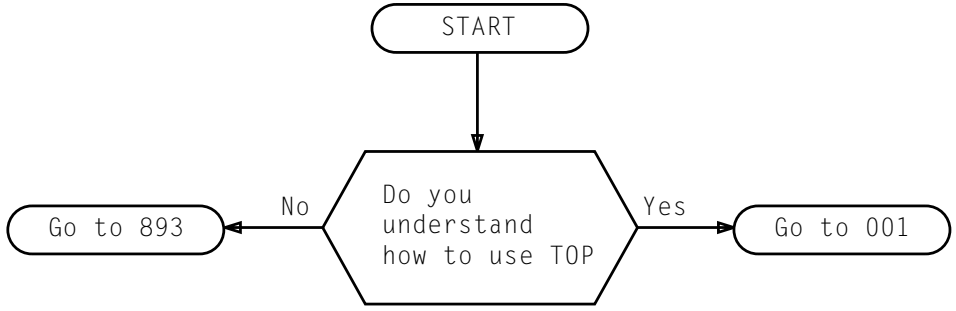
Lucent Technologies
Bell Labs Innovations

Task Oriented Practice (TOP)

4ESS™ Switch
With 1B Processor
Peripheral Unit Bus System
Growth/Degrowth



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Developed by:

Lucent Technologies Systems for Customer Training and Information Products (CTIP)
Lucent Technologies is the successor to the business and assets of AT&T Network Systems business unit.

FIND YOUR JOB IN THE LIST BELOW . . . . . THEN GO TO

Acceptance NTP-002

Add Half 1 Plug-in Units to PUB Branching and Loop Around Unit (Support to Installer) NTP-004

Add PUB Branching and Loop Around Unit(s) to PUBB Frame (Support to Installer) NTP-003

Degrown Frame(s) From End of PUB Branch — Remove (Support to Installer) NTP-008

Degrown Frame(s) Between Two Operational Frames From PUB Branch — Remove (Support to Installer) NTP-009

Extend PUB Branch From PUBB Frame to Growth Frame(s) (Support to Installer) NTP-005

Extend PUB Branch From Operational Frame to Growth Frame(s) (Support to Installer) NTP-006

Half 1 Plug-in Units to PUB Branching and Loop Around Unit — Add (Support to Installer) NTP-004

Insert Growth Frame(s) Into PUB Branch Between Two Operational Frames (Support to Installer) NTP-007

PUB Branch From PUBB Frame to Growth Frame(s) — Extend (Support to Installer) NTP-005

PUB Branch From Operational Frame to Growth Frame(s) — Extend (Support to Installer) NTP-006

PUB Branch Between Two Operational Frames — Insert Growth Frame(s) Into (Support to Installer) NTP-007

PUB Branch — Remove Degrown Frame(s) From End of (Support to Installer) NTP-008

PUB Branch — Remove Degrown Frame(s) Between Two Operational Frames From (Support to Installer) NTP-009

PUB Branching and Loop Around Unit(s) to PUBB Frame — Add (Support to Installer) NTP-003

Remove Degrown Frame(s) From End of PUB Branch (Support to Installer) NTP-008

Remove Degrown Frame(s) Between Two Operational Frames From PUB Branch (Support to Installer) NTP-009

Acceptance tests are not required for verification of growth procedures contained in this volume. Readiness of a frame or unit to become a part of the operating system is established by the successful completion of the particular growth procedure in its entirety.

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO

		RESPONSIBILITY	
	NOTE: Associated Installation Handbook — 264A, Volume II, Section 125		
1	Notify Next Higher Support Organization That PUB Work is Beginning	TELCO	—
2	Verify PUBB Frame Unit Type (UT) Translator and Compare Translation Data Against Wiring Records:		
	1. Verify Unit Data of PUBB UT Translator (**VER:UTYPE:PUBB 0!**)	TELCO/INST	DLP-500
	2. Compare Translation Data Against Wiring Records (for SME and Version Status)	INST	—
	3. At 1B Processor MTC Terminal, Enter **INH:MACLI,CLASS MTCE;REX!** And **STOP:TEST;PUSYS!**	TELCO	—
3	At 1B Processor MTC Terminal, Enter Message to Run Peripheral Unit Bus 0 Diagnostic Using Using Restore Message **(RST:PUB 0!)**	TELCO	DLP-504
4	At 1B Processor MTC Terminal, Enter Message to Run Peripheral Unit Bus 1 Diagnostic Using Using Restore Message **(RST:PUB 1!)**	TELCO	DLP-504
5	Recent Change and Verify Submember Equipage UNEQ to GROW (Half 0)	TELCO	DLP-505
6	Recent Change and Verify Submember Equipage GROW to SGRO (Half 0)	TELCO	DLP-505
7	At 1B Processor MTC Terminal, Enter Message to Remove Peripheral Unit Bus 0 From Service **(RMV:PUB 0!)**	TELCO	DLP-506
8	Remove Power With Power Switch (**PUB0** — Bay 0 Growth Associated PUBB Frame)	TELCO	—
9	Mount and Cable Half 0 PUBB 0 and Loop Around Unit (Bay 0)	INST	—
10	Remove Power At The Power Switch On IO/IOP 0 IPUB0	TELCO	—
11	Relocate PU Bus Cables on IO/IOP From Previous Branching And Loop-Around Unit And Install Them on New Unit	INST	—
12	Remove The Two Pulse Point BTR Assemblies From Preceding Branching And Loop-Around Unit And Install Them on Added Unit	INST	—
13	Connect All Intra-Frame Cables	INST	—
14	Install BTR Assemblies on Bus Branch Unit	INST	—
	(Continued on Page 2)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
15	At the IO/IOP 0 IPUB 0 Power Switch, Depress **ON** Switch to Restore Power. Leave **ROS/NORM** Switch in **ROS** Position	TELCO/INST	DLP-522
16	Temporarily Install BTR Assemblies on Bus Branch Out Terminals on Unit	INST	—
17	Install Branching Unit +3V DC-DC Converters	INST	—
18	Insert PUBB Frame Power Converters and Fuses (Bay 0)	INST	—
19	Restore PUBB Frame Power With Power Switch Leaving **OFF** Switch in **ROS** (**PUB0**)	TELCO	DLP-522
20	Verify Power for Added Unit (Bay 0)	INST	—
21	At 1B Processor MTC Terminal, Enter Message To Diagnose Growth PUBB Equipment (Bay 0) **(DGN:PUB 0:GROWTH!)** CATP Required; Installer Clear Equipment Trouble	TELCO/INST	—
22	Execute PUB Looping Test To Verify Extended Bus Branch at IO/IOP BTRs (PUB 0)		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-535
	3. Scope Bit 0 on PU Write and Reply Buses at BTRs	INST	—
	4. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-535
	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at BTRs	INST	—
	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	8. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-536
	9. Scope PU Control Bus and Miscellaneous Bus Bits at BTRs	INST	—
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
	12. Set **OFF** Switch to Normal Position (Bay 0 of PUBB Frame)	TELCO	DLP-507
	(Continued on Page 3)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
23	At 1B Processor MTC Terminal, Enter Message to Restore Peripheral Unit Bus 0 to Service (**RST:PUB 0!**)	TELCO/INST	DLP-504
24	Restore IO/IOP 0 IPUB0 to Service at PowerSwitch. Rotate **ROS/NORM** Switch to **NORM**	TELCO	—
25	At 1B Processor MTC Terminal, Enter Message to Diagnose, Restore IOUS1, IPUB0 to Service (**RST:IOUS 1,IPUB 0!**)	TELCO	DLP-531
26	At 1B Processor MTC Terminal, Enter Messages to Allow Peripheral Routine Exerciser Diagnostics **(ALW:MACLI,CLASS MTCE!)** System **(TEST:PUSYS!)**	TELCO	—
27	Notify Next Higher Support Organization That PUB 0, Half 0 Is Completed	TELCO	—
28	Safe Stop Point. A Soak of New PUB 0 Cables is Required Before PUB 1 Changes Begin	TELCO	—
29	Notify Next Higher Support Organization That PUB 1, Half 0 Work Is Beginning	TELCO	—
30	At 1B Processor MTC Terminal, Enter Messages to Inhibit Peripheral Automatic Exerciser Diagnostics **(INH:MACLI,CLASS MTCE;REX!)** And Stop Peripheral System **(STOP:TEST:PUSYS!)**	TELCO	DLP-529
31	At 1B Processor MTC Terminal, Enter Message to Remove Peripheral Unit Bus 1 From Service **(RMV:PUB 1!)**	TELCO	DLP-506
32	Remove Power With Power Switch (**PUB1** — Bay 1 Growth Associated PUBB Frame)	TELCO	—
33	Mount and Cable Half 0 PUBB 0 and Loop Around Unit (Bay 1)	INST	—
34	Remove Power at Power Switch on IO/IOP 0, IPUB1	TELCO	—
35	Relocate PU Bus Cables on IO/IOP from Previous Branching and Loop-Around and Install Them on New Unit	INST	—
36	Remove The Two Pulse Point BTR Assemblies From Preceding Branching and Loop-Around Unit And Install Them on Added Unit	INST	—
37	Connect All Intra-Frame Cables	INST	—
38	Install BTR Assemblies on Bus Branch Unit	INST	—
39	At the IO/IOP 0 IPUB 1 Power Switch, Depress **ON** Switch To Restore Power. Leave **ROS/NORM** Switch in **ROS** Position	TELCO/INST	DLP-522
40	Temporarily Install BTR Assemblies on Bus Branch Out Terminal on Unit	INST	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
41	Install Branching Unit +3V DC-DC Converters	INST	—
42	Insert PUBB Frame Power Converters and Fuses (Bay 1)	INST	—
43	Restore PUBB Frame Power With Power Switch Leaving **OFF** Switch in **ROS** (**PUB1**)	TELCO	DLP-522
44	Verify Power for Added Unit (Bay 1)	INST	—
45	At 1B Processor MTC Terminal, Enter Message to Diagnose Growth PUBB Equipment (Bay 1) **(DGN:PUB 1:GROWTH!)** CATP Required; Installer Clear Equipment Troubles	TELCO/INST	—
46	Execute PUB Looping Test To Verify Extended Bus Branch at IO/IOP BTRs (PUB 1)		
	1. Store Input Messages on At 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-535
	3. Scope Bit 0 on PU Write and Reply Buses at BTRs	INST	—
	4. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-535
	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at BTRs		
	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	8. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-536
	9. Scope PU Control Bus and Miscellaneous Bus Bits at BTRs	INST	—
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
	12. Set **OFF** Switch to Normal Position (Bay 1 of PUBB Frame)	TELCO	DLP-507
47	At 1B Processor MTC Terminal, Enter Message to Restore Peripheral Unit Bus 1 to Service (**RST:PUB 1!**)	TELCO/INST	DLP-504
48	Recent Change and Verify Submember Equipage SGRO to OPER (Half 0)	TELCO	DLP-505
	(Continued on Page 5)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
49	Restore IO/IOP 0, IPUB 1 to Service at Power Switch. Rotate **ROS/NORM** Switch to **NORM** Position	TELCO	—
50	At 1B Processor MTC Terminal, Enter Message to Diagnose, Restore IOUS1, IPUB1 to Service (**RST:IOUS 1,IPUB 1!**)	TELCO	DLP-531
51	At 1B Processor MTC Terminal, Enter Messages to Run Peripheral Unit Status Audit **(AUD:PUSTAT!);** Wait for Message Complete **(MSG COMPL)**	TELCO	—
52	At 1B Processor MTC Terminal, Enter Messages to Allow Peripheral Routine Exerciser Diagnostics **(ALW:MACLI,CLASS MTCE!)** Peripheral System **(TEST:PUSYS!)**	TELCO	—
53	Notify Next Higher Support Organization That PUB Work Has Been Completed	TELCO	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO

		RESPONSIBILITY	
	NOTE: Associated Installation Handbook — 264A, Volume II, Section 125		
1	Notify Next Higher Support Organization That PUB Work is Beginning	TELCO	—
2	At 1B Processor MTC Terminal, Enter Message(s) to Verify UNEQ Status of Peripheral Unit Bus Branching (PUBB) Unit Half 1 To Be Added **(VER:UTYPE:PUBB 0,SME a!).** Enter **INH:MACLI,CLASS MTCE;REX!** And **STOP:TEST;PUSYS!**	TELCO	DLP-508
3	At 1B Processor MTC Terminal, Enter Message(s) to Run Peripheral Unit Bus 0 Diagnostic Using Restore Message **(RST:PUB 0!)**	TELCO	DLP-504
4	At 1B Processor MTC Terminal, Enter Message(s) to Run Peripheral Unit Bus 1 Diagnostic Using Restore Message **(RST:PUB 1!)**	TELCO	DLP-504
5	Recent Change and Verify Submember Equipage UNEQ to GROW	TELCO	DLP-505
6	Recent Change and Verify Submember Equipage GROW to SGRO	TELCO	DLP-505
7	At 1B Processor MTC Terminal, Enter Message(s) to Remove Peripheral Unit Bus 0 From Service **(RMV:PUB 0)**	TELCO	DLP-506
8	Remove Power With Power Switch (**PUB0** — Bay 0 PUBB Frame)	TELCO	—
9	Install New PUBB Unit Half 1 Plug-in Equipment (Bay 0)	INST	—
10	Restore Frame Power With Power Switch (**PUB0** — Bay 0 PUBB Frame)	TELCO/INST	DLP-509
11	At 1B Processor MTC Terminal, Enter Message(s) to Diagnose Growth PUBB Equipment (Bay 0) **(DGN:PUB 0:GROWTH!)** ATP Required; Installer Clear Equipment Troubles	TELCO/INST	—
12	At 1B Processor MTC Terminal, Enter Message(s) to Restore Peripheral Unit Bus 0 to Service **(RST:PUB 0)**	TELCO/INST	DLP-504
13	At 1B Processor MTC Terminal, Enter Message(s) to Allow Peripheral Routine Exerciser Diagnostics **(ALW:MACLI,CLASS MTCE!)** and Peripheral System **(TEST:PUSYS!)**	TELCO	—
14	Notify Next Higher Support Organization That PUB 0, Half 1 Work Is Completed	TELCO	—
15	Safe Stop Point. A Soak of New PUB 0 Cables is Required Before PUB 1 Changes Begin	TELCO/INST	—
16	Notify Next Higher Support Organization That PUB 1, Half 1 Work Is Beginning	TELCO	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
17	At 1B Processor MTC Terminal, Enter Message(s) to Inhibit Peripheral Automatic Exerciser Diagnostics **(INH:MACLI,CLASS MTCE;REX!)** And Stop Peripheral System **(STOP:TEST:PUSYS!)**	TELCO	DLP-529
18	Remove Peripheral Unit Bus 1 From Service (**RMV:PUB 1!**)	TELCO	DLP-506
19	Remove Power With Power Switch (**PUB1** — Bay 1 PUBB Frame)	TELCO	—
20	Install New PUBB Unit Half 1 Plug-in Equipment (Bay 1)	INST	—
21	Restore Frame Power With Power Switch (**PUB1** — Bay 1 PUBB Frame)	TELCO/INST	DLP-509
22	At 1B Processor MTC Terminal, Enter Message(s) to Diagnose Growth PUBB Equipment (Bay 1) **(DGN:PUB 1:GROWTH!)** ATP Required; Installer Clear Equipment Troubles	TELCO/INST	—
23	At 1B Processor MTC Terminal, Enter Message(s) to Restore Peripheral Unit Bus 1 to Service **(RST:PUB 1)**	TELCO/INST	DLP-504
24	Recent Change and Verify Submember Equipage SGRO to OPER	TELCO	DLP-505
25	At 1B Processor MTC Terminal, Enter Message(s) to Run Peripheral Unit Bus 0 Diagnostic Using Restore Message **(RST:PUB 0!)**	TELCO	DLP-504
26	At 1B Processor MTC Terminal, Enter Message(s) to Run Peripheral Unit Bus 1 Diagnostic Using Restore Message **(RST:PUB 1!)**	TELCO	DLP-504
27	At 1B Processor MTC Terminal, Enter Message To Run Peripheral Unit Status Audit **(AUD:PUSTAT!);** Wait for Message Complete **(MSG COMPL)**	TELCO	—
28	At 1B Processor MTC Terminal, Enter Message(s) to Allow Peripheral Routine Exerciser Diagnostics **(ALW:MACLI,CLASS MTCE!)** and Peripheral System **(TEST:PUSYS!)**	TELCO	—
29	Notify Next Higher Support Organization That PUB Work Has Been Completed	TELCO	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO

		RESPONSIBILITY	
	NOTE: Ensure that office preconditioning for PUB system growth or degrowth is completed		
	CAUTION: If any trouble conditions cannot be resolved during work shift, cables to growth frame should be disconnected from PUBB frame and Bus Terminating Resistors (BTRs) reinstalled so that PUB can be returned to duplex operation prior to busy hour traffic conditions		
1	Execute PUB Looping Test To Verify Growth Bus Branch at BTRs (PUB 0)		
	1. At 1B Processor MTC Terminal, Enter Message(s) to Inhibit Peripheral Automatic Exerciser Diagnostics **(INH:MACLI,CLASS MTCE;REX!)** and Stop Peripheral System **(STOP:TEST;PUSYS!)**	TELCO	—
	2. Locate Growth Bus Branch Terminating Resistors at PUBB Frame, or Determine Location of Last Frame on Bus Branch To Be Scoped Per Office Record Drawing T-nnnn-Hn-3840	TELCO	—
	3. If VIF Frame Was Determined in Item 1.2, Determine From Office Record Drawing T-nnnn-Hn-3840 Frame Where PU Write and Enable Buses Are Terminated	TELCO	—
	4. Store Input Messages on 1B Processor Terminal for PUB 0 Looping Test	TELCO	DLP-510
	5. If Peripheral Unit Bus 0 Is in Service, At 1B Processor MTC Terminal, Enter Message(s) to Remove PUB 0 From Service **(RMV:PUB 0!)**	TELCO	DLP-506
	6. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	7. If Last Frame Determined in Item 1.2 Is Not VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-513
	8. If Last Frame Determined in Item 1.2 Is VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 1.3	TELCO	DLP-513
	9. Scope Bit 0 on PU Reply Bus at Last Frame Determined in Item 1.2	TELCO	DLP-514
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	11. Advance Program to Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
1 (Contd)	12. If Last Frame Determined in Item 1.2 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-515
	13. If Last Frame Determined in Item 1.2 Is VIF Frame, Scope Bits 1 to 35 on PU Write Bus as Last Frame Determined in Item 1.3	TELCO	DLP-515
	14. If Last Frame Determined in Item 1.2 Is Not VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 1.2	TELCO	DLP-516
	15. If Last Frame Determined in Item 1.2 Is VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 1.3	TELCO	DLP-516
	16. Scope Bits 1 to 23 on PU Reply Bus at Last Frame Determined in Item 1.2	TELCO	DLP-517
	17. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	18. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	19. Scope PU Control Bus and Miscellaneous Bus Bits at Last Frame Determined in Item 1.2	TELCO	DLP-519
	20. If Last Frame Determined in Item 1.2 Is VIF Frame, Scope Remaining Miscellaneous Bus Bits at Last Frame Determined in Item 1.3	TELCO	DLP-520
	21. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	22. Stop Maintenance Control Program Client	TELCO	DLP-512
	23. Determine if Last Frame in Item 1.2 Is a PUBB Frame. If PUBB, Set Up Loop To Observe and Scope PU Control Bus Expanded Pollable Bits	TELCO	DLP-534
	24. Stop the Maintenance Control Client	TELCO	DLP-512
	25. At 1B Processor MTC Terminal, Enter Message(s) to Restore Peripheral Unit Bus to to Service (PUB 0) **(RST:PUB 0!)**	TELCO	DLP-504
	26. This Is a Safe Point To Temporarily Stop This Procedure. If Stopping, At 1B Processor MTC Terminal, Enter **ALW:MACLI,CLASS MTCE!** and **TEST:PUSYS!**	TELCO	—
2	Execute PUB Looping Test To Verify Growth Bus Branch at BTRs (PUB 1)		
	1. If Procedure Was Temporarily Stopped, At 1B Processor MTC Terminal, Enter **INH:MACLI,CLASS MTCE;REX!** and **STOP:TEST;PUSYS!**	TELCO	—
	(Continued on Page 3)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
2 (Contd)	2. Locate Growth Bus Branch Terminating Resistors at PUBB Frame, or Determine Location of Last Frame Where PUB 1 Is Terminated on Bus Branch To Be Scoped Per Office Record Drawing T-nnnn-Hn-3840	TELCO	—
	3. If VIF Frame Was Determined in Item 2.2, determine From Office Record Drawing T-nnnn-Hn-3840 Frame Where PU Write and Enable Buses Are Terminated	TELCO	—
	4. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	5. If Peripheral Unit Bus 1 Is in Service, At 1B Processor MTC Terminal Enter, Message to Remove PUB 1 From Service **(RMV:PUB 1!)**	TELCO	DLP-506
	6. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 0 on PU Write and Reply Buses	TELCO	DLP-511
	7. If Last Frame Determined in Item 2.2 Is Not VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 2.2	TELCO	DLP-513
	8. If Last Frame Determined in Item 2.2 Is VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 2.3	TELCO	DLP-513
	9. Scope Bit 0 on PU Reply Bus at Last Frame Determined in Item 2.2	TELCO	DLP-514
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	11. Advance Program to Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	12. If Last Frame Determined in Item 2.2 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 2.2	TELCO	DLP-515
	13. If Last Frame Determined in Item 2.2 Is VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 2.3	TELCO	DLP-515
	14. If Last Frame Determined in Item 2.2 Is Not VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 2.2	TELCO	DLP-516
	15. If Last Frame Determined in Item 2.2 Is VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 2.3	TELCO	DLP-516
	16. Scope Bits 1 to 23 on PU Reply Bus at Last Frame Determined in Item 2.2	TELCO	DLP-517

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
2 (Contd)	17. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	18. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	19. Scope PU Control Bus and Miscellaneous Bus Bits at Last Frame Determined in Item 2.2	TELCO	DLP-519
	20. If Last Frame Determined in Item 2.2 Is VIF Frame, Scope Remaining Miscellaneous Bus Bits at Last Frame Determined in Item 2.3	TELCO	DLP-520
	21. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	22. Stop Maintenance Control Program Client	TELCO	DLP-512
	23. Determine if Last Frame in Item 2.2 Is a PUBB Frame. If PUBB, Set Up Loop To Observe and Scope PU Control Bus Expanded Pollable Bits	TELCO	DLP-534
	24. Stop the Maintenance Control Client	TELCO	DLP-512
	25. Restore Peripheral Unit Bus to Service (PUB 1) **(RST:PUB 1!)**	TELCO	DLP-504
	26. This Is a Safe Point To Temporarily Stop This Procedure. If Stopping, At 1B Processor MTC Terminal, Enter **ALW:MACLI,CLASS MTCE!** and **TEST:PUSYS!**	TELCO	—
3	Verify That Power Is Removed at Growth Frame(s) to Which Bus Is Being Extended (IPUB 0 and 1 Only)	INST	—
4	If Procedure Was Temporarily Stopped, At 1B Processor MTC Terminal, Enter **INH:MACLI,CLASS MTCE;REX!** and **STOP:TEST;PUSYS!**	TELCO	—
5	Ensure That PUB 0 and 1 Extension Cables Are Connected to Growth Frame(s). (Do Not Connect to Any In-Service Frame)	INST	—
6	At 1B Processor MTC Terminal, Enter Message(s) to Verify OPER Status of PUB Branch Being Extended **(VER:UTYPE:PUBB 0,SME a!)**	TELCO/INST	DLP-521
7	At 1B Processor MTC Terminal, Enter Message(s) to Run Peripheral Unit Bus Diagnostic Using Restore Message (PUB 0) **(RST:PUB 0!)**	TELCO	DLP-504
8	At 1B Processor MTC Terminal, Enter Message(s) to Run Peripheral Unit Bus Diagnostic Using Restore Message (PUB 1) **(RST:PUB 1!)**	TELCO	DLP-504
	(Continued on Page 5)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
9	Remove PUB 0 From Service and Power Down PUB 0 at PUBB 0, BAY 0 Power Switch		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp is Lighted	TELCO	—
	3. Depress **ROS** Switch to Power Down PUB 0 at PUBB 0, Bay 0	TELCO	—
	4. Response: **POWER** Lamp is Lighted	TELCO	—
10	Remove and Relocate Bus Terminating Resistor (BTR) Assemblies From PUB Frame and Connect Bus Extension Cables (PUB 0)	INST	—
11	Depress **ON** Pushbutton at PUBB 0, BAY 0 to Restore Power to PUB 0. (**POWER** Lamp goes off)	TELCO	—
12	Execute PUB Looping Test To Verify Extended Bus Branch at BTRs (PUB 0)		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	3. Scope Bit 0 on PU Write and Reply Buses at BTRs	INST	—
	4. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at BTRs	INST	—
	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	8. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	9. Scope PU Control Bus and Miscellaneous Bus Bits at BTRs	INST	—
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
	12. Determine if Last Frame in Item 1.2 is an SCS or DIFE (Member Numbers 24-31) Frame, or XTSI on Expanded Pollable Bus. If SCS or DIFE (Member Numbers 24-31), or XTSI on Expanded Pollable Bus, Set Up Loop To Observe Expanded Pollable Bits	TELCO	DLP-533

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
12 (Contd)	13. Scope Expanded Pollable Bits	INST	—
	14. Stop the Maintenance Control Client	TELCO	DLP-512
13	Restore PUB 0 to NORM at PUBB 0, Bay 0 Power Switch		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
14	At 1B Processor MTC Terminal, Enter Message to Restore PUB 0 to Service **(RST:PUB 0!)**	TELCO/INST	DLP-504
15	At 1B Processor MTC Terminal, Enter Message(s) to Allow Peripheral Routine Exerciser Diagnostics **(ALW:MACLI,CLASS MTCE!)** and Peripheral System **(TEST:PUSYS!)**	TELCO	—
	NOTE: This is a safe point to temporarily stop this procedure. To provide a required soak period for PUB 0, growth activities for PUB 1 should be performed on the next installation shift	TELCO/INST	—
16	At 1B Processor MTC Terminal, Enter Message(s) to Inhibit Peripheral Automatic Exerciser Diagnostics **(INH:MACLI,CLASS MTCE;REX!)** and Stop Peripheral System **(STOP:TEST;PUSYS!)**	TELCO	DLP-529
	1. Diagnose: At 1B Processor MTC Terminal, Restore PUB 0 to Service **(RST:PUB 0!)**	TELCO	DLP-523
	2. Diagnose: At 1B Processor MTC Terminal, Restore PUB 1 to Service **(RST:PUB 1!)**	TELCO	DLP-523
17	Remove PUB 1 From Service and Power Down PUB 1 at PUBB 0, BAY 1 Power Switch		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp is Lighted	TELCO	—
	3. Depress **ROS** Switch to Power Down PUB 1 at PUBB 0, Bay 1	TELCO	—
	4. Response: **POWER** Lamp is Lighted	TELCO	—
18	Remove and Relocate BTR Assemblies and Connect Bus Extension Cables (PUB 1)	INST	—
19	Depress **ON** Pushbutton at PUBB 0, BAY 1 to Restore Power to PUB 1. (**POWER** Lamp goes off)	TELCO	—
20	Execute PUB Looping Test To Verify Extended Bus Branch at BTRs (PUB 1)		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
20 (Contd)	3. Scope Bit 0 on PU Write and Reply Buses at BTRs	INST	—
	4. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at BTRs	INST	—
	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	8. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	9. Scope PU Control Bus and Miscellaneous Bus Bits at BTRs	INST	—
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
	12. Determine if Last Frame in Item 2.2 Is an SCS or DIFE (Member Numbers 24-31) Frame, or XTSI on Expanded Pollable Bus. If SCS or DIFE (Member Numbers 24-31), or XTSI on Expanded Pollable Bus, Set Up Loop To Observe Expanded Pollable Bits	TELCO	DLP-533
	13. Scope Expanded Pollable Bits	INST	—
	14. Stop the Maintenance Control Client	TELCO	DLP-512
21	Restore PUB 1 to NORM at PUBB 0, Bay 1 Power Switch		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
22	At 1B Processor MTC Terminal, Enter Message(s) to Restore PUB 1 to Service **(RST:PUB 1!)**	TELCO/INST	DLP-504
23	At 1B Processor MTC Terminal, Enter Message(s) to Allow Peripheral Routine Exerciser Diagnostic **(ALW:MACLI,CLASS MTCE!)** and Peripheral System **(TEST:PUSYS!)**	TELCO	—
	NOTE: End of procedure. Safe stop point. To provide a required soak period for PUB 1, growth activities should be performed on the next installation shift	TELCO/INST	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO

		RESPONSIBILITY	
	NOTE: Ensure that office preconditioning for PUB system growth or degrowth is complete		
	CAUTION: If any trouble conditions cannot be resolved during work shift, cables to growth first growth frame should be disconnected from operational frame or PUBB and BTRs reinstalled so that PUB can be returned to duplex operation prior to busy hour traffic conditions		
1	Execute PUB Looping Test To Verify Growth Bus Branch at BTRs (PUB 0)		
	1. At 1B Processor MTC Terminal, Enter Messages to Inhibit Peripheral Automatic Exerciser Diagnostics **(INH:MACLI,CLASS MTCE; REX!)** and Stop Peripheral System **(STOP:TEST;PUSYS!)**	TELCO	—
	2. Determine Location of Last Frame Where PUB 0 Is Terminated on Bus Branch To Be Scoped Per Office Record Drawing T-nnnn-Hn-3840	TELCO	—
	3. If VIF Frame Was Determined in Item 1.2, Determine From Office Record Drawing T-nnnn-Hn-3840 Frame Where PU Write and Enable Buses Are Terminated	TELCO	—
	4. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	5. If Peripheral Unit Bus 0 Is in Service, At 1B Processor MTC Terminal, Enter Messages to Remove PUB 0 From Service **(RMV:PUB 0!)**	TELCO	DLP-506
	6. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	7. If Last Frame Determined in Item 1.2 Is Not VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-513
	8. If Last Frame Determined in Item 1.2 Is VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 1.3	TELCO	DLP-513
	9. Scope Bit 0 on PU Reply Bus at Last Frame Determined in Item 1.2	TELCO	DLP-514
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	11. Advance Program to Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	(Continued on Page 2)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
1 (Contd)	12. If Last Frame Determined in Item 1.2 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-515
	13. If Last Frame Determined in Item 1.2 Is VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 1.3	TELCO	DLP-515
	14. If Last Frame Determined in Item 1.2 Is Not VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 1.2	TELCO	DLP-516
	15. If Last Frame Determined in Item 1.2 Is VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 1.3	TELCO	DLP-516
	16. Scope Bits 1 to 23 on PU Reply Bus at Last Frame Determined in Item 1.2	TELCO	DLP-517
	17. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	18. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	19. Scope PU Control Bus and Miscellaneous Bus Bits at Last Frame Determined in Item 1.2	TELCO	DLP-519
	20. If Last Frame Determined in Item 1.2 Is VIF Frame, Scope Remaining Miscellaneous Bus Bits at Last Frame Determined in Item 1.3	TELCO	DLP-520
	21. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	22. Stop Maintenance Control Program Client	TELCO	DLP-512
	23. Determine if Last Frame in Item 1.2 Is an SCS or DIFE (Member Numbers 24-31) Frame, or XTSI on Expanded Pollable Bus. If SCS or DIFE (Member Numbers 24-31), or XTSI on Expanded Pollable Bus, Set Up Loop To Observe and Scope Expanded Pollable Bits	TELCO	DLP-533
	24. Stop the Maintenance Control Client	TELCO	DLP-512
	25. At 1B Processor MTC Terminal, Enter Message to Restore Peripheral Unit Bus to Service (PUB 0) **(RST:PUB 0!)**	TELCO	DLP-504
	26. This Is a Safe Point To Temporarily Stop This Procedure. If Stopping, At 1B Processor MTC Terminal, Enter **ALW:MACLI,CLASS MTCE!** and **TEST:PUSYS!**	TELCO	—
	(Continued on Page 3)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
2	Execute PUB Looping Test To Verify Growth Bus Branch at BTRs (PUB 1)		
	1. If Procedure Was Stopped Temporarily, At 1B Processor MTC Terminal, Enter **INH:MACLI,CLASS MTCE;REX!** and STOP:TEST:PUSYS!	TELCO	—
	2. Determine Location of Last Frame Where PUB 1 Is Terminated on Bus Branch To Be Scoped Per Office Record Drawing T-nnnn-Hn-3840	TELCO	—
	3. If VIF Frame Was Determined in Item 2.2, determine From Office Record Drawing T-nnnn-Hn-3840 Frame Where PU Write and Enable Buses Are Terminated	TELCO	—
	4. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	5. If Peripheral Unit Bus 1 Is in Service, At 1B Processor MTC Terminal, Remove PUB 1 From Service **(RMV:PUB 1!)**	TELCO	DLP-506
	6. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	7. If Last Frame Determined in Item 2.2 Is Not VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 2.2	TELCO	DLP-513
	8. If Last Frame Determined in Item 2.2 Is VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 2.3	TELCO	DLP-513
	9. Scope Bit 0 on PU Reply Bus at Last Frame Determined in Item 2.2	TELCO	DLP-514
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	11. Advance Program to Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	12. If Last Frame Determined in Item 2.2 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 2.2	TELCO	DLP-515
	13. If Last Frame Determined in Item 2.2 Is VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 2.3	TELCO	DLP-515
	14. If Last Frame Determined in Item 2.2 Is Not VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 2.2	TELCO	DLP-516
	(Continued on Page 4)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
2 (Contd)	15. If Last Frame Determined in Item 2.2 Is VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 2.3	TELCO	DLP-516
	16. Scope Bits 1 or 23 on PU Reply Bus at Last Frame Determined in Item 2.2	TELCO	DLP-517
	17. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	18. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	19. Scope PU Control Bus and Miscellaneous Bus Bits at Last Frame Determined in Item 2.2	TELCO	DLP-519
	20. If Last Frame Determined in Item 2.2 Is VIF Frame, Scope Remaining Miscellaneous Bus Bits at Last Frame Determined in Item 2.3	TELCO	DLP-520
	21. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	22. Stop Maintenance Control Program Client	TELCO	DLP-512
	23. Determine if Last Frame in Item 2.2 Is an SCS or DIFE (Member Numbers 24-31) Frame, or XTSI on Expanded Pollable Bus. If SCS or DIFE (Member Numbers 24-31), or XTSI on Expanded Pollable Bus, Set Up Loop To Observe and Scope Expanded Pollable Bits	TELCO	DLP-533
	24. Stop the Maintenance Control Client	TELCO	DLP-512
	25. At 1B Processor MTC Terminal, Enter Message to Restore Peripheral Unit Bus to Service (PUB 1) **(RST:PUB 1!)**	TELCO	DLP-504
	26. This Is a Safe Point To Temporarily Stop This Procedure. If Stopping, At 1B Processor MTC Terminal, Enter **ALW:MACLI,CLASS MTCE!** and **TEST:PUSYS!**	TELCO	—
3	Verify That Power Is Removed at Growth Frame(s) to Which Bus Is Being Extended (IPUB 0 and 1 Only)	INST	—
4	If Procedure Was Temporarily Stopped, At 1B Processor MTC Terminal, Enter **INH:MACLI,CLASS MTCE;REX!** and **STOP:TEST;PUSYS!**	TELCO	—
5	Determine Frame(s) From Which PU Buses 0 and 1 Are To Be Extended and Verify PU Bus Cables Are Connected to Growth Frame(s)	INST	—
6	At 1B Processor MTC Terminal, Enter Message to Verify OPER Status of Frame(s) Related to PUB Growth **(VER:UTYPE: a b,ME!)**	TELCO/INST	DLP-524
	(Continued on Page 5)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
7	At 1B Processor MTC Terminal, Enter Message to Run Peripheral Unit Bus Diagnostic Using Restore Message (PUB 0) **(RST:PUB 0!)**	TELCO	DLP-504
8	At 1B Processor MTC Terminal, Enter Message to Run Peripheral Unit Bus Diagnostic Using Restore Message (PUB 1) **(RST:PUB 1!)**	TELCO	DLP-504
9	At 1B Processor MTC Terminal, Enter Message to Diagnose Controllers of Frame(s) From Which Bus Is Being Extended (Using Restore Message) **(RST: a b,CONTR c!)**	TELCO	DLP-525
10	Remove PUB 0 From Service and Power Down PUB 0 at Power Switch of PUBB 0, BAY 0		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	–
	2. Response: **OFF/NORM** Lamp Is Lighted	TELCO	–
	3. Depress **ROS** Switch to Power down PUB 0 at PUBB 0, Bay 0	TELCO	–
	4. Response: **POWER** Lamp Is Lighted	TELCO	–
11	Remove PUB 0 From Service at Power Switch of IPUB 0 of Frame(s) Determined in Item 5		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	–
	2. Response: **OFF/NORM** Lamp Is Lighted	TELCO	–
12	Remove and Relocate Bus Terminating Resistor (BTR) Assemblies From Frame Determined in Item 5. Connect Bus Extension Cables (PUB 0)	INST	–
13	Depress **ON** Pushbutton at PUBB 0, BAY 0 to Restore Power to PUB 0. (**POWER** Lamp goes off)	TELCO	–
14	Execute PUB Looping Test To Verify Extended Bus Branch at BTRs on Growth Frame (PUB 0)		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	3. Scope Bit 0 on PU Write and Reply Buses at BTRs	INST	–
	4. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	–
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	(Continued on Page 6)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
14 (Contd)	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at BTRs	INST	—
	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	8. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	9. Scope PU Control Bus and Miscellaneous Bus Bits at BTRs	INST	—
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
	12. Determine if Last Frame in Item 1.2 Is an SCS or DIFE (Member Numbers 24-31) Frame, or XTSI on Expanded Pollable Bus. If SCS or DIFE (Member Numbers 24-31), or XTSI on Expanded Pollable Bus, Set Up Loop To Observe Expanded Pollable Bits	TELCO	DLP-533
	13. Scope Expanded Pollable Bits	INST	—
	14. Stop the Maintenance Control Client	TELCO	DLP-512
15	Restore PUB 0 to NORM at Power Switch of IPUB 0 of Frame(s) Determined in Item 5		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes off. **OS** Lamp Goes off	TELCO	—
16	Restore PUB 0 to NORM at Power Switch of PUBB 0, BAY 0		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes off. **OS** Lamp Goes off	TELCO	—
17	At 1B Processor MTC Terminal, Enter Message(s) to Allow Peripheral Routine Exerciser Diagnostics **(ALW:MACLI,CLASS MTCE!)** and Peripheral System **(TEST:PUSYS!)**	TELCO	—
	NOTE: This is a safe point to temporarily stop this procedure. To provide a required soak period for PUB 0, growth activities should be performed on the next installation shift	TELCO/INST	—
	(Continued on Page 7)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
18	At 1B Processor MTC Terminal, Enter Message(s) to Inhibit Peripheral Automatic Exerciser Diagnostics **(INH:MACLI,CLASS MTCE;REX!)** and Stop Peripheral System **(STOP:TEST;PUSYS!)**	TELCO	DLP-529
	1. At 1B Processor MTC Terminal, Diagnose: Restore PUB 0 to Service **(RST:PUB 0!)**	TELCO	DLP-523
	2. Diagnose: Restore PUB 1 to Service **(RST:PUB 1!)**	TELCO	DLP-523
19	Remove PUB 1 From Service and Power Down PUB 1 at Power Switch of PUBB 0, BAY 1		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted	TELCO	—
	3. Depress **ROS** Switch to Power down PUB 1 at PUBB 0, Bay 1	TELCO	—
	4. Response: **POWER** Lamp Is Lighted	TELCO	—
20	Remove PUB 1 From Service at Power Switch of IPUB 1 of Frame(s) Determined in Item 5		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted	TELCO	—
21	Remove and Relocate BTR Assemblies and Connect Bus Extension Cables (PUB 1)	INST	—
22	Depress **ON** Pushbutton at PUBB 0, BAY 1 to Restore Power to PUB 1. (**POWER** Lamp goes off)	TELCO	—
23	Execute PUB Looping Test To Verify Extended Bus Branch at BTRs on Growth Frame (PUB 1)		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	3. Scope Bit 0 on PU Write and Reply Buses at BTRs	INST	—
	4. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at BTRs	INST	—
	(Continued on Page 8)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
23 (Contd)	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	8. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	9. Scope PU Control Bus and Miscellaneous Bus Bits at BTRs	INST	—
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
	12. Determine if Last Frame in Item 2.2 Is an SCS or DIFE (Member Numbers 24-31) Frame, or XTSI on Expanded Pollable Bus. If SCS or DIFE (Member Numbers 24-31), or XTSI on Expanded Pollable Bus, Set Up Loop To Observe Expanded Pollable Bits	TELCO	DLP-533
	13. Scope Expanded Pollable Bits	INST	—
	14. Stop the Maintenance Control Client	TELCO	DLP-512
24	Restore PUB 1 to NORM at Power Switch of IPUB 1 of Frame(s) Determined in Item 5		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
25	Restore PUB 1 to NORM at Power Switch of PUBB 0, BAY 1		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
26	At 1B Processor MTC Terminal, Enter Messages to Allow Peripheral Routine Exerciser Diagnostics **(ALW:MACLI,CLASS MTCE!)** and Peripheral System **(TEST:PUSYS!)**	TELCO	—
	NOTE: End of procedure. Safe stop point. To provide a required soak period for PUB 1, growth activities should be performed on the next installation shift	TELCO/INST	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO

		RESPONSIBILITY	
	NOTE: Ensure that office preconditioning for PUB system growth or degrowth is completed		
	CAUTION: If any trouble conditions cannot be resolved during work shift, the new bus interface should be disconnected and original cables reconnected at operational frames so that duplex PUB operational status is restored prior to busy hour traffic conditions		
1	Execute PUB Looping Test To Verify Growth Bus Branch at BTRs (PUB 0)		
	1. At 1B Processor MTC Terminal, Enter Messages to Inhibit Peripheral Automatic Exerciser Diagnostics **(INH:MACLI,CLASS MTCE; REX!)** and Stop Peripheral System **(STOP:TEST;PUSYS!)**	TELCO	—
	2. Determine Location of Last Frame Where PUB 0 Is Terminated on Bus Branch To Be Scoped Per Office Record Drawing T-nnnn-Hn-3840	TELCO	—
	3. If VIF Frame Was Determined in Item 1.2, Determine From Office Record Drawing T-nnnn-Hn-3840 Frame Where PU Write and Enable Buses Are Terminated	TELCO	—
	4. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	5. If Peripheral Unit Bus 0 Is in Service, At 1B Processor MTC Terminal, Enter Messages to Remove PUB 0 From Service **(RMV:PUB 0!)**	TELCO	DLP-506
	6. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	7. If Last Frame Determined in Item 1.2 Is Not VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-513
	8. If Last Frame Determined in Item 1.2 Is VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 1.3	TELCO	DLP-513
	9. Scope Bit 0 on PU Reply Bus at Last Frame Determined in Item 1.2	TELCO	DLP-514
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	11. Advance Program to Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	12. If Last Frame Determined in Item 1.2 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-515

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
1 (Contd)	12. If Last Frame Determined in Item 1.2 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-515
	13. If Last Frame Determined in Item 1.2 Is VIF Frame, Scope Bits 1 to 35 on PU Write Bus as Last Frame Determined in Item 1.3	TELCO	DLP-515
	14. If Last Frame Determined in Item 1.2 Is Not VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 1.2	TELCO	DLP-516
	15. If Last Frame Determined in Item 1.2 Is VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 1.3	TELCO	DLP-516
	16. Scope Bits 1 to 23 on PU Reply Bus at Last Frame Determined in Item 1.2	TELCO	DLP-517
	17. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	18. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	19. Scope PU Control Bus and Miscellaneous Bus Bits at Last Frame Determined in Item 1.2	TELCO	DLP-519
	20. If Last Frame Determined in Item 1.2 Is VIF Frame, Scope Remaining Miscellaneous Bus Bits at Last Frame Determined in Item 1.3	TELCO	DLP-520
	21. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	22. Stop Maintenance Control Program Client	TELCO	DLP-512
	23. Determine if Last Frame in Item 1.2 Is an SCS or DIFE (Member Numbers 24-31) Frame, or XTSI on Expanded Pollable Bus. If SCS or DIFE (Member Numbers 24-31), or XTSI on Expanded Pollable Bus, Set Up Loop To Observe and Scope Expanded Pollable Bits	TELCO	DLP-533
	24. Stop the Maintenance Control Client	TELCO	DLP-512
	25. At 1B Processor MTC Terminal, Enter Message to Restore Peripheral Unit Bus to Service (PUB 0) **(RST:PUB 0!)**	TELCO	DLP-504
	26. This Is a Safe Point To Temporarily Stop This Procedure. If Stopping, At 1B Processor MTC Terminal, Enter **ALW:MACLI,CLASS MTCE!** and **TEST:PUSYS!**	TELCO	—
	(Continued on Page 3)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
2	Execute PUB Looping Test To Verify Growth Bus Branch at BTRs (PUB 1)		
	1. If Procedure Was Stopped Temporarily, At 1B Processor MTC Terminal, Enter **INH:MACLI,CLASS MTCE;REX!** and STOP:TEST:PUSYS!	TELCO	—
	2. Determine Location of Last Frame Where PUB 1 Is Terminated on Bus Branch To Be Scoped Per Office Record Drawing T-nnnn-Hn-3840	TELCO	—
	3. If VIF Frame Was Determined in Item 2.2, determine From Office Record Drawing T-nnnn-Hn-3840 Frame Where PU Write and Enable Buses Are Terminated	TELCO	—
	4. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	5. If Peripheral Unit Bus 1 Is in Service, At 1B Processor MTC Terminal, Remove PUB 1 From Service **(RMV:PUB 1!)**	TELCO	DLP-506
	6. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	7. If Last Frame Determined in Item 2.2 Is Not VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 2.2	TELCO	DLP-513
	8. If Last Frame Determined in Item 2.2 Is VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 2.3	TELCO	DLP-513
	9. Scope Bit 0 on PU Reply Bus at Last Frame Determined in Item 2.2	TELCO	DLP-514
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	11. Advance Program to BUS Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	12. If Last Frame Determined in Item 2.2 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 2.2	TELCO	DLP-515
	13. If Last Frame Determined in Item 2.2 Is VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 2.3	TELCO	DLP-515
	14. If Last Frame Determined in Item 2.2 Is Not VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 2.2	TELCO	DLP-516
	(Continued on Page 4)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
2 (Contd)	15. If Last Frame Determined in Item 2.2 Is VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 2.3	TELCO	DLP-516
	16. Scope Bits 1 or 23 on PU Reply Bus at Last Frame Determined in Item 2.2	TELCO	DLP-517
	17. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	18. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	19. Scope PU Control Bus and Miscellaneous Bus Bits at Last Frame Determined in Item 2.2	TELCO	DLP-519
	20. If Last Frame Determined in Item 2.2 Is VIF Frame, Scope Remaining Miscellaneous Bus Bits at Last Frame Determined in Item 2.3	TELCO	DLP-520
	21. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	22. Stop Maintenance Control Program Client	TELCO	DLP-512
	23. Determine if Last Frame in Item 2.2 Is an SCS or DIFE (Member Numbers 24-31) Frame, or XTSI on Expanded Pollable Bus. If SCS or DIFE (Member Numbers 24-31), or XTSI on Expanded Pollable Bus, Set Up Loop To Observe and Scope Expanded Pollable Bits	TELCO	DLP-533
	24. Stop the Maintenance Control Client	TELCO	DLP-512
	25. At 1B Processor MTC Terminal, Enter Message to Restore Peripheral Unit Bus to Service (PUB 1) **(RST:PUB 1!)**	TELCO	DLP-504
	26. This Is a Safe Point To Temporarily Stop This Procedure. If Stopping, At 1B Processor MTC Terminal, Enter **ALW:MACLI,CLASS MTCE!** and **TEST:PUSYS!**	TELCO	—
3	Verify That Power Is Removed at Growth Frame to Which Bus Is To Be Connected	INST	—
4	If Procedure Was Temporarily Stopped, At 1B Processor MTC Terminal, Enter **INH:MACLI,CLASS MTCE;REX!** and **STOP:TEST;PUSYS!**	TELCO	—
5	Determine Frame(s) From Which PU Buses 0 and 1 Are To Be Extended and Verify PU Bus Cables Are Connected to Growth Frame(s)	INST	—
6	Diagnose (Specifying PHase 99) and Restore Peripheral Bus Interface 0 and 1 for Operational Frame With Full PUB Access Nearest Insertion Point and Toward PUBB Frame, if Any	TELCO	DLP-526
7	Diagnose (Specifying PHase 99) and Restore Peripheral Bus Interface 0 and 1 for Operational Frame With Full PUB Access Nearest Insertion Point and Away From PUBB Frame, if Any	TELCO	DLP-526

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
8	Remove PUB 0 From Service and Power Down PUB 0 at Power Switch of PUBB 0, BAY 0		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
	3. Depress **ROS** Switch to Power down PUB 0 at PUBB 0, Bay 0	TELCO	—
	4. Response: **POWER** Lamp Is Lighted	TELCO	—
9	Remove PUB 0 From Service at Power Switch of IPUB 0 of Operational Frame(s) Determined in Item 5		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
	CAUTION: Care should be taken to avoid momentarily disabling frame power while pulling PUB cabling across +24V and +140V power feeders		
10	Connect Peripheral Unit Bus Cables Per Equipment Spec 384 (PUB 0)	INST	—
11	Depress **ON** Pushbutton at PUBB 0, BAY 0 to Restore Power to PUB 0. (**POWER** Lamp Goes Off)	TELCO	—
12	Execute PUB Looping Test To Verify Inserted Bus Branch at BTRs (PUB 0)		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	3. Scope Bit 0 on PU Write and Reply Buses at BTRs	INST	—
	4. At 1B Processor Terminal, Enter Stop Looping Message (EX:PUB 0!)	TELCO	—
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at BTRs	INST	—
	7. At 1B Processor Terminal, Enter Stop Looping Message (EX:PUB 0!)	TELCO	—
	8. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	9. Scope PU Control Bus and Miscellaneous Bus Bits at BTRs	INST	—

DO THE ITEMS BELOW IN THE ORDER LISTED			FOR DETAILS, GO TO
12 (Contd)	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
	12. Determine if Last Frame in Item 1.2 Is an SCS or DIFE (Member Numbers 24-31) Frame, or XTSI on Expanded Pollable Bus. If SCS or DIFE (Member Numbers 24-31), or XTSI on Expanded Pollable Bus, Set Up Loop To Observe Expanded Pollable Bits	TELCO	DLP-533
	13. Scope Expanded Pollable Bits	INST	—
	14. Stop the Maintenance Control Client	TELCO	DLP-512
13	Restore PUB 0 to NORM at Power Switch of IPUB 0 Of Operational Frames Determined In Item 5		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
14	Restore PUB 0 to NORM at Power Switch of PUBB 0, BAY 0		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
15	At 1B Processor MTC Terminal, Enter Messages to Allow Peripheral Routine Exerciser Diagnostics **(ALW:MACLI,CLASS MTCE!)** and Peripheral System **(TEST:PUSYS!)**	TELCO	—
	NOTE: This is a safe point to temporarily stop this procedure. To provide a required soak period for PUB 0, growth activities for PUB 1 should be performed on the next installation shift	TELCO/INST	—
16	At 1B Processor MTC Terminal, Enter Messages to Inhibit Peripheral Automatic Exerciser Diagnostics **(INH:MACLI,CLASS MTCE; REX!)** and Stop Peripheral System **(STOP:TEST;PUSYS!)**	TELCO	DLP-529
	1. Diagnose: At 1B Processor MTC Terminal, Restore PUB 0 to Service **(RST:PUB 0!)**	TELCO	DLP-523
	2. Diagnose: At 1B Processor MTC Terminal, Restore PUB 1 to Service **(RST:PUB 1!)**	TELCO	DLP-523
17	Remove PUB 1 From Service and Power Down PUB 1 at Power Switch of PUBB 0, BAY 1		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
	(Continued on Page 7)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
17 (Contd)	3. Depress **ROS** Switch to Power Down PUB 1 at PUBB 0, BAY 1	TELCO	—
	4. Response: **POWER** Lamp Is Lighted	TELCO	—
18	Remove PUB 1 From Service at Power Switch of IPUB 1 Of Operational Frames Determined In Item 5		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
	CAUTION: Care should be taken to avoid momentarily disabling frame power while pulling PUB cabling across +24V and +140V power feeders		
19	Connect Peripheral Unit Bus Cables Per Equipment Spec 384 (PUB 1)	INST	—
20	Depress **ON** Pushbutton at PUBB 0, BAY 1 to Restore Power to PUB 1. (**POWER** Lamp Goes Off)	TELCO	—
21	Execute PUB Looping Test To Verify Inserted Bus Branch at BTRs (PUB 1)		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	3. Scope Bit 0 on PU Write and Reply Buses at BTRs	INST	—
	4. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	6. Scope Bits 1 to 35 on Pu Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus of BTRs	INST	—
	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	8. Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	9. Scope PU Control Bus and Miscellaneous Bus Bits and BTRs	INST	—
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
	(Continued on Page 8)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
21 (Contd)	12. Determine if Last Frame in Item 2.2 Is an SCS or DIFE (Member Numbers 24-31) Frame, or XTSI on Expanded Pollable Bus. If SCS or DIFE (Member Numbers 24-31), or XTSI on Expanded Pollable Bus, Set Up Loop To Observe Expanded Pollable Bits	TELCO	DLP-533
	13. Scope Expanded Pollable Bits	INST	—
	14. Stop the Maintenance Control Client	TELCO	DLP-512
22	Restore PUB 1 to NORM at Power Switch of IPUB 1 of Operational Frames Determined in Item 5		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
23	Restore PUB 1 to NORM at Power Switch of PUBB 0, BAY 1		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS Lamp Goes Off**	TELCO	—
24	At 1B Processor MTC Terminal, Enter Messages to Allow Peripheral Routine Exerciser Diagnostics **(ALW:MACLI,CLASS MTCE!)** and Peripheral System **(TEST:PUSYS!)**	TELCO	—
	NOTE: End of Procedure. Safe Stop Point. To provide a required soak period for PUB 1, growth activities should be performed on the next installation shift	TELCO/INST	—

