SECTION 553-5011-517 Issued: 9 June 1977 Standard

### "PULSE\* 120" – SG-1A

### ELECTRONIC PRIVATE AUTOMATIC BRANCH EXCHANGE MESSAGE REGISTRATION FAULT-CLEARING PROCEDURE

#### 1. GENERAL

1.01 This section describes the procedure for clearing message registration faults in the PULSE 120 electronic private automatic branch exchange (EPABX). Tone, ringing and dialing faults must be cleared before attempting to correct message registration faults (see Section 553-5011-503).

#### 2. CIRCUIT DESCRIPTION

- 2.01 Message registration accumulates and displays the number of completed local calls made from a guest room telephone. The display consists of electromechanical or electronic counters located externally to the PULSE 120 cabinet.
- 2.02 Power for the message registers is provided
  - by the PULSE 120 for +24 V registers (see Fig. 1 and Tables A, B, C)
  - by an external power supply for +48 V registers. The +48 V external supply must be routed through the PULSE 120 (see Table A).

- 2.03 Control circuitry to detect completed calls and drive the registers is located in the option shelf. One of two switch-selectable detection methods can be used:
  - a reverse-battery signal from the central office is detected at the appropriate trunk circuit pack and processed in the QPJ59-type circuit pack
  - -48 V dc from the CO on a third wire associated with the trunk in use is detected in one of two QPJ99-type circuit packs (15 trunks per pack) and processed in QPJ59.

When a completed call is detected, the appropriate message register is incremented by applying a ground pulse to the message register lead through a QPJ83-type circuit pack as shown in Fig. 1.

2.04 The QPJ99-type circuit packs, required only if third-wire control is used, are contained in connector locations 10 and 11 of the option shelf. The circuit pack in connector 10 detects -48 V dc on the third wires associated with CO trunks 1 through 15. The circuit pack in connector 11 detects

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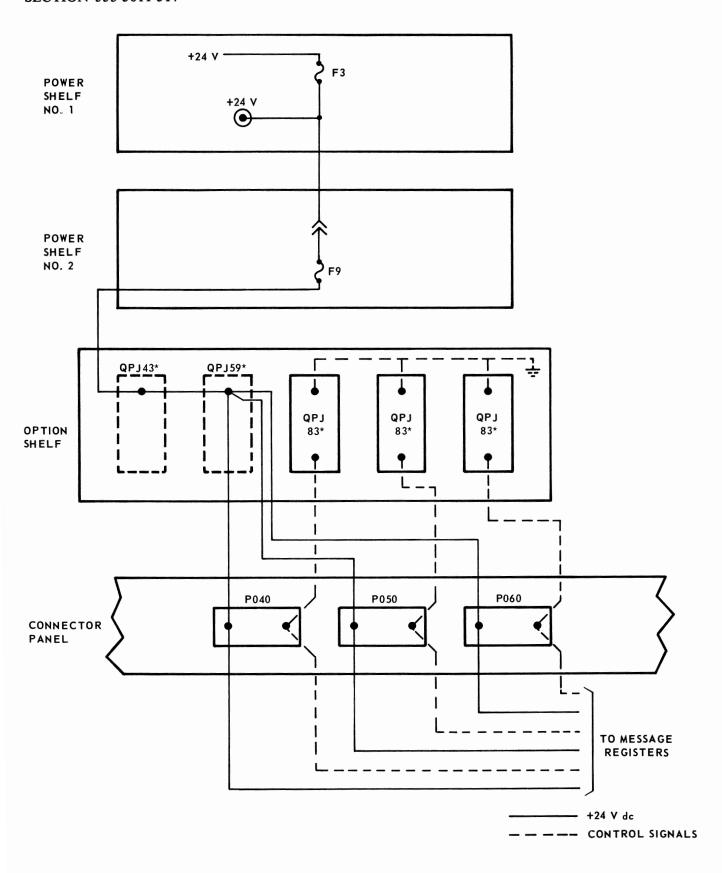


Fig. 1 - +24 V Power Supply to Message Registers

-48 V dc on the third wires associated with CO trunks 16 through 30. All third-wire leads are terminated in P131 on the connector panel in the base of the EPABX cabinet. The connector cable pair, pin numbers, and the color code for each of the third-wire leads are given in Table D.

2.05 The QPJ83-type circuit packs are contained in connector locations 1, 2, and 3 of the option shelf. The circuit pack in connector location 1 serves the message registers for system numbers 210 through 249.

The circuit pack in connector location 2 serves the message registers for system numbers 250 through 289.

The circuit pack in connector location 3 serves the message registers for system numbers 310 through 349.

2.06 The message register leads for system numbers 210 through 249 are terminated in P040 on the connector panel at the base of the EPABX cabinet.

The message register leads for system numbers 250 through 289 terminate in P050 on the connector panel.

