

Task Oriented Practice
(TOP)

4"ESS*" SWITCH

NOTICE

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234-151-045	TPG
TITLE PAGE	000

FIND YOUR JOB IN THE LIST BELOW THEN GO TO

140C Power Converter – Failure – Correct	TAP-112
140D Power Converter – Failure – Correct	TAP-113
145A Power Converter – Failure – Correct	TAP-108
145B Power Converter – Failure – Correct	TAP-109
145C Power Converter – Failure – Correct	TAP-110
146C Power Converter – Failure – Correct	TAP-111
Acceptance	NTP-002
Alarm – +24 Volt – Clear	TAP-104
Alarm – +140 Volt – Clear	DLP-508
Alarm – PF24 – Clear	TAP-104
Base Level Maintenance Report – Interpret	TAP-101
Circuit Pack; Controller – Digroup Terminal – Replace	DLP-501
Circuit Pack (Except Line Equalizer or Protection Switch Circuit Packs); – Digroup Terminal Unit – Replace	DLP-502
Circuit Pack; Line Equalizer – Digroup Terminal Unit – Replace	DLP-503
Circuit Pack; Protection Switch – Digroup Terminal – Replace	DLP-504
Controller Circuit Pack – Digroup Terminal – Replace	DLP-501
Controller – Failure – Correct	TAP-101
Converter; 140C Power – Failure – Correct	TAP-112
Converter; 140C Power – Failure – Correct	TAP-113
Converter; 145A Power – Failure – Correct	TAP-108
Converter; 145B Power – Failure – Correct	TAP-109
Converter; 145C Power – Failure – Correct	TAP-110

FIND YOUR JOB IN THE LIST BELOW THEN GO TO

Converter; 146C Power – Failure – Correct TAP-111

DGN;DT . . . DTU . . . STF – TTY Printout – Clear TAP-103

Diagnose Digroup Terminal Using DIAG/RST Key DLP-507

Diagnostic Phases; Digroup Terminal – Demand DLP-505

Diagnostic Printout – Analyze TAP-114

Digroup Terminal – Failure – Correct TAP-101

Digroup Terminal Lamps – Test DLP-500

Digroup Terminal Unit – Failure – Clear TAP-103

Internal Registers – Digroup Terminal Troubles – Interpret TAP-102

Lamps; Digroup Terminal – Test DLP-500

Line Equalizer Circuit Pack – Digroup Terminal Unit – Replace DLP-503

Local and Remote Alarms – Sectionalize Trouble TAP-115

Power Converter; 140C – Failure – Correct TAP-112

Power Converter; 140D – Failure – Correct TAP-113

Power Converter; 145A – Failure – Correct TAP-108

Power Converter; 145B – Failure – Correct TAP-109

Power Converter; 145C – Failure – Correct TAP-110

Power Converter; 146C – Failure – Correct TAP-111

Protection Switch Circuit Pack – Digroup Terminal – Replace DLP-504

REPT:BASE LEVEL MAINT – TTY Printout – Interpret TAP-101

TASK INDEX LIST

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FIND YOUR JOB IN THE LIST BELOW THEN GO TO

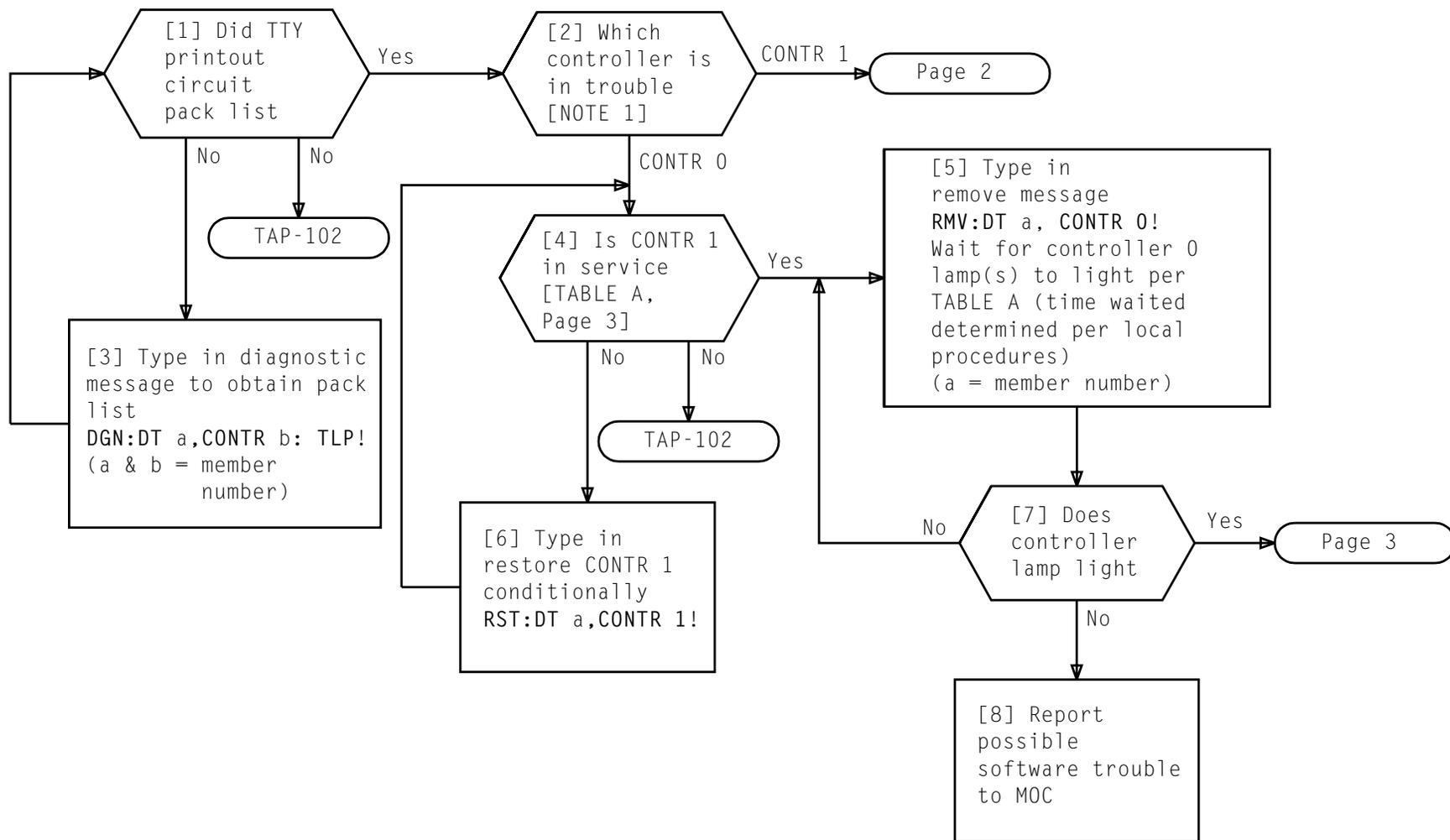
TTY Printout - DGN:DT . . . DTU . . . STF - Clear TAP-103
 TTY Printout - DGN:DT . . . STF - Clear TAP-114
 TTY Printout - REPT:BASE LEVEL MAINT - Interpret TAP-101
 Unit Circuit Pack (Except Line Equalizer or Protection Switch Circuit Packs) - Digroup Terminal - Replace . . . DLP-502

ACCEPTANCE PHILOSOPHY

When a Digroup Terminal system is installed at a site, the installation group does adequate testing to assure that the system is operating properly. Since acceptance tests would only be a duplication of the installation procedures, and serve no beneficial purpose, they have been excluded from this volume.

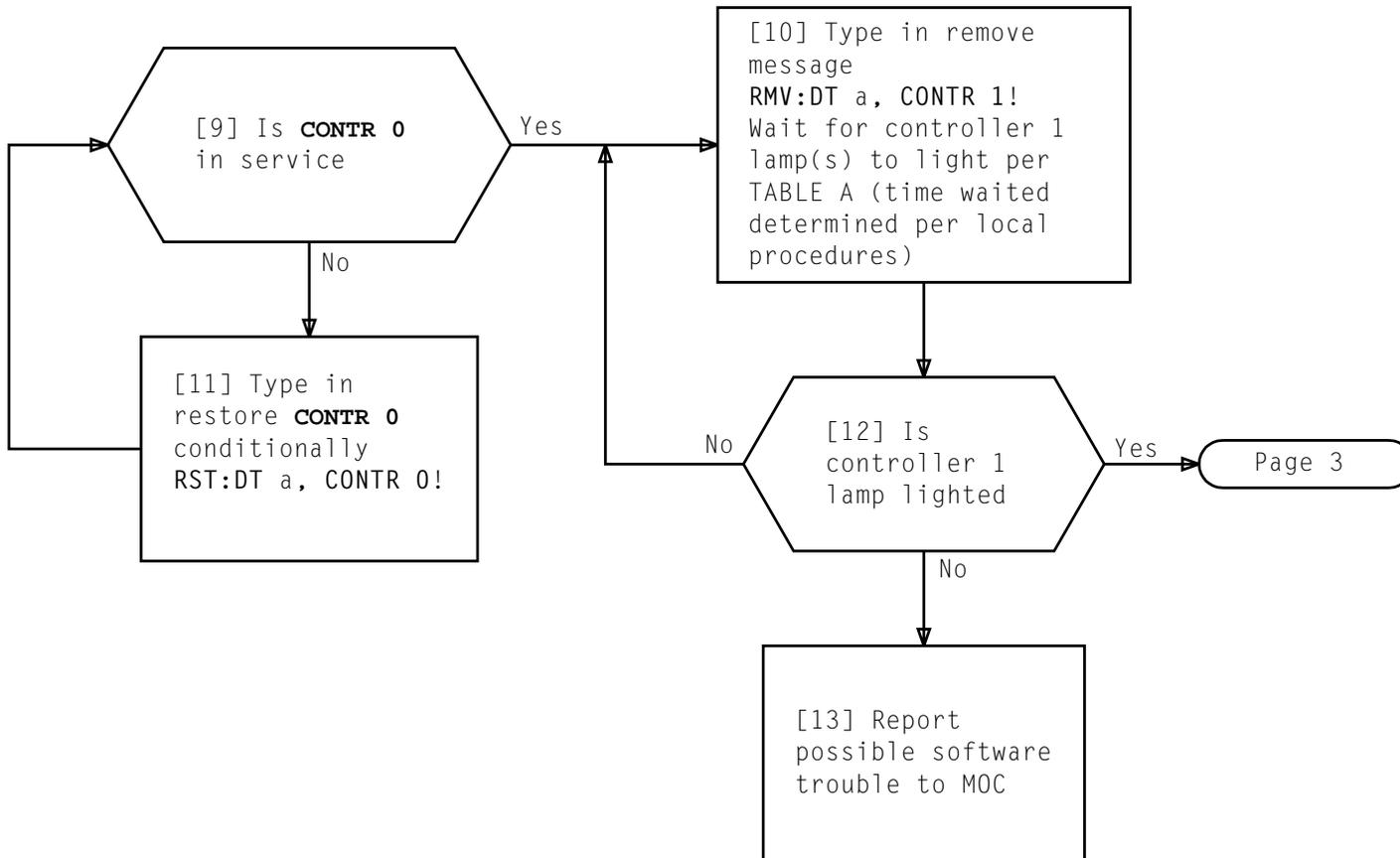
ACCEPTANCE

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NOTE 1	
If controllers have duplex failed controller 0 should be repaired first	
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CLEAR DIGROUP TERMINAL (DT) OR DT CONTR TROUBLE



CLEAR DIGROUP TERMINAL (DT) OR DT CONTR TROUBLE

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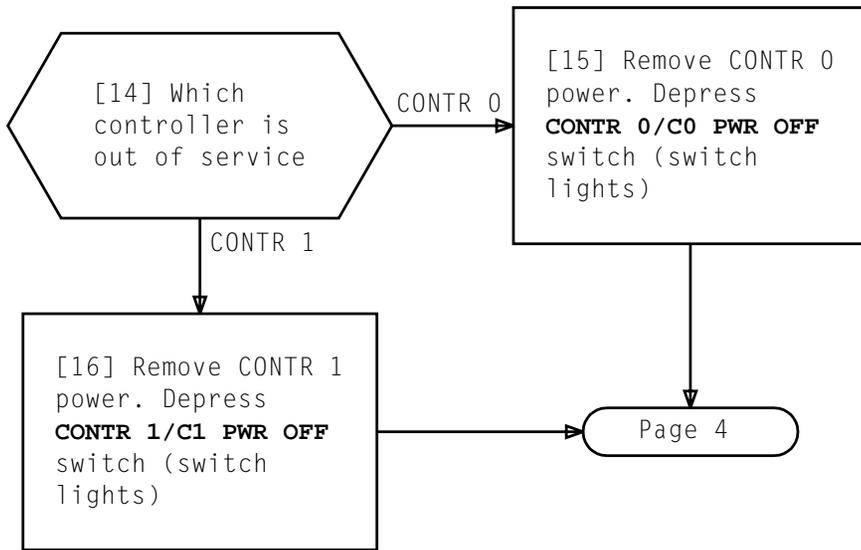
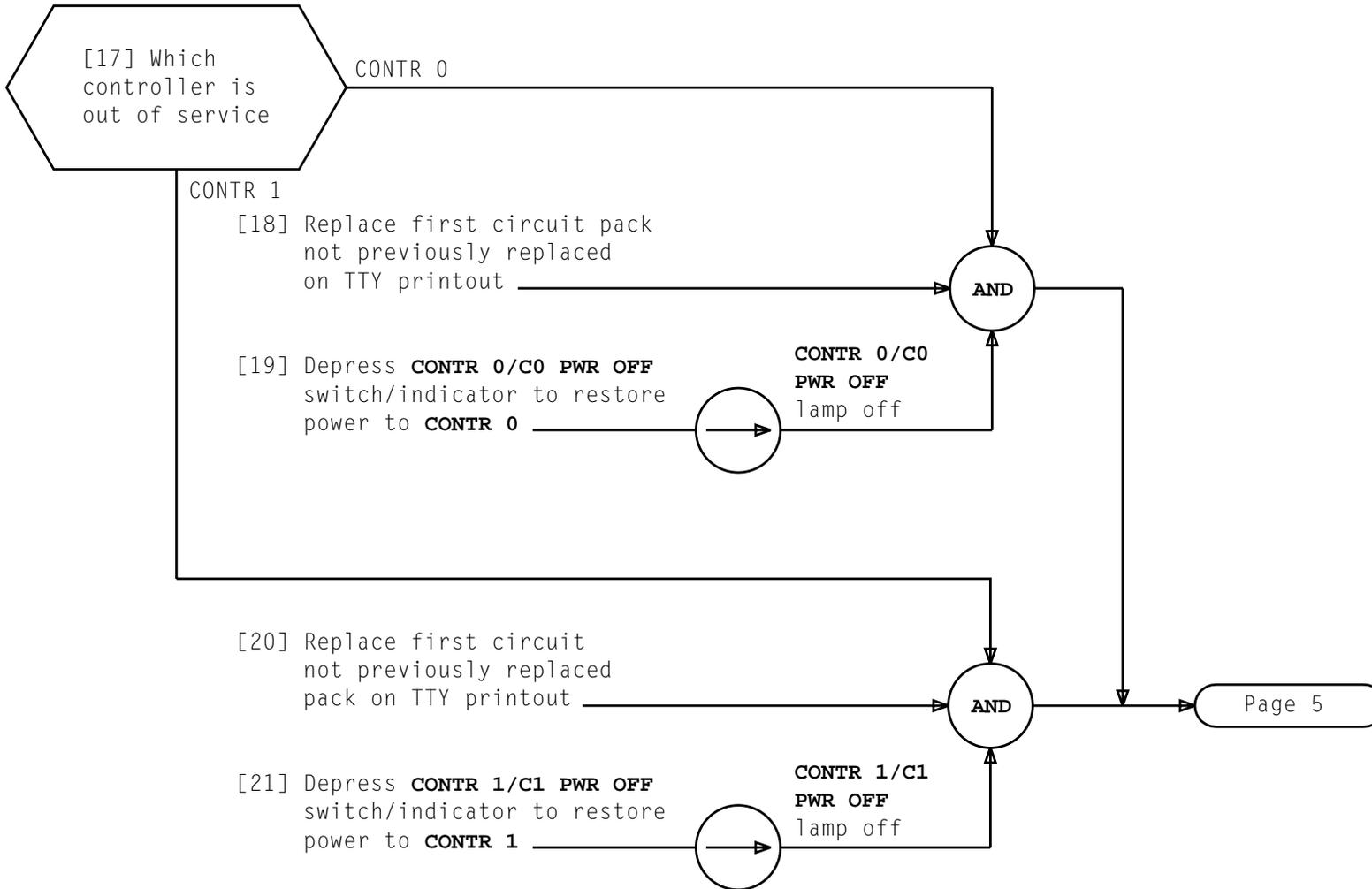


TABLE A INDICATOR LAMPS	
COST REDUCED DIGROUP TERMINAL	DIGROUP TERMINAL
OS CONTR 0	OS C0
OS CONTR 1	OS C1

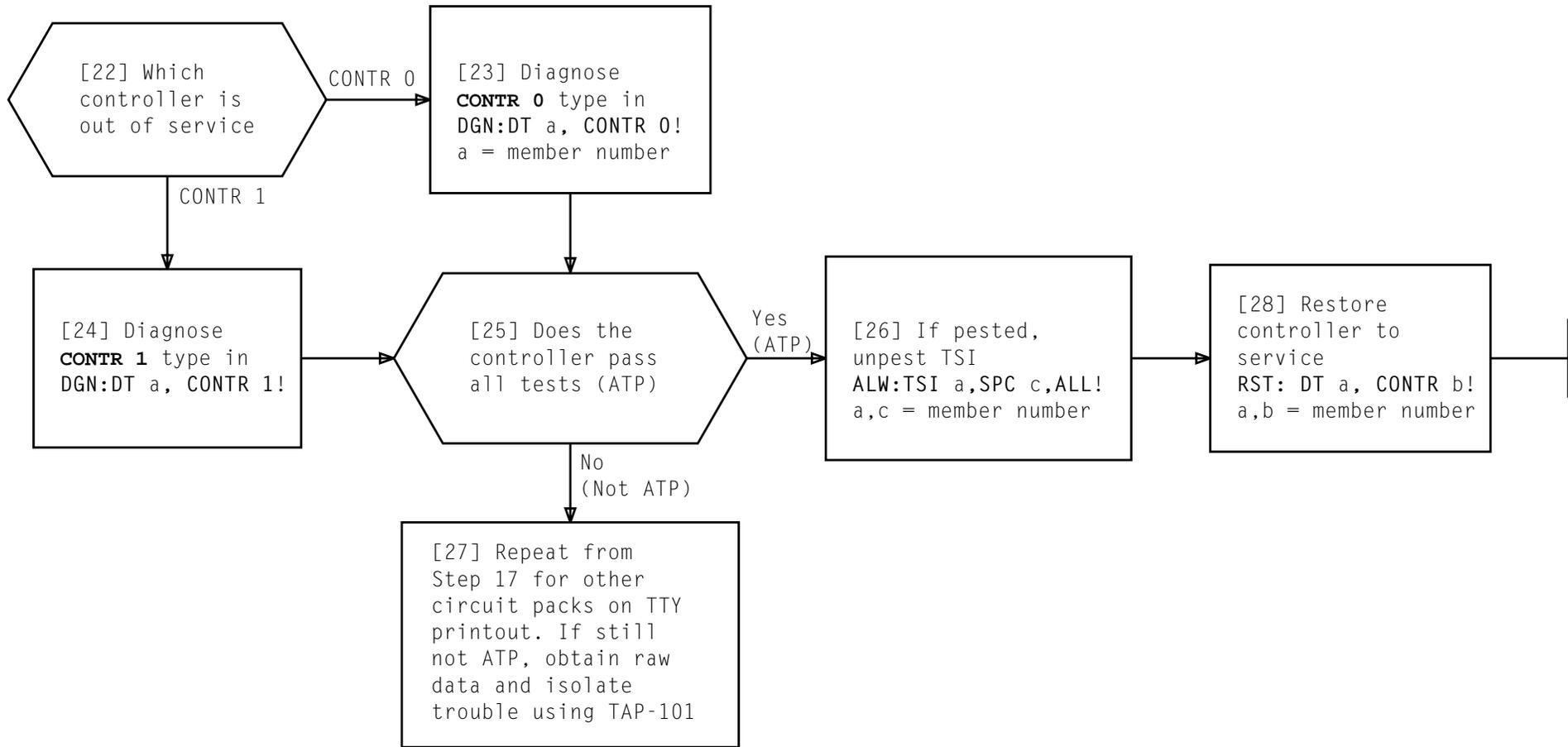
CLEAR DIGROUP TERMINAL (DT) OR DT CONTR TROUBLE

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CLEAR DIGROUP TERMINAL (DT) OR DT CONTR TROUBLE

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[1] Determine DT and unit
or controller on which
base level maintenance
report was generated
[FIG. 2]

[2] Convert OCTAL numbers
in fault words 0,1,3,
and 5 to binary [FIG. 1 and 2]

[3] Analyze fault words
which have bits set
[FIG. 2 and FIG. 3]

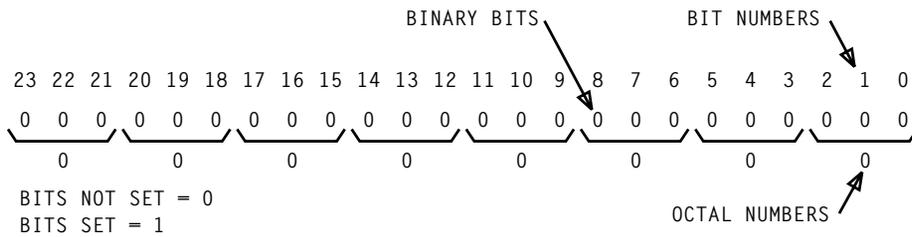
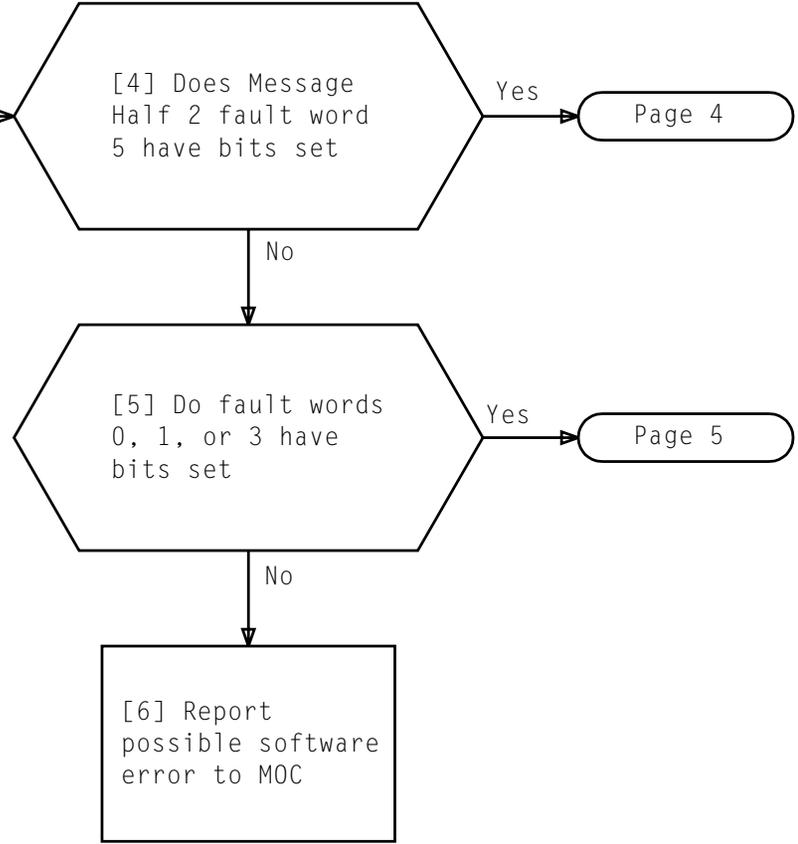
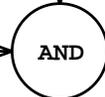


FIG. 1

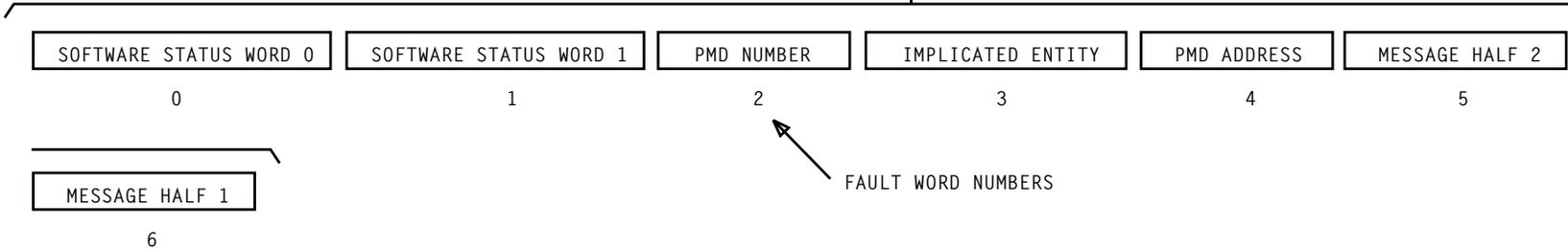
A 11 REPT: BASE LEVEL MAINT @15500110 MFNUM=00000135 MICON=00000000
 LVDATA=1000 SRDATA=00000000 FRDATA=40010000

DTRF REMOVED AND REQUESTED DIAGNOSTICS (DT 1 DTU 0) — SUSPECT UNIT

DT FAULT DETECTED
 00000000 00000000 00110013 00000001 15477410 00040177
 00140001

ERROR ANALYSIS RECENT HISTORY TABLE
 06046002 00000000 00000000 20000000 00000000 00000000
 00000000 00000000 00000000 00000000 00000000 00000000
 40001604 00040177 00140001

01/17/77 21:11:10
 #469



BASE LEVEL MAINTENANCE
 REPORT MESSAGE (TYPICAL)

FIG. 2

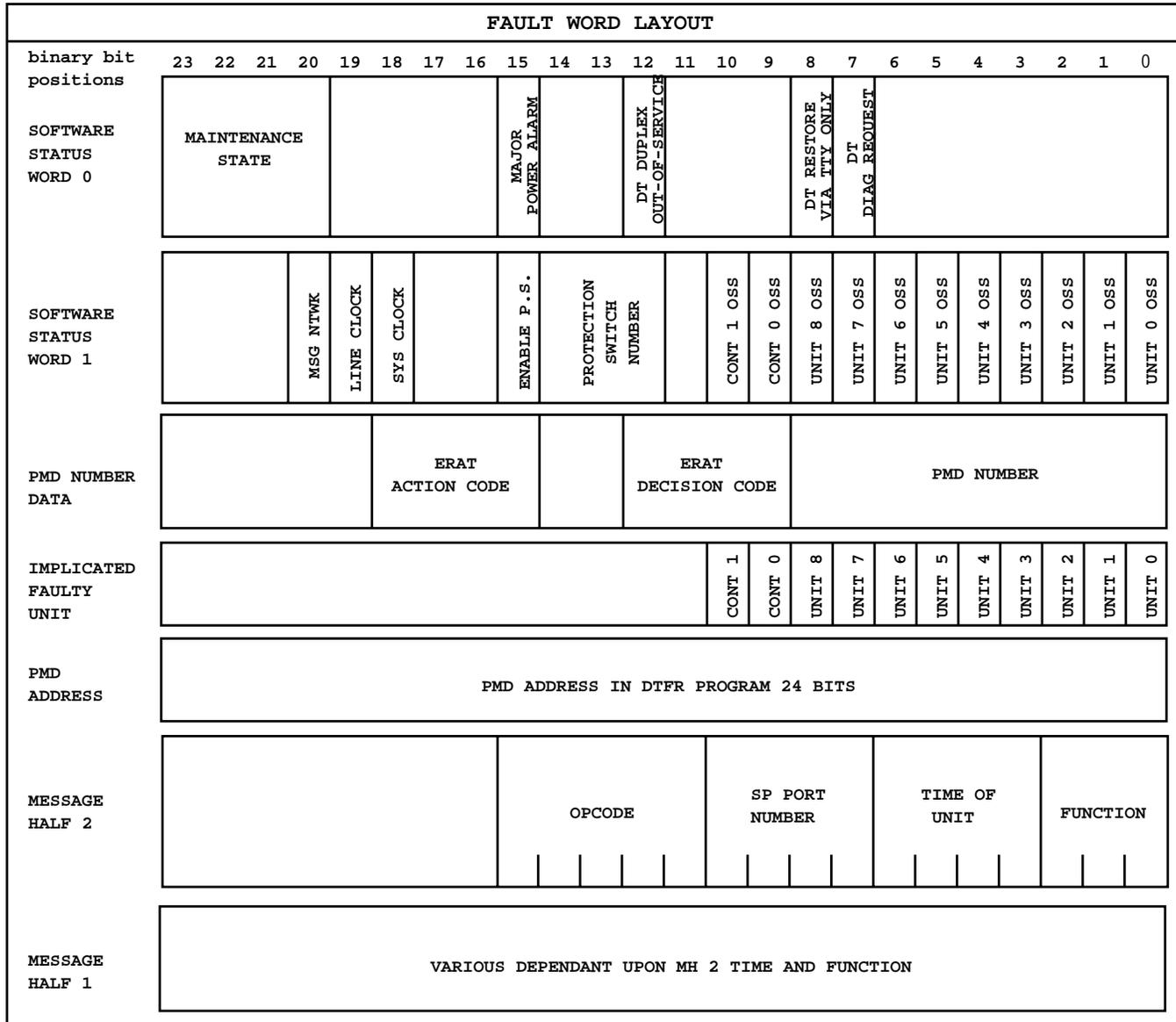
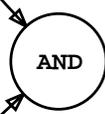


FIG. 3

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[7] Convert rightmost 3 octal digits of MH2 to binary

[8] Use bits 0 through 6 and convert back to Octal. Consider bits 7 and 8 as zeros



[9] What is octal value

[10] Enter:
DUMP:DT a, IREG!
Interpret data with TAP-102

OCTAL 177

[11] DTU error message use TAP-105

OCTAL 167

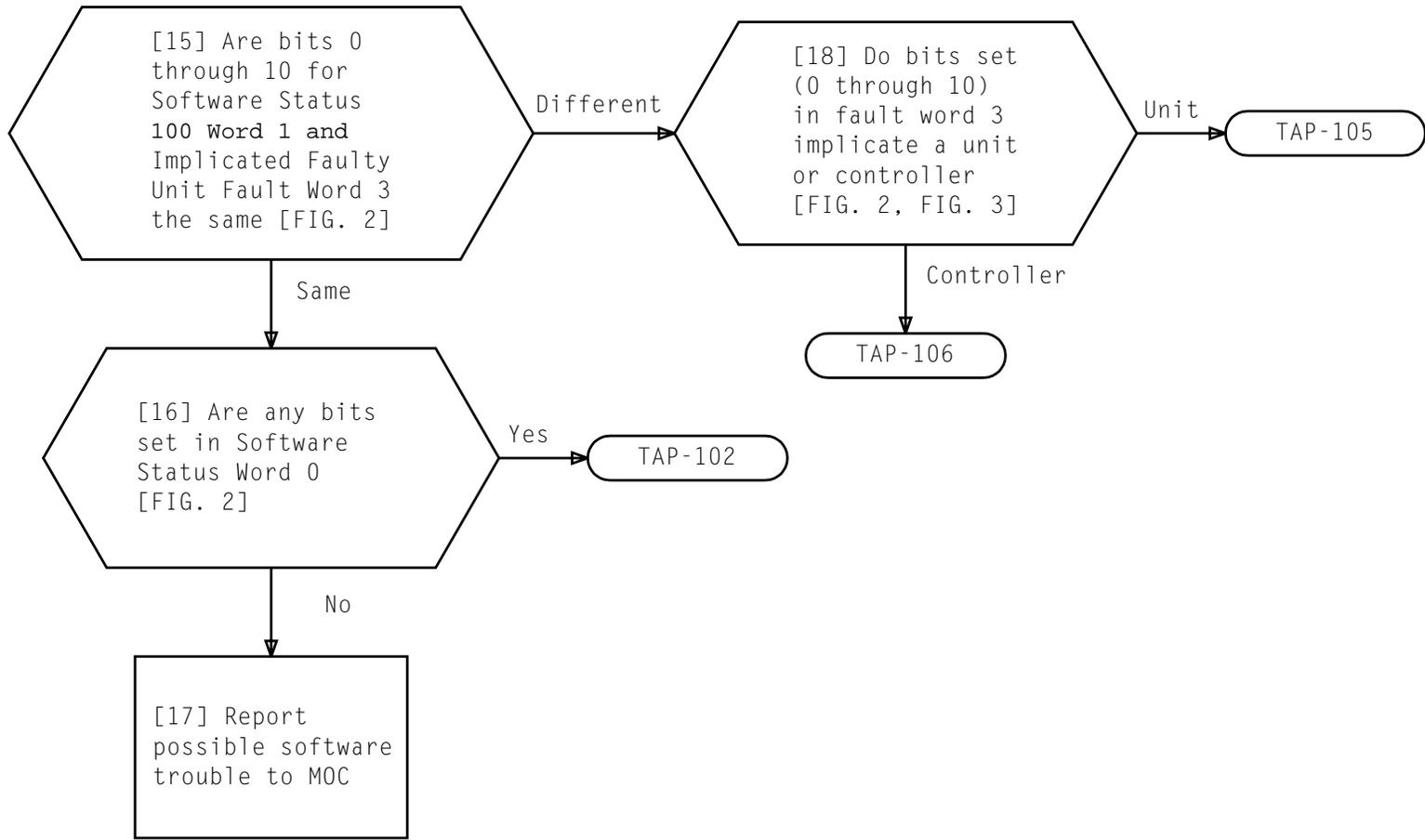
[12] Controller error message use TAP-106

OCTAL 147, 146

[13] Error in DTU data stream use TAP-107

OTHER

[14] Invalid message suspect message network in either controller. Check Software Status Word 1 and return to step 5



[1] Type in
DUMP: DT a, IREG!
(a = member
number)

[2] Read and analyze
TU 13 functions 0
thru 5 (line 11 on
printout for stuck
exercise bits
[TABLE A, FIG. 2])

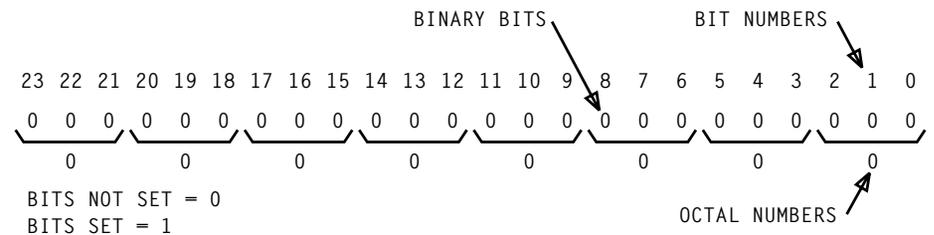


FIG. 1

[3] Do the contents
of registers in TU 13,
0 thru 5 agree with
normal Message Half
(MH1) contents shown
in TABLE A [NOTE 1]

Yes

[4] The exercise
bits in Controller
1 and 0 are
normal. Locate
TU 13, 6 [FIG. 2]

Page 5

No

[5] In which
registers did
the mismatch
occur

TU 13,
0-2

[6] Controller 1
has stuck exercise
bit. Convert OCTAL
number in register
to binary [FIG. 1]

[7] Use binary bits
set in register and
function number to
determine lead name
[TABLE A]

Page 5,
step 15

TU 13, 3-5

[8] Controller 0
has stuck exercise
bit. Convert OCTAL
number in register
to binary [FIG. 1]

NOTE 1
Normal MH1 contents is shown at the
bottom of TABLE A

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INTERNAL REGISTER LAYOUT

M19 DUMP-DT 1, IREG

```

00000000 00100001 00321001 00000000 00000000 00000000 00140001 00070027
00000000 00000000 00003370 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00037777 00176017 00000001 00037777 00176017 00000001 00000000 00070027
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000004 00000000 00000000 00000000 00000000 00000000 00000000 00140001
    
```

(TYPICAL PRINTOUT)

INTERNAL REGISTER LAYOUTS

LINE NO.