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO

		RESPONSIBILITY	
	NOTES: 1. Associated Installation Handbook — 264A, Volume II, Section 201 2. Peripheral frame(s) to be removed from PUB branch must have been degrown to grow state prior to start of this procedure		
1	Execute PUB Looping Test To Verify PUB Branch at BTRs (PUB 0):		
	1. Determine Location of Last Frame Where PUB 0 Is Terminated on Bus Branch That Contains Degrown Frame(s) Per Office Record Drawing T-nnnn-Hn-3840	TELCO	—
	2. If VIF Frame Was Determined in Item 1.1, Determine From Office Record Drawing T-nnnn-Hn-3840 Frame Where PU Write and Enable Address Buses Are Terminated	TELCO	—
	3. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	4. At 1B Processor MTC Terminal, Enter Message to Remove PUB 0 From Service **(RMV:PUB 0!)**	TELCO	DLP-506
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	6. If Last Frame Determined in Item 1.1 Is Not VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 1.1	TELCO	DLP-513
	7. If Last Frame Determined in Item 1.1 Is VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-513
	8. Scope Bit 0 on PU Reply Bus at Last Frame Determined in Item 1.1	TELCO	DLP-514
	9. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	10. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	11. If Last Frame Determined in Item 1.1 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 1.1	TELCO	DLP-515
	12. If Last Frame Determined in Item 1.1 Is VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-515
	13. If Last Frame Determined in Item 1.1 Is Not VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 1.1	TELCO	DLP-516

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
1 (Contd)	14. If Last Frame Determined in Item 1.1 Is VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 1.2	TELCO	DLP-516
	15. Scope Bits 1 to 23 on PU Reply Bus at Last Frame Determined in Item 1.1	TELCO	DLP-517
	16. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	17. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	18. Scope PU Control Bus and Miscellaneous Bus Bits at Last Frame Determined in Item 1.1	TELCO	DLP-519
	19. If Last Frame Determined in Item 1.1 Is VIF Frame, Scope Remaining Miscellaneous Bus Bits at Last Frame Determined in Item 1.2	TELCO	DLP-520
	20. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	21. Stop Maintenance Control Program Client	TELCO	DLP-512
	22. At 1B Processor MTC Terminal, Enter Message to Restore PUB 0 to Service **(RST:PUB 0!)**	TELCO	DLP-504
2	Execute PUB Looping Test To Verify PUB Branch at BTRs (PUB 1):		
	1. Determine Location of Last Frame Where PUB 1 Is Terminated on Bus Branch That Contains Degrown Frame(s) Per Office Record Drawing T-nnnn-Hn-3840	TELCO	—
	2. If VIF Frame Was Determined in Item 2.1, Determine From Office Record Drawing T-nnnn-Hn-3840 Frame Where PU Write and Enable Address Buses Are Terminated	TELCO	—
	3. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	4. At 1B Processor MTC Terminal, Enter Message to Remove PUB 1 From Service **(RMV:PUB 1!)**	TELCO	DLP-506
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	6. If Last Frame Determined in Item 2.1 Is Not VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 2.1	TELCO	DLP-513
	(Continued on Page 3)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
2 (Contd)	7. If Last Frame Determined in Item 2.1 Is VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 2.2	TELCO	DLP-513
	8. Scope Bit 0 on PU Reply Bus at Last Frame Determined in Item 2.1	TELCO	DLP-514
	9. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	10. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	11. If Last Frame Determined in Item 2.1 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 2.1	TELCO	DLP-515
	12. If Last Frame Determined in Item 2.1 Is VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in 2.2	TELCO	DLP-515
	13. If Last Frame Determined in Item 2.1 Is Not VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 2.1	TELCO	DLP-516
	14. If Last Frame Determined in Item 2.1 Is VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 2.2	TELCO	DLP-516
	15. Scope Bits 1 to 23 on PU Reply Bus at Last Frame Determined in Item 2.1	TELCO	DLP-517
	16. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	17. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	18. Scope PU Control Bus and Miscellaneous Bus Bits at Last Frame Determined in Item 2.1	TELCO	DLP-519
	19. If Last Frame Determined in Item 2.1 Is VIF Frame, Scope Remaining Miscellaneous Bus Bits at Last Frame Determined in Item 2.2	TELCO	DLP-520
	20. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	21. Stop Maintenance Control Program Client	TELCO	DLP-512
	22. At 1B Processor MTC Terminal, Enter Message to Restore PUB 1 to Service **(RST:PUB 1!)**	TELCO	DLP-504

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
3	Determine Peripheral Frame(s) Where PUB Branch Will Be Reterminated (Could Be PUBB Frame) Per Office Record Drawing T-nnnn-Hn-3840	TELCO/INST	—
4	Assure Power Is Removed From Frame Controllers and IPUBs on Degrown Frame(s)	TELCO/INST	—
	NOTE: Items 5 through 13 are being performed to remove degrown frame(s) from PUB 0		
5	Remove PUB 0 From Service and Power Down PUB 0 at Power Switch of PUBB 0, BAY 0		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
	3. Depress **ROS** Switch to Power Down PUB 0 at PUBB 0, BAY 0	TELCO	—
	4. Response: **POWER** Lamp Is Lighted	TELCO	—
6	Remove PUB 0 From Service at Power Switch of IPUB 0 of Frames Determined in Item 3		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
7	Disconnect PUB 0 Cables Between Degrown Frame(s) and Frame(s) Determined in Item 3 and Install BTRs on Frame(s) To Be Reterminated (Item 3)	INST	
8	Depress **ON** Pushbutton at PUBB 0, BAY 0 to Restore Power to PUB 0. (**POWER** Lamp Goes Off)	TELCO	—
9	Execute PUB Looping Test To Verify Degrowth Bus Branch at BTRs on Reterminated Frame(s) (PUB 0):		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	3. Scope Bit 0 on PU Write and Reply Buses at Reterminated Frame BTRs:		
	1. Scope PU Write Bus Bit 0	INST/TELCO	DLP-513
	2. Scope PU Reply Bus Bit 0	INST/TELCO	DLP-514
	4. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	(Continued on Page 5)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
9 (Contd)	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at Reterminated Frame BTRs:		
	A. Scope PU Write Bus Bits 1 to 35	INST/TELCO	DLP-515
	B. Scope PU Enable Address Bits 0 to 11	INST/TELCO	DLP-516
	C. Scope PU Reply Bus Bits 1 to 23	INST/TELCO	DLP-517
	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	8. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	9. Scope PU Control Bus and Miscellaneous Bus Bits at Reterminated Frame BTRs	INST/TELCO	DLP-519
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
10	Restore PUB 0 to NORM at Power Switch of IPUB 0 of Frames Determined in Item 3		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
11	Restore PUB 0 to NORM at Power Switch of PUBB 0, BAY 0		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
12	If Reterminated Frame(s) Has Full Bus Access and Is Not PUBB Frame, Diagnose IPUB 0 for Reterminated Frame(s) Specifying Phase 99 and Restore to Service	TELCO/INST	DLP-527
13	If VIF Is Reterminated Frame, At 1B Processor MTC Terminal, Enter Message to Restore Controller 0 to Service **(RST:VIF a,CONTR 0!)**	TELCO/INST TELCO/INST	DLP-528 —
	NOTES: 1. This is a safe point to temporarily stop this procedure. To provide a required soak period for PUB 0, degrowth activities for PUB 1 should be performed on the next installation shifts 2. Items 14 through 22 are being performed to remove degrown frame(s) from PUB 1		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
14	At 1B Processor MTC Terminal, Enter Messages to Diagnose PUB 0 and PUB 1		
	1. RST:PUB 0!	TELCO	—
	2. RST:PUB 1!	TELCO	—
	3. Response: ATP for PUB 0 and PUB 1	TELCO	—
15	Remove PUB 1 From Service and Power Down PUB 1 at Power Switch of PUBB 0, BAY 1		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
	3. Depress **ROS** Switch to Power Down PUB 1 at PUBB 0, BAY 1	TELCO	—
	4. Response: **POWER** Lamp Is Lighted	TELCO	—
16	Remove PUB 1 From Service at Power Switch of IPUB 1 of Frames Determined in Item 3		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
17	Disconnect PUB 1 Cables Between Degrown Frame(s) and Frame(s) Determined in Item 3 and Install BTRs on Frame(s) to be Reterminated (Item 3)	INST	—
18	Depress **ON** Pushbutton at PUBB 0, Bay 1 to Restore Power to PUB 1. (Power Lamp Goes Off)	TELCO	—
19	Execute PUB Looping Test To Verify Degrowth Bus Branch at BTRs on Reterminated Frame(s) (PUB 1):		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	3. Scope Bit 0 on PU Write and Reply Buses at Reterminated Frame BTRs:		
	1. Scope PU Write Bus Bit 0	INST/TELCO	DLP-513
	2. Scope PU Reply Bus Bit 0	INST/TELCO	DLP-514
	4. At 1B Processor Terminal, Enter Stop Looping Message (EX:PUB 1!)	TELCO	—
	(Continued on Page 7)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
19 (Contd)	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at Reterminated Frame BTRs:		
	1. Scope PU Write Bus Bits 1 to 35	INST/TELCO	DLP-515
	2. Scope PU Enable Address Bits 0 to 11	INST/TELCO	DLP-516
	3. Scope PU Reply Bus Bits 1 to 23	INST/TELCO	DLP-517
	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	8. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	9. Scope PU Control Bus and Miscellaneous Bus Bits at Reterminated Frame BTRs	INST/TELCO	DLP-519
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
20	Restore PUB 1 to NORM at Power Switch of IPUB 1 of Frames Determined in Item 3		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
21	Restore PUB 1 to NORM at Power Switch of PUBB 0, BAY 1		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
22	If Reterminated Frame(s) Has Full Bus Access and Is Not PUBB Frame, Diagnose IPUB 1 for Reterminated Frame(s) Specifying Phase 99 and Restore to Service	TELCO/INST	DLP-527
23	If VIF Is Reterminated Frame, At 1B Processor MTC Terminal, Enter Message to Restore Controller 1 to Service **(RST:VIF a,CONTR 1!)**	TELCO/INST	DLP-528

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO

		RESPONSIBILITY	
	NOTES: 1. Associated Installation Handbook — 264A, Volume II, Section 201 2. Peripheral frame(s) to be removed from PUB branch must have been degrown to grow state prior to start of this procedure		
1	Execute PUB Looping Test To Verify PUB Branch at BTRs (PUB 0):		
	1. Determine Location of Last Frame Where PUB 0 Is Terminated on Bus Branch That Contains Degrown Frame(s) Per Office Record Drawing T-nnnn-Hn-3840	TELCO	—
	2. If VIF Frame Was Determined in Item 1.1, Determine From Office Record Drawing T-nnnn-Hn-3840 Frame Where PU Write and Enable Address Buses Are Terminated	TELCO	—
	3. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	4. At 1B Processor MTC Terminal, Enter Message to Remove PUB 0 From Service **(RMV:PUB 0!)**	TELCO	DLP-506
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	6. If Last Frame Determined in Item 1.1 Is Not VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 1.1	TELCO	DLP-513
	7. If Last Frame Determined in Item 1.1 Is VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-513
	8. Scope Bit 0 on PU Reply Bus at Last Frame Determined in Item 1.1	TELCO	DLP-514
	9. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	10. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	11. If Last Frame Determined in Item 1.1 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 1.1	TELCO	DLP-515
	12. If Last Frame Determined in Item 1.1 Is VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 1.2	TELCO	DLP-515
	13. If Last Frame Determined in Item 1.1 Is Not VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 1.1	TELCO	DLP-516

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
1 (Contd)	14. If Last Frame Determined in Item 1.1 Is VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 1.2	TELCO	DLP-516
	15. Scope Bits 1 to 23 on PU Reply Bus at Last Frame Determined in Item 1.1	TELCO	DLP-517
	16. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	17. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	18. Scope PU Control Bus and Miscellaneous Bus Bits at Last Frame Determined in Item 1.1	TELCO	DLP-519
	19. If Last Frame Determined in Item 1.1 Is VIF Frame, Scope Remaining Miscellaneous Bus Bits at Last Frame Determined in Item 1.2	TELCO	DLP-520
	20. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	21. Stop Maintenance Control Program Client	TELCO	DLP-512
	22. At 1B Processor MTC Terminal, Enter Message to Restore PUB 0 to Service **(RST:PUB 0!)**	TELCO	DLP-504
2	Execute PUB Looping Test To Verify PUB Branch at BTRs (PUB 1):		
	1. Determine Location of Last Frame Where PUB 1 Is Terminated on Bus Branch That Contains Degrown Frame(s) Per Office Record Drawing T-nnnn-Hn-3840	TELCO	—
	2. If VIF Frame Was Determined in Item 2.1, Determine From Office Record Drawing T-nnnn-Hn-3840 Frame Where PU Write and Enable Address Buses Are Terminated	TELCO	—
	3. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	4. At 1B Processor MTC Terminal, Enter Message to Remove PUB 1 From Service **(RMV:PUB 1!)**	TELCO	DLP-506
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	6. If Last Frame Determined in Item 2.1 Is Not VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 2.1	TELCO	DLP-513
	(Continued on Page 3)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
2 (Contd)	7. If Last Frame Determined in Item 2.1 Is VIF Frame, Set Up Oscilloscope	TELCO	DLP-530
	1. Scope Bit 0 on PU Write Bus at Last Frame Determined in Item 2.2	TELCO	DLP-513
	8. Scope Bit 0 on PU Reply Bus at Last Frame Determined in Item 2.1	TELCO	DLP-514
	9. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	10. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	11. If Last Frame Determined in Item 2.1 Is Not VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 2.1	TELCO	DLP-515
	12. If Last Frame Determined in Item 2.1 Is VIF Frame, Scope Bits 1 to 35 on PU Write Bus at Last Frame Determined in Item 2.2	TELCO	DLP-515
	13. If Last Frame Determined in Item 2.1 Is Not VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 2.1	TELCO	DLP-516
	14. If Last Frame Determined in Item 2.1 Is VIF Frame, Scope Bits 0 to 11 on PU Enable Address Bus at Last Frame Determined in Item 2.2	TELCO	DLP-516
	15. Scope Bits 1 to 23 on PU Reply Bus at Last Frame Determined in Item 2.1	TELCO	DLP-517
	16. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	17. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	18. Scope PU Control Bus and Miscellaneous Bus Bits at Last Frame Determined in Item 2.1	TELCO	DLP-519
	19. If Last Frame Determined in Item 2.1 Is VIF Frame, Scope Remaining Miscellaneous Bus Bits at Last Frame Determined in Item 2.2	TELCO	DLP-520
	20. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	21. Stop Maintenance Control Program Client	TELCO	DLP-512
	22. At 1B Processor MTC Terminal, Enter Message to Restore PUB 1 to Service **(RST:PUB 1!)**	TELCO	DLP-504
	(Continued on Page 4)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
3	Determine Peripheral Frame(s) Located Before (Could Be PUBB Frame) and After Degrowth Frame(s) On PUB Branch Per Office Record Drawing T-nnnn-Hn-3840	TELCO/INST	—
4	Verify New PUB Cabling Between Operational Frames on Each Side of Degrown Frame(s) Has Been Run in Place and Is Ready for Connection	INST	—
5	Assure Power Is Removed From Frame Controllers and IPUBs on Degrown Frame(s)	TELCO/INST	—
	NOTE: Items 6 through 14 are being performed to remove degrown frame(s) from PUB 0		
6	Remove PUB 0 From Service and Power Down PUB 0 at Power Switch of PUBB 0, BAY 0		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
	3. Depress **ROS** Switch to Power Down PUB 0 at PUBB 0, BAY 0	TELCO	—
	4. Response: **POWER** Lamp Is Lighted	TELCO	—
7	Remove PUB 0 From Service at Power Switch of IPUB 0 of Frames Determined in Item 3		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
8	At Frame(s) Determined in Item 3 That Is Located Before Degrowth Frame(s), Disconnect PUB 0 Output Cables and Connect New PUB 0 Cables in Their Place	INST	—
9	At Frame(s) Determined in Item 3 That Is Located After Degrowth Frame(s), Disconnect PUB 0 Input Cables and Connect New PUB 0 Cables in Their Place	INST	—
10	Depress **ON** Pushbutton at PUBB 0, BAY 0 to Restore Power to PUB 0. (**POWER** Lamp Goes Off)	TELCO	—
11	Execute PUB Looping Test to Verify Degrowth Bus Branch at BTRs:		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	3. Scope Bit 0 on PU Write and Reply Buses at BTRs:		
	1. Scope PU Write Bus Bit 0	INST/TELCO	DLP-513
	2. Scope PU Reply Bus Bit 0	INST/TELCO	DLP-514

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
11 (Contd)	4. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	5. Advance Program Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at BTRs:		
	1. Scope PU Write Bus Bits 1 to 35	INST/TELCO	DLP-515
	2. Scope PU Enable Address Bits 0 to 11	INST/TELCO	DLP-516
	3. Scope PU Reply Bus Bits 1 to 23	INST/TELCO	DLP-517
	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	8. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	9. Scope PU Control Bus and Miscellaneous Bus Bits at BTRs	INST/TELCO	DLP-519
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 0!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
12	Restore PUB 0 to NORM at Power Switch of IPUB 0 of Frames Determined in Item 3		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
13	Restore PUB 0 to NORM at Power Switch of PUBB 0, BAY 0		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
14	If VIF Frame(s) Was Determined in Item 3, Restore Controller 0 to Service for VIF Frame(s) Determined	TELCO/INST	DLP-528
	NOTES: 1. This is a safe point to temporarily stop this procedure. To provide a required soak period for PUB 0, degrowth activities for PUB 1 should be performed on the next installation shift 2. Items 15 through 23 are being performed to remove degrown frame(s) from PUB 1		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
15	At 1B Processor MTC Terminal, Enter Messages to Diagnose PUB 0 and PUB 1		
	1. RST:PUB 0!	TELCO	—
	2. RST:PUB 1!	TELCO	—
	3. Response: ATP for PUB 0 and PUB 1	TELCO	—
16	Remove PUB 1 From Service and Power Down PUB 1 at Power Switch of PUBB 0, BAY 1		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
	3. Depress **ROS** Switch to Power Down PUB 1 at PUBB 0, BAY 1	TELCO	—
	4. Response: **POWER** Lamp Is Lighted	TELCO	—
17	Remove PUB 1 From Service at Power Switch of IPUB 1 of Frames Determined in Item 3		
	1. Rotate **ROS/OFF** Switch to **ROS** Position	TELCO	—
	2. Response: **OFF/NORM** Lamp Is Lighted and **OS** Lamp Is Lighted	TELCO	—
18	At Frame(s) Determined in Item 3 That Is Located Before Degrowth Frame(s), Disconnect PUB 1 Output Cables and Connect New PUB 1 Cables or BTRs in Their Place	INST	—
19	At Frame(s) Determined in Item 3 That Is Located After Degrowth Frame(s), Disconnect PUB 1 Input Cables and Connect New PUB 1 Cables in Their Place	INST	—
20	Depress **ON** Pushbutton at PUBB 0, Bay 1 to Restore Power to PUB 1. (Power Lamp Goes Off)	TELCO	—
	NOTE: Be careful NOT to disturb scope set-up as scope is relocated in later step!		
21	Execute PUB Looping Test To Verify Degrowth Bus Branch at BTRs:		
	1. Store Input Messages on 1B Processor Terminal for PUB Looping Test	TELCO	DLP-510
	2. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bit 0 on PU Write and Reply Buses	TELCO	DLP-511
	3. Scope Bit 0 on PU Write and Reply Buses at BTRs:		
	1. Scope PU Write Bus Bit 0	INST/TELCO	DLP-513
	(Continued on Page 7)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
21 (Contd)	2. Scope PU Reply Bus Bit 0	INST/TELCO	DLP-514
	4. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	5. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus	TELCO	DLP-511
	6. Scope Bits 1 to 35 on PU Write Bus, Bits 0 to 11 on PU Enable Address Bus, and Bits 1 to 23 on PU Reply Bus at Reterminated Frame BTRs:		
	1. Scope PU Write Bus Bits 1 to 35	INST/TELCO	DLP-515
	2. Scope PU Enable Address Bits 0 to 11	INST/TELCO	DLP-516
	3. Scope PU Reply Bus Bits 1 to 23	INST/TELCO	DLP-517
	7. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	8. Advance Program to Bus Branch To Be Scoped and Set Up Loop To Observe PU Control Bus and Miscellaneous Bus Bits	TELCO	DLP-518
	9. Scope PU Control Bus and Miscellaneous Bus Bits at BTRs	INST/TELCO	DLP-519
	10. At 1B Processor Terminal, Enter Stop Looping Message **(EX:PUB 1!)**	TELCO	—
	11. Stop Maintenance Control Program Client	TELCO	DLP-512
22	Restore PUB 1 to NORM at Power Switch of IPUB 1 of Frames Determined in Item 3		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
	NOTE: Step 23.1 through Step 23.4 are performed to insure degrown frames are isolated from the PUB		
23	Verify Degrown Frames are Isolated From PUB 1		
	1. Disconnect a PUB 1 Cable at the OUTPUT of One of the Degrown Frames	INST	—
	2. Install a 943E 100 ohm BTR in Place of Cable Removed in Step 23.1	INST	—
	(Continued on Page 8)		

DO THE ITEMS BELOW IN THE ORDER LISTED . . . . . FOR DETAILS, GO TO			
23 (Contd)	**NOTE:** If a pulse is displayed, the degrown frame is NOT Isolated from the PUB. Replace cable removed in Step 23.1. Stop work and contact next higher level of support for assistance		
	3. Scope Bit 35 Without Disturbing Settings used in PUB Looping Test. Verify NO BIT 35 PULSE IS DISPLAYED. These Pulses only Appear Occasionally. Wait 1-2 Minutes Before Continuing. If a PULSE IS DISPLAYED, the Degrown Frame is NOT isolated from the PUB. Replace Cable Removed in Step 23.1. Stop Work and Contact Next Higher Level of Support for Assistance	INST/TELCO	—
	4. Repeat Steps 23.1 - 23.3 for ALL Degrown Frames Before Continuing	INST/TELCO	—
24	Restore PUB 1 to NORM at Power Switch of PUBB 0, BAY 1		
	1. Rotate **ROS/OFF** Switch to **NORM** Position	TELCO	—
	2. Response: CATP. **OFF/NORM** Lamp Goes Off. **OS** Lamp Goes Off	TELCO	—
25	If VIF Frame(s) Was Determined in Item 3, Restore Controller 1 to Service for VIF Frame(s) Determined	TELCO/INST	DLP-528

SUMMARY

Using PUBB verify entry input message, call up PUBB UT translator and verify that submember equipage for growth circuit half is unequipped. If data is in error, degrow submember equipage. Using same PUBB UT translator, verify that controllers 0 and 1 version number agree with appropriate office record and shipping information. If data is in error, perform functional word change. Refer to entry word explanations of TABLE B, Page 3, as required, for assistance in interpreting specific data fields

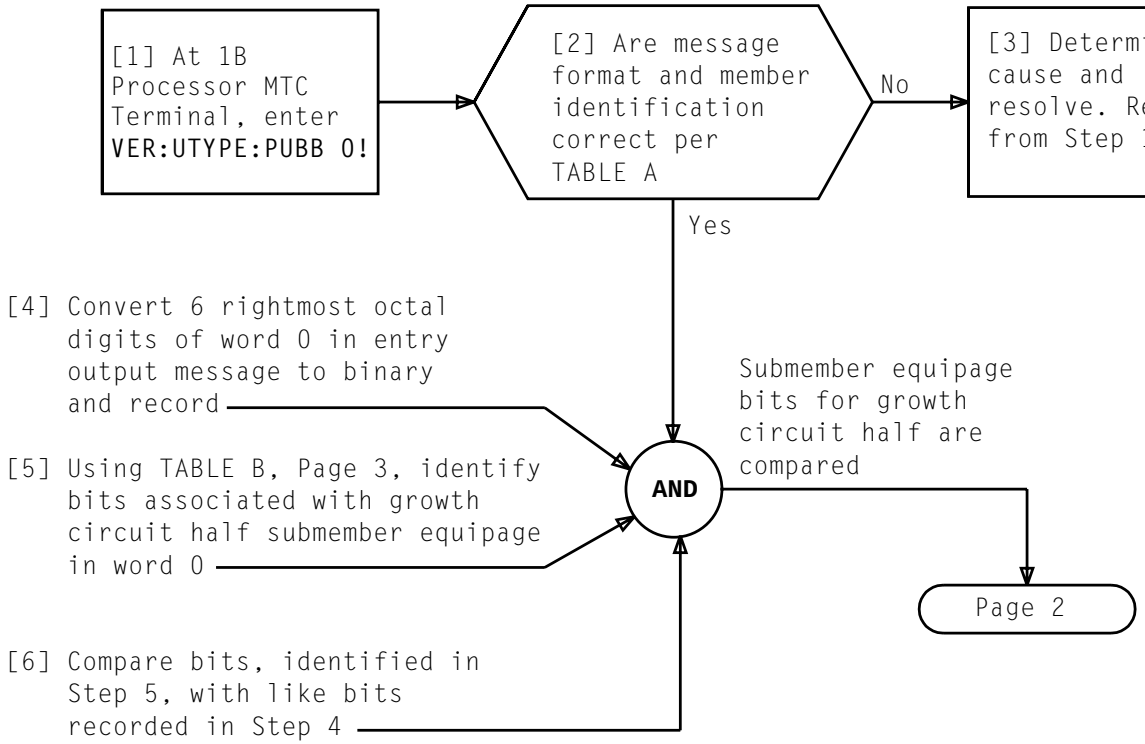
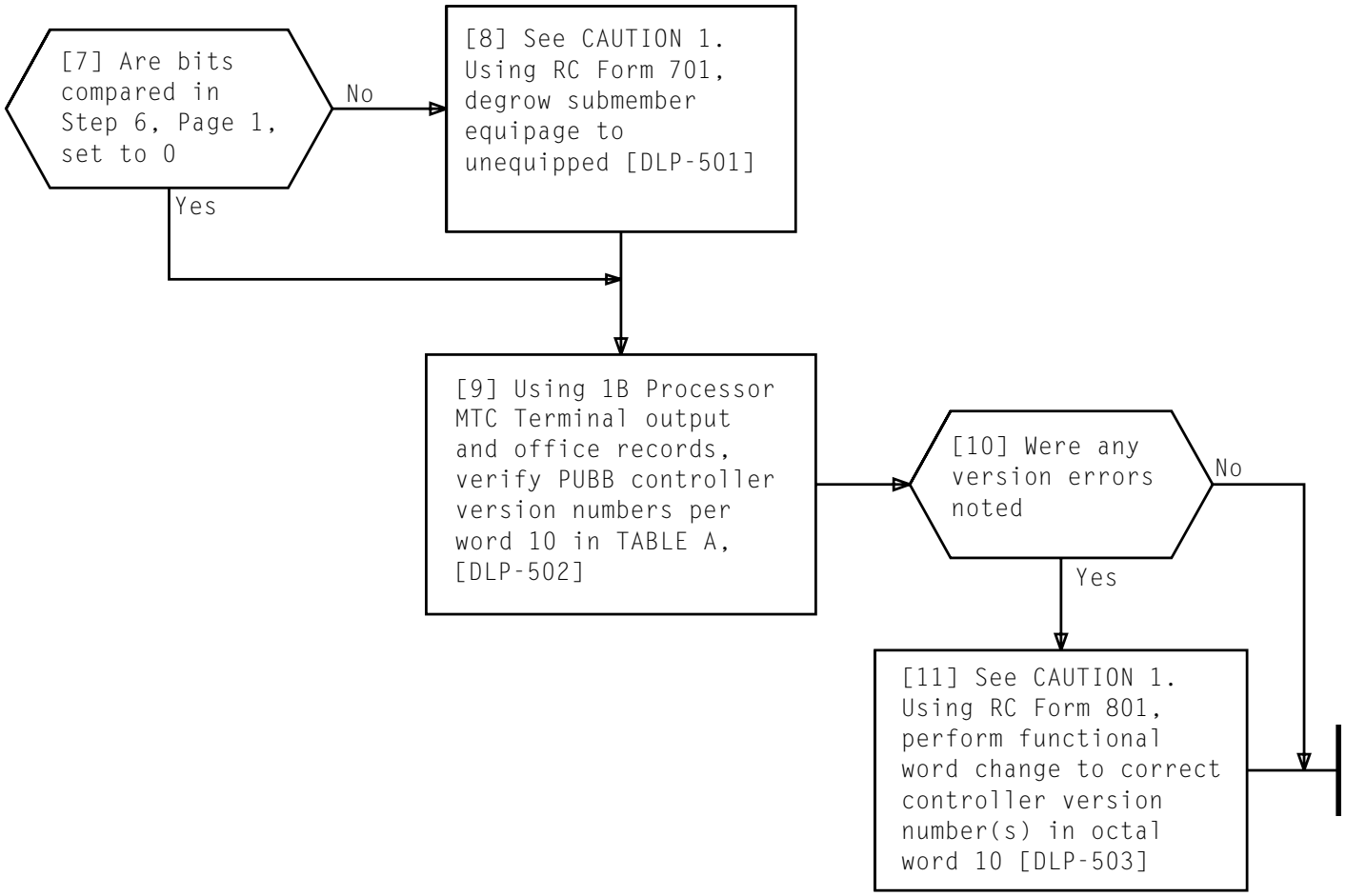


TABLE A

VER:UTMN;OPT( ),CUR: FLN a, UTYN PUBB,
MEMN 0, ME OPER,
ENTRY ADDRESS b, ENTRY SIZE 14,
CUR
WORD 0 _____ _____ _____ _____
_____ _____ _____ _____
WORD 10 _____ _____ _____ _____
_____ _____

a = Floor location number
b = Starting octal address for unit type entry

VERIFY UNIT DATA OF PUBB UT TRANSLATOR



CAUTION 1
Depending on local procedures, supervisory or TELCO engineering approval must be obtained prior to performing any data change

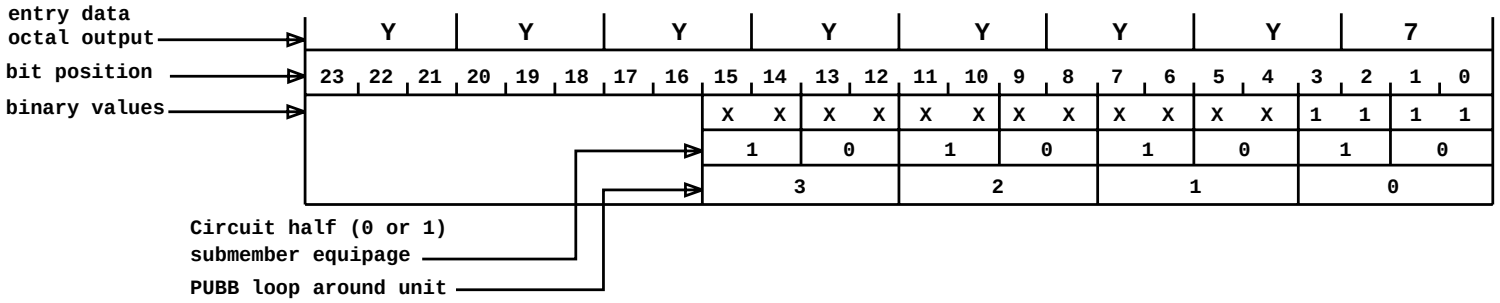
VERIFY UNIT DATA OF PUBB UT TRANSLATOR

TABLE B

ENTRY WORD (OCTAL)

UT ENTRY DATA AND WORD CONFIGURATION

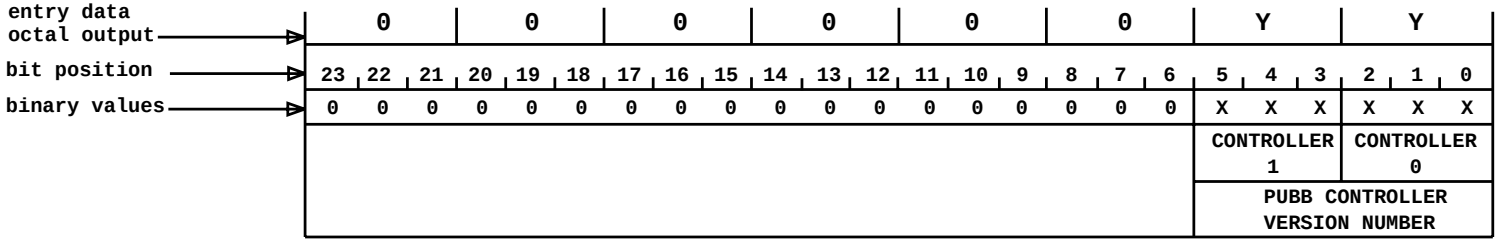
0



XX = 2-digit code giving status of circuit half (0 or 1)
= 00 = Unequipped
= 11 = Operational

Y...Y = Variable octal numbers

10



XX = Version numbers of PUBB equipment as reflected in appropriate office record drawings and shipping info

Y = Variable octal numbers

VERIFY UNIT DATA OF PUBB UT TRANSLATOR

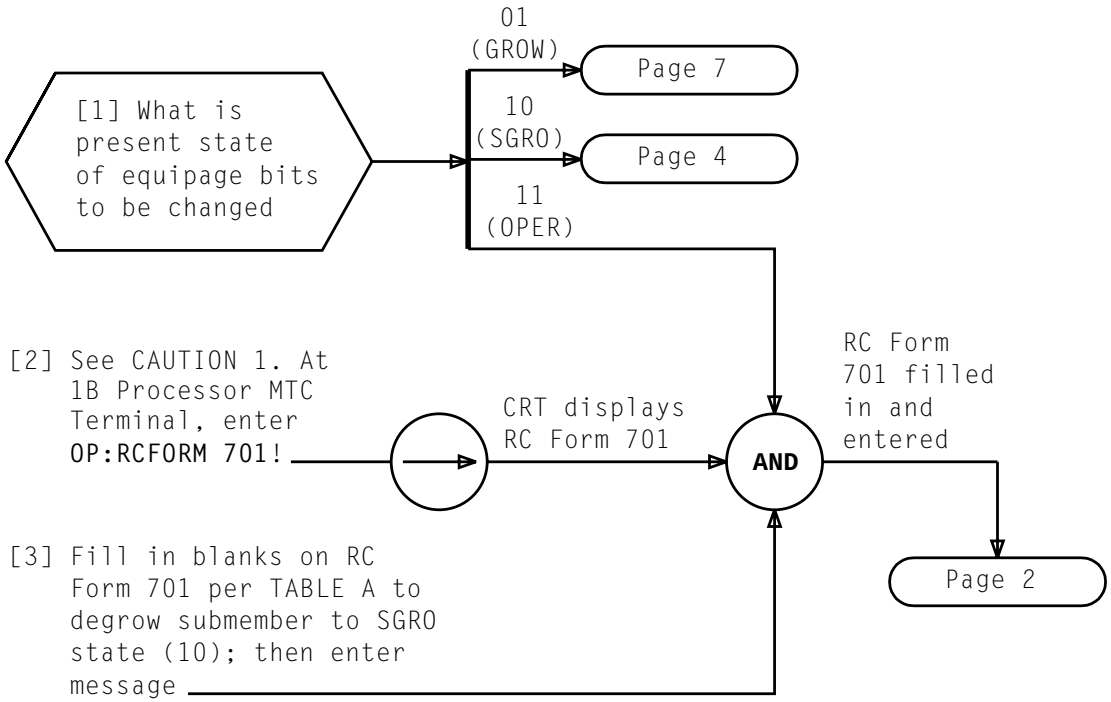


TABLE A

```
RC:UTYPE,CHG;OPT(EQP,DEGROW),TST:        UTYN a,

ORNU b,
                              OLD   NEW
MEMN c,          ME    (----, ----),

                              OLD   NEW
SUBMEM d,        SME   (  e ,   e ),

REMARKS--------------------------------!
```

a = Unit type = PUBB
b = RC order number
c = Member number of degrowth associated frame
d = Submember name
    = CKHEQ00 (for PUBB Unit 0, Half 0)
    = CKHEQ01 (for PUBB Unit 0, Half 1)
    = CKHEQ10 (for PUBB Unit 1, Half 0)
    = CKHEQ11 (for PUBB Unit 1, Half 1)
    = CKHEQ20 (for PUBB Unit 2, Half 0)
    = CKHEQ21 (for PUBB Unit 2, Half 1)
    = CKHEQ30 (for PUBB Unit 3, Half 0)
    = CKHEQ31 (for PUBB Unit 3, Half 1)
e = OPER, SGRO

CAUTION 1
Calling up RC form will cause all CRT data to be cleared

RECENT CHANGE SUBMEMBER EQUIPAGE USING RC FORM 701 (DEGROW)

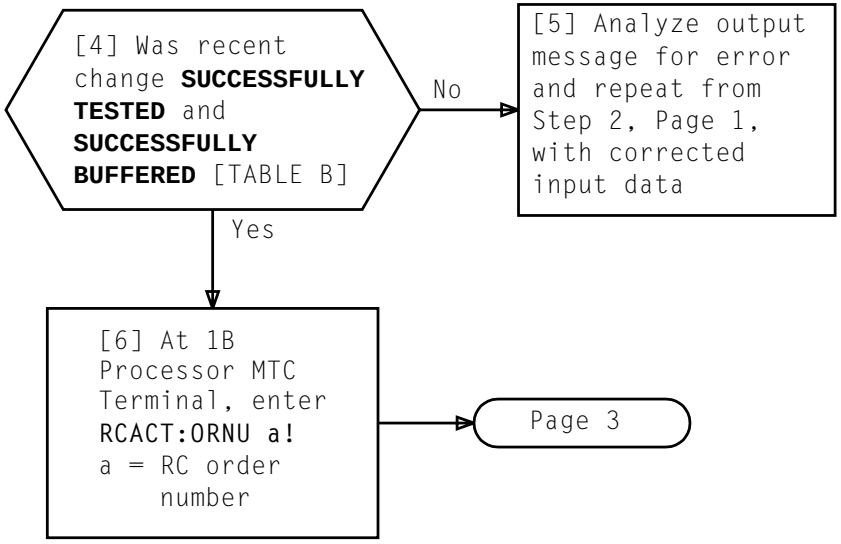


TABLE B

```
RC ORNU a SUCCESSFULLY TESTED

RC ORNU a SUCCESSFULLY BUFFERED

RC:UTYPE,CHG;OPT(EQP,DEGROW),BUF:     UTYN PUBB,

ORNU a,
                          OLD   NEW
MEMN b,          ME    (----, ----),

                          OLD   NEW
SUBMEM c,        SME   (OPER, SGRO),

REMARKS-------------------------------!
```

a = RC order number
b = Member number of degrowth associated frame
c = Submember name
    = CKHEQ00 (for PUBB Unit 0, Half 0)
    = CKHEQ01 (for PUBB Unit 0, Half 1)
    = CKHEQ10 (for PUBB Unit 1, Half 0)
    = CKHEQ11 (for PUBB Unit 1, Half 1)
    = CKHEQ20 (for PUBB Unit 2, Half 0)
    = CKHEQ21 (for PUBB Unit 2, Half 1)
    = CKHEQ30 (for PUBB Unit 3, Half 0)
    = CKHEQ31 (for PUBB Unit 3, Half 1)

RECENT CHANGE SUBMEMBER EQUIPAGE USING RC FORM 701 (DEGROW)

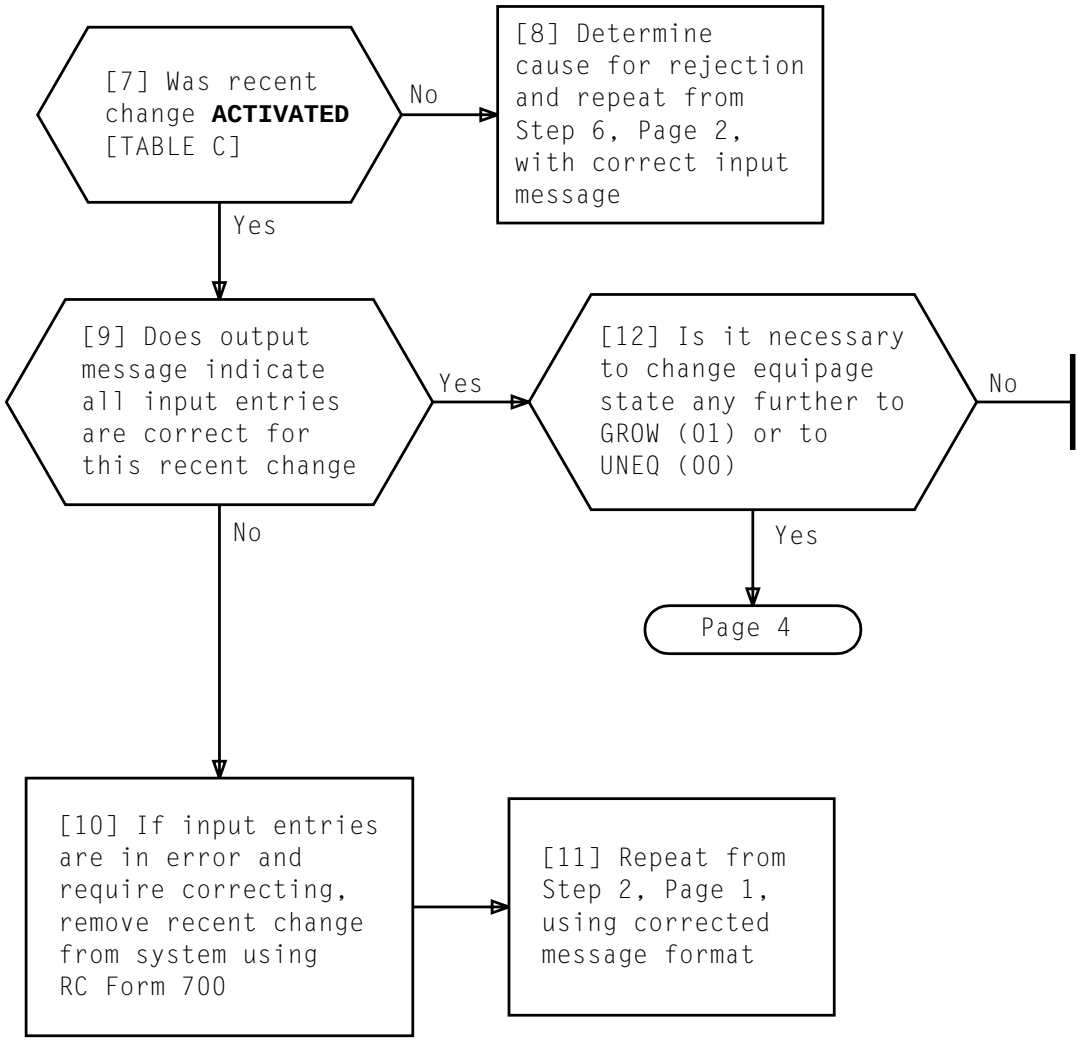


TABLE C

```
RC ORNU a ACTIVATED
RC:UTYPE,CHG;OPT(EQP,GROW),BUF:      UTYN PUBB,

ORNU a,
                          OLD   NEW
MEMN b,          ME    (----, ----),

                          OLD   NEW
SUBMEM c,        SME   (OPER, SGRO),

REMARKS-------------------------------!
```

a = RC order number
b = Member number of degrowth associated frame
c = Submember name:
- = CKHEQ00 (for PUBB Unit 0, Half 0)
- = CKHEQ01 (for PUBB Unit 0, Half 1)
- = CKHEQ10 (for PUBB Unit 1, Half 0)
- = CKHEQ11 (for PUBB Unit 1, Half 1)
- = CKHEQ20 (for PUBB Unit 2, Half 0)
- = CKHEQ21 (for PUBB Unit 2, Half 1)
- = CKHEQ30 (for PUBB Unit 3, Half 0)
- = CKHEQ31 (for PUBB Unit 3, Half 1)

RECENT CHANGE SUBMEMBER EQUIPAGE USING RC FORM 701 (DEGROW)

[13] See CAUTION 2. At 1B Processor MTC Terminal, Enter OP:RCFORM 701!

CRT displays RC Form 701

RC Form 701 filled in and entered

AND

[14] Fill in blanks on RC Form 701 per TABLE D to degrow submember to GROW state (01); then enter message

Page 5

TABLE D

```
RC:UTYPE;CHG;OPT(EQP,DEGROW),TST:        UTYN a,

ORNU b,
                          OLD  NEW
MEMN c,          ME    (----, ----),

                          OLD  NEW
SUBMEM d,        SME   (  e ,   e ),

REMARKS-----------------------------!
```

a = Unit type = PUBB
b = RC order number
c = Member number of degrowth associated frame
d = Submember name
    = CKHEQ00 (for PUBB Unit 0, Half 0)
    = CKHEQ01 (for PUBB Unit 0, Half 1)
    = CKHEQ10 (for PUBB Unit 1, Half 0)
    = CKHEQ11 (for PUBB Unit 1, Half 1)
    = CKHEQ20 (for PUBB Unit 2, Half 0)
    = CKHEQ21 (for PUBB Unit 2, Half 1)
    = CKHEQ30 (for PUBB Unit 3, Half 0)
    = CKHEQ31 (for PUBB Unit 3, Half 1)
e = SGRO, GROW

CAUTION 2
Calling up RC form will cause all CRT data to be cleared

RECENT CHANGE SUBMEMBER EQUIPAGE USING RC FORM 701 (DEGROW)

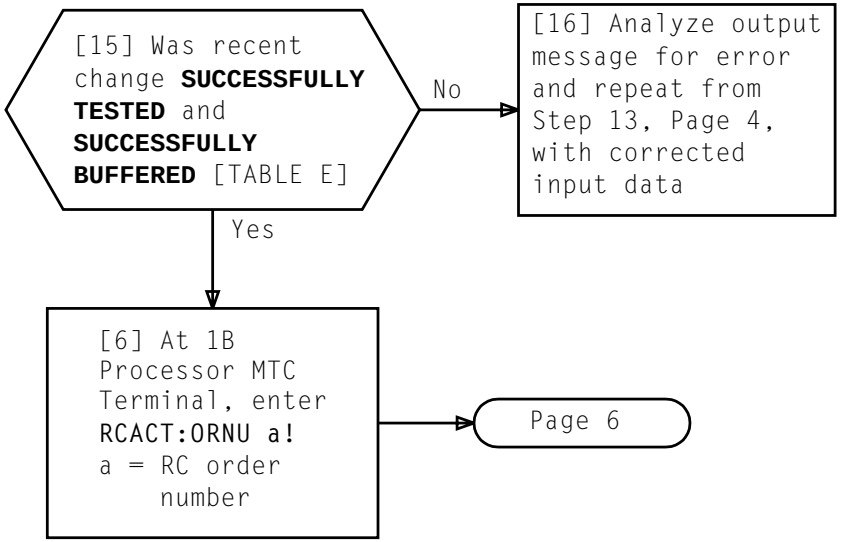


TABLE E

```
RC ORNU a SUCCESSFULLY TESTED

RC ORNU a SUCCESSFULLY BUFFERED

RC:UTYPE,CHG;OPT(EQP,DEGROW),BUF:     UTYN PUBB,

ORNU a,
                          OLD   NEW
MEMN b,          ME    (----, ----),

                          OLD   NEW
SUBMEM c,        SME   (SGRO, GROW),

REMARKS--------------------------------!
```

a = RC order number
b = Member number of degrowth associated frame
c = Submember name
    = CKHEQ00 (for PUBB Unit 0, Half 0)
    = CKHEQ01 (for PUBB Unit 0, Half 1)
    = CKHEQ10 (for PUBB Unit 1, Half 0)
    = CKHEQ11 (for PUBB Unit 1, Half 1)
    = CKHEQ20 (for PUBB Unit 2, Half 0)
    = CKHEQ21 (for PUBB Unit 2, Half 1)
    = CKHEQ30 (for PUBB Unit 3, Half 0)
    = CKHEQ31 (for PUBB Unit 3, Half 1)

RECENT CHANGE SUBMEMBER EQUIPAGE USING RC FORM 701 (DEGROW)

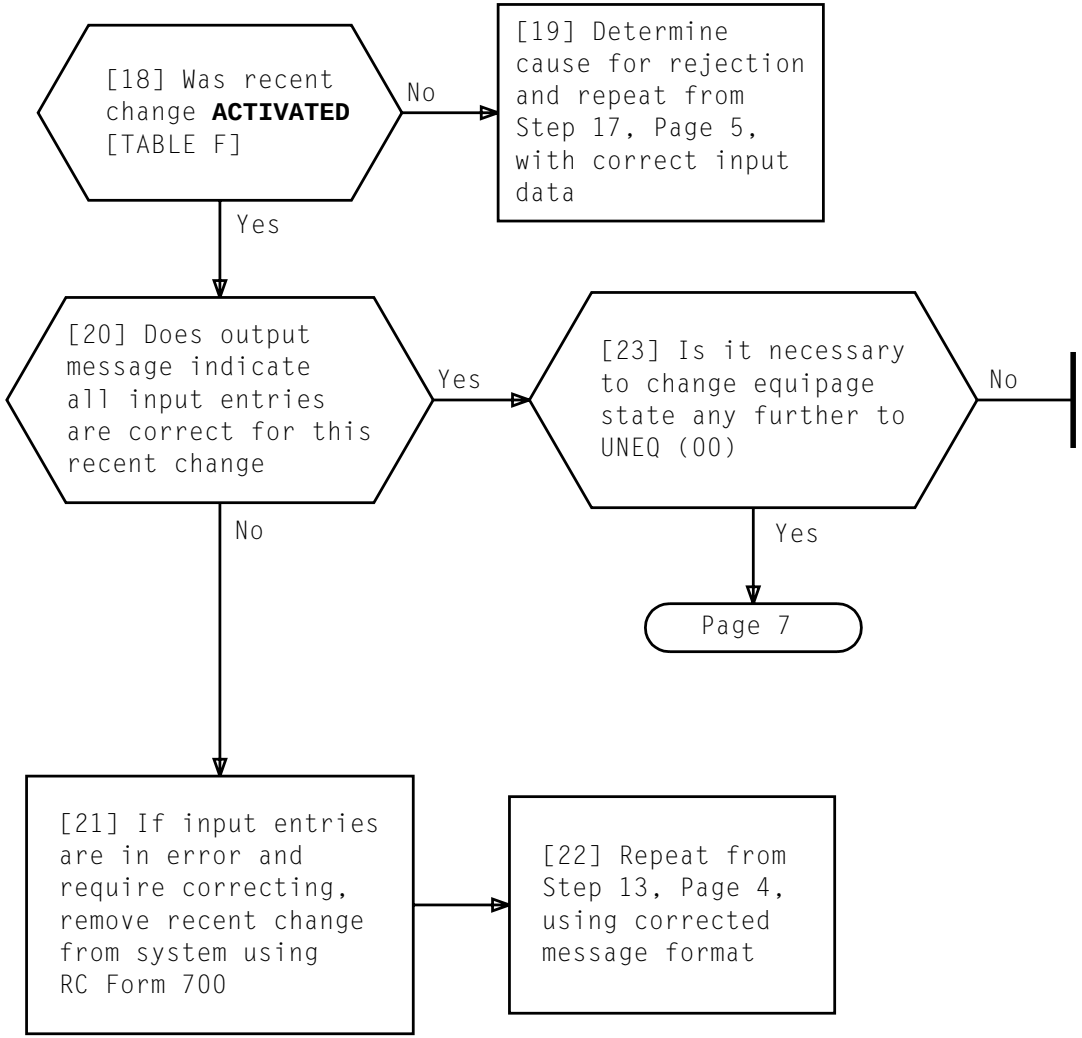


TABLE F

```
RC ORNU a ACTIVATED
RC:UTYPE,CHG;OPT(EQP,GROW), BUF:      UTYN PUBB,

ORNU a,
                          OLD   NEW
MEMN b,          ME    (----, ----),

                          OLD   NEW
SUBMEM c,        SME   (SGRO, GROW),

REMARKS--------------------------------!
```

a = RC order number
b = Member number of degrowth associated frame
c = Submember name:
- = CKHEQ00 (for PUBB Unit 0, Half 0)
- = CKHEQ01 (for PUBB Unit 0, Half 1)
- = CKHEQ10 (for PUBB Unit 1, Half 0)
- = CKHEQ11 (for PUBB Unit 1, Half 1)
- = CKHEQ20 (for PUBB Unit 2, Half 0)
- = CKHEQ21 (for PUBB Unit 2, Half 1)
- = CKHEQ30 (for PUBB Unit 3, Half 0)
- = CKHEQ31 (for PUBB Unit 3, Half 1)

CAUTION 2
Calling up RC form will cause all CRT data to be cleared

RECENT CHANGE SUBMEMBER EQUIPAGE USING RC FORM 701 (DEGROW)

