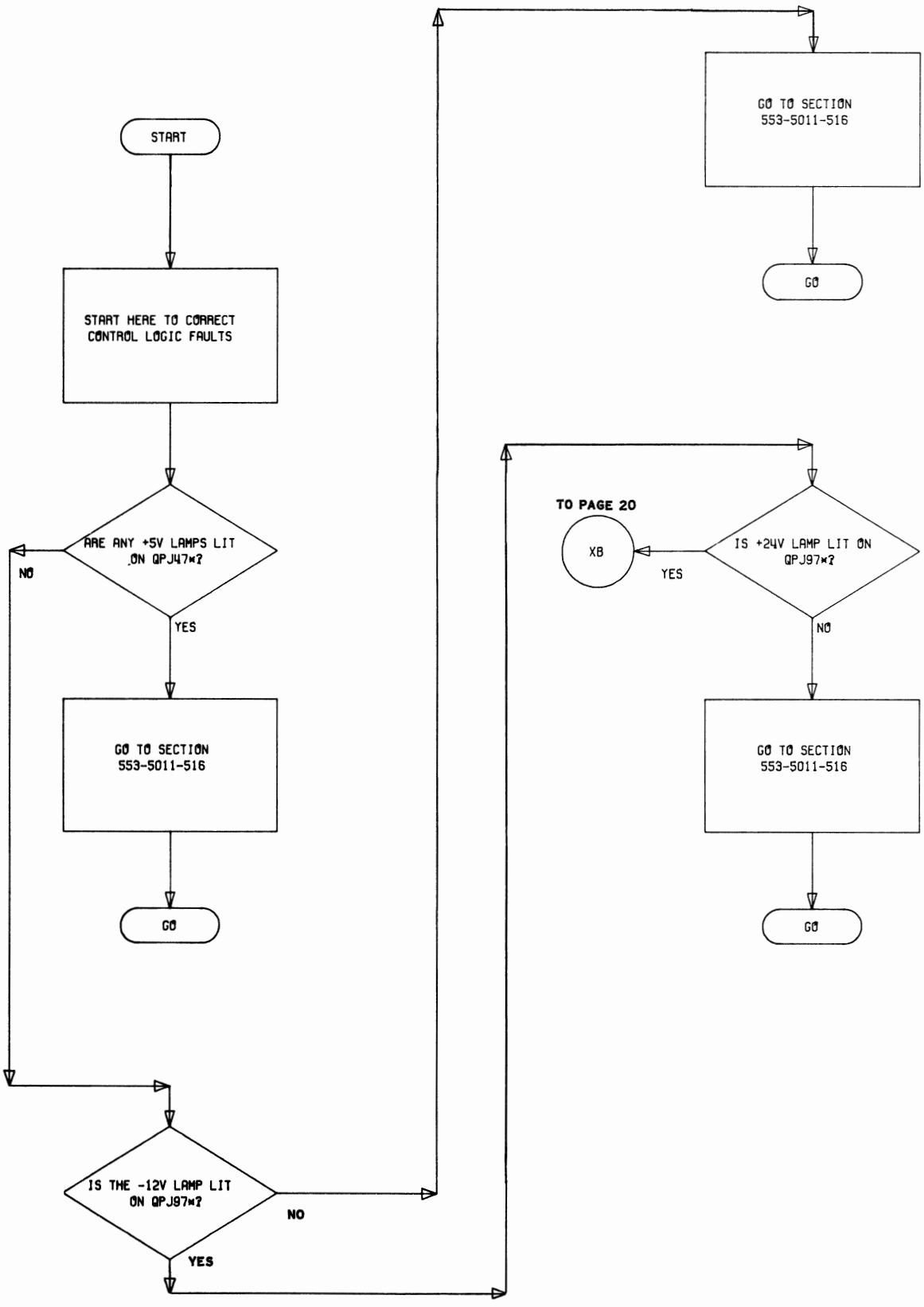
TEST E (Cont) – TRUNK TRANSMISSION LOGIC TEST

STEP	PROCEDURE	INDICATIONS ON QPJ97*										REMARKS
		HEART	ACTIVATE	DT/BSY/OVFL	ORIG	RING	TALK	DISC	TERM	TKNT	EMERG	
9	If condition 8(a), operate OFF HK/ON HK switch to upper position.	(10)	○		○		○			○		Trunk relay click is heard and BSY LED lights. Audible indication of trunk seizure heard in handset.
10	Flick handset switch to monitor position.	(10)										
11	Operate OFF HK/ON HK switch to lower position.	(10)										
12	Repeat test to an odd and even trunk in each of the trunk groups in the trunk shelves.											If no ring indication is present in Step 8(a) and trunk jumps to talk mode, fault is present. Rectify fault as described in Section 553-5011-512. The trunk groups consist of trunk number: (a) 1 through 7 (b) 8 through 15 (c) 16 through 22 (d) 23 through 30.
13	Remove handset leads from T and R test points on line shelf no. 1.	(10)										
14	Reset switches on QPJ97* to idle condition (Fig. 1) after completing tests	(10)										

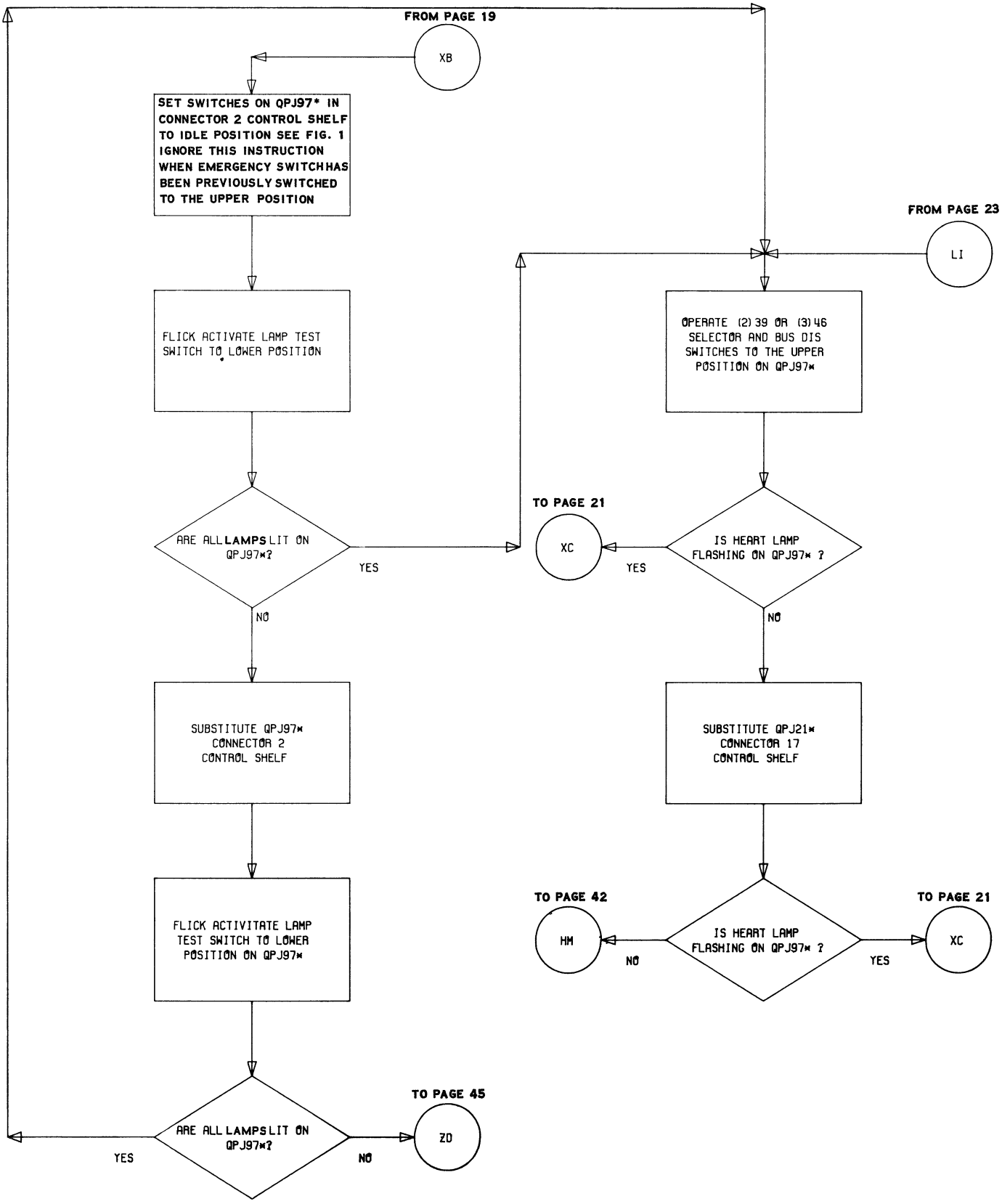
TABLE A
SEQUENCE FOR INSERTING CIRCUIT PACKS AND JACKS†

SEQUENCE	CIRCUIT PACK	CONNECTOR	JACK	SHELF SERVED
1	QPJ31*	12	–	Trunk 1
2	QPJ42*	13	–	Trunk 1
3	– –	– –	J350 J360 J370	Line 1 Line 1
4	QPJ34*	12	–	Line 1
5	QPJ34*	13	–	Line 1
6	– –	– –	J300 J310	Line 2 Line 2
7	QPJ34*	12	–	Line 2
8	QPJ34*	13	–	Line 2
9	– –	–	J320 J330	Line 3 Line 3
10	QPJ34*	12	–	Line 3
11	QPJ34*	13	–	Line 3
12	– –	– –	J380 J390	Trunk 2 Trunk 2
13	QPJ31*	12	–	Trunk 2
14	QPJ42*	13	–	Trunk 2
15	–	–	QPF18*	Line 1,2,3 or Trunk 2
16			J220 J230 J240 J500 J510	Option
17	Insert circuit packs in option shelf one at a time, perform logic test A after each operation. Inserting a QPJ80* pack in the option shelf cancels all calls through the system. Press the RESET button on power shelf 2 to reactivate the EPABX.			

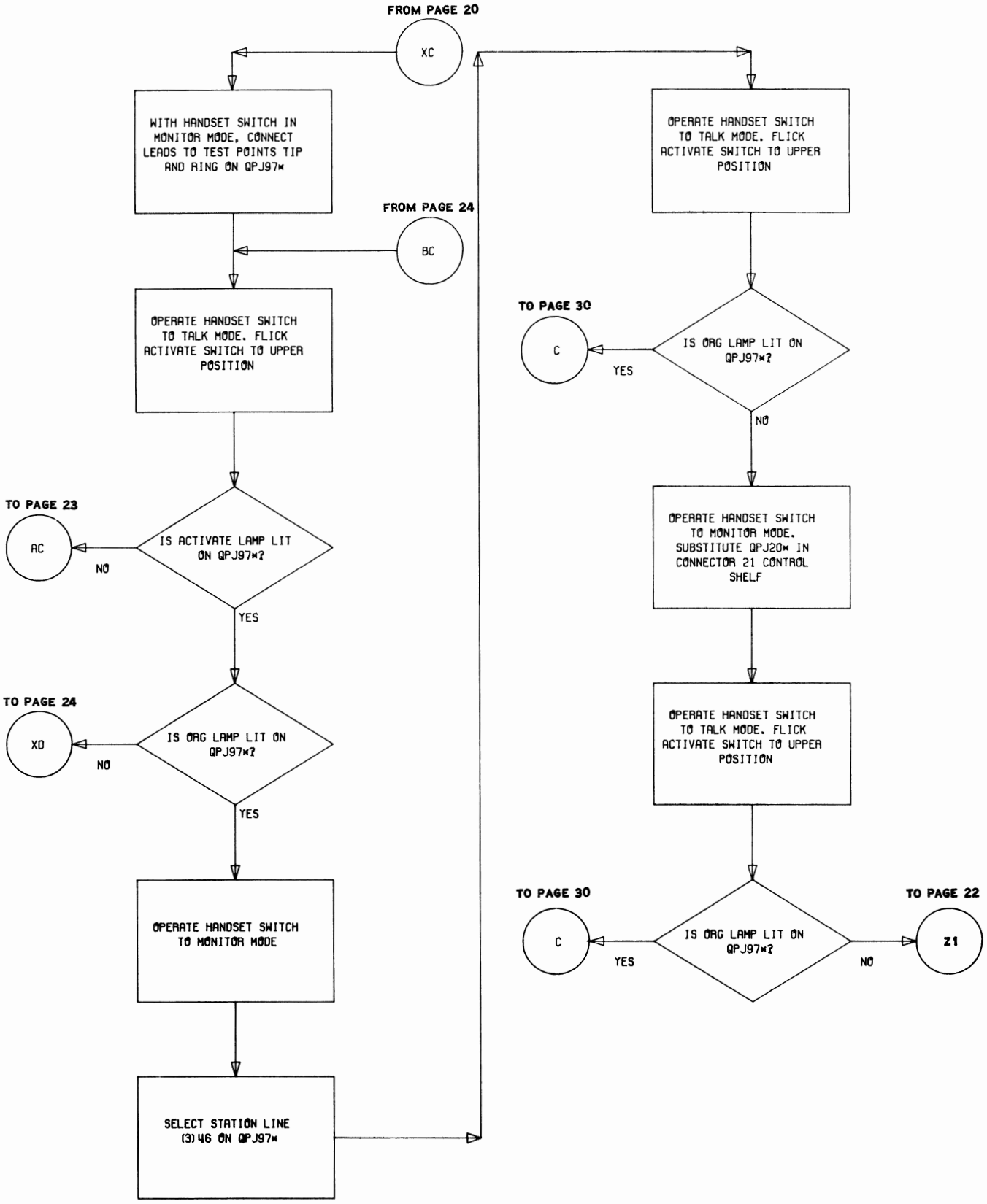
† If circuit pack or jack is already inserted, proceed to the next step in the sequence.



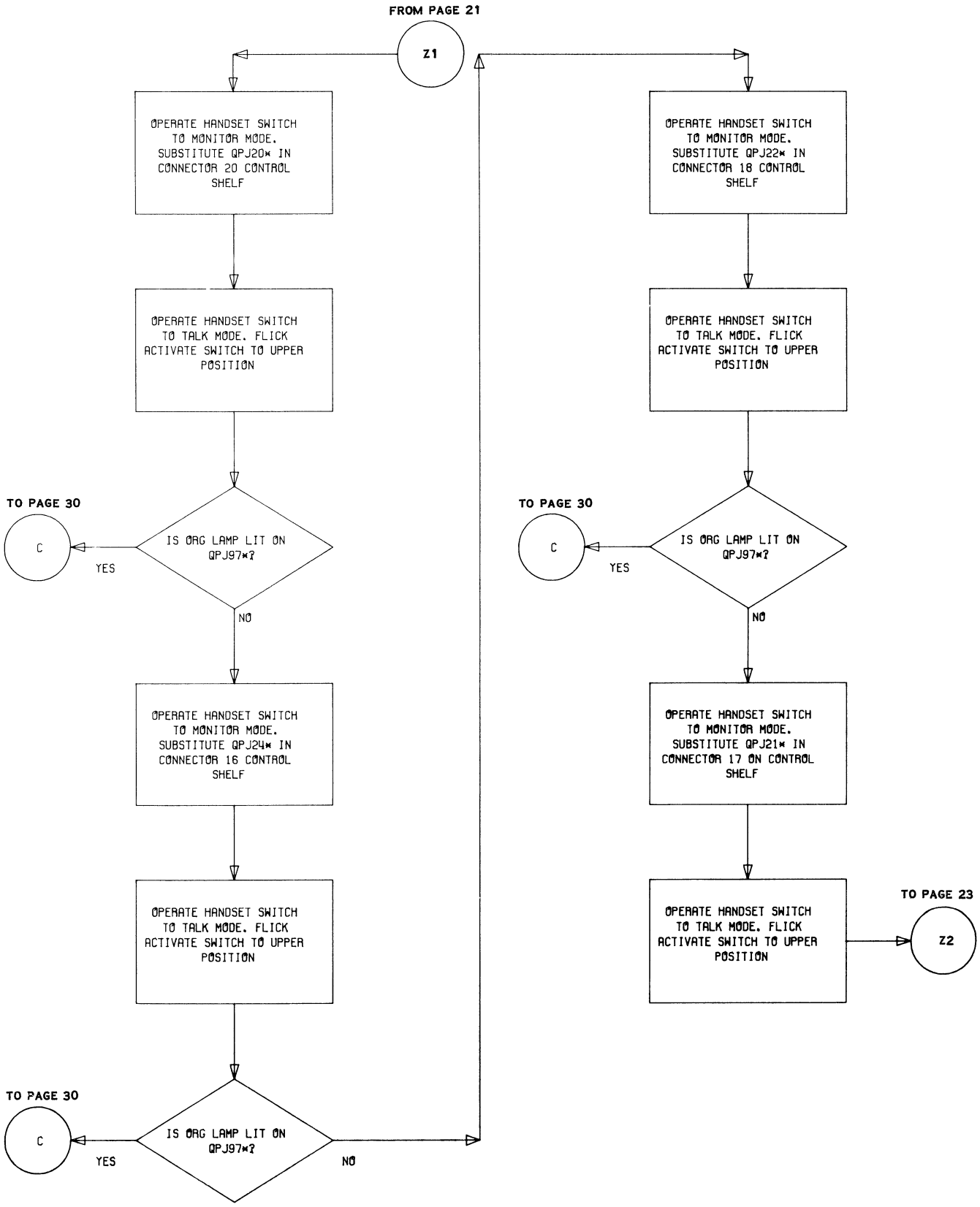
Flowchart 1 – Control Logic Fault-Clearing Procedure