	STATUS WD 0	STATUS WD 1	ROUTING	PESTS	START	14,7	15,7	13,7	
									1
(DTU) 0	0,0	0,1	0,2	0,3	0,4	0,5	0,6	0,7	2
(DTU) 1	1,0	1,1	1,2	1,3	1,4	1,5	1,6	1,7	3
(DTU) 2	2,0	2,1	2,2	2,3	2,4	2,5	2,6	2,7	4
(DTU) 3	3,0	3,1	3,2	3,3	3,4	3,5	3,6	3,7	5
(DTU) 4	4,0	4,1	4,2	4,3	4,4	4,5	4,6	4,7	6
(DTU) 5	5,0	5,1	5,2	5,3	5,4	5,5	5,6	5,7	7
(DTU) 6	6,0	6,1	6,2	6,3	6,4	6,5	6,6	6,7	8
(DTU) 7	7,0	7,1	7,2	7,3	7,4	7,5	7,6	7,7	9
(DTU) 8	8,0	8,1	8,2	8,3	8,4	8,5	8,6	8,7	10
13	13,0	13,1	13,2	13,3	13,4	13,5	13,6	13,7	11
14	14,0	14,1	14,2	14,3	14,4	14,5	14,6	14,7	12
15	15,0	15,1	15,2	15,3	15,4	15,5	15,6	15,7	13
T I M E O F U N I T	FUNCTION 0	FUNCTION 1	FUNCTION 2	FUNCTION 3	FUNCTION 4	FUNCTION 5	FUNCTION 6	FUNCTION 7	

FIG. 2

TABLE A
TIME OF UNIT - TU 13 DT CONTROLLER STATUS ASSIGNMENTS

BIT	13, 0 EXERCISE CONTROLLER 1	13, 1 EXERCISE CONTROLLER 1	13, 2 EXERCISE CONTROLLER 1	13, 3 EXERCISE CONTROLLER 0	13, 4 EXERCISE CONTROLLER 0	13, 5 EXERCISE CONTROLLER 0	13, 6 DT CONTROLLER STATUS	13, 7 PROT SWITCH STATUS
0	EX01010 *B20A **B20A	DESYNC EX31170 *B20A **B20A	1 HIT TMG EX61330 *B20A **B20A	↑	↑	↑	SCLKO DIST SEL OLCKSL00 *B18A **B18A	$\overline{\text{PSN0}}$ PSN00 *B19A **B19A
1	EX03020 *B20A **B20A	SYNC EX33180 *B20A **B20A					LCLKO DIST SEL OLSLTC00 *B15C **B15D	$\overline{\text{PSN1}}$ PSN10 *B19A **B19A
2	EX02030 *B20A **B20A	SEL LINE CLK EX32190 *B20A **B20A					MSG NET 0 SEL OERTMD1 *B17A **B17A	$\overline{\text{PSN2}}$ PSN20 *B19A **B19A
3	EX06040 *B20A **B20A	SEL SYS CLK EX36200 *B20A **B20A		SAME AS 13, 0	SAME AS 13, 1	SAME AS 13, 2	MSG NET 0 SEL REFERENCE ORERTMD1 *B17A **B17A	$\overline{\text{ENPS}}$ DENPS0A *B12D **B12D
4	EX07050 *B20A **B20A		DTU 0 INVERT INESRU01 *B20A **B20A				REPORT FUNCT PEST OPSTRP1 *B12A **B12A	U0 RLY CONTACTS UNOPSV1 *B19B **B19B
5	EX05060 *B20A **B20A		DTU 1 INVERT INESRU11 *B20A **B20A				24V ALARM PF+24 *B26B **B26B	U1 RLY CONTACTS UN1PSV1 *B19B **B19B
6	EX04070 *B20A **B20A		DTU 2 INVERT INESRU21 *B20A **B20A				SCLK 0 SEL OCKSL00 *B18A **B18A	U2 RLY CONTACTS UN2PSV1 *B19B **B19B
7	EX14080 *B20A **B20A		DTU 3 INVERT INESRU31 *B20A **B20A				LCLKO SEL OSLTC00 *B15C **B15D	U3 RLY CONTACTS UN3PSV1 *B19B **B19B
8	EX15090 *B20A **B20A		DTU 4 INVERT INESRU41 *B20A **B20A	↓	↓	↓	SCLK1 SEL 1LCKSL00 *B18A **B18A	U4 RLY CONTACTS UN4PSV1 *B19B **B19B

* See footnotes at end of table

** See footnotes at end of table

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TABLE A (CONTD)
TIME OF UNIT - TU 13 DT CONTROLLER STATUS ASSIGNMENTS

BIT	13, 0 EXERCISE CONTROLLER 1	13, 1 EXERCISE CONTROLLER 1	13, 2 EXERCISE CONTROLLER 1	13, 3 EXERCISE CONTROLLER 0	13, 4 EXERCISE CONTROLLER 0	13, 5 EXERCISE CONTROLLER 0	13, 6 DT CONTROLLER STATUS	13, 7 PROT SWITCH STATUS
9	EX17100 *B20A **B20A		DTU 5 INVERT INESRU51 *B20A **B20A	↑	↑	↑	LCLK1 SEL 1LSLTC00 *B15C **B15D	U5 RLY CONTACTS UN5PSV1 *B19B **B19B
10	EX16110 *B20A **B20A	EX26270 *B20A **B20A	DTU 6 INVERT INESRU61 *B20A **B20A				MSG NET 1 SEL 1ERTMD1 *B17A **B17A	U6 RLY CONTACTS UN6PSV1 *B19B **B19B
11	EX12120 *B20A **B20A	EX22280 *B20A **B20A	DTU 7 INVERT INESRU71 *B20A **B20A				MSG NET 1 SEL REFERENCE 1RERTMD1 *B17A **B17A	U7 RLY CONTACTS UN7PSV1 *B19B **B19B
12	EX13130 *B20A **B20A	EX23290 *B20A **B20A	DTU 8 INVERT INESRU81 *B20A **B20A	SAME AS 13, 0	SAME AS 13, 1	SAME AS 13, 2	REPORT FUNCT PEST 1PSTRP1 *B12A **B12A	U8 RLY CONTACTS UN8PSV1 *B19B **B19B
13	EX11140 *B20A **B20A	EX21300 *B20A **B20A	FUNCT A INVERT INUFNR1A *B20A **B20A				EXERCISE 1 1EXERCSE0 *B20A **B20A	FORCE SEL DTC 0 (ZAP) SEL00 *B27 **B27
14		EX20310 *B20A **B20A	FUNCT B INVERT INUFNR1B *B20A **B20A				EXERCISE 0 0EXERCSE0 *B20A **B20A	FORCE SEL DTC 1 (ZAP) SEL10 *B27 **B27
15		EX60320 *B20A **B20A	DT INVERT INESRDT1 *B20A **B20A	↓	↓	↓		

NORMAL MH1
CONTENTS

37777

176017

000001

37777

176017

000001

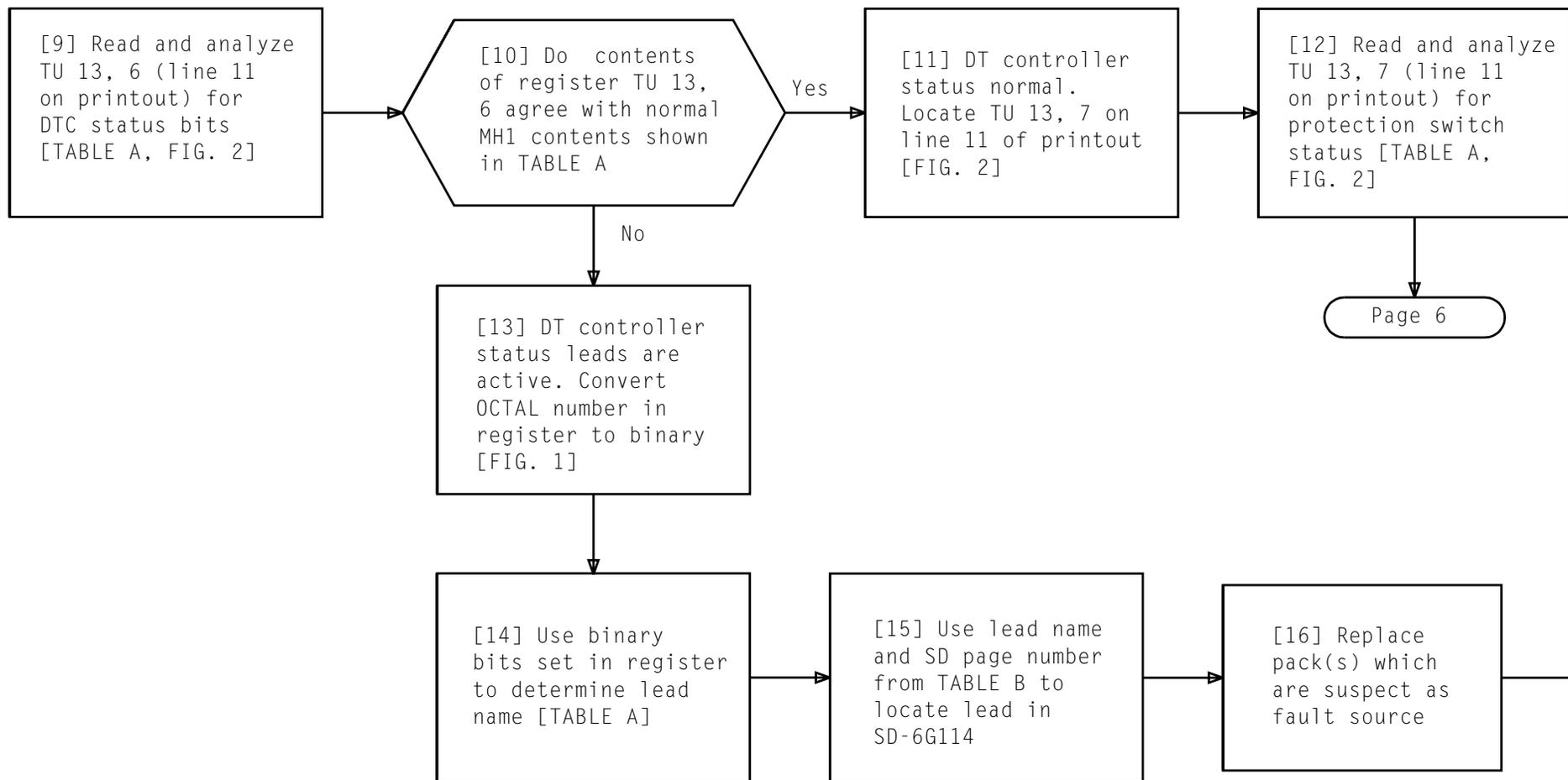
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060017

* Sheet number for SD-6G114-02

** Sheet number for SD-6G114-01

*** 000000 Normal pattern could change
within service configuration



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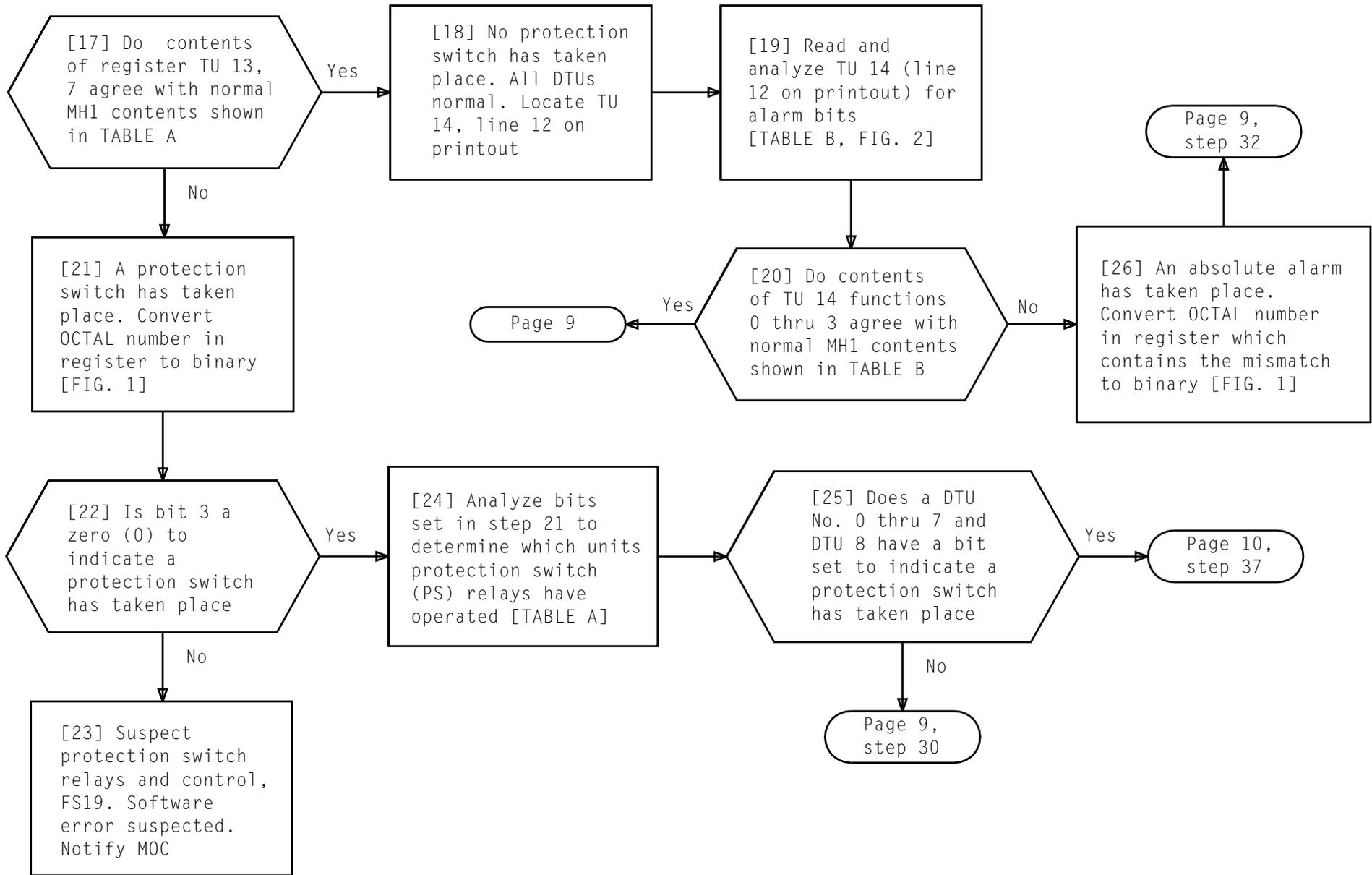


TABLE B
TIME OF UNIT - TU 14 DT CONTROLLER ESR ASSIGNMENTS

BIT	14, 0 CLK 0 ABSOLUTE	14, 1 ABSOLUTE 0	14, 2 CLK 1 ABSOLUTE	14, 3 ABSOLUTE 1	14, 4 REPORT FUNCTION	14, 5 MISMATCHES	14, 6 MSG STREAM MISMATCHES	14, 7 DT CONTROLLER SUMMARY
0	GBC FRAME OERCLK11 *B18B **B18B	EDATA VU OERVUNT1 *B14A **B14A	GBC FRAME 1ERCLK11 *B18B **B18B	EDATA VU 1ERVUNT1 *B14A **B14A	SCANNER RP2 OERR2FS1 *B13B **B13B	X OFF CLK 0 OERCLK61 *B18B **B18B	CESR 13 0 OCESR131 *B23C **B23C	13, 6 SUM ANY1361 *B23C **B23C
1	GWC OERCLK21 *B18B **B18B		GWC 1ERCLK21 *B18B **B18B		SCANNER RP1 OERR1FS1 *B13A **B13A	X LINE CLK 0 OERXCKCP1 *B15C **B15D	CESR 14 0 OCESR141 *B23B **B23B	14, 4 SUM ANY1441 *B23A **B23A
2	ENERGY DET OERCLK31 *B18B **B18B	MH2 REG 1 OEMH2R11 *B12C **B12C	ENERGY DET 1ERCLK31 *B18B **B18B	MH2 REG 1 1EMH2R11 *B12C **B12C	OUTPUT DATA RP1 OERP10D1 *B13D **B13D		EDATA STREAM OERMRL11 *B14A **B14A	14, 0 SUM ANY1401 *B23A **B23A
3	GGC OERCLK41 *B18B **B18B	MH2 REG 2 OEMH2R21 *B12C **B12C	GBC 1ERCLK41 *B18B **B18B	MH2 REG 2 1EMH2R21 *B12C **B12C	OUTPUT DATA RP2 OERP20D1 *B13D **B13D	MSEQ DIST OERMSQ1 *B12C **B12C	MSG NETWORK 0 OEMNOUT1 *B12C **B12C	14, 1 SUM ANY1411 *B23A **B23A
4	HIGH ORDER GRAN OERCLK51 *B18B **B18B	MH2 REG 3 OEMH2R31 *B12C **B12C	HIGH ORDER GRAN 1ERCLK51 *B18B **B18B	MH2 REG 3 1EMH2R31 *B12C **B12C	TIMING OER1GGC1 *B13D **B13D	VU VG DIST OERVRT1 *B14A *B14A	XMTR OERTNOK1 *B17B **B17B	14, 2 SUM ANY1421 *B23A **B23A
5	SCLK ANY ALARM OCKANY1 *B18B **B18B	MH1 REG OERMH1R1 *B12C **B12C	SCLK ANY ALARM 1CKANY1 *B18B **B18B	MH1 REG 1EMH1R1 *B12C **B12C	TEST VECTOR OERUTV1 *B13D **B13D	RCVR VG DIST OERVGOKO *B16B **B16B		14, 3 SUM ANY1431 *B23A **B23A
6					MSG REG RP 1 OERP1MR1 *B13A **B13A	M STORE VG DIST OERTVM1 *B14A **B14A		14, 6 SUM ANY1461 *B23B **B23B
7		XMTR OK OTOKO *B17A **B17A		XMTR OK OTOKO *B17A **B17A	MSG REG RP 2 OERP2MR1 *B13B **B13B	UNIT FG DIST ERVG1 *B21C **B21C		ENPS DENPSOA *B12D **B12D
8	SMOOTH SEQ GEN OERSSA1 *B15A **B15A	REF XMTR OK ORFTOKO *B17A **B17A	SMOOTH SEQ GEN 1ERSSA1 *B15A **B15A	REF XMTR OK 1RFTOKO *B17A **B17A	SCANNER RP 2 1ERR2FS1 *B13B **B13B	X OFF CLK 1 1ERCLK61 *B18B **B18B	CESR 13 1 1CESR131 *B23C **B23C	14, 5 SUM ANY1451 *B23A **B23A

* See footnotes at end of table

** See footnotes at end of table

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TABLE B (CONTD)
TIME OF UNIT - TU 14 DT CONTROLLER ESR ASSIGNMENTS

BIT	14, 0 CLK 0 ABSOLUTE	14, 1 ABSOLUTE 0	14, 2 CLK 1 ABSOLUTE	14, 3 ABSOLUTE 1	14, 4 REPORT FUNCTION	14, 5 MISMATCHES	14, 6 MSG STREAM MISMATCHES	14, 7 DT CONTROLLER SUMMARY
9	PHASE SYNC 0 OERNYS1 *B15C **B15D	TSEQ DIST OERTSEQ1 *B17B **B17B	PHASE SYNC 1 1ERNYS1 *B15C **B15D	TSEQ DIST 1ERTSEQ1 *B15C **B15D	SCANNER RP 1 1ERR1FS1 *B13A **B13A	X LINE CLK 1 1ERXCKCP1 *B15C **B15D	CESR 14 1 1CESR141 *B23B **B23B	13, 6 BIT 0 0LCKSL00 *B18A **B18A
10	DA COUNTER OERPCKT1 *B15C **B15D	R OK + OPCODE OERCV1 *B16B **B16B	DA COUNTER 1ERPCKT1 *B15C **B15D	R OK + OPCODE 1ERCV1 *B16B **B16B	OUTPUT DATA RP1 1ERP10D1 *B13D **B13D		EDATA STREAM 1ERMRL11 *B14A **B14A	13, 6 BIT 1 0LSTC00 *B15C **B15D
11	FRM AND SIG OERSFP1 *B15C **B15D		FRM AND SIG 1ERSFP1 *B15C **B15D		OUTPUT DATA RP2 1ERP20D1 *B13D **B13D	MSEQ DIST 1ERMSQ1 *B12C **B12C	MSG NETWORK 1 1EMNOUT1 *B12C **B12C	13, 6 BIT 2 OERTMD1 *B17A **B17A
12	EX SYNC OERSYFC1 *B15C **B15D	ENABLE M OLPENBMO *B22 **B22	EX SYNC 1ERSYFC1 *B15C **B15D	ENABLE M 1LPENBMO *B22 **B22	TIMING 1ER1GGC1 *B13D **B13D	VU VG DIST 1ERVRT1 *B14A **B14A	XMTR 1OERTNOK1 *B17B **B17B	13, 6 BIT 10 1ERTMD1 *B17A **B17A
13	LCLK ANY ALARM OERTCAY1 *B15C **B15D		LCLK ANY ALARM 1ERTCAY1 *B15C **B15D		TEST VECTOR 1ERUTV1 *B13D **B13D	RCVR VG DIST 1ERVGOKO *B16B **B16B		13, 6 BIT 13 1EXERCSE0 *B20A **B20A
14					MSG REG RP 1 1ERP1MR1 *B13A **B13A	M STORE VG DIST 1ERTVM1 *B14A **B14A		13, 6 BIT 14 0EXERCSE0 *B20A **B20A
15					MSG REG RP 2 1ERP2MR1 *B13B **B13B	PS COMPARE ERPS1 *B19A **B19A		ANY PS RELAY ANYP5V1 *B19B **B19B

NORMAL MH1
CONTENTS

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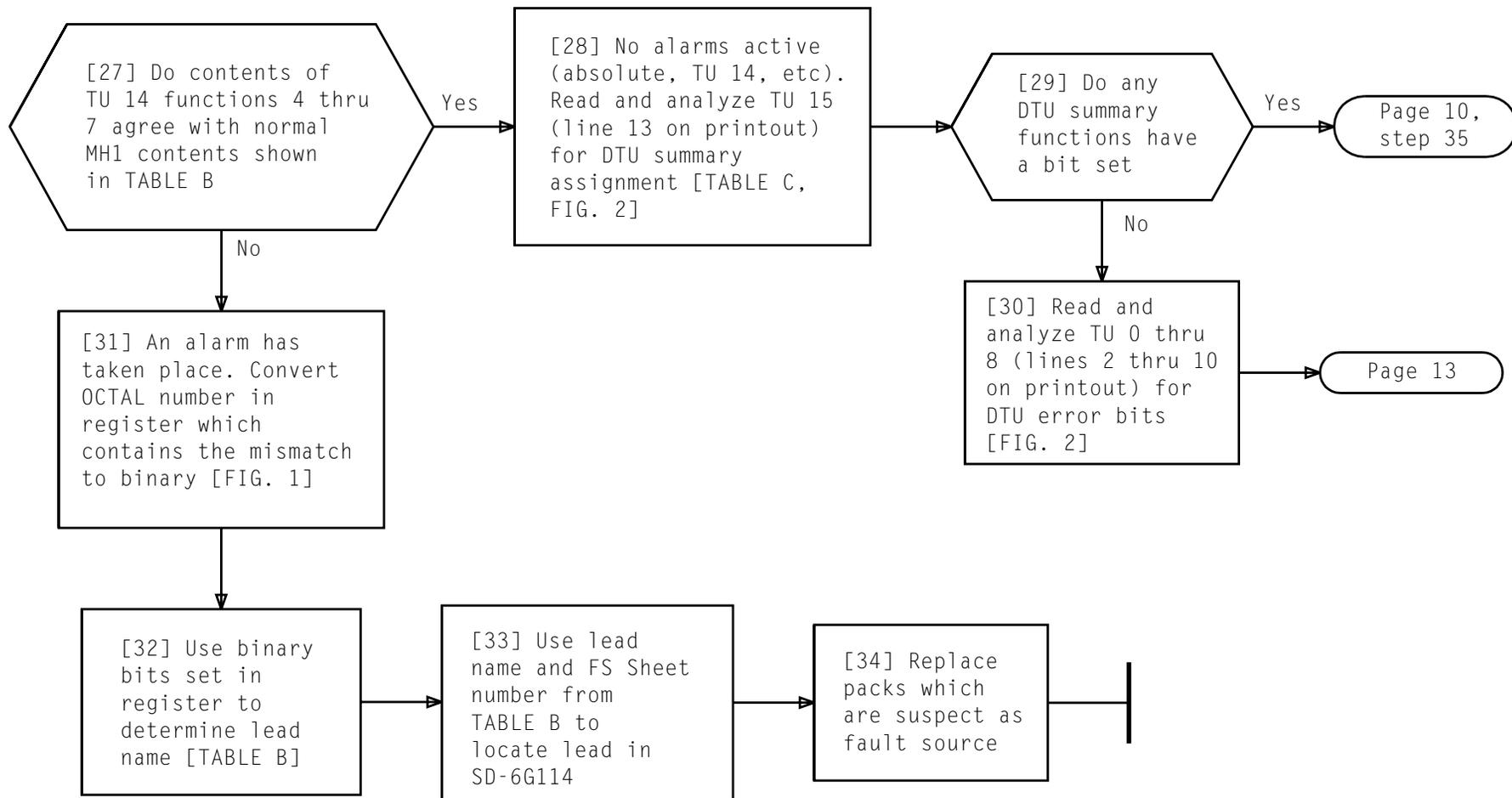
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100200