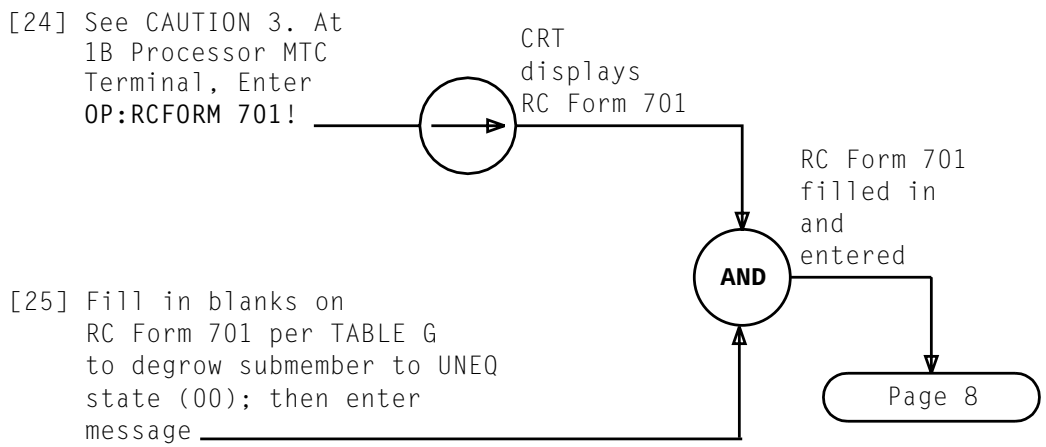


TABLE G

```
RC:UTYPE;CHG;OPT(EQP,DEGROW),TST:        UTYN a,

ORNU b,
                          OLD  NEW
MEMN c,          ME    (----, ----),

                          OLD  NEW
SUBMEM d,        SME   (  e ,   e ),

REMARKS------------------------------!
```

a = Unit type = PUBB
b = RC order number
c = Member number of degrowth associated frame
d = Submember name
    = CKHEQ00 (for PUBB Unit 0, Half 0)
    = CKHEQ01 (for PUBB Unit 0, Half 1)
    = CKHEQ10 (for PUBB Unit 1, Half 0)
    = CKHEQ11 (for PUBB Unit 1, Half 1)
    = CKHEQ20 (for PUBB Unit 2, Half 0)
    = CKHEQ21 (for PUBB Unit 2, Half 1)
    = CKHEQ30 (for PUBB Unit 3, Half 0)
    = CKHEQ31 (for PUBB Unit 3, Half 1)
e = GROW, UNEQ

CAUTION 3
Calling up RC form will cause all CRT data to be cleared

RECENT CHANGE SUBMEMBER EQUIPAGE USING RC FORM 701 (DEGROW)

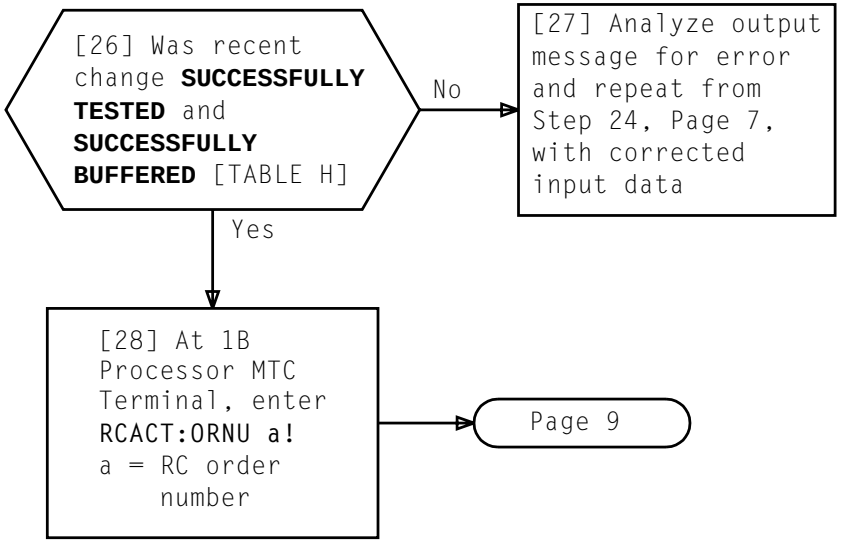


TABLE H

```
RC ORNU a SUCCESSFULLY TESTED
RC ORNO a SUCCESSFULLY BUFFERED
RC:UTYPE,CHG;OPT(EQP,DEGROW),BUF:     UTYN PUBB,

ORNU a,
                          OLD   NEW
MEMN b,          ME    (----, ----),

                          OLD   NEW
SUBMEM c,        SME   (GROW, UNEQ),

REMARKS--------------------------------!
```

a = RC order number
b = Member number of degrowth associated frame
c = Submember name
    = CKHEQ00 (for PUBB Unit 0, Half 0)
    = CKHEQ01 (for PUBB Unit 0, Half 1)
    = CKHEQ10 (for PUBB Unit 1, Half 0)
    = CKHEQ11 (for PUBB Unit 1, Half 1)
    = CKHEQ20 (for PUBB Unit 2, Half 0)
    = CKHEQ21 (for PUBB Unit 2, Half 1)
    = CKHEQ30 (for PUBB Unit 3, Half 0)
    = CKHEQ31 (for PUBB Unit 3, Half 1)

RECENT CHANGE SUBMEMBER EQUIPAGE USING RC FORM 701 (DEGROW)

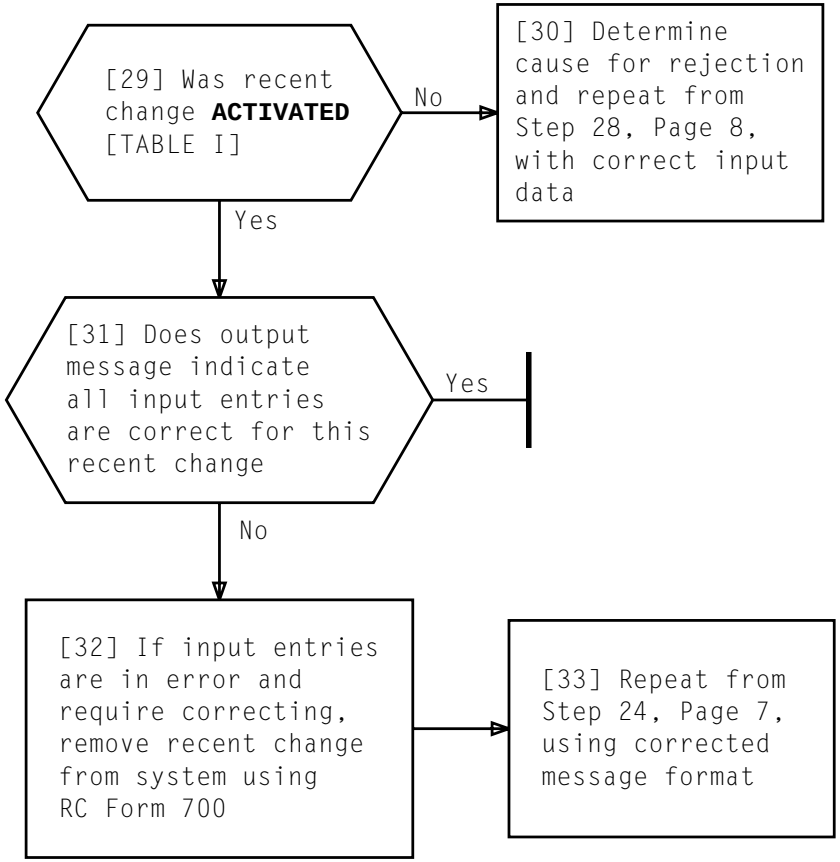


TABLE I

```
RC ORNU a ACTIVATED
RC:UTYPE,CHG;OPT(EQP,GROW),BUF:       UTYN PUBB,

ORNU a,
                          OLD   NEW
MEMN b,          ME    (----, ----),

                          OLD   NEW
SUBMEM c,        SME   (GROW, UNEQ),

REMARKS--------------------------------!
```

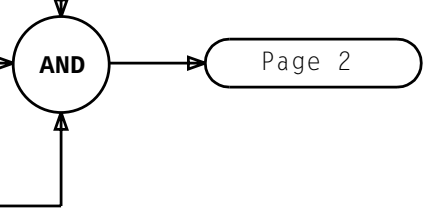
a = RC order number
b = Member number of degrowth associated frame
c = Submember name
    = CKHEQ00 (for PUBB Unit 0, Half 0)
    = CKHEQ01 (for PUBB Unit 0, Half 1)
    = CKHEQ10 (for PUBB Unit 1, Half 0)
    = CKHEQ11 (for PUBB Unit 1, Half 1)
    = CKHEQ20 (for PUBB Unit 2, Half 0)
    = CKHEQ21 (for PUBB Unit 2, Half 1)
    = CKHEQ30 (for PUBB Unit 3, Half 0)
    = CKHEQ31 (for PUBB Unit 3, Half 1)

RECENT CHANGE SUBMEMBER EQUIPAGE USING RC FORM 701 (DEGROW)

[1] See octal word containing version data in entry output message

[2] For each controller/unit convert octal digits to version number per FIG. 1 and record

[3] Obtain from installer LDI issue numbers for each growth frame controller/unit



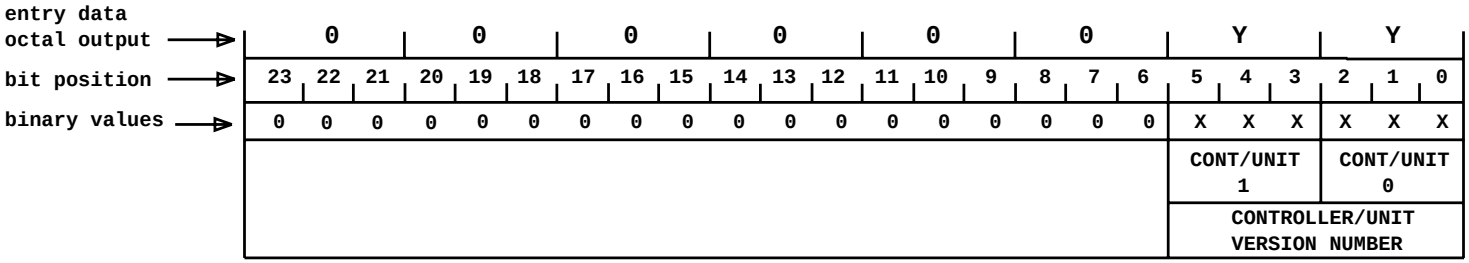


FIG. 1 – Word Layout for Version Numbers

VERIFY CONTROLLER/UNIT VERSION NUMBERS

[4] Using TABLE A, select version numbers associated with LDI issue numbers obtained in Step 3. See NOTE 1

[5] Compare version numbers of Step 4 with version numbers calculated in Step 2

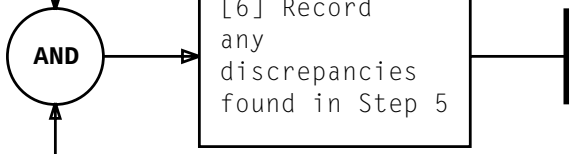


TABLE A					
UNIT	SD NUMBER	MEMBER VERSION NUMBER			
		0	1	2	3
PUBB Controller	4A019-01	1A	2A	—	—
	4A038-01	1A	2A	—	—

NOTE 1
PECC diagnostic center may be consulted for current version information if not listed in TABLE A

VERIFY CONTROLLER/UNIT VERSION NUMBERS

SUMMARY

Call up RC Form 801 on CRT. Using 1B Processor MTC Terminal, fill in blank fields on form to identify and to correct selected digit(s) within a selected word of UT translator. Enter message, then verify inactive translations. Using assigned order number, activate recent change; then verify current translations

[1] See CAUTION 1.
Enter
OP:RCFORM 801!

CRT displays RC Form 801 per FIG. 1

Using 1B Processor MTC Terminal display of RC Form 801:

[2] Type **TST** in field following (TRANS)

[3] Type **UTPUBB** in field following TRANSID

[4] Type recent change order number assigned to this word change in field following ORNU

[5] In field following ENTRY, type member number of growth member requiring UT translator change

AND

Page 2

```
RC:FUNC;CHG;OPT(TRANS),_ _ _:      TRANSID _ _ _ _,
ORNU _ _ _ _ _ _ _,
ENTRY _ _ _ _ _ _ _ _, WORDNO _ _ _ _,
SIZE _ _,           DISP _ _ _,
BINOCT _ _,
NEWDATA _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _,
OLDDATA _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _,
REMARKS _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _!
```

FIG. 1 — Blank RC Form 801

CAUTION 1
Calling up RC form will cause all CRT data to be cleared

PERFORM FUNCTIONAL WORD CHANGE TO CORRECT UT TRANSLATOR WORD, THEN VERIFY

Using 1B Processor MTC Terminal display of RC Form 801:

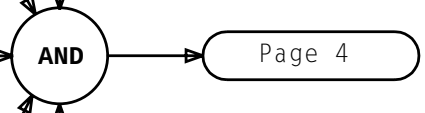
[6] In field following **WORDNO**, type decimal number of UT translator word to be changed

[7] Determine quantity of consecutive bits which span all bits requiring change in this UT translator word

[8] In field following **SIZE**, type decimal number of bits determined in Step 7. See example of FIG. 2, Page 3

[9] Determine bit position number (range of 0 to 23) identifying rightmost of consecutive bits determined in Step 7

[10] In field following **DISP**, type decimal number determined in Step 9. See example of FIG. 2, Page 3



Page 4

PERFORM FUNCTIONAL WORD CHANGE TO CORRECT UT TRANSLATOR WORD, THEN VERIFY

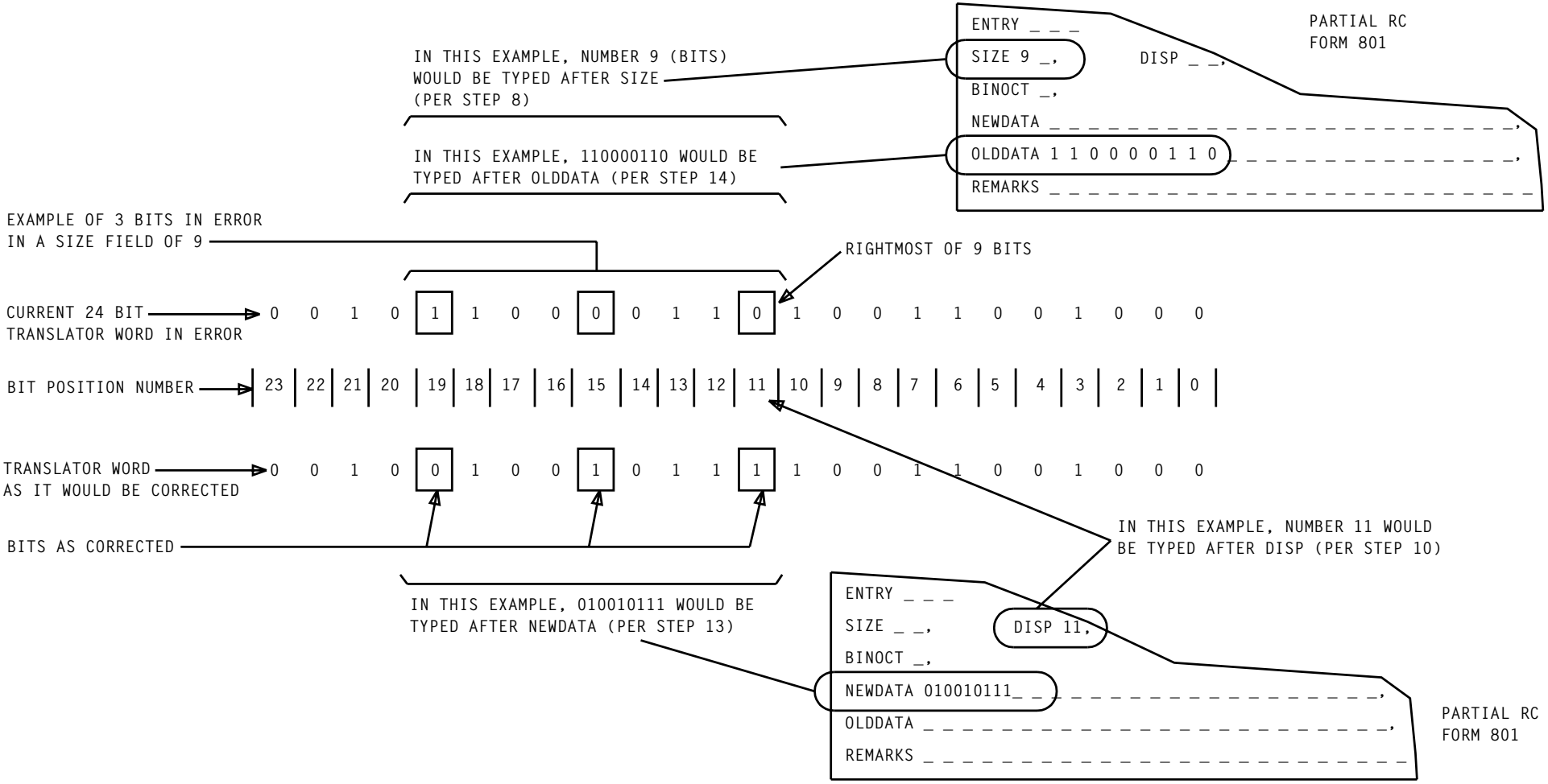


FIG. 2 — Example of Functional Word Change Considerations

PERFORM FUNCTIONAL WORD CHANGE TO CORRECT UT TRANSLATOR WORD, THEN VERIFY

Using 1B Processor MTC Terminal display of RC Form 801:

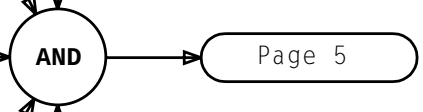
[11] Type **B** in field following **BINOCT**

[12] See NOTE 1. Determine binary bits to be inserted into UT translator word to correct that word. See example of FIG. 2, Page 3

[13] In field following **NEWDATA**, type binary bits determined in Step 12. See example of FIG. 2, Page 3

[14] See NOTE 2. In field following **OLDDATA**, type current binary contents of only that portion of UT translator word requiring change. See example of FIG. 2, Page 3

[15] Enter form



NOTES

1. Quantity of binary bits to be entered as **NEWDATA** must be equal to decimal number entered as **SIZE**
2. Quantity of binary bits to be entered as **OLDDATA** must be equal to quantity of bits entered as **NEWDATA**

PERFORM FUNCTIONAL WORD CHANGE TO CORRECT UT TRANSLATOR WORD, THEN VERIFY

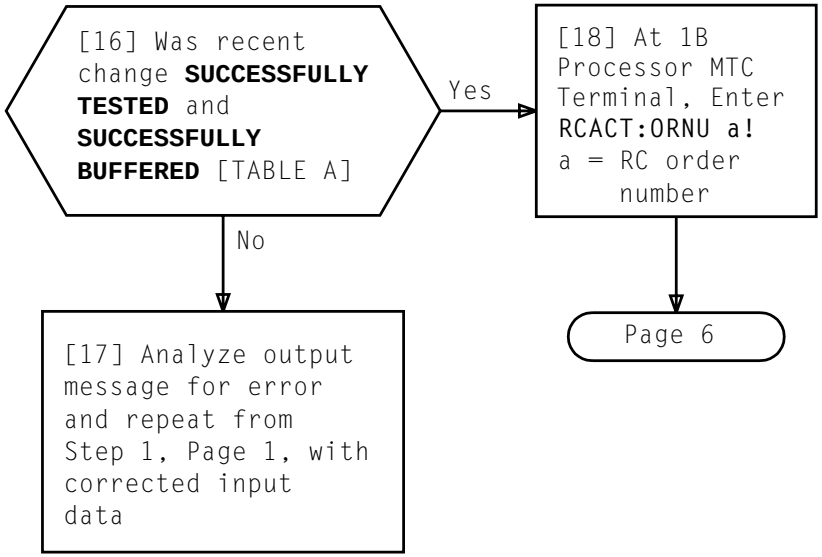


TABLE A

RC ORNU a SUCCESSFULLY TESTED

RC ORNU a SUCCESSFULLY BUFFERED

RC:FUNC;CHG;OPT(TRANS),BUF: TRANSID UTPUBB,
ORNU a,
ENTRY b, WORDNO c,
SIZE d, DISP e,
BINOCT B,
NEWDATA f,
OLDDATA g,
REMARKS _!

REPT:RC DUMP OF UNIT TYPE ENTRY AS IT WILL APPEAR AFTER THE MESSAGE IS ACTIVATED

WORD 0 _____ _____ _____ _____
_____ _____ _____ _____
WORD 10 _____ _____ _____ _____
_____ _____

a = RC order number
b = Member number of growth frame
c = Decimal number of word changed
d = Decimal number of bit changed
e = Decimal number of bit position changed (rightmost bit)
f = Binary bits inserted to correct data
g = Binary contents of portion of word changed

PERFORM FUNCTIONAL WORD CHANGE TO CORRECT UT TRANSLATOR WORD, THEN VERIFY

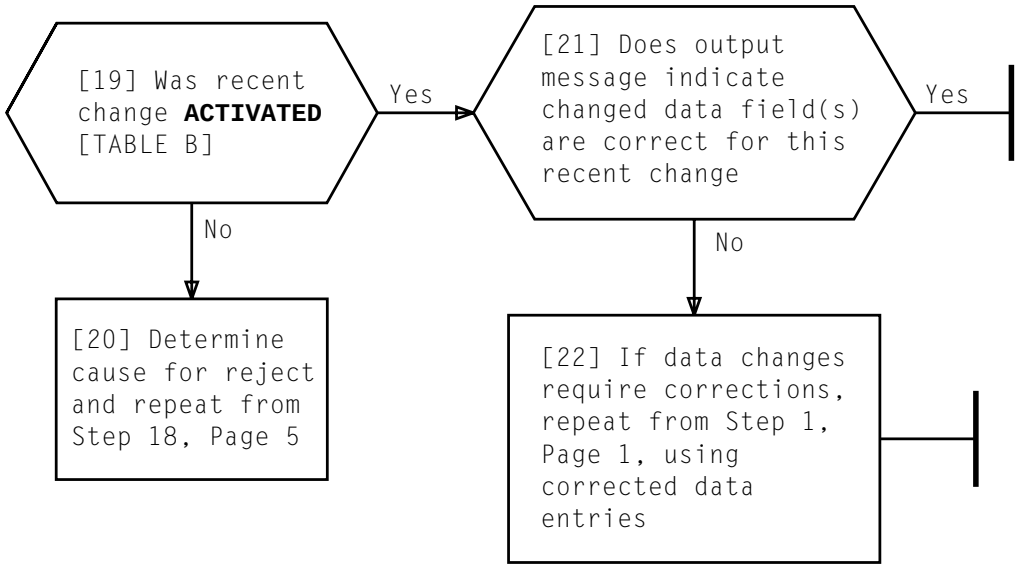


TABLE B

RC ORNU a ACTIVATED

RC:FUNC;CHG;OPT(TRANS),BUF: TRANSID UTPUBB,
ORNU a,

ENTRY b, WORDNO c,

SIZE d, DISP e,

BINOCT B,

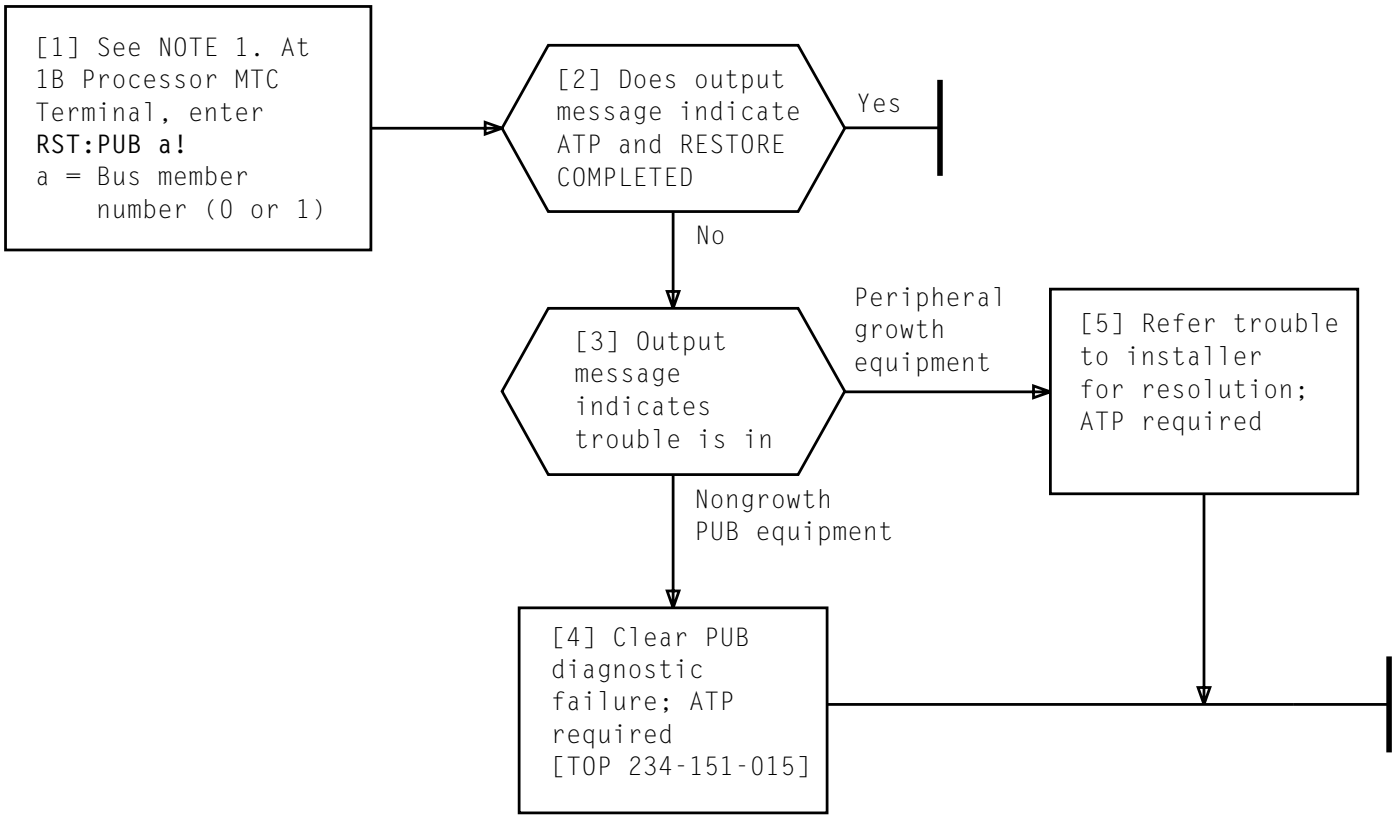
NEWDATA f,

OLDDATA g,

REMARKS_____ !

a = RC order number
b = Member number of growth frame
c = Decimal number of word changed
d = Decimal number of bits changed
e = Decimal number of bit position changed
(rightmost bit)
f = Binary bits inserted to correct data
g = Binary contents of portion of word changed

PERFORM FUNCTIONAL WORD CHANGE TO CORRECT UT TRANSLATOR WORD, THEN VERIFY



NOTE 1
Restore message will cause PUB diagnostic to be run. PUB will be restored if ATP

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RESTORE PERIPHERAL UNIT BUS TO SERVICE

SUMMARY

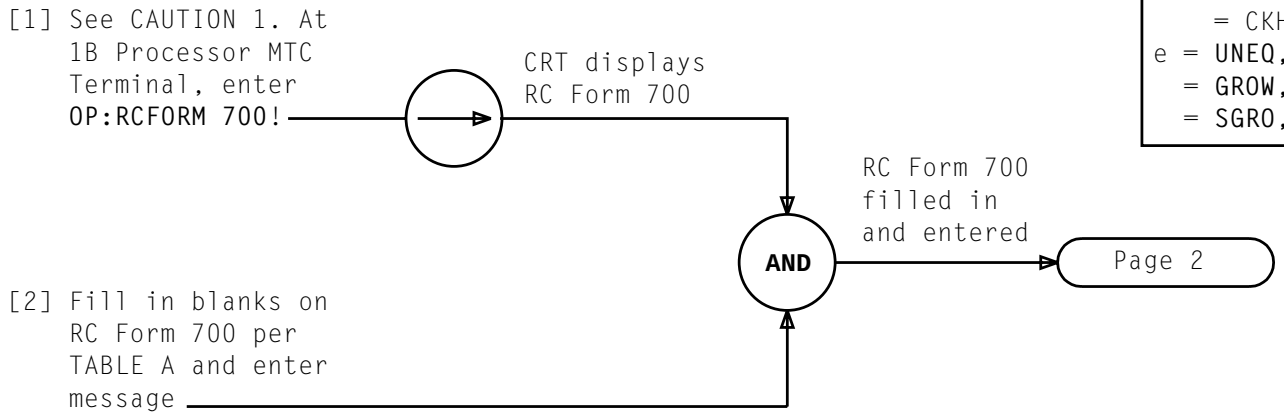
Call up RC Form 700 on CRT. Using 1B Processor MTC Terminal, fill in blanks on RC Form 700 to change submember equipage. Using assigned order number, activate recent change; then verify current translations

TABLE A

```
RC:UTYPE;CHG;OPT(EQP,GROW),TST:     UTYN a,
ORNU b,
                              OLD  NEW
MEMN c,          ME    (----, ----),
                              OLD  NEW
SUBMEM d,        SME   (  e ,  e  ),
REMARKS----------------------------!
```

a = Unit type = PUBB
b = RC order number
c = Member number of growth associated frame
d = Submember name
- = CKHEQ00 (for PUBB Unit 0, Half 0)
- = CKHEQ01 (for PUBB Unit 0, Half 1)
- = CKHEQ10 (for PUBB Unit 1, Half 0)
- = CKHEQ11 (for PUBB Unit 1, Half 1)
- = CKHEQ20 (for PUBB Unit 2, Half 0)
- = CKHEQ21 (for PUBB Unit 2, Half 1)
- = CKHEQ30 (for PUBB Unit 3, Half 0)
- = CKHEQ31 (for PUBB Unit 3, Half 1)

e = **UNEQ, GROW** or
= **GROW, SGRO** or
= **SGRO, OPER**



CAUTION 1
Calling up RC form will cause all CRT data to be cleared

RECENT CHANGE AND VERIFY SUBMEMBER EQUIPAGE

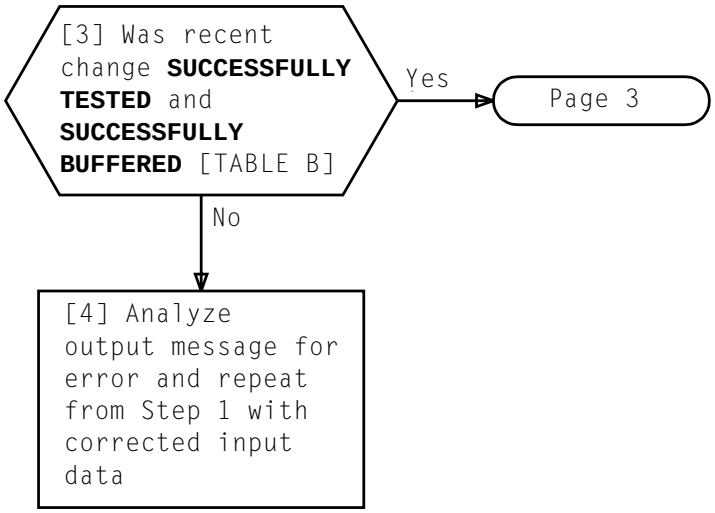


TABLE B

```
RC ORNU a SUCCESSFULLY TESTED
RC ORNU a SUCCESSFULLY BUFFERED
RC:UTYPE;CHG;OPT(EQP,GROW),BUF:   UTYN PUBB,
ORNU a,
                        OLD NEW
MEMN b,          ME (---- , ----),
                        OLD NEW
SUBMEM c,     SME (   d , d   ),
REMARKS ---------------------------- !
```

a = RC order number
b = Member number of growth associated frame
c = Submember name
    = CKHEQ00 (for PUBB Unit 0, Half 0)
    = CKHEQ01 (for PUBB Unit 0, Half 1)
    = CKHEQ10 (for PUBB Unit 1, Half 0)
    = CKHEQ11 (for PUBB Unit 1, Half 1)
    = CKHEQ20 (for PUBB Unit 2, Half 0)
    = CKHEQ21 (for PUBB Unit 2, Half 1)
    = CKHEQ30 (for PUBB Unit 3, Half 0)
    = CKHEQ31 (for PUBB Unit 3, Half 1)
d = Entered submember equipage

RECENT CHANGE AND VERIFY SUBMEMBER EQUIPAGE

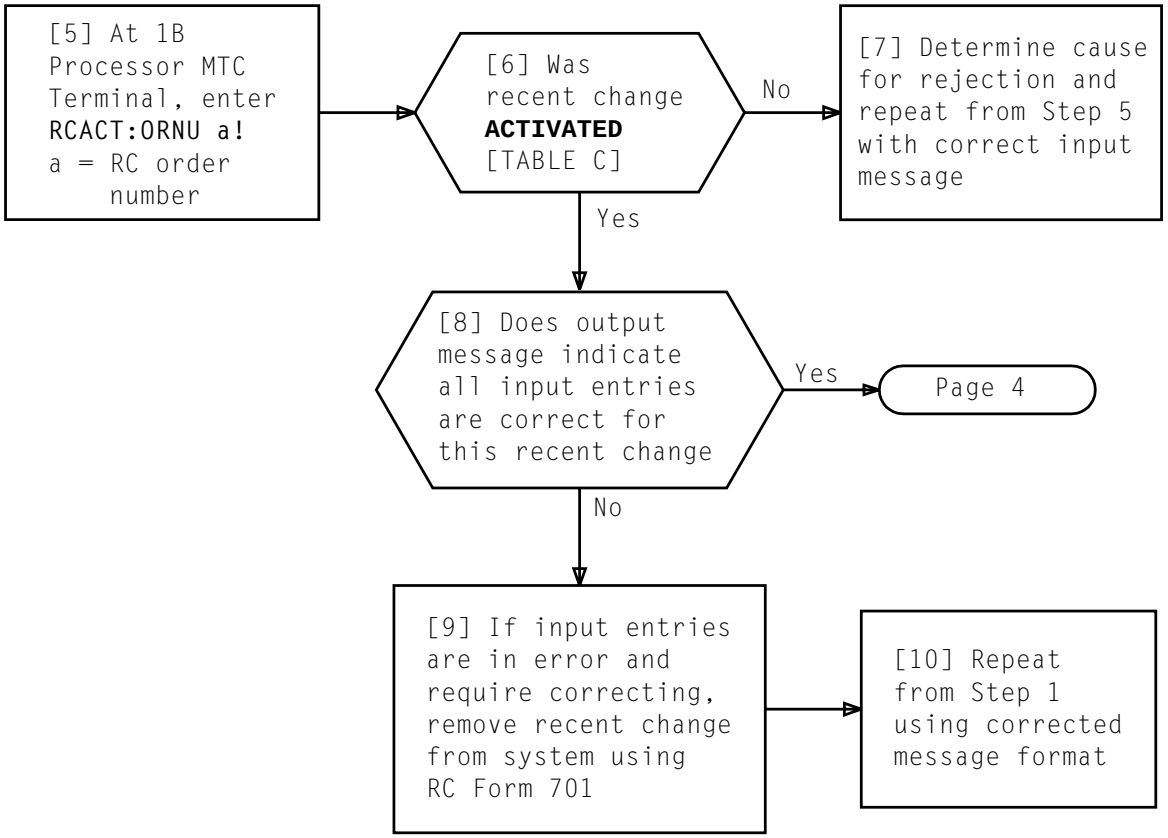


TABLE C

```
RC ORNU a ACTIVATED
RC:UTYPE;CHG;OPT(EQP,GROW),BUF:   UTYN PUBB,
ORNU a,
                          OLD  NEW
MEMN b,          ME    (----,----),
                          OLD  NEW
SUBMEM c,        SME   (  d ,  d ),
REMARKS---------------------------!
```

a = RC order number
b = Member number of growth associated frame
c = Submember name
- = CKHEQ00 (for PUBB Unit 0, Half 0)
- = CKHEQ01 (for PUBB Unit 0, Half 1)
- = CKHEQ10 (for PUBB Unit 1, Half 0)
- = CKHEQ11 (for PUBB Unit 1, Half 1)
- = CKHEQ20 (for PUBB Unit 2, Half 0)
- = CKHEQ21 (for PUBB Unit 2, Half 1)
- = CKHEQ30 (for PUBB Unit 3, Half 0)
- = CKHEQ31 (for PUBB Unit 3, Half 1)

d = Entered submember Equipage

RECENT CHANGE AND VERIFY SUBMEMBER EQUIPAGE

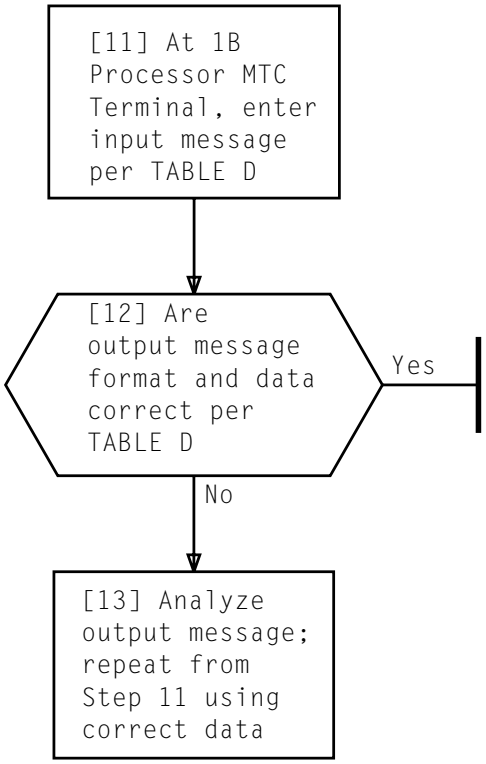
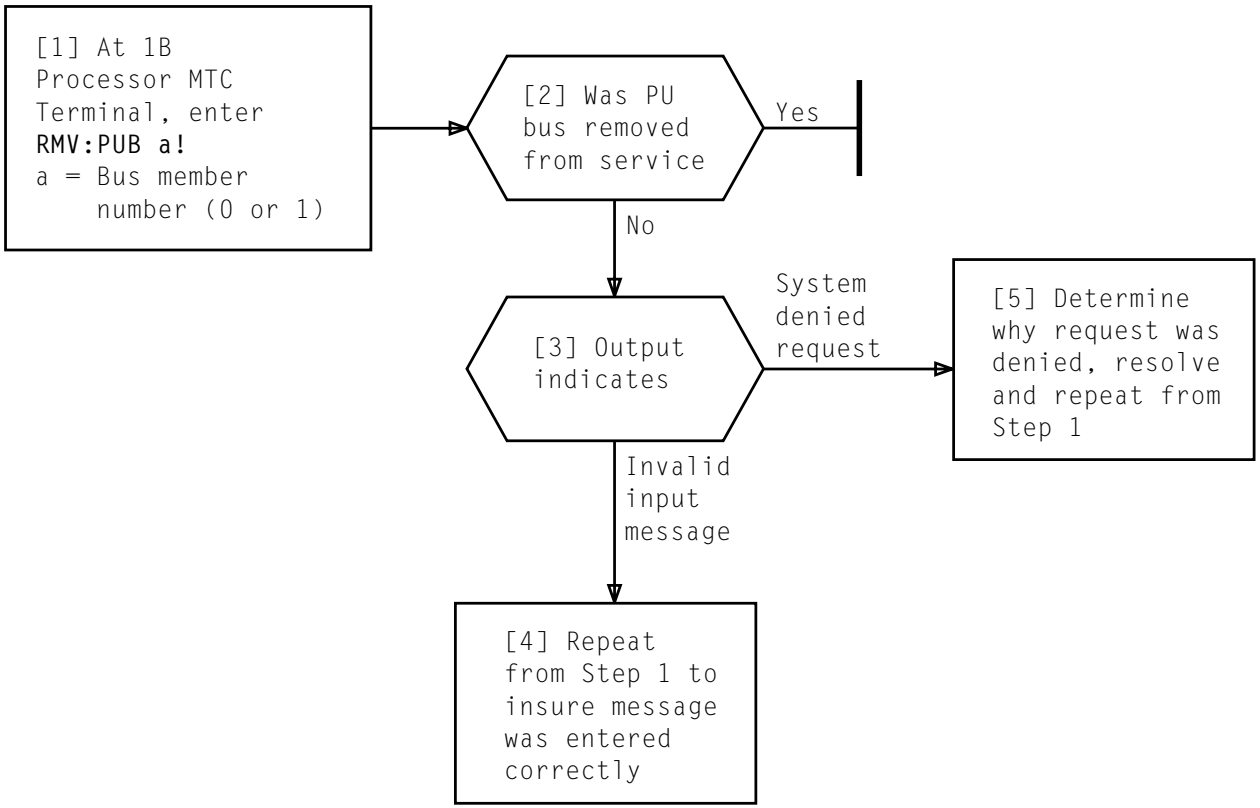


TABLE D

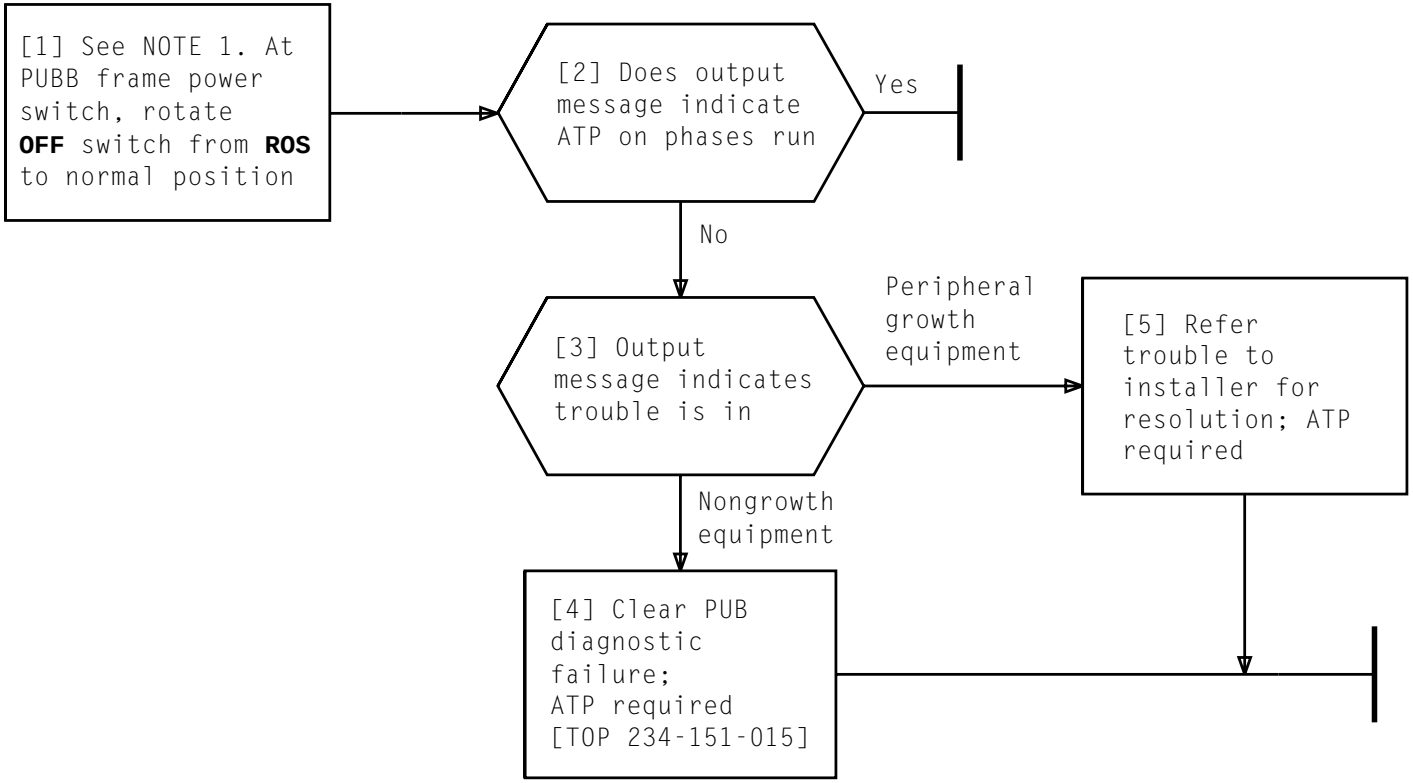
INPUT MESSAGE	OUTPUT MESSAGE
VER:UTYPE:b c,SME f!	VER:UTMN;OPT(SME),CUR: FLN a, UTYN b, MEMN c, ME d, SUBMEM e, SME f,

a = Floor location number
b = Unit Type = PUBB
c = Member number of growth associated frame
d = GROW, SGRO, or OPER
e = Entered submember equipage
f = SME index number
= 70 (for PUBB Unit 0, Half 0)
= 71 (for PUBB Unit 0, Half 1)
= 72 (for PUBB Unit 1, Half 0)
= 73 (for PUBB Unit 1, Half 1)
= 74 (for PUBB Unit 2, Half 0)
= 75 (for PUBB Unit 2, Half 1)
= 76 (for PUBB Unit 3, Half 0)
= 77 (for PUBB Unit 3, Half 1)

RECENT CHANGE AND VERIFY SUBMEMBER EQUIPAGE



REMOVE PERIPHERAL UNIT BUS FROM SERVICE



NOTE 1
Operation of **OFF** switch from **ROS** to normal position will cause diagnostic to be run

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RESTORE PUBB FRAME POWER SWITCH TO NORMAL

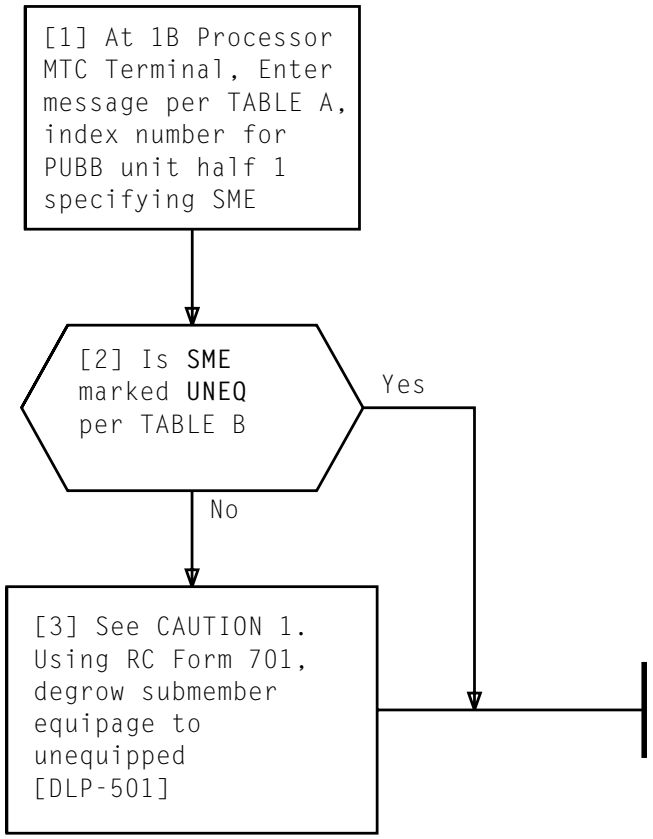


TABLE A

VER:UTYPE:PUBB 0,SME a!

a = SME index number
  = 71 (for PUBB Unit 0)
  = 73 (for PUBB Unit 1)
  = 75 (for PUBB Unit 2)
  = 77 (for PUBB Unit 3)

TABLE B

VER:UTMN;OPT(SME),CUR: FLN a, UTYN PUBB,

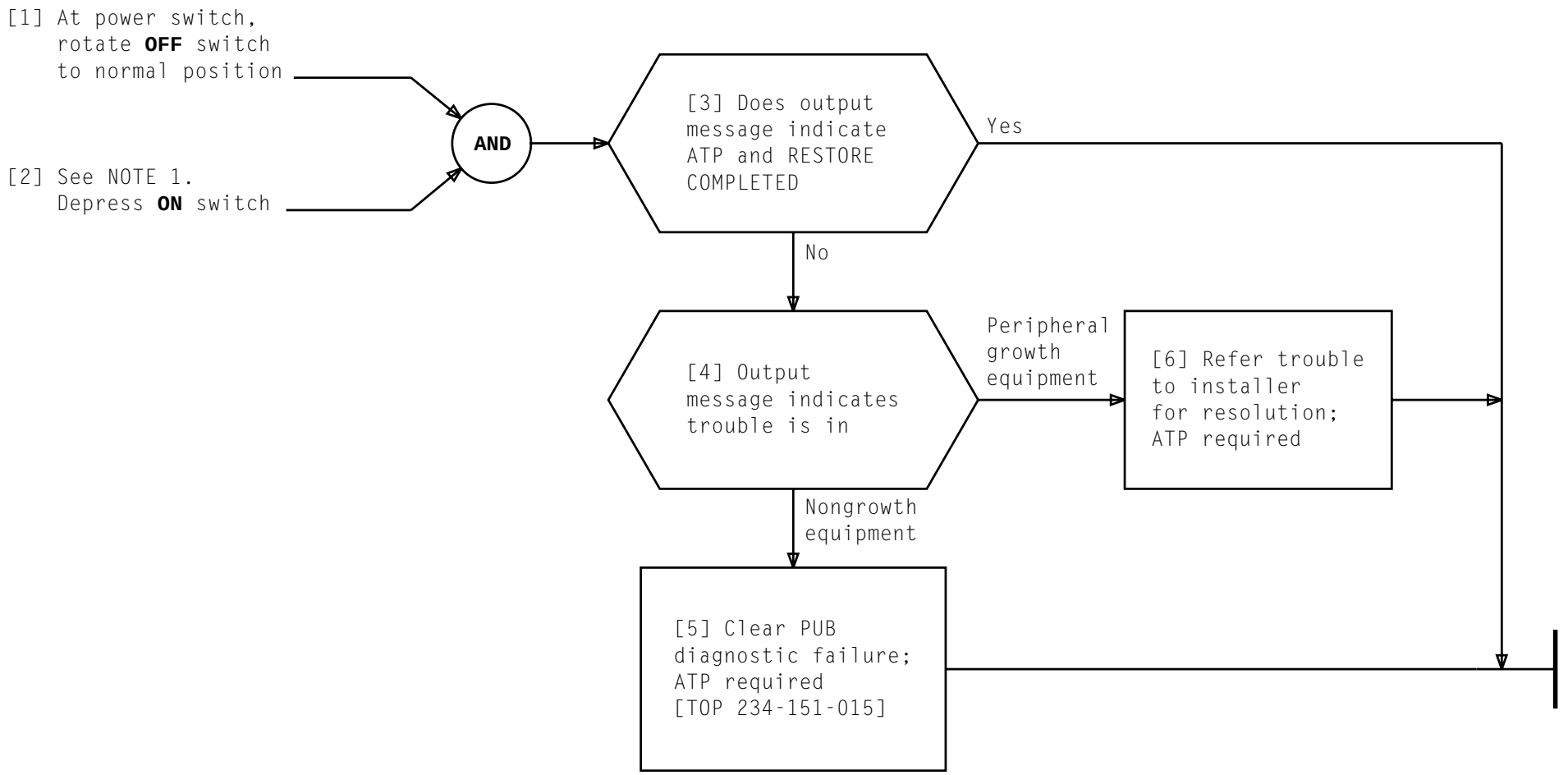
MEMN 0, ME OPER,

SUBMEM b, SME UNEQ,

a = Floor location number
b = SME index number
  = 71 (for PUBB Unit 0)
  = 73 (for PUBB Unit 1)
  = 75 (for PUBB Unit 2)
  = 77 (for PUBB Unit 3)

CAUTION 1
Depending on local procedures, supervisory or TELCO engineering approval must be obtained prior to performing any data change

VERIFY UNEQ STATUS OF PERIPHERAL UNIT BUS BRANCHING UNIT HALF 1 TO BE ADDED



NOTE 1
Operation of **ON** switch will cause diagnostic to be run

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RESTORE FRAME POWER WITH POWER SWITCH