The message register leads for system numbers 310 through 349 are terminated in P060 on the connector panel at the base of the EPABX cabinet. The connector cable pair and pin numbers and the color code for each of the message register leads are listed in Tables A, B, and C.

#### 3. FAULT-CLEARING PROCEDURE

- 3.01 When the substitution of a circuit pack is required during the fault-clearing procedure, the contacts on the new circuit pack must be cleaned (see Section 553-5011-500) before inserting the circuit pack into the connector.
  - Note 1: The asterisk (\*) after the circuit pack code replaces the suffix letter.
  - Note 2: When substituting a QPJ59\* circuit pack, ensure that the switches on the faceplate of the new pack are in the same position as those on the original circuit pack before inserting.
- 3.02 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 fault-free circuit pack is reinserted.
- 3.03 If different or additional faults or both are created in the system when substituting a circuit pack, tag and return the replacement as a defective unit.
- 3.04 If the fault is not cleared by the substitution of a circuit pack, the original circuit pack must be reinserted in the connector. See Section 553-5011-202 for shelf substitution instructions.
- 3.05 When the fault-clearing procedure is complete, a visual check must be made to ensure that all circuit packs are well seated in their connectors and the screws in the connector plugs and jacks are tight. See Section 553-5011-501 for the EPABX internal cabling arrangement.
- 3.06 The following flowchart instructions correct message registration faults.

## TABLE A TERMINATING SEQUENCE OF P040 AT THE CROSS-CONNECTING TERMINAL OPTION SHELF — HOTEL/MOTEL MESSAGE REGISTRATION

					]	DIALED	NO BY PI	LAN	
	PAIR	PIN	PAIR COLOR	SYSTEM NO.	A	В	С	OTHER	FUNCTION
	IT R	26 1	W-BL BL-W	210 211	750 751	750 751	750 751		
	2T R	27 2	W-O O-W	212 213	752 753	752 753	752 753		
	3T R	28 3	W-G G-W	214 215	754 755	754 755	754 755		
	4T R	29 4	W-BR BR-W	216 217	756 757	756 757	756 757		
	5T R	30 5	W-S S-W	218 219	758 759	758 759	758 759		
	6T R	31 6	R-BL BL-R	220 221	1 2	1 2	1 2		
	7T R	32 7	R-O O-R	222 223	3 4	3 4	3 4		
040	8T R	33	R-G G-R	224 225	5 6	5 6	5 6		
BLUE BINDER OF A75A FROM CONNECTOR P040 TERMINATED ON CONNECTING BLOCK P040	9T R	34 9	R-BR BR-R	226 227	764 100	764 100	764 100		Message Register Leads to Message Register, or
NECT	10T R	35 10	R-S S-R	228 229	101 102	101 102	101 102		Electronic Message Registration System
CON	11T R	36 11	BK-BL BL-BK	230 231	103 104	103 104	103 104		
FROM	12T R	37 12	BK-O O-BK	232 233	105 106	105 106	105 106		
CON	13T R	38 13	BK-G G-BK	234 235	107 108	107 108	107 108		
OF A D ON	14T R	39 14	BK-BR BR-BK	236 237	109 110	109 110	109 110		
NATE	15T R	40 15	BK-S *	238 239	111 761	111 761	111 761		
JE BIT	16T R	41 16	Y-BL BL-Y	240 241	112 113	112 113	112 113		
BLU	17T R	42 17	Y-O O-Y	242 243	114 115	114 115	114 115		
	18T R	43 18	Y-G G-Y	244 245	116 117	116 117	116 117		
	19T R	44 19	Y-BR BR-Y	246 247	762 118	762 118	762 118		
	20T R	45 20	Y-S S-Y	248 249	119 120	119 120	119 120	J	
	21T R	46 21	V-BL BL-V	+24 V +24 V					Power Supply for 24 V Registers
	22T R	47 22	V-O O-V	48 IN 48 IN					External +48 V Power Supply in put
	23T R	48 23	V-G G-V	48 OUT 48 OUT					+48 V Output for Message Registers
	24T R	49 24	V-BR BR-V	Spare				)	Spores
	25T R	50 25	V-S S-V	Spare					Spares

<sup>\*</sup> System numbers 239 and 346 are not wired to message registers.