* Sheet number for SD-6G114-02

** Sheet number for SD-6G114-01



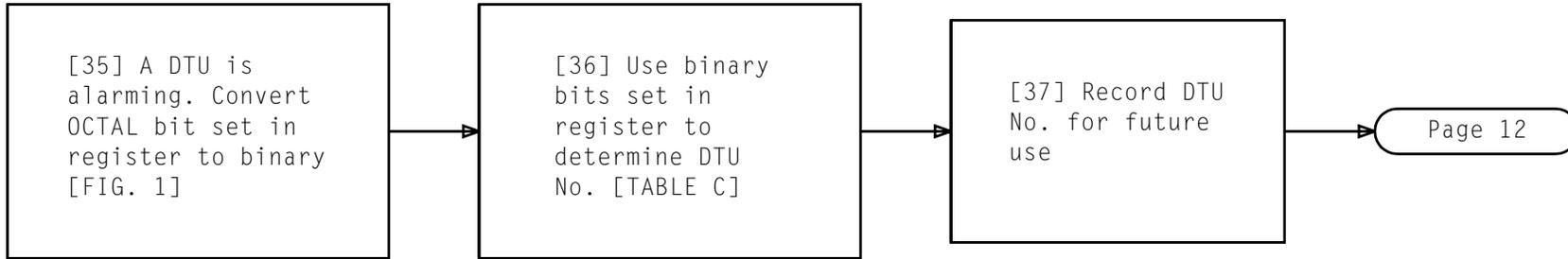
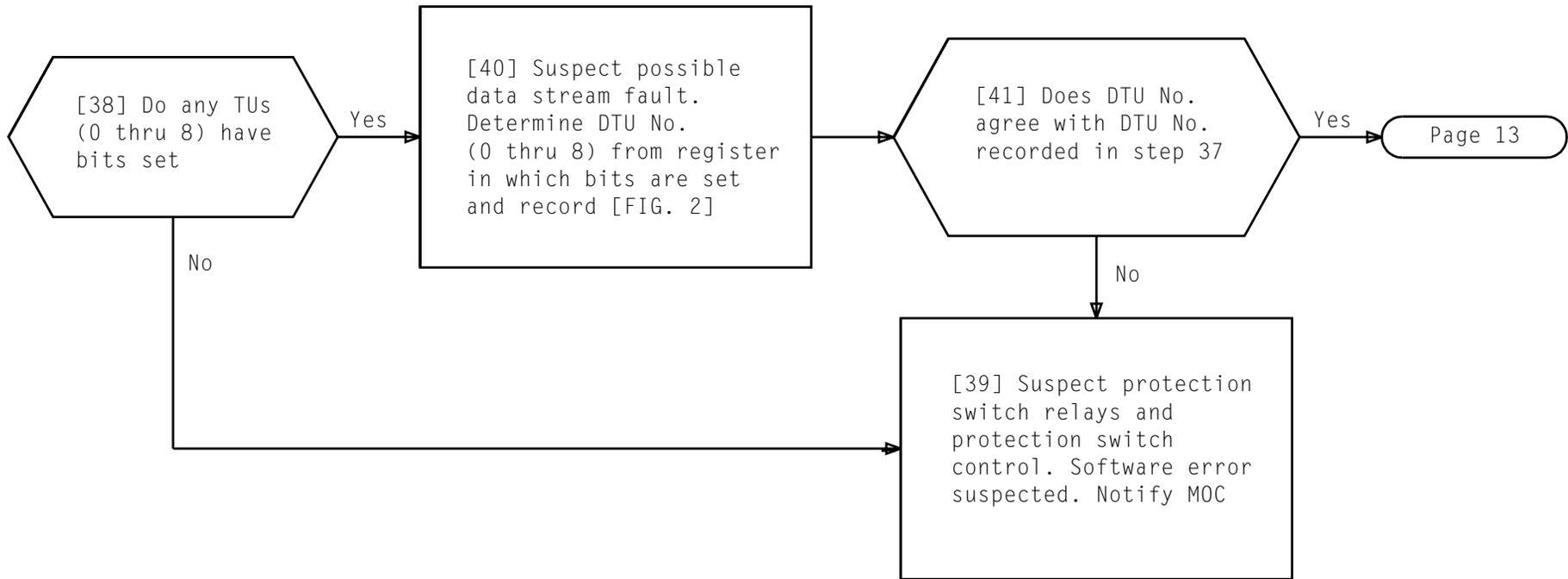
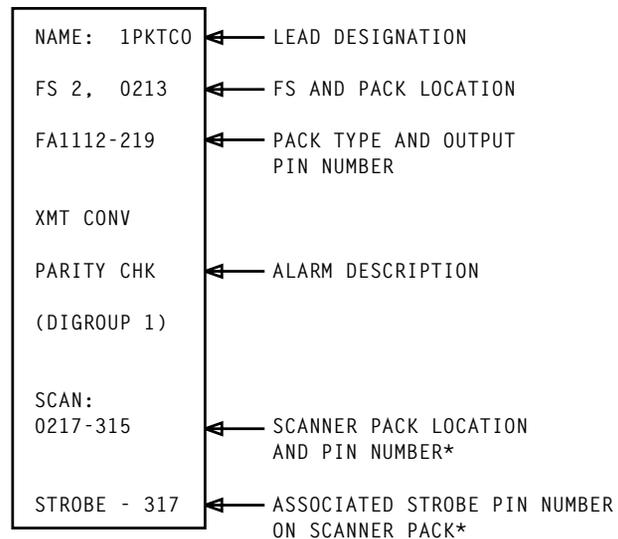
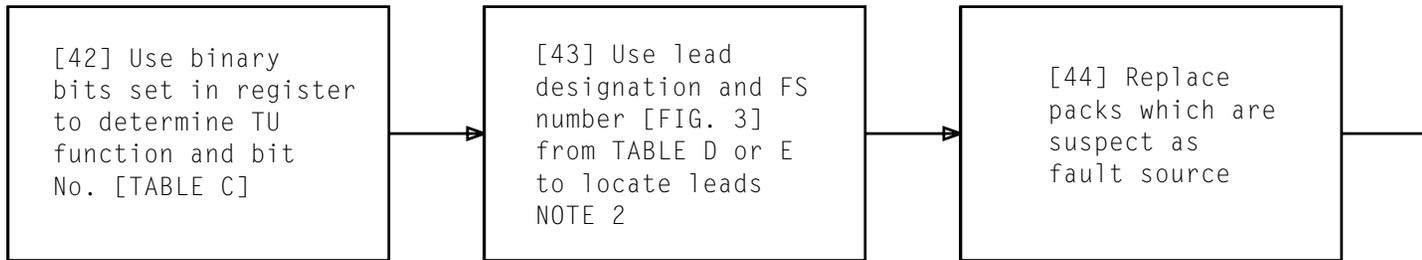


TABLE C								
TIME OF UNIT - TU 15 DT UNIT SUMMARY ASSIGNMENTS								
BIT	15, 0 FUNCT. SUM.	15, 1 FUNCT. SUM.	15, 2 FUNCT. SUM.	15, 3 FUNCT. SUM.	15, 4 FUNCT. SUM.	15, 5	15, 6	15, 7 DTU SUMMARY
0	DTU 0 FUNCT 0	DTU 2	DTU 4	DTU 6	DTU 8			DTU 0 SUMMARY
1	DTU 0 FUNCT 1							DTU 1 SUMMARY
2	DTU 0 FUNCT 2							DTU 2 SUMMARY
3	DTU 0 FUNCT 3							DTU 3 SUMMARY
4	DTU 0 FUNCT 4							DTU 4 SUMMARY
5	DTU 0 FUNCT 5							DTU 5 SUMMARY
6	DTU 0 FUNCT 6							DTU 6 SUMMARY
7	DTU 0 FUNCT 7	↓	↓	↓	↓			DTU 7 SUMMARY
8	DTU 1 FUNCT 0	DTU 3	DTU 5	DTU 7	VU (U9)			DTU 8 SUMMARY
9	DTU 1 FUNCT 1							VU (U9) SUMMARY
10	DTU 1 FUNCT 2							
11	DTU 1 FUNCT 3							
12	DTU 1 FUNCT 4							
13	DTU 1 FUNCT 5							
14	DTU 1 FUNCT 6							
15	DTU 1 FUNCT 7	↓	↓	↓	↓			





* PROBE LOCATIONS TO MONITOR ALARM LEAD

FIG. 3

NOTE 2	
TABLE D is used for the original DT SD-6G114-01 or TABLE E is used for the cost reduced DT SD-6G114-02	
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TABLE D					
TIME OF UNIT - TU 0-8 DTU ERROR LAYOUT					
15	14	13	12	11	BIT FUNCTION
NAME: PK50DRO FS1, 1015 FA1113-002 PARITY OUTPUT DATA REC BITS (DIGROUP 5) SCAN: 0616-010 STROBE-213	NAME: PK40DRO FS1, 1015 FA1113-005 PARITY OUTPUT DATA REC BITS (DIGROUP 4) SCAN: 0616-006 STROBE-113	NAME: PK30DRO FS1, 1015 FA1113-304 PARITY OUTPUT DATA REC BITS (DIGROUP 3) SCAN: 0616-206 STROBE-110	NAME: PK20DRO FS1, 1015 FA1113-205 PARITY OUTPUT DATA REC BITS (DIGROUP 2) SCAN: 0616-311 STROBE-014	NAME: PK10DRO FS1, 1015 FA1113-100 PARITY OUTPUT DATA REC BITS (DIGROUP 1) SCAN: 0616-008 STROBE-210	0
NAME: CPSAG60 FS4, 0626 FA1118-106 COMP SHIFT ADDRESS >6 (TEST DG) SCAN: 0616-300 STROBE-004	NAME: CPSAD20 FS4, 0626 FA1118-108 COMP SHIFT ADDRESS 2 (TEST DG) SCAN: 0616-211 STROBE-004	NAME: CPSAD10 FS4, 0626 FA1118-011 COMP SHIFT ADDRESS 1 (TEST DG) SCAN: 0616-201 STROBE-004	NAME: CPSAD00 FS4, 0626 FA1118-016 COMP SHIFT ADDRESS 0 (TEST DG) SCAN: 0616-001 STROBE-004	NAME: CPSADE0 FS4, 0626 FA1118-115 COMP SHIFT ADDRESS ENABLE (TEST DG) SCAN: 0616-101 STROBE-004	1
NAME: CPY1D0 FS7, 0215 FA1115-011 XMT PROC UPDATED PARITY COMP (TEST DG) SCAN: 0217-010 STROBE-213	NAME: PK1DT1 FS7, 0215 FA1115-208 DATA PARITY CHECK XMT PROC (TEST DG) SCAN: 0217-006 STROBE-113	NAME: PK1D0 FS7, 0215 FA1115-008 DATA PARITY CHECK XMT PROC (DG1-5) SCAN: 0217-206 STROBE-014	NAME: PKTP1 FS7, 0215 FA1115-007 ACC PARITY CHECK XMT PROC (TEST DG) SCAN: 0217-311 STROBE-014	NAME: PKTP0 FS7, 0215 FA1115-207 ACC PARITY CHECK XMT PROC (DG1-5) SCAN: 0217-008 STROBE-210	2
NAME: CPKMA0 FS5, 0620 FA1122-117 ACC PARITY CHECK COMP RMA (TEST DG) SCAN: 0217-300 STROBE-004	NAME: CPRMA0 FS5, 0620 FA1122-018 RMA COMPARE (TEST DG) SCAN: 0217-211 STROBE-004	NAME: CPKLCA0 FS5, 0619 FA1121-207 ACC PARITY CHECK COMP LCA (TEST DG) SCAN: 0217-201 STROBE-004	NAME: CPLCA0 FS5, 0619 FA1121-007 ACC PARITY CHECK COMP LCA (TEST DG) SCAN: 0217-201 STROBE-004	NAME: CPDFA0 FS5, 0619 FA1121-305 DFA COMPARE (TEST DG) SCAN: 0217-101 STROBE-004	3 (4,5,6,7)
NOTE: TU X, FUNCTION X = 0,1 --8(DTU NO) FUNCTION = 0, 1, 2, 3 4-7 (UNUSED - SAME AS FUNCTION 3)					

TABLE D (Contd)					
TIME OF UNIT - TU 0-8 DTU ERROR LAYOUT					
10	9	8	7	6	BIT FUNCTION
NAME: PKDODD1 FS9, 0218 FA1123-001 PARITY CHECK ODD TRANSM DATA SCAN: 0616-212 STROBE-217	NAME: PKDEVN1 FS9, 0218 FA1123-003 PARITY CHECK EVEN TRANSM DATA SCAN: 0616-112 STROBE-015	NAME: CFPYD10 FS9, 0218 FA1123-105 PARITY CHECK OVER RBOX- TBOX LOOP DATA SCAN: 0616-309 STROBE-011	NAME: 5PKRC0 FS1, 1003 FA1110-018 RECEIVE CONVERTER PARITY CHECK (DIGROUP 5) SCAN: 0616-012 STROBE-017	NAME: 4PKRC0 FS1, 1006 FA1110-018 RECEIVE CONVERTER PARITY CHECK (DIGROUP 4) SCAN: 0616-114 STROBE-314	0
NAME: CFPFF0 FS4, 0624 FA1116-004 COMP PULSE FRAMING (TEST DG) SCAN: 0616-301 STROBE-204	NAME: CPETMNO FS4, 0624 FA1116-301 COMP FRAME ERR TMG (TEST DG) SCAN: 0616-002 STROBE-204	NAME: CP1F0 FS4, 0624 FA1116-103 COMP STAT IN FRAME (TEST DG) SCAN: 0616-003 STROBE-204	NAME: PKDSWRI FS1, 0615 FA1114-105 PARITY CHECK ON REC DATA (TEST DG) SCAN: 0616-203 STROBE-204	NAME: PKDSWRI FS1, 0615 FA1114-105 PARITY CHECK ON REC DATA (TEST DG) SCAN: 0616-304 STROBE-208	1
NAME: CPRGPA0 FS7, 0215 FA1115-211 XMT STORE MX WRITE ADD COMP SCAN: 0217-212 STROBE-217	NAME: CPRGPA0 FS7, 0215 FA1115-211 XMT STORE MX READ ADD COMP SCAN: 0217-112 STROBE-015	NAME: CPMSGLO FS7, 0215 FA1115-013 M-STORE SIG COMP (TEST DG) SCAN: 0217-309 STROBE-011	NAME: 5PKTC0 FS2, 0205 FA1112-219 XMT CONV PARITY CHECK (DIGROUP 5) SCAN: 0217-012 STROBE-017	NAME: 4PKTC0 FS2, 0207 FA1112-219 XMT CONV PARITY CHECK (DIGROUP 4) SCAN: 0217-114 STROBE-314	2
NAME: PKLCA0 FS5, 0619 FA1121-105 ACC PARITY CHECK LCA (DG1-5) SCAN: 0217-301 STROBE-204	NAME: CFA21 FS10, 0222 FB241-201 TSI RCV CLOCK FAIL ALARM (B) SCAN: 0217-002 STROBE-204	NAME: CFA11 FS10, 0222 FB241-208 TSI RCV CLOCK FAIL ALARM (A) SCAN: 0217-003 STROBE-204	NAME: PKRMA0 FS5, 0620 FA1122-001 ACC PARITY CHECK RMA (DG1-5) SCAN: 0217-203 STROBE-204	NAME: CPKSGLO FS6, 0623 FA1120-105 ACC PARITY CHECK COMP E-SIG (TEST DG) SCAN: 0217-304 STROBE-208	3 (4,5,6,7)
NOTE: TU X, FUNCTION X = 0,1 --8(DTU NO) FUNCTION = 0, 1, 2, 3 4-7 (UNUSED - SAME AS FUNCTION 3)					

TABLE D (Contd)						
TIME OF UNIT - TU 0-8 DTU ERROR LAYOUT						
5	4	3	2	1	0	BIT FUNCTION
NAME: 3PKRCO FS1, 1009 FA1110-018 RECEIVE CONVERTER PARITY CHECK (DIGROUP 3) SCAN: 0616-115 STROBE-215	NAME: 2PKRCO FS1, 1012 FA1110-018 RECEIVE CONVERTER PARITY CHECK (DIGROUP 2) SCAN: 0616-312 STROBE-219	NAME: 1PKRCO FS1, 1018 FA1110-018 RECEIVE CONVERTER PARITY CHECK (DIGROUP 1) SCAN: 0616-315 STROBE-317	NAME: PKDSWRO FS1, 0615 FA1114-304 PARITY CHECK ON REC DATA (DG1-5) SCAN: 0616-013 STROBE-016	NAME: PKSLPO FS1, 0615 FA1114-011 PARITY CHECK ON SLIP SCAN: 0616-214 STROBE-218	NAME: PKLSPO FS1, 0615 FA1114-011 PARITY CHECK ON SLIP SCAN: 0616-316 STROBE-118	0
NAME: 5CPDS90 FS2, 0205 FA1112-106 XMT CONV FRAME BIT COMP (DIGROUP 5) SCAN: 0616-005 STROBE-108	NAME: PKSLP1 FS1, 0615 FA1114-311 PARITY CHECK ON SLIP SCAN: 0616-104 STROBE-204	NAME: 4CPDS90 FS2, 0207 FA1112-106 XMT CONV FRAME BIT COMP (DIGROUP 4) SCAN: 0616-106 STROBE-209	NAME: 3CPDS90 FS2, 0209 FA1112-106 XMT CONV FRAME BIT COMP (DIGROUP 3) SCAN: 0616-105 STROBE-308	NAME: 2CPDS90 FS2, 0211 FA1112-106 XMT CONV FRAME BIT COMP (DIGROUP 2) SCAN: 0616-305 STROBE-009	NAME: 1CPDS90 FS2, 0213 FA1112-106 XMT CONV FRAME BIT COMP (DIGROUP 1) SCAN: 0616-007 STROBE-109	1
NAME: 3PKTCO FS2, 0209 FA1112-219 XMT CONV PARITY CHECK (DIGROUP 3) SCAN: 0217-115 STROBE-215	NAME: 2PKTCO FS2, 0211 FA1112-219 XMT CONV PARITY CHECK (DIGROUP 2) SCAN: 0217-312 STROBE-219	NAME: 1PKTCO FS2, 0213 FA1112-219 XMT CONV PARITY CHECK (DIGROUP 1) SCAN: 0217-315 STROBE-317	NAME: PV1NV1 FS10, 0223 FA1125-216 TSI RCV PAIR VIOL 0-6 SCAN: 0217-013 STROBE-016	NAME: PV1NVO FS10, 0223 FA1125-215 TSI RCV PAIR VIOL 7 SCAN: 0217-214 STROBE-218	NAME: PV1NV1 FS10, 0223 FA1125-216 TSI RCV PAIR VIOL 0-6 SCAN: 0217-316 STROBE-118	2
NAME: CPKSGLO FS6, 0623 FA1120-105 ACC PARITY CHECK COMP E-SIG (TEST DG) SCAN: 0217-005 STROBE-108	NAME: PKSGLO FS6, 0623 FA1120-003 ACC PARITY CHECK COMP E-SIG (DG1-5) SCAN: 0217-104 STROBE-204	NAME: CPESGLO FS6, 0623 FA1120-202 E-SIG STORE COMP (TEST DG) SCAN: 0217-106 STROBE-209	NAME: CPESGLO FS6, 023 FA1120-202 E-SIG STORE COMP (TEST DG) SCAN: 0217-105 STROBE-308	NAME: CPESGLO FS6, 0623 FA1120-202 E-SIG STORE COMP (TEST DG) SCAN: 0217-305 STROBE-009	NAME: CPESGLO FS6, 0623 FA1120-202 E-SIG STORE COMP (TEST DG) SCAN: 0217-007 STROBE-109	3 (4,5,6,7)
NOTE: TU X, FUNCTION X = 0,1 --8(DTU NO) FUNCTION = 0, 1, 2, 3 4-7 (UNUSED - SAME AS FUNCTION 3)						

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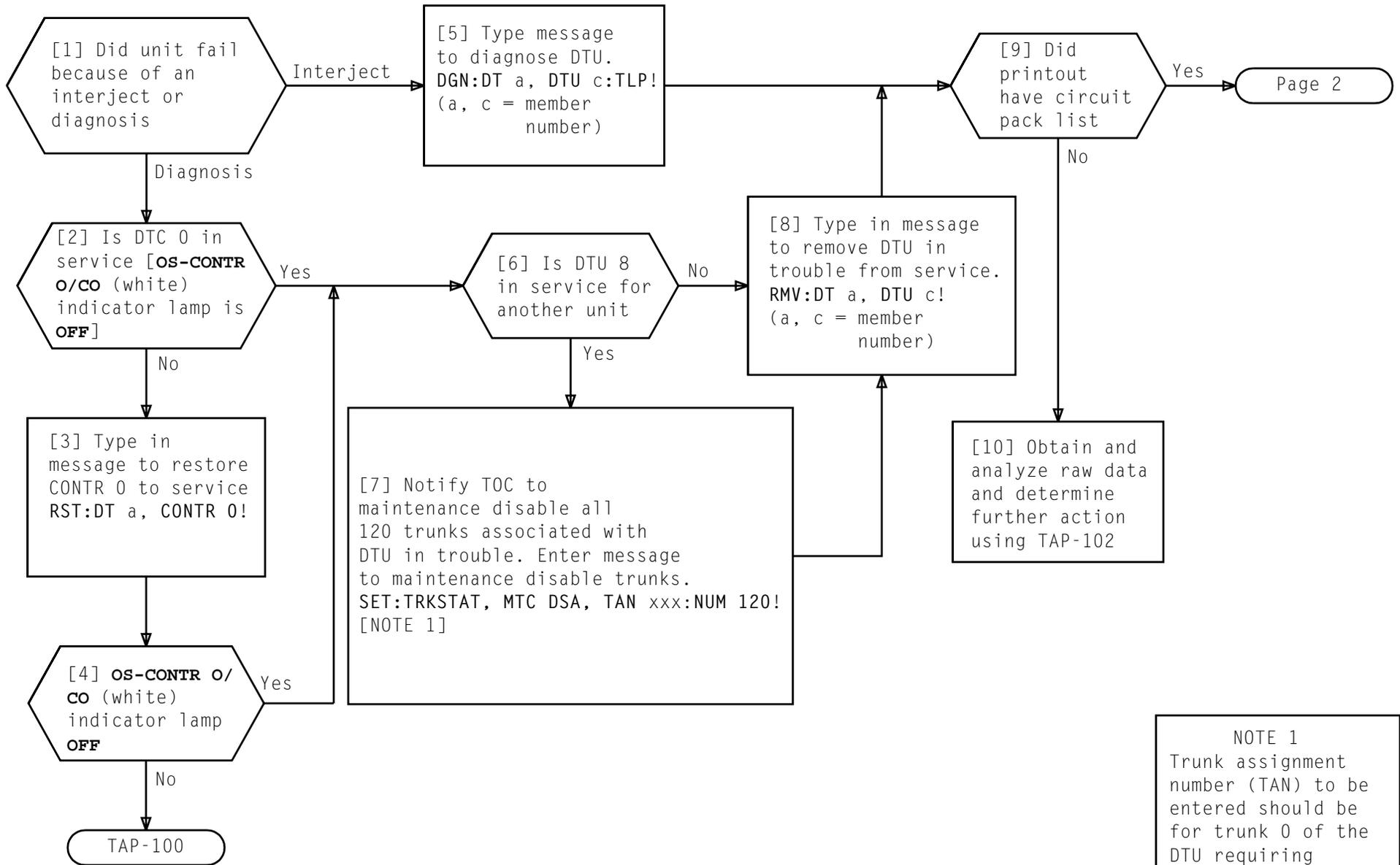
TABLE E					
TIME OF UNIT - TU 0-8 DTU ERROR LAYOUT					
15	14	13	12	11	BIT FUNCTION
NAME: PKODRO FS1, 1015 FA1135-015 PARITY OUTPUT DATA REC BITS SCAN: 0616-010 STROBE-213	NAME: PKODRO FS1, 1015 FA1135-015 PARITY OUTPUT DATA REC BITS SCAN: 0616-006 STROBE-113	NAME: PKODRO FS1, 1015 FA1135-015 PARITY OUTPUT DATA REC BITS SCAN: 0616-206 STROBE-110	NAME: PKODRO FS1, 1015 FA1135-015 PARITY OUTPUT DATA REC BITS SCAN: 0616-311 STROBE-014	NAME: PKODRO FS1, 1015 FA1135-015 PARITY OUTPUT DATA REC BITS SCAN: 0616-008 STROBE-210	0
NAME: CPSAG60 FS4, 0626 FA1118-106 COMP SHIFT ADDRESS >6 (TEST DG) SCAN: 0616-300 STROBE-004	NAME: CPSAD20 FS4, 0626 FA1118-108 COMP SHIFT ADDRESS 2 (TEST DG) SCAN: 0616-211 STROBE-004	NAME: CPSAD10 FS4, 0626 FA1118-011 COMP SHIFT ADDRESS 1 (TEST DG) SCAN: 0616-201 STROBE-004	NAME: CPSAD00 FS4, 0626 FA1118-016 COMP SHIFT ADDRESS 0 (TEST DG) SCAN: 0616-001 STROBE-004	NAME: CPSADE0 FS4, 0626 FA1118-115 COMP SHIFT ADDRESS ENABLE (TEST DG) SCAN: 0616-101 STROBE-004	1
NAME: CPY1D0 FS7, 0215 FA1115B-01L XMT PROC UPDATED PARITY COMP (TEST DG) SCAN: 0217-010 STROBE-213	NAME: PK1DT1 FS7, 0215 FA1115B-208 DATA PARITY CHECK XMT PROC (TEST DG) SCAN: 0217-006 STROBE-113	NAME: PK1D0 FS7, 0215 FA1115B-008 DATA PARITY CHECK XMT PROC (DG1-5) SCAN: 0217-206 STROBE-014	NAME: PKTP1 FS7, 0215 FA1115B-007 ACC PARITY CHECK XMT PROC (TEST DG) SCAN: 0217-311 STROBE-014	NAME: PKTP0 FS7, 0215 FA1115B-207 ACC PARITY CHECK XMT PROC (DG1-5) SCAN: 0217-212 STROBE-217	2
NAME: CPKMA0 FS5, 0620 FA1122-117 ACC PARITY CHECK COMP RMA (TEST DG) SCAN: 0217-300 STROBE-004	NAME: CPRMA0 FS5, 0620 FA1122-018 RMA COMPARE (TEST DG) SCAN: 0217-211 STROBE-004	NAME: CPKLCA0 FS5, 0619 FA1121-207 ACC PARITY CHECK COMP LCA (TEST DG) SCAN: 0217-201 STROBE-004	NAME: CPLCA0 FS5, 0619 FA1121-007 ACC PARITY CHECK COMP LCA (TEST DG) SCAN: 0217-201 STROBE-004	NAME: CPDFA0 FS5, 0619 FA1121-305 DFA COMPARE (TEST DG) SCAN: 0217-101 STROBE-004	3 (4,5,6,7)
NOTE: TU X, FUNCTION X = 0,1 --8(DTU NO) FUNCTION = 0, 1, 2, 3 4-7 (UNUSED - SAME AS FUNCTION 3)					

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TABLE E (Contd)					
TIME OF UNIT - TU 0-8 DTU ERROR LAYOUT					
10	9	8	7	6	BIT FUNCTION
NAME: PKDODD1 FS9, 0218 FA1123-001 PARITY CHECK ODD TRANSM DATA SCAN: 0616-212 STROBE-217	NAME: PKDEVN1 FS9, 0218 FA1123-003 PARITY CHECK EVEN TRANSM DATA SCAN: 0616-112 STROBE-015	NAME: CFPYD10 FS9, 0218 FA1123-105 PARITY CHECK OVER RBOX- TBOX LOOP DATA SCAN: 0616-309 STROBE-011	NAME: 5PKRC0 FS1, 1003 FA1110-018 RECEIVE CONVERTER PARITY CHECK (DIGROUP 5) SCAN: 0616-012 STROBE-017	NAME: 4PKRC0 FS1, 1006 FA1110-018 RECEIVE CONVERTER PARITY CHECK (DIGROUP 4) SCAN: 0616-114 STROBE-314	0
NAME: CFPFF0 FS4, 0624 FA1116-004 COMP PULSE FRAMING (TEST DG) SCAN: 0616-301 STROBE-204	NAME: CPETMNO FS4, 0624 FA1116-301 COMP FRAME ERR TMG (TEST DG) SCAN: 0616-002 STROBE-204	NAME: CP1F0 FS4, 0624 FA1116-103 COMP STAT IN FRAME (TEST DG) SCAN: 0616-003 STROBE-204	NAME: PKDSWRI FS1, 0615 FA1114-105 PARITY CHECK ON REC DATA (TEST DG) SCAN: 0616-203 STROBE-204	NAME: PKDSWRI FS1, 0615 FA1114-105 PARITY CHECK ON REC DATA (TEST DG) SCAN: 0616-304 STROBE-208	1
NAME: CPRGPA0 FS7, 0215 FA1115-211 XMT STORE MX WRITE ADD COMP SCAN: 0217-212 STROBE-217	NAME: CPRGPA0 FS7, 0215 FA1115-211 XMT STORE MX READ ADD COMP SCAN: 0217-112 STROBE-015	NAME: CPMSGL0 FS7, 0215 FA1115-013 M-STORE SIG COMP (TEST DG) SCAN: 0217-309 STROBE-011	NAME: 5PKTC0 FS2, 0205 FA1112-219 XMT CONV PARITY CHECK (DIGROUP 5) SCAN: 0217-012 STROBE-017	NAME: 4PKTC0 FS2, 0207 FA1112-219 XMT CONV PARITY CHECK (DIGROUP 4) SCAN: 0217-114 STROBE-314	2
NAME: PKLCA0 FS5, 0619 FA1121-105 ACC PARITY CHECK LCA (DG1-5) SCAN: 0217-301 STROBE-204	NAME: CFA21 FS10, 0222 FB241-201 TSI RCV CLOCK FAIL ALARM (B) SCAN: 0217-002 STROBE-204	NAME: CFA11 FS10, 0222 FB241-208 TSI RCV CLOCK FAIL ALARM (A) SCAN: 0217-003 STROBE-204	NAME: PKRMA0 FS5, 0620 FA1122-001 ACC PARITY CHECK RMA (DG1-5) SCAN: 0217-203 STROBE-204	NAME: ALMFRG BC1 FS3, 1021 FA1137-210 ALARM FRAMING GBC COUNTER SCAN: 0217-304 STROBE-208	3 (4,5,6,7)
NOTE: TU X, FUNCTION X = 0,1 --8(DTU NO) FUNCTION = 0, 1, 2, 3 4-7 (UNUSED - SAME AS FUNCTION 3)					

TABLE E (Contd)						
TIME OF UNIT - TU 0-8 DTU ERROR LAYOUT						
5	4	3	2	1	0	BIT FUNCTION
NAME: 3PKRCO FS1, 1009 FA1110-018 RECEIVE CONVERTER PARITY CHECK (DIGROUP 3) SCAN: 0616-115 STROBE-215	NAME: 2PKRCO FS1, 1012 FA1110-018 RECEIVE CONVERTER PARITY CHECK (DIGROUP 2) SCAN: 0616-312 STROBE-219	NAME: 1PKRCO FS1, 1018 FA1110-018 RECEIVE CONVERTER PARITY CHECK (DIGROUP 1) SCAN: 0616-315 STROBE-317	NAME: PKDSWRO FS1, 0615 FA1114-304 PARITY CHECK ON REC DATA (DG1-5) SCAN: 0616-013 STROBE-016	NAME: PKSLPO FS1, 0615 FA1114-011 PARITY CHECK ON SLIP SCAN: 0616-214 STROBE-218	NAME: PKSLPO FS1, 0615 FA1114-011 PARITY CHECK ON SLIP SCAN: 0616-316 STROBE-118	0
NAME: 5CPDS90 FS2, 0205 FA1136-214 XMT CONV FRAME BIT COMP (DIGROUP 5) SCAN: 0616-005 STROBE-108	NAME: PKSLP1 FS1, 0615 FA1114-311 PARITY CHECK ON SLIP SCAN: 0616-104 STROBE-204	NAME: 4CPDS90 FS2, 0207 FA1136-214 XMT CONV FRAME BIT COMP (DIGROUP 4) SCAN: 0616-106 STROBE-209	NAME: 3CPDS90 FS2, 0209 FA1136-214 XMT CONV FRAME BIT COMP (DIGROUP 3) SCAN: 0616-105 STROBE-308	NAME: 2CPDS90 FS2, 0211 FA1136-214 XMT CONV FRAME BIT COMP (DIGROUP 2) SCAN: 0616-305 STROBE-009	NAME: 1CPDS90 FS2, 0213 FA1136-214 XMT CONV FRAME BIT COMP (DIGROUP 1) SCAN: 0616-007 STROBE-109	1
NAME: 3PKTCO FS2, 0209 FA1136-212 XMT CONV PARITY CHECK (DIGROUP 3) SCAN: 0217-115 STROBE-215	NAME: 2PKTCO FS2, 0211 FA1136-212 XMT CONV PARITY CHECK (DIGROUP 2) SCAN: 0217-312 STROBE-219	NAME: 1PKTCO FS2, 0213 FA1136-212 XMT CONV PARITY CHECK (DIGROUP 1) SCAN: 0217-315 STROBE-317	NAME: ALMCTR1 FS3, 0224 FA1143-111 ALARM ON COUNTERS REGISTER SCAN: 0217-013 STROBE-016	NAME: PVINV0 FS10, 0223 FA1125-215 TSI RCV PAIR VIOL 7 SCAN: 0217-214 STROBE-218	NAME: PVINV1 FS10, 0223 FA1125-216 TSI RCV PAIR VIOL 0-6 SCAN: 0217-316 STROBE-118	2
NAME: CPKSGLO FS6, 0623 FA1120-105 ACC PARITY CHECK COMP E-SIG (TEST DG) SCAN: 0217-005 STROBE-108	NAME: PKSGLO FS6, 0623 FA1120-003 ACC PARITY CHECK COMP E-SIG (DG1-5) SCAN: 0217-104 STROBE-204	NAME: ALMUGWC1 FS3, 1021 FA1137-208 ALARM GWC COUNTER SCAN: 0217-106 STROBE-209	NAME: CPESGLO FS6, 023 FA1120-202 E-SIG STORE COMP (TEST DG) SCAN: 0217-105 STROBE-308	NAME: CPESGLO FS6, 0623 FA1120-202 E-SIG STORE COMP (TEST DG) SCAN: 0217-305 STROBE-009	NAME: CPESGLO FS6, 0623 FA1120-202 E-SIG STORE COMP (TEST DG) SCAN: 0217-007 STROBE-109	3 (4,5,6,7)
NOTE: TU X, FUNCTION X = 0,1 --8(DTU NO) FUNCTION = 0, 1, 2, 3 4-7 (UNUSED - SAME AS FUNCTION 3)						