1. Get program listings PR-4A510 (PUDGPBGR) and PR-4A512 (PUDGPB02) (See FIG. 1)

2. Using PR-4A512, verify address of ITEM 1 in TABLE A

3. Using PR-4A510, verify address of ITEMS 2 through 6 in TABLE A

TABLE A

ITEM	STATEMENT LABEL	ADDRESS
1	STM10600	543
2	PBTS2600	200
3	PBTS2900	207
4	PBTS3600	246
5	PBTS4400	616
6	PBTS13800	1675

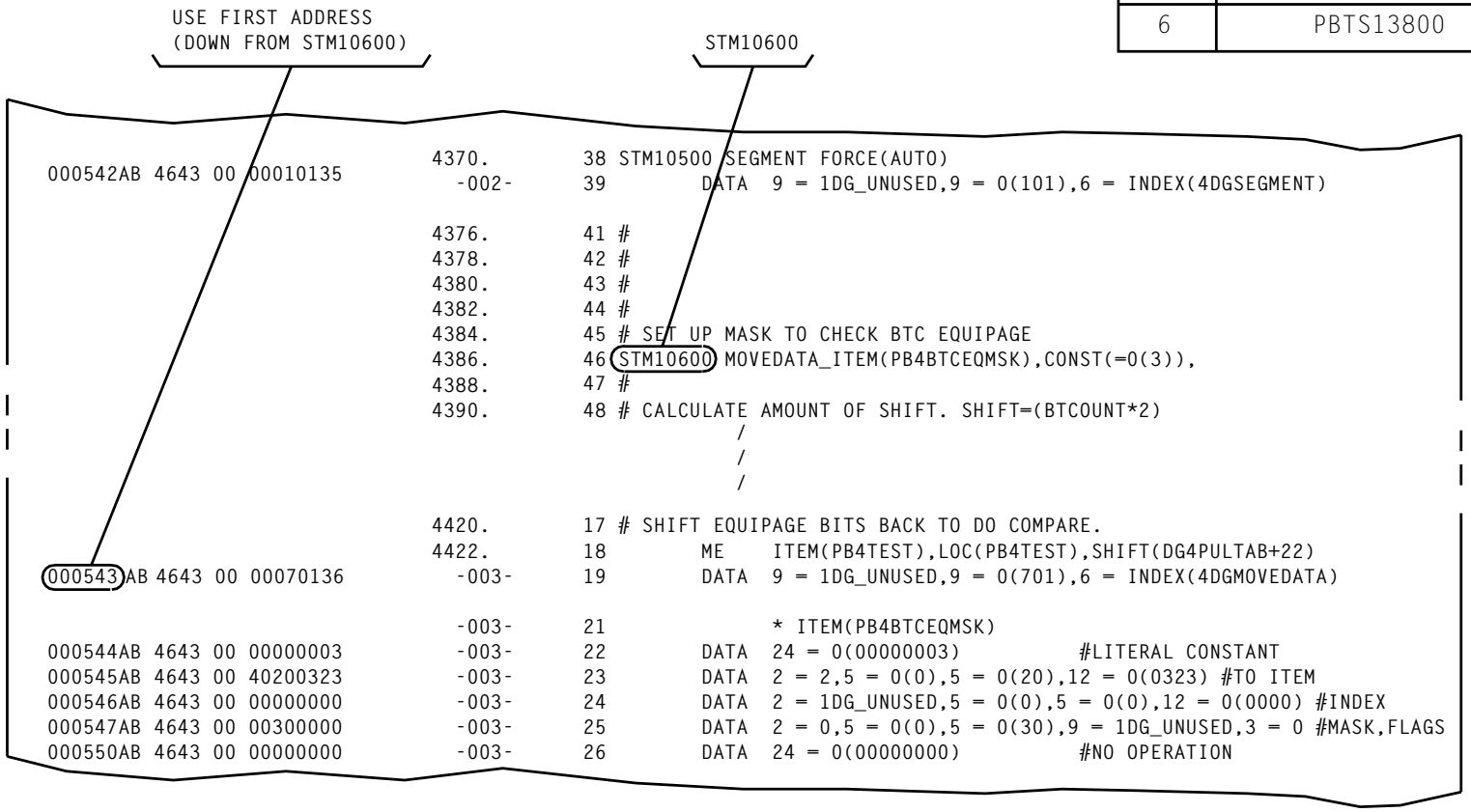


FIG. 1 — Location of STM10600 and Address to Use

STORE INPUT MESSAGES ON TTY FOR PUB LOOPING TEST

At 1B Processor SREC or Beltline Terminal:

4. Depress **FORM ENTER** key to ON

   CAUTION: The messages must not be entered into system at this time

5. Type input messages per TABLE B

6. Depress **FORM ENTER** key to OFF

End of procedure

TABLE B

NUMBER	INPUT MESSAGE
1A	EX:PUB a ;START! a = Bus 0 or 1
1B	EX:PUB a;START:GROWTH! a = Bus 0 or 1 Use this message if adding PUB Branching and Loop around units to PUBB frame (NTP-003, DLP-535, DLP-536)
2	EX:PUB a :PH 2,ADR 543! a = Bus 0 or 1 543 = Address of statement label STM10600
3	EX:PUB a ;STEP ! a = Bus 0 or 1
4	EX:PUB a :ADR 200-207! a = Bus 0 or 1 200 = Address of statement label PBTS2600 207 = Address of statement label PBTS2900
5	EX:PUB a! a = Bus 0 or 1
6	EX:PUB a :ADR 207-246! a = Bus 0 or 1 207 = Address of statement label PBTS2900 246 = Address of statement label PBTS3600
7	EX:PUB a:ADR 616-1675! a = Bus 0 or 1 616 = Address of statement label PBTS4400 1675 = Address of statement label PBTS13800
8	EX:PUB a:ADR 543! a = Bus 0 or 1 543 = Address of statement label STM10600
9	OP:MACLI,CLASS MTCE!
10	STOP:MACLI,CLASS MTCE,SUBCLASS a! a = CLASS MTCE SUBCLASS number from output message assigned to PUB diagnostic*
	*To obtain CLASS MTCE SUBCLASS number, type and send OP:MACLI,CLASS MTCE!. From system TTY response, determine which maintenance subclass number is associated with PUB and use that number for "a" for NUMBER 10 message

STORE INPUT MESSAGES ON TTY FOR PUB LOOPING TEST

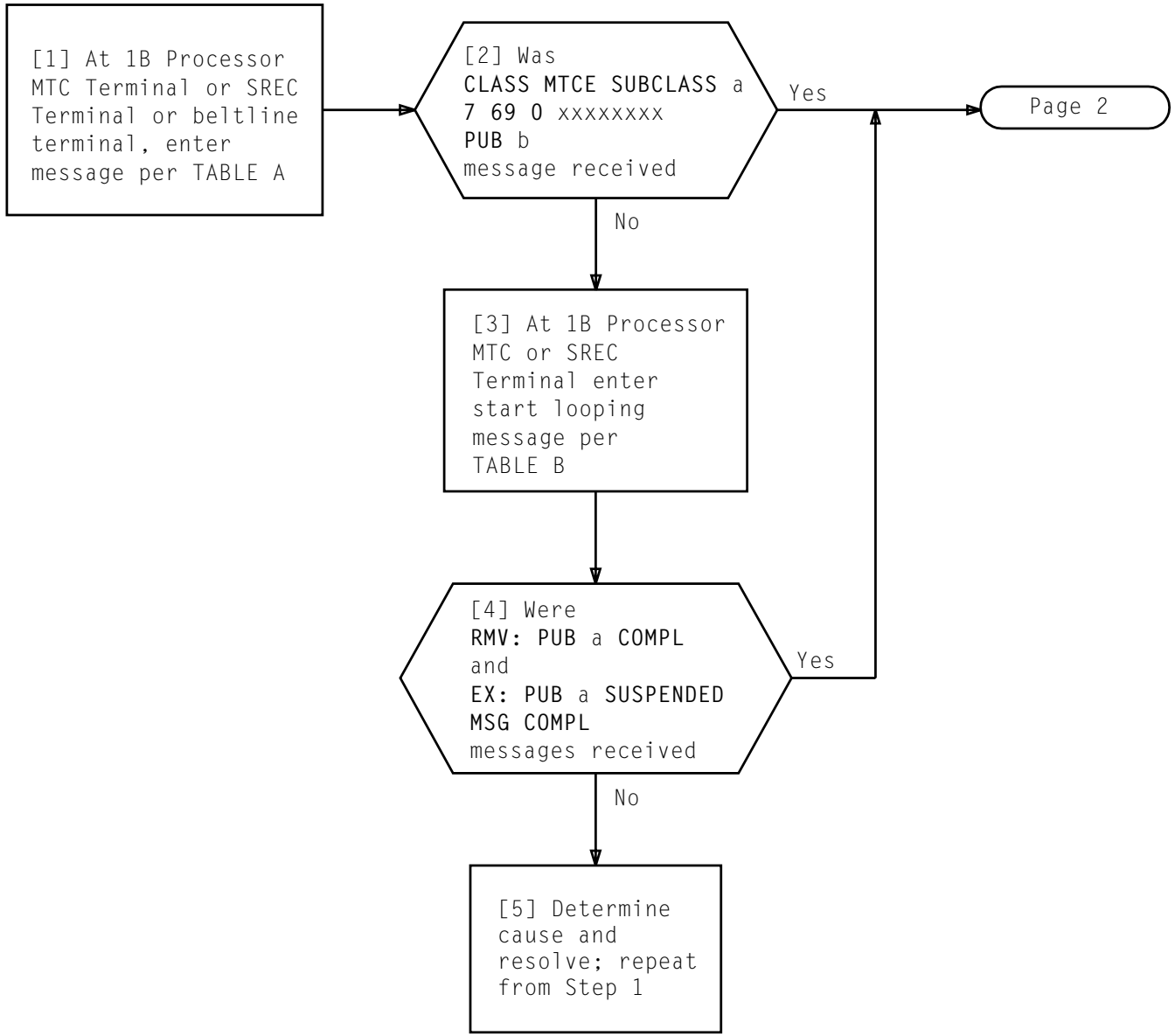


TABLE A

MESSAGE NUMBER	INPUT MESSAGE
1	OP:MACLI,CLASS MTCE!

TABLE B

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a;START!
a = bus 0 or 1	

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE BIT ON PU ENABLE ADDRESS AND/OR WRITE AND REPLY BUSES

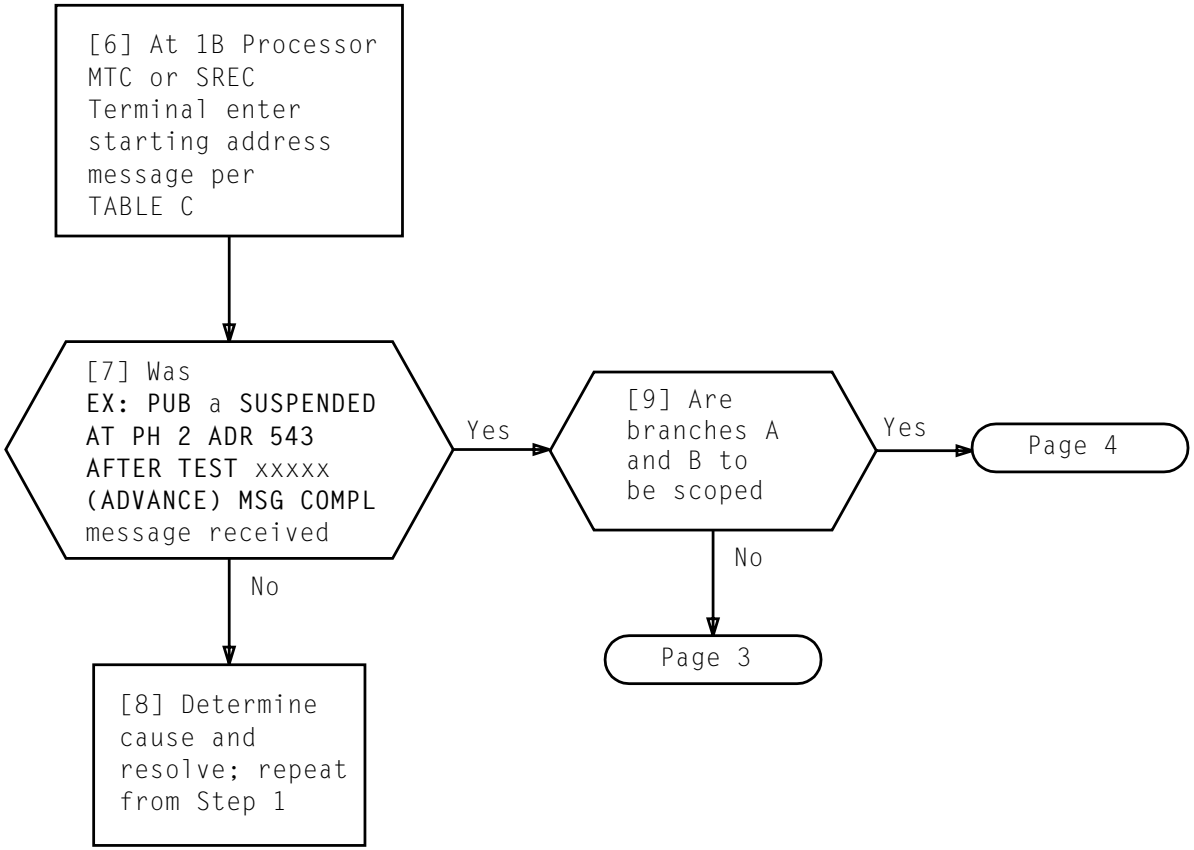


TABLE C	
MESSAGE NUMBER	**INPUT MESSAGE**
1	EX:PUB a:PH 2,ADR 543!
a = bus 0 or 1 543 = Address of statement label STM10600	

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE BIT ON PU ENABLE ADDRESS AND/OR WRITE AND REPLY BUSES

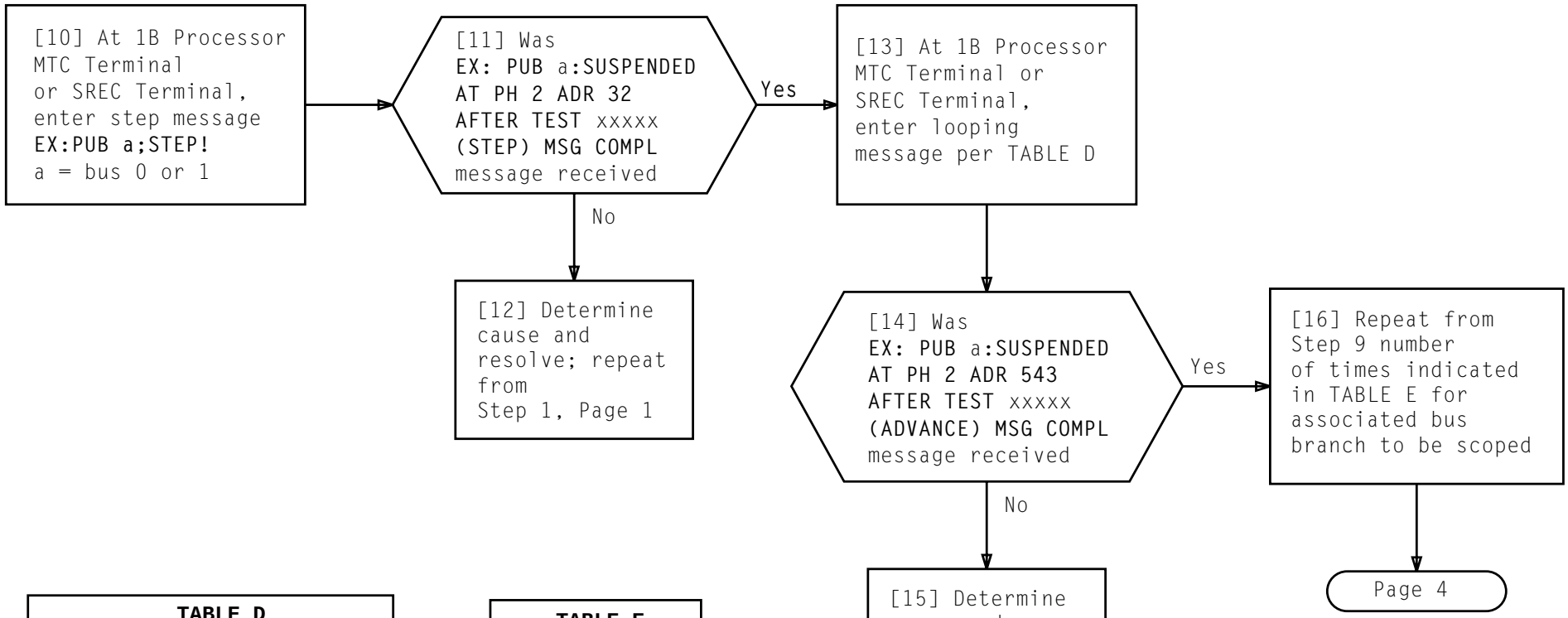


TABLE D

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a:ADR 543!

a = bus 0 or 1
543 = Address of statement label STM10600

TABLE E

BRANCHES	REPEAT NUMBER
C,D	0
E,F	1
G,H	2
K,L	3
M,R	4
T,V	5
W,X	6

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE BIT ON PU ENABLE ADDRESS AND/OR WRITE AND REPLY BUSES

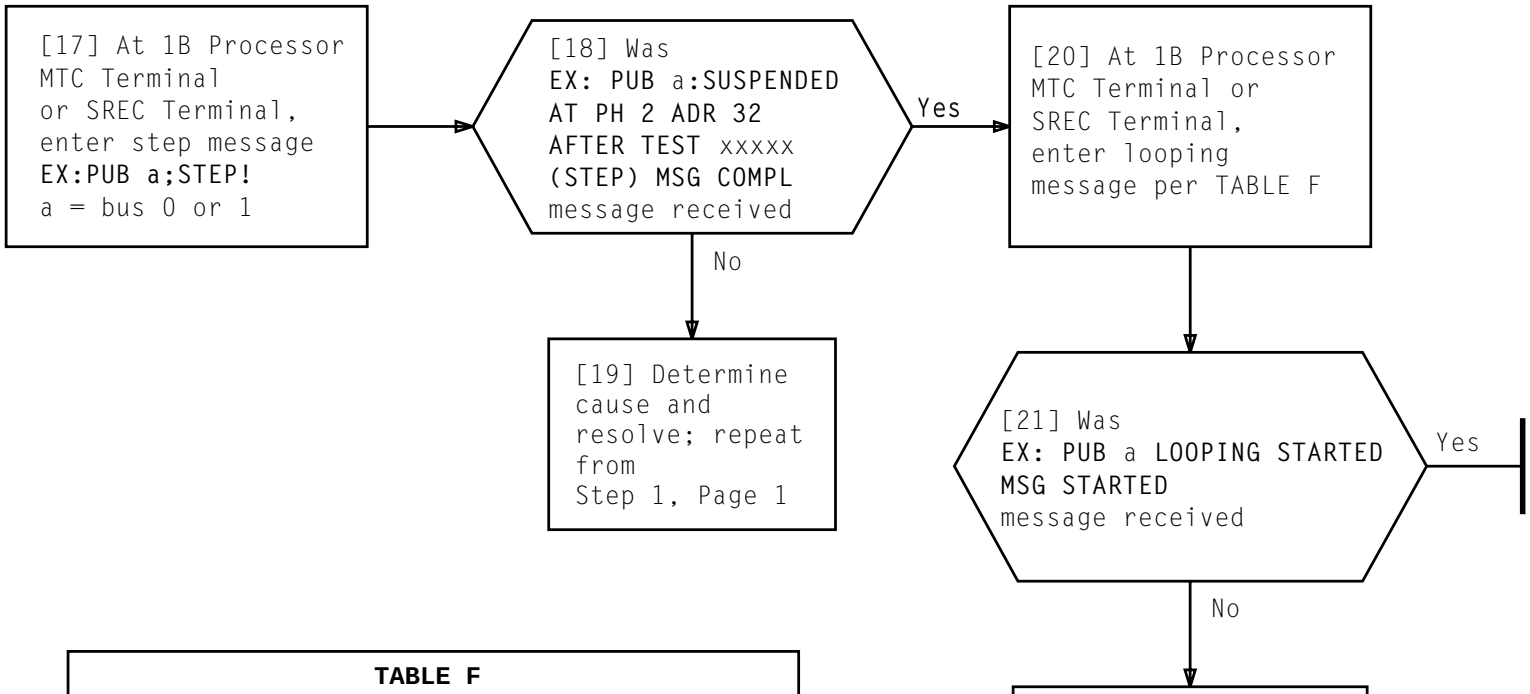


TABLE F

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a:ADR b-c!

a = bus 0 or 1

b = 200, Address of statement label PBTS2600 for bit 0 PU write and reply bus or 207, Address of statement label PBTS2900 for other bits

c = 207, Address of statement label PBTS2900 for bit 0 PU write and reply bus or 246, Address of statement label PBTS3600 for other bits

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE BIT ON PU ENABLE ADDRESS AND/OR WRITE AND REPLY BUSES

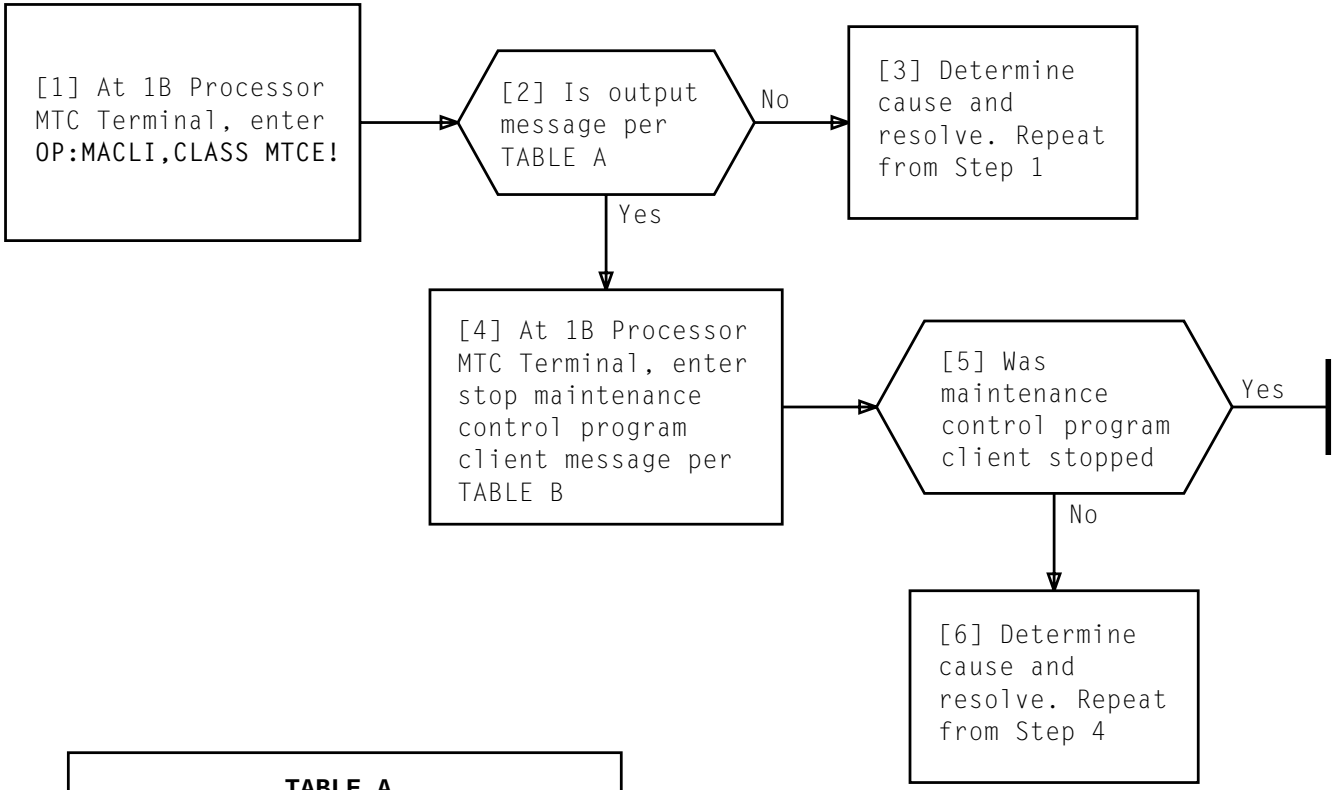


TABLE A
OP:MACLI CLASS MTCE SUBCLASS 0 a - d e f CLASS MTCE SUBCLASS 1 a - d e f CLASS MTCE SUBCLASS 2 a - d e f
a - d = NONE or variable data e = Unit type f = Member number

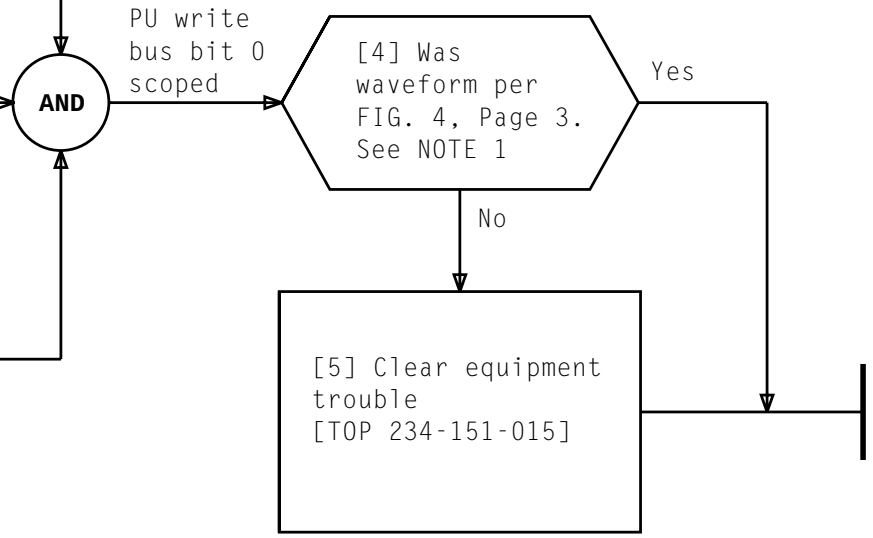
TABLE B
STOP:MACLI,CLASS MTCE,SUBCLASS a!
a = CLASS MTCE SUBCLASS number from output message assigned to PUB diagnostics

STOP MAINTENANCE CONTROL PROGRAM CLIENT

[1] Locate line in FIG. 1, 2, 3, or 5, Pages 2 and 3, respectively, that contains last frame where PU write bus is terminated on bus branch to be scoped

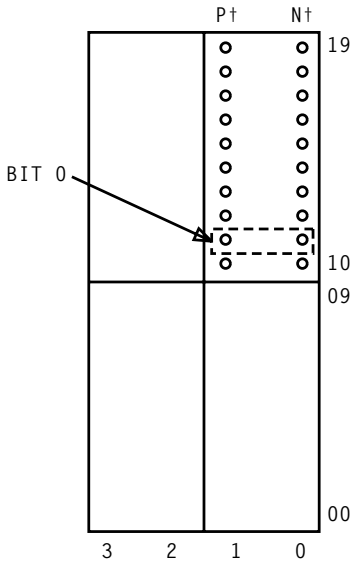
[2] Assure that scope probes are wrapped around each other with positive lead connected to Channel 1 and negative lead connected to Channel 2 and that ground leads are attached together

[3] Scope P- and N-pins in dash line box, per FIG. 1, 2, 3, or 5, Pages 2 and 3, respectively, at connector location on line in Step 1. Observe oscilloscope for FIG. 4, Page 3, waveform. See NOTE 1



NOTE 1
Pulse waveform will vary depending on distance away from driver. Waveform measurements should be similar to examples shown in FIG. 4, Page 3

SCOPE PU WRITE BUS BIT 0



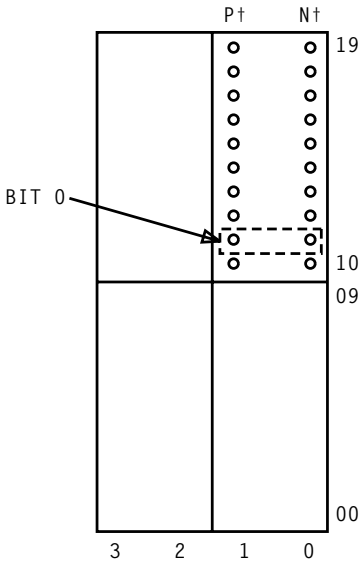
CCIS	*80-25
EST	
BUS 0	080-17
BUS 1	080-38
IO	
BUS 0	080-03
BUS 1	080-27
IOP	
BUS 0	080-31
BUS 1	076-31
NCLK	*60-40
SP 1 (WITH D&SM FRAME)	
BUS 0	380-14
BUS 1	480-14
SP 1 (WITH COMBINED MATRIX FRAME)	
BUS 0	280-32
BUS 1	380-32
SP 2	
BUS 0	180-28
BUS 1	280-28
TMSA	*80-14
TMSB	
BUS 0	‡76-32
BUS 1	‡80-32
TSIA-1	*80-46
TSIA-2	*80-51
TSIB	*80-55

* 0 FOR BUS 0 OR 1 FOR BUS 1

† P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

‡ 0 FOR PUB TERMINATING AT TMS
BAY 0 OR 1 FOR PUB
TERMINATING AT TMS BAY 1

FIG. 1



PUBB FRAME

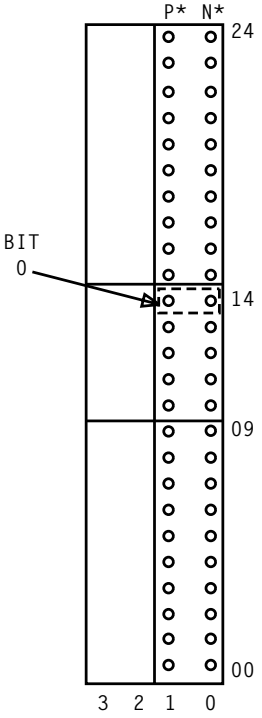
BRANCH A	*76-03
BRANCH B	*72-06
BRANCH C	*76-05
BRANCH D	*72-07
BRANCH E	*64-03
BRANCH F	*60-06
BRANCH G	*64-05
BRANCH H	*60-07
BRANCH K	*48-03
BRANCH L	*44-06
BRANCH M	*48-05
BRANCH R	*44-07
BRANCH T	*36-03
BRANCH V	*32-06
BRANCH W	*36-05
BRANCH X	*32-07

* 0 FOR BUS 0 OR 1 FOR BUS 1

† P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

FIG. 2

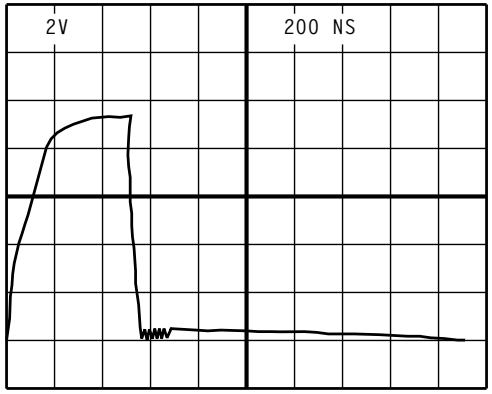
SCOPE PU WRITE BUS BIT 0



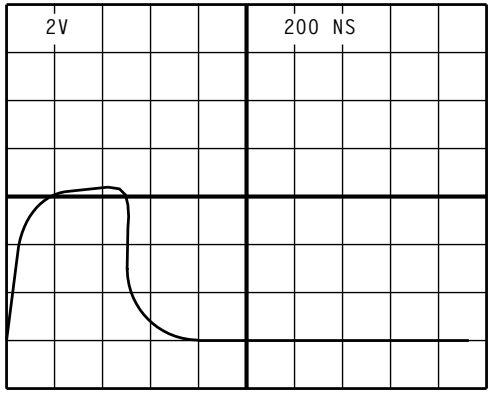
DIF or DIFE (24-31)
BUS 0 180-109
BUS 1 180-257

* P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

FIG. 3

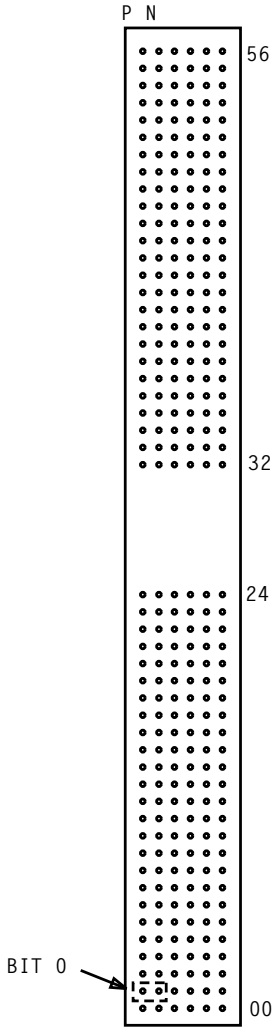


NORMAL PULSE AT DRIVER



NORMAL PULSE 500 FEET FROM DRIVER

FIG. 4



SCS		XTSI	
BUS 0	045-168	BUS 0	052-180
BUS 1	053-168	BUS 1	061-180

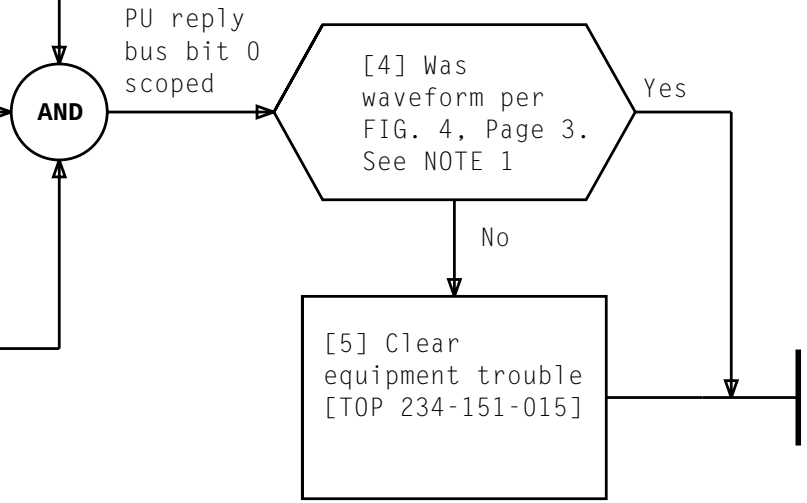
FIG. 5

SCOPE PU WRITE BUS BIT 0

[1] Locate line in FIG. 1, 2, 3, or 5, Pages 2 and 3, respectively, that contains last frame where PU reply bus is terminated on bus branch to be scoped

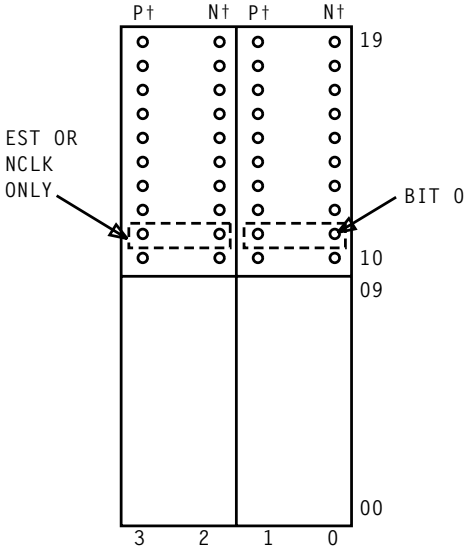
[2] Assure that scope probes are wrapped around each other with positive lead connected to Channel 1 and negative lead connected to Channel 2 and that ground leads are attached together

[3] Scope P- and N-pins in dashed line box, per FIG. 1, 2, 3, or 5, Pages 2 and 3, respectively, at connector location on line in Step 1. Observe oscilloscope for FIG. 4, Page 3, waveform. See NOTE 1



NOTE 1
Pulse waveform will vary, depending on distance away from driver. Waveform measurements should be similar to examples shown in FIG. 4, Page 3

SCOPE PU REPLY BUS BIT 0



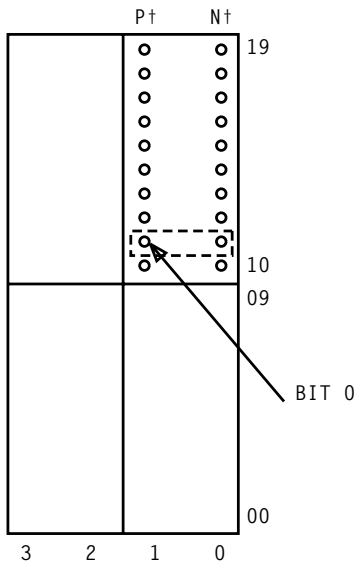
CCIS	*80-33
EST	
BUS 0	080-02
BUS 1	080-23
IO	
BUS 0	080-11
BUS 1	080-36
IOP	
BUS 0	080-40
BUS 1	076-40
NCLK	*60-48
SP 1 (WITH D&SM FRAME)	
BUS 0	380-04
BUS 1	480-04
SP 1 (WITH COMBINED MATRIX FRAME)	
BUS 0	280-20
BUS 1	380-20
SP 2	
BUS 0	180-18
BUS 1	280-18
TMS A	*80-04
TMS B	
BUS 0	‡76-20
BUS 1	‡80-20
TSIA-1	*80-36
TSIA-2	*80-39
TSIB	*80-43
VIF	
BUS 0	152-15
BUS 1	152-25

* 0 FOR BUS 0 OR 1 FOR BUS 1

† P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

‡ 0 FOR PUB TERMINATING AT TMS BAY 0 OR 1 FOR PUB TERMINATING AT TMS BAY 1

FIG. 1



PUBB FRAME

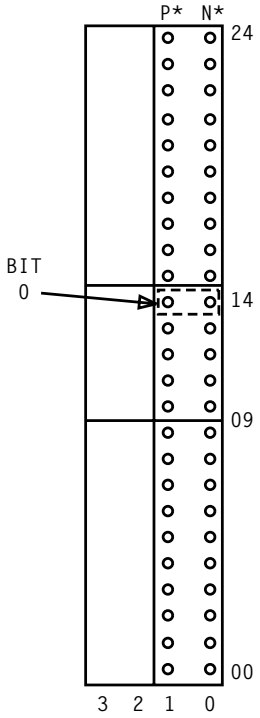
BRANCH A	*76-19
BRANCH B	*72-17
BRANCH C	*76-20
BRANCH D	*72-18
BRANCH E	*64-19
BRANCH F	*60-17
BRANCH G	*64-20
BRANCH H	*60-18
BRANCH K	*48-19
BRANCH L	*44-17
BRANCH M	*48-20
BRANCH R	*44-18
BRANCH T	*36-19
BRANCH V	*32-17
BRANCH W	*36-20
BRANCH X	*32-18

* 0 FOR BUS 0 OR 1 FOR BUS 1

† P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

FIG. 2

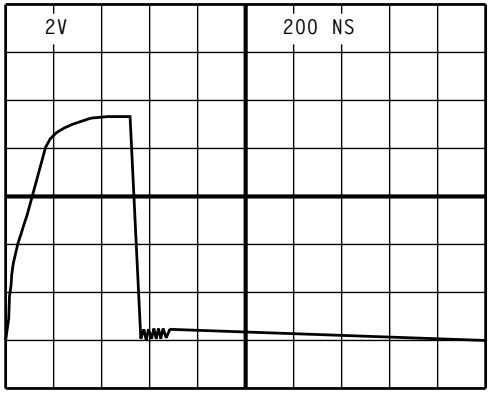
SCOPE PU REPLY BUS BIT 0



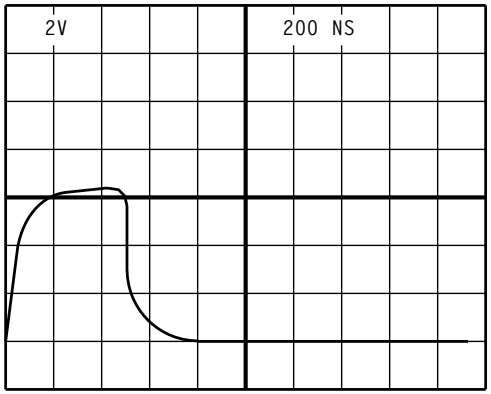
DIF or DIFE (24-31)
BUS 0 180-053
BUS 1 180-201

*P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

FIG. 3

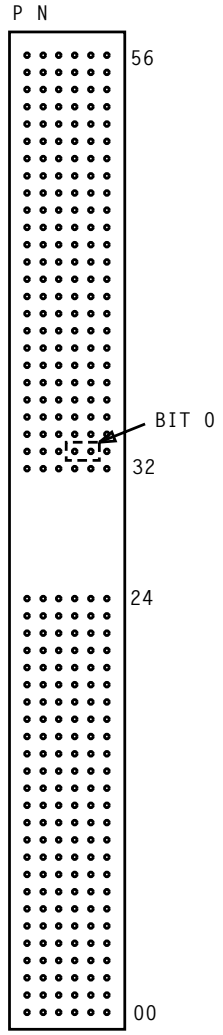


NORMAL PULSE AT DRIVER



NORMAL PULSE 500 FEET FROM DRIVER

FIG. 4



SCS		XTSI	
BUS 0	045-168	BUS 0	052-180
BUS 1	053-168	BUS 1	061-180

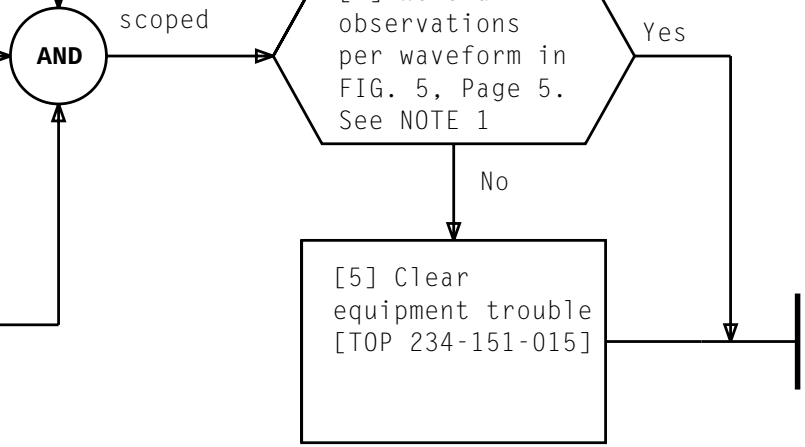
FIG. 5

SCOPE PU REPLY BUS BIT 0

[1] Locate line in FIG. 1, 2, 3, 4, or 6, Pages 2, 3, 4, 5, and 6, respectively, that contains last frame where PU write bus is terminated on bus branch to be scoped

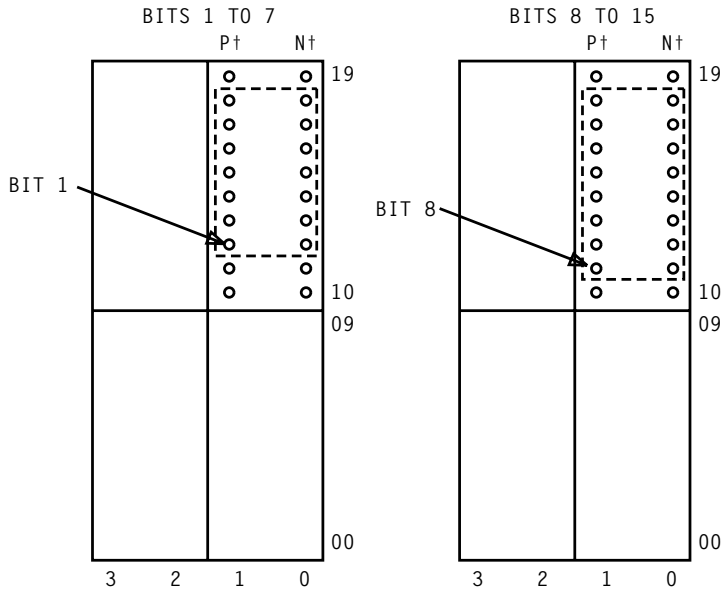
[2] Assure that scope probes are wrapped around each other with positive lead connected to Channel 1 and negative lead connected to Channel 2 and that ground leads are attached together

[3] Scope P- and N-pins in each dashed line box, per FIG. 1, 2, 3, 4, or 6, Pages 2, 3, 4, 5, and 6, respectively, at connector locations on line in Step 1. Observe oscilloscope for FIG. 5, Page 5, waveform. See NOTE 1



NOTE 1
Pulse waveform will vary, depending on distance away from driver. Waveform measurements should be similar to examples shown in FIG. 5, Page 5

SCOPE PU WRITE BUS BITS 1 TO 35

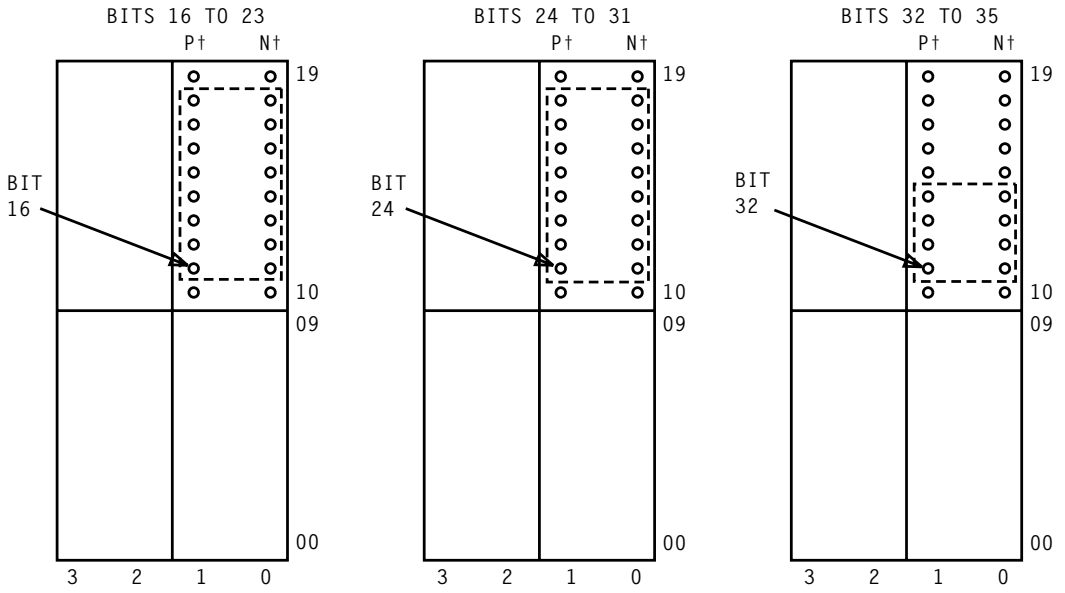


FRAME	BITS 1 TO 7	BITS 8 TO 15
CCIS	*80-25	*80-23
EST		
BUS 0	080-17	080-16
BUS 1	080-38	080-37
IO		
BUS 0	080-03	080-04
BUS 1	080-27	080-28
IOP		
BUS 0	080-31	080-33
BUS 1	076-31	076-33
NCLK	*60-40	*60-39
SP 1 (WITH D&SM FRAME)		
BUS 0	380-14	380-13
BUS 1	480-14	480-13
SP 1 (WITH COMBINED MATRIX FRAME)		
BUS 0	280-32	280-30
BUS 1	380-32	380-30
SP 2		
BUS 0	180-28	180-27
BUS 1	280-28	280-27
TMS A	*80-14	*80-13
TMS B		
BUS 0	‡76-32	‡76-30
BUS 1	‡80-32	‡80-30
TSI	*80-46	*80-45
TSIA-1	*80-51	*80-49
TSIB	*80-55	*80-53

* 0 FOR BUS 0 OR 1 FOR BUS 1
† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD
‡ 0 FOR PUB TERMINATING AT TMS BAY 0 OR 1 FOR PUB TERMINATING AT TMS BAY 1

FIG. 1

SCOPE PU WRITE BUS BITS 1 TO 35

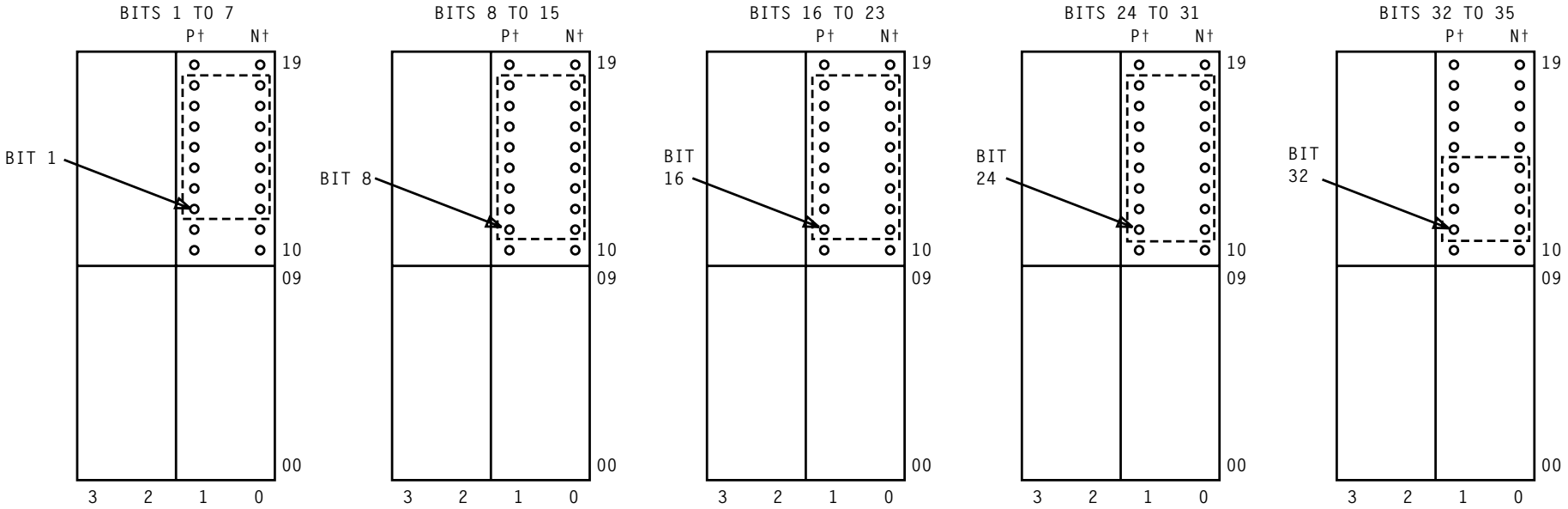


FRAME	BITS 16 TO 23	BITS 24 TO 31	BITS 32 TO 35
CCIS	*80-21	*80-19	*80-18
EST			
BUS 0	080-15	080-14	080-13
BUS 1	080-36	080-35	080-34
IO			
BUS 0	080-05	080-06	080-07
BUS 1	080-29	080-31	080-32
IOP			
BUS 0	080-34	080-36	080-37
BUS 1	076-34	076-36	076-37
NCLK	*60-38	*60-37	*60-36
SP 1 (WITH D&SM FRAME)			
BUS 0	380-12	380-11	380-10
BUS 1	480-12	480-11	480-10
SP 1 (WITH COMBINED MATRIX FRAME)			
BUS 0	280-29	280-27	280-26
BUS 1	380-29	380-27	380-26
SP 2			
BUS 0	180-26	180-25	180-24
BUS 1	280-26	280-25	280-24
TMS A	*80-12	*80-11	*80-10
TMS B			
BUS 0	‡76-29	‡76-27	‡76-26
BUS 1	‡80-29	‡80-27	‡80-26
TSIA-1	*80-44	*80-43	*80-42
TSIA-2	*80-48	*80-46	*80-45
TSIB	*80-52	*80-50	*80-49

* 0 FOR BUS 0 OR 1 FOR BUS 1
† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD
‡ 0 FOR PUB TERMINATING AT TMS BAY 0 OR 1 FOR PUB TERMINATING AT TMS BAY 1

FIG. 2

SCOPE PU WRITE BUS BITS 1 TO 35



PUBB FRAME

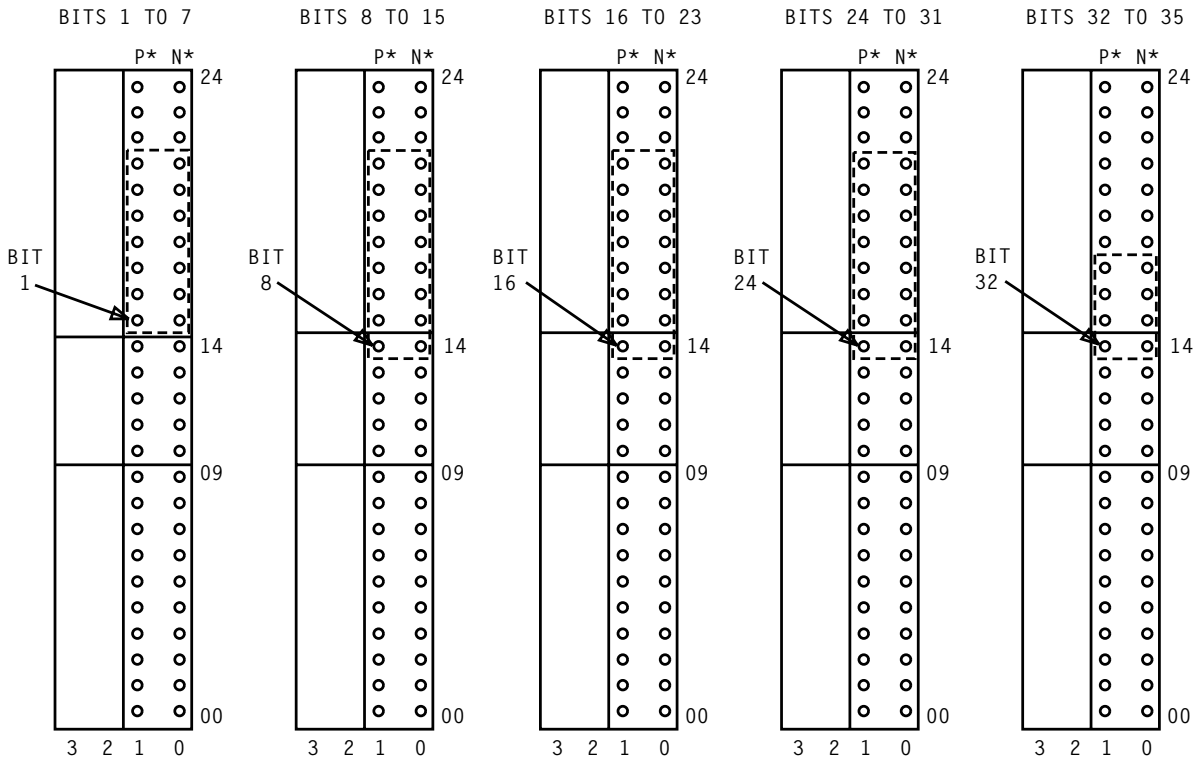
BRANCH A	*76-03	*76-12	*76-34	*76-06	*76-09
BRANCH B	*72-06	*72-12	*72-34	*72-08	*72-10
BRANCH C	*76-05	*76-14	*76-36	*76-08	*76-11
BRANCH D	*72-07	*72-13	*72-35	*72-09	*72-11
BRANCH E	*64-03	*64-12	*64-34	*64-06	*64-09
BRANCH F	*60-06	*60-12	*60-34	*60-08	*60-10
BRANCH G	*64-05	*64-14	*64-36	*64-08	*64-11
BRANCH H	*60-07	*60-13	*60-35	*60-09	*60-11
BRANCH K	*48-03	*48-12	*48-34	*48-06	*48-09
BRANCH L	*44-06	*44-12	*44-34	*44-08	*44-10
BRANCH M	*48-05	*48-14	*48-36	*48-08	*48-11
BRANCH R	*44-07	*44-13	*44-35	*44-09	*44-11
BRANCH T	*36-03	*36-12	*36-34	*36-06	*36-09
BRANCH V	*32-06	*32-12	*32-34	*32-08	*32-10
BRANCH W	*36-05	*36-14	*36-36	*36-08	*36-11
BRANCH X	*32-07	*32-13	*32-35	*32-09	*32-11