Flowchart 1 (Cont)



Flowchart 1 (Cont)



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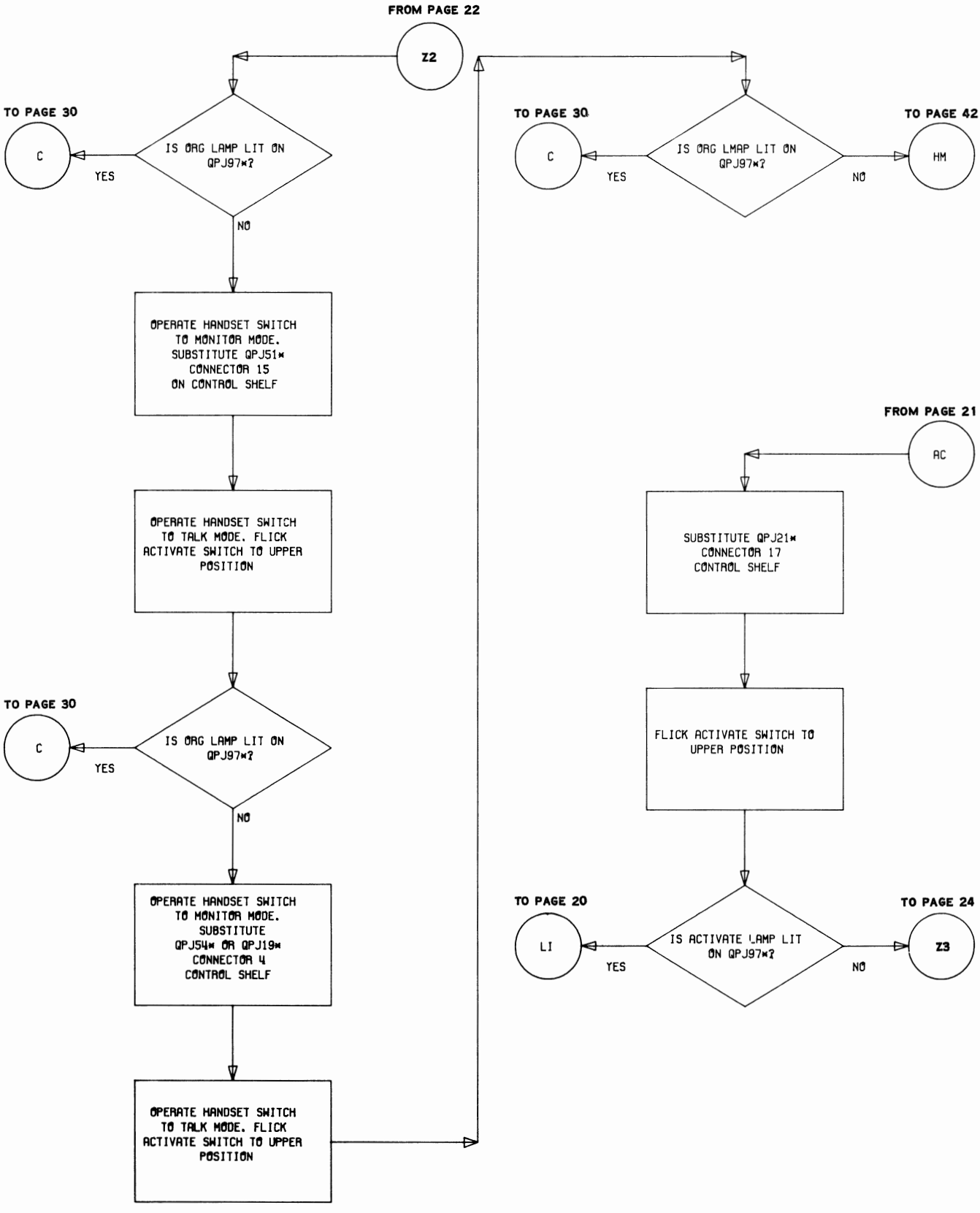

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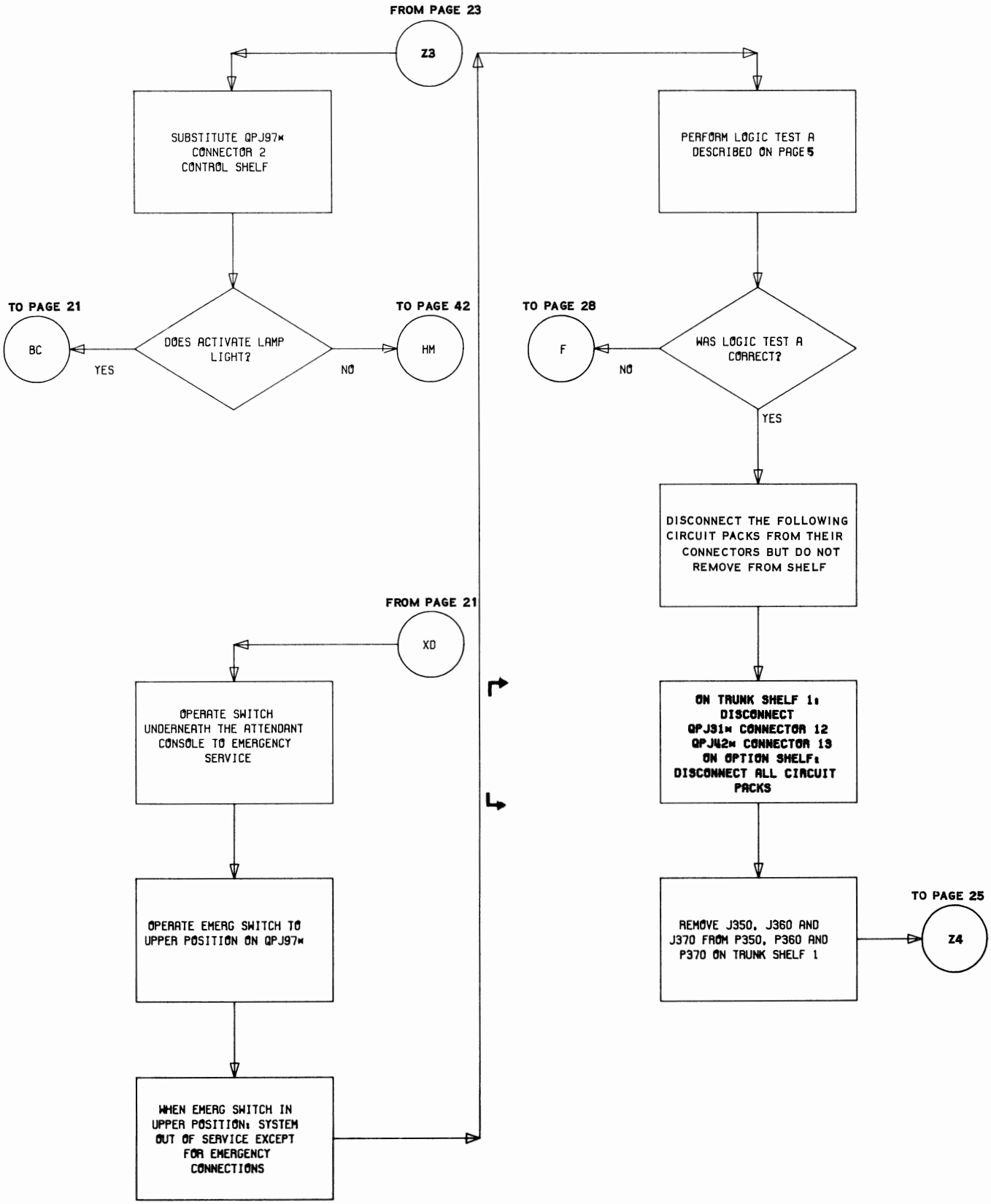

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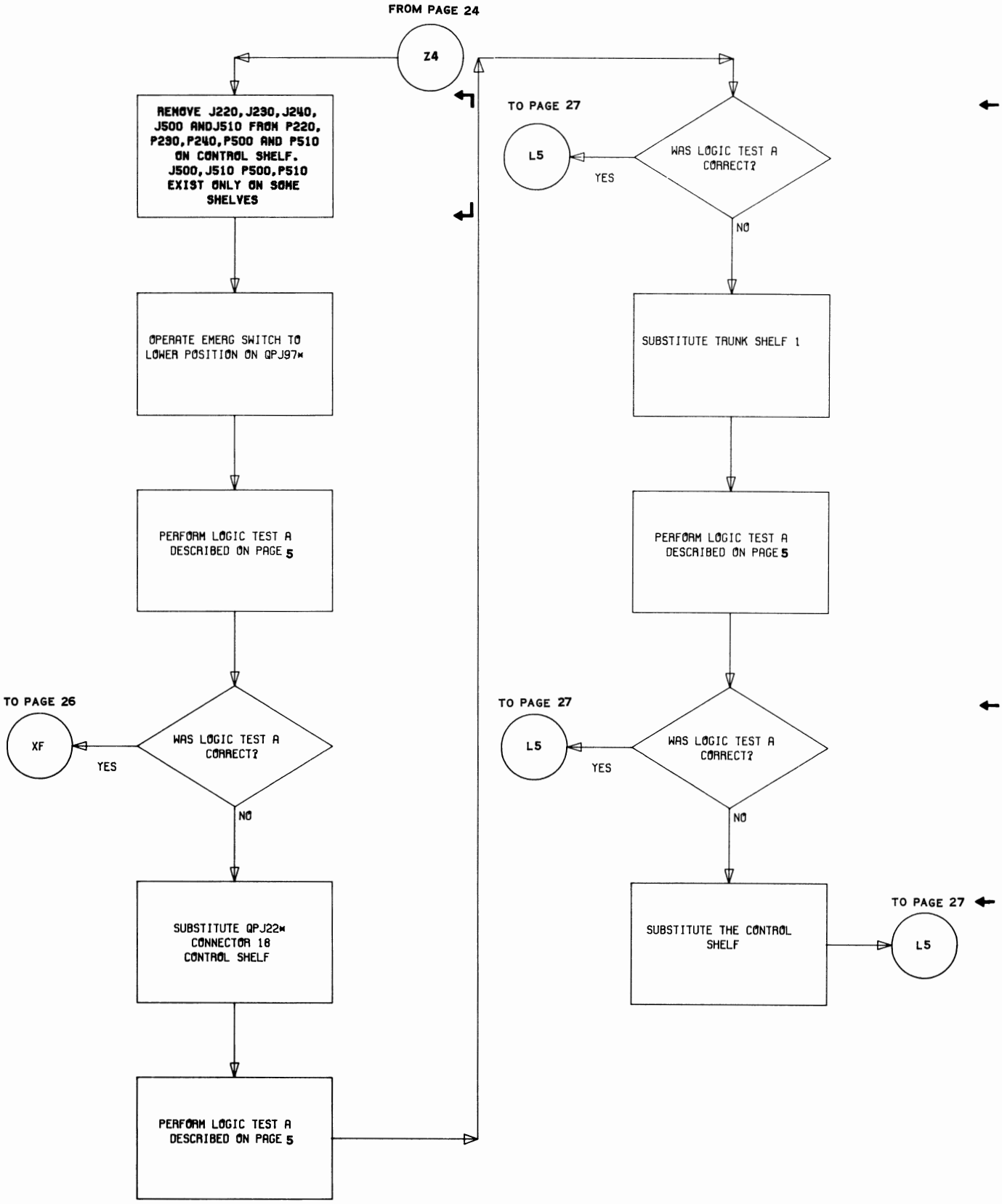

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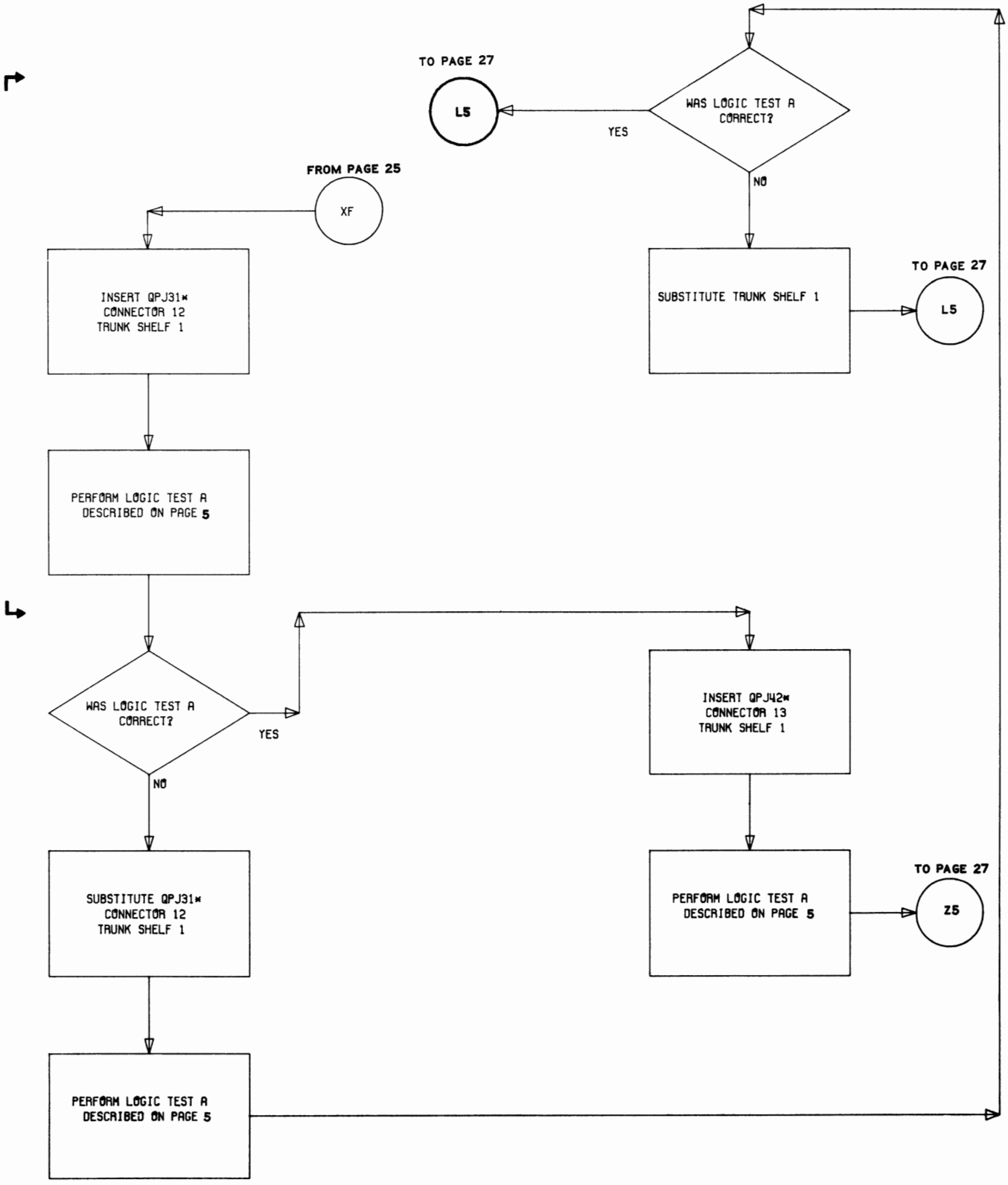