## TABLE B TERMINATING SEQUENCE OF PO5O AT THE CROSS-CONNECTING TERMINAL OPTION SHELF — HOTEL/MOTEL MESSAGE REGISTRATION

					DIALED NO. BY PLAN				
	PAIR	PIN	PAIR COLOR	SYSTEM NO.	A	В	С	OTHER	FUNCTION
	1T R	26 1	W-BL BL-W	250 251	121 122	121 122	121 122		
	2T R	27 2	W-O O-W	252 253	123 124	123 124	123 124		
	3T R	28	W-G G-W	254 255	125 126	125 126	125 126		
	4T R	29 4	W-BR BR-W	256 257	127 128	127 128	127 128		
	5T R	30 5	W-S S-W	258 259	129 130	129 130	129 200		
<u>@</u>	6T R	31 6	R-BL BL-R	260 261	131 132	131 132	201 202		
INAT	7T R	32 7	R-O O-R	262 263	133 134	133 134	203 204		
A75A FROM CONNECTOR P050 TERMINATED CONNECTING BLOCK P050	8T R	33 8	R-G G-R	264 265	135 136	135 136	205 206		
P050	9T R	34 9	R-BR BR-R	266 267	137 138	137 138	207 208		Message Register Leads to Message Register
TOR 1	10T R	35 10	R-S S-R	268 269	139 140	139 140	209 210		or Electronic Message Registration System
NNEC	11T R	36 11	BK-BL BL-BK	270 271	141 142	141 142	211 212		
M CO	12T R	37 12	BK-O O-BK	272 273	143 144	143 144	213 214		
FRO	13T R	38 13	BK-G G-BK	274 275	145 146	145 146	215 216		
A75A CON	14T R	39 14	BK-BR BR-BK	276 277	147 148	147 148	217 218		
RANGE BINDER OF	15T R	40 15	BK-S S-BK	278 279	149 150	149 200	219 220		
	16T R	41 16	Y-BL BL-Y	280 281	151 152	201 202	221 222		
IGE B	17T R	42 17	Y-O O-Y	282 283	153 154	203 204	223 224		
ORAN	18T R	43 18	Y-G G-Y	284 285	155 156	205 206	225 226		
	19T R	44 19	Y-BR BR-Y	286 287	157 158	207 208	227 228		
	20T R	45 20	Y-S S-Y	288 289	159 160	209 210	229 130	J	
	21T R	46 21	V-BL BL-V	+24 V +24 V				)	Message Register Supply
	22T R	47 22	V-O O-V					)	
	23T R	48 23	V-G G-V						
	24T R	49 24	V-BR BR-V	Spare					Spare
	25T R	50 25	V-S S-V						

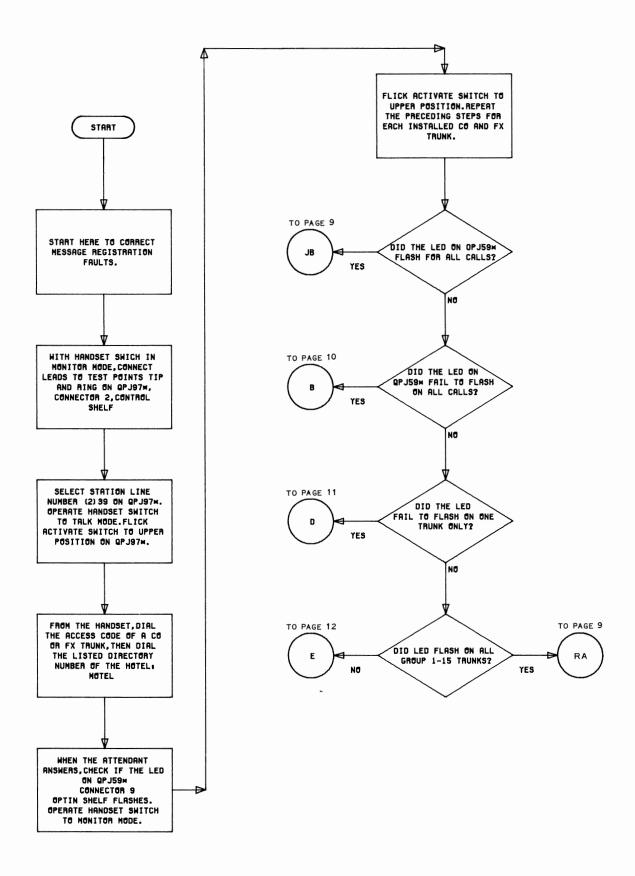
TABLE C
TERMINATING SEQUENCE OF
PO6O AT THE CROSS-CONNECTING TERMINAL
OPTION SHELF — HOTEL/MOTEL MESSAGE REGISTRATION