* 0 FOR BUS 0 OR 1 FOR BUS 1

† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD

FIG. 3

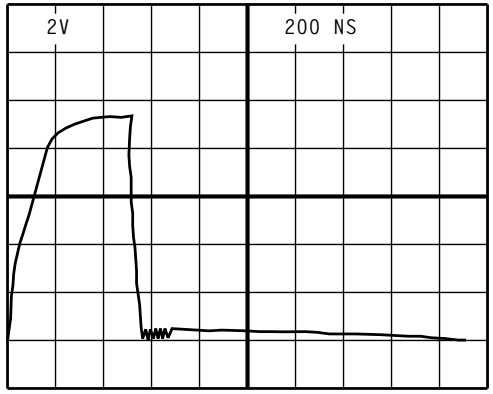
SCOPE PU WRITE BUS BITS 1 TO 35



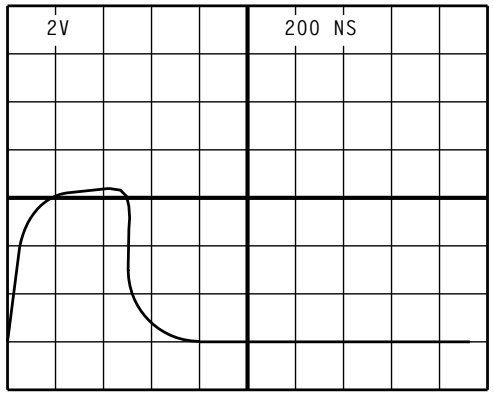
DIF or DIFE (24-31)					
BUS 0	180-109	180-103	180-097	180-091	180-085
BUS 1	180-257	180-251	180-245	180-239	180-233

* P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

FIG. 4



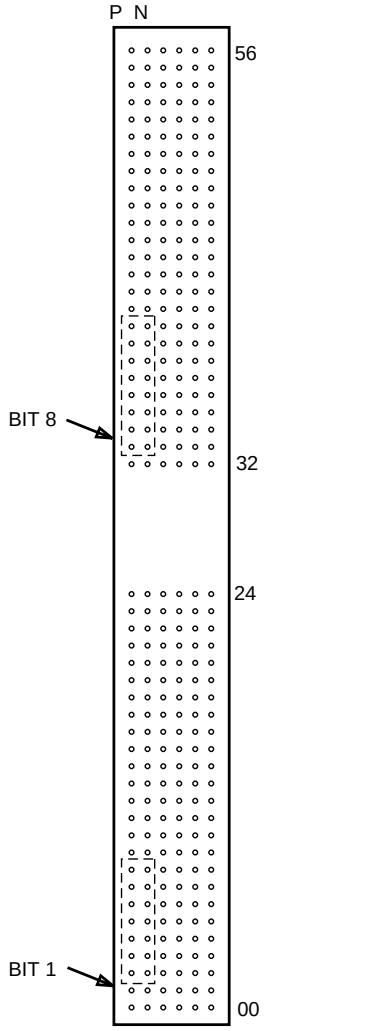
NORMAL PULSE AT DRIVER



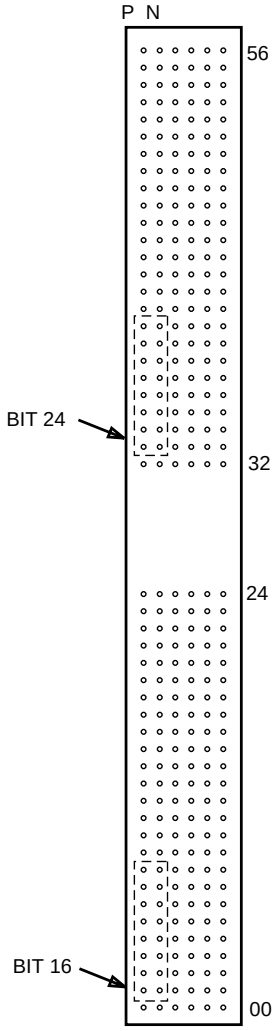
NORMAL PULSE 500 FEET FROM DRIVER

FIG. 5

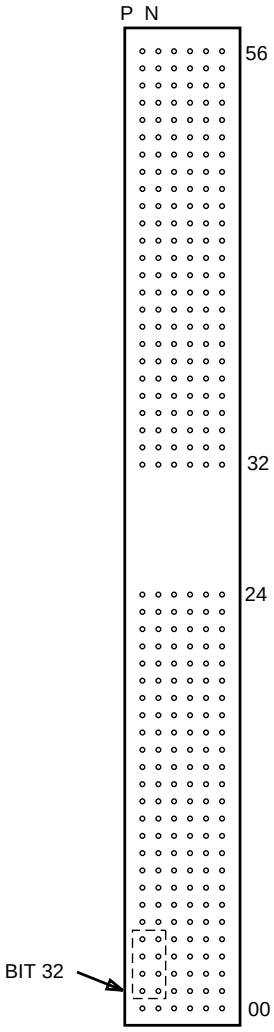
SCOPE PU WRITE BUS BITS 1 TO 35



SCS		XTSI	
BUS 0	045-168	BUS 0	052-180
BUS 1	053-168	BUS 1	061-180



SCS		XTSI	
BUS 0	045-160	BUS 0	052-172
BUS 1	053-160	BUS 1	061-172



SCS		XTSI	
BUS 0	045-152	BUS 0	052-164
BUS 1	053-152	BUS 1	061-164

FIG. 6

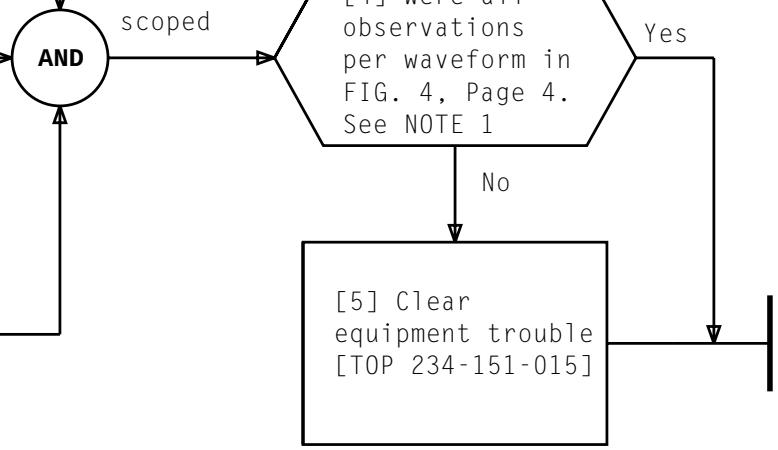
SCOPE PU WRITE BUS BITS 1 TO 35

SCOPE PU ENABLE ADDRESS BUS BITS 0 TO 11

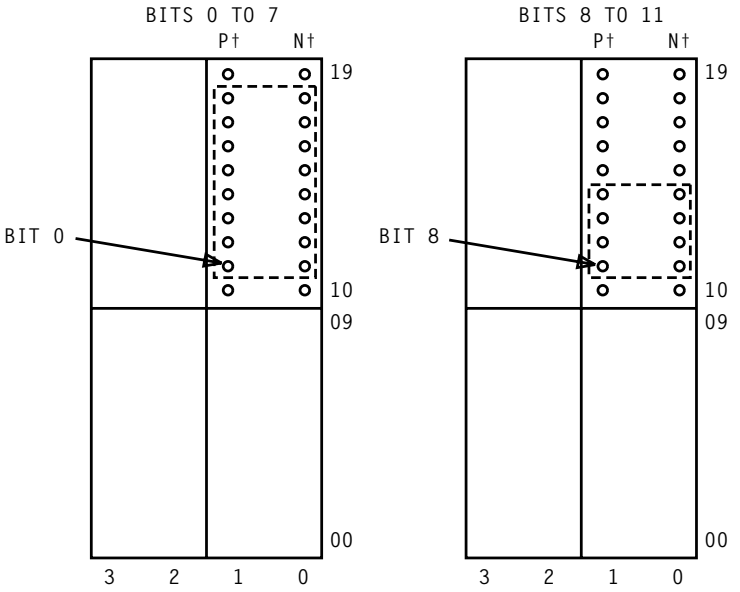
[1] Locate line on FIG. 1, 2, 3, or 5, Pages 2, 3, and 4, respectively, that contains last frame where PU enable address bus is terminated on bus branch to be scoped

[2] Assure that scope probes are wrapped around each other with positive lead connected to Channel 1 and negative lead connected to Channel 2 and that ground leads are attached together

[3] Scope P- and N-pins in each dashed line box, per FIG. 1, 2, 3, or 5, Pages 2, 3, and 4, respectively, at connector locations on line in Step 1. Observe oscilloscope waveform [FIG. 4, Page 4]. See NOTE 1



NOTE 1
Pulse waveform will vary, depending on distance away from driver. Waveform measurements should be similar to examples shown in FIG. 4, Page 4

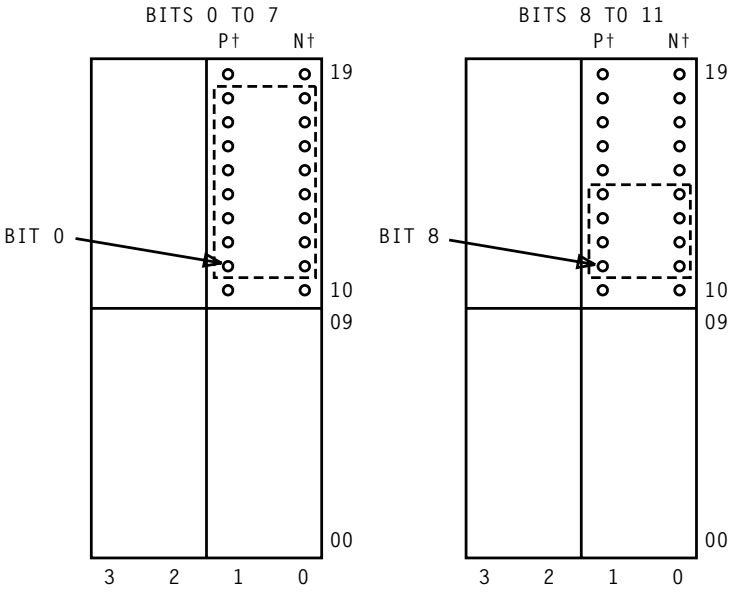


FRAME	BITS 0 TO 7	BITS 8 TO 11
CCIS	*80-16	*80-15
EST		
BUS 0	080-12	080-11
BUS 1	080-33	080-32
IO		
BUS 0	080-08	080-09
BUS 1	080-33	080-34
IOP		
BUS 0	080-24	080-27
BUS 1	076-24	076-27
NCLK	*60-35	*60-34
SP 1 (WITH D&SM FRAME)		
BUS 0	380-09	380-08
BUS 1	480-09	480-08
SP 1 (WITH COMBINED MATRIX FRAME)		
BUS 0	280-24	280-23
BUS 1	380-24	380-23
SP 2		
BUS 0	180-23	180-22
BUS 1	280-23	280-22
TMS A	*80-09	*80-08
TMS B		
BUS 0	‡76-24	‡76-23
BUS 1	‡80-24	‡80-23
TSIA-1	*80-41	*80-40
TSIA-2	*80-43	*80-42
TSIB	*80-47	*80-46

* 0 FOR BUS 0 OR 1 FOR BUS 1
† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD
‡ 0 FOR PUB TERMINATING AT TMS BAY 0 OR 1 FOR PUB TERMINATING AT TMS BAY 1

FIG. 1

SCOPE PU ENABLE ADDRESS BUS BITS 0 TO 11

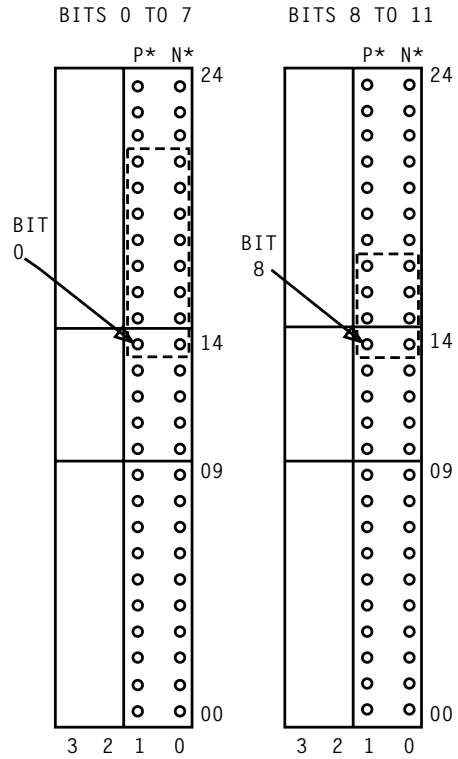


PUBB FRAME	BITS 0 TO 7	BITS 8 TO 11
BRANCH A	*76-37	*76-40
BRANCH B	*72-36	*72-38
BRANCH C	*76-39	*76-42
BRANCH D	*72-37	*72-39
BRANCH E	*64-37	*64-40
BRANCH F	*60-36	*60-38
BRANCH G	*64-39	*64-42
BRANCH H	*60-37	*60-39
BRANCH K	*48-37	*48-40
BRANCH L	*44-36	*44-38
BRANCH M	*48-39	*48-42
BRANCH R	*44-37	*44-39
BRANCH T	*36-37	*36-40
BRANCH V	*32-36	*32-38
BRANCH W	*36-39	*36-42
BRANCH X	*32-37	*32-39

* 0 FOR BUS 0 OR 1 FOR BUS 1
† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD

FIG. 2

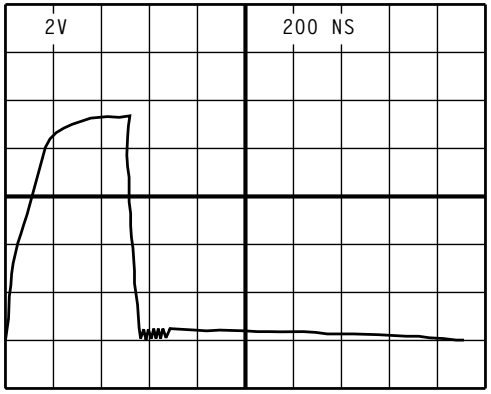
SCOPE PU ENABLE ADDRESS BUS BITS 0 TO 11



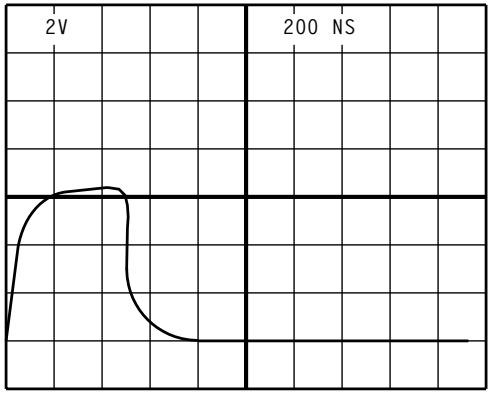
DIF or DIFE (24-31)		
BUS 0	180-079	180-073
BUS 1	180-227	180-221

* P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

FIG. 3

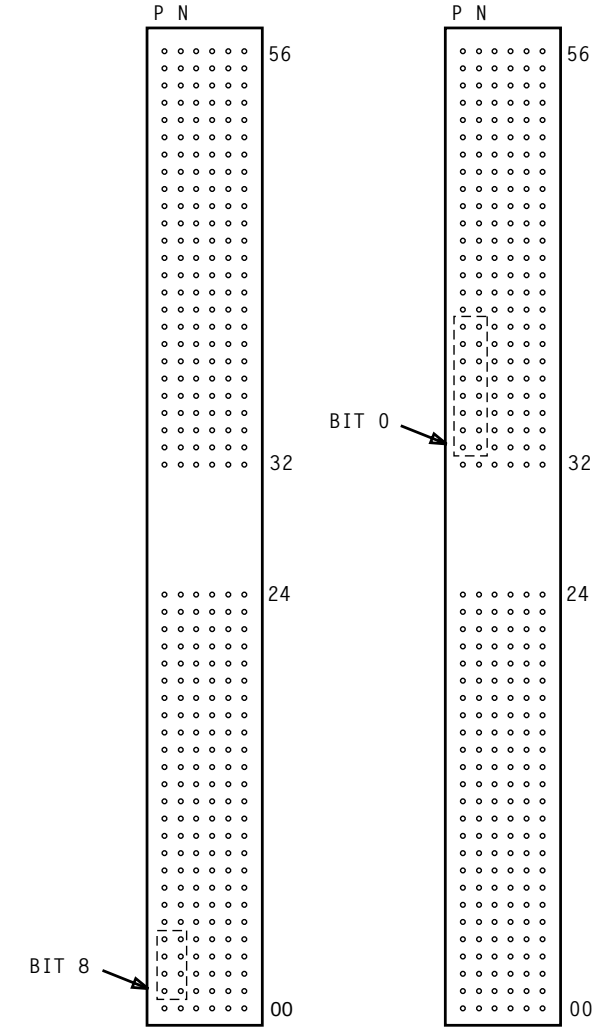


NORMAL PULSE AT DRIVER



NORMAL PULSE 500 FEET FROM DRIVER

FIG. 4

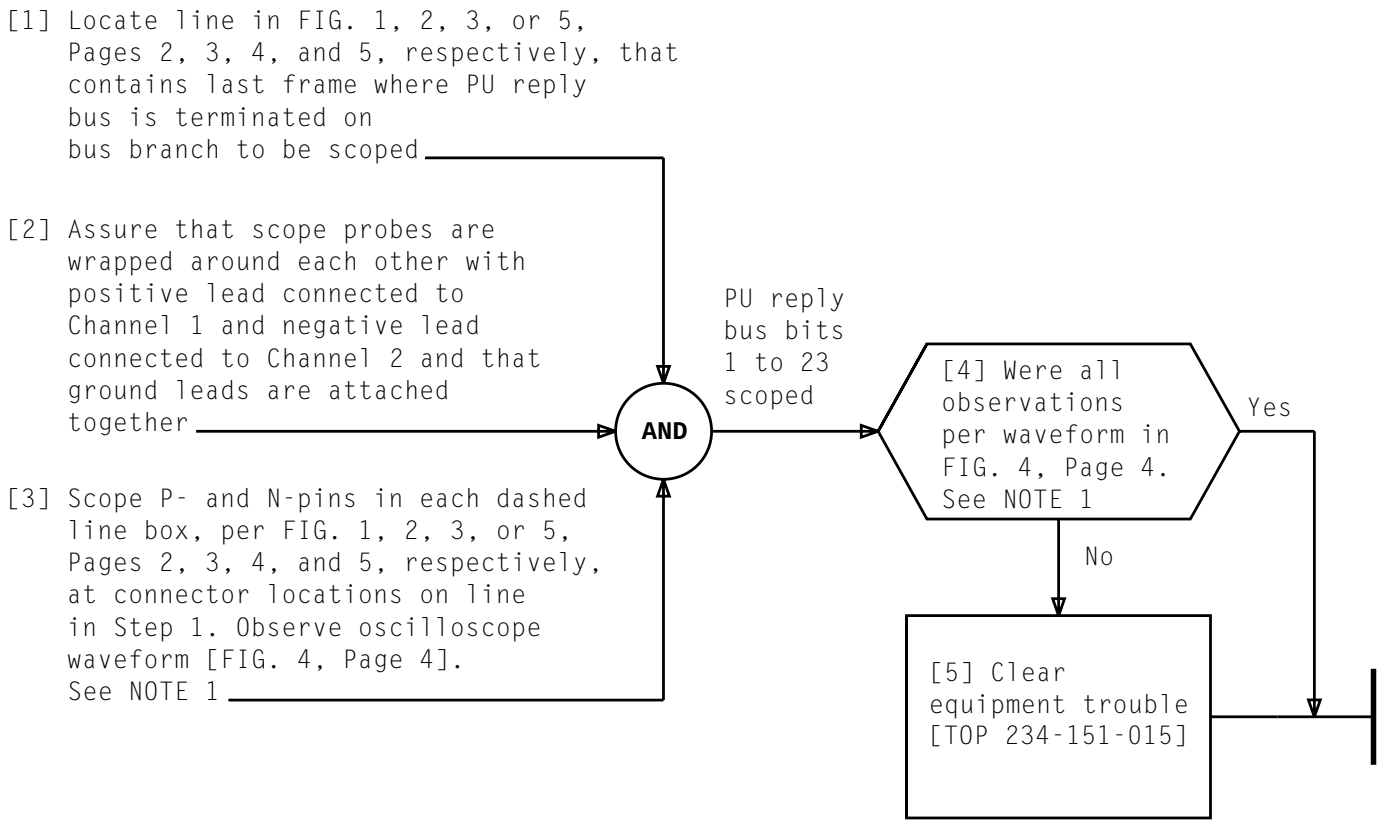


SCS		XTSI		SCS		XTSI	
BUS 0	045-144	BUS 0	052-156	BUS 0	045-152	BUS 0	052-164
BUS 1	053-144	BUS 1	061-156	BUS 1	053-152	BUS 1	061-164

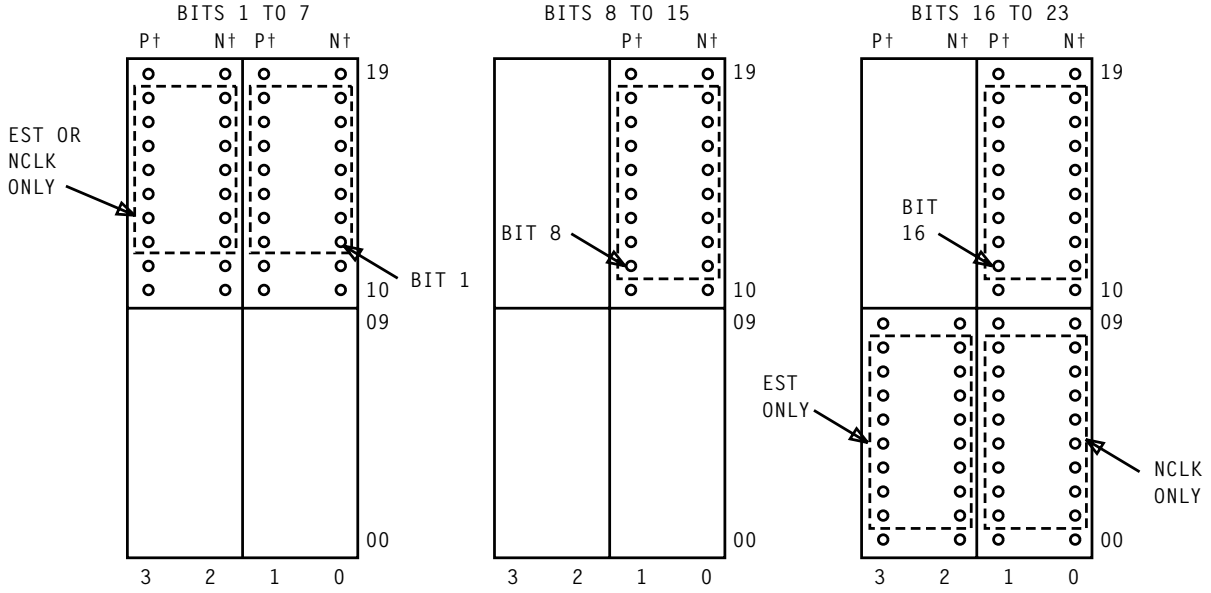
FIG. 5

SCOPE PU ENABLE ADDRESS BUS BITS 0 TO 11

SCOPE PU REPLY BUS BITS 1 TO 23



NOTE 1
Pulse waveform will vary, depending on distance away from driver. Waveform measurements should be similar to examples shown in FIG. 4, Page 4

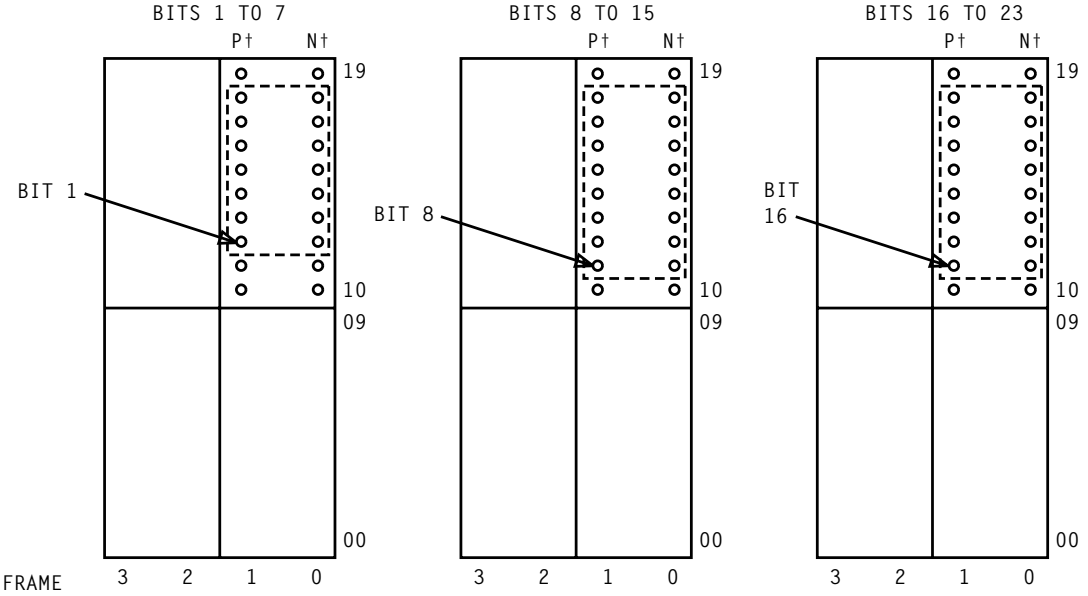


FRAME	BITS 1 TO 7	BITS 8 TO 15	BITS 16 TO 23
CCIS	*80-33	*80-32	*80-31
EST			
BUS 0	080-02	080-02	080-02
BUS 1	080-23	080-23	080-23
IO			
BUS 0	080-11	080-12	080-13
BUS 1	080-36	080-37	080-38
IOP			
BUS 0	080-40	080-41	080-42
BUS 1	076-40	076-41	076-42
NCLK	*60-48	*60-48	*60-48
SP 1 (WITH D&SM FRAME)			
BUS 0	380-04	380-03	380-02
BUS 1	480-04	480-03	480-02
SP 1 (WITH COMBINED MATRIX FRAME)			
BUS 0	280-20	280-18	280-16
BUS 1	380-20	380-18	380-16
SP 2			
BUS 0	180-18	180-17	180-16
BUS 1	280-18	280-17	280-16
TMS A	*80-04	*80-03	*80-02
TMS B			
BUS 0	‡76-20	‡76-18	‡76-16
BUS 1	‡80-20	‡80-18	‡80-16
TSIA-1	*80-36	*80-35	*80-34
TSIA-2	*80-39	*80-37	*80-35
TSIB	*80-43	*80-41	*80-39
VIF			
BUS 0	152-15	152-14	152-13
BUS 1	152-25	152-24	152-23

* 0 FOR BUS 0 OR 1 FOR BUS 1
† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD
‡ 0 FOR PUB TERMINATING AT TMS BAY 0 OR 1 FOR PUB TERMINATING AT TMS BAY 1

FIG. 1

SCOPE PU REPLY BUS BITS 1 TO 23

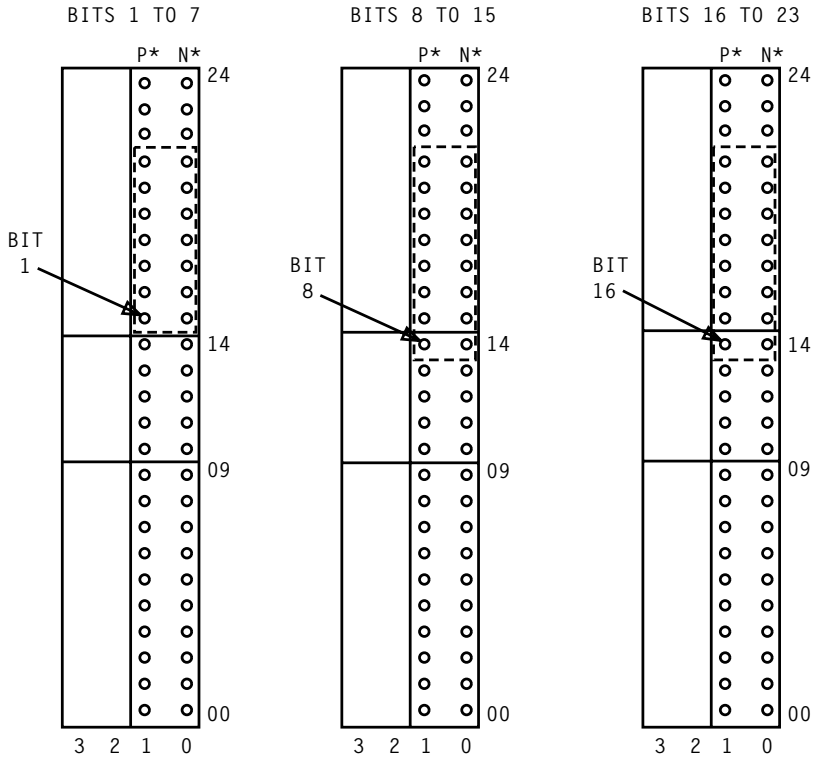


PUBB FRAME			
BRANCH A	*76-19	*76-21	*76-23
BRANCH B	*72-17	*72-19	*72-25
BRANCH C	*76-20	*76-22	*76-24
BRANCH D	*72-18	*72-20	*72-26
BRANCH E	*64-19	*64-21	*64-23
BRANCH F	*60-17	*60-19	*60-25
BRANCH G	*64-20	*64-22	*64-24
BRANCH H	*60-18	*60-20	*60-26
BRANCH K	*48-19	*48-21	*48-23
BRANCH L	*44-17	*44-19	*44-25
BRANCH M	*48-20	*48-22	*48-24
BRANCH R	*44-18	*44-20	*44-26
BRANCH T	*36-19	*36-21	*36-23
BRANCH V	*32-17	*32-19	*32-25
BRANCH W	*36-20	*36-22	*36-24
BRANCH X	*32-18	*32-20	*32-26

* 0 FOR BUS 0 OR 1 FOR BUS 1
† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD

FIG. 2

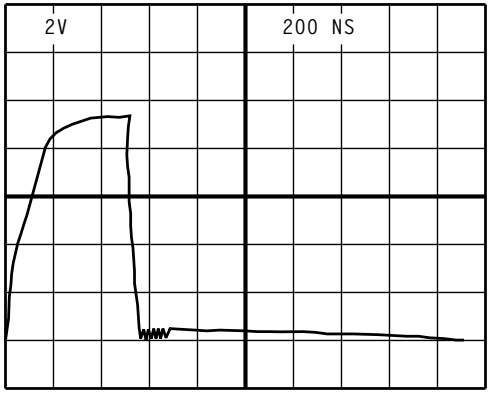
SCOPE PU REPLY BUS BITS 1 TO 23



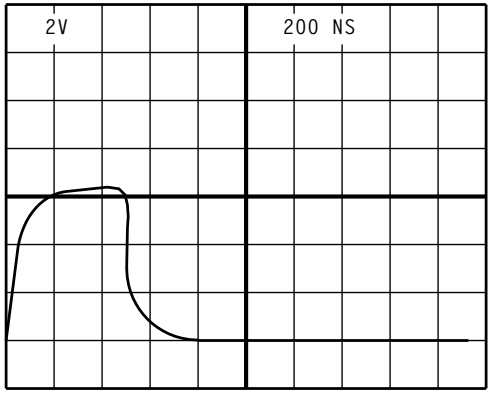
DIF or DIFE (24-31)			
BUS 0	180-053	180-041	180-035
BUS 1	180-201	180-189	180-183

* P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

FIG. 3



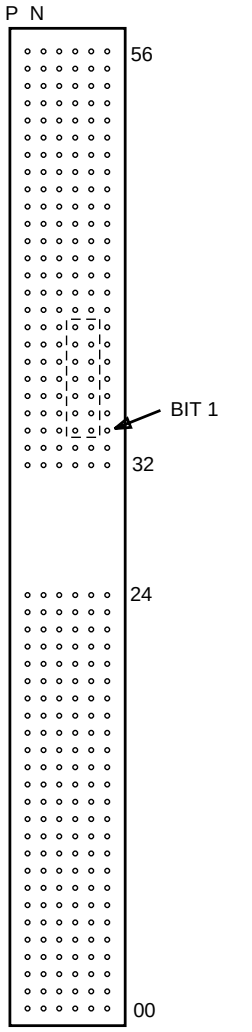
NORMAL PULSE AT DRIVER



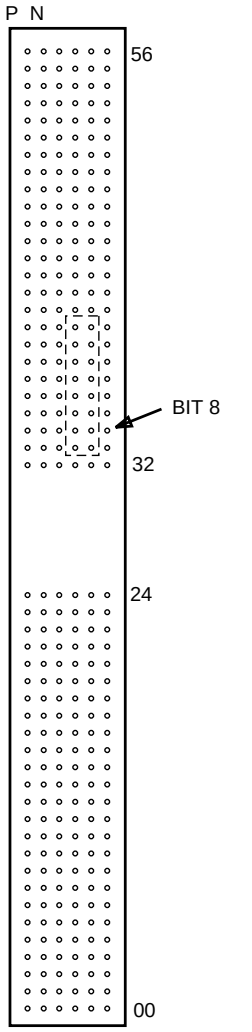
NORMAL PULSE 500 FEET FROM DRIVER

FIG. 4

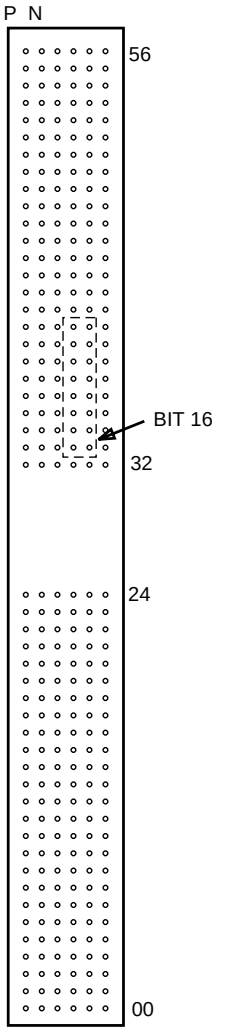
SCOPE PU REPLY BUS BITS 1 TO 23



SCS		XTSI	
BUS 0	045-168	BUS 0	052-180
BUS 1	053-168	BUS 1	061-180



SCS		XTSI	
BUS 0	045-160	BUS 0	052-172
BUS 1	053-160	BUS 1	061-172



SCS		XTSI	
BUS 0	045-152	BUS 0	052-164
BUS 1	053-152	BUS 1	061-164

FIG. 5

SCOPE PU REPLY BUS BITS 1 TO 23

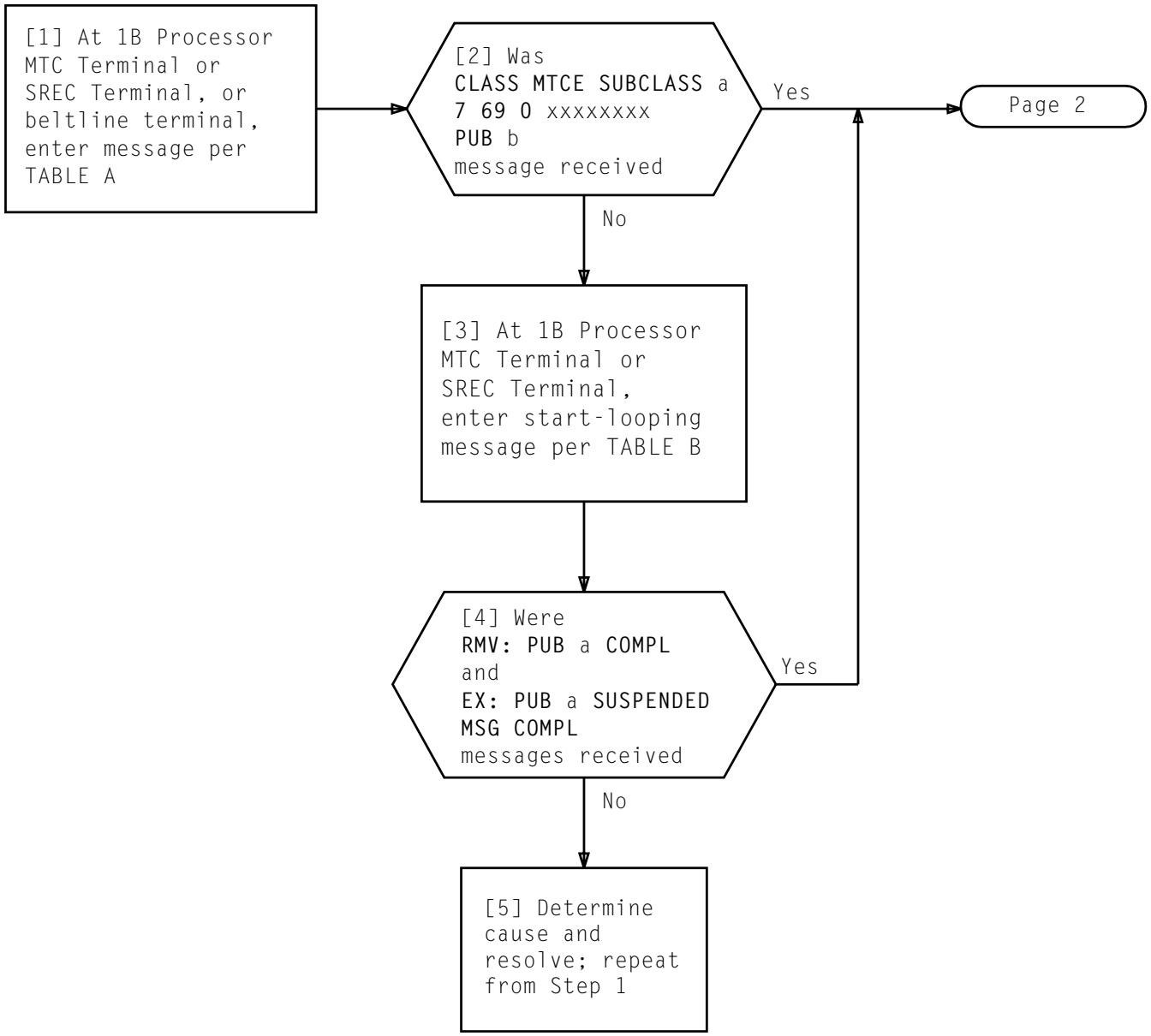


TABLE A

MESSAGE NUMBER	INPUT MESSAGE
1	OP:MACLI,CLASS MTCE!

TABLE B

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a;START!
a = bus 0 or 1	

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

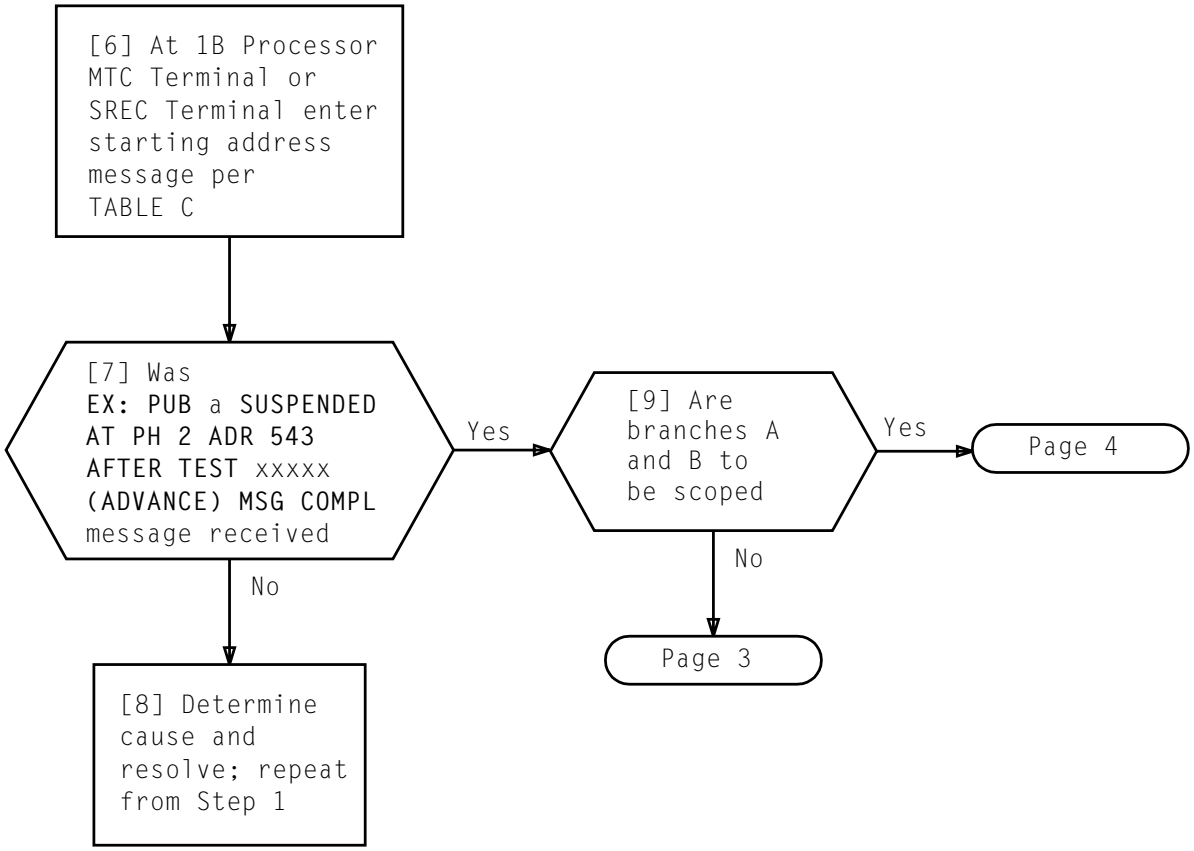


TABLE C	
MESSAGE NUMBER	**INPUT MESSAGE**
1	EX:PUB a:PH 2,ADR 543!
a = bus 0 or 1 543 = Address of statement label STM10600	

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

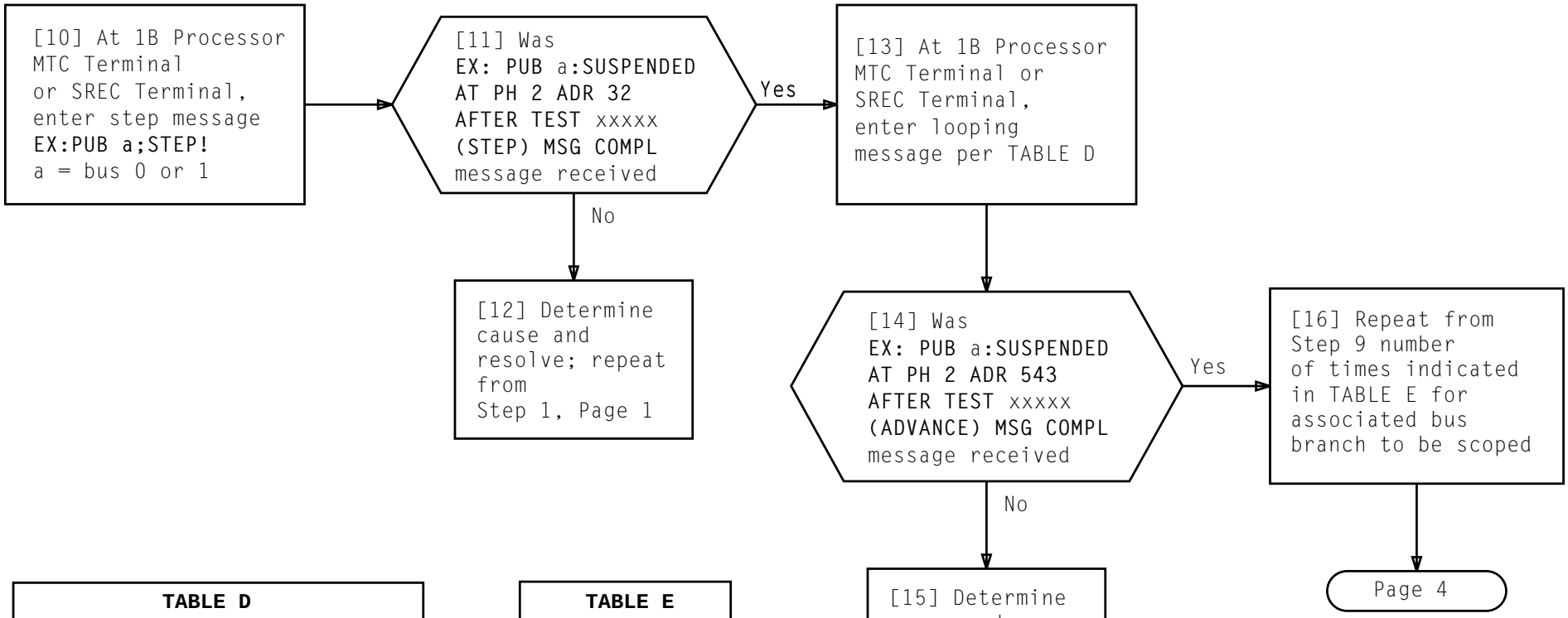


TABLE D

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a:ADR 543!

a = bus 0 or 1
543 = Address of statement label STM10600

TABLE E

BRANCHES	REPEAT NUMBER
C,D	0
E,F	1
G,H	2
K,L	3
M,R	4
T,V	5
W,X	6

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

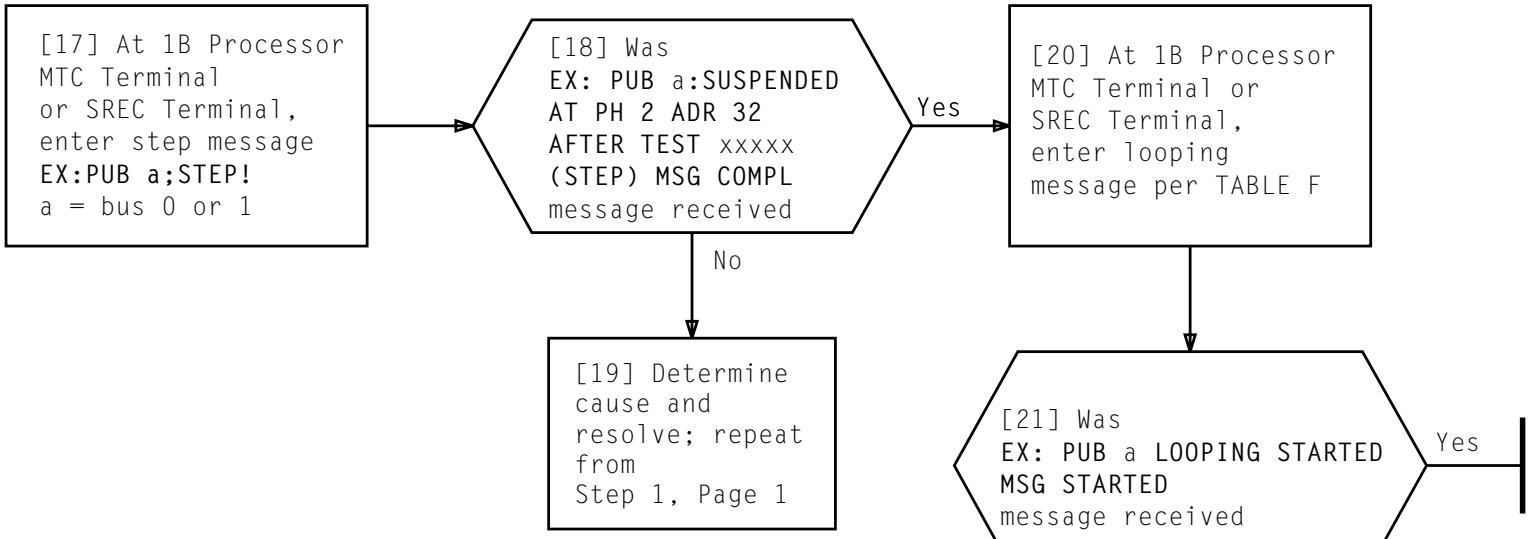


TABLE F

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a:ADR b-c!

a = bus 0 or 1
616 = Address of statement label PBTS4400
1675 = Address of statement label PBTS13800

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

[1] Locate line in FIG. 1, 2, 3, 4, or 6, Pages 2, 3, 4, 5, and 6, respectively, that contains last frame where PU control bus and miscellaneous bus bits are terminated on bus branch to be scoped

[2] Assure that scope probes are wrapped around each other with positive lead connected to Channel 1 and negative lead connected to Channel 2 and that ground leads are attached together

[3] Scope P- and N-pins in dashed line box of connector 1, per FIG. 1, 3, 4, or 6, Pages 2, 4, 5, and 6, respectively, at connector location on line in Step 1. Observe oscilloscope waveform [FIG. 5, Page 5]. See NOTE 1. If problem occurs in seeing bit, use external trigger on scope and connect to trigger bit associated with faulty bit. See TABLE A and FIG. 1, 3, or 4, Pages 2, 4, and 5, respectively

[4] Scope P- and N-pins in each dashed line box of connectors 2 through 4, per FIG. 1, 2, 3, 4, or 6, Pages 2, 3, 4, 5, and 6, respectively, at connector locations on line in Step 1. Observe oscilloscope waveform [FIG. 5, Page 5]. See NOTE 1

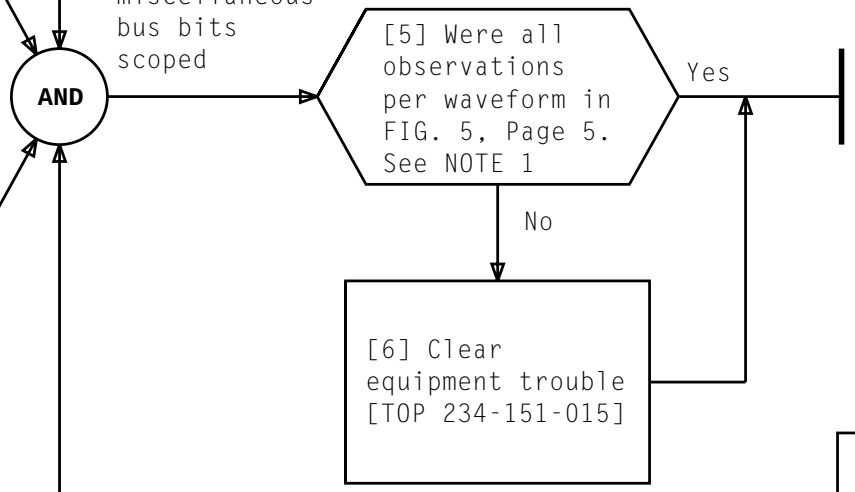
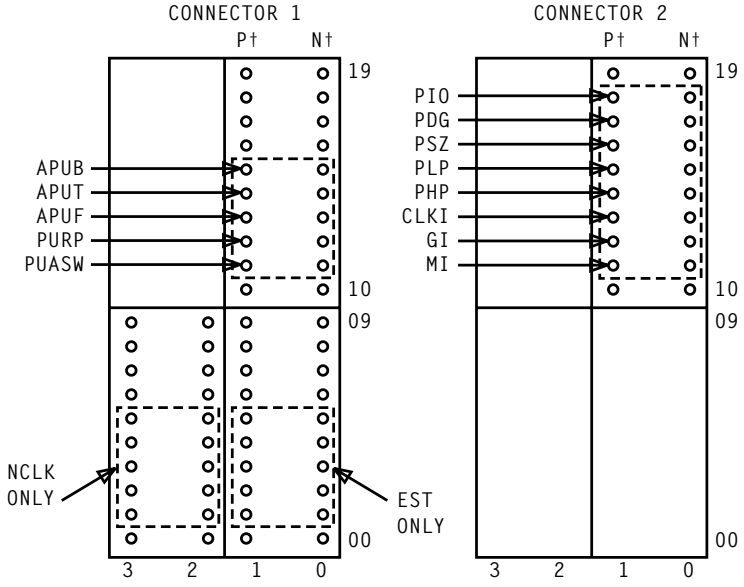


TABLE A	
FAULTY BIT	TRIGGER BIT
APUB	PSZ
APUF	CLKI
APUT	PLP
PUASW	MI
PURB	GI

NOTE 1
Pulse waveform will vary, depending on distance away from driver. Waveform measurements should be similar to examples shown in FIG. 5, Page 5