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NOTE 1
Trunk assignment number (TAN) to be entered should be for trunk 0 of the DTU requiring service

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CLEAR DIGROUP TERMINAL UNIT (DTU) TROUBLE

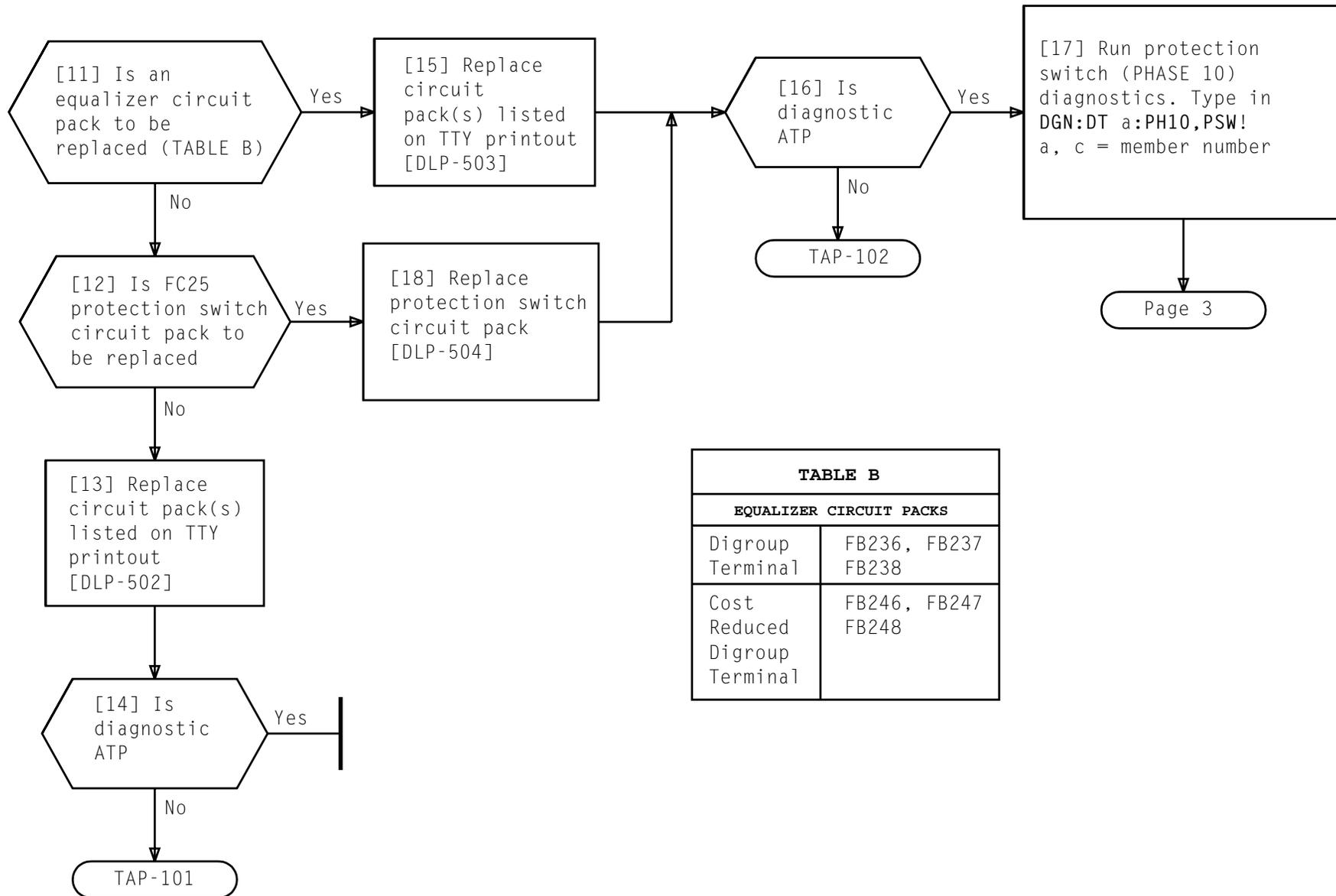
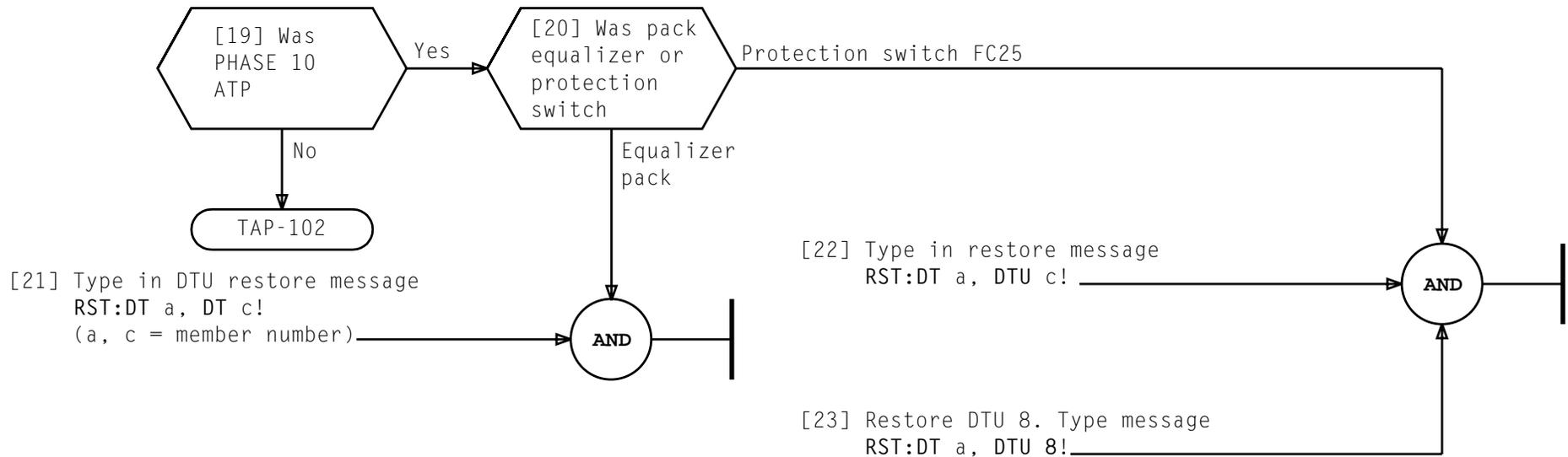


TABLE B	
EQUALIZER CIRCUIT PACKS	
Digroup Terminal	FB236, FB237 FB238
Cost Reduced Digroup Terminal	FB246, FB247 FB248

CLEAR DIGROUP TERMINAL UNIT (DTU) TROUBLE

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CLEAR DIGROUP TERMINAL UNIT (DTU) TROUBLE

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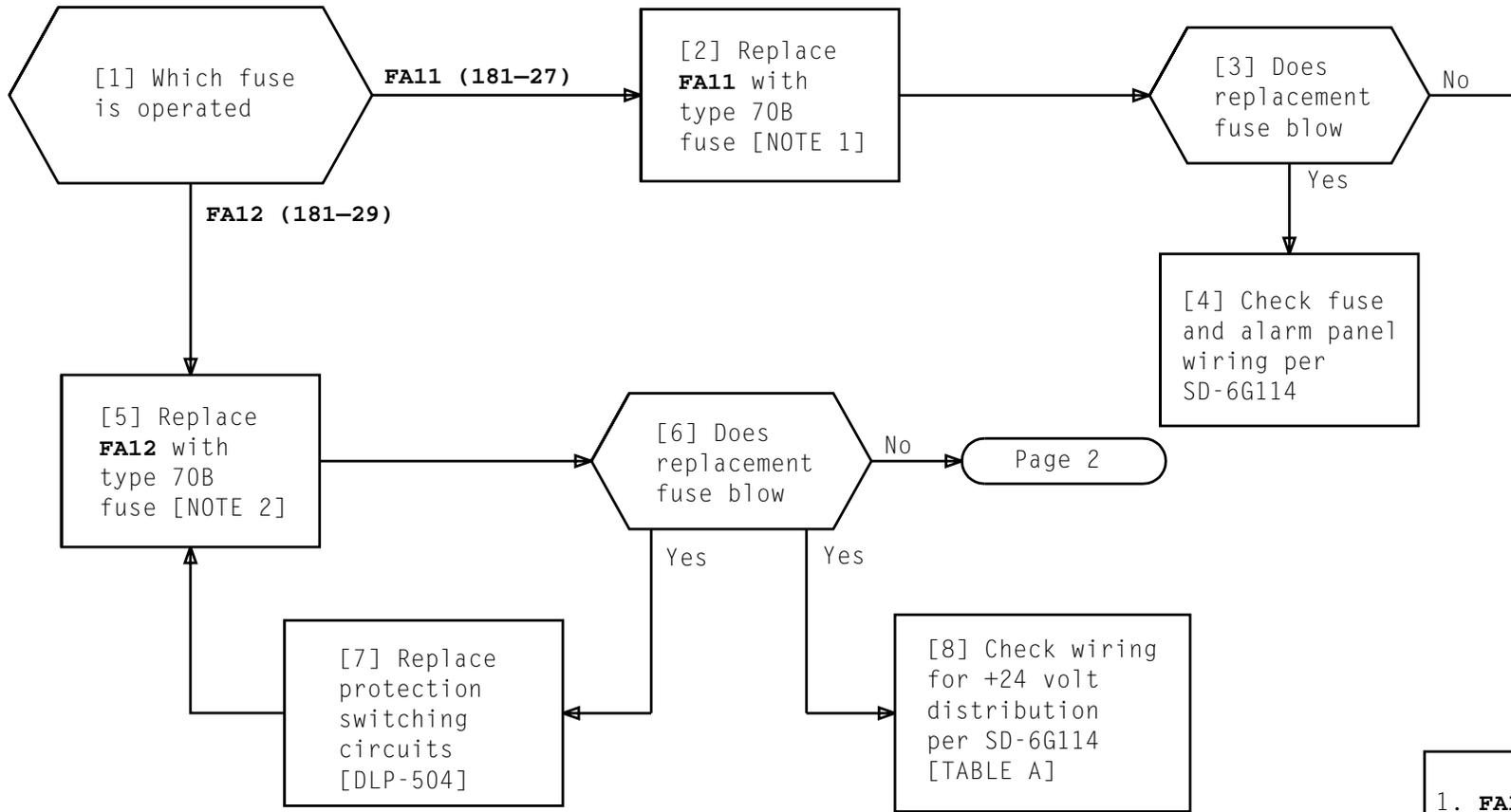


TABLE A	
Cost reduced DT	SD-6G114-02
Original DT	SD-6G114-01

NOTES	
1. FA11 fuses +24 volts to the fuse and alarm panel lamps (located at top of Bay 1)	
2. FA12 fuses +24 volts to the protection switch relays and select relays (located at top of Bay 1)	
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CLEAR +24 VOLT ALARM

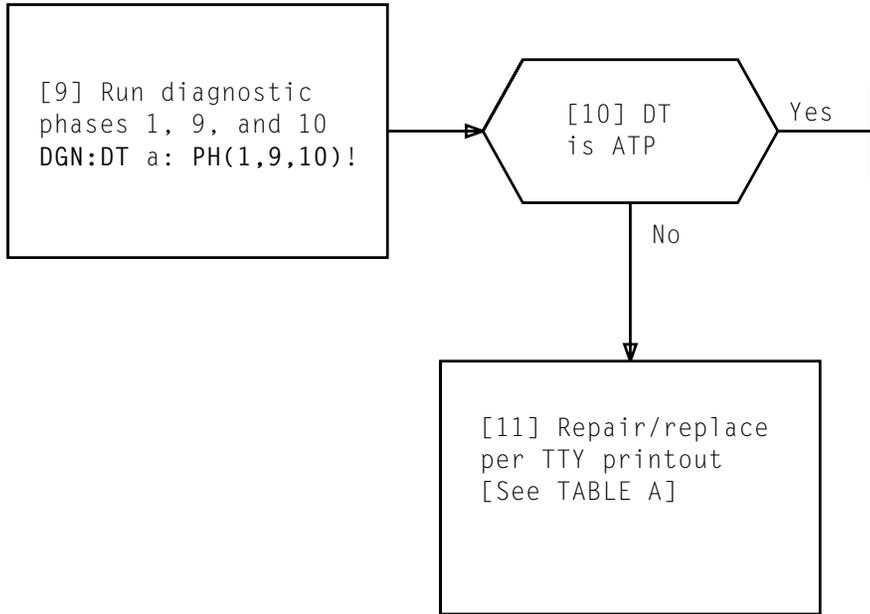
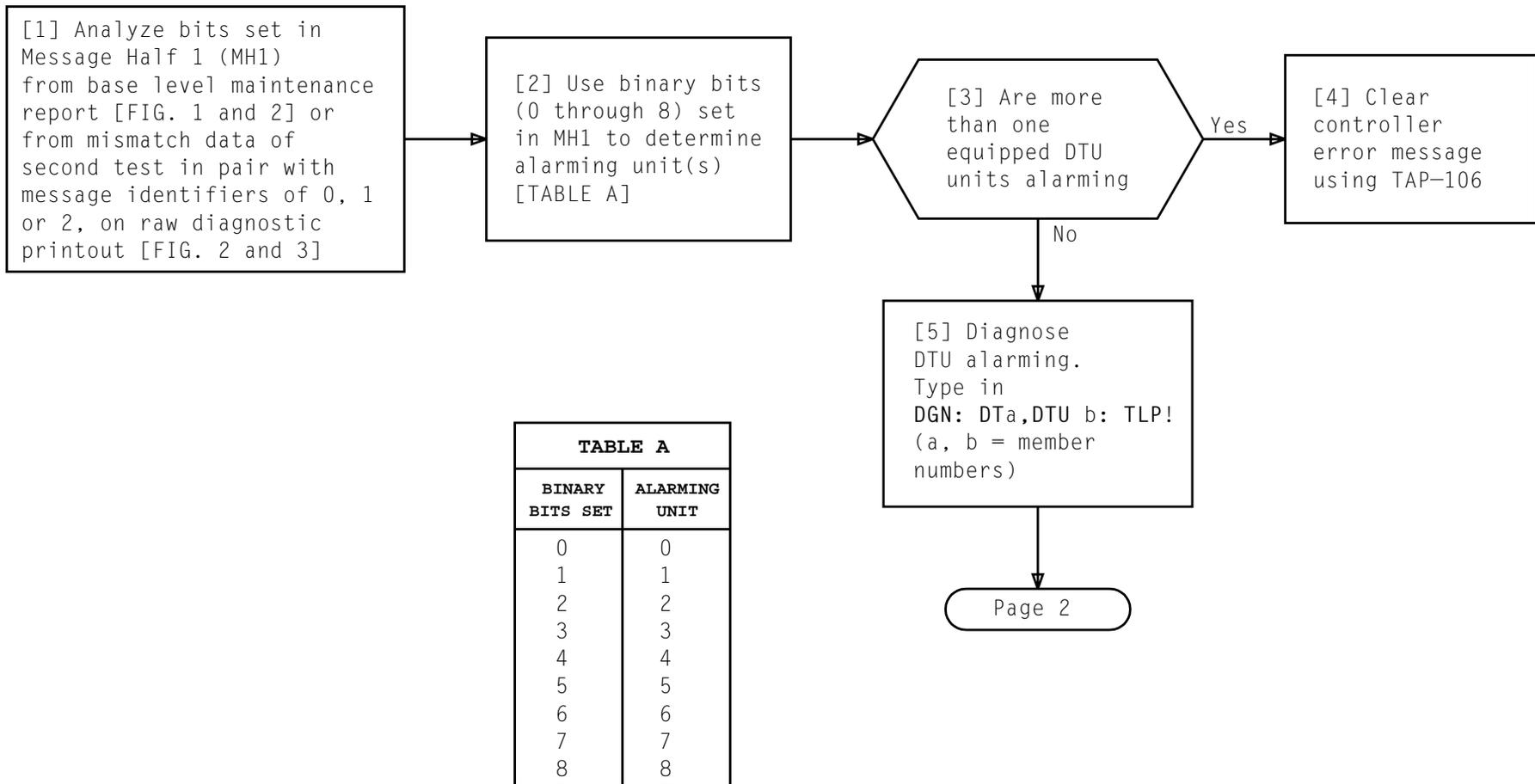
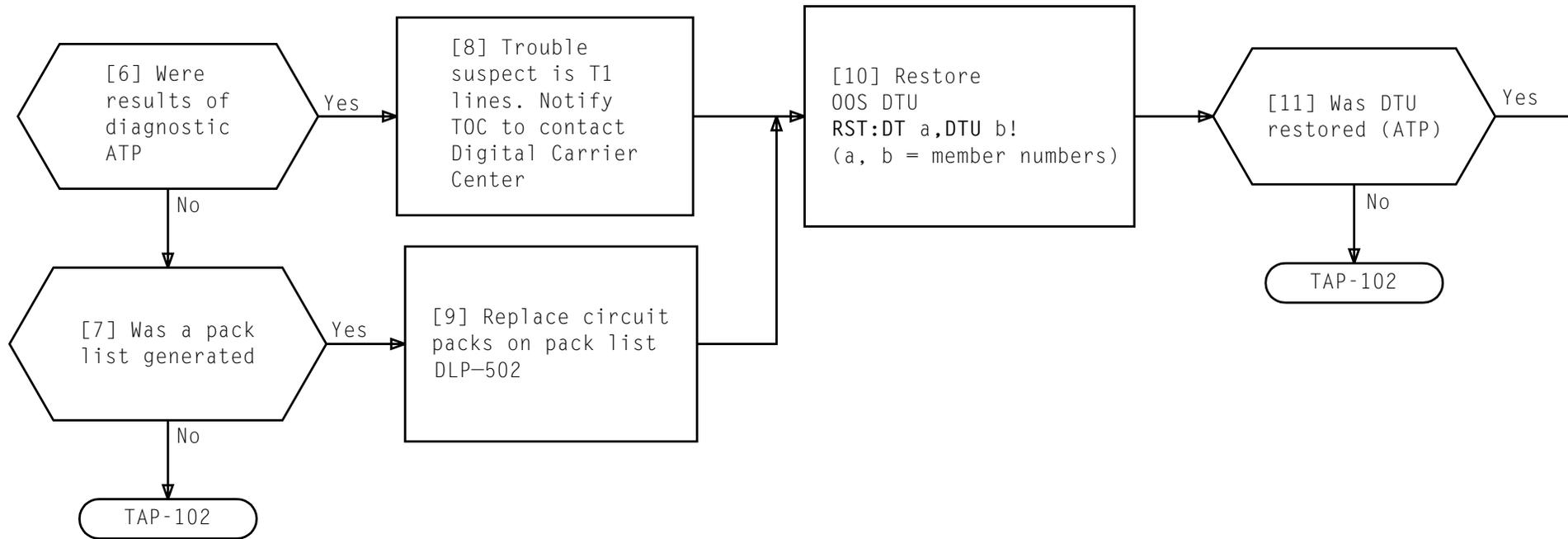


TABLE A		
DIAGNOSTIC PHASE	PROCEDURE	PROCEDURE TITLE
1	TAP-114	Interpret Raw Data
9 and 10	DLP-504	Replace Protection switch circuit pack (FC25/FC26) – Digroup Terminal Unit (DTU)





A 11 REPT: BASE LEVEL MAINT @15500110 MFNUM=00000135 MICON=00000000
 LVDATA=1000 SRDATA=00000000 FRDATA=40010000

DTFR REMOVED AND REQUESTED DIAGNOSTICS (DT 1 DTU 0) — SUSPECT UNIT

DT FAULT DETECTED
 00000000 00000000 00110013 00000001 15477410 00040177
 00140001

ERROR ANALYSIS RECENT HISTORY TABLE
 06046002 00000000 00000000 20000000 00000000 00000000
 00000000 00000000 00000000 00000000 00000000 00000000
 40001604 00040177 00140001

01/17/77 21:11:10
 #469

BASE LEVEL MAINTENANCE
 REPORT MESSAGE (TYPICAL)

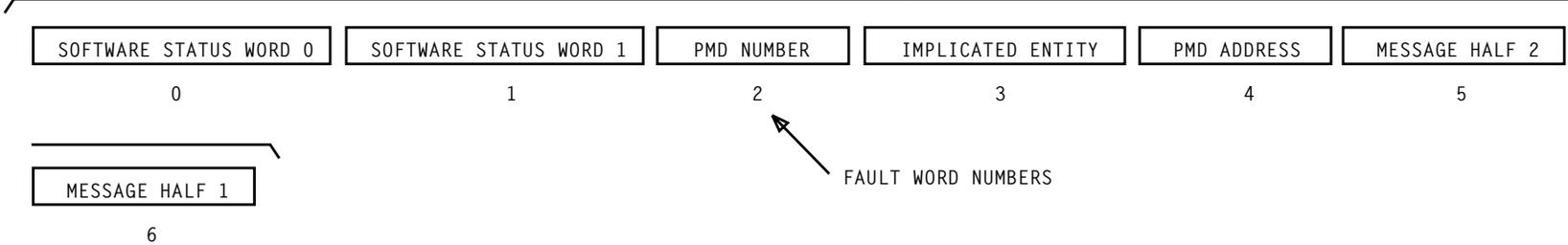


FIG. 1

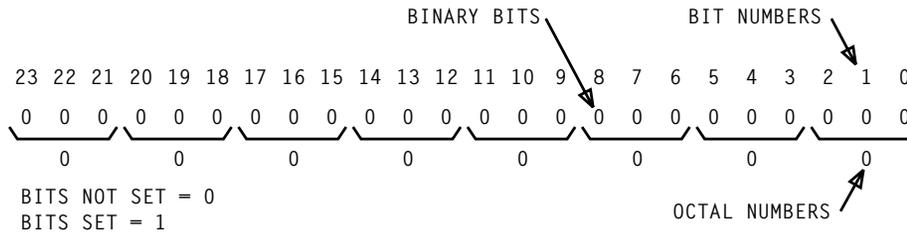


FIG. 2

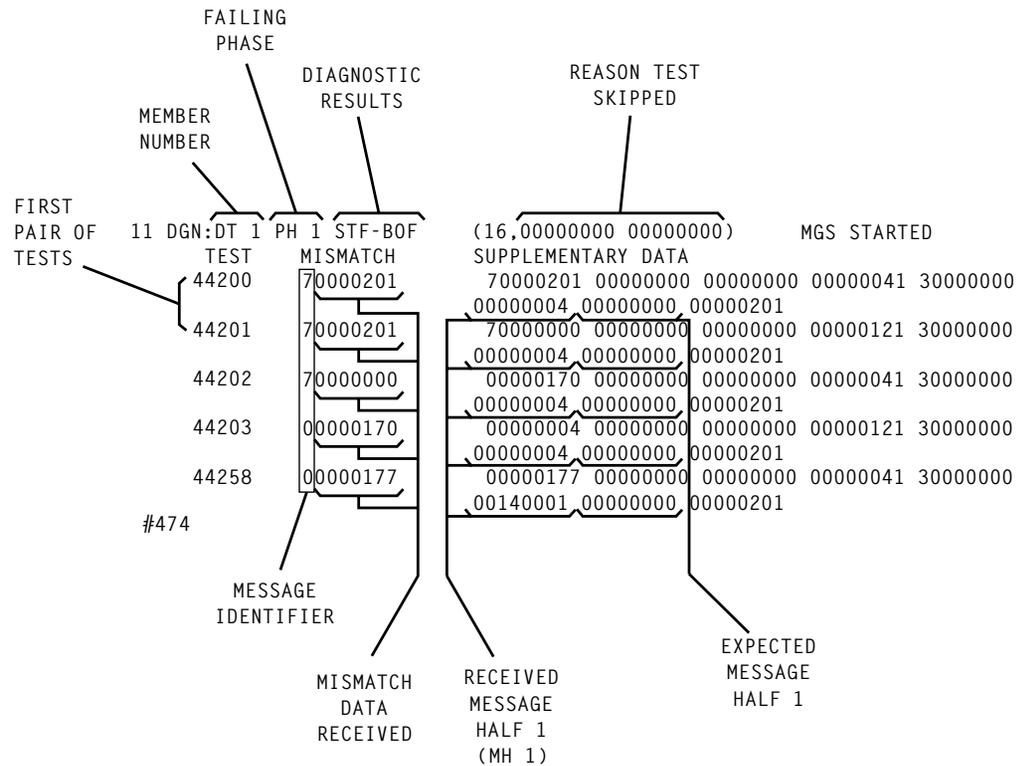
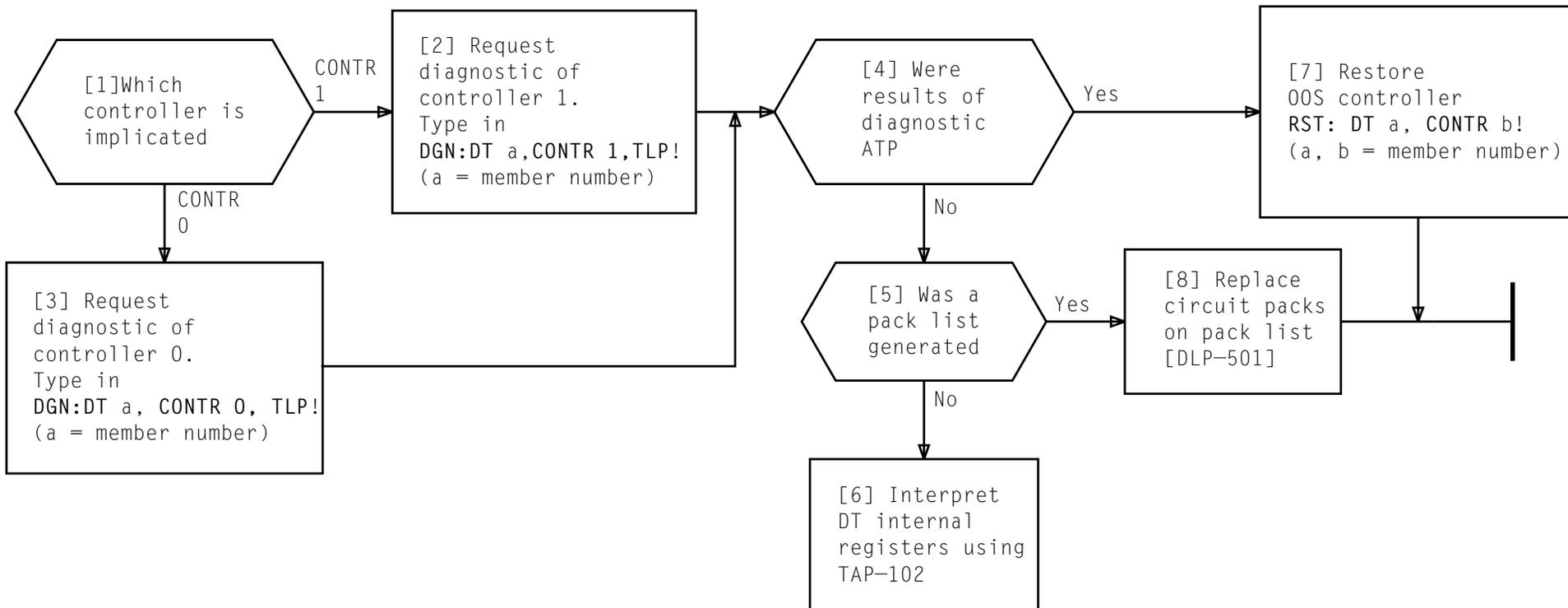
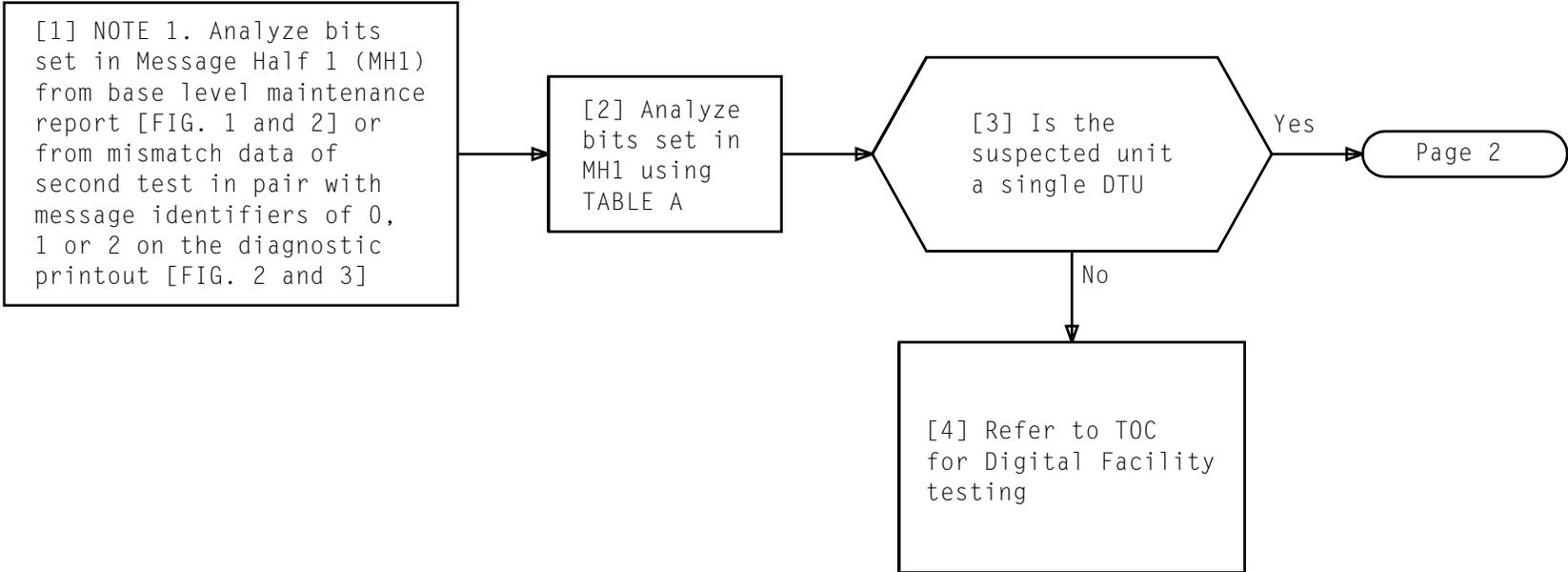


FIG. 3 - Example of Diagnostic Printout



CLEAR CONTROLLER ERROR MESSAGE

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NOTE 1
 There is an error in the DTU data stream. Suspected areas are:

1. T1 line
2. Connector
3. Noise
4. DTU hardware
5. Equalizer packs for the T1 line plus FB235, Digroup front end (see SD-6G114 FS 1, 2)