			ION SHEE		DIALED NO. BY PLAN				
	PAIR	PIN	PAIR COLOR	SYSTEM NO.	A	В	С	OTHER	FUNCTION
	1T R	26 1	W-BL BL-W	310 311	161 162	211 212	131 132		
	2T R	27 2	W-O O-W	312 313	163 164	213 214	230 231		
	3T R	28 3	W-G G-W	314 315	165 166	215 216	232 300		
	4T R	29 4	W-BR BR-W	316 317	167 168	217 218	301 302		
	5T R	30 5	W-S S-W	318 319	169 170	219 220	303 304		
TED	6T R	31 6	R-BL BL-R	320 321	171 172	221 222	305 306		
MINA	7T R	32 7	R-O O-R	322 323	173 174	223 224	307 308		
0 TER	8T R	33 8	R-G G-R	324 325	175 176	225 226	309 310		
R P06	9T R	34 9	R-BR BR-R	326 327	177 178	227 228	311 312		Message Register Leads to Message Register
OF A75A FROM CONNECTOR P060 TERMINATED ON CONNECTING BLOCK P060	10T R	35 10	R-S S-R	328 329	179 180	229 230	313 314		or Electronic Message Registration System
ONN G BLC	11T R	36 11	BK-BL BL-BK	330 331	181 182	231 232	315 316		
CTIN	12T R	37 12	BK-O O-BK	331 233	183 184	233 234	317 318		
SA FR	13T R	38 13	BK-G G-BK	334 335	185 186	235 236	319 320		
PF A7	14T R	39 14	BK-BR BR-BK	336 337	187 188	237 238	321 322		
DER C	15T R	40 15	BK-S S-BK	338 339	189 190	239 240	323 324		
BINI	16T R	41 16	Y-BL BL-Y	340 341	191 192	241 242	325 326		
GREEN BINDER	17T R	42 17	Y-O O-Y	342 343	193 194	243 244	327 328		
5	18T R	43 18	Y-G G-Y	344 345	195 196	245 246	329 330		
	19T R	44 19	BR-Y	346 347	763 197	763 247	763 331		
	20T R	45 20	Y-S S-Y	348 349	198 199	248 249	332 7		
	21T R	46 21	V-BL BL-V	+24 V +24 V					Message Register Supply
	22T R	47 22	V-O O-V						
	23T R	48 23	V-G G-V	Spare					Spare
	24T R	49 24	V-BR BR-V						
	25T R	50 25	V-S S-V						

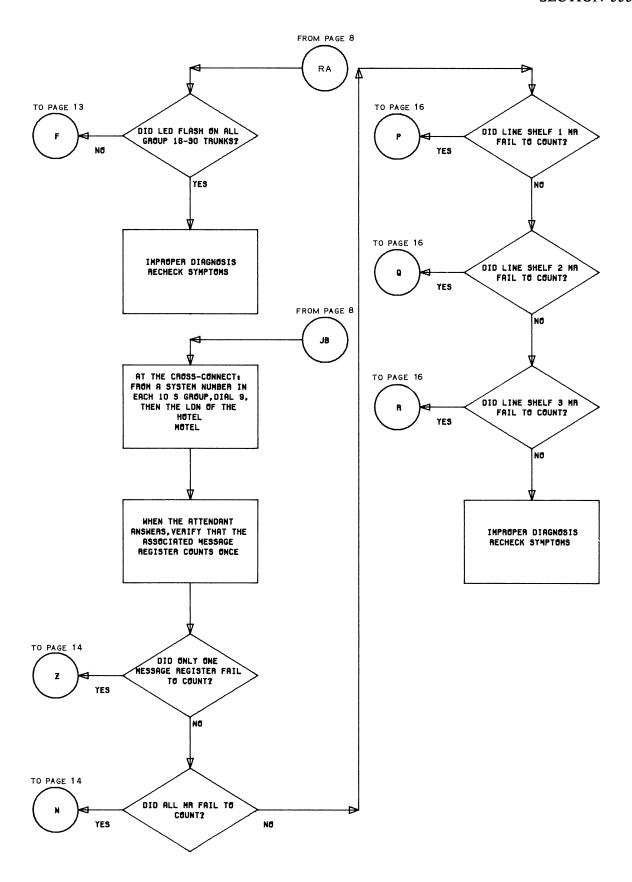
<sup>\*</sup> System numbers 239 and 346 are not wired to message registers.