SCOPE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

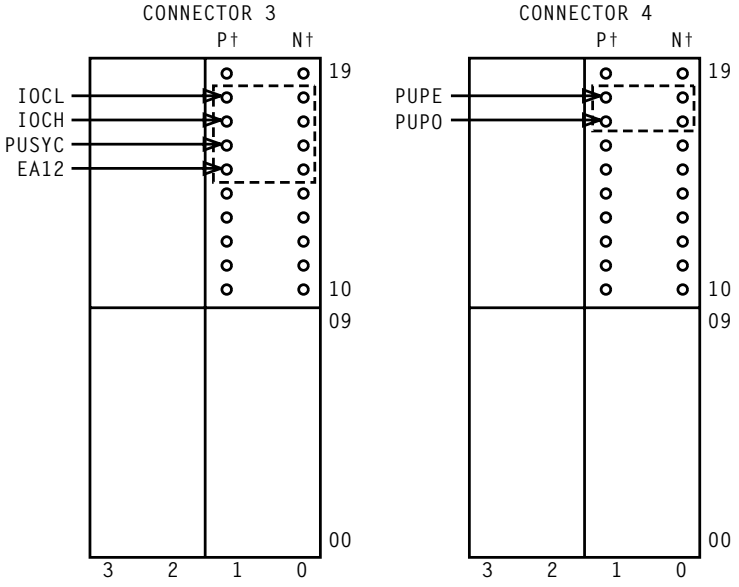


FRAME	CONNECTOR 1	CONNECTOR 2
CCIS	*80-30	*80-13
EST		
BUS 0	080-02	080-10
BUS 1	080-23	080-31
IO		
BUS 0	080-14	080-10
BUS 1	080-39	080-35
IOP		
BUS 0	080-39	080-29
BUS 1	076-39	076-29
NCLK	*60-48	*60-47
SP 1 (WITH D&SM FRAME)		
BUS 0	380-01	380-07
BUS 1	480-01	480-07
SP 1 (WITH COMBINED MATRIX FRAME)		
BUS 0	280-14	280-21
BUS 1	380-14	380-21
SP 2		
BUS 0	180-15	180-21
BUS 1	280-15	280-21
TMS A	*80-01	*80-07
TMS B		
BUS 0	‡76-14	‡76-21
BUS 1	‡80-14	‡80-21
TSIA-1	*80-33	*80-39
TSIA-2	*80-33	*80-40
TSIB	*80-37	*80-44
VIF		
BUS 0	152-12	152-09
BUS 1	152-22	152-27

* 0 FOR BUS 0 OR 1 FOR BUS 1
† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD
‡ 0 FOR PUB TERMINATING AT TMS BAY 0 OR 1 FOR PUB TERMINATING AT TMS BAY 1

FIG. 1

SCOPE PU CONTROL BUS AND MISCELLANEOUS BUS BITS



FRAME	CONNECTOR 3	CONNECTOR 4
CCIS	*80-15	*80-18
EST		
BUS 0	080-11	080-13
BUS 1	080-32	080-34
IO		
BUS 0	080-09	080-07
BUS 1	080-34	080-32
IOP		
BUS 0	080-27	080-37
BUS 1	076-27	076-37
NCLK	*60-34	*60-36
SP 1 (WITH D&SM FRAME)		
BUS 0	380-08	380-10
BUS 1	480-08	480-10
SP 1 (WITH COMBINED MATRIX FRAME)		
BUS 0	280-23	280-26
BUS 1	380-23	380-26
SP 2		
BUS 0	180-22	180-24
BUS 1	280-22	280-24
TMS A	*80-08	*80-10
TMS B		
BUS 0	‡76-23	‡76-26
BUS 1	‡80-23	‡76-26
TSIA-1	*80-40	*80-42
TSIA-2	*80-42	*80-45
TS1B	*80-46	*80-49
VIF		
BUS 0	NONE	NONE
BUS 1	NONE	NONE

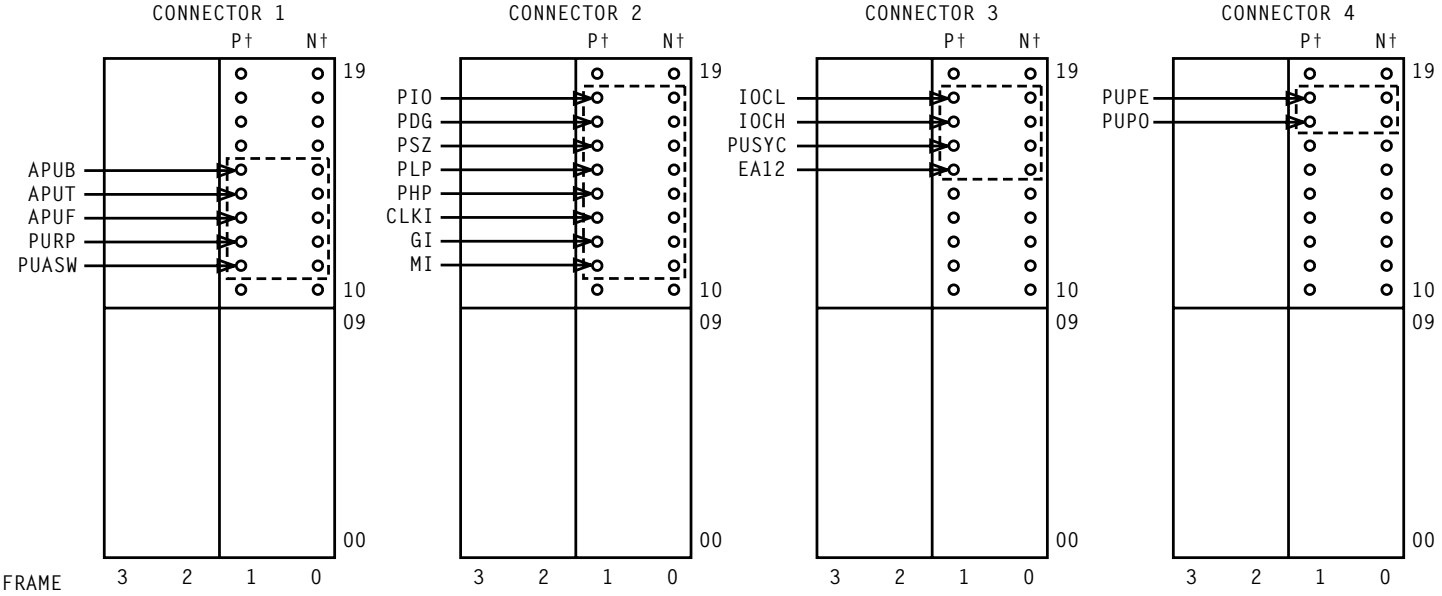
* 0 FOR BUS 0 OR 1 FOR BUS 1

† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD

‡ 0 FOR PUB TERMINATING AT TMS BAY 0 OR 1 FOR PUB TERMINATING AT TMS BAY 1

FIG. 2

SCOPE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

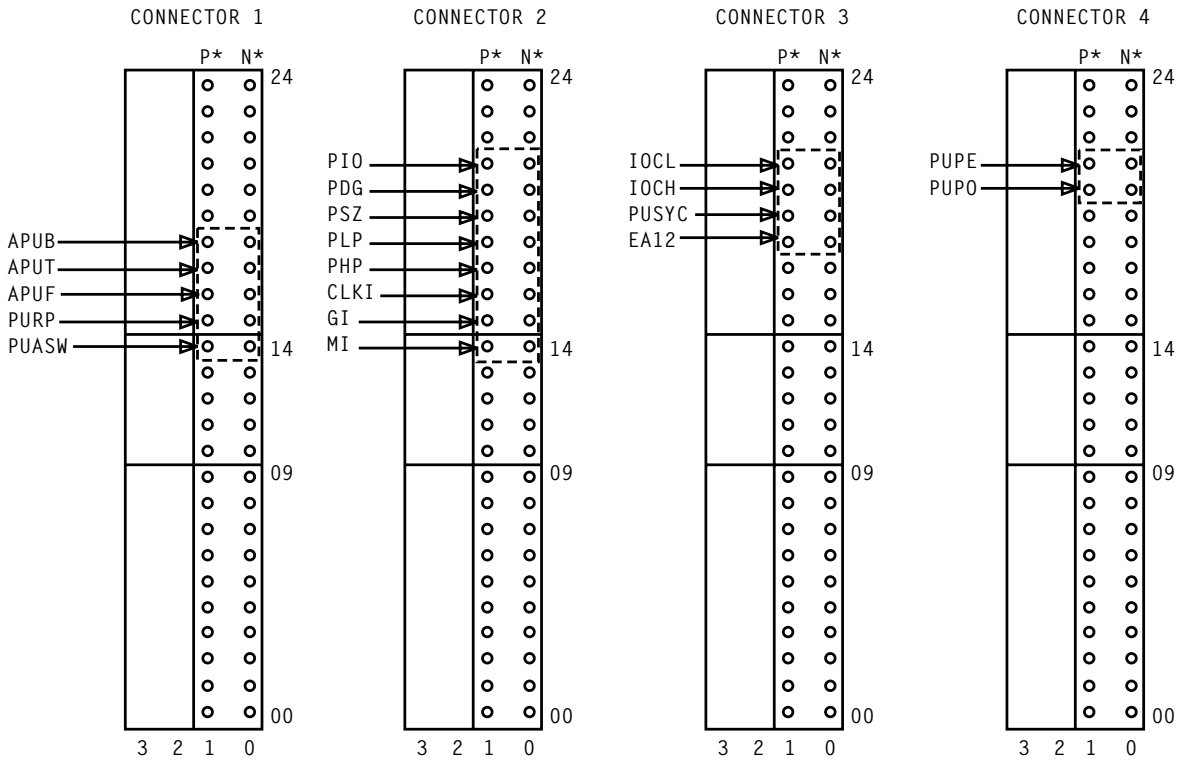


PUBB FRAME	CONNECTOR 1	CONNECTOR 2	CONNECTOR 3	CONNECTOR 4
BRANCH A	*76-25	*76-31	*76-40	*76-09
BRANCH B	*72-27	*72-32	*72-38	*72-10
BRANCH C	*76-26	*76-33	*76-42	*76-11
BRANCH D	*72-28	*72-33	*72-39	*72-11
BRANCH E	*64-25	*64-31	*64-40	*64-09
BRANCH F	*60-27	*60-32	*60-38	*60-10
BRANCH G	*64-26	*64-33	*64-42	*64-11
BRANCH H	*60-28	*60-33	*60-39	*60-11
BRANCH K	*48-25	*48-31	*48-40	*48-09
BRANCH L	*44-27	*44-32	*44-38	*44-10
BRANCH M	*48-26	*48-33	*48-42	*48-11
BRANCH R	*44-28	*44-33	*44-39	*44-11
BRANCH T	*36-25	*36-31	*36-40	*36-09
BRANCH V	*32-27	*32-32	*32-38	*32-10
BRANCH W	*36-26	*36-33	*36-42	*36-11
BRANCH X	*32-28	*32-33	*32-39	*32-11

* 0 FOR BUS 0 OR 1 FOR BUS 1
† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD

FIG. 3

SCOPE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

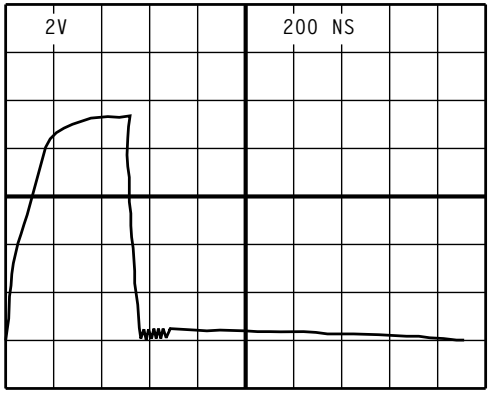


DIF or DIFE (24-31) (See Note.)	CONNECTOR 1	CONNECTOR 2	CONNECTOR 3	CONNECTOR 4
BUS 0	180-023	180-067	180-073	180-085
BUS 1	180-171	180-215	180-221	180-233

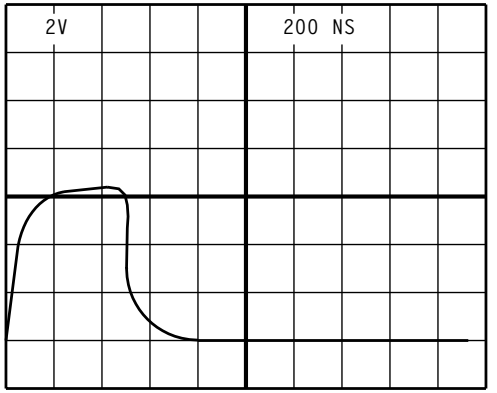
* P FOR POSITIVE LEAD AND
  N FOR NEGATIVE LEAD

FIG. 4

NOTE:
PHPB, PDGB, PLPB, and PSZB are expanded pollable bits.
For DIFE 24, these expanded pollable bits will not appear.
For DIFE 25-31, more testing of these bits is required (See DLP-533.).



NORMAL PULSE AT DRIVER



NORMAL PULSE 500 FEET FROM DRIVER

FIG. 5

SCOPE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

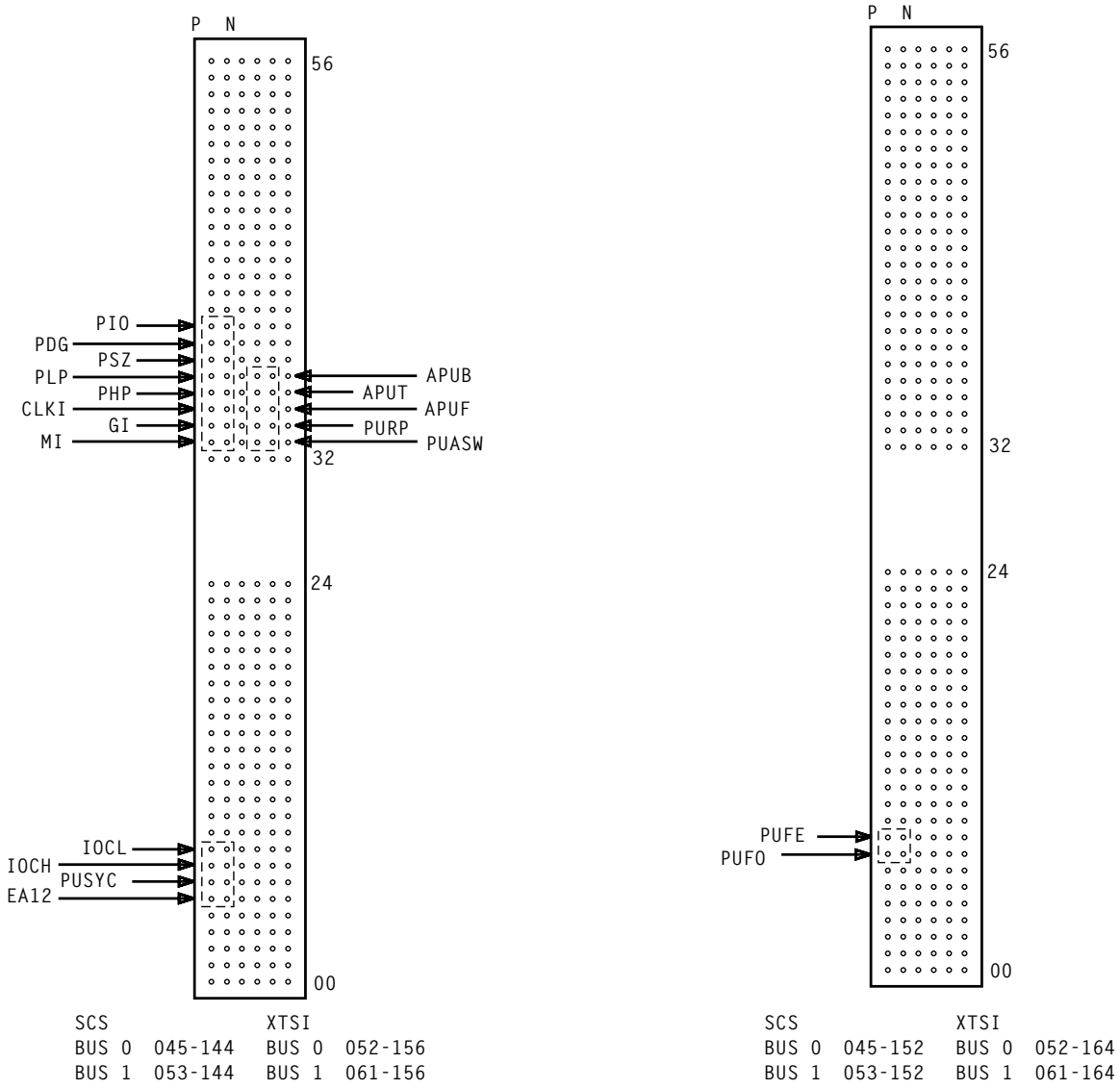


FIG. 6

SCOPE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

[1] Locate line in FIG. 1, 2, or 3, Pages 2, 3, and 4, respectively, that contains last frame where PU miscellaneous bus bits are terminated on bus branch to be scoped

[2] Assure that scope probes are wrapped around each other with positive lead connected to Channel 1 and negative lead connected to Channel 2 and that ground leads are attached together

[3] Scope P- and N-pins in each dashed line box, per FIG. 1, 2, or 3, Pages 2, 3, and 4, respectively, at connector locations on line in Step 1. Observe oscilloscope waveform [FIG. 4, Page 4]. See NOTE 1

AND

PU miscellaneous bus bits scoped

[4] Were all observations per waveform in FIG. 4, Page 4. See NOTE 1

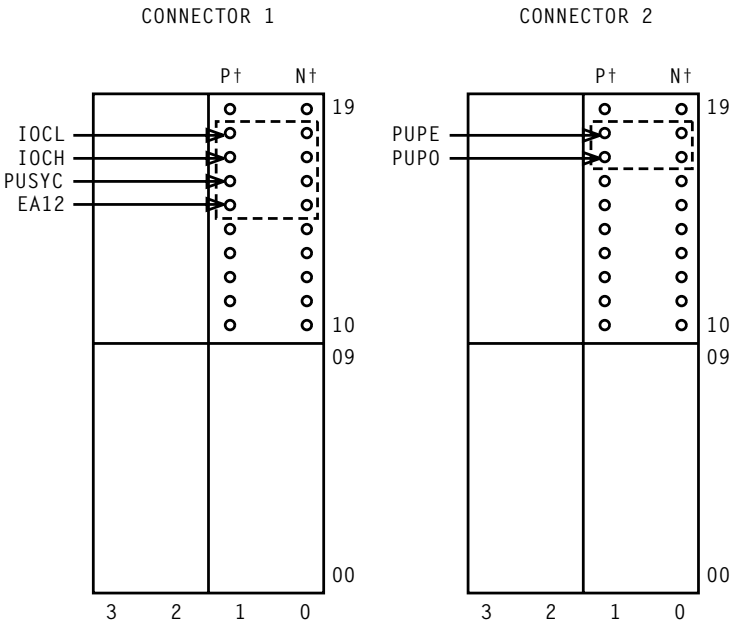
Yes

No

[5] Clear equipment trouble [TOP 234-151-015]

NOTE 1
Pulse waveform will vary, depending on distance away from driver. Waveform measurements should be similar to examples shown in FIG. 4, Page 4

SCOPE REMAINING PU MISCELLANEOUS BUS BITS NOT TERMINATED AT VIF

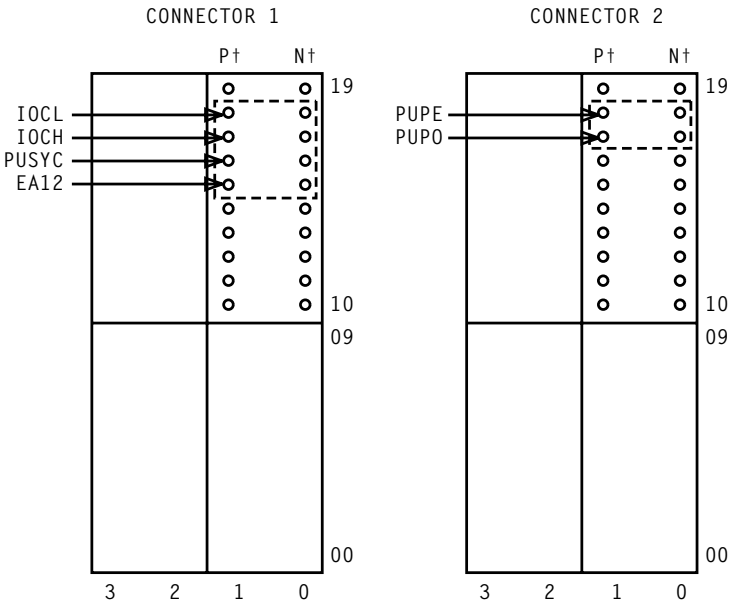


FRAME	CONNECTOR 1	CONNECTOR 2
CCIS	*80-15	*80-18
EST		
BUS 0	080-11	080-13
BUS 1	080-32	080-34
IO		
BUS 0	080-09	080-07
BUS 1	080-34	080-32
IOP		
BUS 0	080-27	080-37
BUS 1	076-27	076-37
NCLK	*60-34	*60-36
SP 1 (WITH D&SM FRAME)		
BUS 0	380-08	380-10
BUS 1	480-08	480-10
SP 1 (WITH COMBINED MATRIX FRAME)		
BUS 0	280-23	280-26
BUS 1	380-23	380-26
SP 2		
BUS 0	180-22	180-24
BUS 1	280-22	280-24
TMS A	*80-08	*80-10
TMS B		
BUS 0	‡76-23	‡76-26
BUS 1	‡80-23	‡80-26
TSIA-1	*80-40	*80-42
TSIA-2	*80-42	*80-45
TSIB	*80-46	*80-49

* 0 FOR BUS 0 OR 1 FOR BUS 1
† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD
‡ 0 FOR PUB TERMINATING AT TMS BAY 0 OR 1 FOR PUB TERMINATING AT TMS BAY 1

FIG. 1

SCOPE REMAINING PU MISCELLANEOUS BUS BITS NOT TERMINATED AT VIF

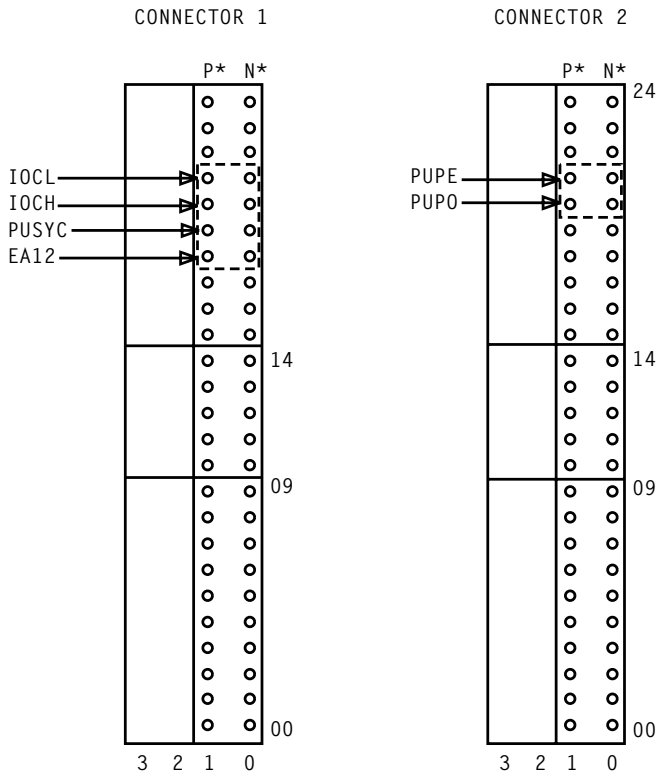


PUBB FRAME	CONNECTOR 1	CONNECTOR 2
BRANCH A	*76-40	*76-09
BRANCH B	*72-38	*72-10
BRANCH C	*76-42	*76-11
BRANCH D	*72-39	*72-11
BRANCH E	*64-40	*64-09
BRANCH F	*60-38	*60-10
BRANCH G	*64-42	*64-11
BRANCH H	*60-39	*60-11
BRANCH K	*48-40	*48-09
BRANCH L	*44-38	*44-10
BRANCH M	*48-42	*48-11
BRANCH R	*44-39	*44-11
BRANCH T	*36-40	*36-09
BRANCH V	*32-38	*32-10
BRANCH W	*36-42	*36-11
BRANCH X	*32-39	*32-11

* 0 FOR BUS 0 OR 1 FOR BUS 1
† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD

FIG. 2

SCOPE REMAINING PU MISCELLANEOUS BUS BITS NOT TERMINATED AT VIF

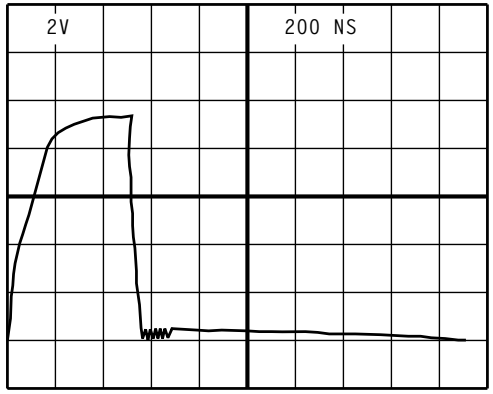


DIF or DIFE (24-31)

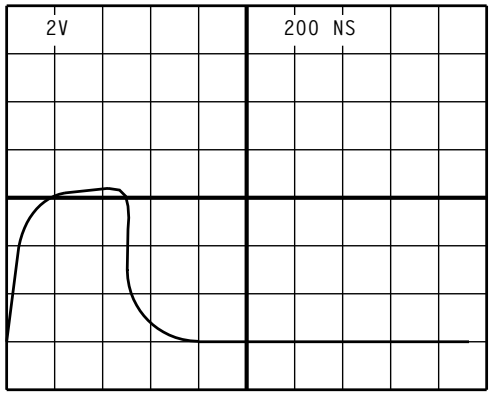
BUS 0	180-073	180-085
BUS 1	180-221	180-233

* P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

FIG. 3



NORMAL PULSE AT DRIVER



NORMAL PULSE 500 FEET FROM DRIVER

FIG. 4

SCOPE REMAINING PU MISCELLANEOUS BUS BITS NOT TERMINATED AT VIF

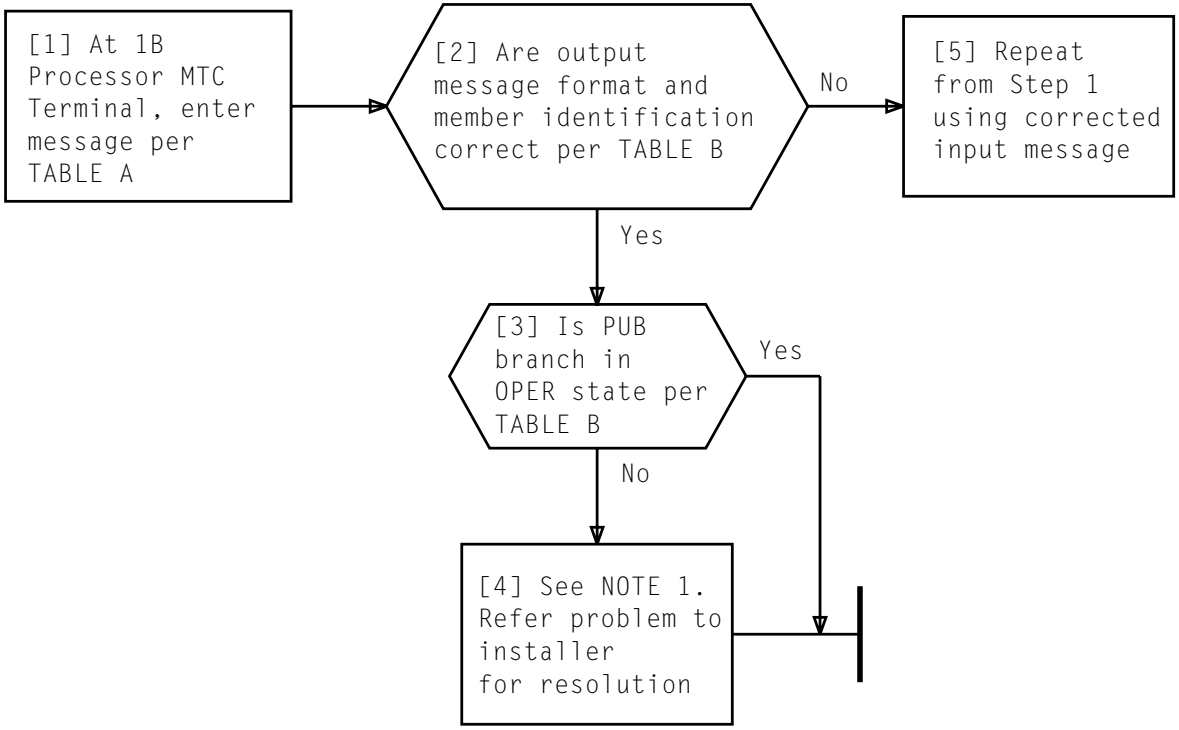


TABLE B

VER:UTMN;OPT(SME),CUR: FLN a, UTYN PUBB,
MEMN 0, ME OPER,
SUBMEM b, SME OPER,

a = Floor location number
b = SME index number =

SME	INDEX NO.
PUB Unit 0(Half 0) AB	70
PUB Unit 0(Half 1) CD	71
PUB Unit 1(Half 0) EF	72
PUB Unit 1(Half 1) GH	73
PUB Unit 2(Half 0) KL	74
PUB Unit 2(Half 1) MR	75
PUB Unit 3(Half 0) TV	76
PUB Unit 3(Half 1) WX	77

TABLE A

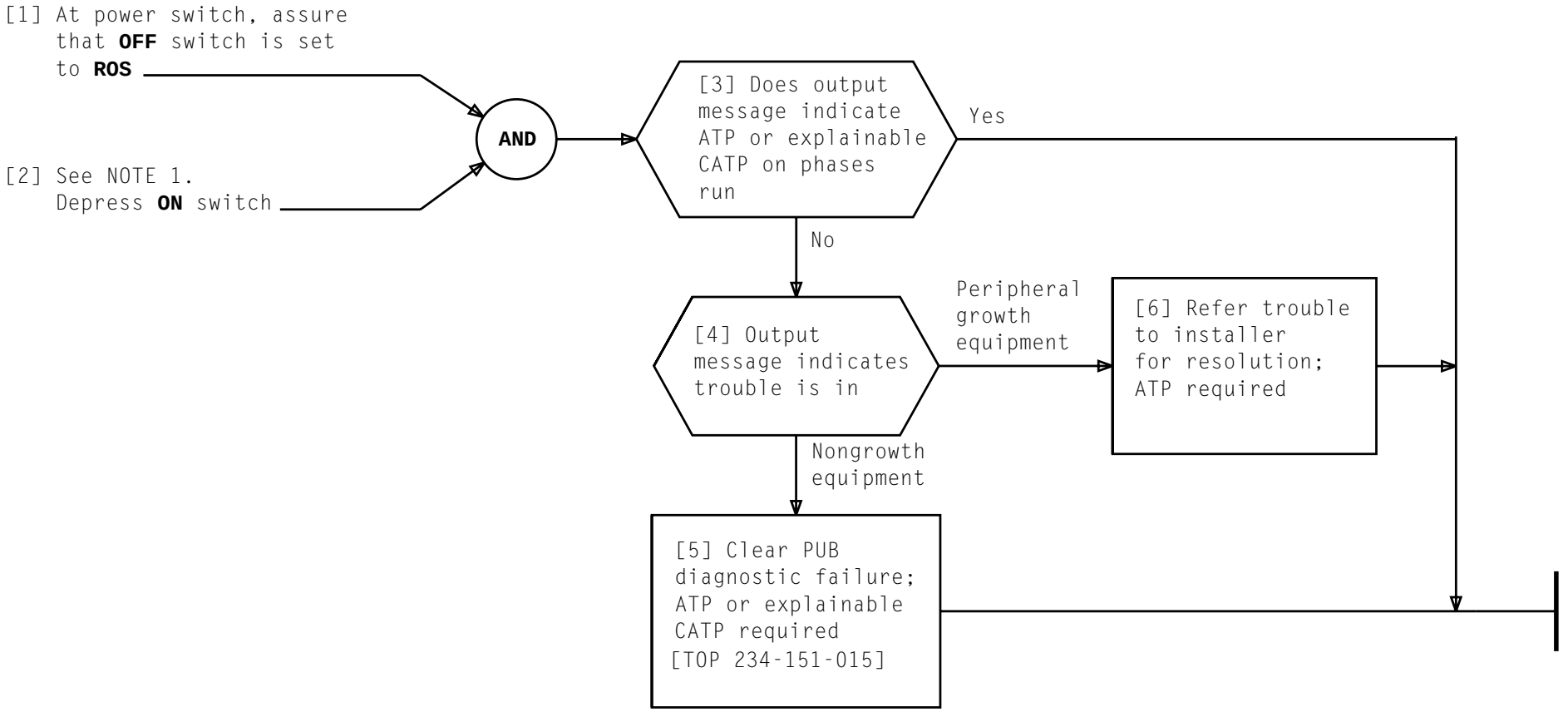
VER:UTYPE:PUBB 0,SME a!

a = SME index number =

SME	INDEX NO.
PUB Unit 0(Half 0)	70
PUB Unit 0(Half 1)	71
PUB Unit 1(Half 0)	72
PUB Unit 1(Half 1)	73
PUB Unit 2(Half 0)	74
PUB Unit 2(Half 1)	75
PUB Unit 3(Half 0)	76
PUB Unit 3(Half 1)	77

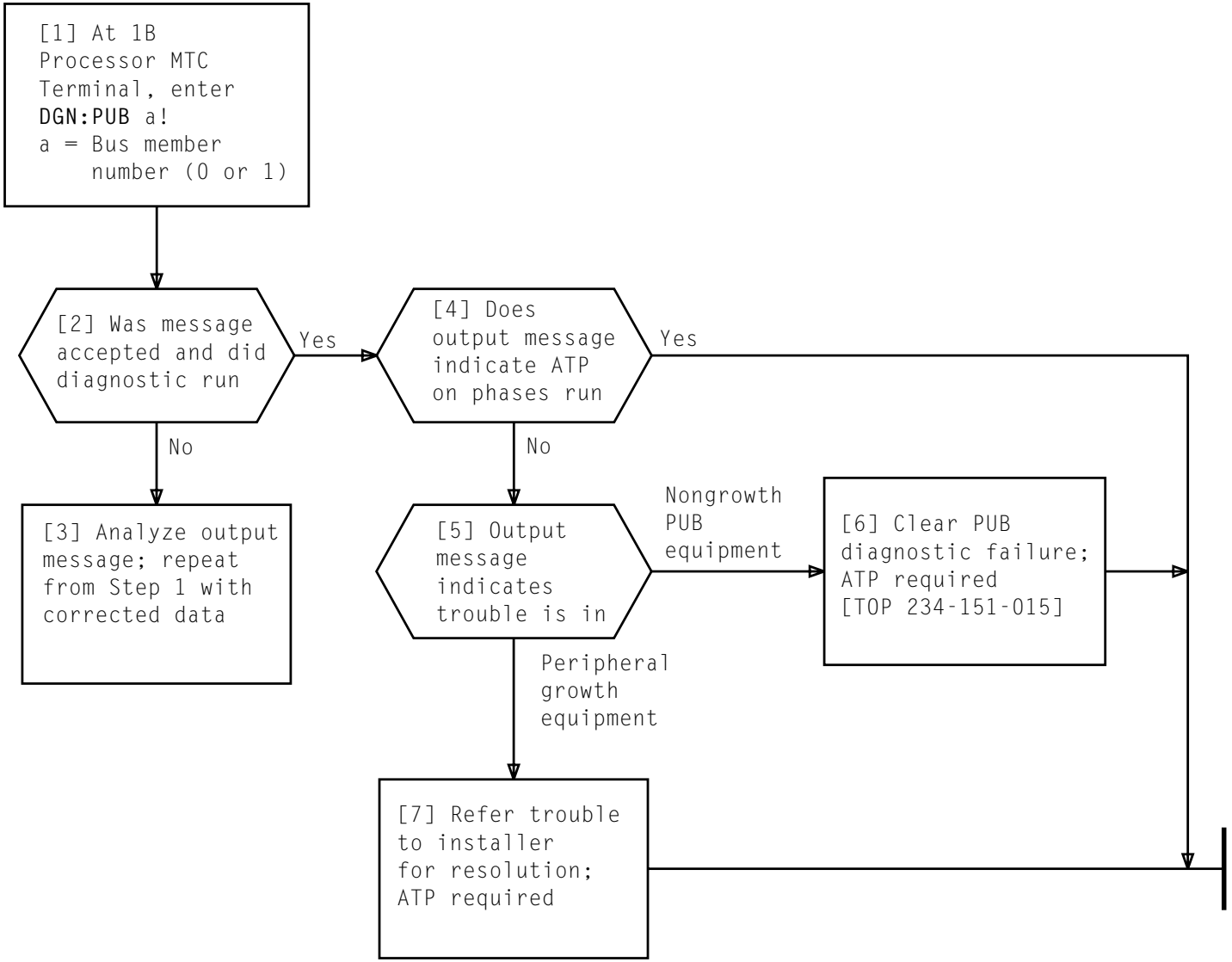
NOTE 1
Growth procedure adding PUBB equipment must be completed before proceeding

VERIFY OPER STATUS OF PUB BRANCH BEING EXTENDED



RESTORE POWER WITH POWER SWITCH (LEAVING OFF SWITCH IN ROS)

NOTE 1
Operation of **ON** switch will cause diagnostic to be run



DIAGNOSE PERIPHERAL UNIT BUS

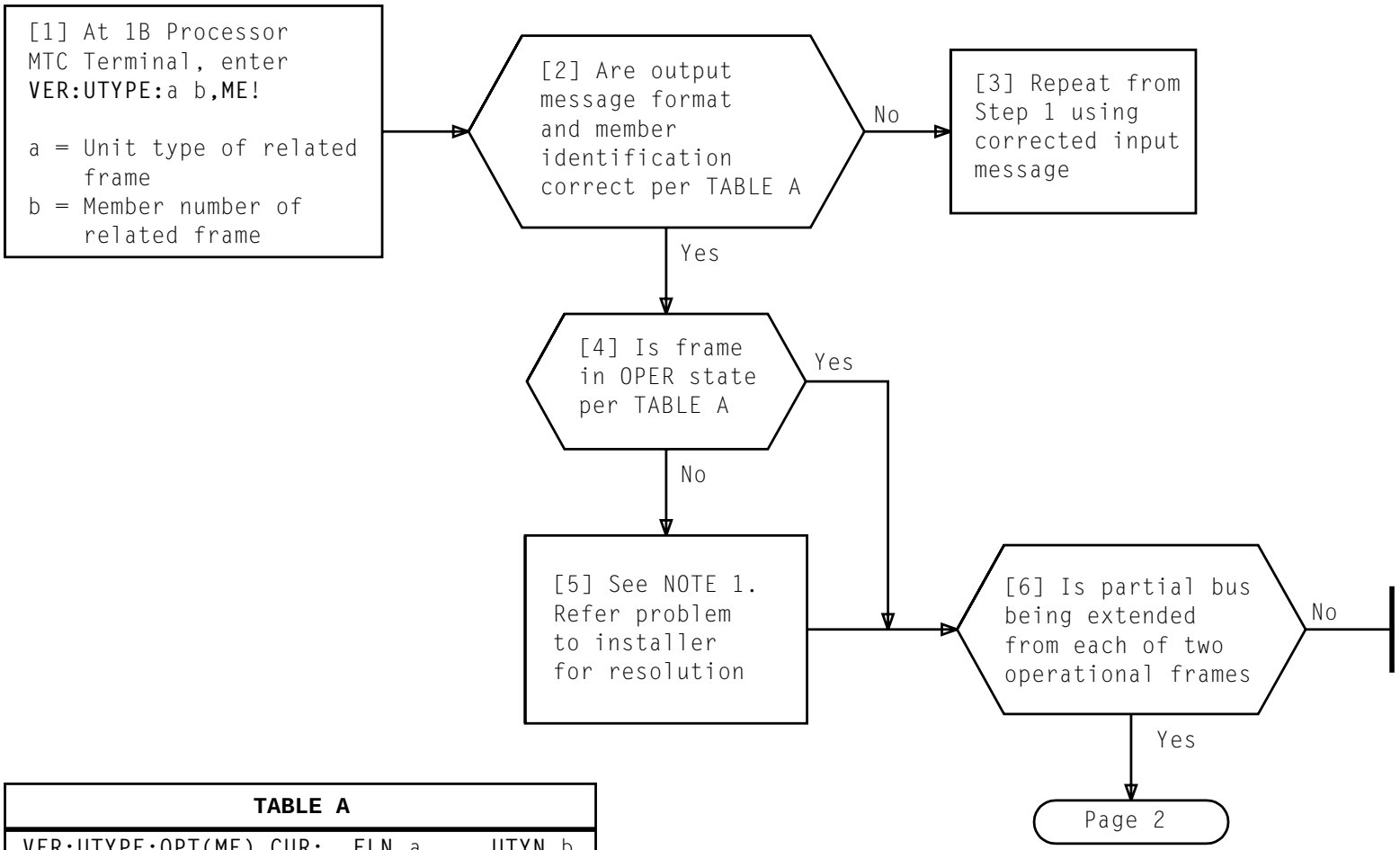


TABLE A
VER:UTYPE;OPT(ME),CUR: FLN a, UTYN b, MEMN c, ME OPER,
a = Floor location number b = Unit type of related frame c = Member number of related frame

NOTE 1
Frame growth procedure must be completed before proceeding

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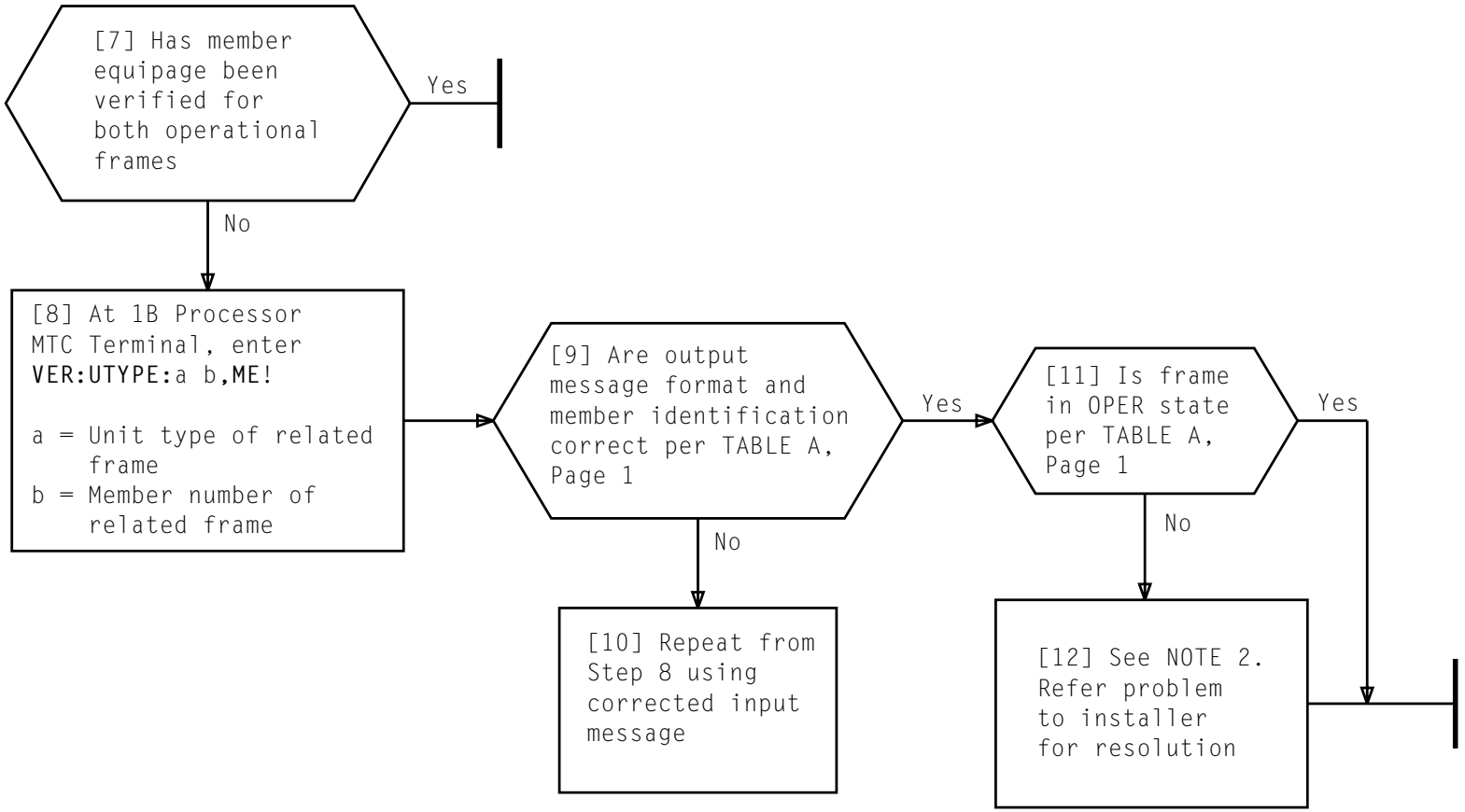
VERIFY OPER STATUS OF FRAME(S) RELATED TO PUB GROWTH



NOTE 2

Frame growth procedure must be completed before proceeding

VERIFY OPER STATUS OF FRAME(S) RELATED TO PUB GROWTH

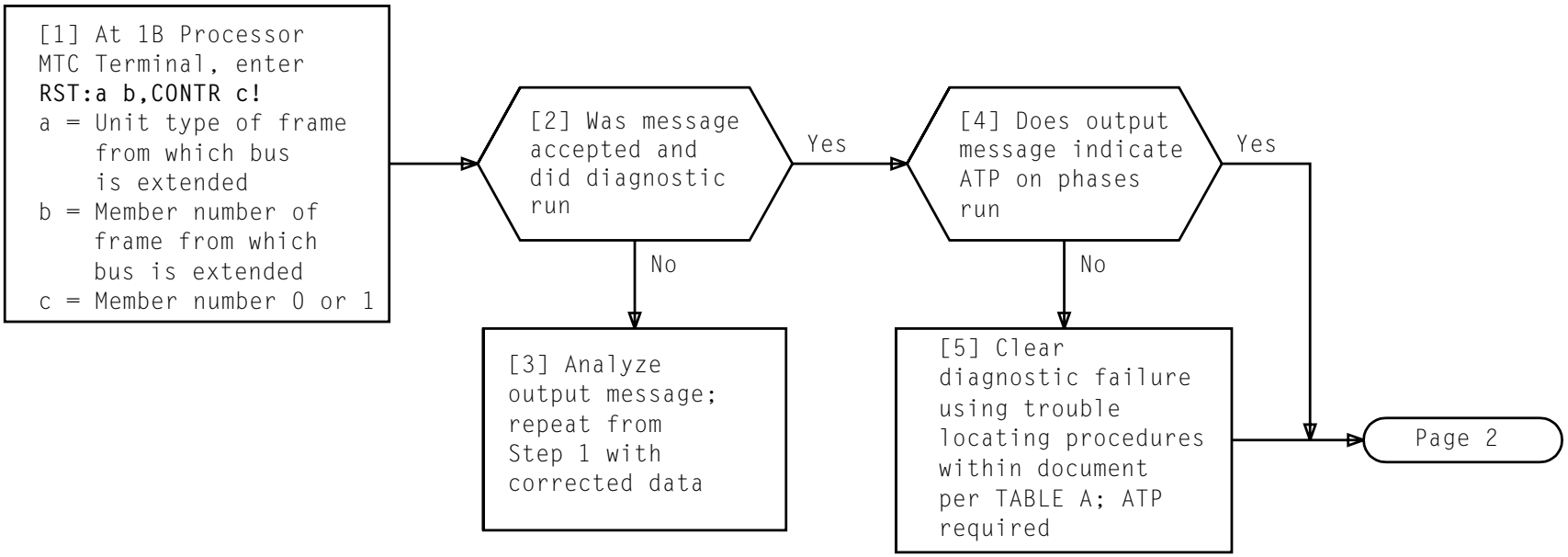
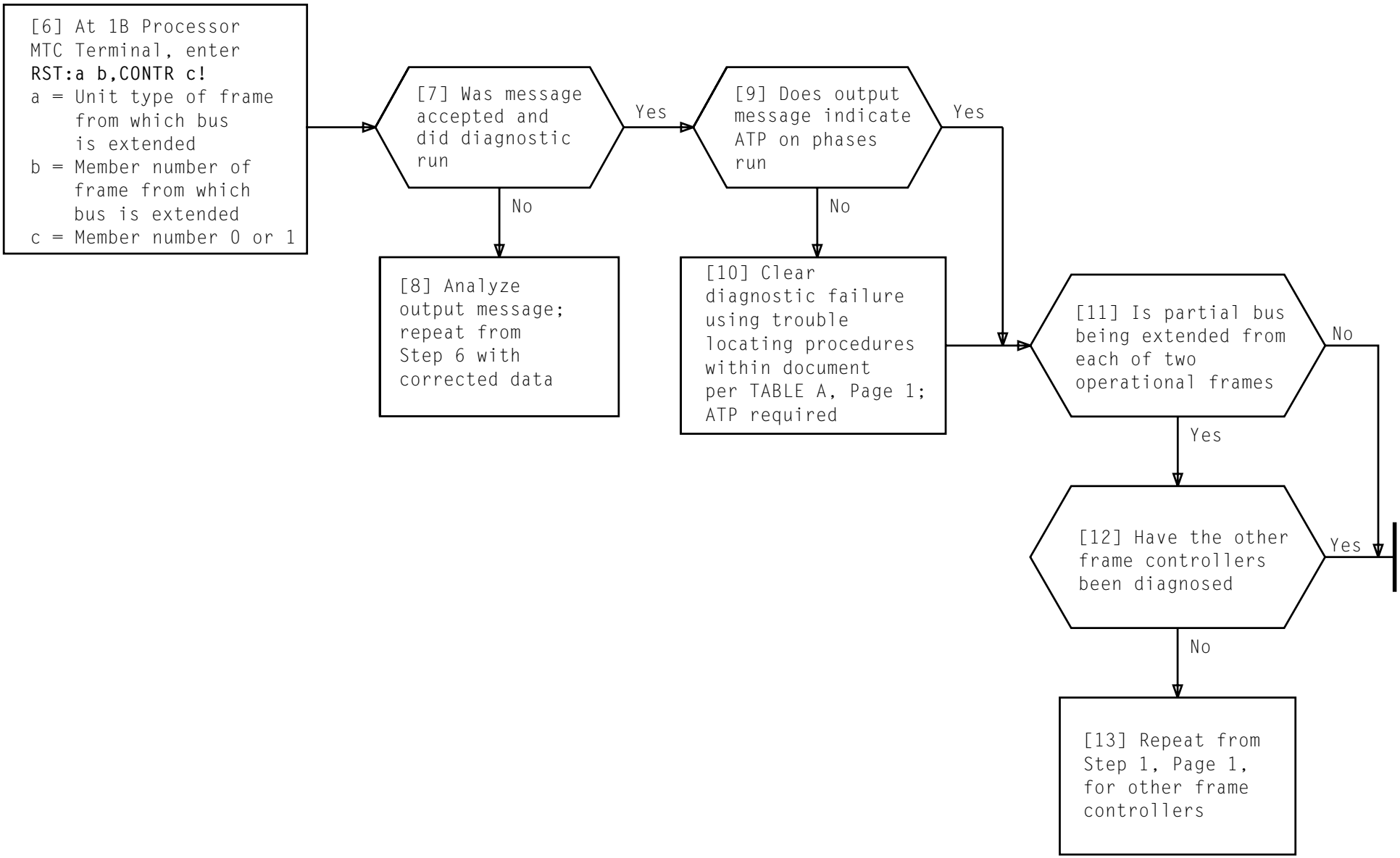


TABLE A

UNIT TYPE	TOP
VIF	234-151-025
SP	234-151-031
TGR	234-151-033
EST	234-151-050
TMSP	234-151-011
TSI	234-151-012
DIF	234-151-055
PUC	234-151-017
IOP	254-251-020