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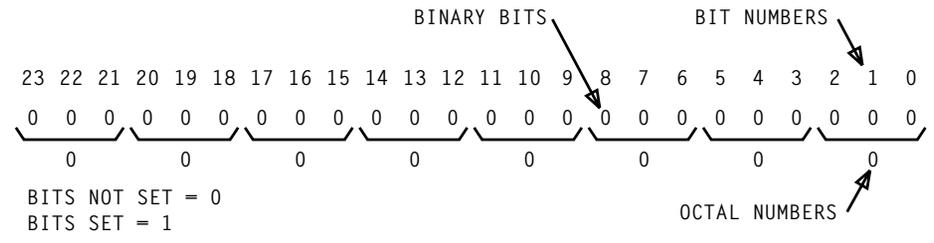
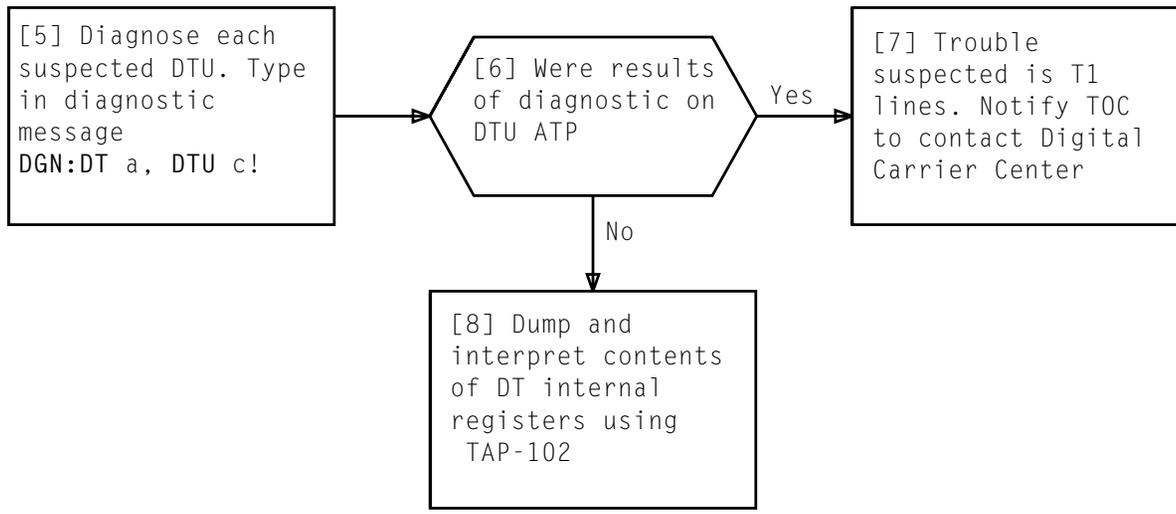


FIG. 1

CLEAR ERROR IN DTU DATA STREAM

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A 11 REPT: BASE LEVEL MAINT @15500110 MFNUM=00000135 MICON=00000000
 LVDATA=1000 SRDATA=00000000 FRDATA=40010000

DTFR REMOVED AND REQUESTED DIAGNOSTICS (DT 1 DTU 0) — SUSPECT UNIT

DT FAULT DETECTED
 00000000 00000000 00110013 00000001 15477410 00040177
 00140001

ERROR ANALYSIS RECENT HISTORY TABLE
 06046002 00000000 00000000 20000000 00000000 00000000
 00000000 00000000 00000000 00000000 00000000 00000000
 40001604 00040177 00140001

01/17/77 21:11:10
 #469

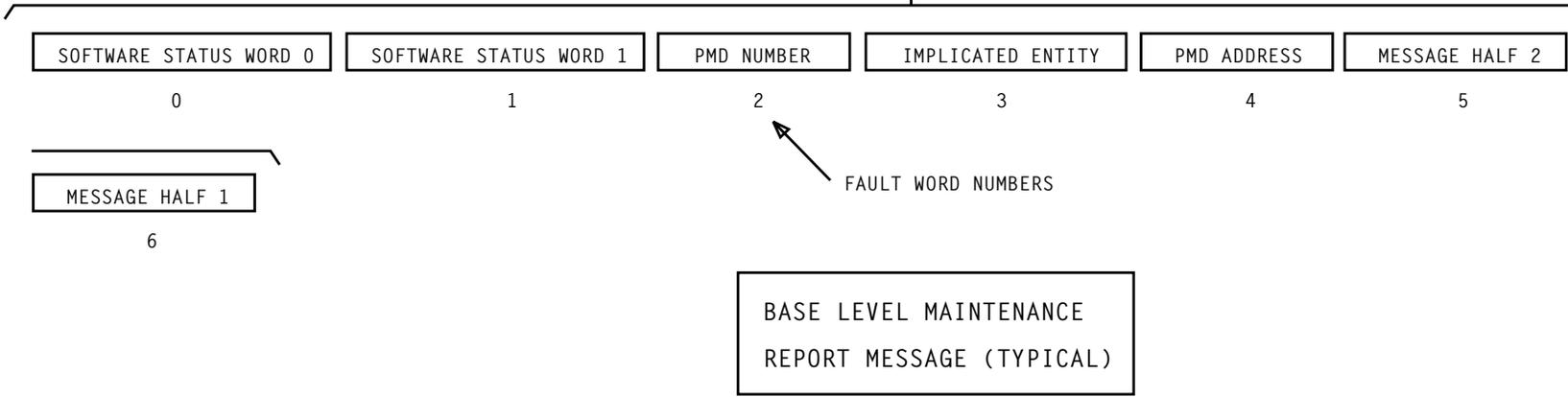


FIG. 2

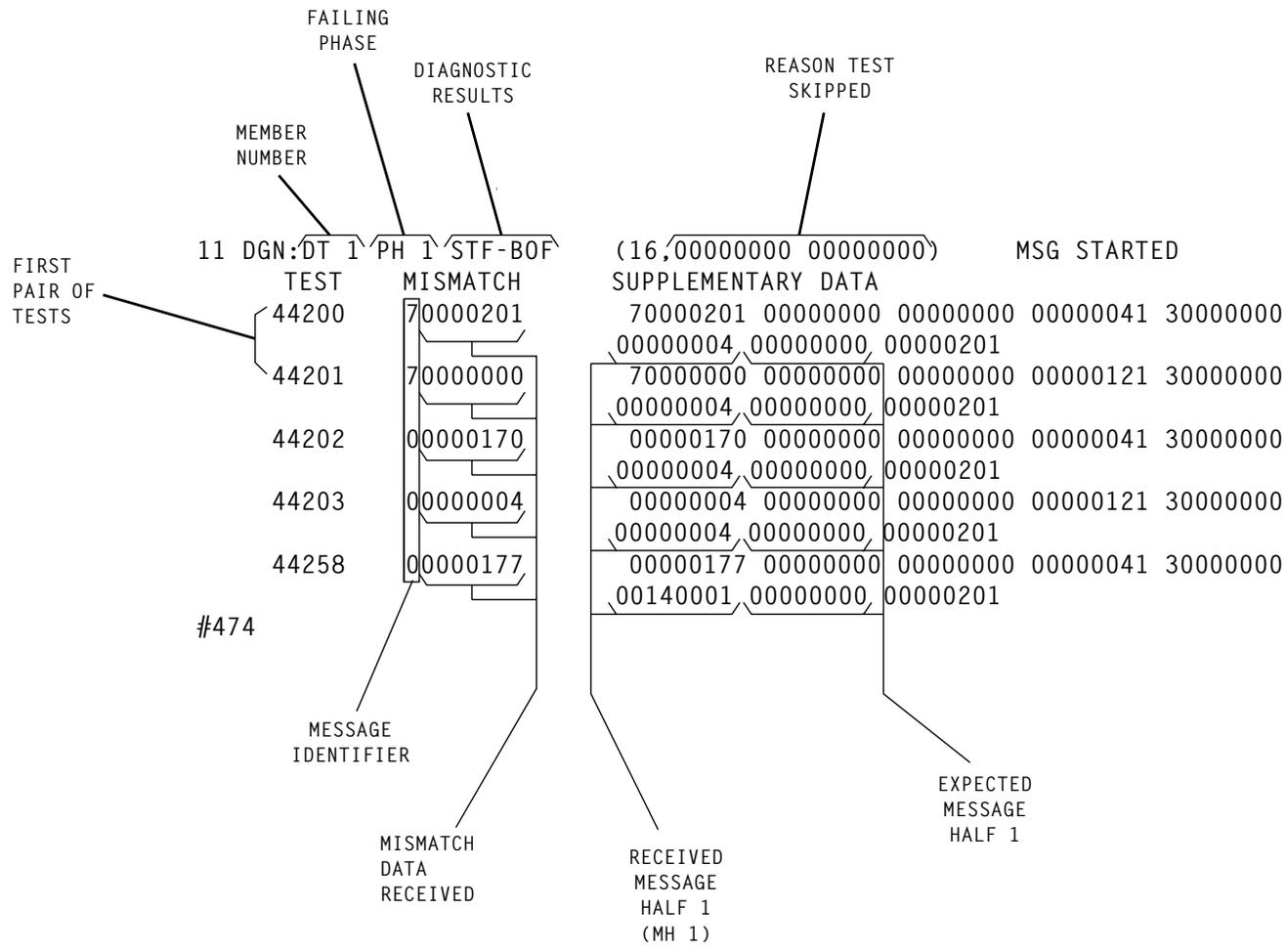


FIG. 3 - Example of Diagnostic Printout

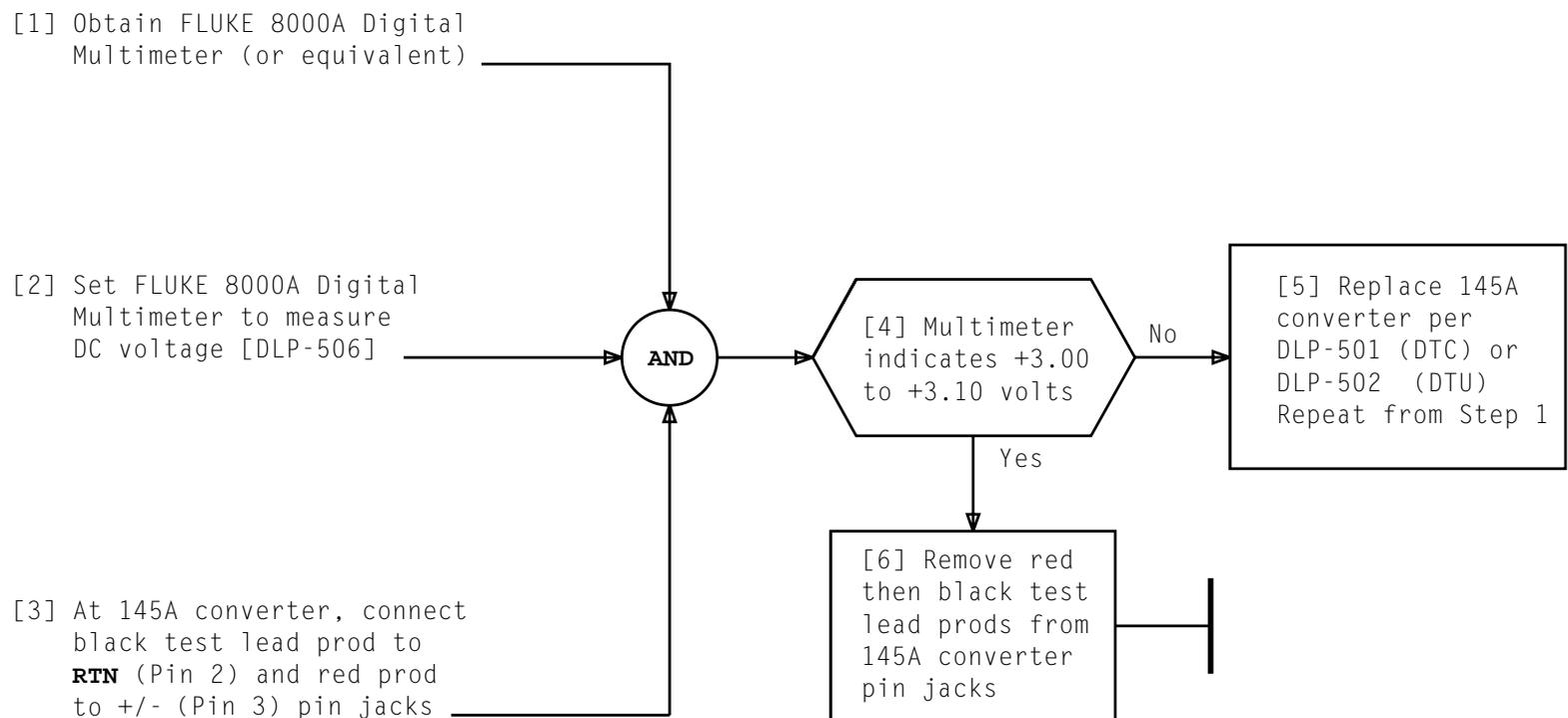
TABLE A		
TIME OF UNIT - TU 12 REPORT FUNCTION ASSIGNMENTS		
BIT	TU 12, 6	TU 12, 7
0	DIGROUP*	DIGROUP*
1	DIGROUP*	DIGROUP*
2	DIGROUP*	DIGROUP*
3	UNIT**	UNIT**
4	UNIT**	UNIT**
5	UNIT**	UNIT**
6	UNIT**	UNIT**
7	RMA STATUS	UNIT TEST FAILED ALARM BIT
8	LCA STATUS	AUTONOMOUS ERROR RATE REPORT BIT
9	OUT-OF-FRAME	CAMP-ON-STATUS
10	SLIP	HIGH COUNT LS
11	SLIP POLARITY	HIGHT COUNT MS
12	PEST STATUS	LOW COUNT LS
13	CAMP-ON-STATUS	LOW COUNT MS
14		
15		

*DIGROUP CODE:

**DTU CODE:

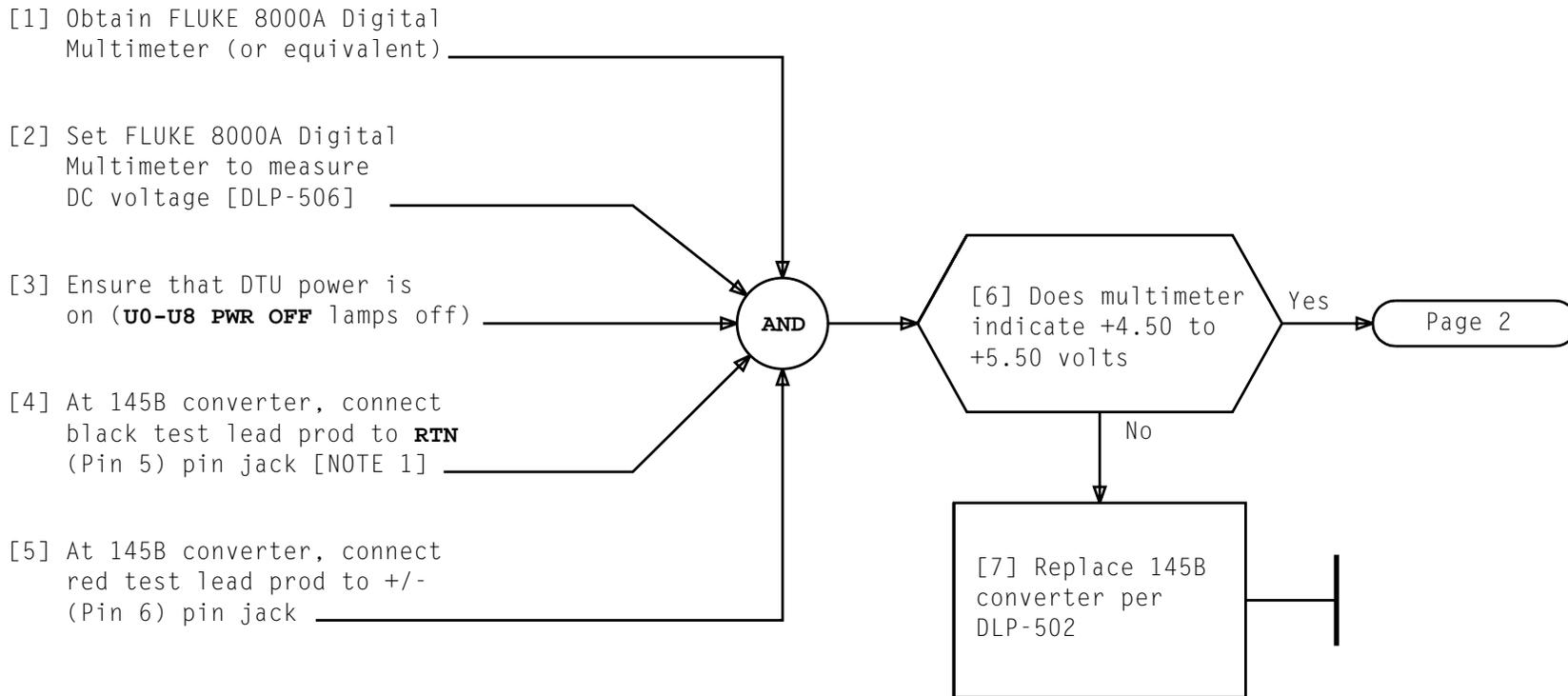
BIT	<u>2</u> <u>1</u> <u>0</u>	<u>DIGROUP</u>	BIT	<u>6</u> <u>5</u> <u>4</u> <u>3</u>	<u>DTU</u>
	0 0 0	1		0 0 0 0	0
	0 0 1	2		0 0 0 1	1
	0 1 0	3		0 0 1 0	2
	0 1 1	4		0 0 1 1	3
	1 0 0	5		0 1 0 0	4
				0 1 0 1	5
				0 1 1 0	6
				0 1 1 1	7
				1 0 0 0	8

CLEAR ERROR IN DTU DATA STREAM



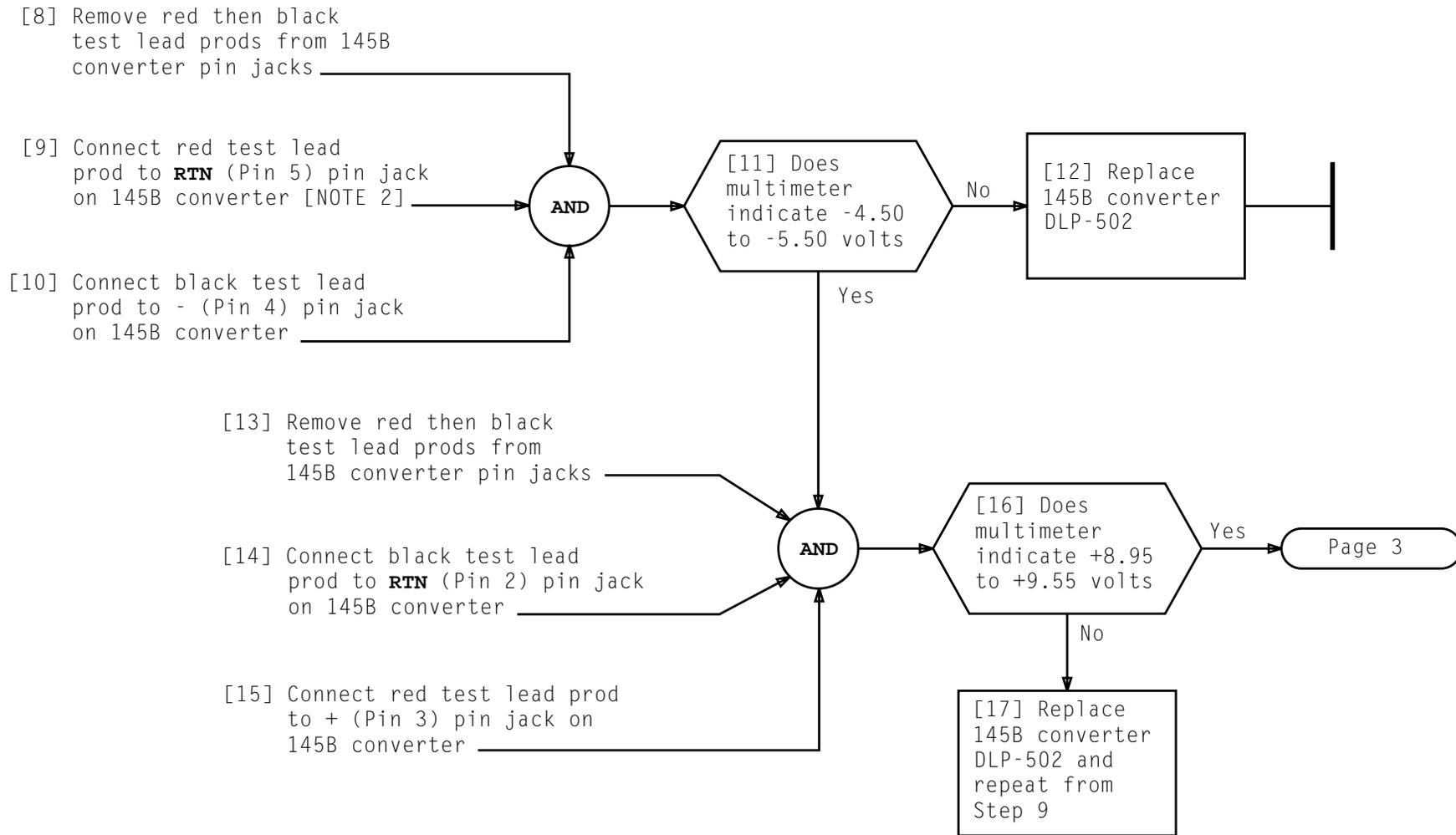
CHECK 145A CONVERTER +3.05 VOLT OUTPUT

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NOTE 1	
Each DTU (0-8) contains one 145B converter	
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CHECK 145B CONVERTER +5, -5, AND +9.25 VOLT OUTPUTS



NOTE 2 For digital meters, leads should not be reversed	
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CHECK 145B CONVERTER +5, -5, AND +9.25 VOLT OUTPUTS

[18] Remove red then black test lead prods from 145B converter pin jacks

[19] Remove DTU (associated with 145B pack to be removed) from service RMV: DT a, DTU c! (a,c = member numbers)

[20] Depress the **ON LOCK** latch on the 145B converter

PS lamp (U0 - U7) lights
OS U8 lamp lights

AND

[21] **ALM** (on 145B converter), **PWR ALM** (on fuse and alarm panel), and **MJ** (on aisle alarm panel) lighted, tone bar sounds

Yes

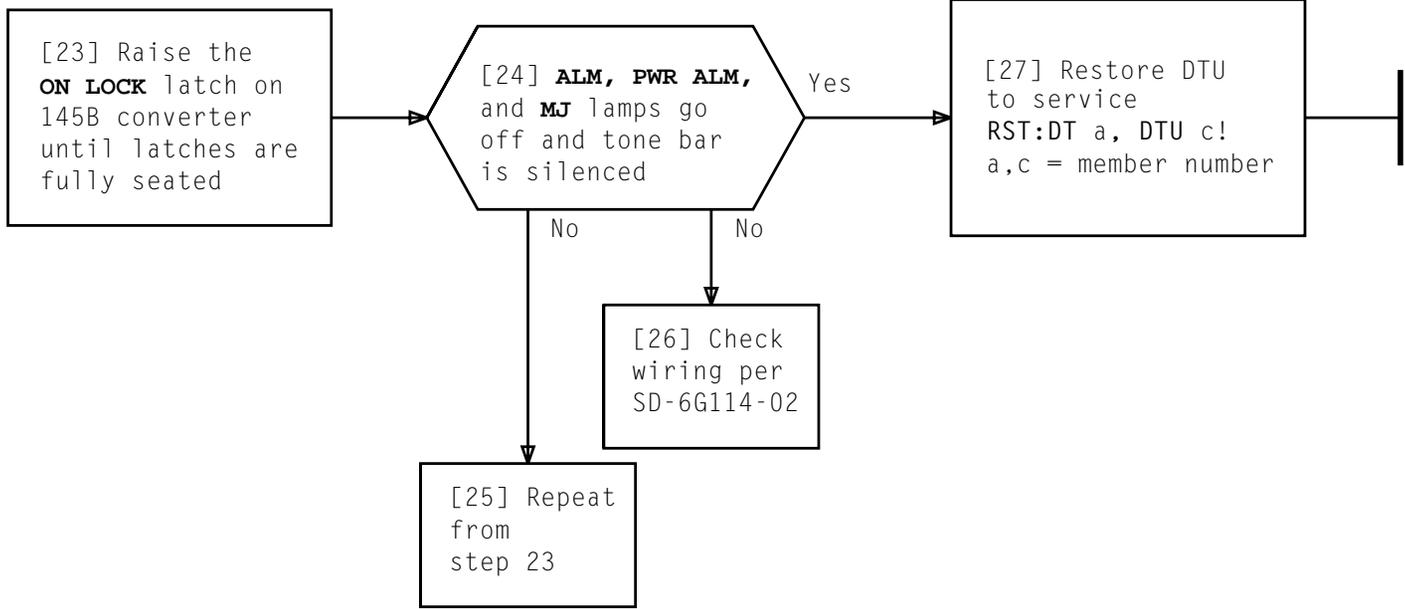
Page 4

No

[22] Replace faulty indicator lamps

CHECK 145B CONVERTER +5, -5, AND +9.25 VOLT OUTPUTS

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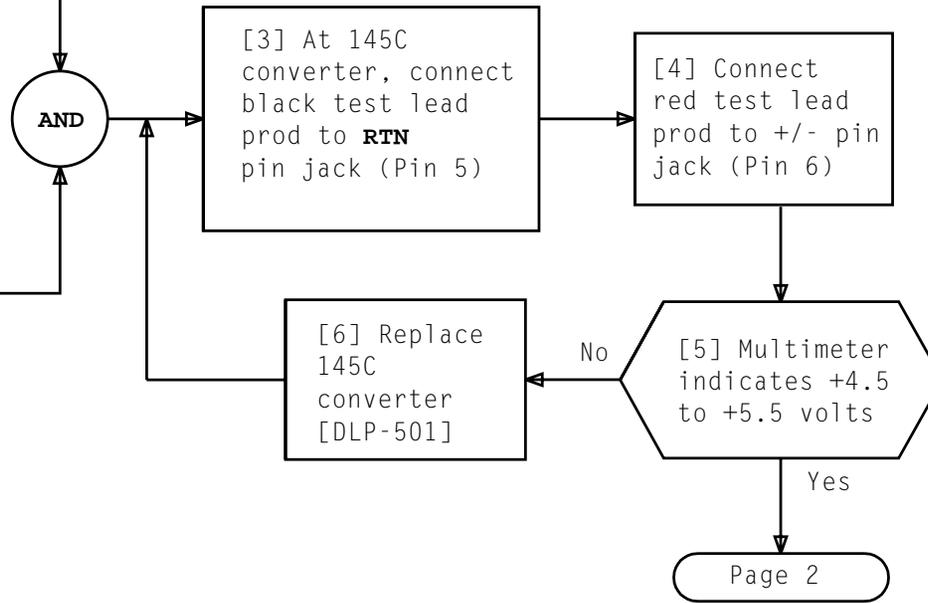


CHECK 145B CONVERTER +5, -5, AND +9.25 VOLT OUTPUTS

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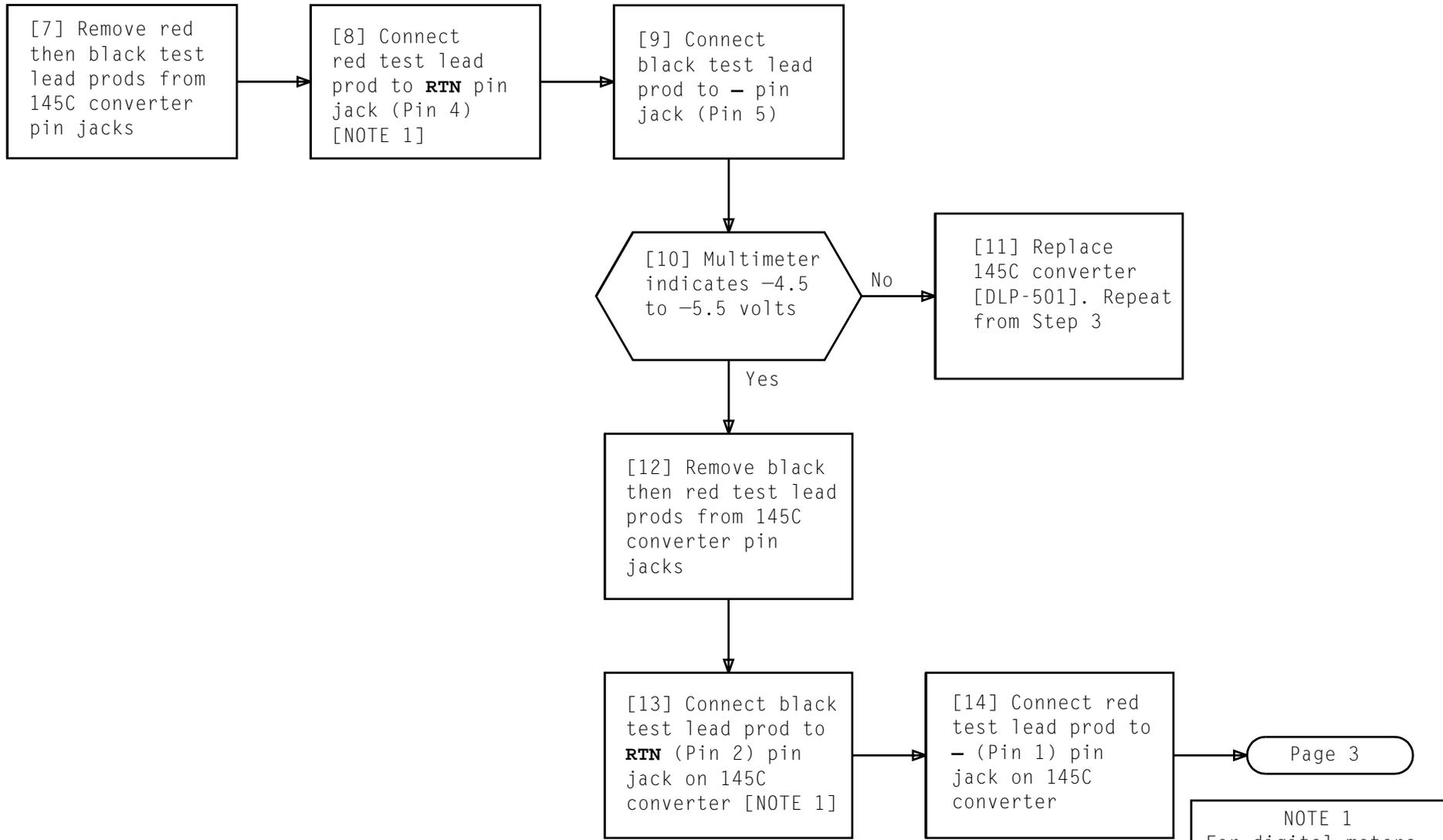
[1] Obtain FLUKE 8000A Digital Multimeter (or equivalent)

[2] Set FLUKE 8000A Digital Multimeter to measure DC voltage [DLP-506]