# TABLE D TERMINATING SEQUENCE OF P131 AT THE CROSS-CONNECTING TERMINAL OPTION SHELF — MESSAGE REGISTRATION CONTROL

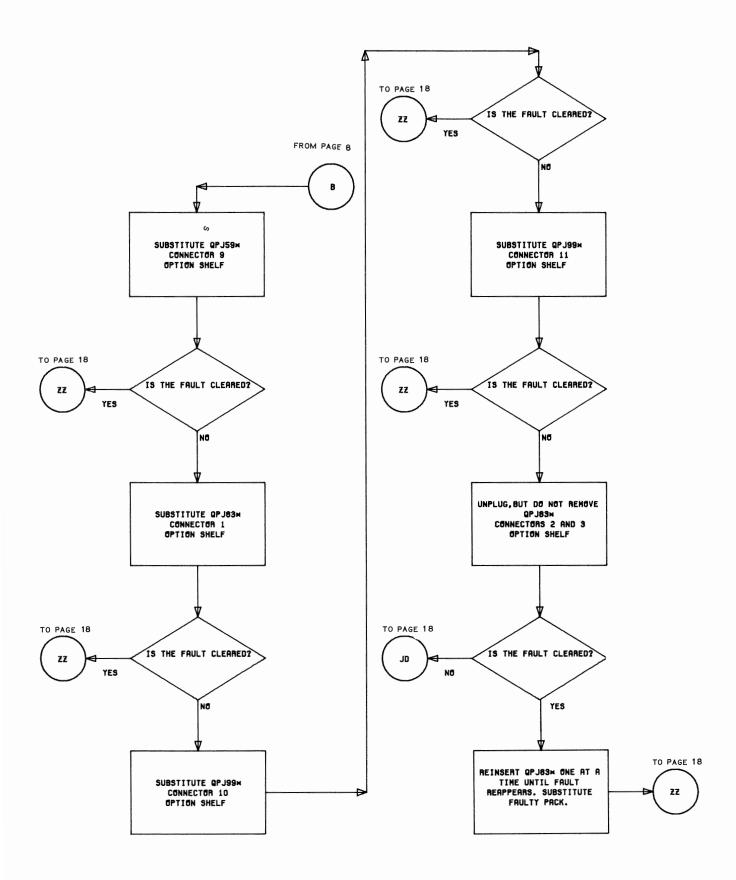
	PAIR	PIN	PAIR COLOR	LEAD DESIGNATION Trunk 3rd Wire for Trunk	FUNCTION
	1T R	26 1	W-BL BL-W	16 1	
	2T R	27 2	W-O O-W	17 2	
	3T R	28 3	W-G G-W	18 3	
	4T R	29 4	W-BR BR-W	19 4	
	5T R	30 5	W-S S-W	20 5	
	6T R	31 6	R-BL BL-R	21 6	
A25B CONNECTOR CABLE FROM CONNECTOR P131 TERMINATED ON CONNECTING BLOCK P131	7T R	32 7	R-O O-R	22 7	
TERMI	8T R	33 8	R-G G-R	23 8	
P131 7	9T R	34 9	R-BR BR-R	24 9	Message Registration Control Leads
R CABLE FROM CONNECTOR FOR CONNECTING BLOCK P131	10T R	35 10	R-S S-R	25 10	
NNEC	11T R	36 11	BK-BL BL-BK	26 11	
OM CC	12T R	37 12	BK-O O-BK	27 12	
E FRC	13T R	38 13	BK-G G-BK	28 13	
CABL	14T R	39 14	BK-BR BR-BK	29 14	
CTOR	15T R	40 15	BK-S S-BK	30 15	
ONNE	16T R	41 16	Y-BL BL-Y		
	17T R	42 17	Y-O O-Y		
¥	18T R	43 18	Y-G G-Y		
	19T R	44 19	Y-BR BR-Y		
	20T R	45 20	Y-S S-Y	Spare	Spare
	21T R	46 21	V-BL BL-V		
	22T R	47 22	V-O O-V		
	23T R				
	24T R	49 24	V-BR BR-V		
	25T R	50 25	V-S S-V		



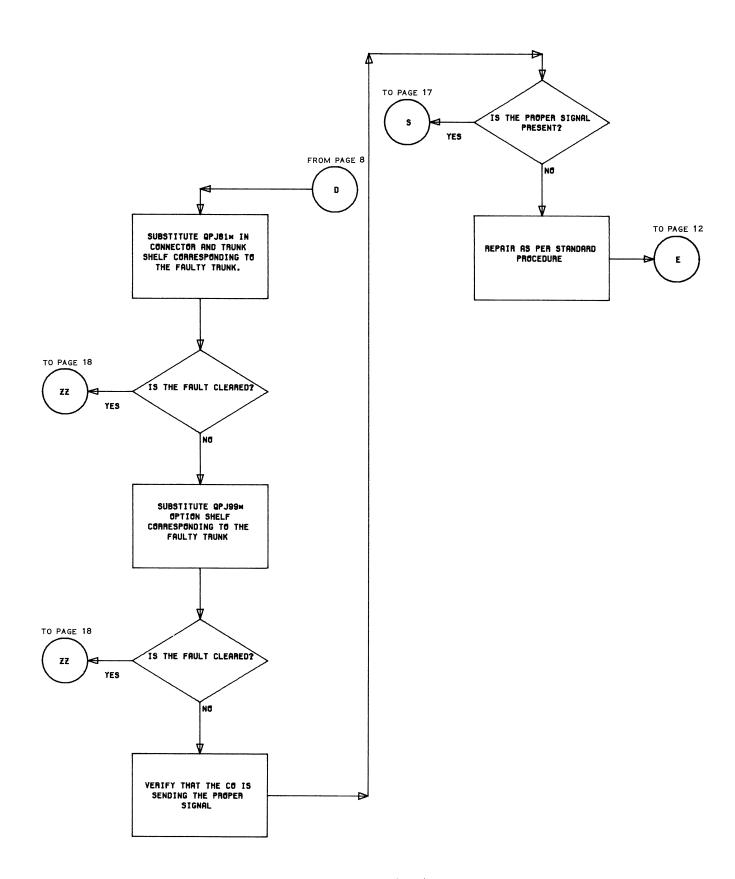
Flowchart 1 — Message Registration Fault-Clearing Procedure