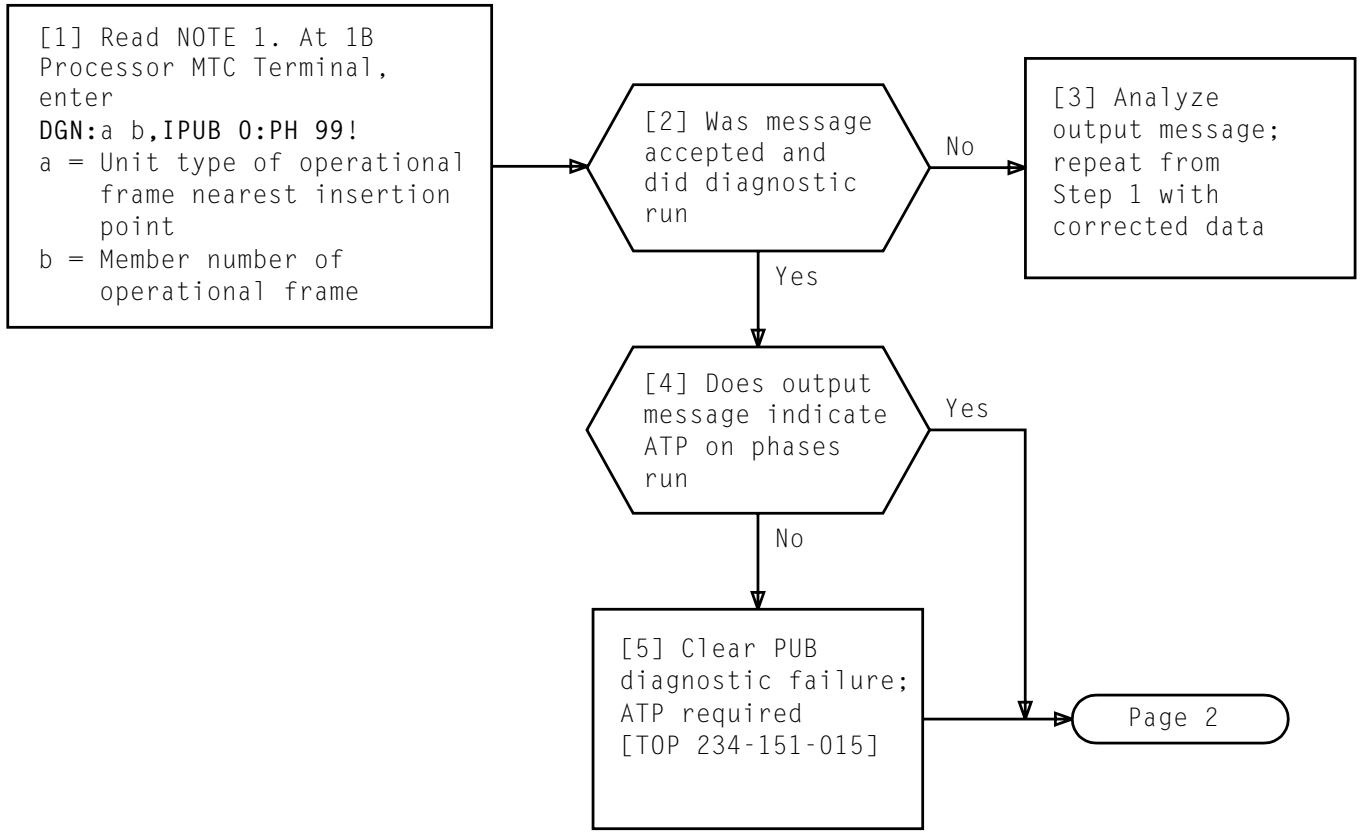
DIAGNOSE CONTROLLERS OF FRAME(S) FROM WHICH BUS IS BEING EXTENDED



DIAGNOSE CONTROLLERS OF FRAME(S) FROM WHICH BUS IS BEING EXTENDED

SUMMARY

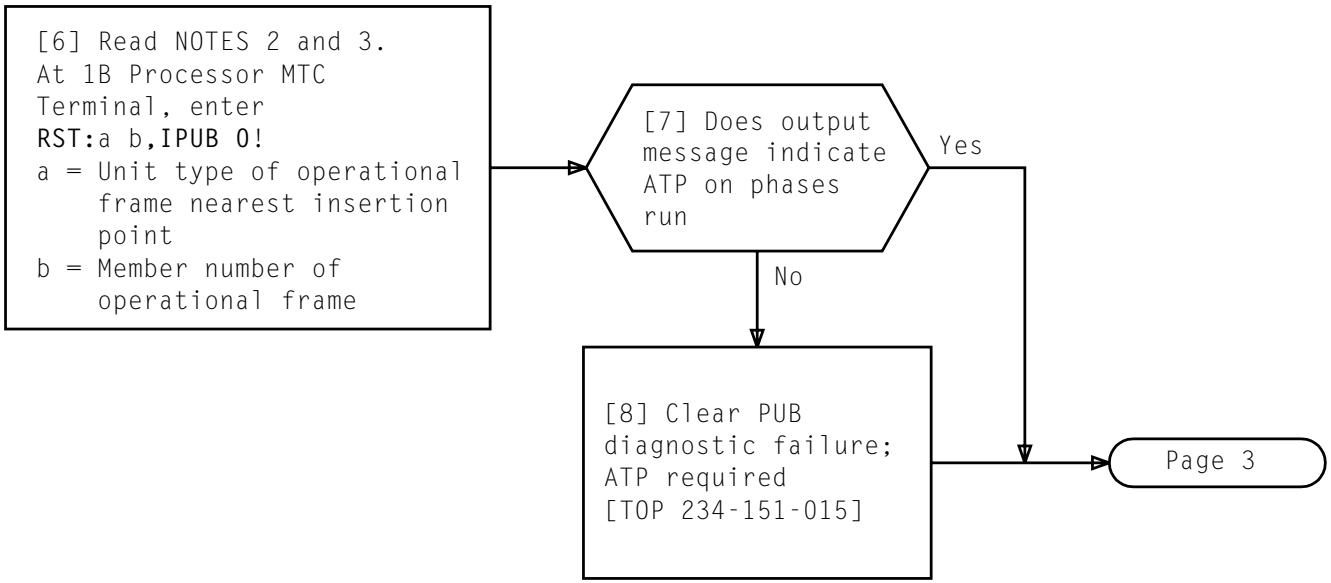
Diagnose PU bus interface 0, specifying phase 99. After ATP, restore PU bus interface 0 to service. Repeat diagnostic and restoral for PU bus interface 1



NOTE 1

For TMSP unit type, field **IPUB** must be replaced with C1IPUB

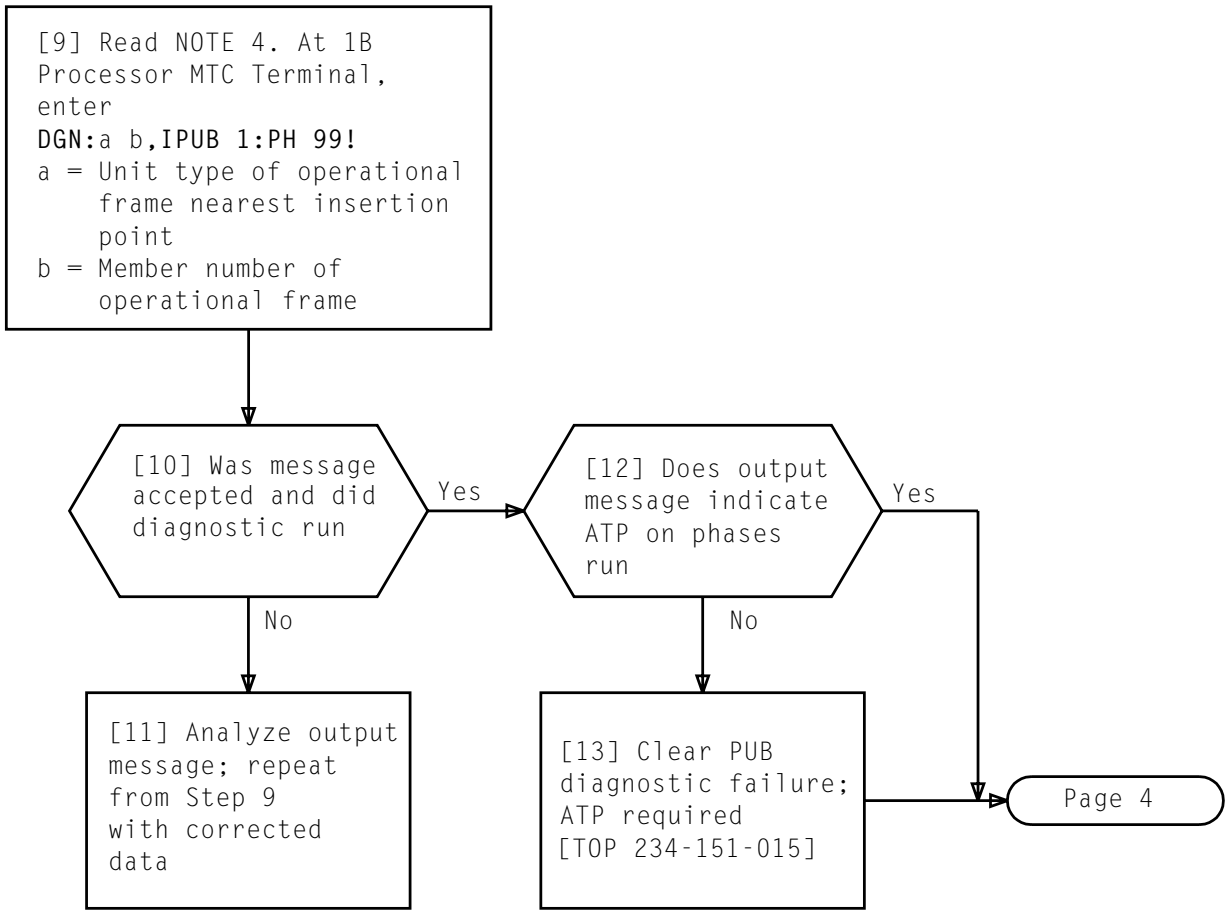
DIAGNOSE (SPECIFYING PHASE 99) AND RESTORE PERIPHERAL UNIT BUS INTERFACE 0 AND 1



NOTES

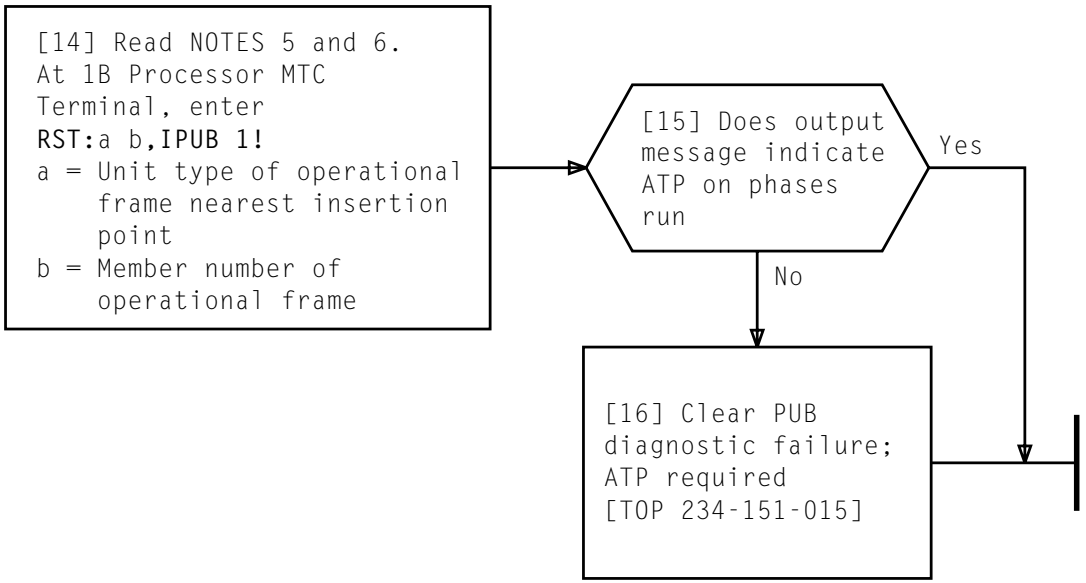
2. Restore message will cause bus interface diagnostic to be run. Bus interface will be restored if ATP
3. For TMSP unit type, field **IPUB** must be replaced with **C1IPUB**

DIAGNOSE (SPECIFYING PHASE 99) AND RESTORE PERIPHERAL UNIT BUS INTERFACE 0 AND 1



NOTE 4
For TMSP unit type, field **IPUB** must be replaced with **C1IPUB**

DIAGNOSE (SPECIFYING PHASE 99) AND RESTORE PERIPHERAL UNIT BUS INTERFACE 0 AND 1



NOTES

5. Restore message will cause bus interface diagnostic to be run. Bus interface will be restored if ATP
6. For TMSP unit type, field **IPUB** must be replaced with **C1IPUB**

DIAGNOSE (SPECIFYING PHASE 99) AND RESTORE PERIPHERAL UNIT BUS INTERFACE 0 AND 1

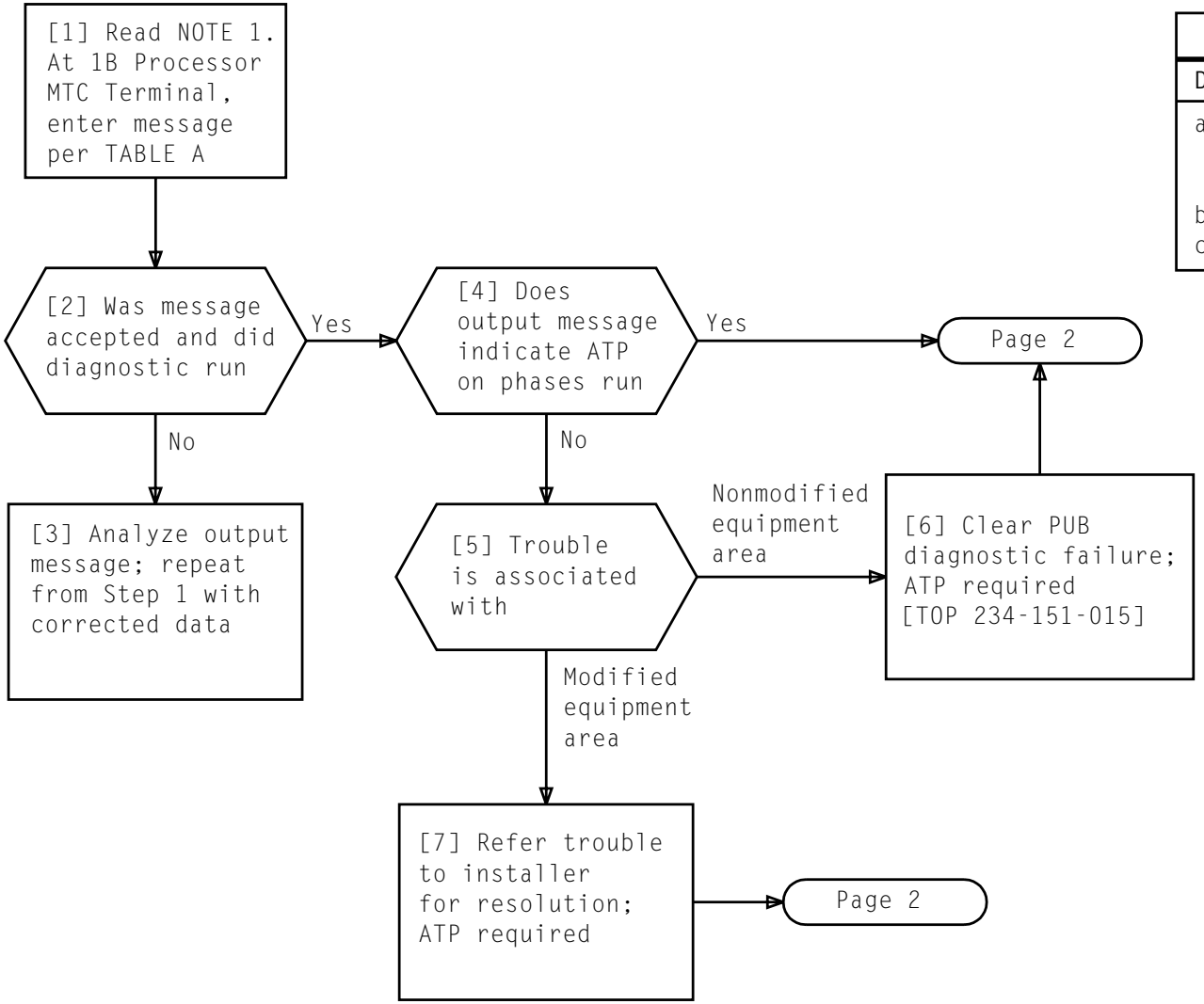


TABLE A
DGN:a b,IPUB c:PH 99!
a = Unit type of operational frame that has full bus access on one side of degrown frame(s) b = Member number of operational frame c = IPUB number

NOTE 1
For TMSP unit type, field **IPUB** must be replaced with **C1IPUB**

DIAGNOSE (SPECIFYING PHASE 99) AND RESTORE PERIPHERAL UNIT BUS INTERFACE

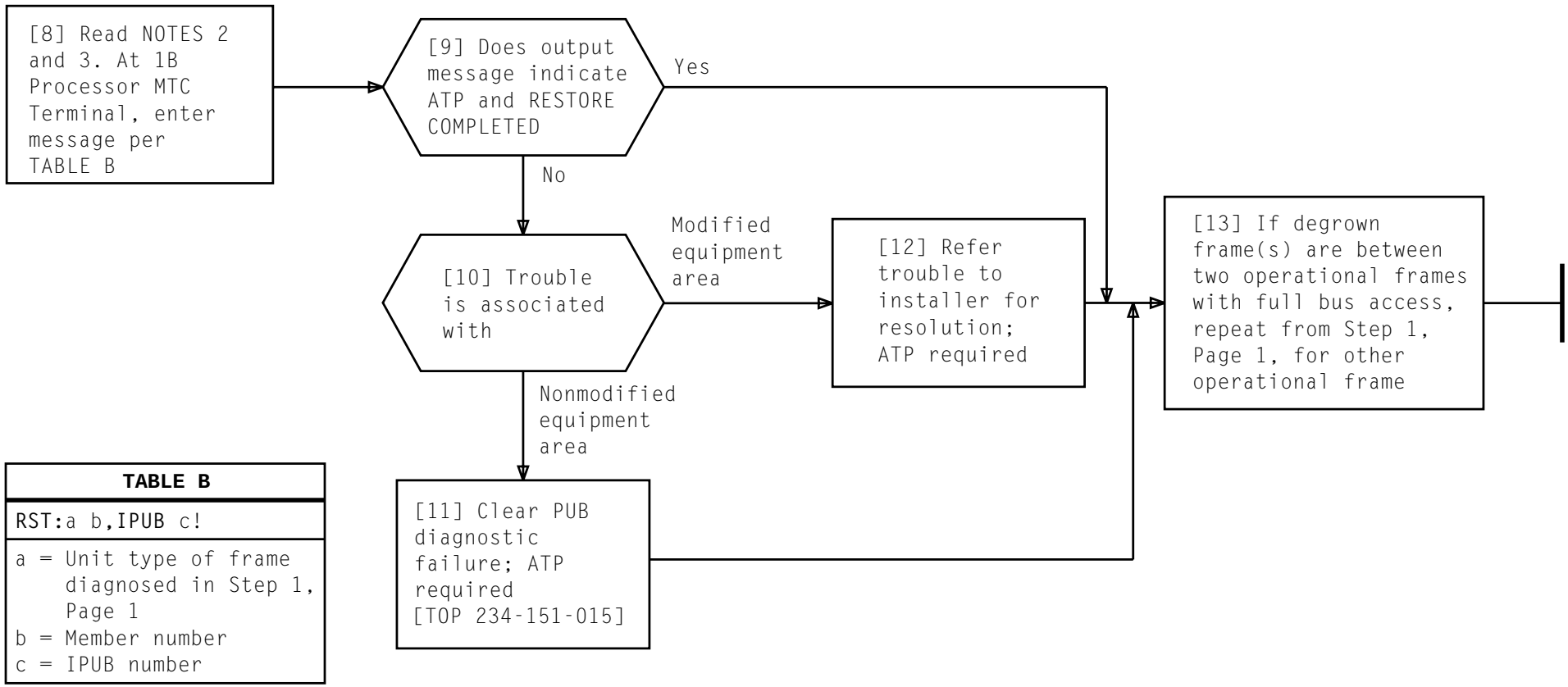
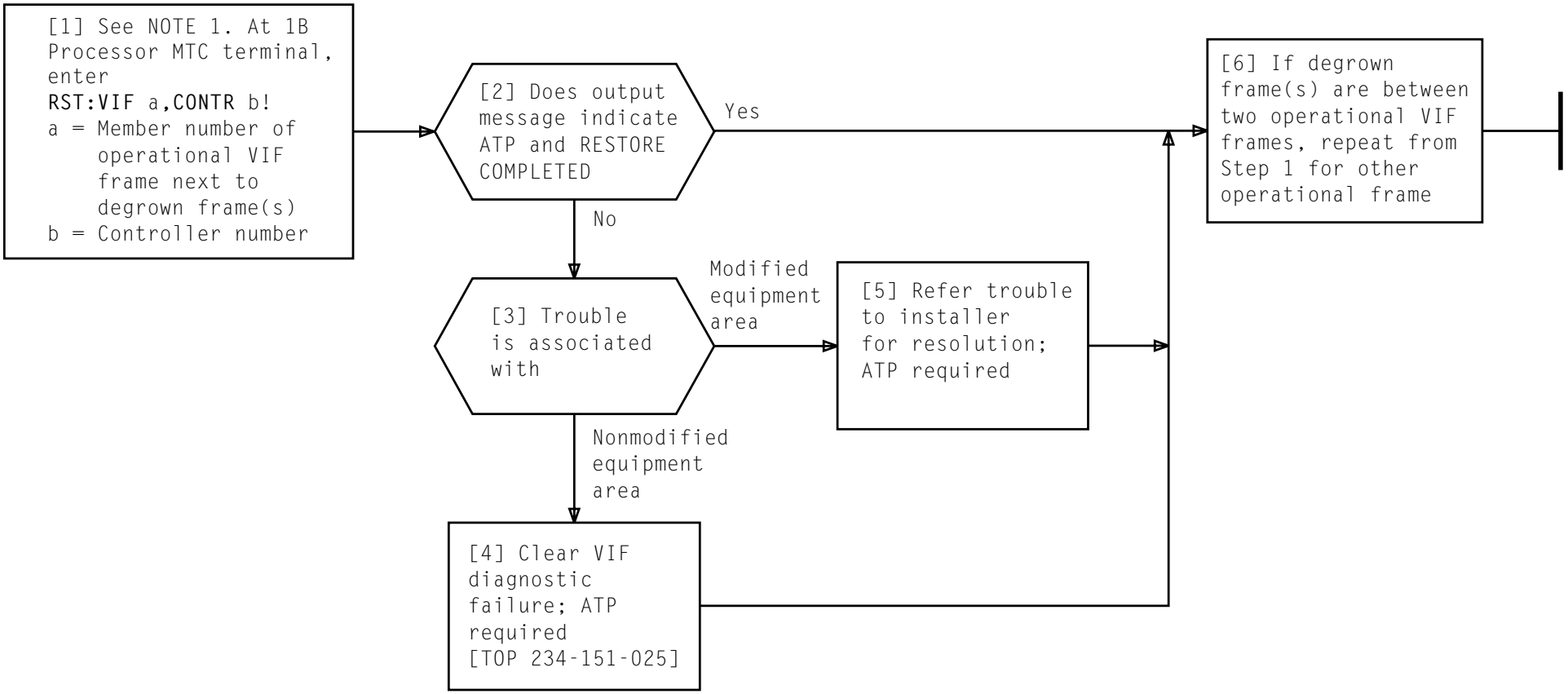


TABLE B
RST:a b,IPUB c!
a = Unit type of frame diagnosed in Step 1, Page 1 b = Member number c = IPUB number

NOTES

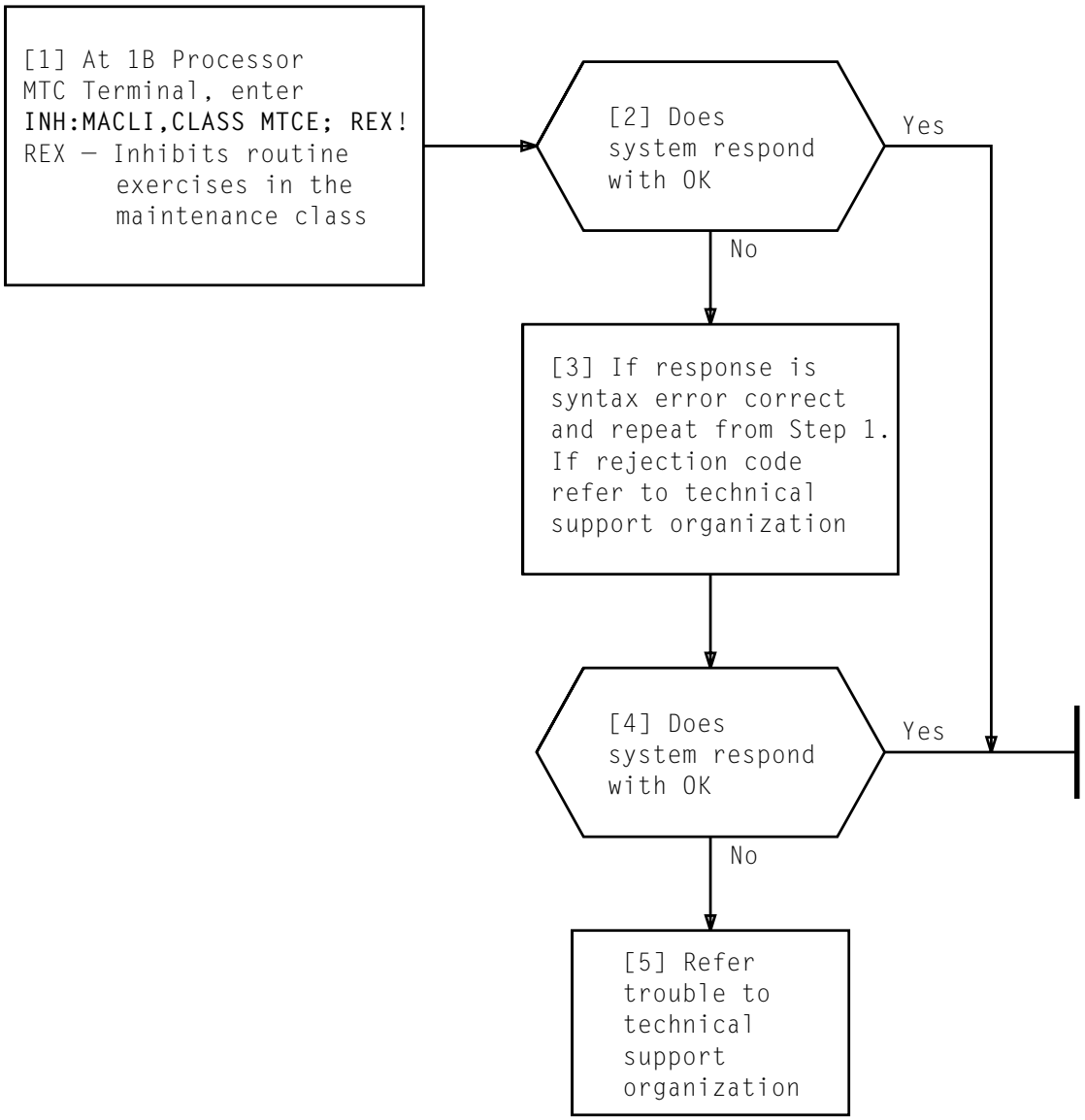
2. Restore message will cause bus diagnostic to be run. Bus interface will be restored if ATP
3. For TMSP unit type, field IPUB must be replaced with C1IPUB

DIAGNOSE (SPECIFYING PHASE 99) AND RESTORE PERIPHERAL UNIT BUS INTERFACE



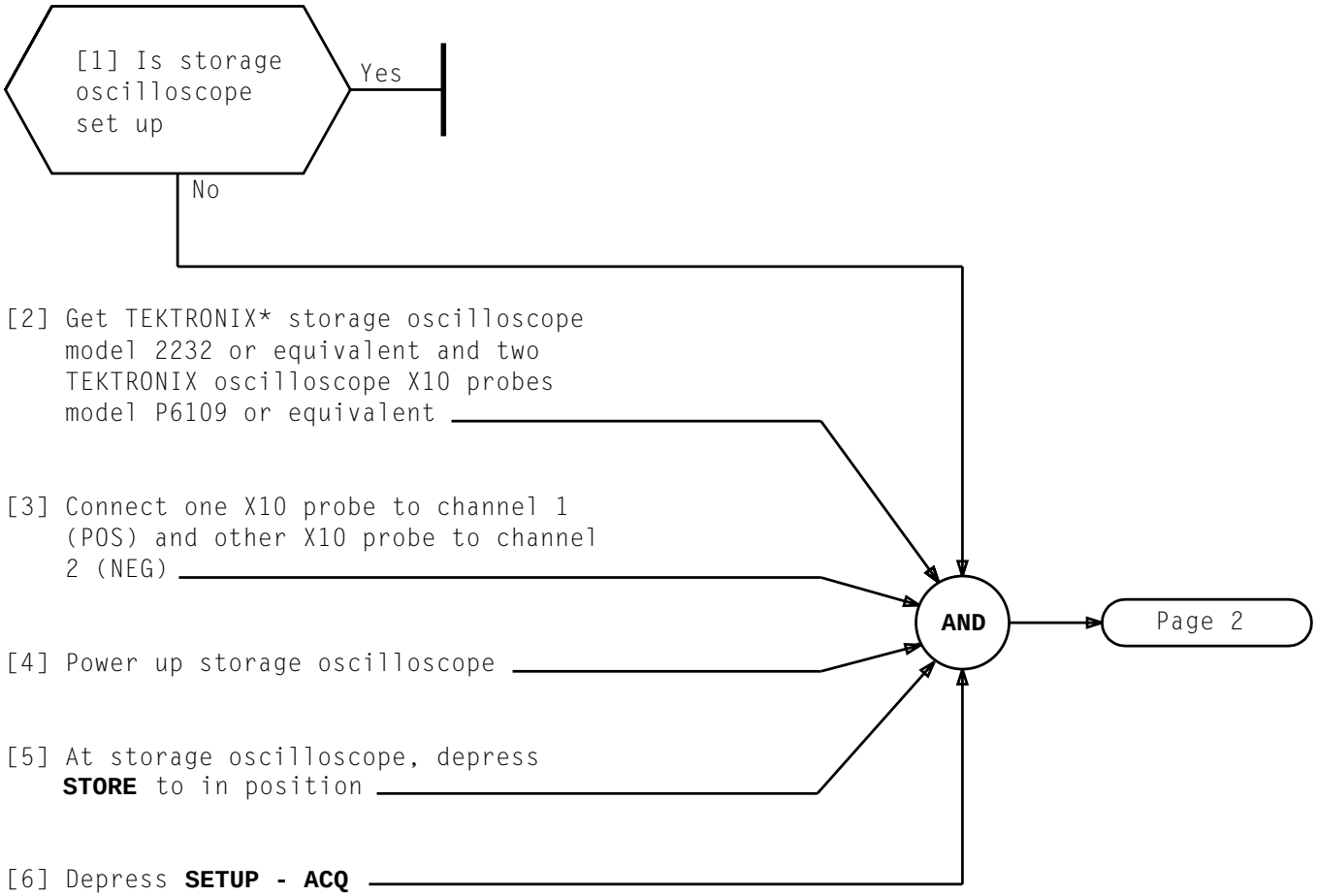
NOTE 1
Restore message will cause VIF diagnostic to be run. VIF will be restored if ATP

RESTORE VIF FRAME CONTROLLER TO SERVICE



INHIBIT 1A PROCESSOR AND PERIPHERAL AUTOMATIC EXERCISER DIAGNOSTICS

NOTE
ALW:MACLI,CLASS,MTCE! should be done



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SET UP STORAGE OSCILLOSCOPE FOR PUB LOOPING TEST

[7] Observe storage oscilloscope screen and set ACQ controls per TABLE A by depressing switch associated with control not set correctly

[8] Depress **SETUP** – **DISPLAY**

[9] Observe storage oscilloscope screen and set DISPLAY controls per TABLE B by depressing switch associated with control not set correctly

[10] Depress **SETUP** – **REF**

[11] Observe storage oscilloscope screen and set REF controls per TABLE C by depressing switch associated with control not set correctly

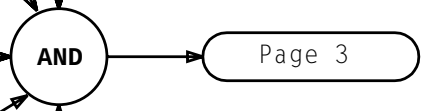


TABLE A

COLUMN	CONTROLS	SWITCH*
1	Peakdet	SAVE REF
2	Scan	1
3	Fast	2
5	Swp Lim: NO LIMIT	4K (for Swp Lim:) and adjust CURSORS to obtain NO LIMIT
5	Trig Pos: 2048/4K	4K (for Trig Pos:), ACQUISITION - 1K/4K (for 4K) and adjust CURSORS to obtain 2048

*Switches under display screen are associated with column that they are under except for Trig Pos: and Swp Lim:

TABLE B

COLUMN	CONTROLS	SWITCH*
1	ΔT	SAVE REF
2	ON	1
3	ON	2

*Switches under display screen are associated with column that they are under

TABLE C

COLUMN	CONTROLS	SWITCH*
1	Format	SAVE REF
2	Ref1	1
3	CH1	2
4	X1	3
5	Vert Gain: 0.2V	4K (for Vert Gain:) and adjust CURSORS to obtain 0.2V

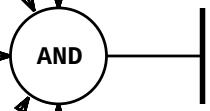
*Switches under display screen are associated with column that they are under

SET UP STORAGE OSCILLOSCOPE FOR PUB LOOPING TEST

[12] Depress **SETUP** – **REF** to return to screen

[13] Determine one location in FIG. 1, Page 5 where bus scoping adapter can be connected

[14] Connect storage scope with bus scoping adapter to connector location determined in Step 13 [see DLP-532 on how to use bus scoping adapter]

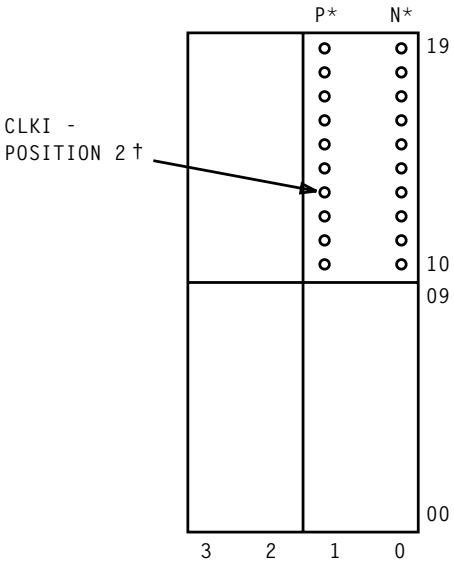


[15] Set bus scoping adapter to position 2

[16] Adjust storage scope per TABLE D, Page 4 for waveform in FIG. 2, Page 5

SET UP STORAGE OSCILLOSCOPE FOR PUB LOOPING TEST

TABLE D OSCILLOSCOPE CONTROL SETTINGS FOR MODEL 2232	
CONTROLS	**POSITION**
SAVE/CONT	Depress until SAVE is not displayed
STORE	Depress (out)
VAR HOLDOFF	Rotate to 1 o'clock position
VERTICAL – POSITION (left)	Rotate to 2 o'clock position
VERTICAL – A/B SWP SEP	Rotate to 12 o'clock position
VERTICAL – POSITION (right)	Rotate to 10 o'clock position
VERTICAL MODE – CH 1 BOTH CH 2	BOTH
VERTICAL MODE – X-Y	Out position
VERTICAL MODE – BW LIMIT	Out position
VERTICAL MODE – ADD ALT CHOP	ADD
VERTICAL – CH 1 VOLTS/DIV	2
VERTICAL – CH 1 VOLTS/DIV – AC GND DC	DC
VERTICAL – INVERT	Depress (in)
VERTICAL – CH 2 VOLTS/DIV	2
VERTICAL – CH 2 VOLTS/DIV – AC GND DC	DC
HORIZONTAL – POSITION	Rotate to 1 o'clock position
HORIZONTAL – MODE	A
HORIZONTAL – A and B SEC/DIV	.2μs
CURSORS	Adjust until ΔT is 0.0 μs on screen
B TRIGGER – SLOPE	Out position
B TRIGGER – LEVEL	Rotate to 8 o'clock position
A TRIGGER – TV FIELD – NORM	Depress (in)
A TRIGGER – SLOPE	Out position
A TRIGGER – LEVEL	Rotate to 12 o'clock position
A TRIGGER – A & B SOURCE	CH 1
A TRIGGER – A COUPL	NORM
A TRIGGER – A EXT COUPL	AC

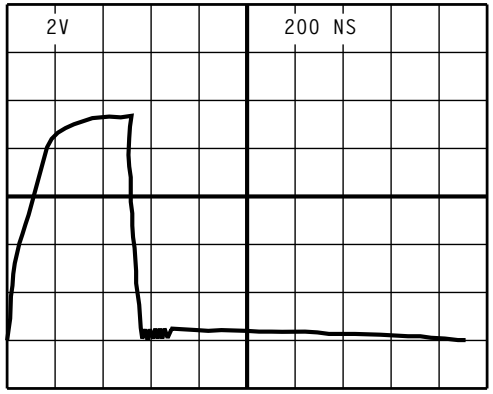


FRAME	
IO	
BUS 0	080-10
BUS 1	080-35
IOP	
BUS 0	080-29
BUS 1	076-29

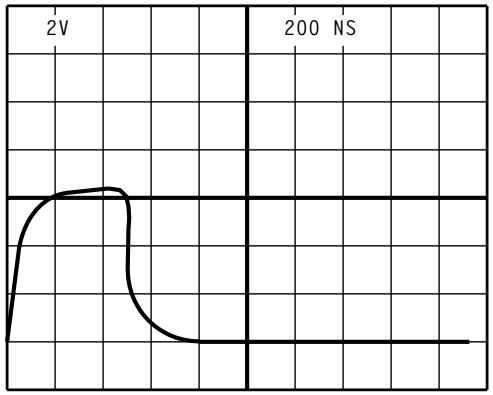
* P FOR POSITIVE LEAD AND
N FOR NEGATIVE LEAD

† POSITION 2 IS ON BUS SCOPING ADAPTER

FIG. 1



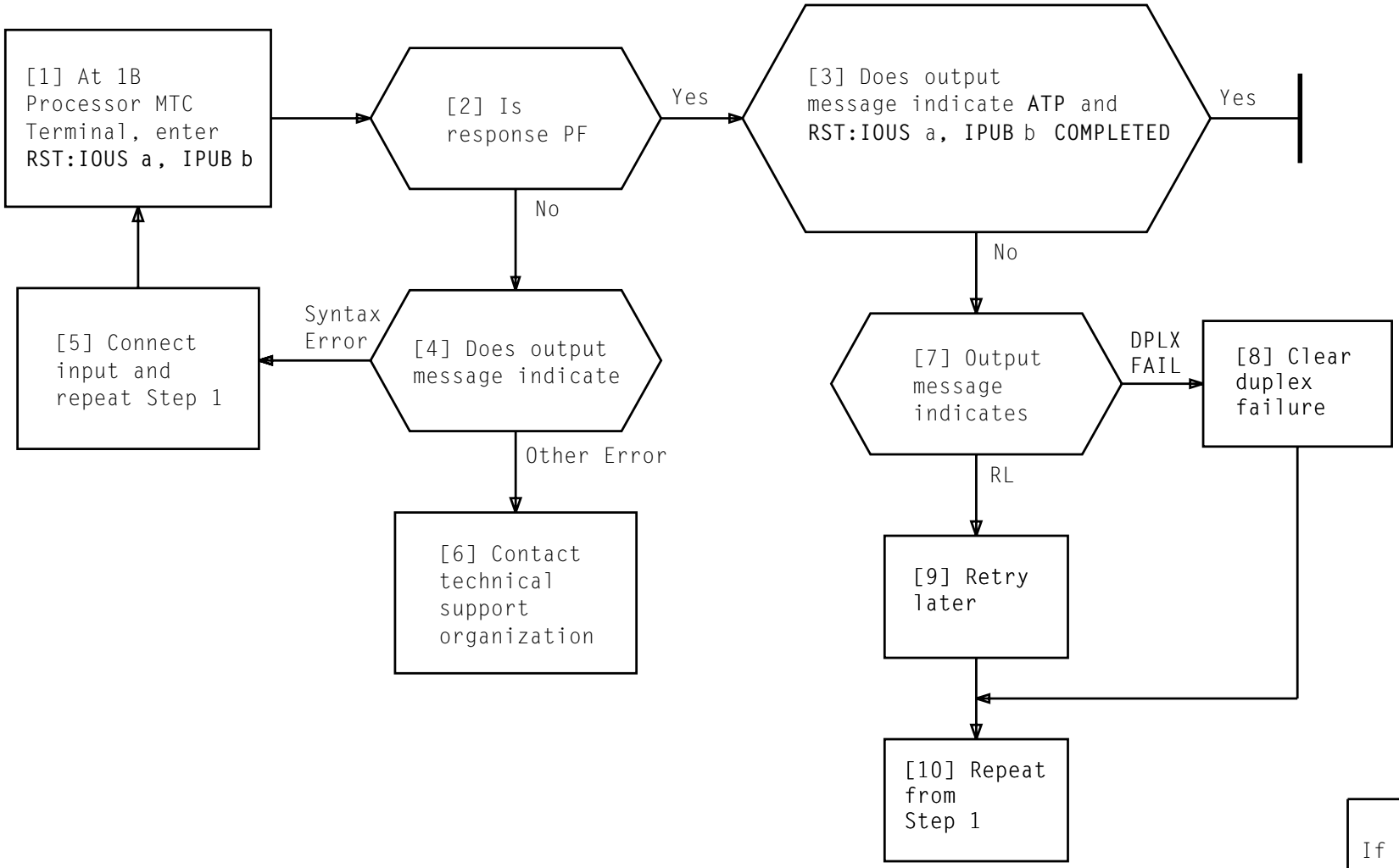
NORMAL PULSE AT DRIVER



NORMAL PULSE 500 FEET FROM DRIVER

FIG. 2

SET UP STORAGE OSCILLOSCOPE FOR PUB LOOPING TEST



NOTE 1
If unconditional is not specified, a diagnosis will be performed and only the unit and subunits passing DGN will be restored

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DIAGNOSE; RESTORE IOUS a, IPUB b TO SERVICE

[1] Ensure scope probes from storage scope are wrapped around each other with positive lead connected to Channel 1 and negative lead connected to Channel 2 and ground leads are attached together

[2] See FIG. 1, Page 2. At bus scoping adapter, connect probe from Channel 1 to P connector and Channel 2 to N connector

[3] Connect bus scoping adapter connector to connector at unit/frame to be scoped [FIG. 1, Page 2]

[4] Using bus scoping adapter, starting at position 0, scope each bit, as required through range 0 to 7

[5] If more than one connector is to be scoped, disconnect bus scoping adapter connector and reconnect to another connector to be scoped. Repeat Steps 4 and 5 for each connector to be scoped. See TABLE A for scope adapter position to associated bit

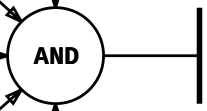


TABLE A

BIT	ASSOCIATED SCOPE ADAPTER POSITION	BIT	ASSOCIATED SCOPE ADAPTER POSITION
0	0	16	0
1	1	17	1
2	2	18	2
3	3	19	3
4	4	20	4
5	5	21	5
6	6	22	6
7	7	23	7
8	0		
9	1		
10	2		
11	3		
12	4		
13	5		
14	6		
15	7		

HOW TO USE BUS SCOPING ADAPTER

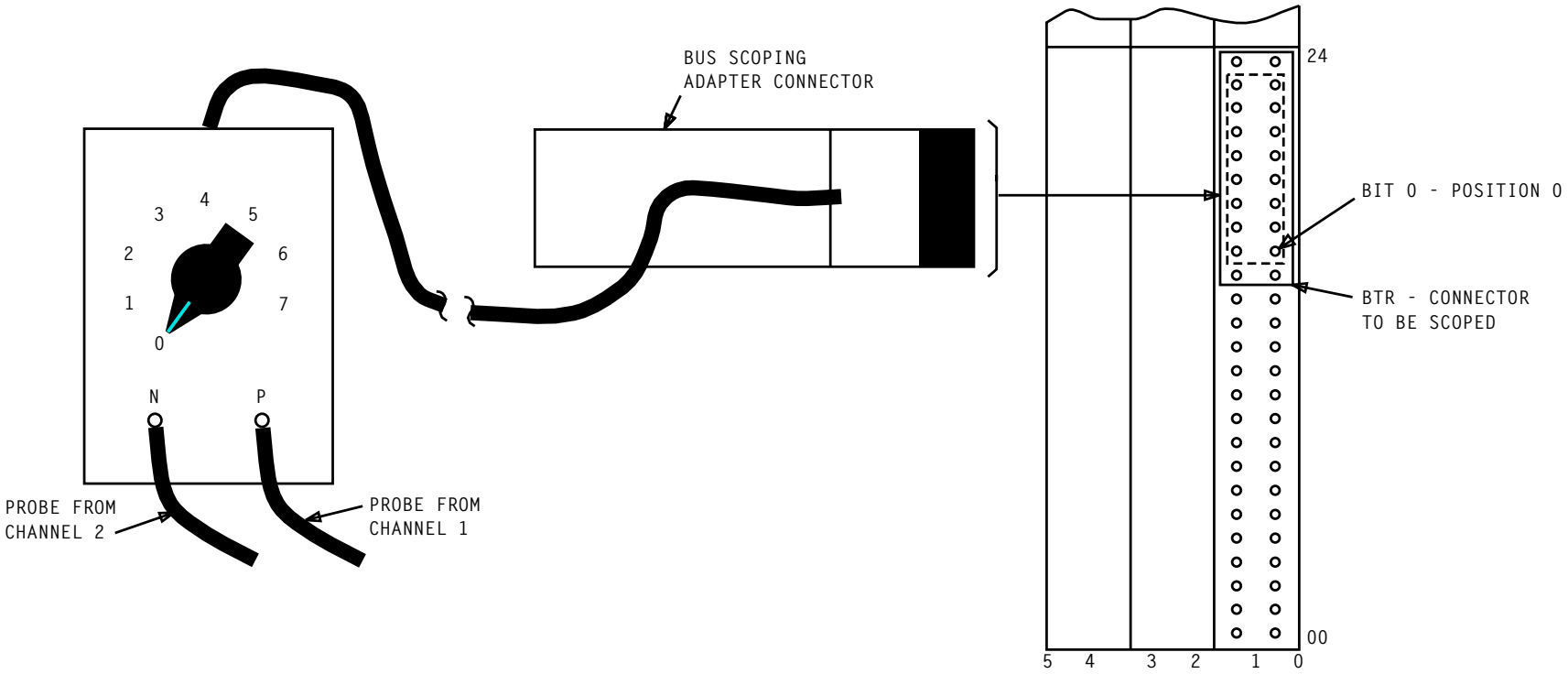


FIG. 1 — Bus Scoping Adapter Connections

HOW TO USE BUS SCOPING ADAPTER

[1] Obtain **PK-4A002** for appropriate 4E generic in office

[2] In the Address Map part of **PK-4A002,** under the **PIDENT, STRIP,** and **SECTION** columns, locate the line that contains **PUDGPBGR, AF,** and **PUDGPBTS**

[3] On the line located in Step 2, under the **ADDR** column, obtain the address listed. Record for use in next step

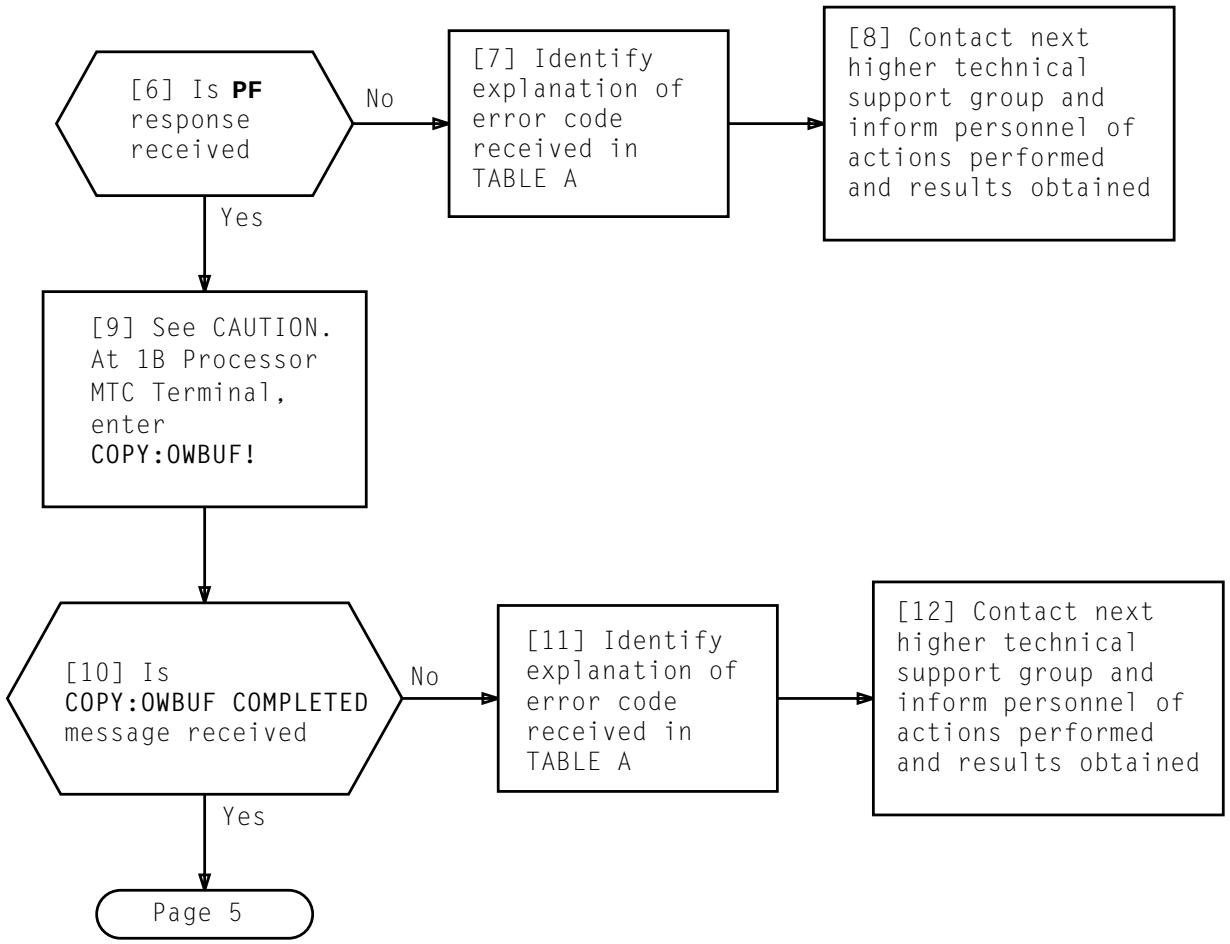
[4] Using the address obtained in Step 3, add 1271 OCTAL to the above address. Save resulting address for use in Step 5

[5] See WARNING. At 1B Processor MTC terminal, enter required overwrite (PHPB is first)
IN:OWBUF:FS,ID x,ADR a,DATA b,
OLDDATA 2004010!
Where x = GEN for 4E17, 4E18 & 4E19 Generics
= PGPGM for 4E20 and Later Generics
a = resulting address from Step 4
b = 01002004 for PHPB
= 01002040 for PDGB
= 01002010 for PLPB
= 01002020 for PSZB

Page 2

WARNING
Do not use
UPD:HDATA
message

SET UP LOOP TO OBSERVE AND SCOPE EXPANDED POLLABLE BITS AT PERIPHERAL FRAME



CAUTION
Verify correct output message response of OLD DATA and NEW DATA

SET UP LOOP TO OBSERVE AND SCOPE EXPANDED POLLABLE BITS AT PERIPHERAL FRAME

TABLE A
OVERWRITE ERROR CODES

ERROR CODE	EXPLANATION
DPLX FAIL	GULP cannot be paged to parse the message because the file stores are duplex failed.
50	Conditional printout may follow. This acknowledgement is used if disk files are duplex failed and GULP is being paged from tape.
100	Invalid syntax. Check input manual to verify that no extra keywords have been input.
101	No argument for keyword ID.
102	No argument for keyword PKG.
103	No argument for keyword FPKG.
104	No argument for keyword ADR.
105	No argument for keyword DATA.
106	Number of arguments of OLDDATA is different from number of arguments of DATA.
110	Overwrites of system merge ID tag cannot be mixed with overwrites of other ID tags.
111	Overwrite overlaps two ID tags.
112	Wrong ID tag specified for a library file store only overwrite.
113	Input address is not in hashed range.
114	Invalid ID tag mnemonic.
115	Incorrect ID tag specified for a file store only overwrite.
120	Part or all non-library main memory overwrite is not backed up on file store.
121	File store backup range is not contiguous. Overwrite must be split on main memory store boundary.
122	PKG, ADR conversion failed. This is due to either invalid or unknown PKG name, relative address larger than size of PKG, or library package not loaded.
123	FPKG, ADR conversion failed. Invalid FPKG name.
124	Library overwrite outside of library Kcode.
131	Overwrite in progress from another channel.
132	Previously input **COPY:OWBUF** request has not yet completed. Enter **STOP:OVRWRT**.
133	Hash mismatch on **COPY:OWBUF**. Enter **STOP:OVRWRT**.
134	Previously input **UPD:HDATA** request has not yet completed. Enter **STOP:OVRWRT**.
135	No overwrite in progress

TABLE A (CONTD)
OVERWRITE ERROR CODES

ERROR CODE	EXPLANATION
136	UPD:HDATA may be input only from the maintenance channel (or its backup if the maintenance channel is out-of-service) or the SCC channel. Before entering message, check for audit printouts or interrupts to assure overwrite is not incorrect.
137	A COPY:OWBUF message must be input.
138	Core only overwrite backed out.
140	Overwrite buffer full.
141	Library program not loaded in PS36 library Kcode.
143	Input overwrite overlaps with overwrite currently in buffer.
144	Old data specified in message does not match data in system.
145	Library system in transition state. Wait a few seconds and reenter the message.
150	Library program is not currently loaded in library Kcode. The overwrite has been bypassed.
152	Hash sum input on COPY:OWBUF does not match computed hash. This indicates that some data in the buffer is different than was expected when input hash was generated. Enter STOP:OVRWRT and check printout.
153	Hash update by SAWS failed. Enter STOP:OVRWRT. Tape audit (SAST) must be run to correct hash errors.
160	File store queue full.
161	DKAD reject — core ADR is out of range. Request technical assistance.
162	DKAD reject — file store address mismatches ID tag.
163	DKAD reject — write request not multiple of 32 or not on sector boundary.
164	DKAD reject — size too big.
165	DKAD reject — file specified is out-of-service.
166	DKAD reject — blocked.
167	DKAD reject — write (trouble) to in-service file.
168	DKAD reject — queue invalid for GULP.
169	DKAD reject — mutilated queue.
170	DKAD reject — no queue specified.
180	Execution of GULP function is in progress.
181	Message processing in progress.
182	Dataset input mode in progress on another channel.
183	Dataset execution is in progress.
184	Message print in progress.
185	Failure to page in GULP or failure to seize general buffer table (GBT).