CHECK 145C CONVERTER +5, -5, AND -3.12 VOLT OUTPUTS

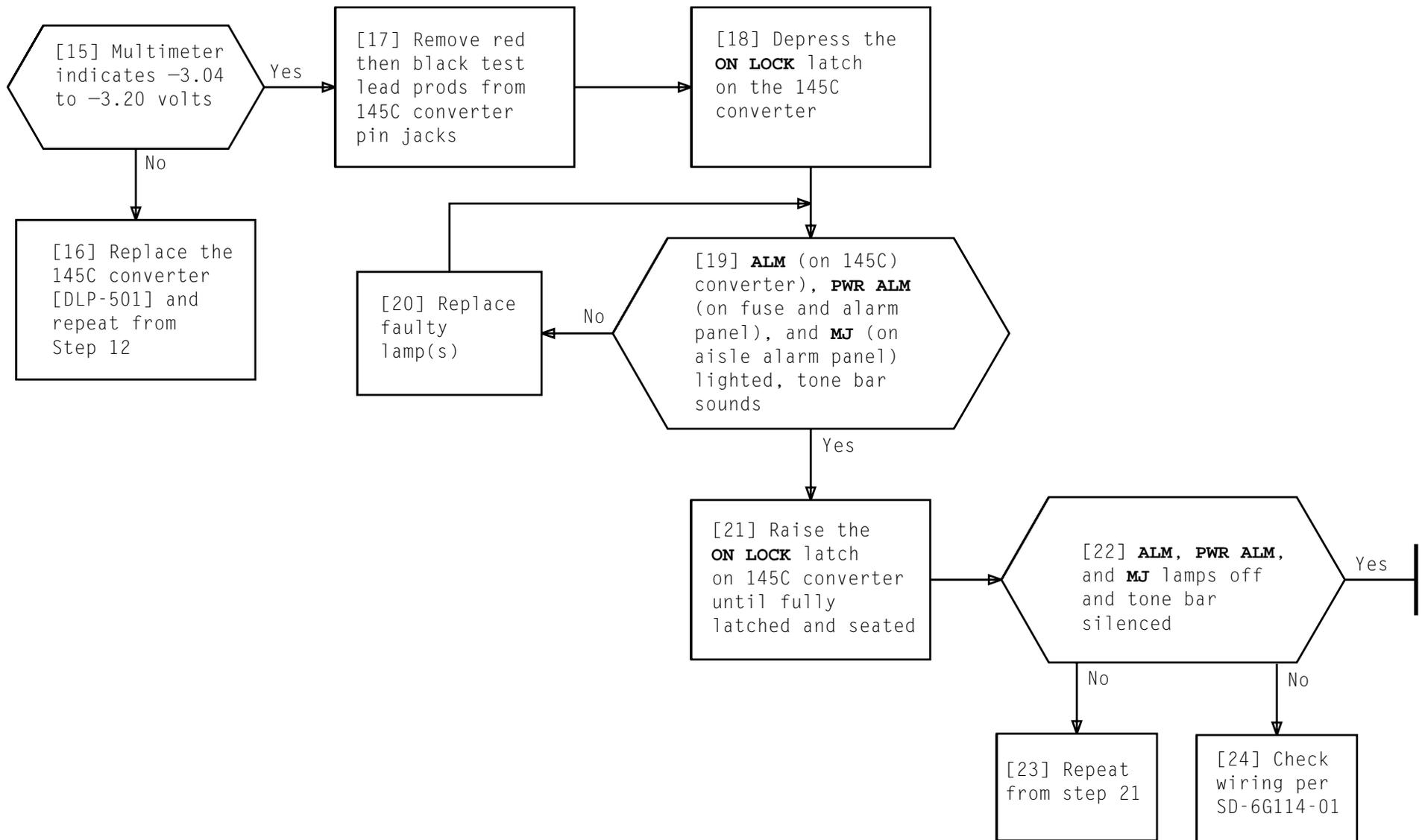
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NOTE 1
For digital meters,
leads should not
be reversed

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CHECK 145C CONVERTER +5, -5, AND -3.12 VOLT OUTPUTS



CHECK 145C CONVERTER +5, -5, AND -3.12 VOLT OUTPUTS

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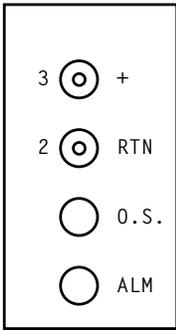
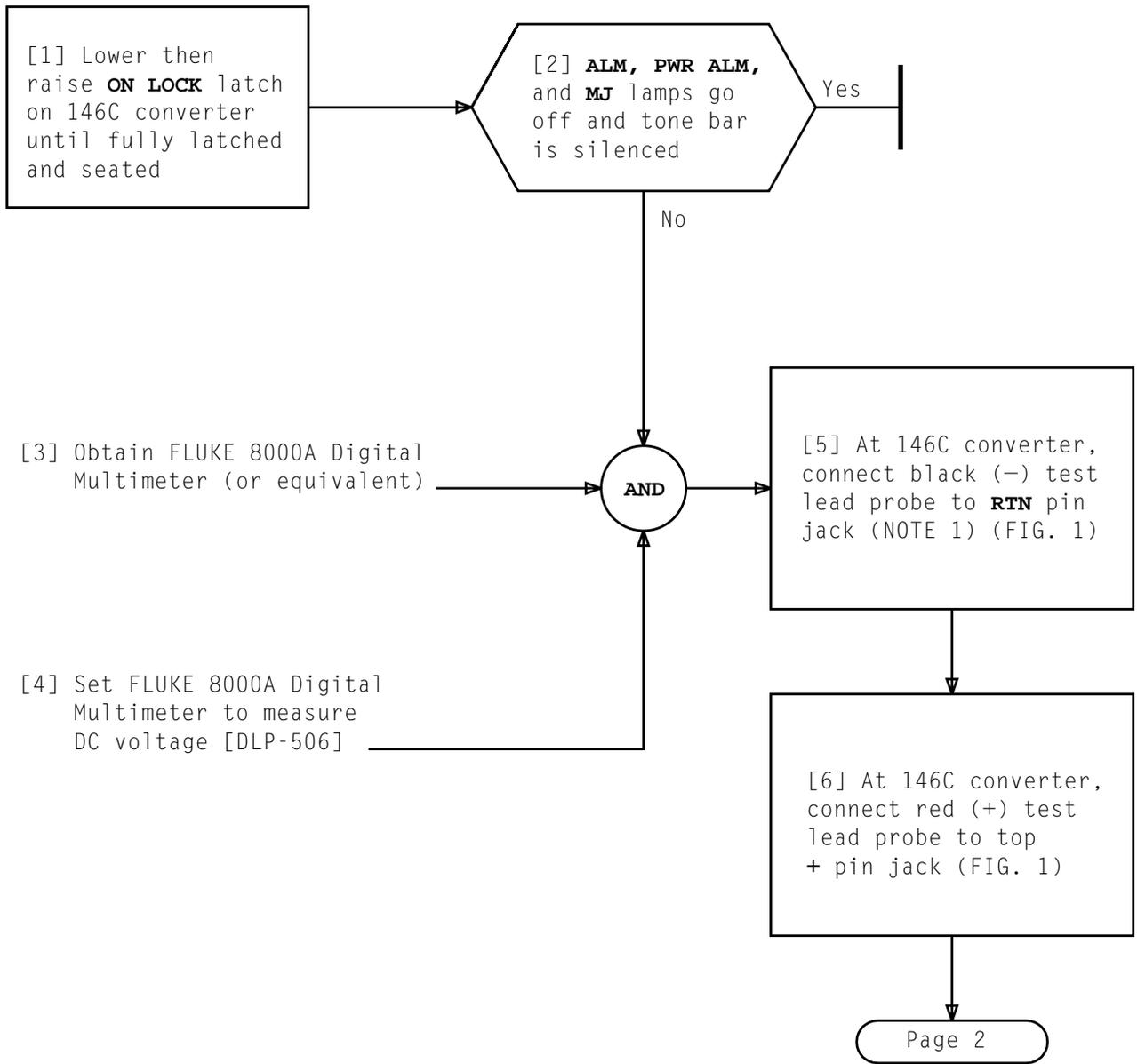
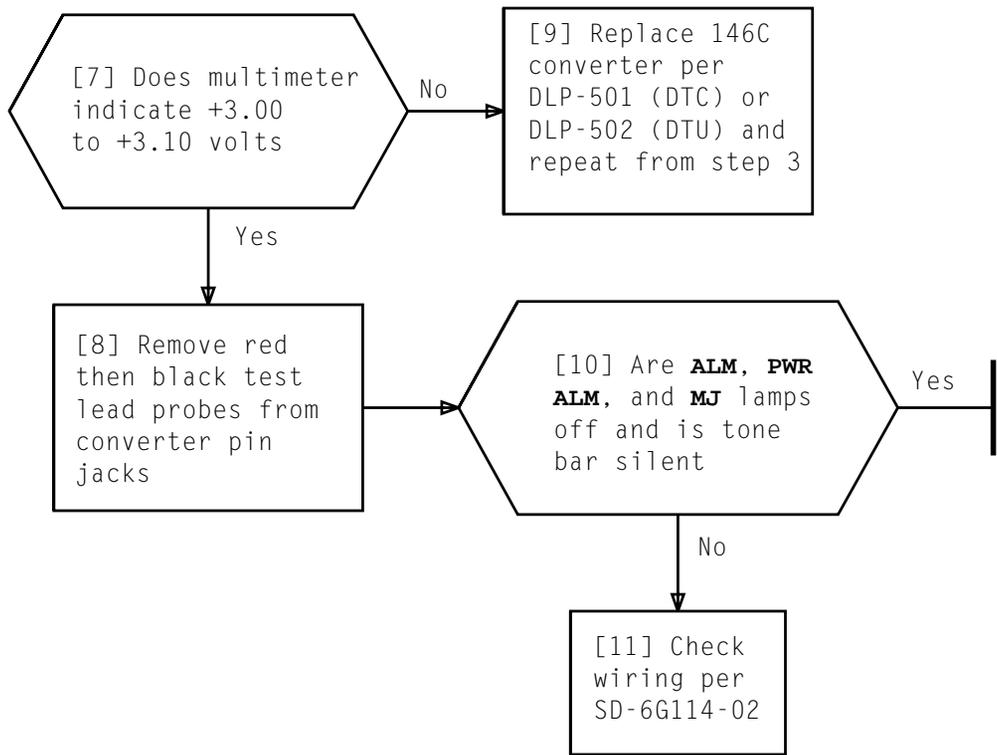


FIG. 1

NOTE 1	
Each DTU and each DTC contains one 146C converter	
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CHECK 146C CONVERTER +3.05 VOLT OUTPUT



CHECK 146C CONVERTER +3.05 VOLT OUTPUT

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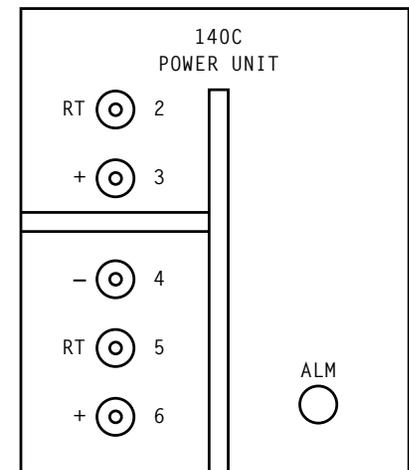
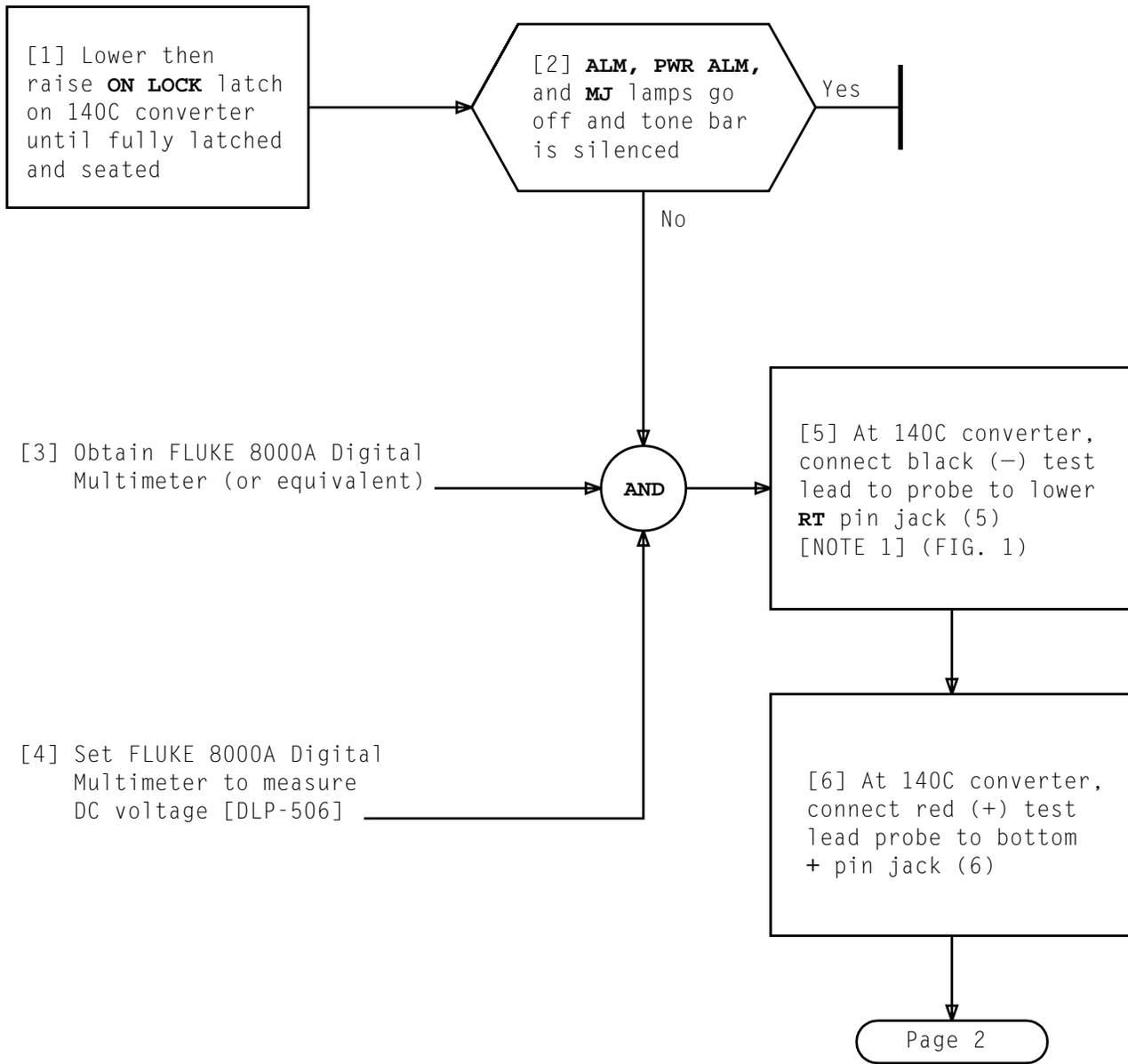
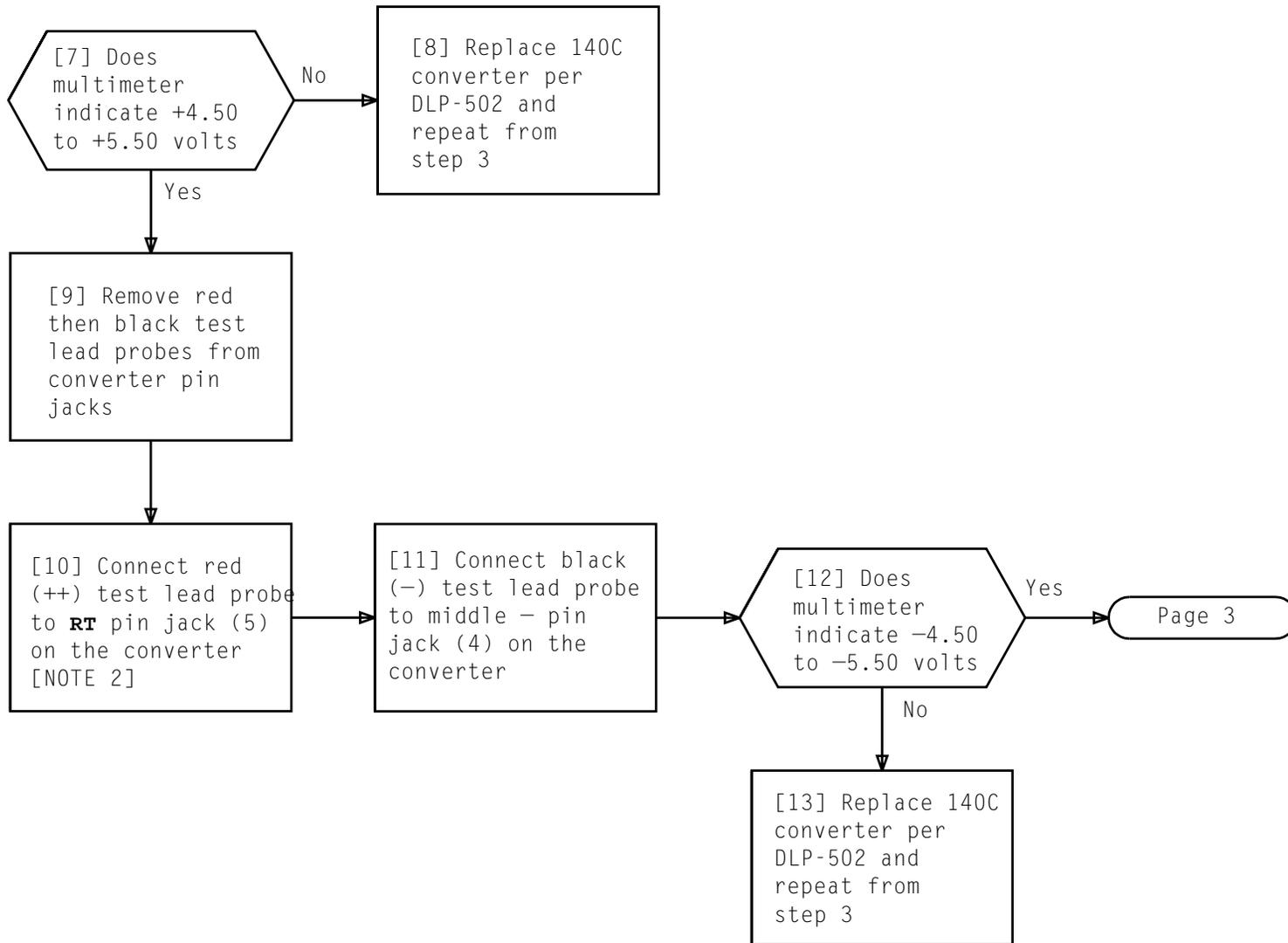


FIG. 1

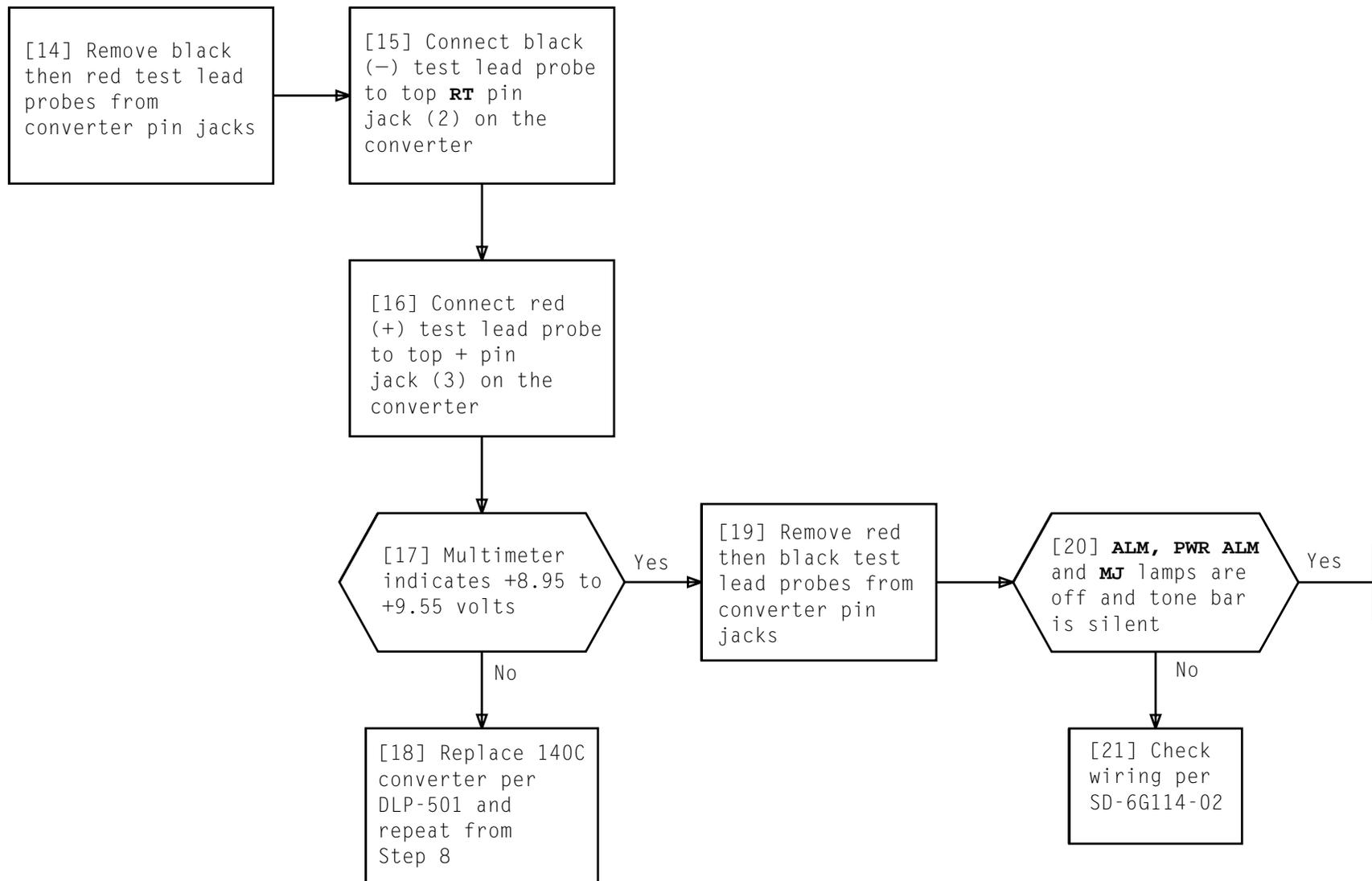
NOTE 1	
Each DTU (0-8) contains one 140C converter	
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CHECK 140C CONVERTER (DTU 0-8) +5, -5, AND +9.25 VOLT OUTPUTS



NOTE 2	
For digital multimeters, leads should not be reversed	
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CHECK 140C CONVERTER (DTU 0-8) +5, -5, AND +9.25 VOLT OUTPUTS



CHECK 140C CONVERTER (DTU 0-8) +5, -5, AND +9.25 VOLT OUTPUTS

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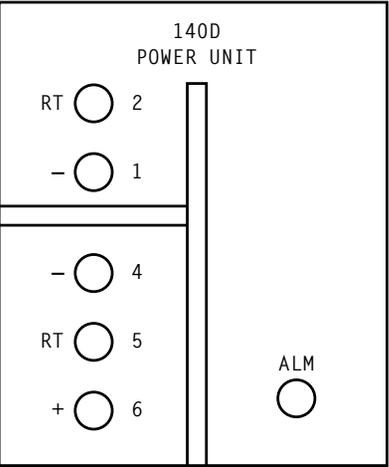
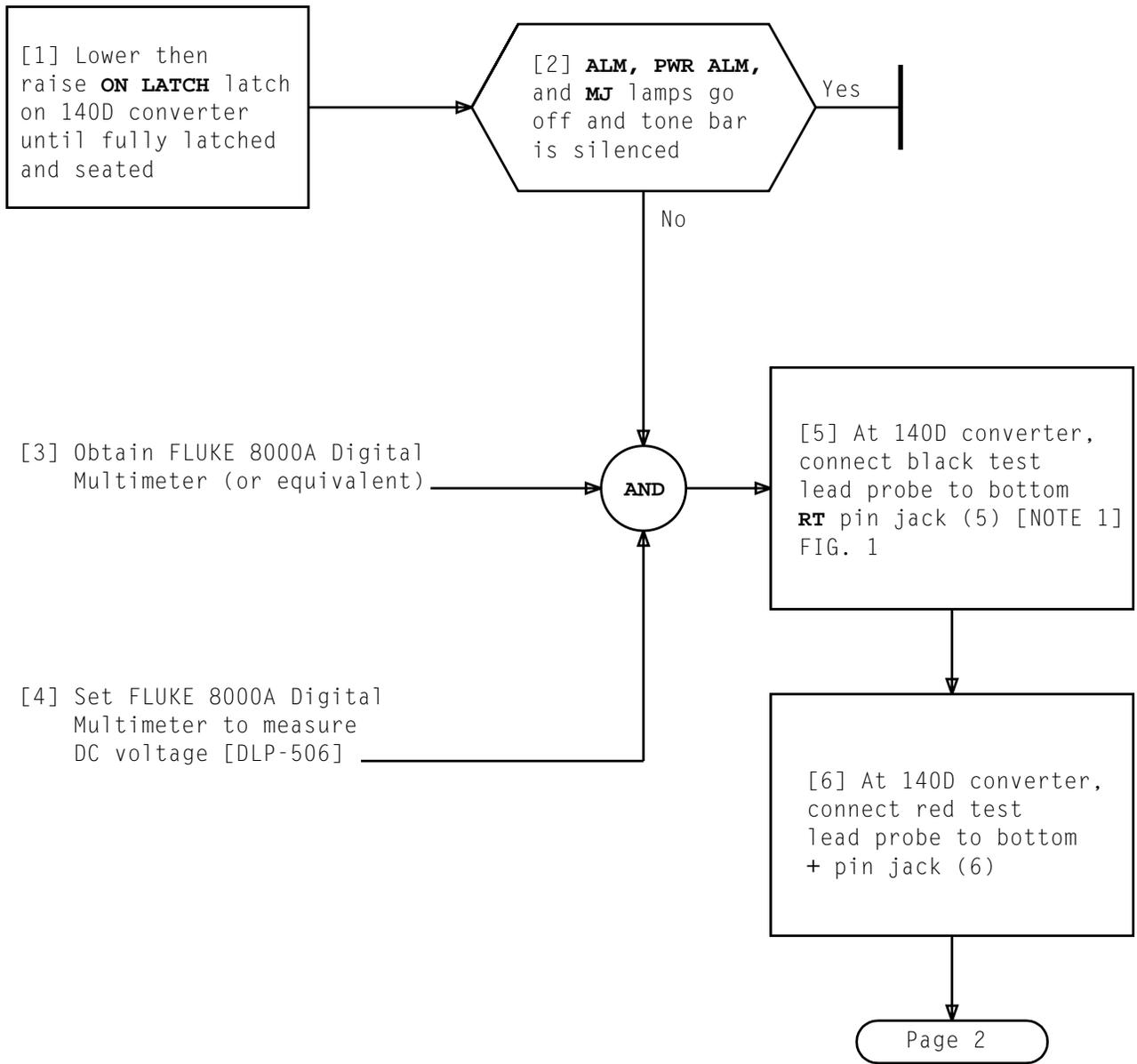
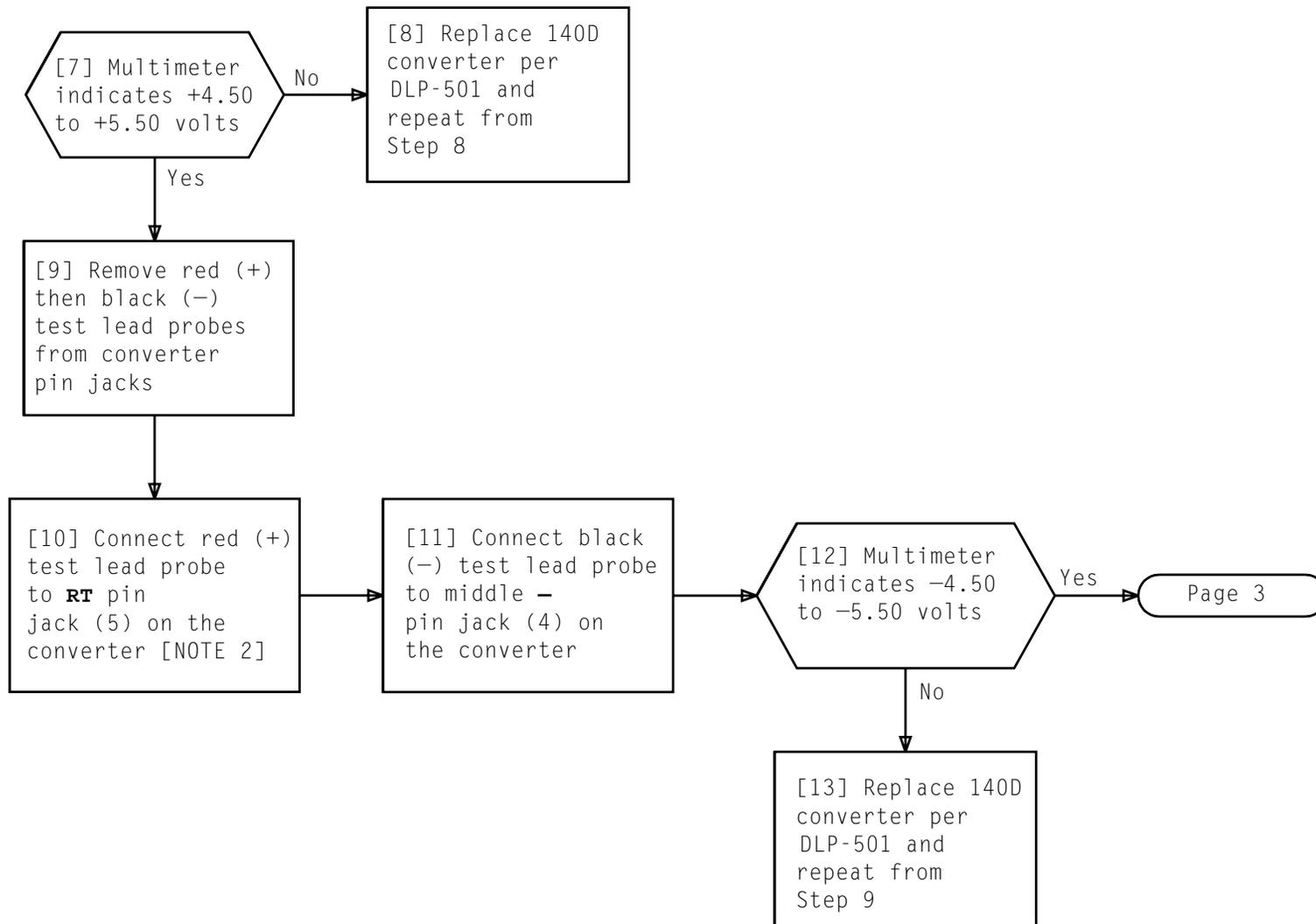


FIG. 1

NOTE 1
 140D converter circuit packs are located at 149-39 for DTC 0 and 157-39 for DTC 1

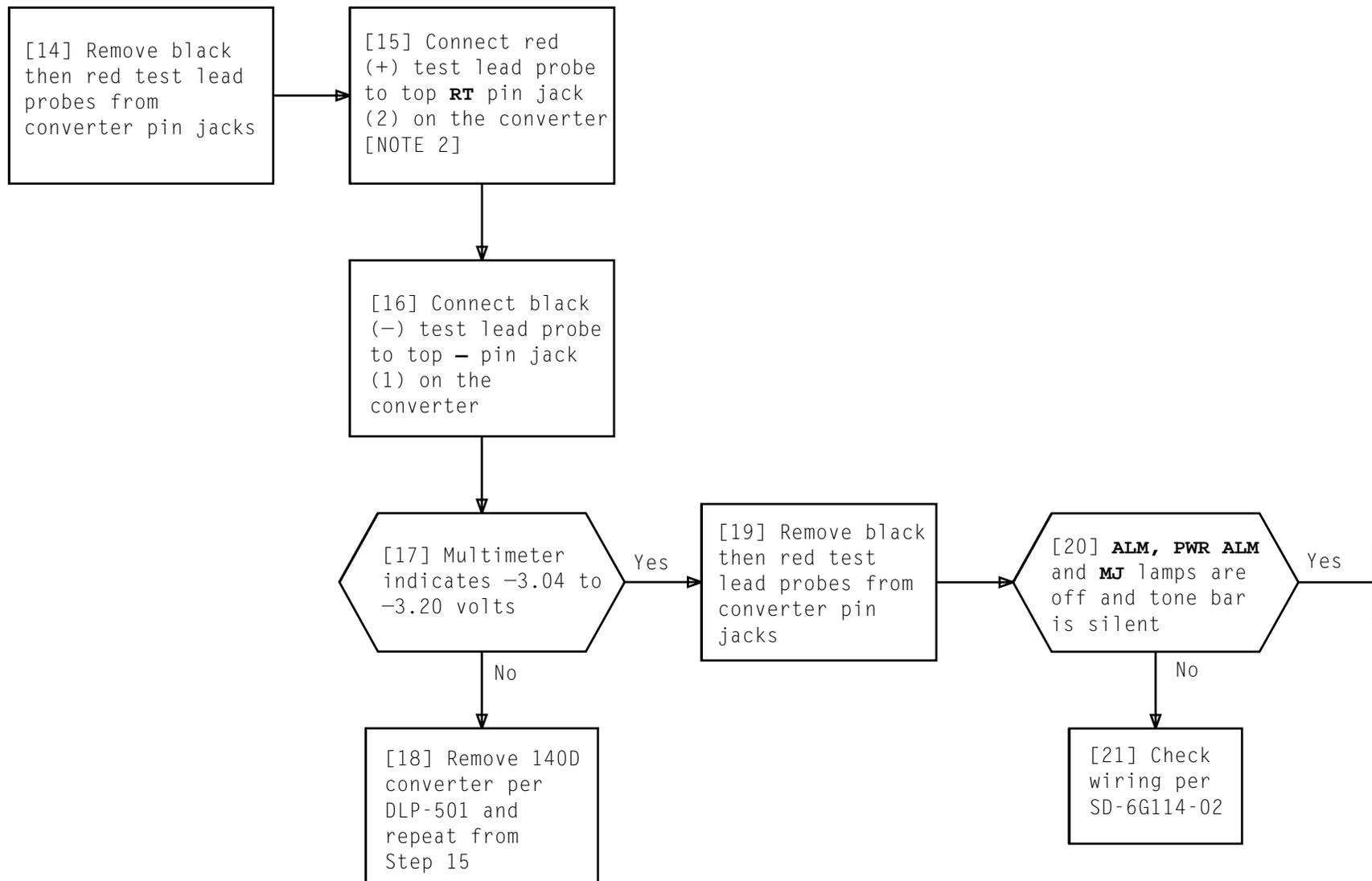
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CHECK 140D CONVERTER +5, -5, AND -3.12 VOLT OUTPUTS