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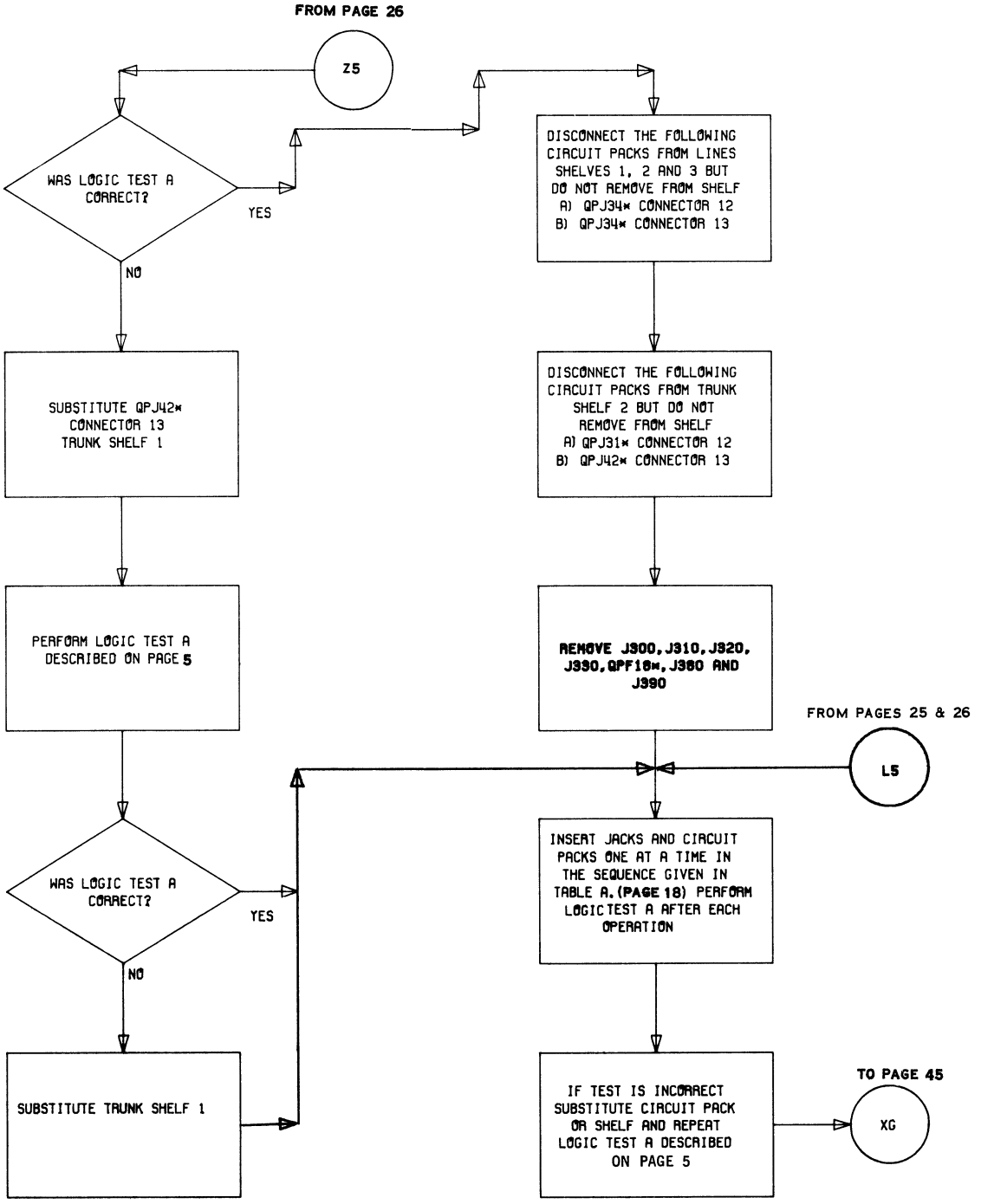

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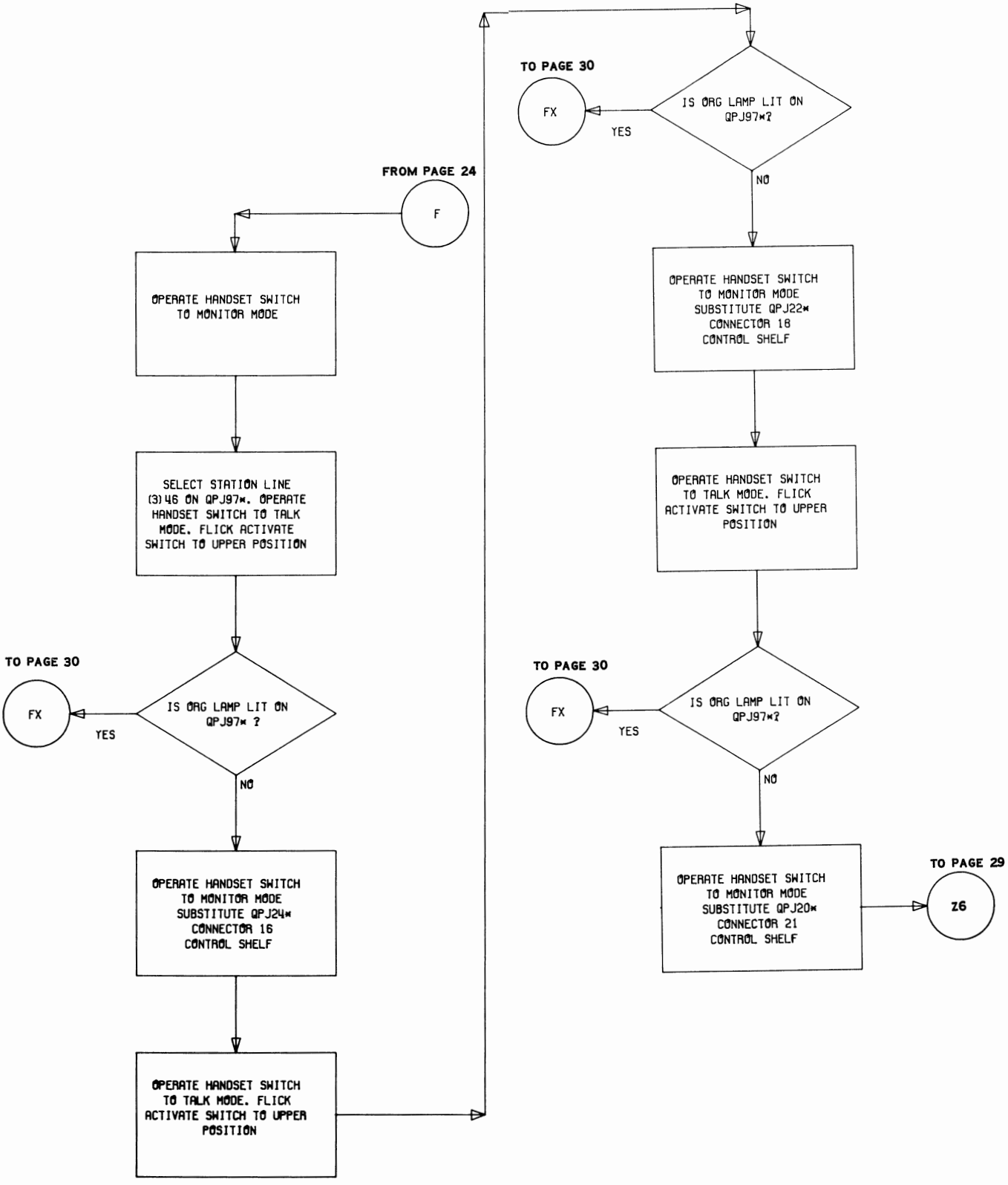

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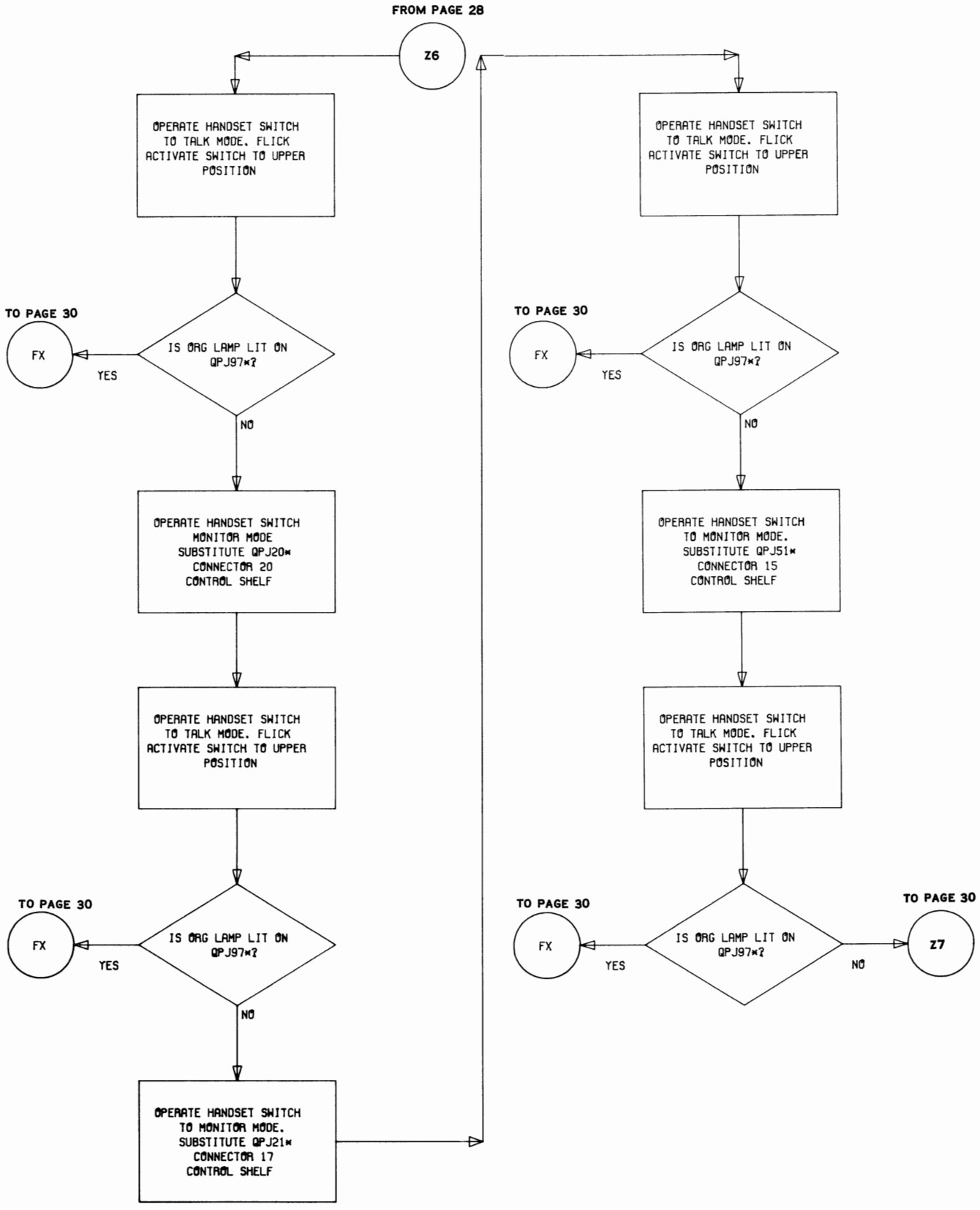

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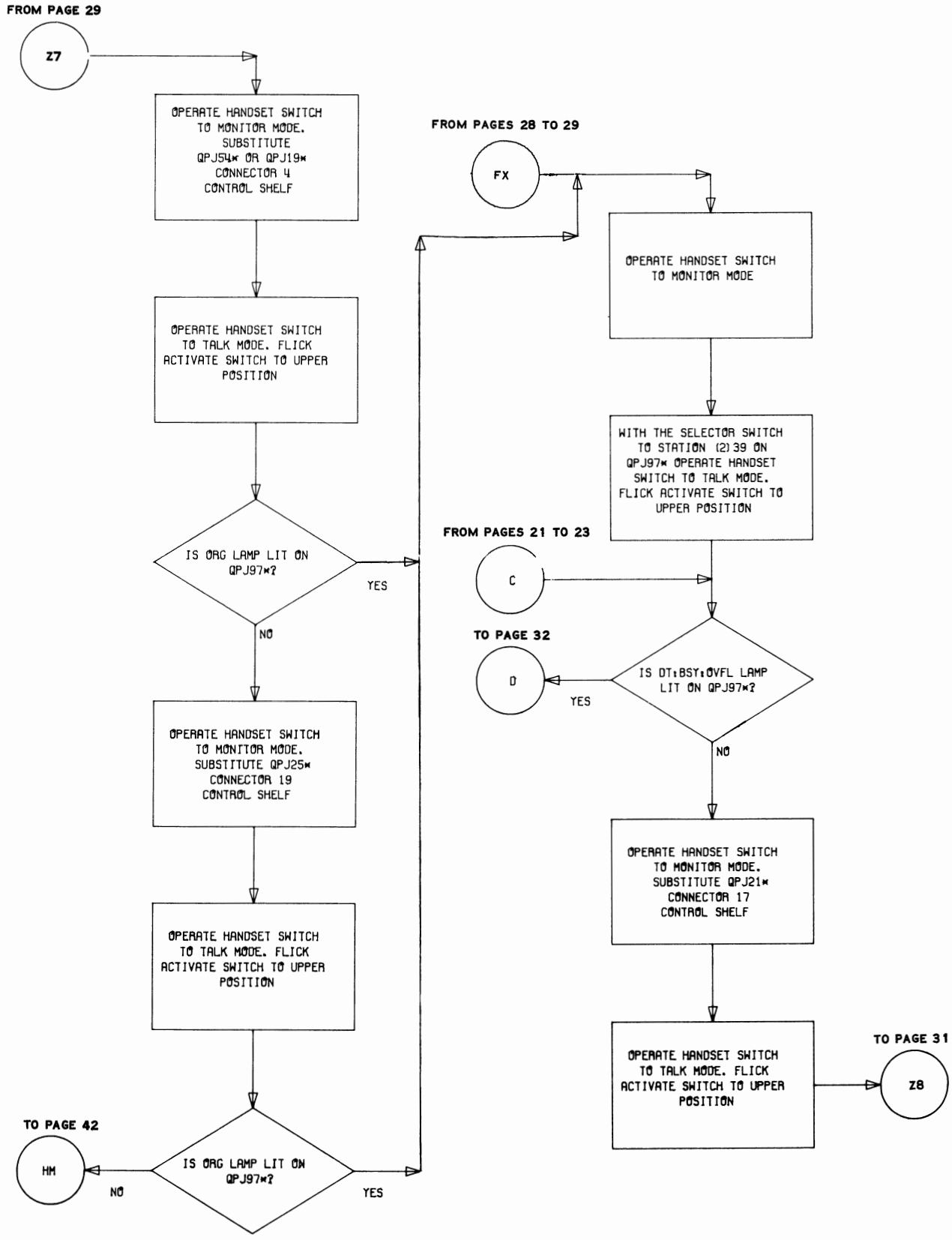