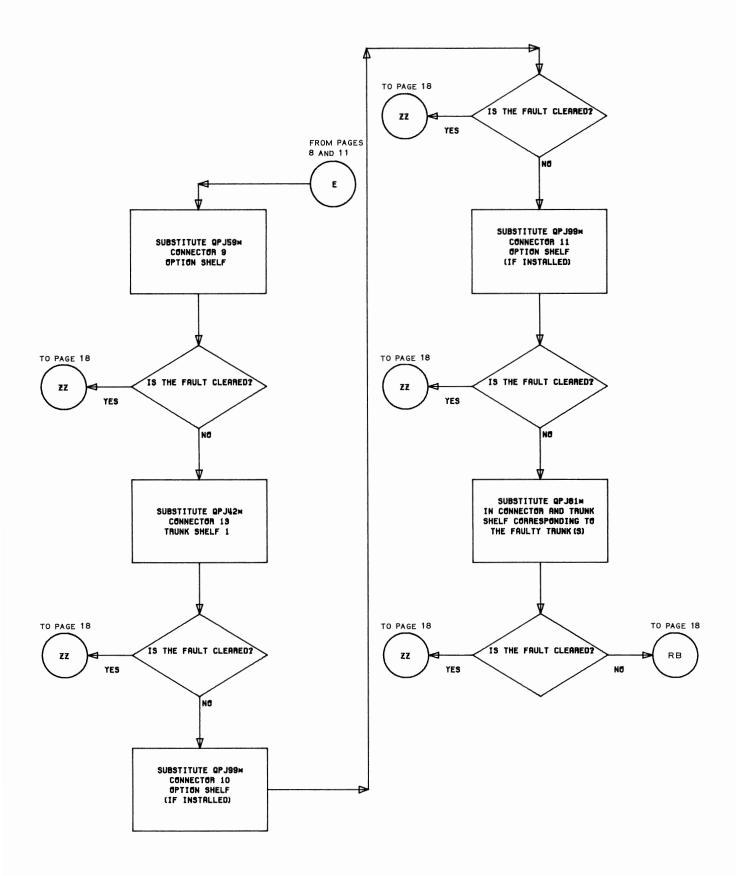
Flowchart 1 (cont)



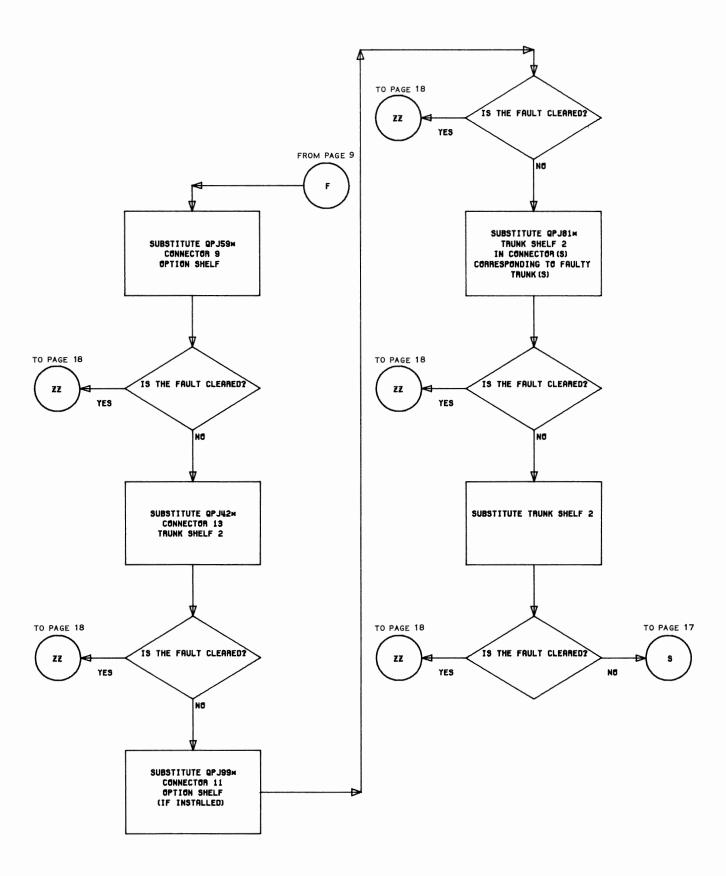
Flowchart 1 (cont)