NOTE 2	
For digital meters, leads should not be reversed	
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CHECK 140D CONVERTER +5, -5, AND -3.12 VOLT OUTPUTS



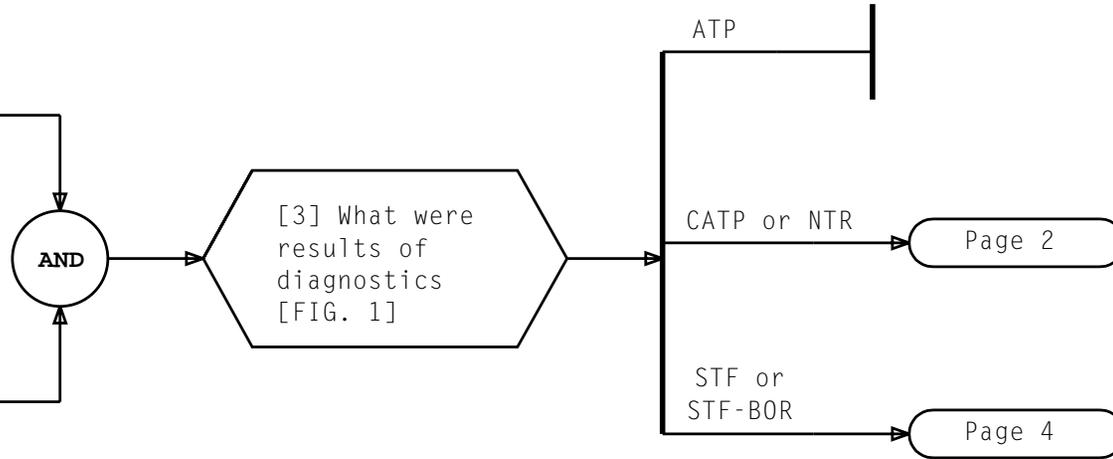
CHECK 140D CONVERTER +5, -5, AND -3.12 VOLT OUTPUTS

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Using FIG. 1:

[1] Note the member number
from diagnostic printout
[NOTE 1]

[2] Note phase failed



NOTE 1 Submember number should be noted if given, after member number	
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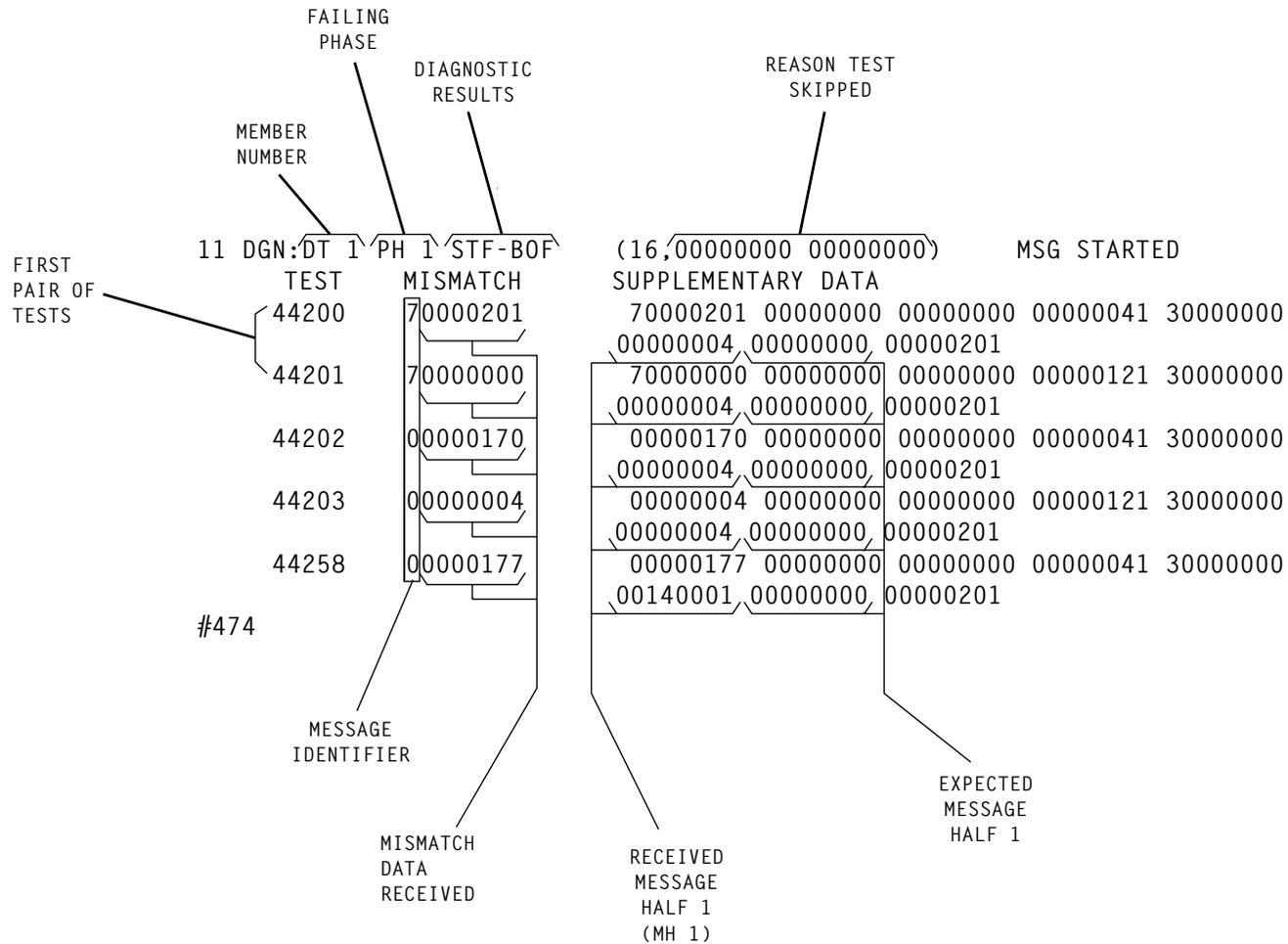


FIG. 1 - Example of Diagnostic Printout

[4] Convert octal reason for test skipped field to binary [FIG. 1 and 2]

[5] With the rightmost bit being 0 and the leftmost bit being 48, use TABLE A to find the reason test(s) were skipped

[6] Restore member on which diagnostic was performed
TABLE B (a, b = member number)

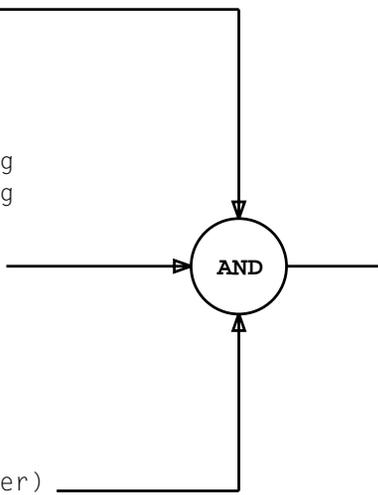
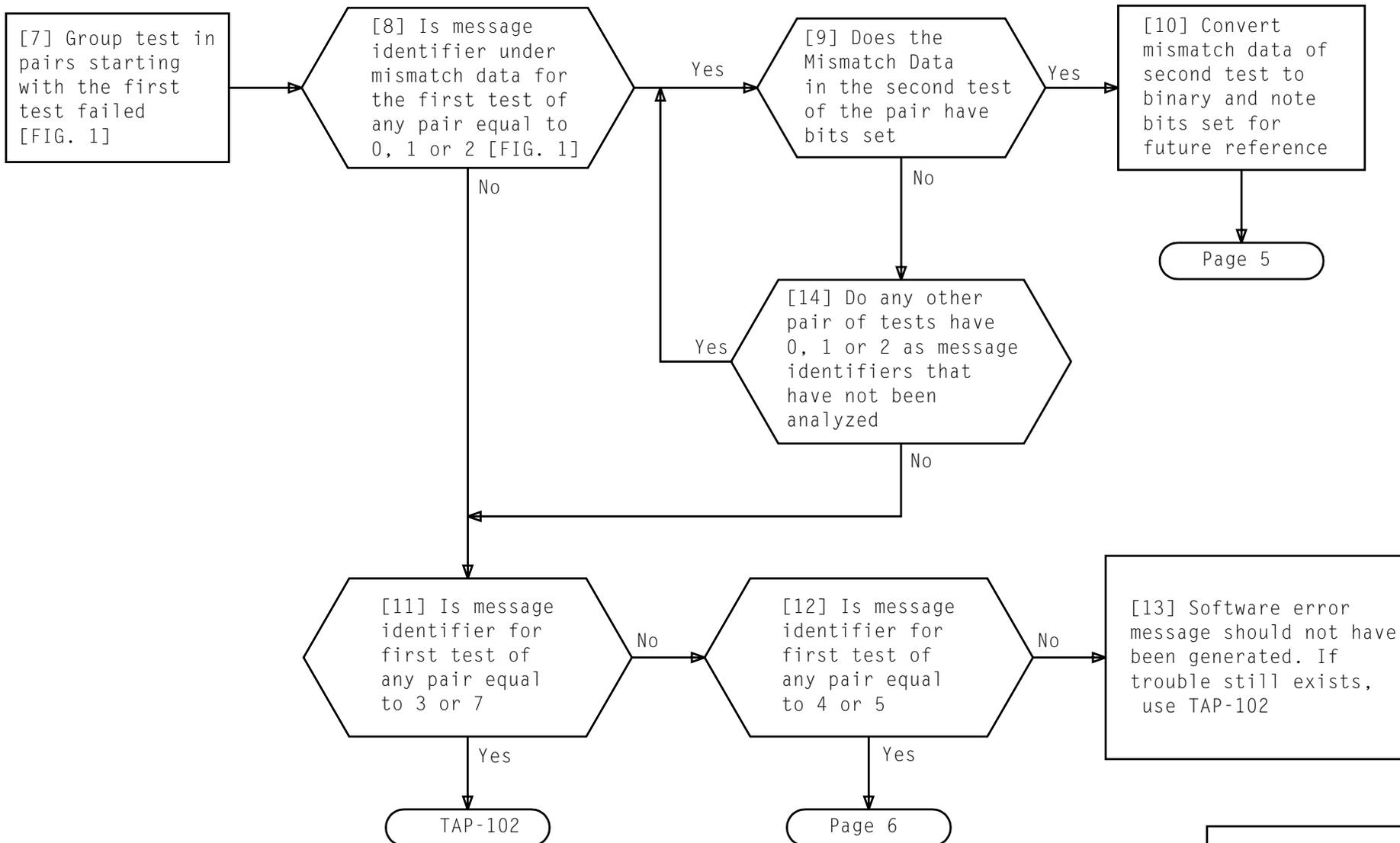


TABLE A	
BIT	REASONS FOR TESTS SKIPPED
0	PUB 0 out-of-service
1	PUB 1 out-of-service
2	Primary SP pulse points out-of-service
3	Secondary SP pulse points out-of-service
4	Mate unit out-of-service
5	Power control switch in ROS position or diagnostic requested from power control switch
6	CC 0 out-of-service
7	CC 1 out-of-service
8	CI has other units responding
9	MI has other units responding
10	GI has other units responding
11	PUB not duplex
12	DTSP2 link not in normal configuration
13	TST controller out-of-service
14	DTU protection switched
24	SP scan/distribute points out-of-service
27	DT returned failed from ignore request

TABLE B	
MEMBER TO BE RESTORED	INPUT MESSAGE
DT	RST:DTa!
Unit	RST:DTa,DTUb!
Controller	RST:DTa,CONTRb!



NOTE 2
Test must be analyzed in pairs

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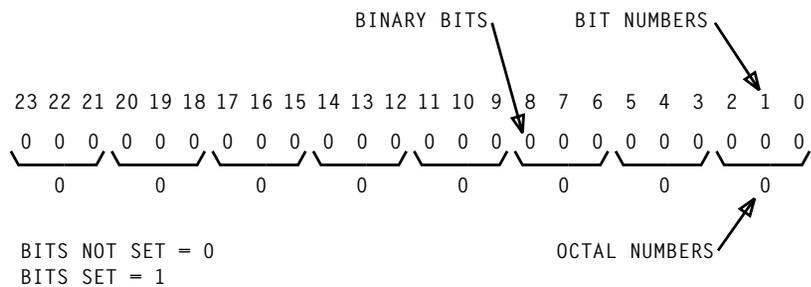
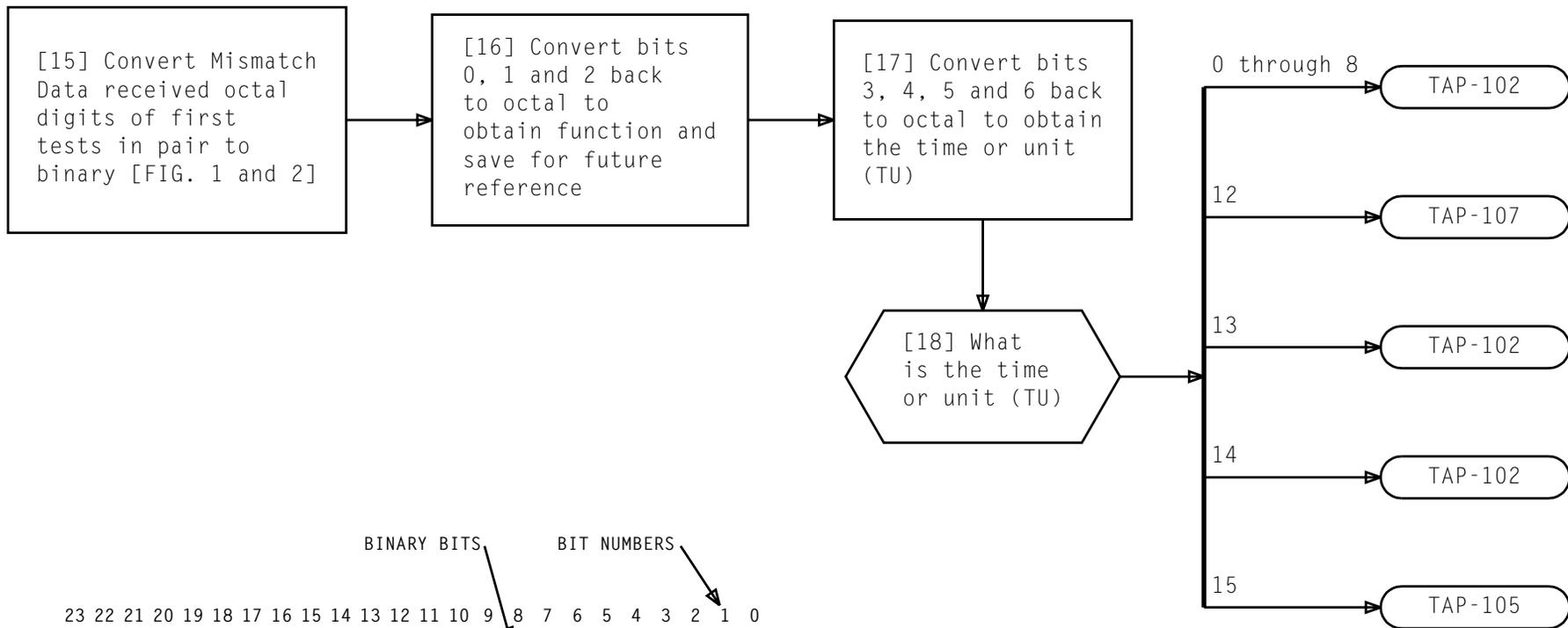
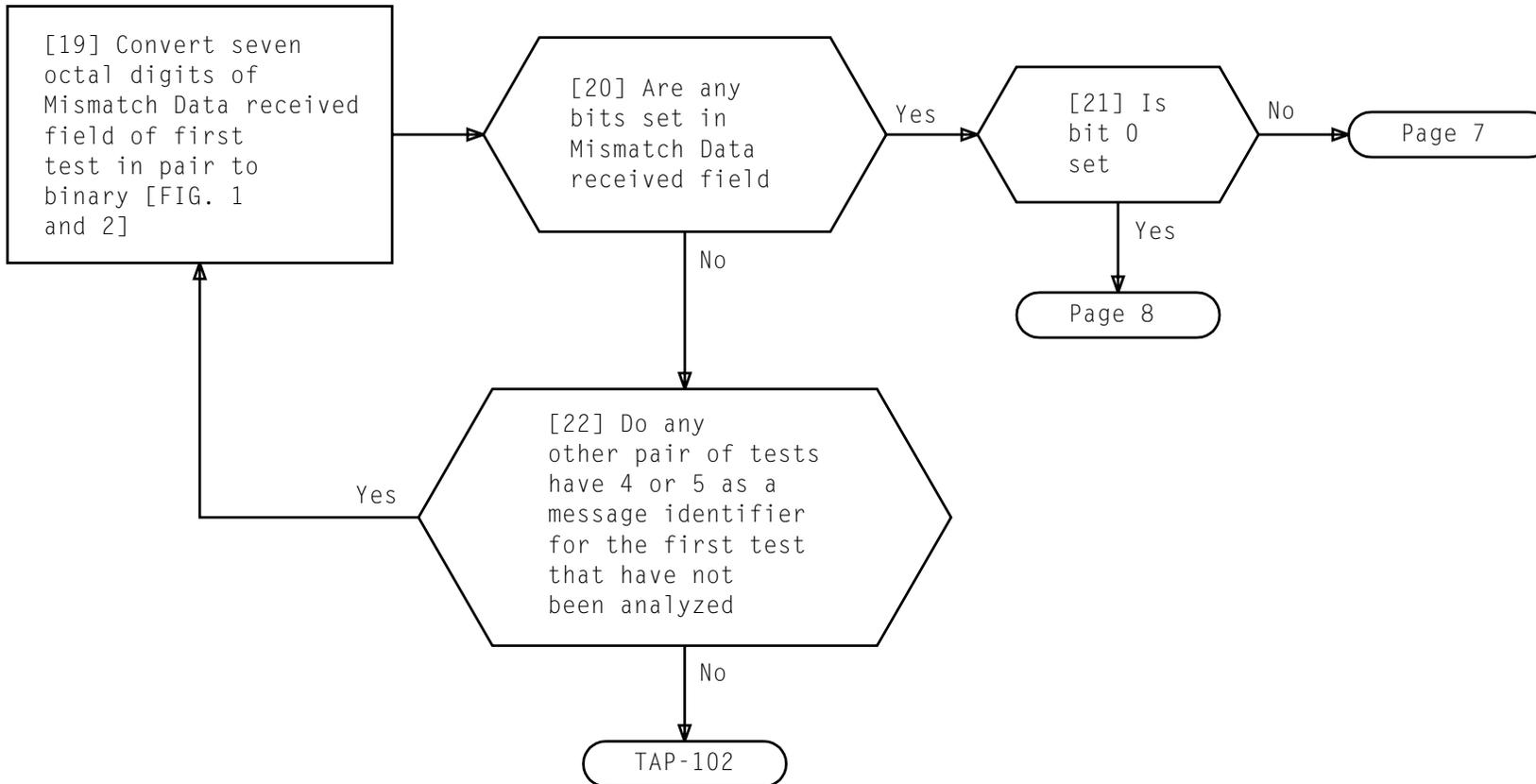
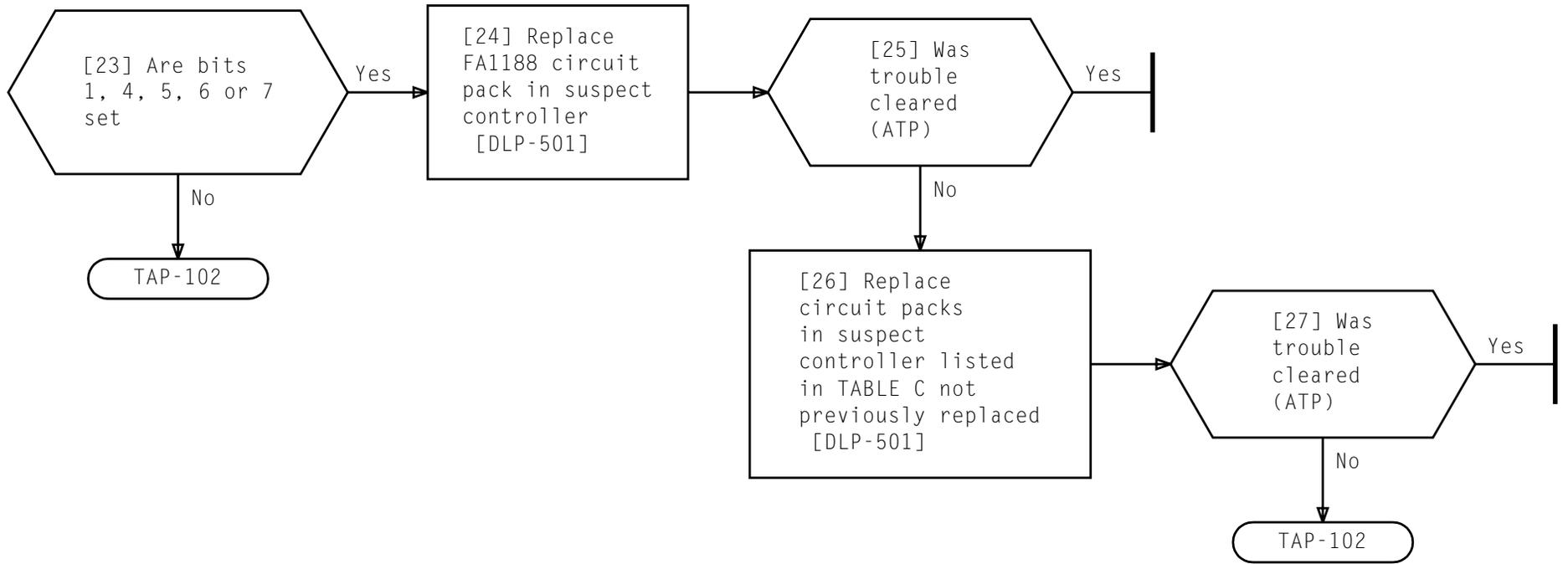


FIG. 2





ANALYZE RAW DIAGNOSTIC PRINTOUT

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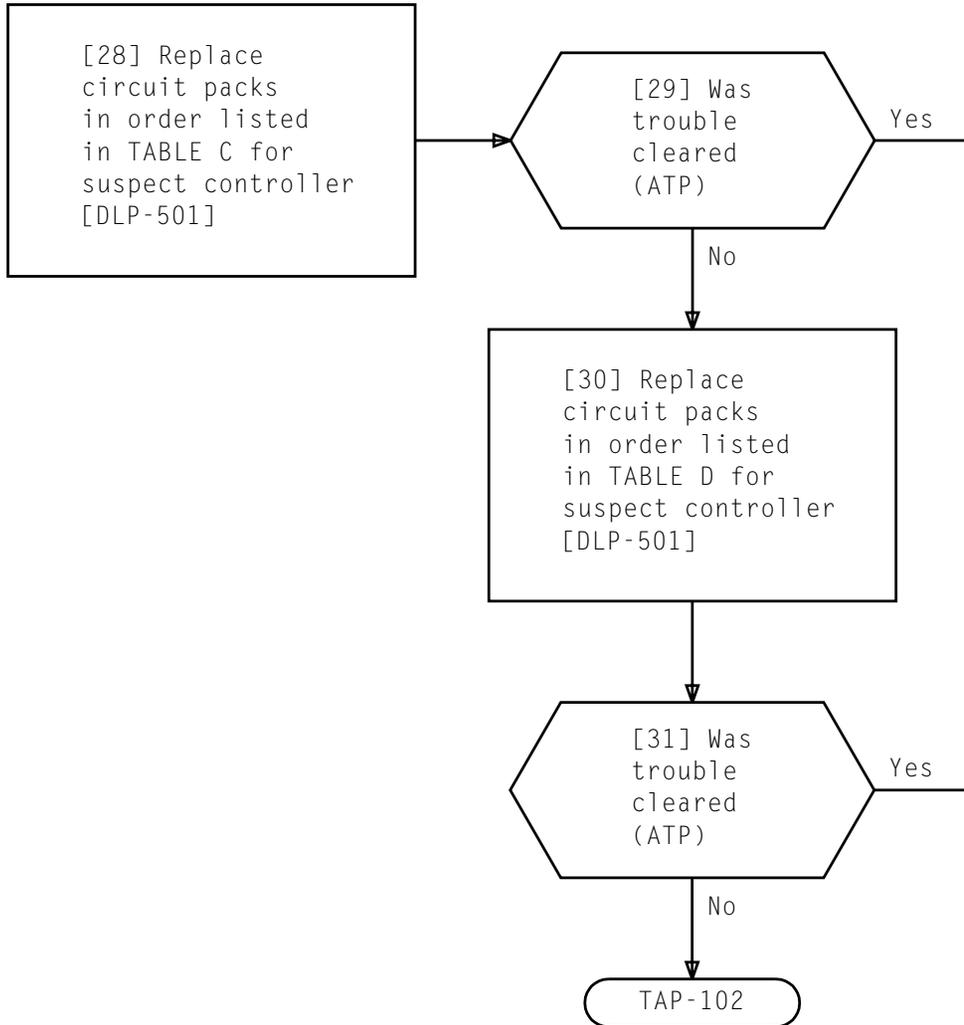


TABLE C	
ORDER	CIRCUIT PACKS
1	FA1188
2	FA1178
3	FA1179

TABLE D	
ORDER	CIRCUIT PACKS
1	FA1132
2	*FA1150
3	**FA1163
4	FA1156
5	FA1164
6	FA1165
7	*FB242
8	**FB242B

* Original DT only (SD-66114-01)
 ** Cost reduced DT only (SD-66114-02)

[1] [NOTE 1] Determine status of specified digroup by entering the following message:
 OP:DGSTAT,DT a,DTU b,DG c;NUM d!
 (a = digroup terminal number of digroup
 b = digroup terminal unit number of digroup
 c = digroup number
 d = number of consecutive ddgroups)

[2] Remove digroup that is in alarm by entering the following message:
 RMV:DT a,DTU b!

[3] Enter the following to check if alarm cleared:
 OP:DT a,DTU b!