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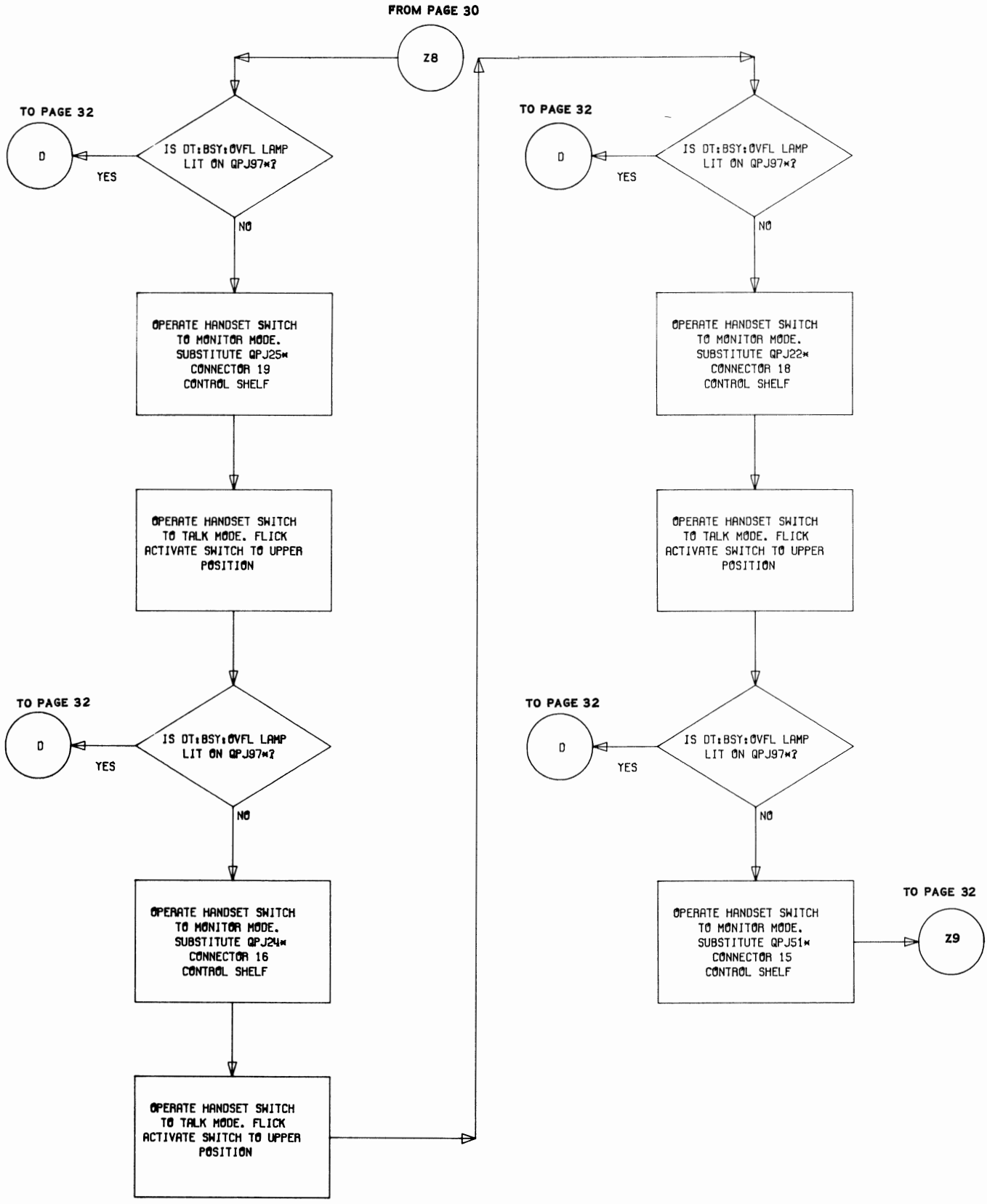

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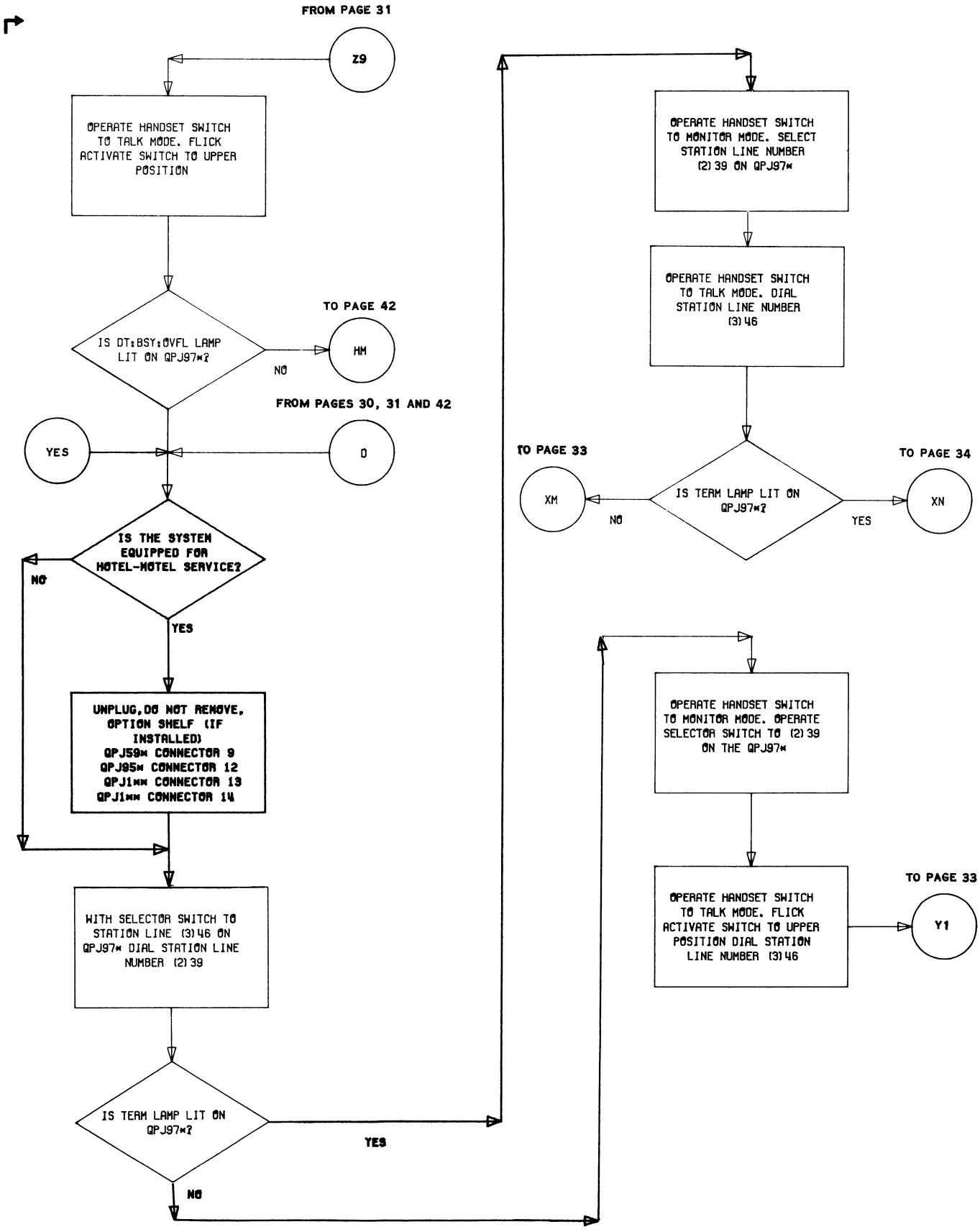
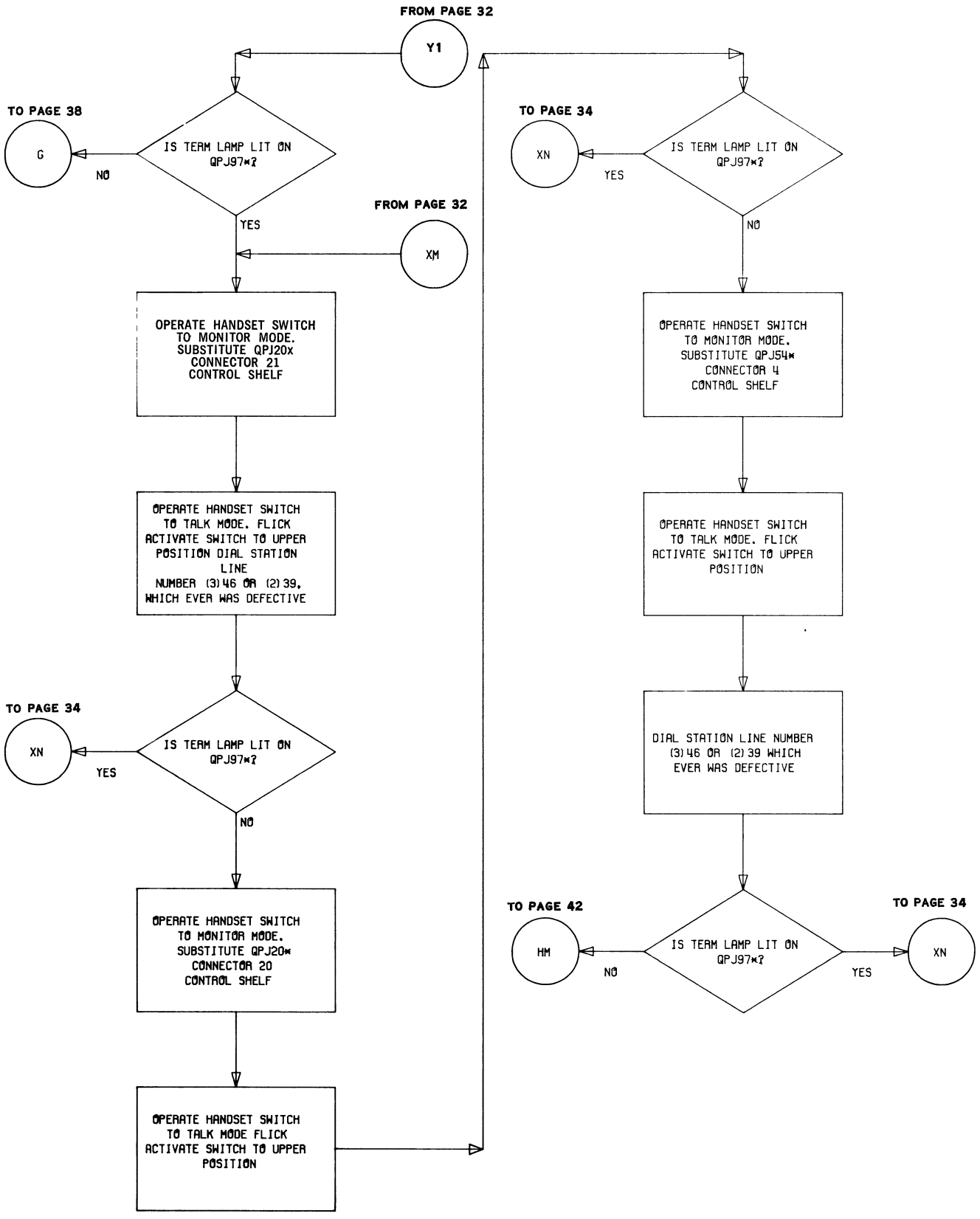


NOTE: QPJ1** MAY BE QPJ10*, QPJ11*, QPJ12*, OR QPJ13*

Flowchart 1 (Cont)



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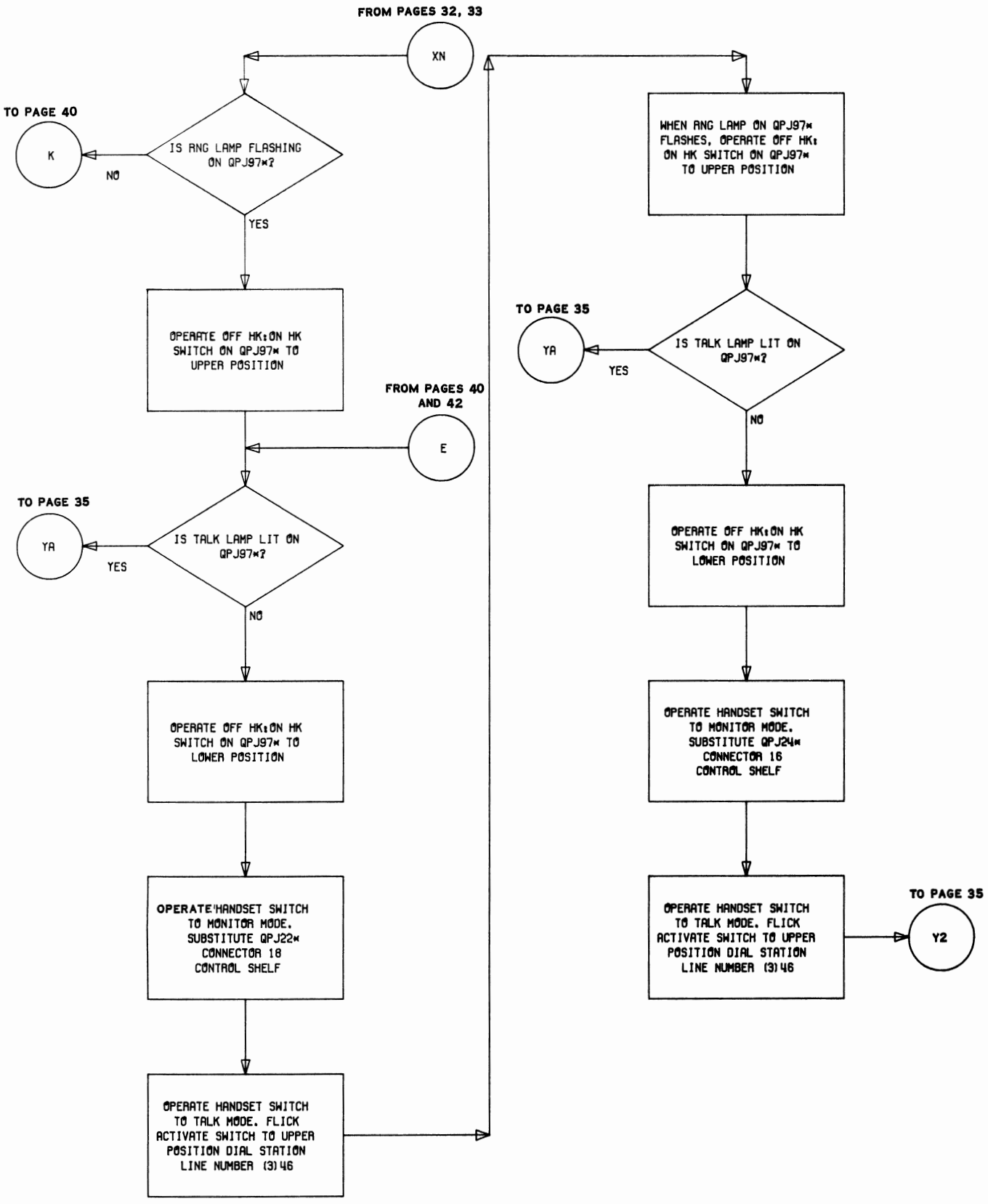
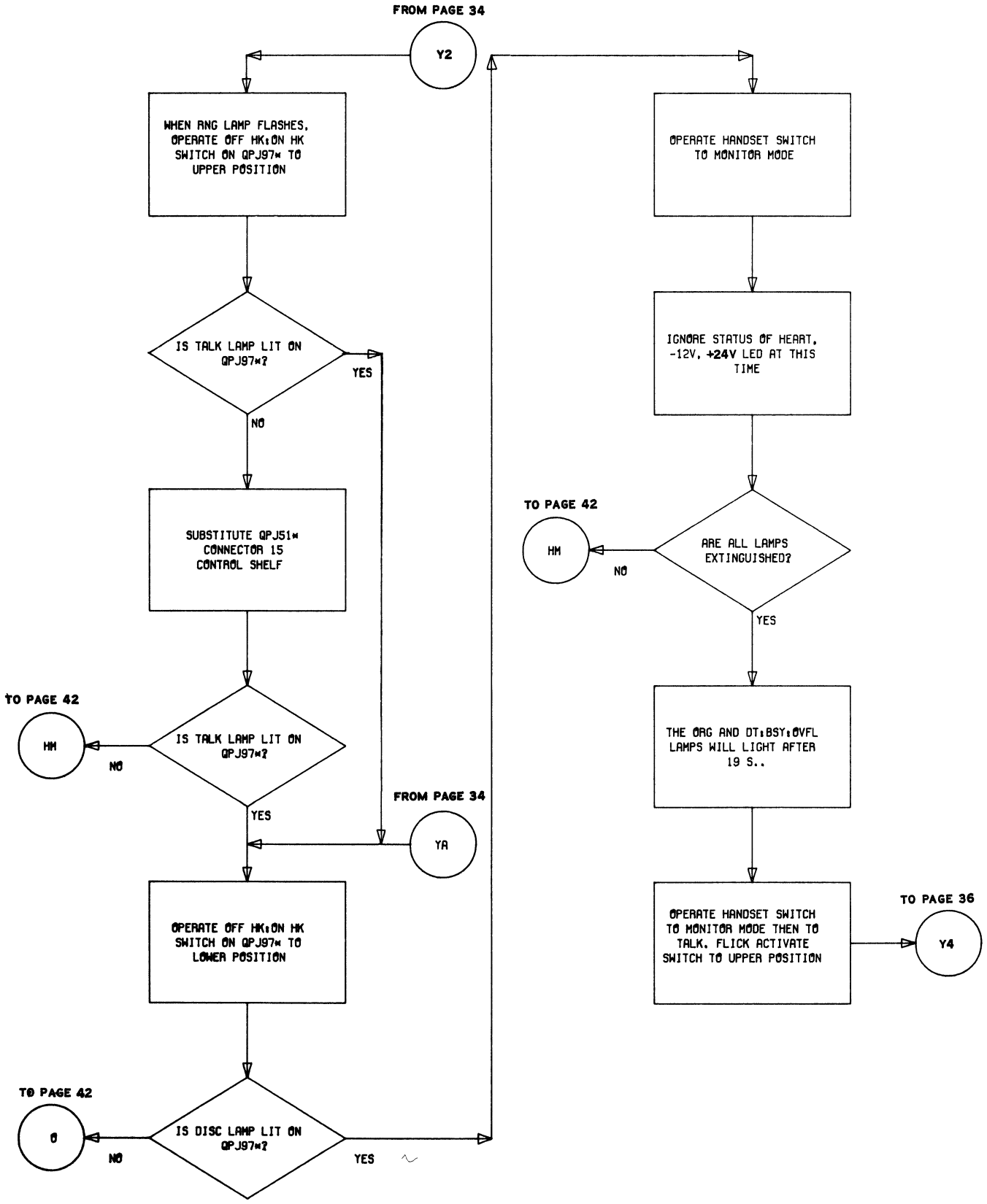
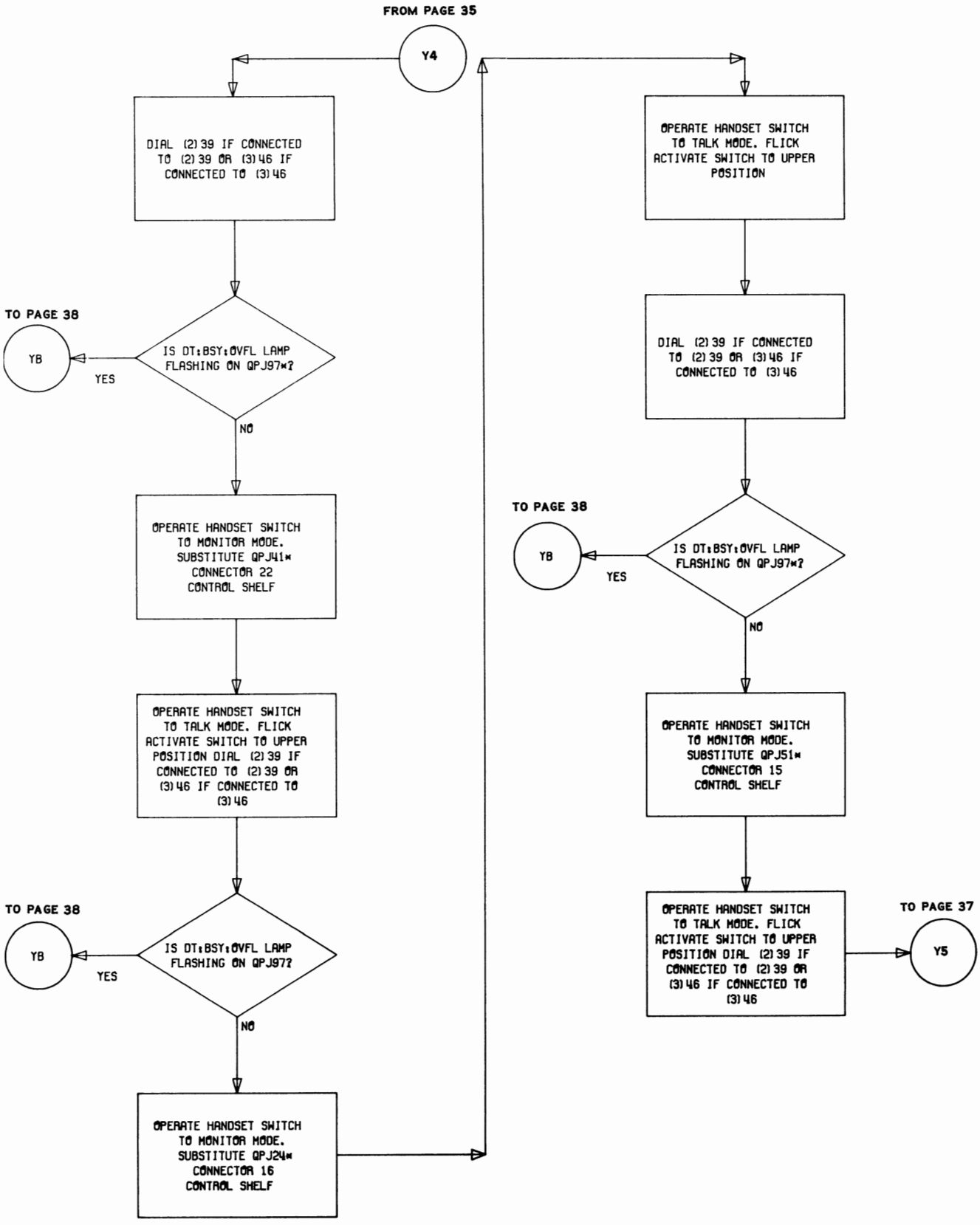