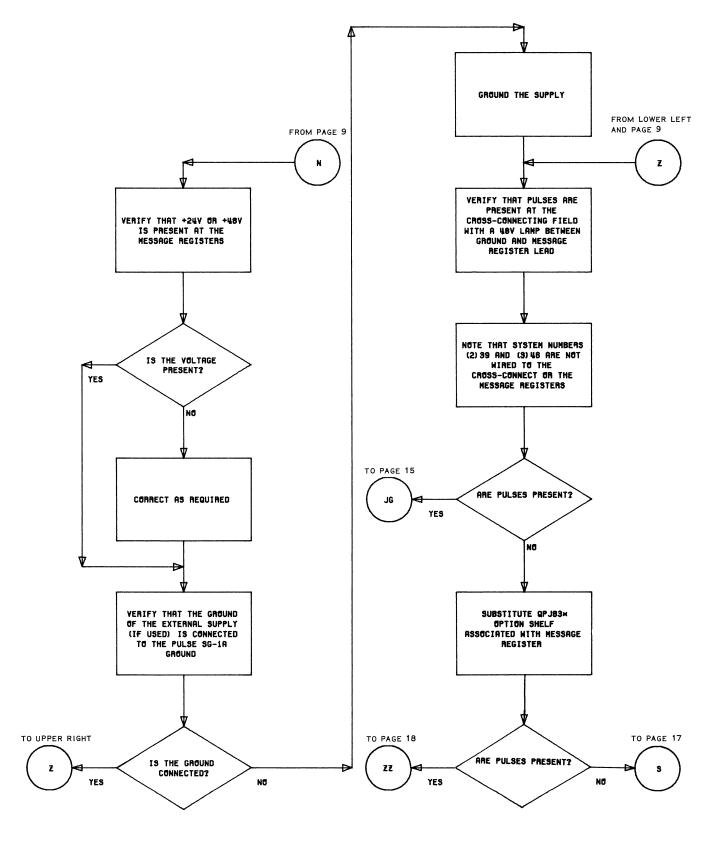
Flowchart 1 (cont)



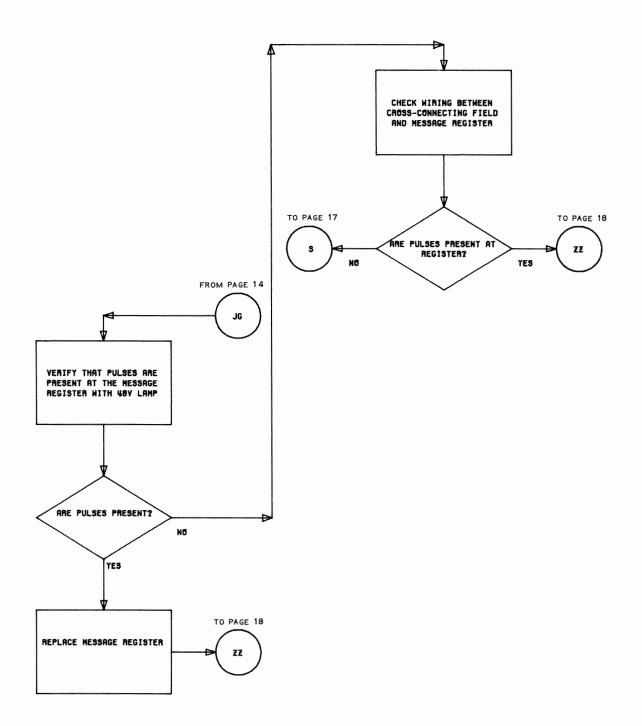
Flowchart 1 (cont)



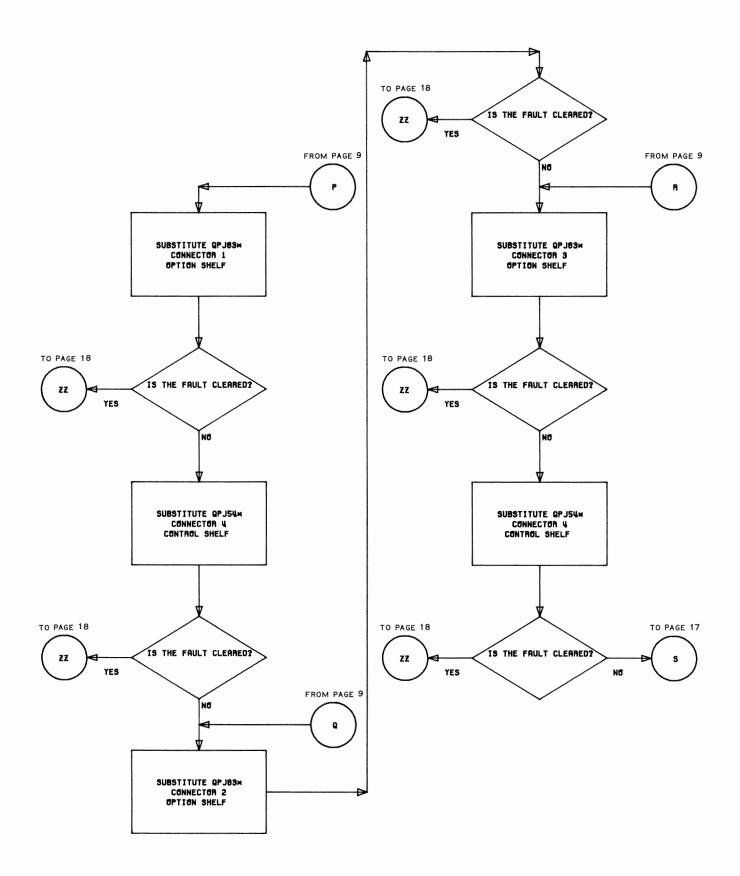
Flowchart 1 (cont)



