

Task Oriented Practice
(TOP)

4ESS™ SWITCH

OFFICE PROCEDURES AFTER LOSS OF AC POWER

*TOP Comments Hot Line:
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Issue 3	JAN 1995
234-151-022	TPG
TITLE PAGE	000

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AT&T Network Systems Customer Education & Training

Issue 3	JAN 1995
234-151-022	LPG
PAGE 1 of 1	000

FIND YOUR JOB IN THE LIST BELOW THEN GO TO

Acceptance	NTP-002
AC Power; After Loss Of: Maintain System By Plants	TAP-101
Batteries By Plants; Load On – Reduce	NTP-009
Battery Load Reduction Requirements – Determine	NTP-010
Battery Reserve While Maintaining Call Processing – Extend	NTP-003
Digital Voltmeter – +140 Volt Bus Monitor – Connect	NTP-006
Digital Voltmeter – +140 Volt Bus Monitor – Remove	NTP-007
Maintain System After Loss Of AC Power	TAP-101
Maintenance Philosophy	TAD-100
Network Clock Oscillator – Rewrite Using ED-4A178 Manual Adjustment Unit	NTP-008
Peripheral Frames In Simplex Mode; Power To – Restore	NTP-005
System After Return Of AC Power – Restore	NTP-004
System After Loss Of AC Power – Maintain	TAP-101
3B Computer Unit; Via Input Message – Remove From Service And Power Down	DLP-504

This volume requires no acceptance procedures

ACCEPTANCE

Issue 3	JAN 1995
234-151-022	NTP
PAGE 1 of 1	002

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

	<p>NOTE: These Procedures Extend Battery Reserves While Maintaining Call Processing. To Do This, Selected Controller Halves Are Removed From Service And Powered Down. Procedural Modifications May Be Required Because Of Suspect Equipment And/Or Current Maintenance Conditions. In All Cases, Controller One (1) Halves Are To Be Powered Down Unless Equipment Maintenance Status Does Not Allow It. The Machine Must Be Allowed To React To Removal Requests Before Powering Down. If The In-Service Controller Begins Displaying Problems, The Mate Of The In-Service Controller Should Be Restored To Service And The Problem Unit Powered Down.</p> <p>CAUTION: DO NOT Power Down Units Listed Below:</p> <p style="padding-left: 40px;"><i>PUBB Frame Controllers</i> <i>TMS Frame Controllers</i> <i>A Links on TSI Frames</i> <i>Any IPUB on Any Frame</i> <i>Any Network Clock Units</i></p>	
1	Restrict Recent Change Activity	—
	A. 1A Processor:	—
	1. At The 1A Processor MCC, Depress Recent Change Activity Key (Lamp Lights)	—
	B. 1B Processor:	—
	1. At The 1B Processor MCC Terminal EAI Page 108, Enter Poke Command 801 (RESTRICT RC)	—
2	From Power Plant Data Sheet, Or Other Appropriate Source, Identify And Power Down Any Nonessential Equipment Powered By Battery Plant	—
3	From Recent Office History And Maintenance Records, Identify Any Suspect, Out-of-Service, Or Powered Down Equipment; Record In NOTES, Section Of FORM B, (TAD-100, Page 5) And Report It To Support Group	TAD-100
4	Remove And Power Down The Following Equipment:	—
	NOTE: Removal Of Equipment Must Be Completed In Sequential Order As Listed:	
	1. All TSI Controller Ones	—
	2. All SP Controller Ones	—
	3. All DIF Controller Ones	—

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

4 (Contd)	NOTE: When Performing The Following Steps 4, 5, And 6, It May Be Found That A Controller Half Is Already Out Of Service. This Is Normal If The Associated TSI Removed In Step 1 Is The "Original" Design, Such As SD-4A011-01	-
	4. All VIF Controller Ones	-
	5. All EST Controller Ones	-
	6. All DT Controller Ones	-
	7. All TGR Controller Ones	-
	8. All SCS Controller Ones	-
5	At Maintenance Channel In MOC, Type And Enter: DUMP:SCLK 0,CREG! , And Retain Copy Of Printout For Future Use	-
6	At Network Clock Frame, Manually Disable Each Oscillator	-
7	Remove And Power Down Network Clock Sync Unit	-
8	Record New Current Drains And Update Power Plant Data:	-
	1. On FORM B, Record New Total Current Drains On All 415 Distribution Modules	TAD-100
	2. Using Data From Power Plant Data Sheet And Data From Form B, Compute Number Of Hours Of Battery Reserve	-
	3. On FORM A, Record Voltage Reading From DVM	TAD-100
9	If DVM Reading Is 125 Volts Or Greater, Continue Normal Office Maintenance. If Reading Is Less, Go To Step 10	-
10	Reduce Load On Batteries	NTP-009