Flowchart 1 (Cont)



Flowchart 1 (Cont)



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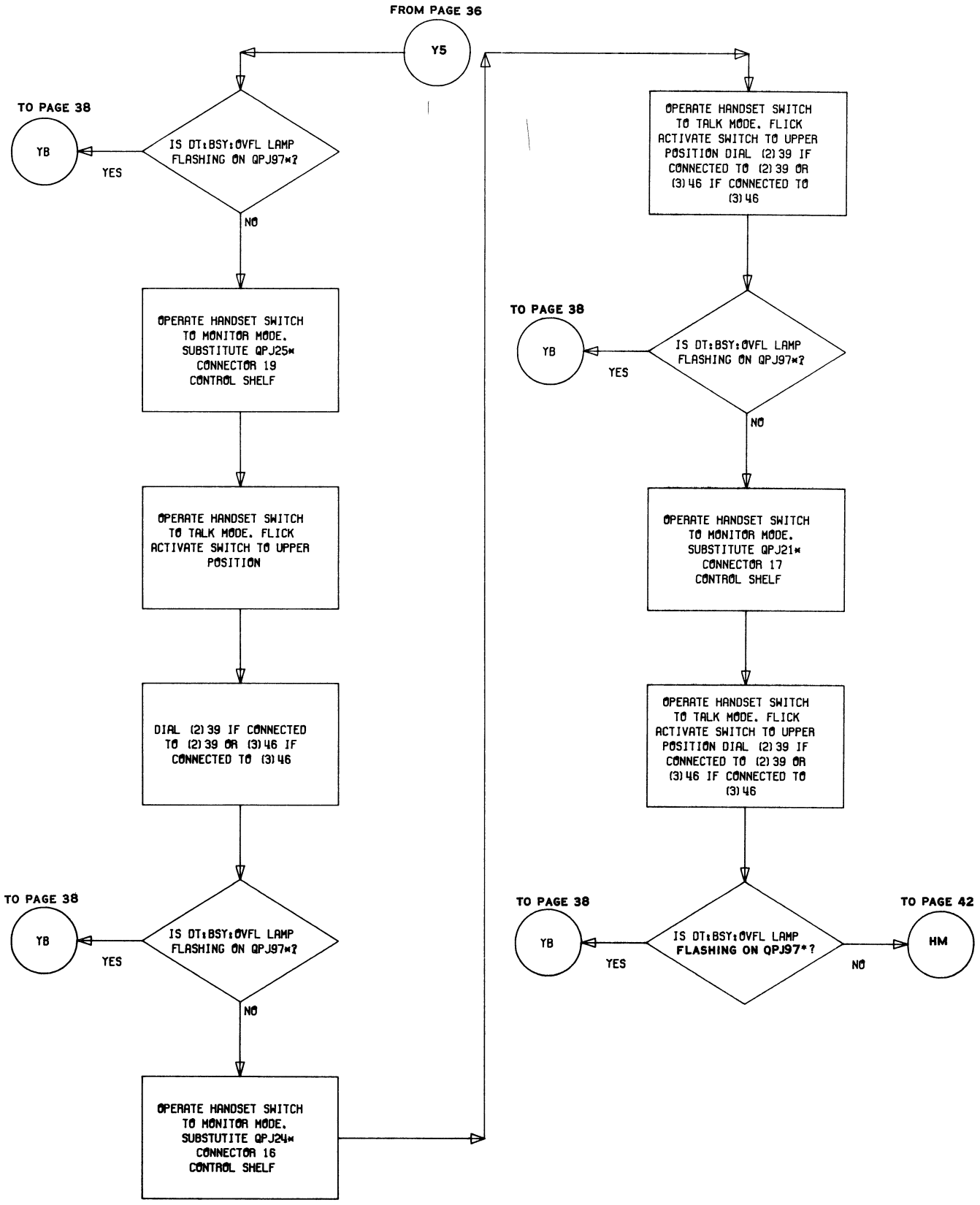

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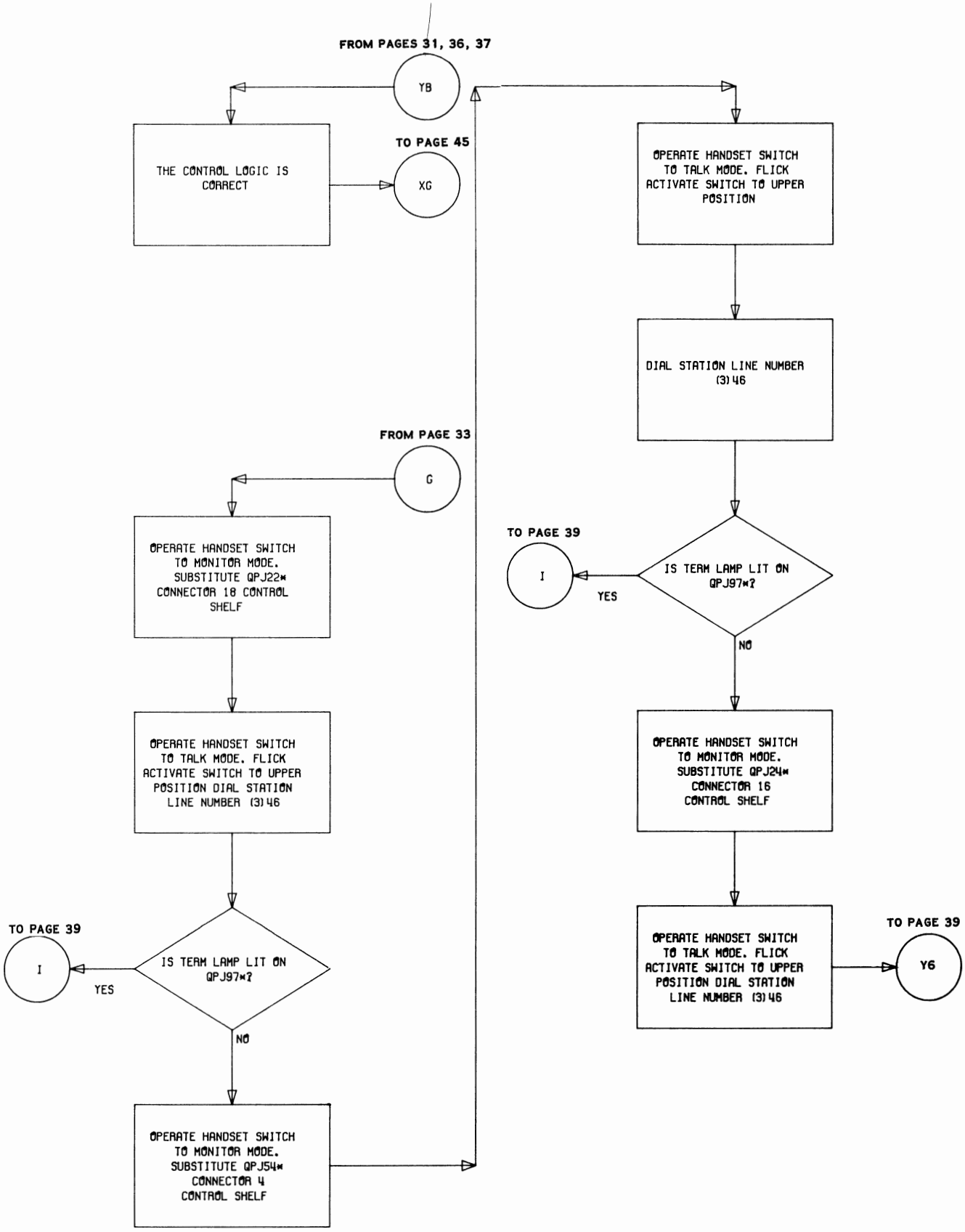

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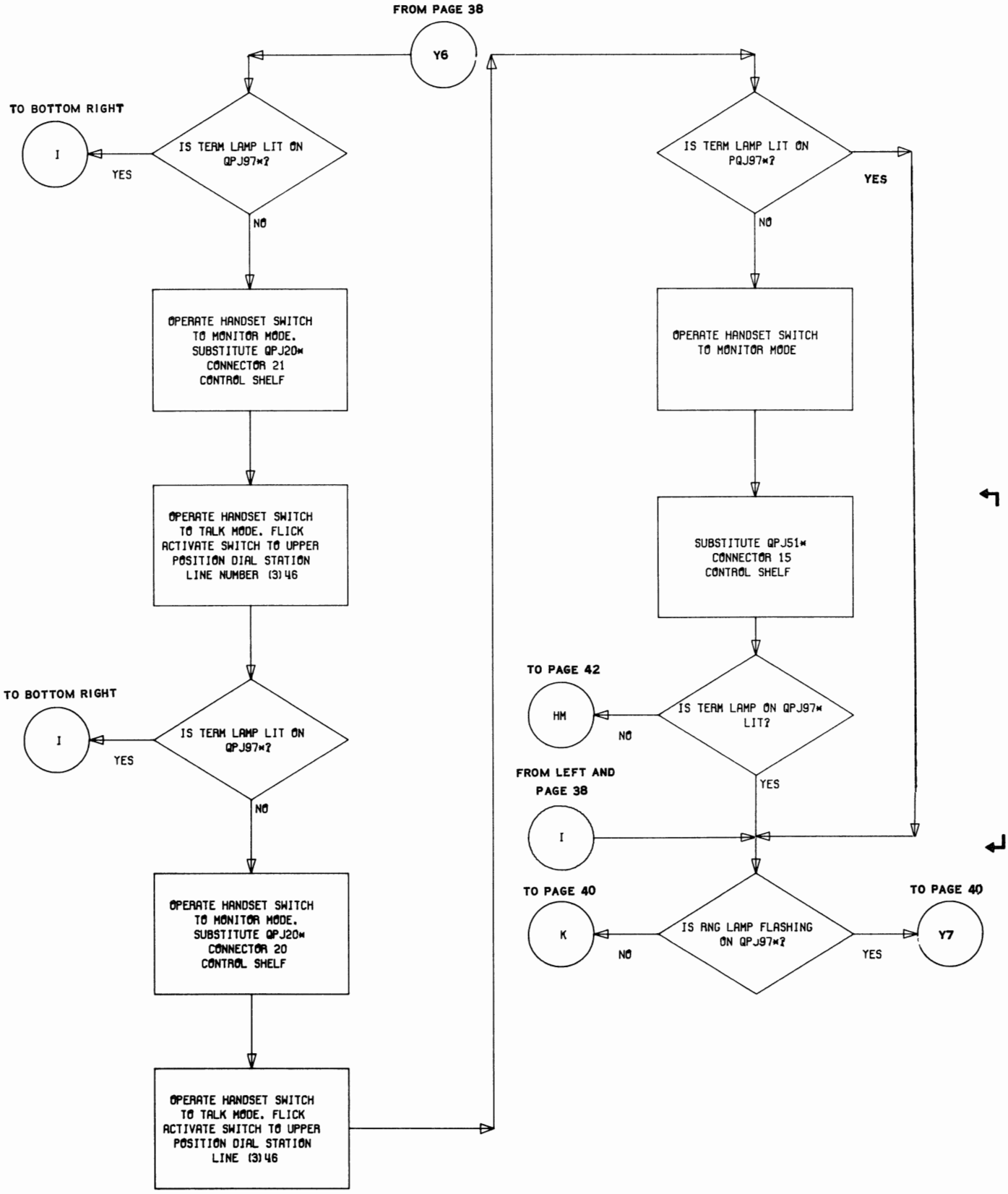