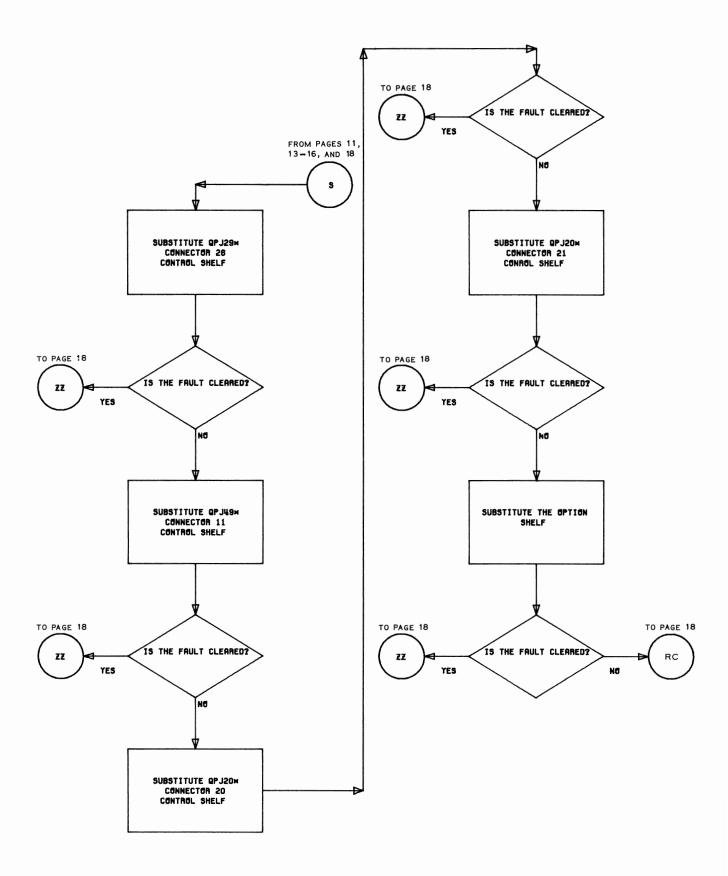
Flowchart 1 (cont)



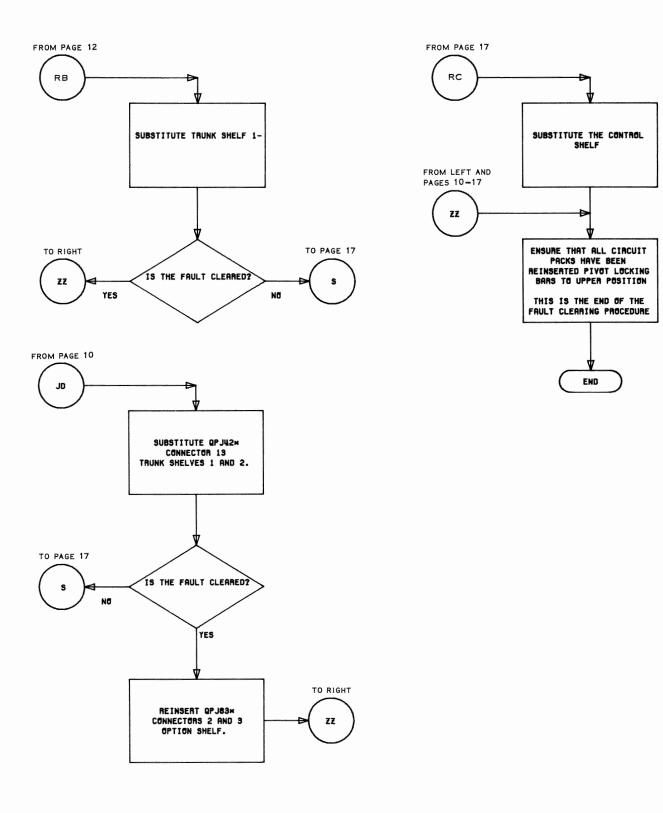
Flowchart 1 (cont)



Flowchart 1 (cont)



Flowchart 1 (cont)



Flowchart 1 (cont)