[13] At 1B Processor MTC Terminal, enter diagnostic looping messages
EX:PUB x**;START!**
EX:PUB x**:PH 2,ENABLE** yyyy**,ADR 1262-1275!**
(yyyy=3195 for CC 0 or 56955 for CC 1)
(x = PUB 0 or 1)

[14] Frame to be scoped is

DIFE

[15] See NOTE 1. Connect scope probes across the BTR locations for bit to be scoped (FIG. 2 and Table B)

SCS or XTSI

[16] See NOTE 1. Connect scope probes across the BTR at locations for bit to be scoped (FIG. 1 and Table B)

[17] Verify the Pollable Bit per waveform (FIG. 3)

[18] At 1B Precessor MTC Terminal, enter stop looping and stop overwrite messages **EX:PUB** x**!**
STOP:OVRWRT!

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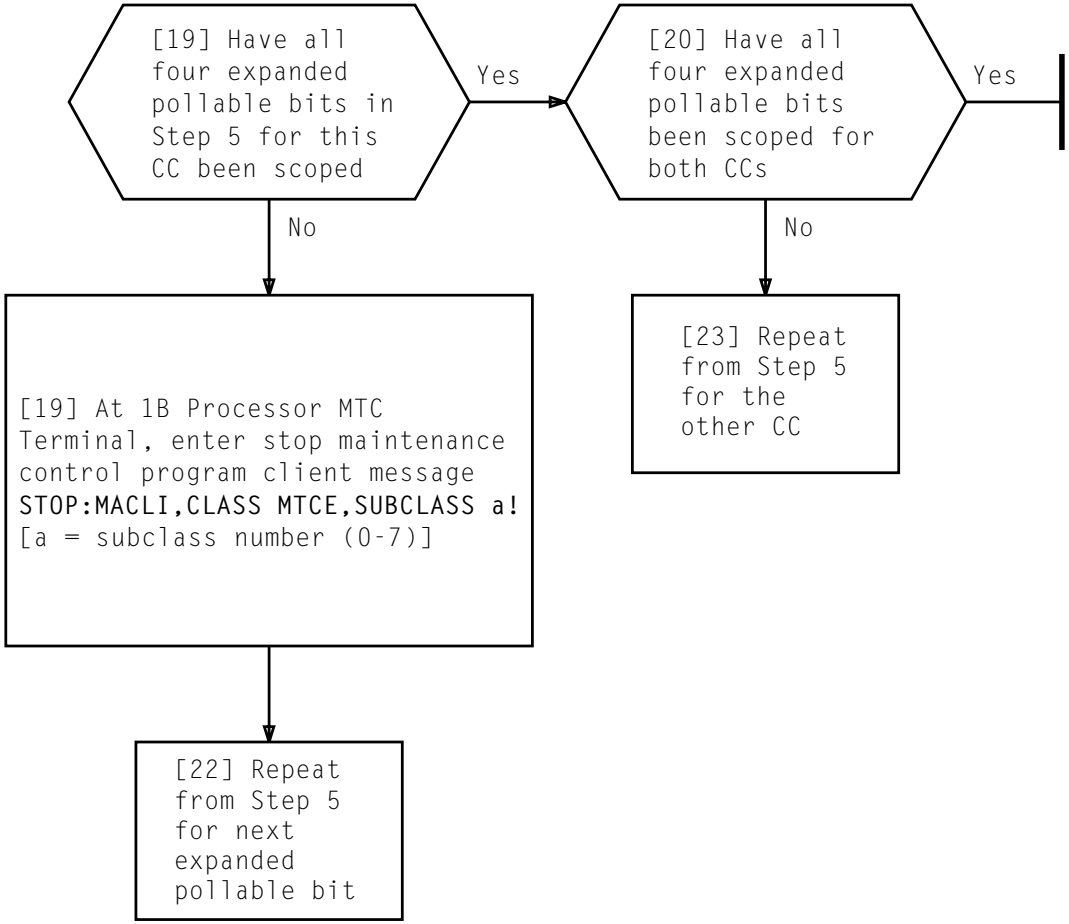
TABLE B

NET NAME	PULSE POINT	DATA
LPP PDGB	(PPU065)	01002040
LPP PSZB	(PPU064)	01002020
LPP PLPB	(PPU063)	01002010
LPP PHPB	(PPU062)	01002004

NOTE 1
Scope probe cables are twisted together. The ground leads of the two cables are connected together, but are not grounded.

SET UP LOOP TO OBSERVE AND SCOPE EXPANDED POLLABLE BITS AT PERIPHERAL FRAME



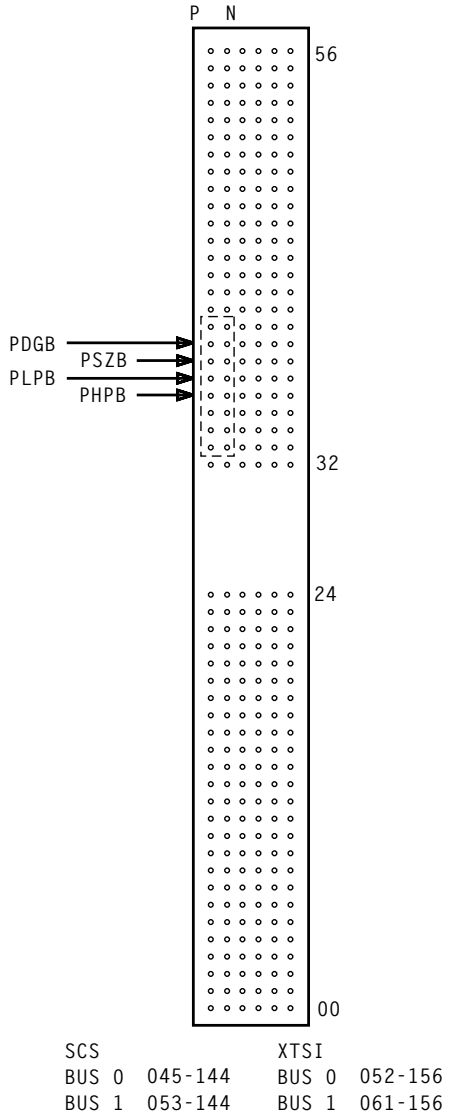
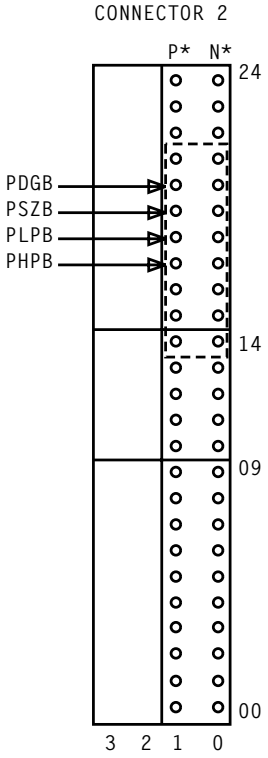


FIG. 1

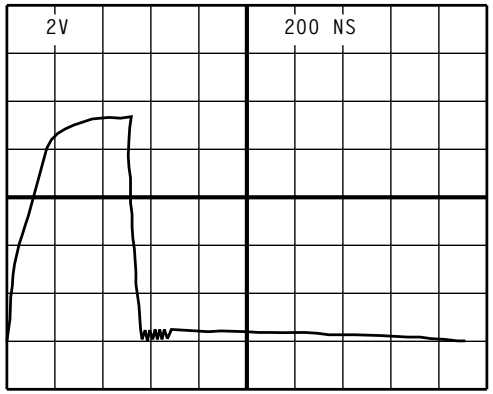
SET UP LOOP TO OBSERVE AND SCOPE EXPANDED POLLABLE BITS AT PERIPHERAL FRAME



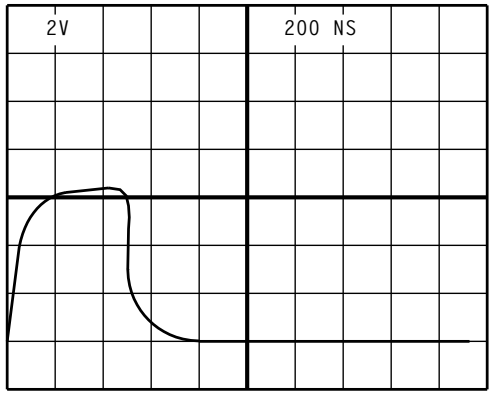
DIF or DIFE	(24-31)
BUS 0	180-067
BUS 1	180-215

* P FOR POSITIVE LEAD AND
  N FOR NEGATIVE LEAD

FIG. 2



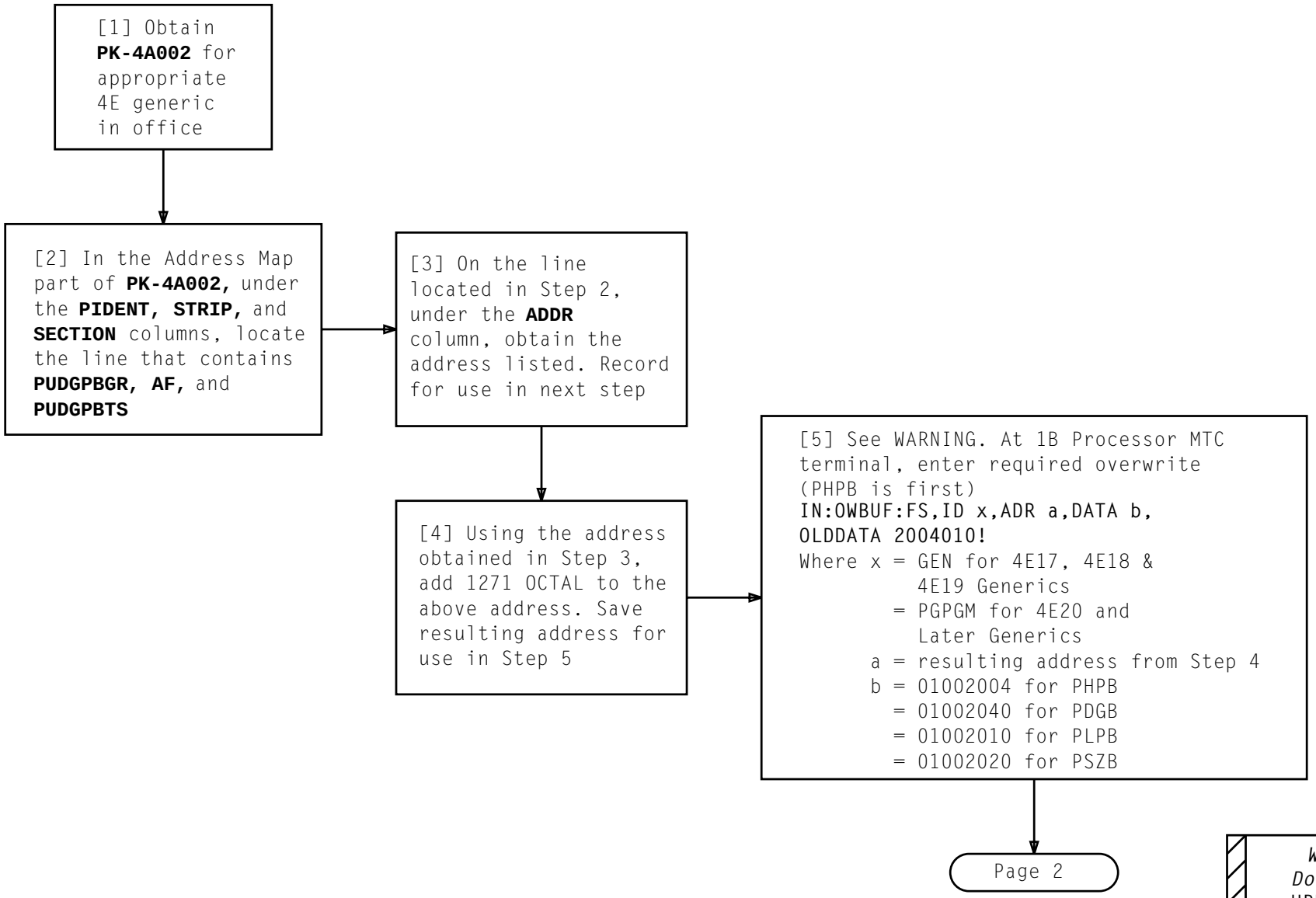
NORMAL PULSE AT DRIVER



NORMAL PULSE 500 FEET FROM DRIVER

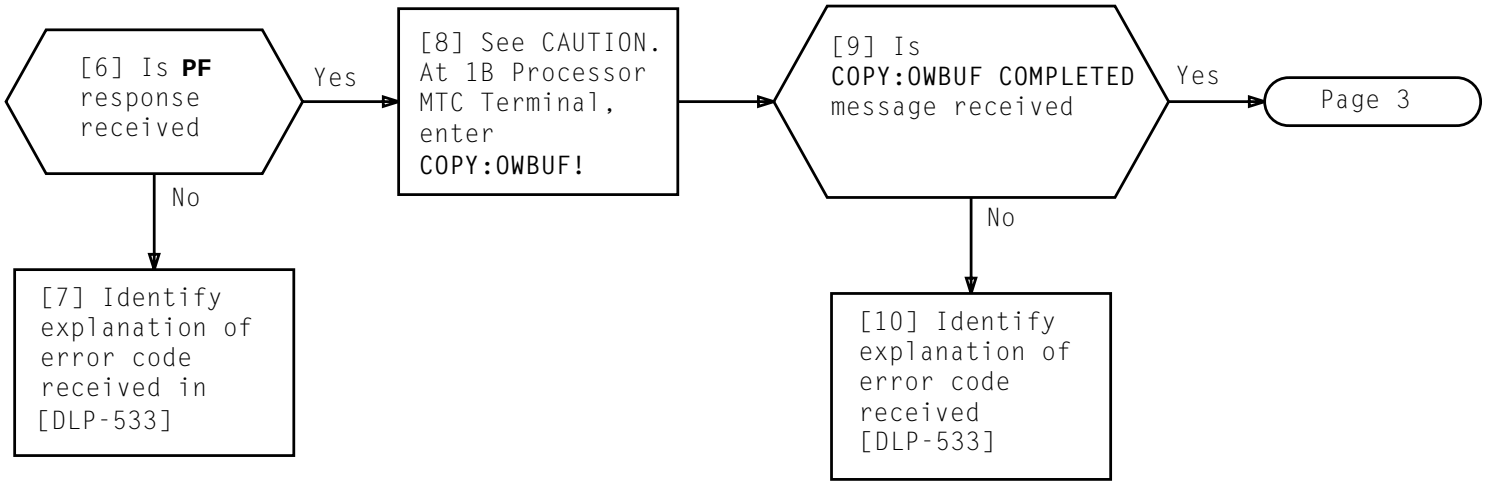
FIG. 3

SET UP LOOP TO OBSERVE AND SCOPE EXPANDED POLLABLE BITS AT PERIPHERAL FRAME



WARNING
Do not use
UPD:HDATA
message

SET UP LOOP TO OBSERVE AND SCOPE EXPANDED POLLABLE BITS AT PUBB FRAME



CAUTION
Verify correct output message response of OLD DATA and NEW DATA

SET UP LOOP TO OBSERVE AND SCOPE EXPANDED POLLABLE BITS AT PUBB FRAME

[11] At 1B Processor MTC Terminal, enter diagnostic looping messages
EX:PUB x;START!
EX:PUB x:PH 2,ENABLE yyyy,ADR 1262-1275!
(yyyy=3195 for CC 0 or 56955 for CC 1)
(x = PUB 0 or 1)

→ [12] See NOTE 1. Connect scope probes across the BTR at locations for bit to be scoped (FIG. 1 and Table A)

→ [13] Verify the Pollable Bit per waveform [FIG. 2]

→ [14] At 1B Processor MTC Terminal, enter stop looping and stop overwrite messages **EX:PUB x! STOP:OVRWRT!**

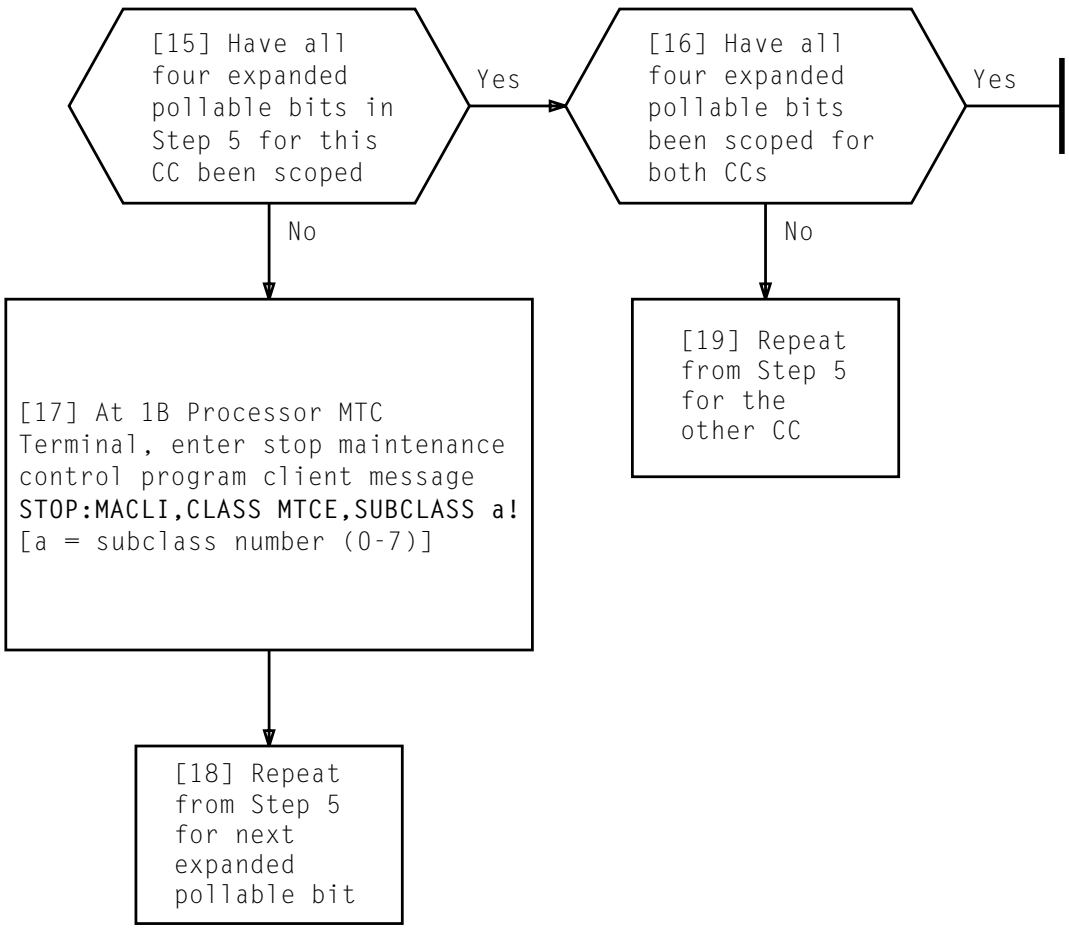
TABLE A

NET NAME	PULSE POINT	DATA	CHANNEL 1*	CHANNEL 2*
LPP PDGB	(PPU065)	01002040	06-28-117	06-28-017
LPP PSZB	(PPU064)	01002020	06-28-115	06-28-015
LPP PLPB	(PPU063)	01002010	06-28-113	06-28-013
LPP PHPB	(PPU062)	01002004	06-28-111	06-28-011

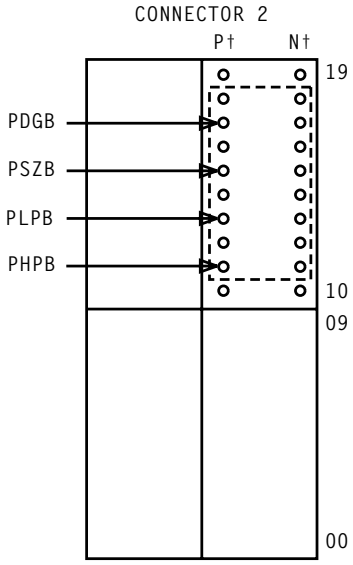
* BTRs for pulse points from CC0 are in Bay 1. BTRs for pulse points from CC1 are in Bay 0. They are wired to the backplane pins at the indicated Channel 1 and Channel 2 locations.

NOTE 1
Scope probe cables are twisted together. The ground leads of the two cables are connected together, but are not grounded.

SET UP LOOP TO OBSERVE AND SCOPE EXPANDED POLLABLE BITS AT PUBB FRAME



SET UP LOOP TO OBSERVE AND SCOPE EXPANDED POLLABLE BITS AT PUBB FRAME

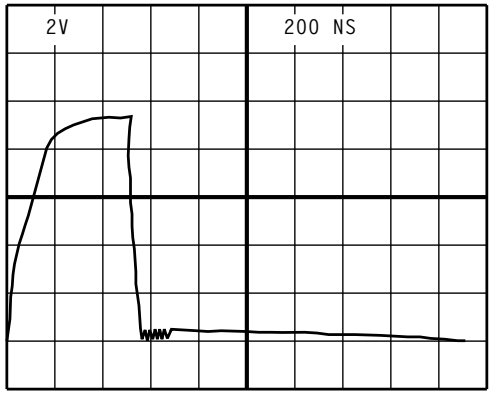


BRANCH A	*76-28
BRANCH B	*76-28
BRANCH C	*76-28
BRANCH D	*76-28
BRANCH E	*64-28
BRANCH F	*64-28
BRANCH G	*64-28
BRANCH H	*64-28
BRANCH K	*48-28
BRANCH L	*48-28
BRANCH M	*48-28
BRANCH R	*48-28
BRANCH T	*36-28
BRANCH V	*36-28
BRANCH W	*36-28
BRANCH X	*36-28

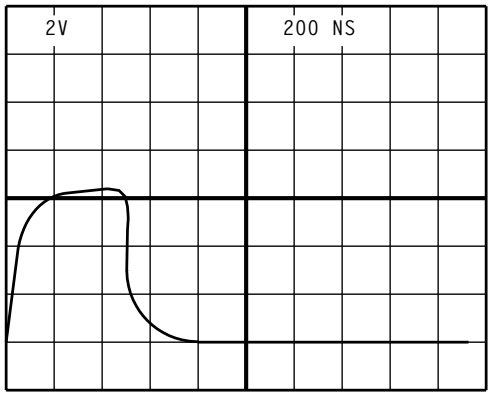
* 0 FOR BUS 0 OR 1 FOR BUS 1

† P FOR POSITIVE LEAD AND N FOR NEGATIVE LEAD

FIG. 1



NORMAL PULSE AT DRIVER



NORMAL PULSE 500 FEET FROM DRIVER

FIG. 2

SET UP LOOP TO OBSERVE AND SCOPE EXPANDED POLLABLE BITS AT PUBB FRAME

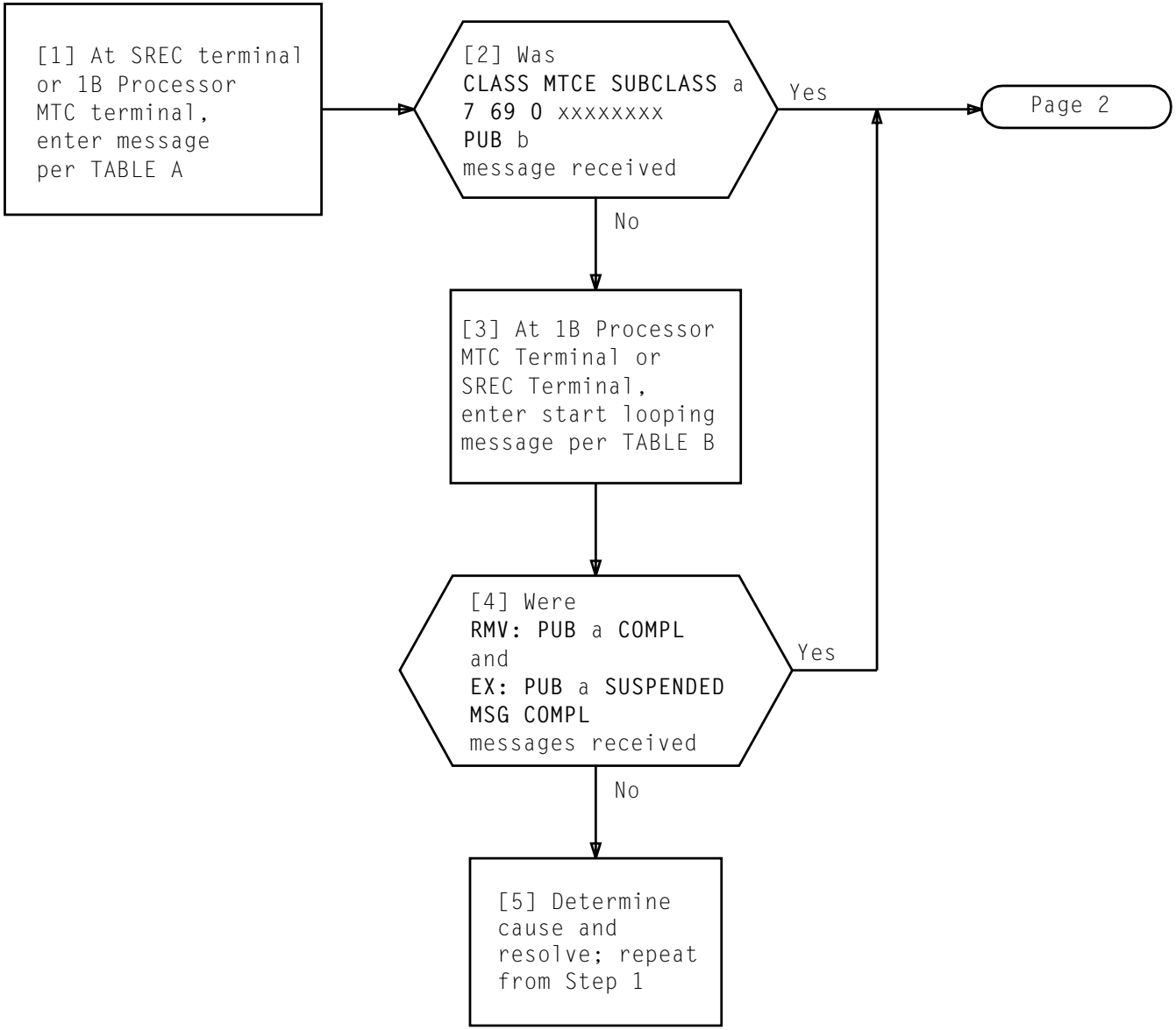


TABLE A

MESSAGE NUMBER	INPUT MESSAGE
1	OP:MACLI,CLASS MTCE!

TABLE B

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a; START:GROWTH!

a = bus 0 or 1

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE BIT ON PU ENABLE ADDRESS AND/OR WRITE AND REPLY BUSES

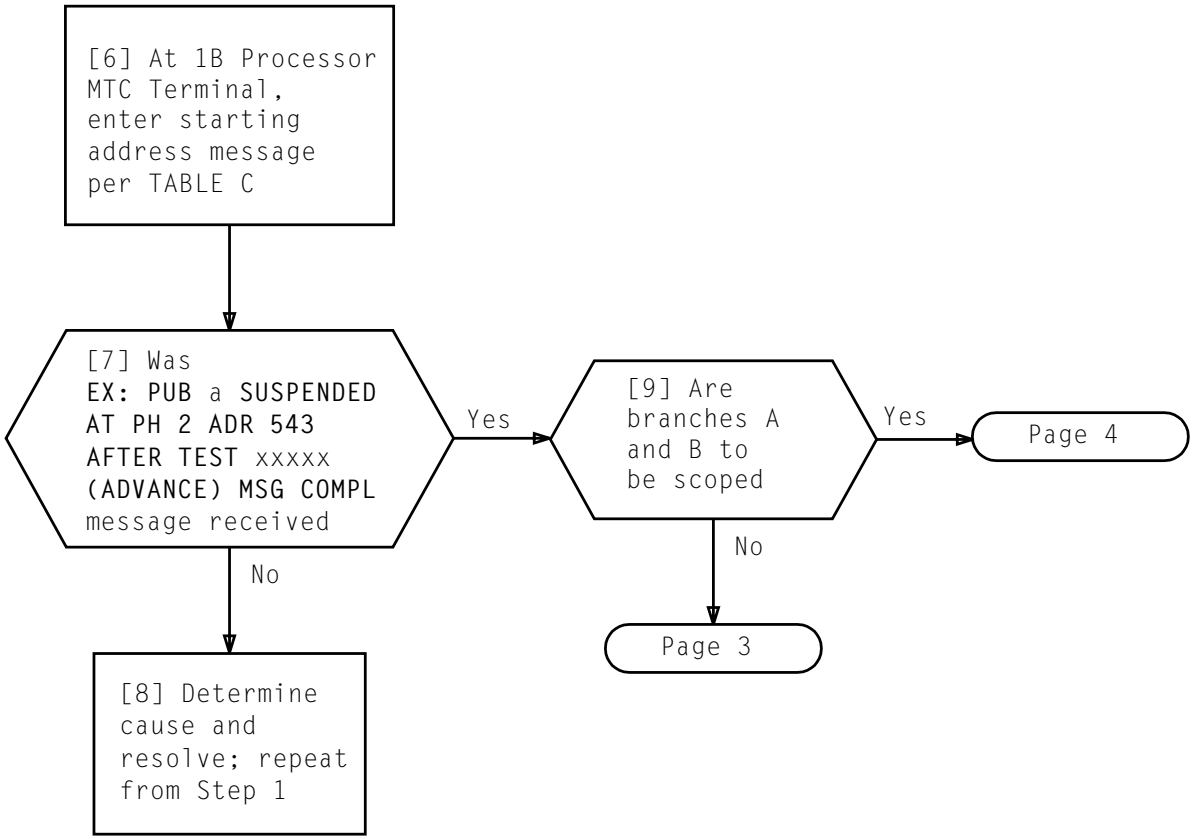


TABLE C	
MESSAGE NUMBER	**INPUT MESSAGE**
1	EX:PUB a:PH 2,ADR 543!

a = bus 0 or 1
543 = Address of statement label STM10600

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE BIT ON PU ENABLE ADDRESS AND/OR WRITE AND REPLY BUSES

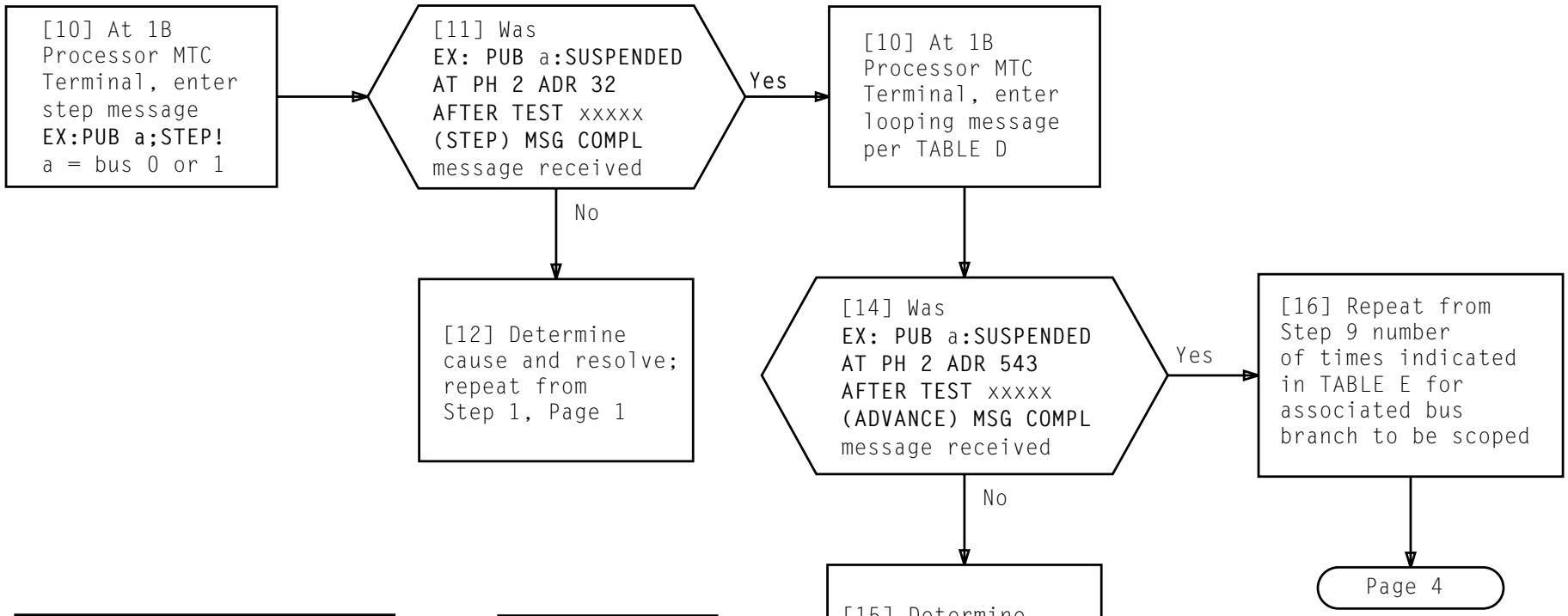


TABLE D	
MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a:ADR 543!
a = bus 0 or 1 543 = Address of statement label STM10600	

TABLE E	
BRANCHES	REPEAT NUMBER
C,D	0
E,F	1
G,H	2
K,L	3
M,R	4
T,V	5
W,X	6

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE BIT ON PU ENABLE ADDRESS AND/OR WRITE AND REPLY BUSES

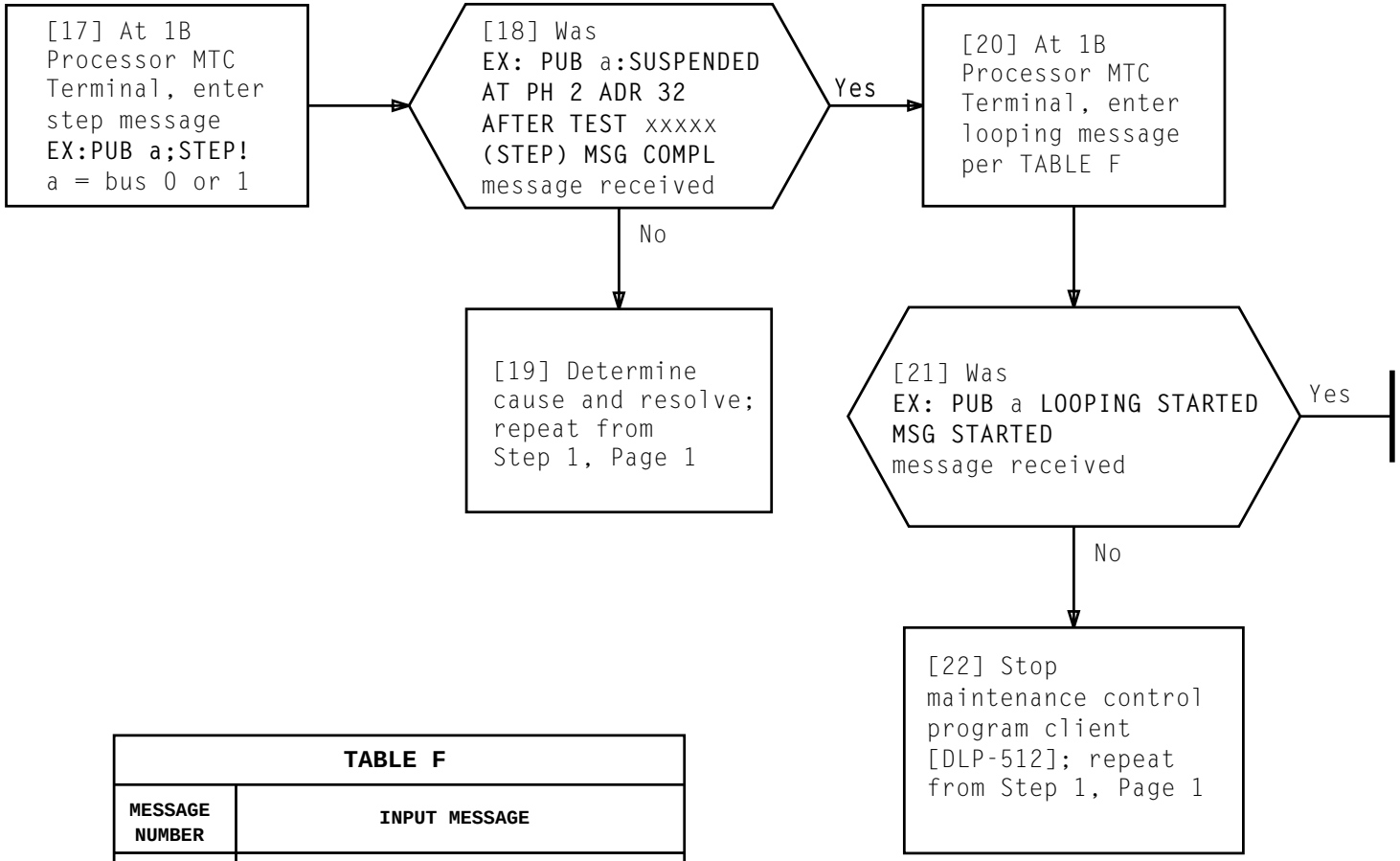


TABLE F

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a:ADR b-c!

a = bus 0 or 1
b = 200 for bit 0 PU write and reply bus or 207 for other bits.
c = 207 for bit 0 PU write and reply bus or 246 for other bits.

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE BIT ON PU ENABLE ADDRESS AND/OR WRITE AND REPLY BUSES

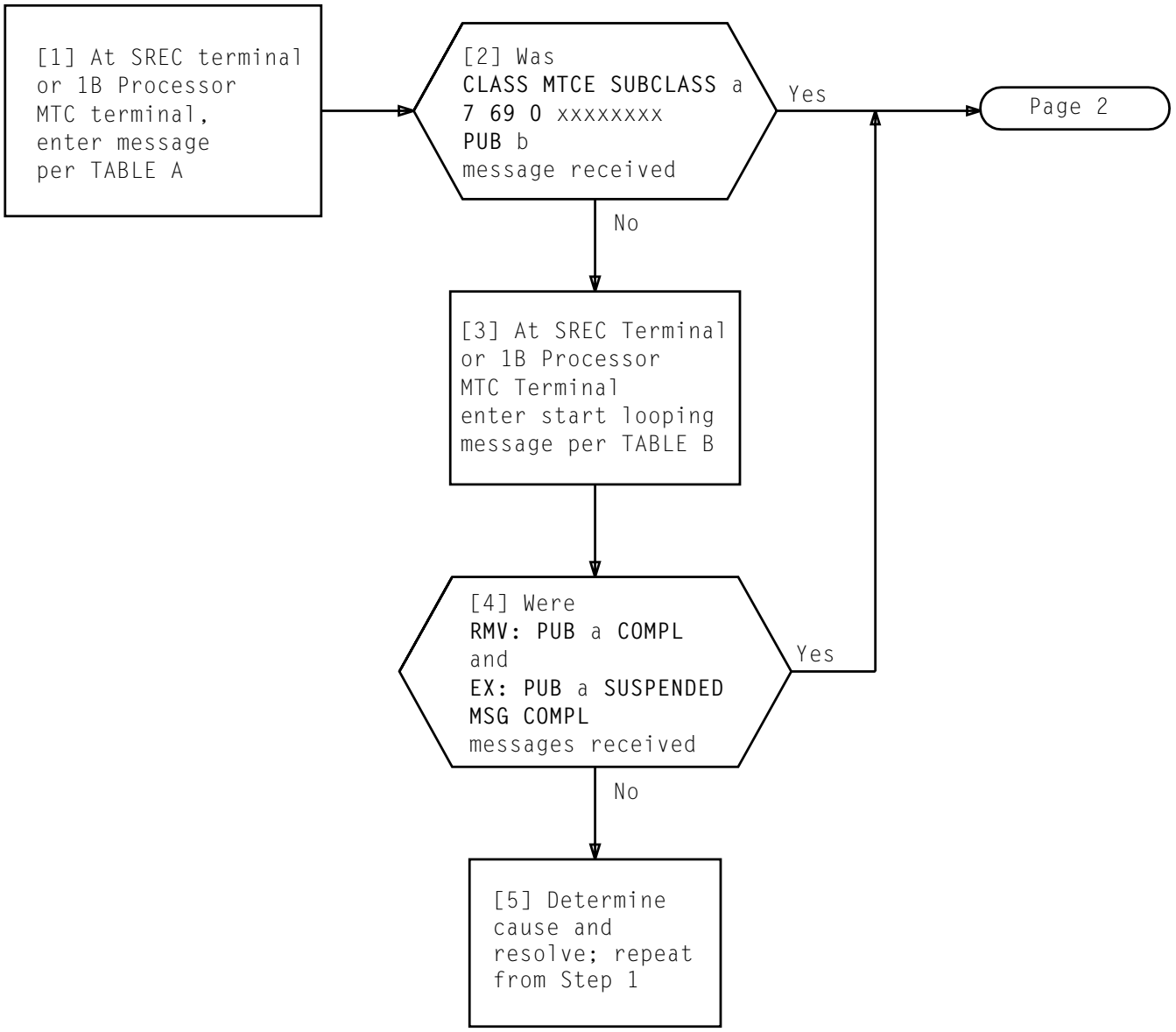


TABLE A

MESSAGE NUMBER	INPUT MESSAGE
1	OP:MACLI,CLASS MTCE!

TABLE B

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a;START:GROWTH!
a = bus 0 or 1	

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

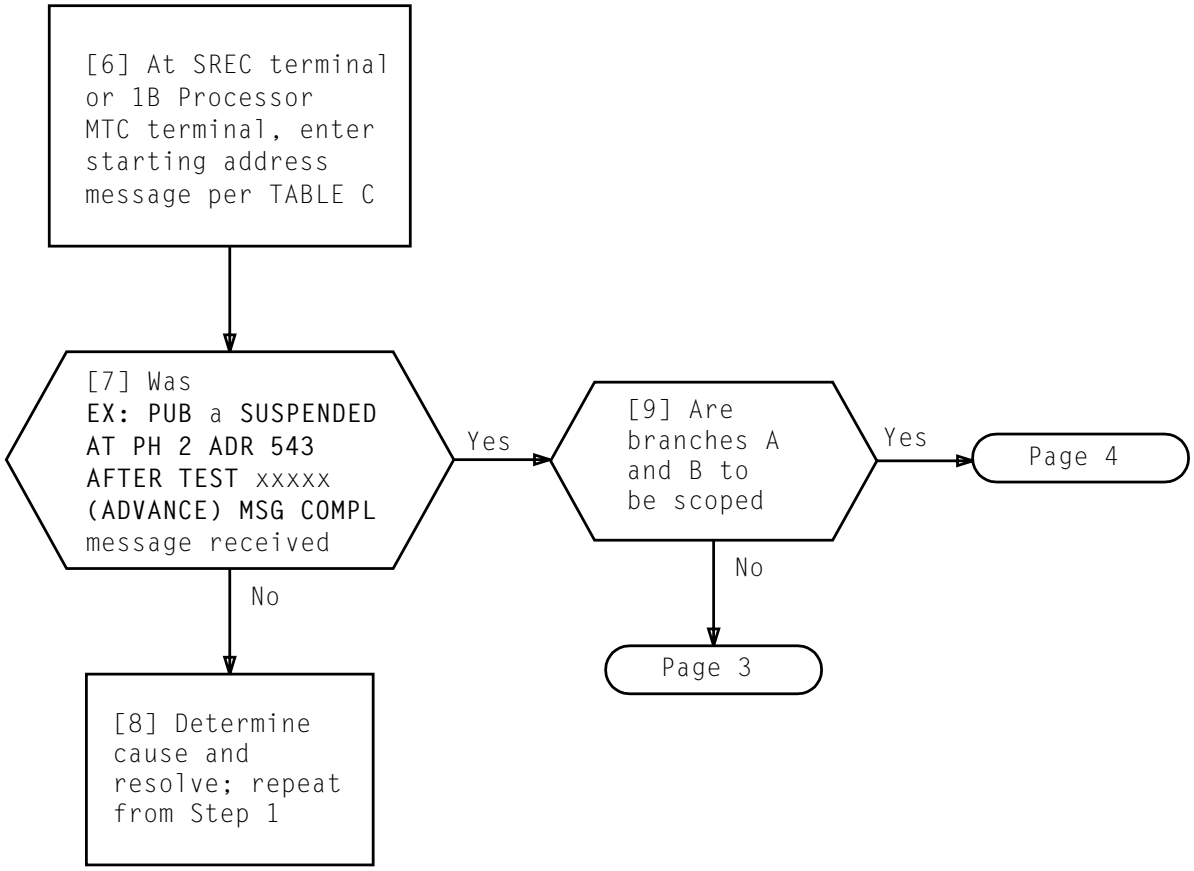


TABLE C	
MESSAGE NUMBER	**INPUT MESSAGE**
1	EX:PUB a:PH 2,ADR 543!
a = bus 0 or 1 543 = Address of statement label STM10600	

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

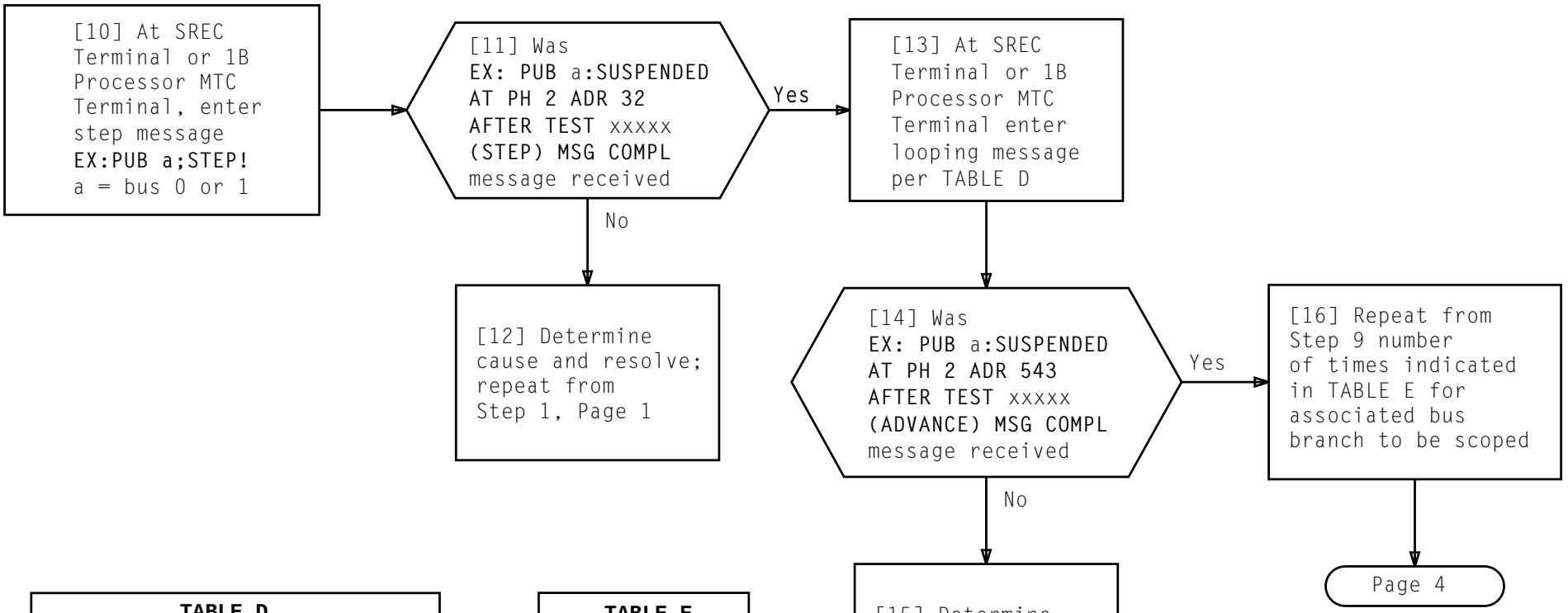


TABLE D

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a:ADR 543!

a = bus 0 or 1
543 = Address of statement label STM10600

TABLE E

BRANCHES	REPEAT NUMBER
C,D	0
E,F	1
G,H	2
K,L	3
M,R	4
T,V	5
W,X	6

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

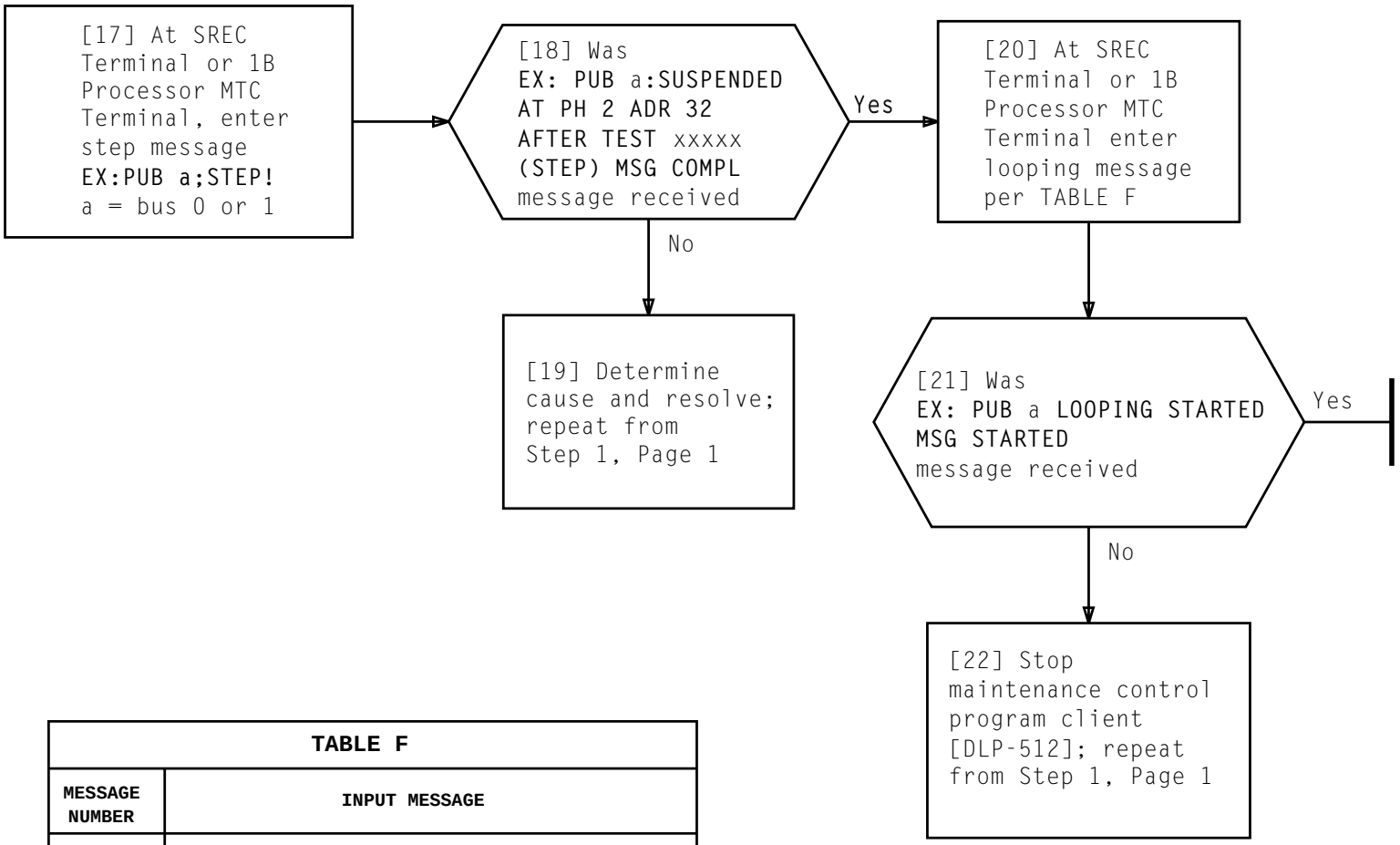


TABLE F

MESSAGE NUMBER	INPUT MESSAGE
1	EX:PUB a:ADR 616-1675!

a = bus 0 or 1
616 = Address of statement label PBTS4400
1675 = Address of statement label PBTS13800

ADVANCE PROGRAM AND SET UP LOOP TO OBSERVE PU CONTROL BUS AND MISCELLANEOUS BUS BITS

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE
IXL-001		DLP-522									
NTP-002		DLP-523									
NTP-003		DLP-524									
NTP-004		DLP-525									
NTP-005		DLP-526									
NTP-006		DLP-527									
NTP-007		DLP-528									
NTP-008		DLP-529									
NTP-009		DLP-530									
☐ NTP-010		DLP-531									
☐ NTP-011		DLP-532									
☐ NTP-012		• DLP-533									
☐ NTP-013		• DLP-534									
DLP-500		• DLP-535									
DLP-501		DLP-536									
DLP-502		☐ DLP-537									
DLP-503		☐ DLP-538									
DLP-504		☐ DLP-539									
DLP-505		☐ DLP-540									
DLP-506		☐ DLP-541									
DLP-507		☐ DLP-542									
DLP-508		☐ DLP-543									
DLP-509		CKL-891									
DLP-510		TNG-893									
DLP-511											
DLP-512											
DLP-513											
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DLP-515											
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DLP-520											
DLP-521											

• REVISED OR ADDED ITEM ☐ CANCELED ITEM

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CHECKLIST