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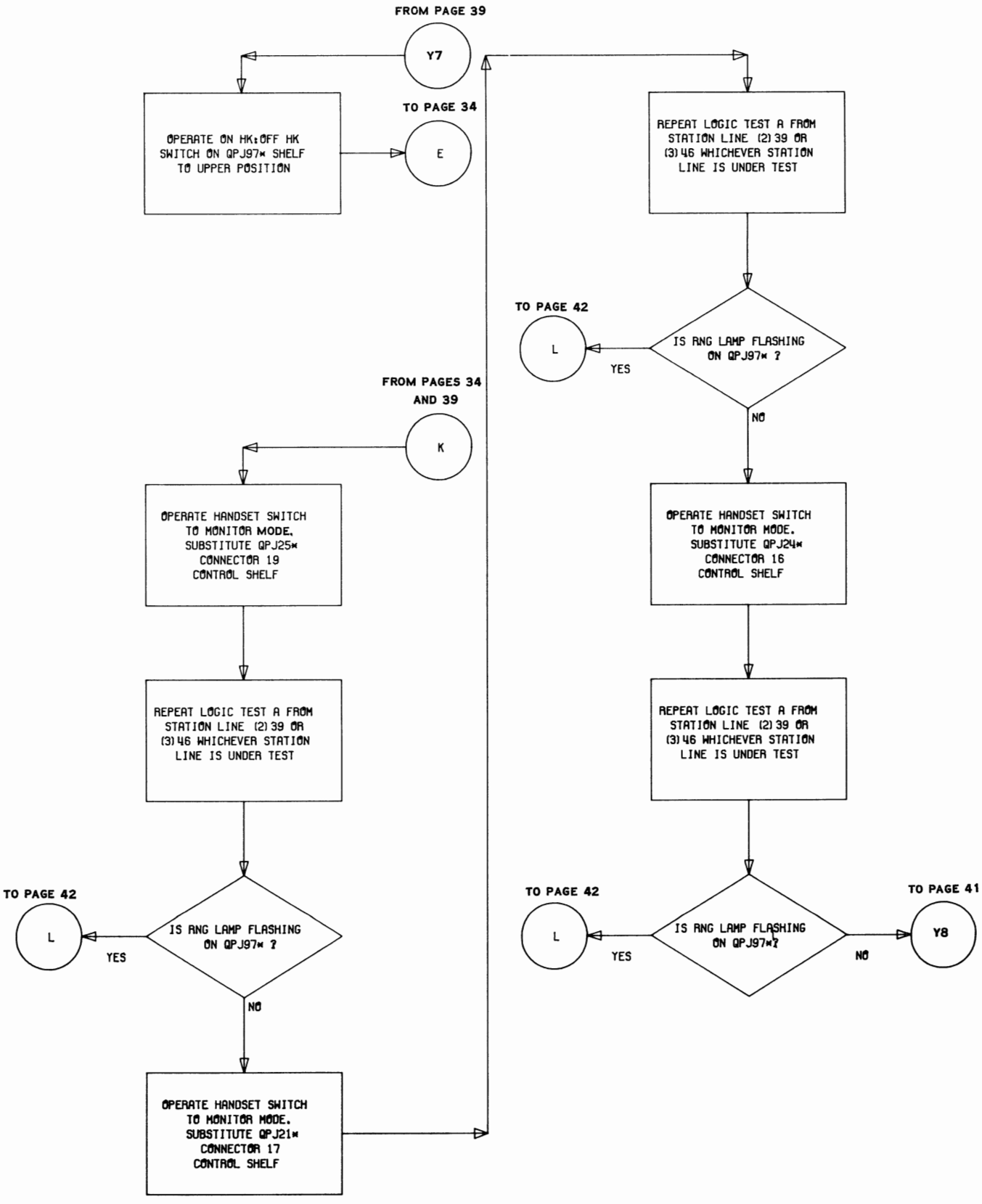

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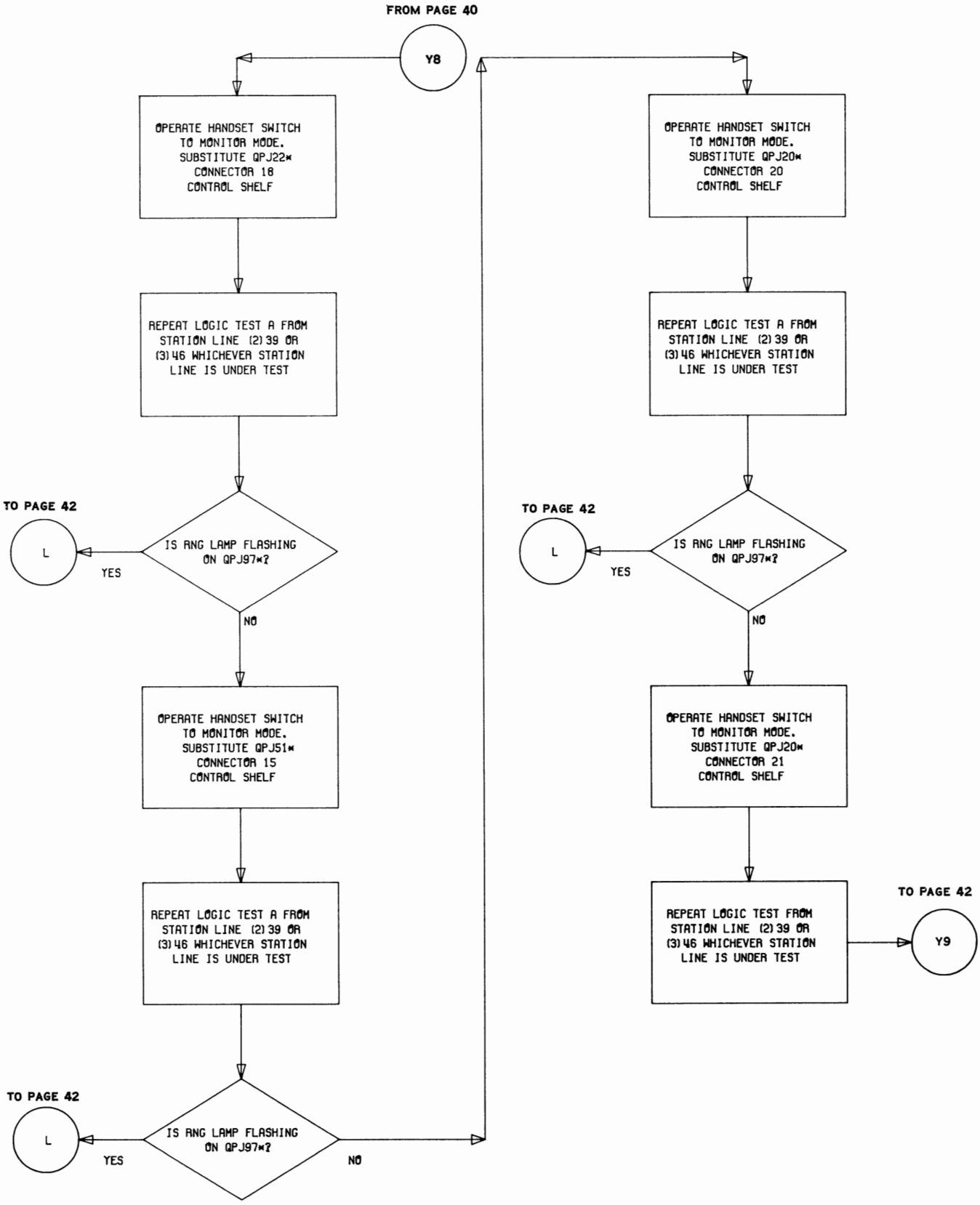

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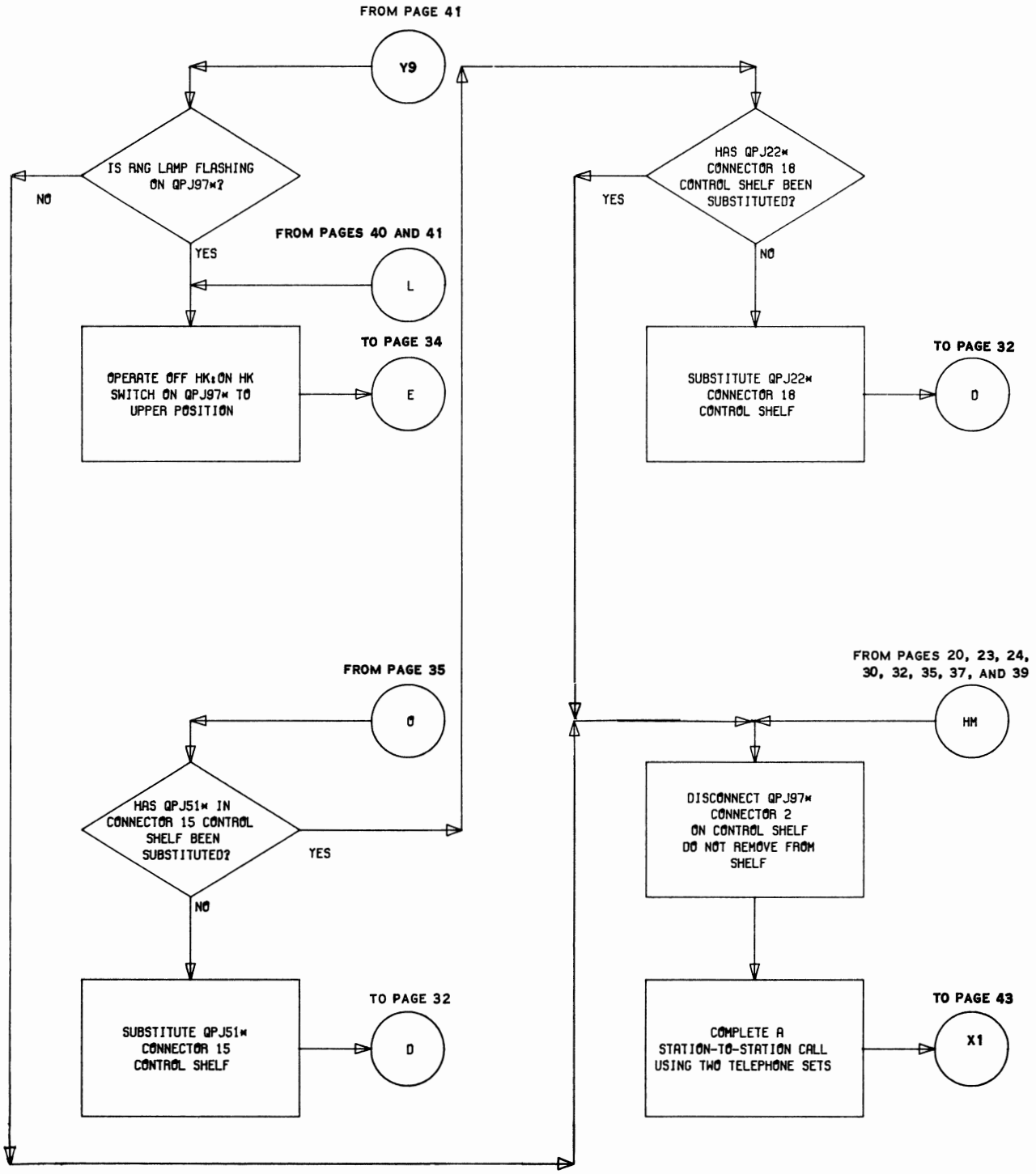

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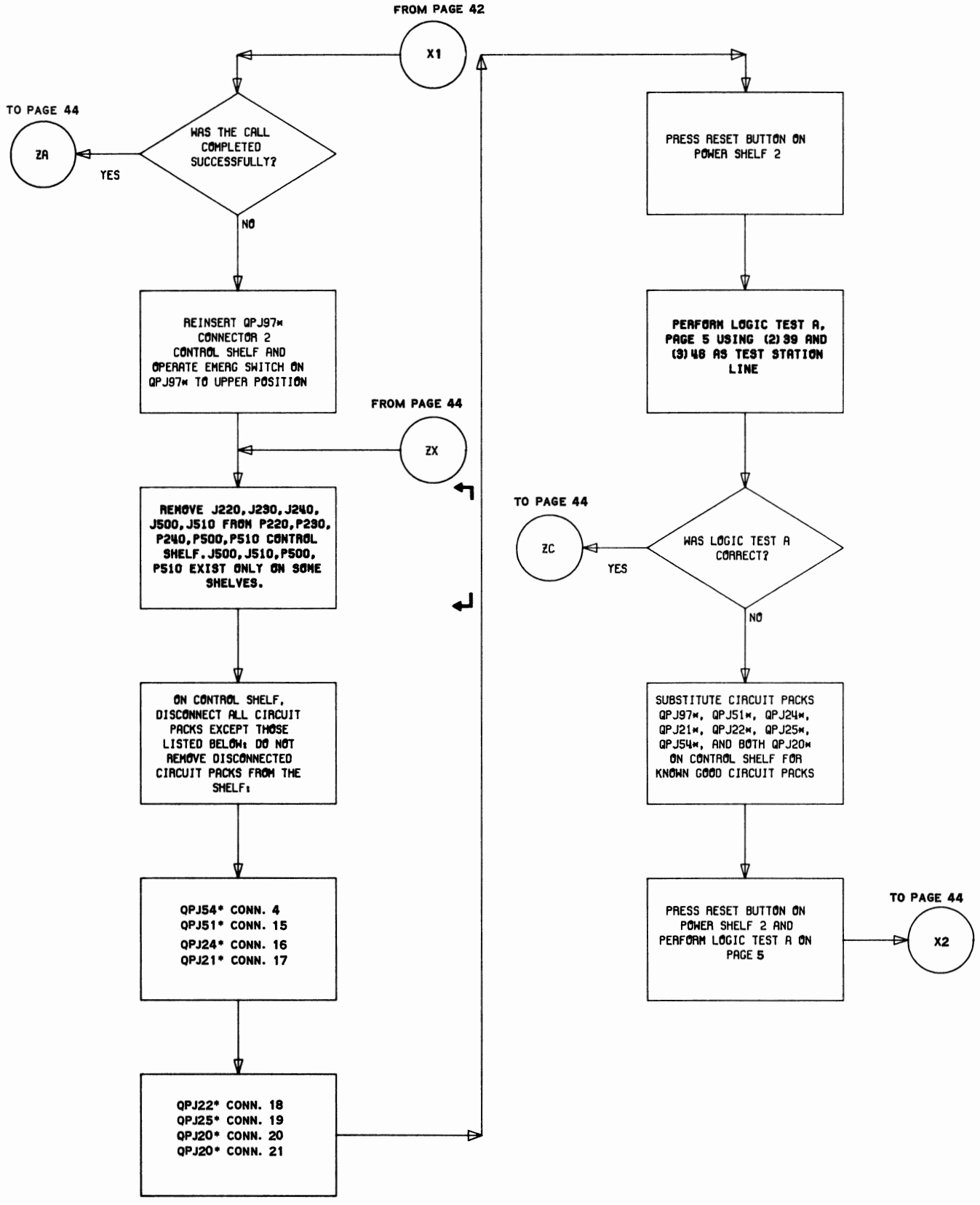