[4] Did the alarm clear

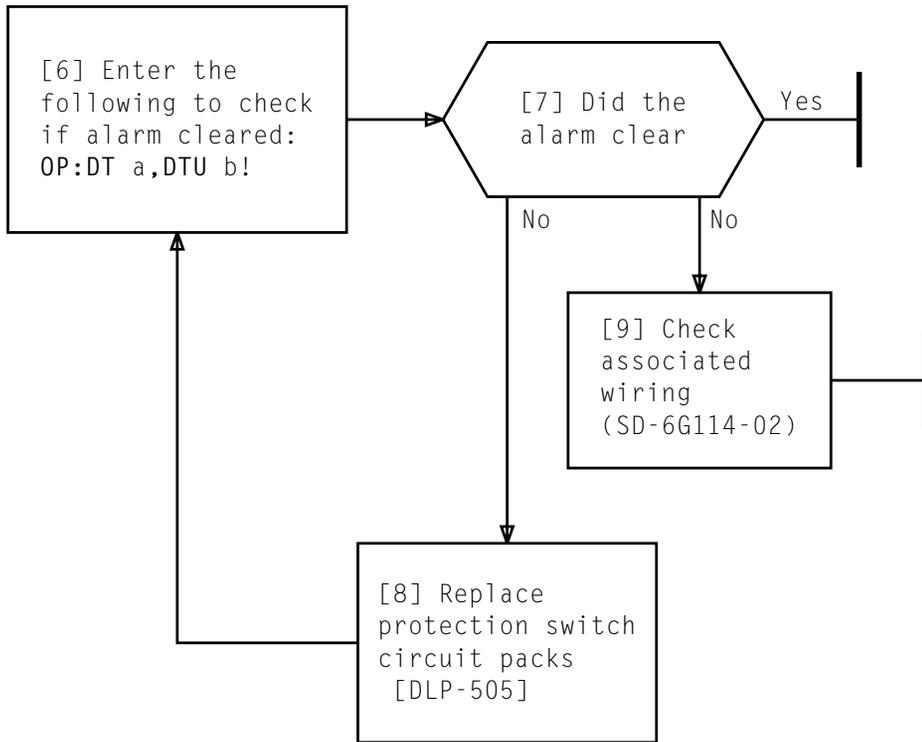
[5] Replace line equalizer packs [DLP-503]

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NOTE 1
 TOC will have looped carrier and checked before performing this procedure

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At the Fuse and Alarm Panel (180-28):

- [1] Depress and hold **LAMP TEST** pushbutton switch
- [2] Observe Fuse and Alarm Panel for lighted lamps per TABLE A
- [3] Observe **PWR OFF, U0-U8, C0** and **C1** (red) indicator lamps lighted at DTU and DTC shelf locations
- [4] Release **LAMP TEST** pushbutton switch

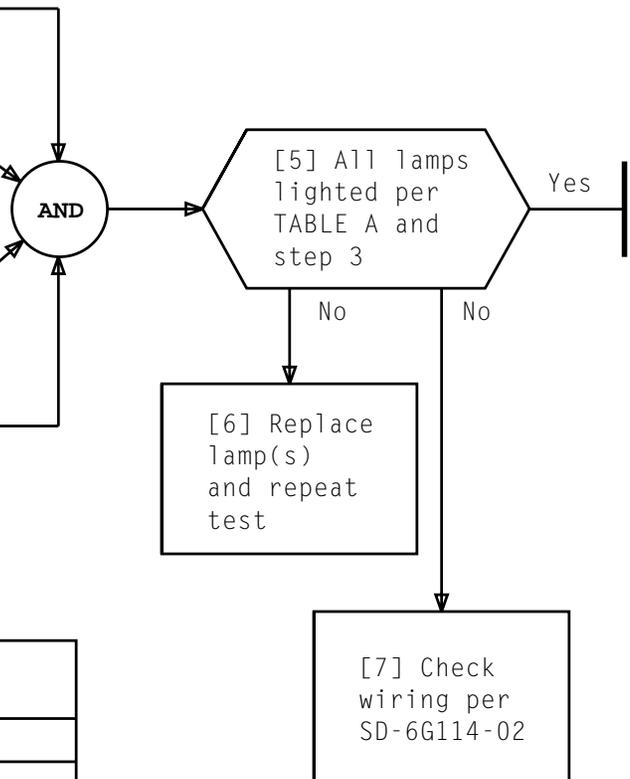
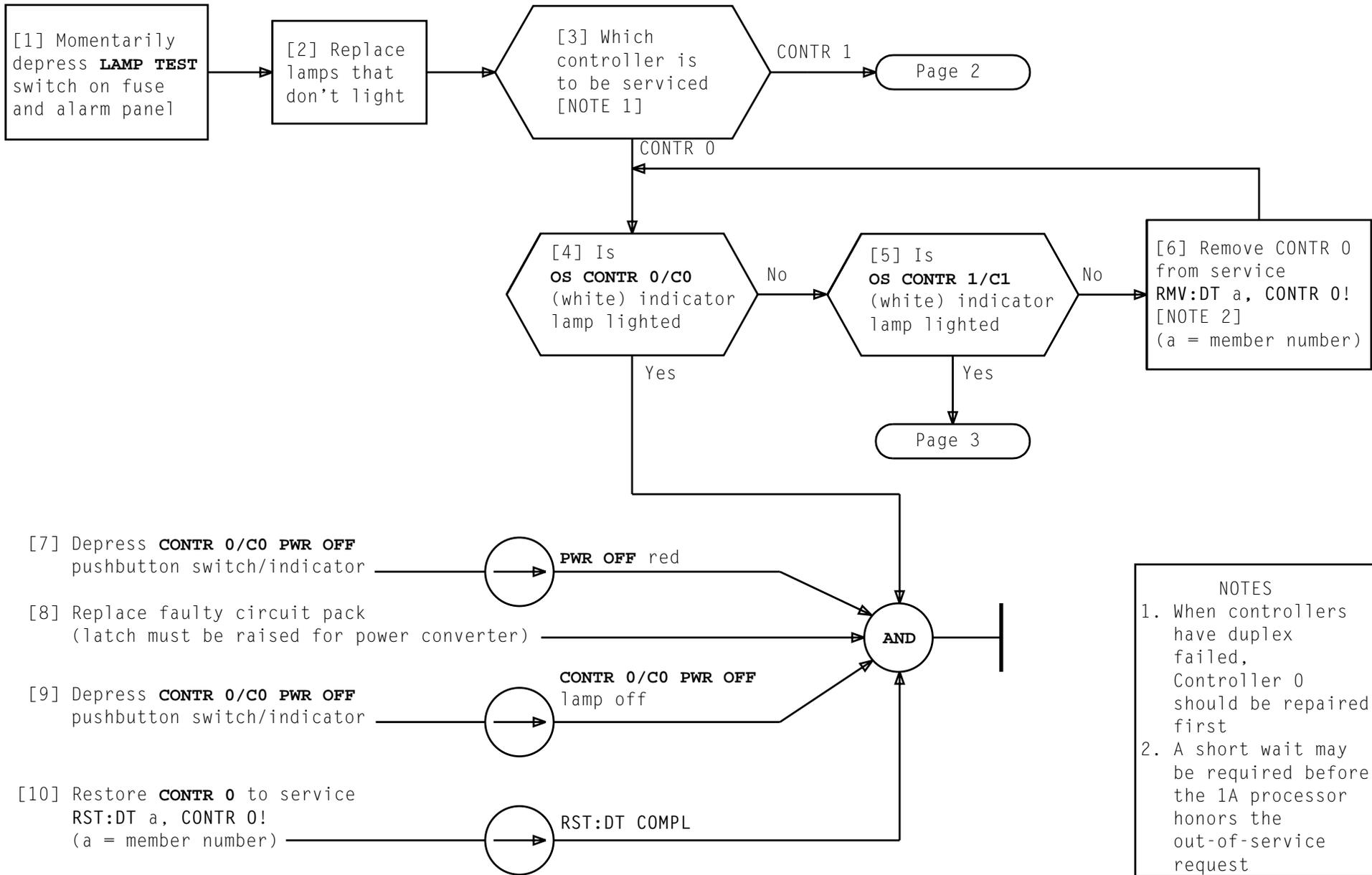


TABLE A FUSE AND ALARM PANEL INDICATOR LAMPS	
COST REDUCED DIGROUP TERMINAL	DIGROUP TERMINAL
OS-CONTR 0 (WHT)	OS-C0 (WHT)
PS-U0-U7 (RED)	PS-U0-U7 (RED)
OS-U8 (WHT)	OS-U8 (WHT)
OS-CONTR 1 (WHT)	OS-C1 (WHT)
PWR ALARM (RED)	PWR ALARM (RED)
UOS (WHT)	UOS (WHT)
PWR OFF-CONTR 0, U0-U8, CONTR 1 (RED)	PWR OFF-C0, U0-U8, C1 (RED)

PERFORM DIGROUP TERMINAL LAMP TEST

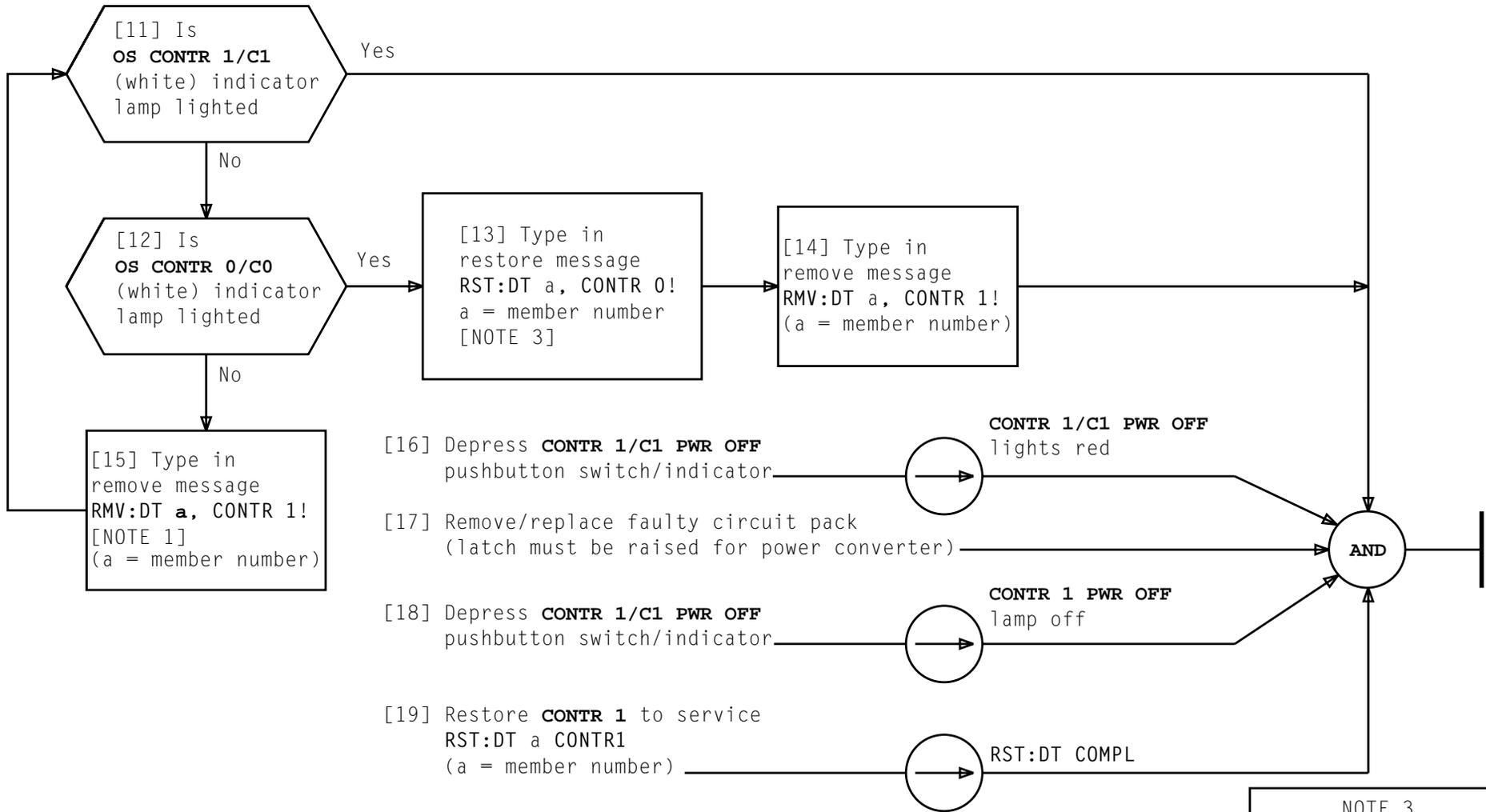


NOTES

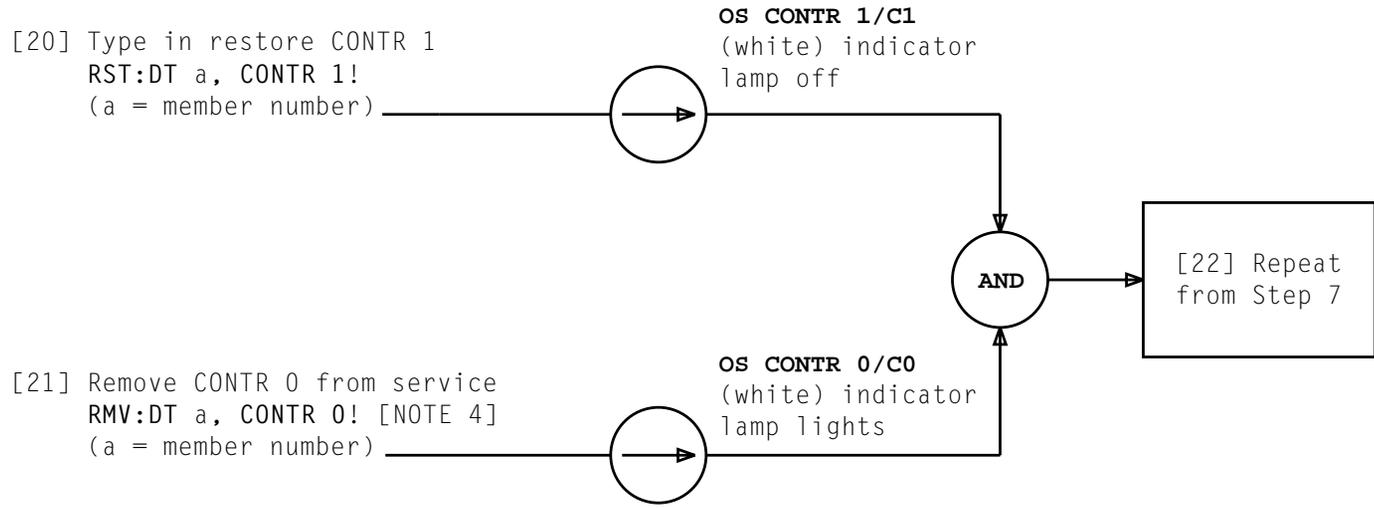
1. When controllers have duplex failed, Controller 0 should be repaired first
2. A short wait may be required before the 1A processor honors the out-of-service request

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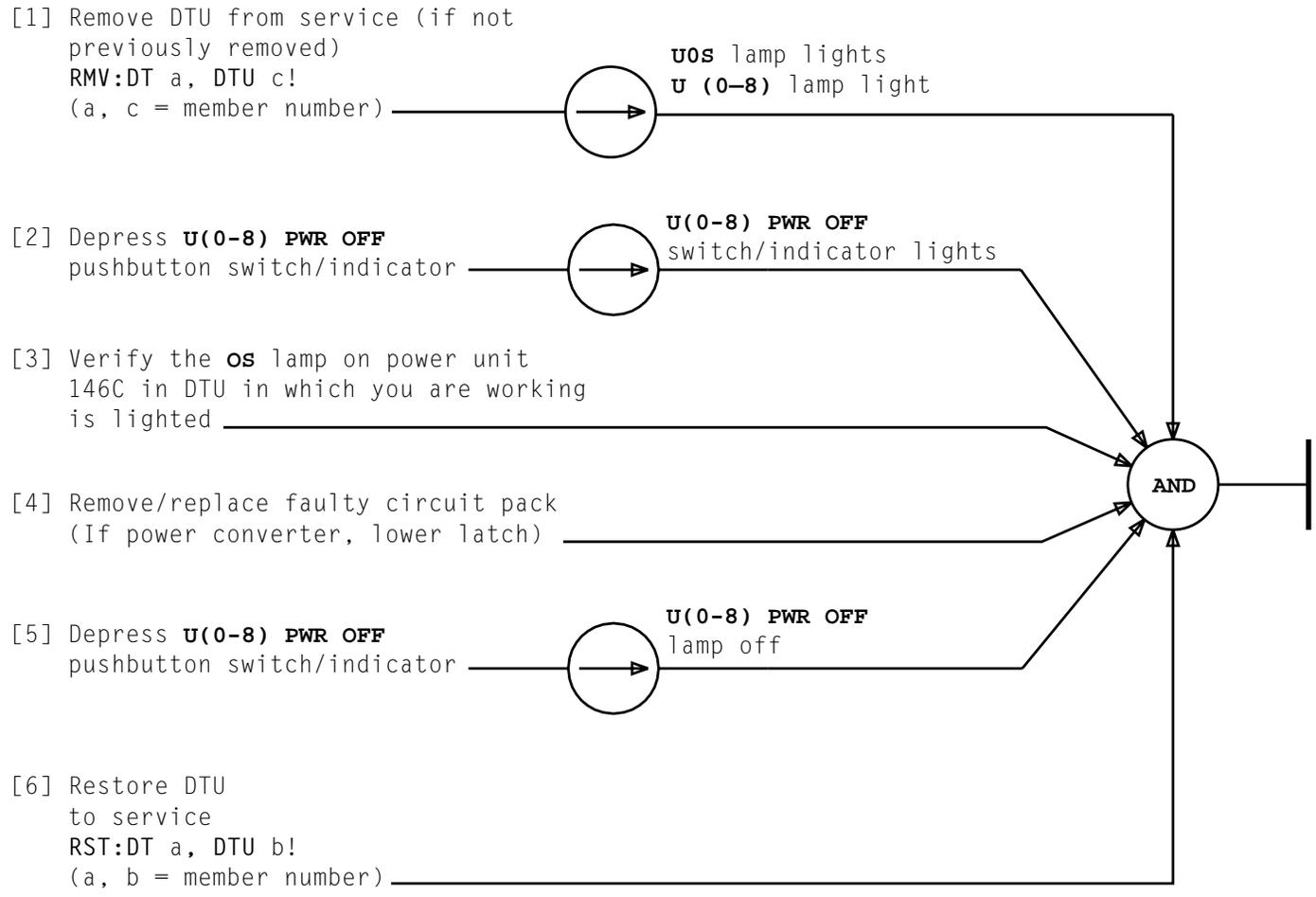
REPLACE CIRCUIT PACK – DIGROUP TERMINAL CONTROLLER



NOTE 3	
If controllers have duplex fail, the following should be entered	
RST:DT a, CONTR 0, UCL!	
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NOTE 4	
A short wait may be required before the 1A processor honors the out-of-service request	
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REPLACE CIRCUIT PACK – DIGROUP TERMINAL UNIT (DTU)

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- [1] Notify TOC to maintenance disable all 120 trunks. Type in
SET:TRKSTAT MTC DSA, TAN XXX: NUM 120!
 (Trunk Assignment Number (TAN) to be entered should be for trunk 0 of the DTU requiring service) _____

- [2] Verify with TOC that all 120 trunks are traffic idle (TRAF 00SI) and that far end has taken all 2-way and outgoing connecting trunks out of service
OP:TRKSTAT,TAN a,SUM:NUM 120, STAT TRAF <00SI>!
 a = decimal TAN number _____

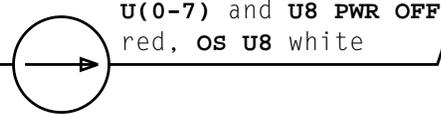
- [3] Pest DT. Type in
INH:DT a, SPEC!
 a = member number _____

- [4] Pest associated TSI Controller 0
INH:TSI a, CONTR 0, SPEC!
 (a, = member numbers) _____

- [5] Pest associated TSI controller 1
INH: TSIa, CONTR 1, SPEC!
 (a = member number) _____

- [6] [NOTE 1] Remove DTU from service. Simultaneously depress **U(0-7)** and **U8 PWR OFF** pushbutton switch/indicator _____

- [7] Remove/replace faulty line equalizer pack (see TABLE A for circuit pack list) _____

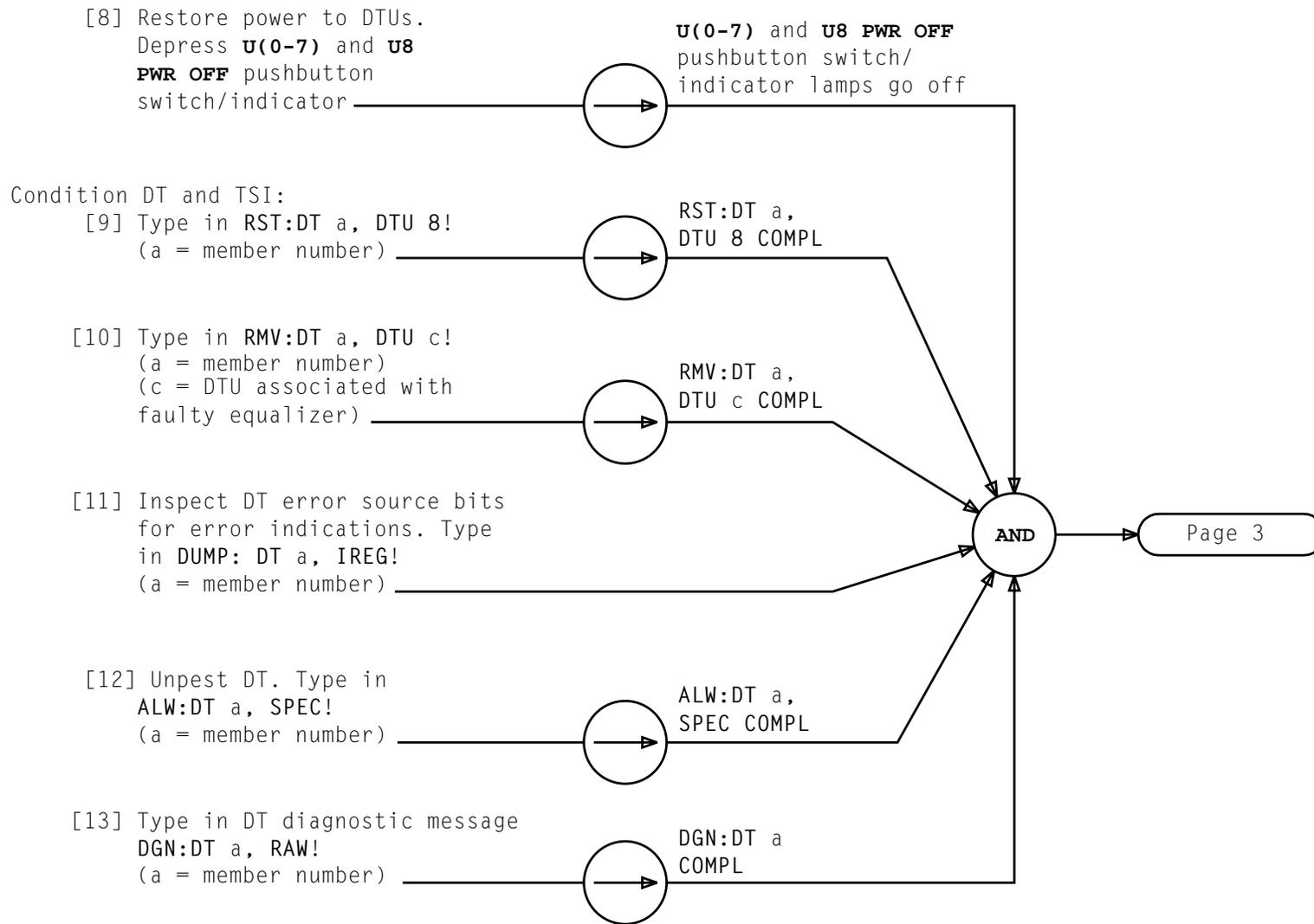


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TABLE A		
EQUALIZER CIRCUIT PACKS	LOCATION	
Digroup Terminal	FB236, FB237 FB238	0-75
Cost Reduced Digroup Terminal	FB246, FB247 FB248	0-75

NOTE 1 A base level interrupt is expected when you power down the spare DTU	
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REPLACE LINE EQUALIZER PACK – DIGROUP TERMINAL UNIT (DTU)



[14] Clear TSI critical registers
Type in
RST:TSI a, CONTR 0!
(a = member number)

[15] Inspect TSI error source
bits for errors. Type in
DUMP:TSI a, CREG!
(a = member number)

[16] Unpest TSI Controller 1
ALW:TSI a, CONTR 1, SPEC!

[17] Unpest TSI Controller 0
ALW:TSI a, CONTR 0, SPEC!
(a = member number)

[18] Restore DTU to service. Type in
RST:DT a, DTU c!

RST:DT a,
DTU c COMPL

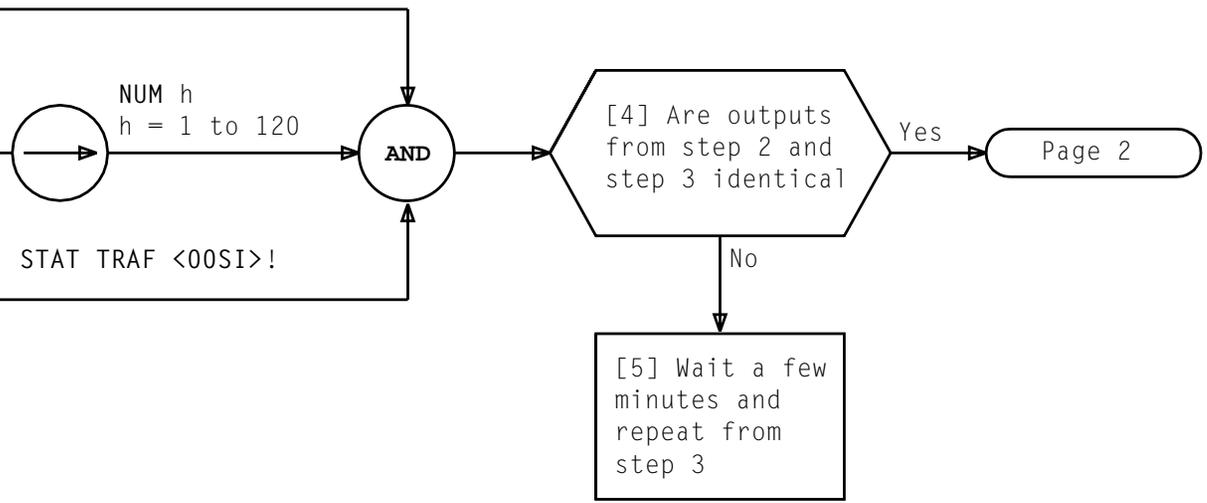
[19] Notify TOC to restore all 120 trunks
(previously removed) and far end to
restore 2-way and outgoing trunks
to their previous states before
pack(s) were removed

AND

[1] Notify TOC to maintenance disable all 120 trunks. Type in
 SET:TRKSTAT MTC DSA, TAN XXX: NUM 120!
 (Trunk Assignment Number (TAN) to be entered should be for trunk 0 of the DTU requiring service)

[2] [NOTE 1] Type in
 OP:TRKSTAT, TAN a; SUM:NUM 120!
 a = decimal TAN number

[3] Type in OP:TRKSTAT, TAN a; SUM:NUM 120, STAT TRAF <00SI>!
 a = decimal TAN number



NOTE 1	
The output variable h can be any number from 0-120	
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**REPLACE PROTECTION SWITCH CIRCUIT PACK (FC25/FC26) – DIGROUP
 TERMINAL UNIT (DTU)**

[6] See CAUTION 1. Pest the DT.
Type in INH:DT a, SPEC!
(a = member number)

[7] Pest TSI Controller 0
INH:TSI a, CONTR 0, SPEC!
(a = member number)

[8] Pest TSI Controller 1
INH:TSI a, CONTR 1, SPEC!
(a = member number)

[9] Depress, simultaneously, power
off switch/indicator for DTU
out of service **U(0-7)** and **U8**

U(0-7) and U8 PWR OFF
red, OS U8 white light

[10] Replace FC25 circuit pack in
faulty DTU (FC26 for DTU 8 spare)

[11] Depress, simultaneously, power
off switch/indicator for DTU
in step 9 and **U8**

U(0-7) and U8 PWR OFF
red extinguish



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CAUTION 1
Pesting the DT will not allow any fault to be reported. Therefore, pesting must be removed as soon as trouble is cleared

**REPLACE PROTECTION SWITCH CIRCUIT PACK (FC25/FC26) – DIGROUP
TERMINAL UNIT (DTU)**

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[12] Restore DTU and spare to service.
Type in RST:DT a, DTU b!
a, b = member numbers

[13] Clear TSI critical registers. Type in RST:TSI a, CONTR 0!
(a = member number)

[14] Inspect TSI error source bits for error indications.
Type in DUMP:TSI a, CREG!
a = member number

[15] Inspect DT error source bits for error indications.
Type in DUMP:DT a, IREG!
a = member number

[16] Remove TSI pesting.
Type in ALW:TSI a, CONTR 0, SPEC!
(a = member number)

[17] Remove TSI pesting for controller
1. Type in ALW:TSI a, CONTR 1, SPEC!
(a = member number)

[18] Remove DT pesting.
Type in ALW:DT a, SPEC!
(a = member number)



[19] Notify TOC to return trunks to service

**REPLACE PROTECTION SWITCH CIRCUIT PACK (FC25/FC26) – DIGROUP
TERMINAL UNIT (DTU)**

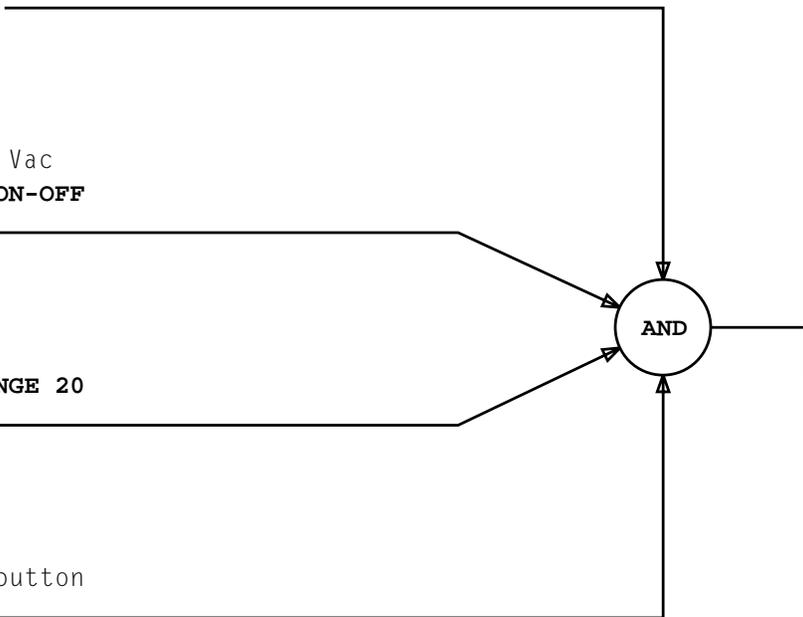
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[1] Connect black test lead to **COMMON** and red test lead to **V** pin jacks on multimeter

[2] Connect power cord to 120 Vac source and depress **POWER ON-OFF** pushbutton key

[3] See WARNING 1. Depress **RANGE 20** pushbutton key

[4] Depress **FUNCTION DCV** pushbutton key



*WARNING 1
The range and function switches should always be placed in the proper position before connecting the test lead probe to the circuit under test to prevent possible damage to the multimeter circuitry*

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[1] See CAUTION 1. Locate **DIAG/RST** key and **ACK** lamp on **COMM PNL** [TABLE A]

[2] See NOTE 1. Set **DIAG/RST** key to **DIAG** momentarily then to **RST** (**ACK** lamp lights, then extinguishes)

[3] After **ACK** lamp extinguishes, check **TTY** for **ATP**. See NOTE 1.

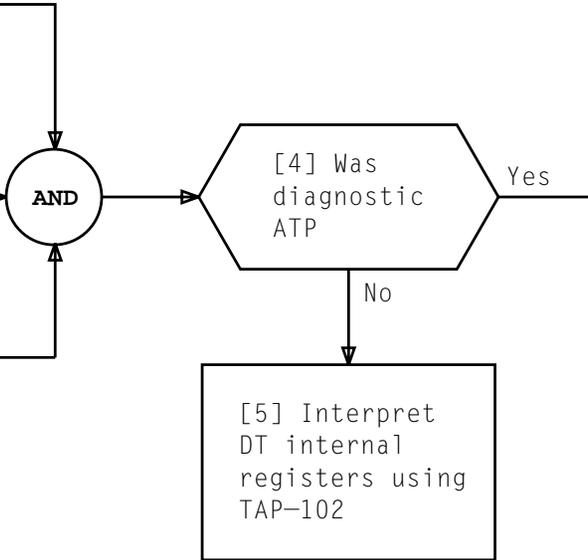


TABLE A COMMUNICATION PANEL LOCATION	
COST REDUCED DIGROUP TERMINAL	DIGROUP TERMINAL
165-30	154-30

CAUTION 1
May cause service degrading if performed with spare DTU in service

NOTE 1
ACK lamp may take up to 4 minutes to extinguish

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DIAGNOSE DIGROUP TERMINAL UNIT (DTU) USING DIAG/RST KEY

[1] Depress PWR OFF pushbutton switch/indicator per TABLE A for unit or controller with blown +140 volt fuse

[2] Remove/replace +140V fuse with a 70B type 2 amp fuse

[3] Depress PWR OFF pushbutton switch/indicator operated in Step 1

[4] Enter command to restore unit or controller to service using TABLE B (a,b = member numbers)

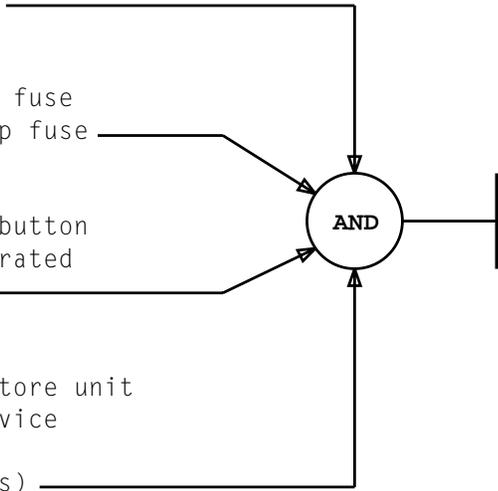


TABLE A			
FUSE	UNIT OR CONTR	SWITCH DESIGNATION	
		ORIGINAL DT (SD-6G114-01)	COST REDUCED DT (SD-6G114-02)
FA0	UNIT 0	U0	U0
FA1	UNIT 1	U1	U1
FA2	UNIT 2	U2	U2
FA3	UNIT 3	U3	U3
FA4	UNIT 4	U4	U4
FA5	UNIT 5	U5	U5
FA6	UNIT 6	U6	U6
FA7	UNIT 7	U7	U7
FA8	UNIT 8	U8	U8
FA9	CONTR 1	C1	CONTR 1
FA10	CONTR 0	C0	CONTR 0

TABLE B	
INPUT	MESSAGES
UNIT	RST:DT a,DTU b!
CONTROLLER	RST:DTa, CONTR b

REPLACE +140 VOLT FUSE

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE
CHECKLIST											
• IXL-001											
NTP-002											
• TAP-100											
• TAP-101											
• TAP-102											
• TAP-103											
TAP-104											
TAP-105											
TAP-106											
TAP-107											
TAP-108											
• TAP-109											
• TAP-110											
TAP-111											
• TAP-112											
• TAP-113											
• TAP-114											
• TAP-115											
DLP-500											
• DLP-501											
DLP-502											
• DLP-503											
• DLP-504											
• DLP-506											
• DLP-507											
DLP-508											
CKL-891											
TNG-893											
• DPL-895											

• REVISED OR ADDED ITEM

□ CANCELED ITEM

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CHECKLIST