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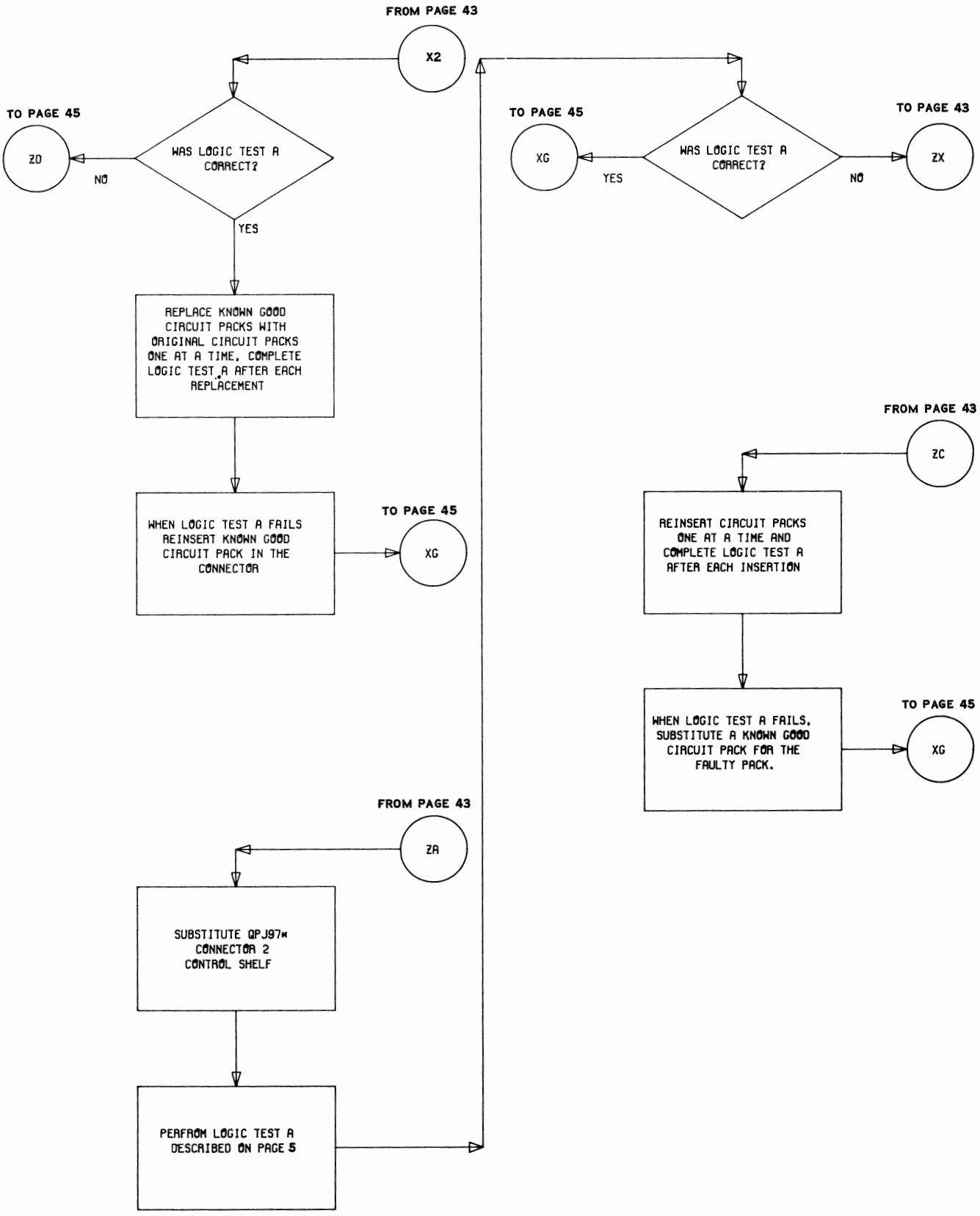

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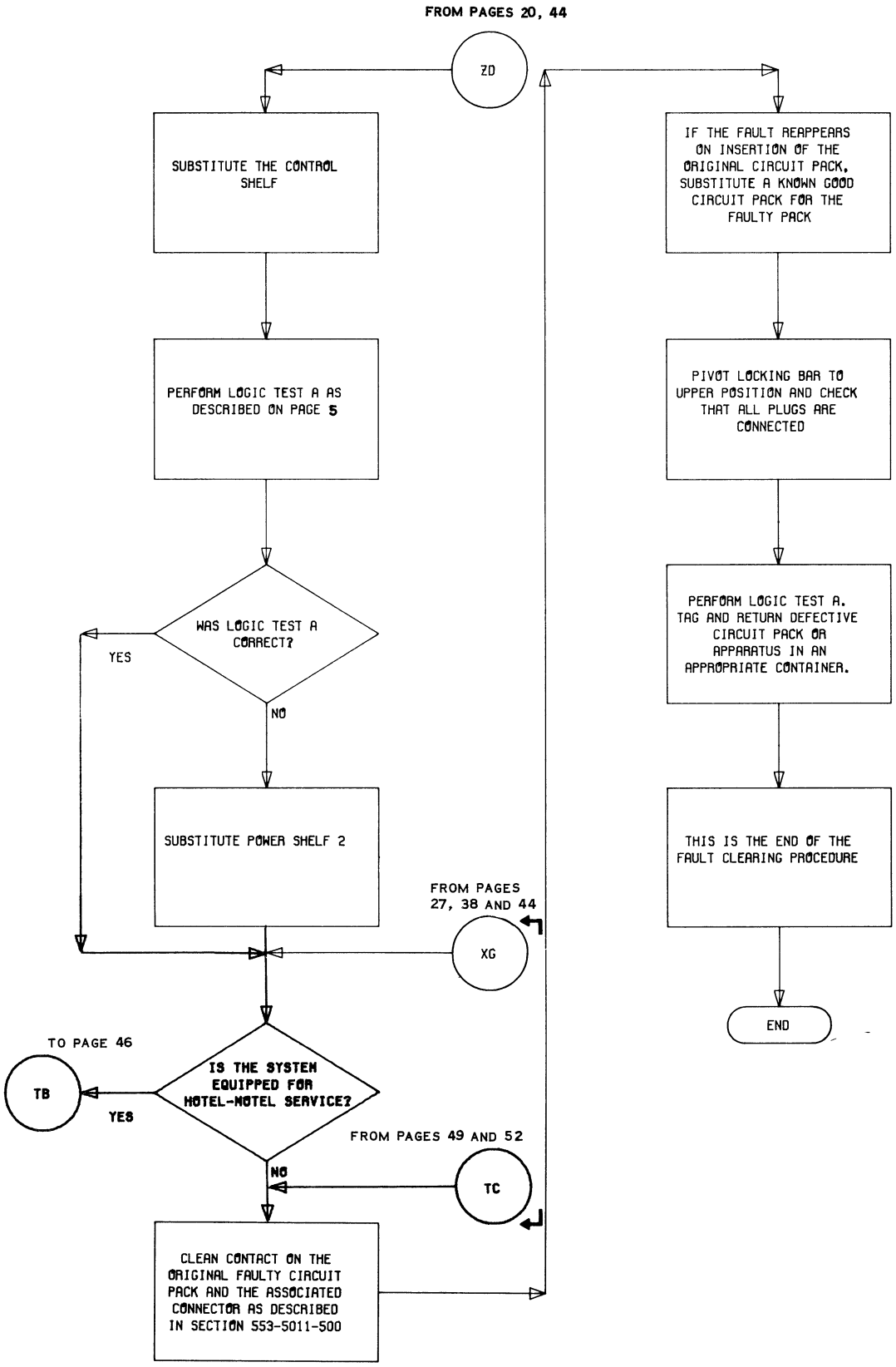

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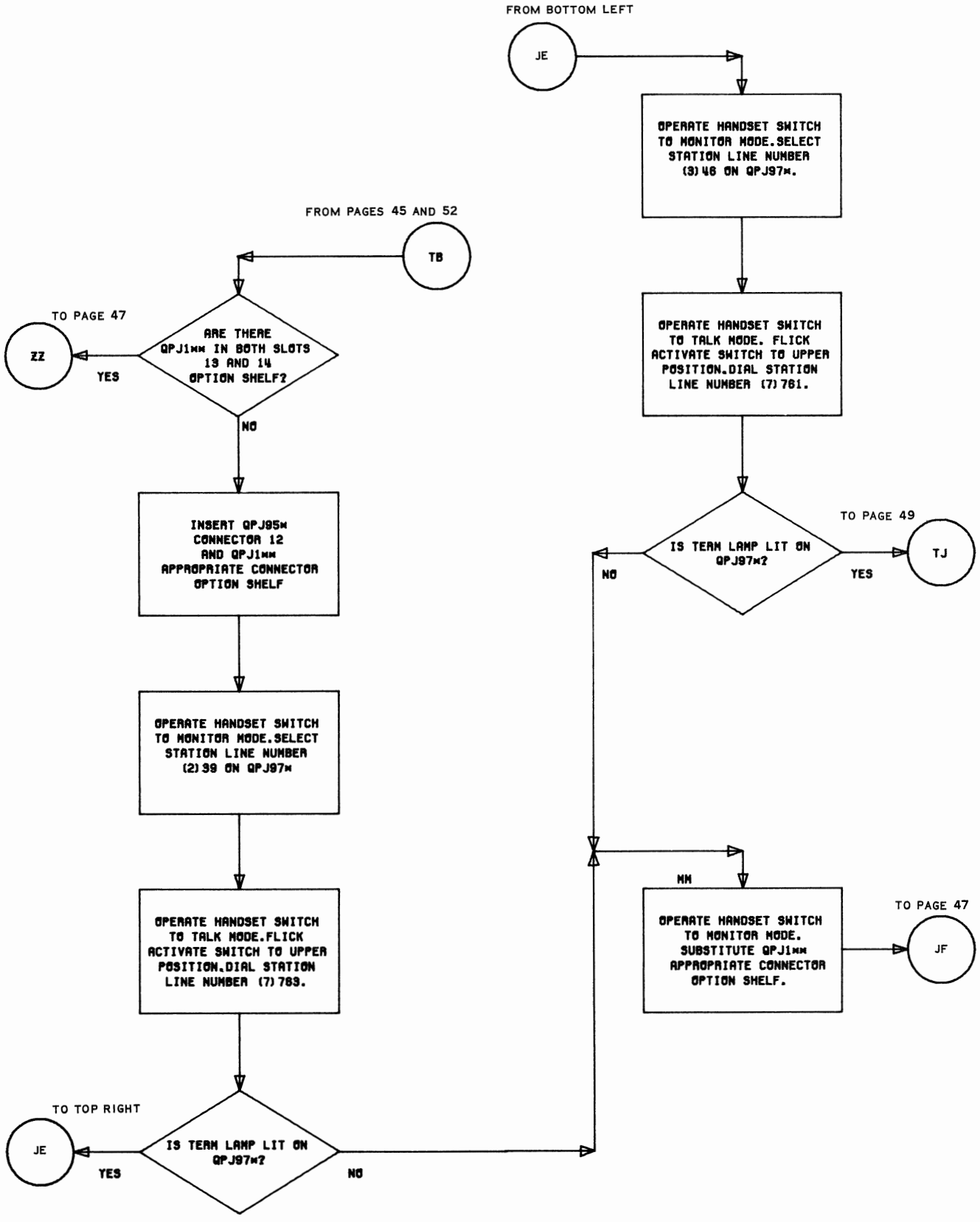
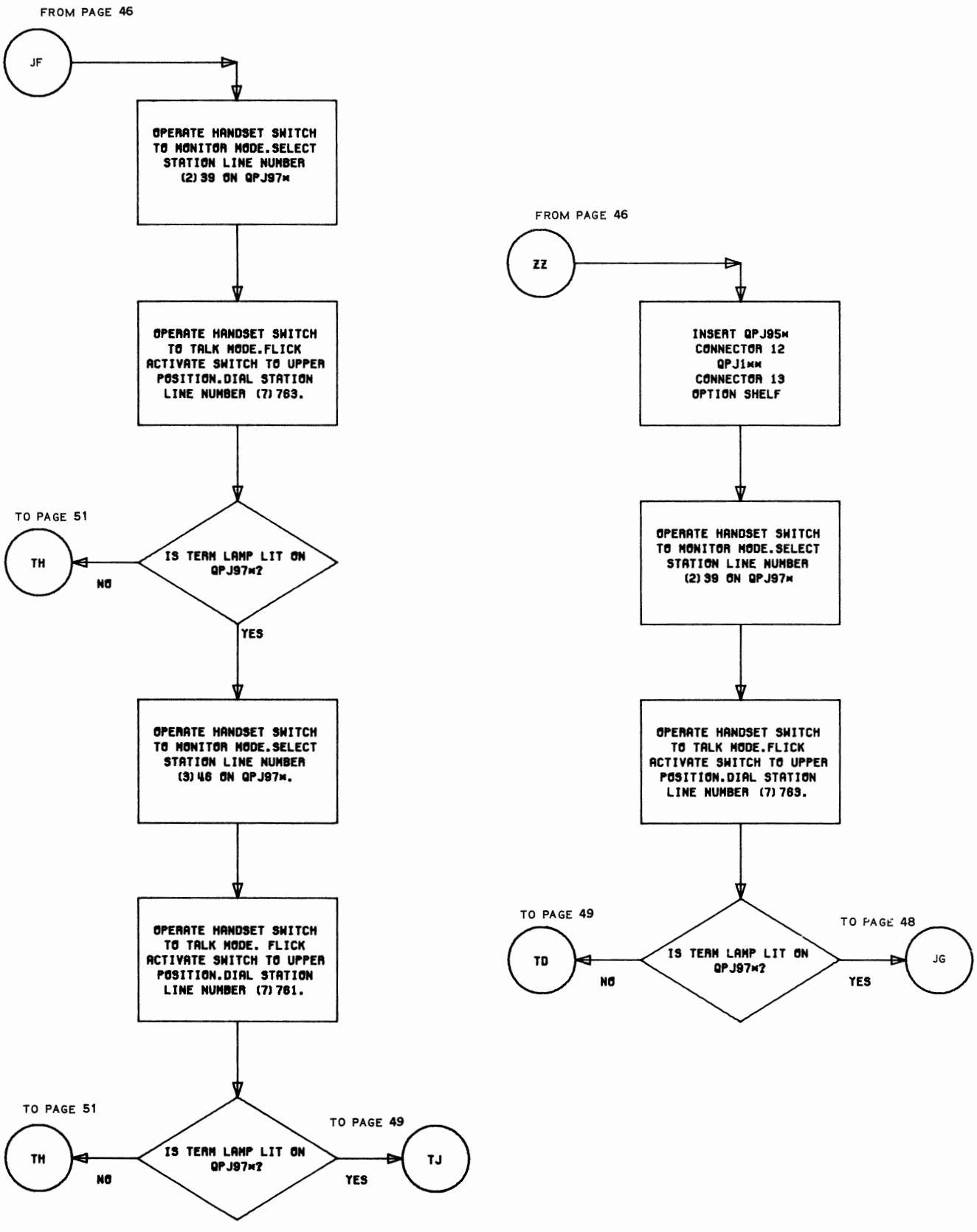
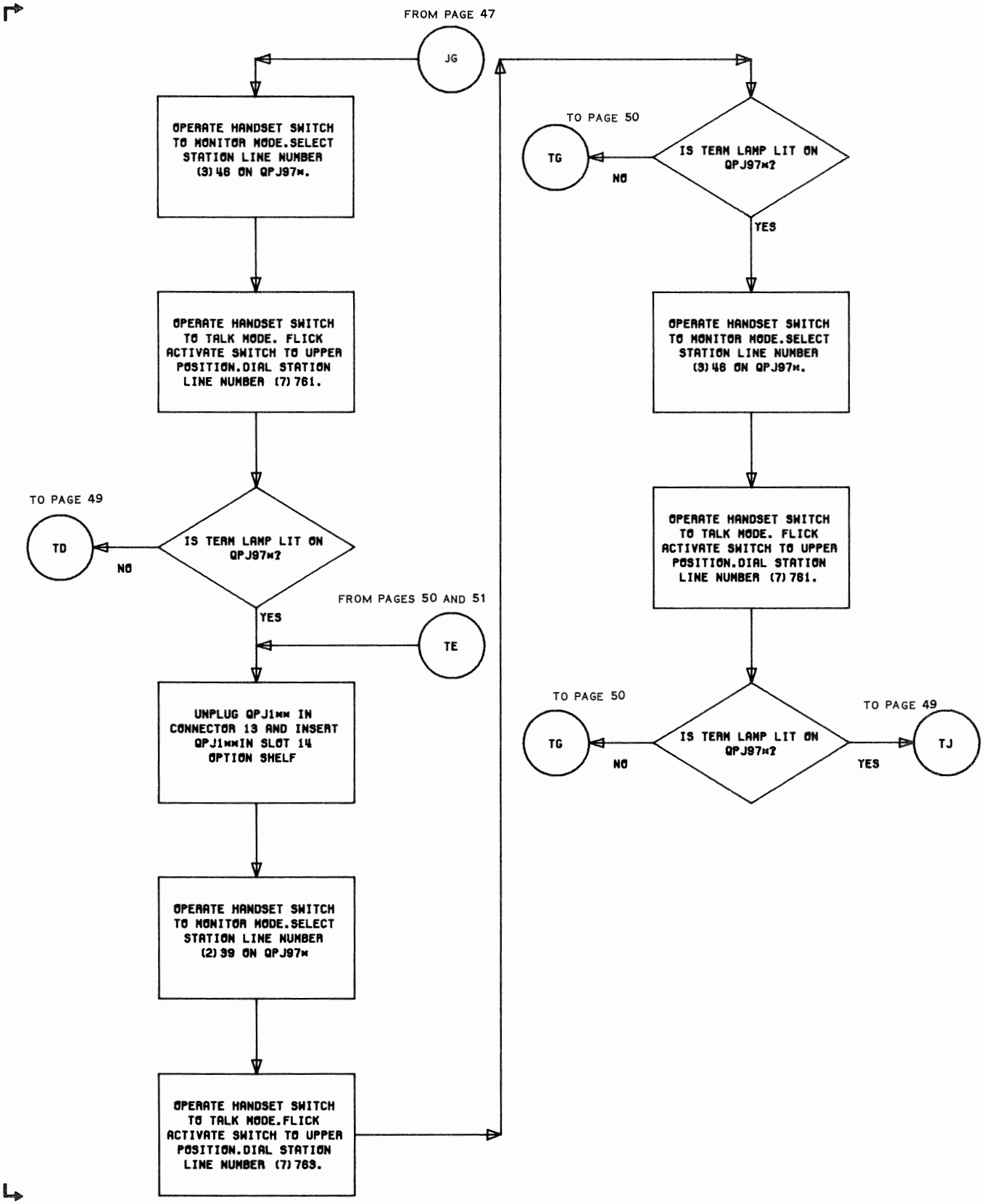


NOTE: QPJ1** MAY BE QPJ10*, QPJ11*, QPJ12*, OR QPJ13*

Flowchart 1 (Cont)



Flowchart 1 (Cont)



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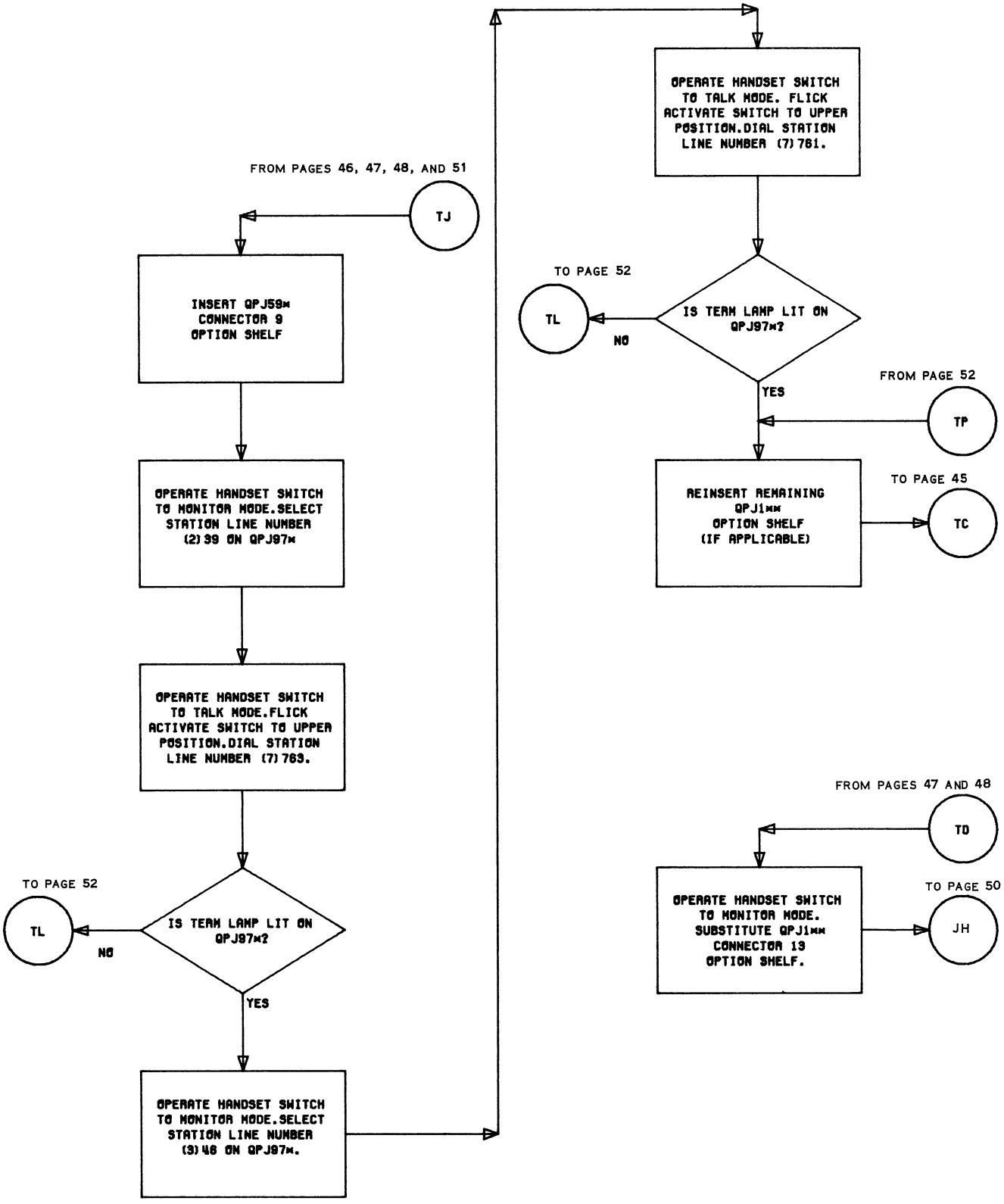
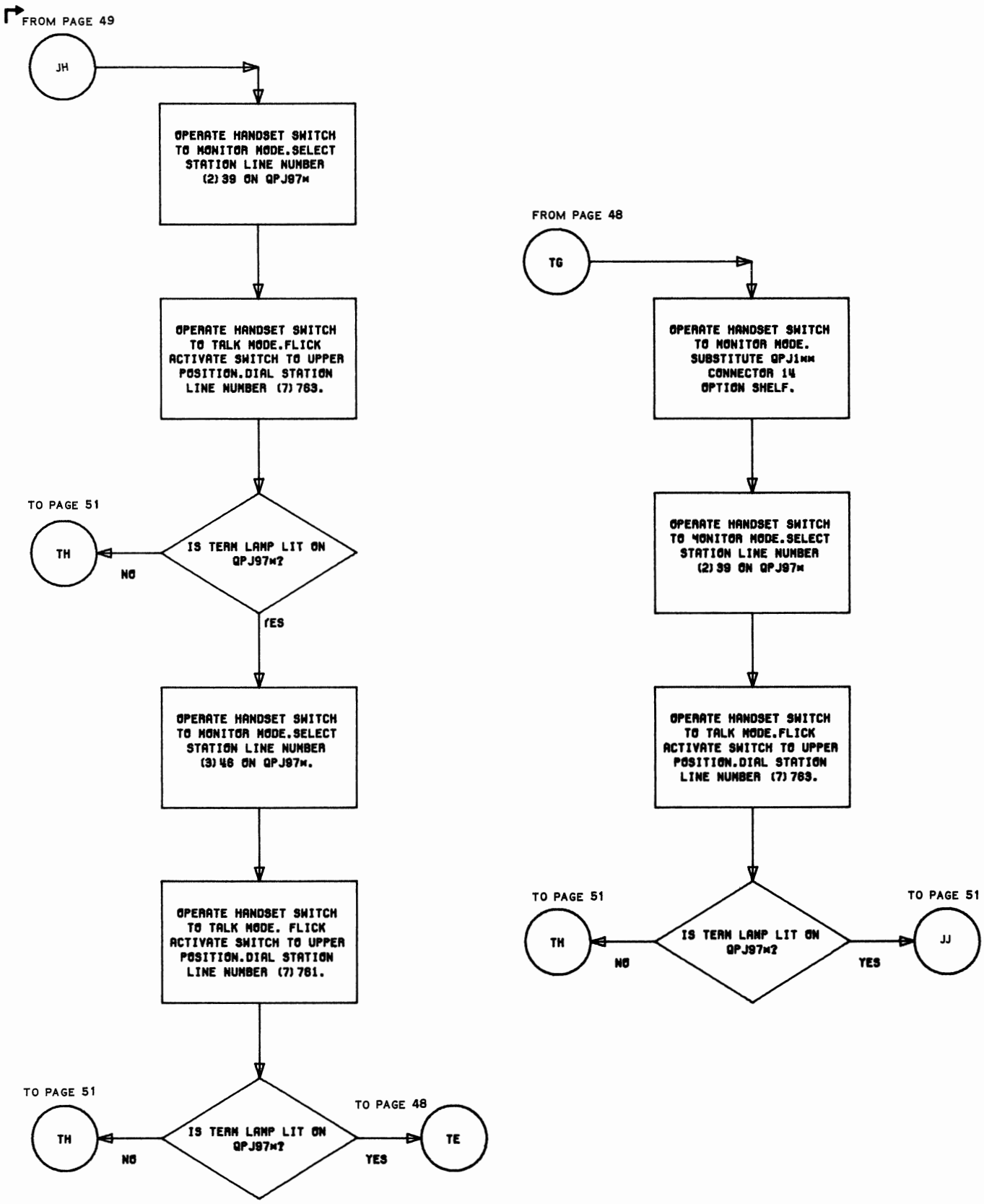


Flowchart 1 (Cont)



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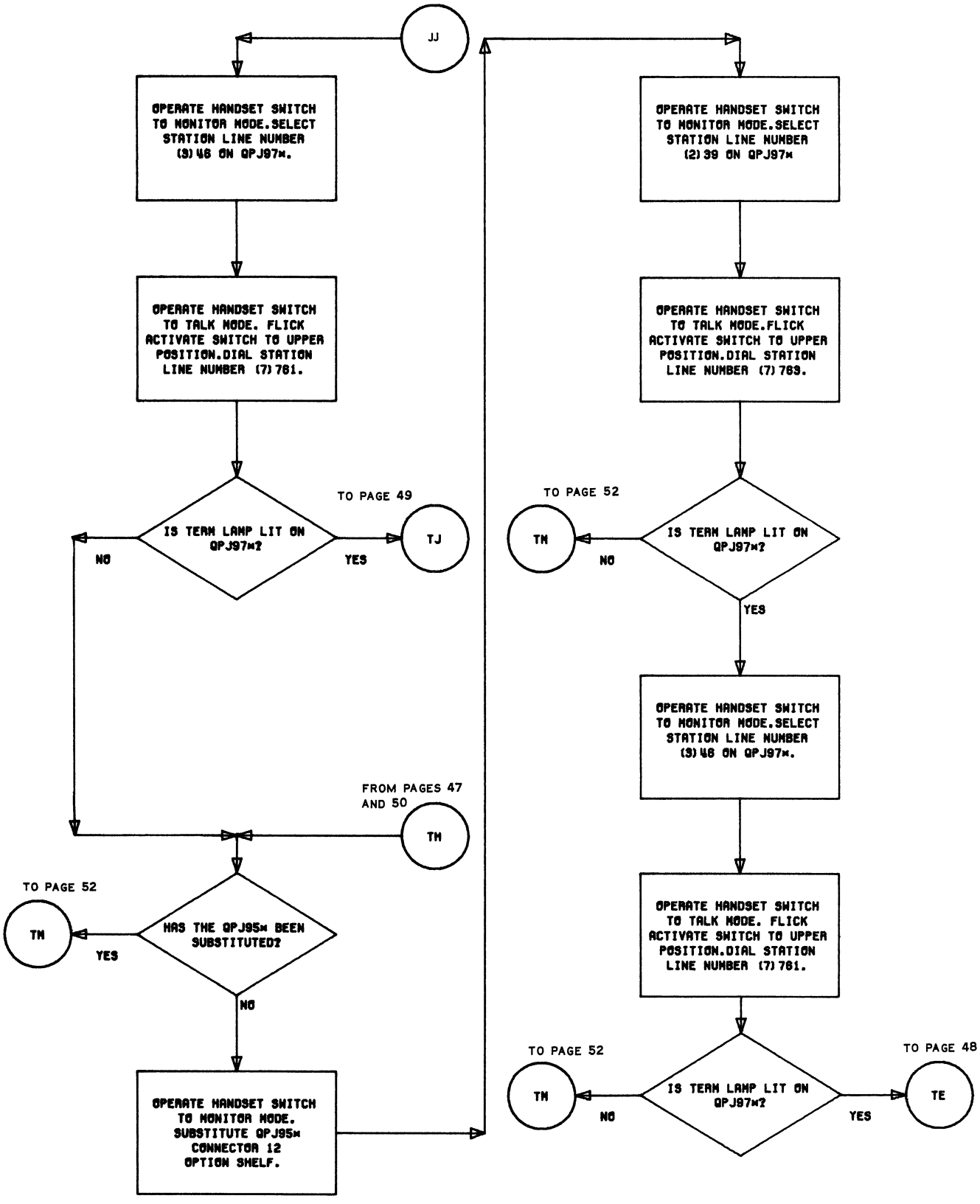

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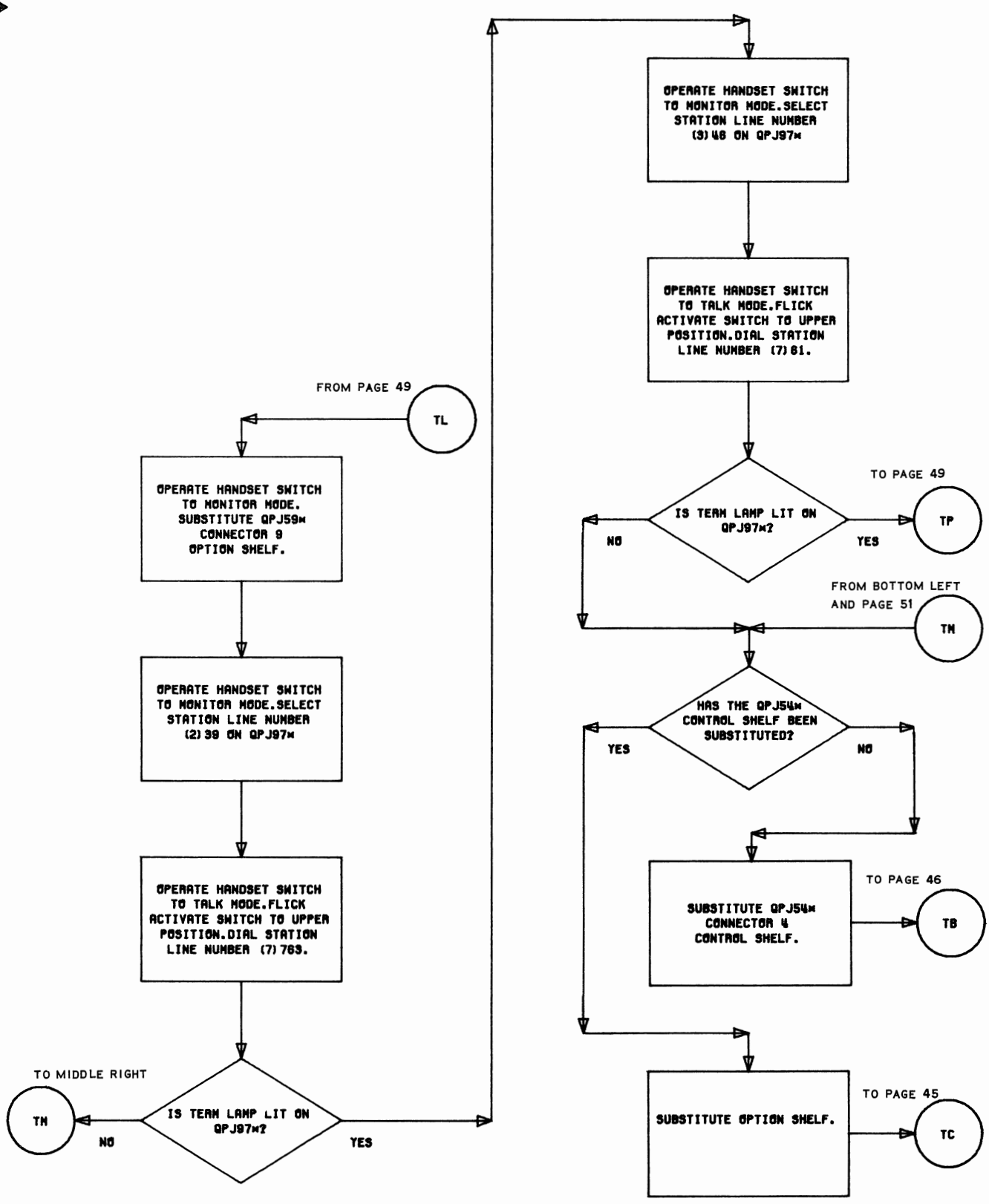

Flowchart 1 (Cont)