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

	NOTE: The Purpose Of This Procedure Is To Provide A Quick And Safe Restoral Of A Totally Powered Down Office To An Operational Call Processing State After Having Office Battery Reserves Exhausted. Operational Status Of The Office, When Battery Capability Is Restored Determines Whether All Items In This Procedure Must Be Completed	
1	Monitor DVM On TSI-2, Controller 1, And Proceed Only When Reading Is +130 Volts Or Greater	—
	NOTE: If Necessary, Refer To Power Plant Data Sheet For Location (FLN) Of Plants	TAD-100
2	Restore to Service +24 Volt, 600-Type Plant(s) Which Supplies Network Frames (Not Necessarily Sequentially). (Refer To Power Plant Data For Minimum Requirement)	—
3	Restore to Service -48 Volt, 600-Type Plant(s) Which Supplies Network Frames, 1A Processor Frames, CNI Ring, And 3B Computer, 1A PCDF (Not Necessarily Sequentially) (Refer To Power Plant Data For Minimum Requirement)	—
4	NOTE: The following steps, A And B, May Be Completed Sequentially Or Simultaneously:	
	A. Restore To Service The 1A Processor 1A PCDF. There Are No Indicators Lighted Until One Of +24V Converters Is Restored To Service	—
	B. Restore To Service All Remaining 600-Type Plants Supplying This Office	—
5	To Restore Power To The Processor Community	—
	A. 1A Processor:	—
	1. On All 1A Processor Community Frames, Operate Power Switches To ON And Rotate ROS Switches To NORMAL	—
	B. 1B Processor:	—
	1. The 1B Processor Is Powered From One or Two -48 Volt Battery Plants And May Not Have Been Powered Down	—
	A. If the 1B Processor Has Not Been Powered Down, Go To Step 2	—
	B. If the 1B Processor Has Been Powered Down, Continue With Procedure	—
	2. Power Up The Following Units In The 1B Processor Cabinets (0 and 1): CC, AUI, MUP, CS, PS, SSD, XPWR, And CSB	—

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

5 (Contd)	3. Power Up The Following Frames By Operating the Power Switches To ON And Rotating The ROS Switches to Normal <ul style="list-style-type: none"> • All IOP Frames • API 0 And 1 • DUS 0 And 1 	-
6	Restore Power To All 3B Community Frames, If They Were Powered Down While Performing NTP-009	DLP-505
7	Visually Check WRITE WORD, of the Network Clock DRO Oscillators, for the Word INIT Or 2000. If Power Has Been Removed and Restored, It Is Expected That All Four DROs Would Be In The INIT Or 2000 State. (Minimum Required Is One In the 2000 State)	-
8	On Network Clock Frame, Operate All Power Switches To ON And Rotate ROS Switches To NORMAL To Restore Power To Frame	-
NOTE: Minimum Requirement For Office Restoral Is One Chain And IPUB Access Matching PUBB Configuration		
9	Restore Power To Bays Of PUBB Frame	-
NOTE: Minimum Requirement For Office Restoral Is One Bay Of PUBB Frame, But Any Peripheral Frame Not Having Matching PUBB Access Duplex Fail During Phase Activity		
10	Restore Power To Complexes (SP-000 And SP-001) Of Base Signal Processors By Completing The Following Steps:	
1. On Both IPUB Units, Operate Power Switches To ON And Rotate ROS Switch To NORMAL		-
2. On Both Controllers, Operate Power Switches To ON And Rotate ROS Switch To NORMAL		-
3. On Pulse Point Units, Operate Power Switches To ON And Rotate ROS Switch To NORMAL		-
4. On 98A Power Converters In Matrix Bay(s), Operate The Toggle-Type Power Switch On Each Converter To ON , And Temporarily Depress Reset Switch. LED Extinguishes		-
5. If Signal Processor Is Equipped With A Scanner And Signal Distributor Frame And +3-Volt Converter LEDs Are Lighted, Restore Power To Matrix		DLP-503

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

11	<p>NOTE: Now, Restore Power To All Remaining Frames That Have A Direct Impact On Call Processing. Some Equipment May Fail To Power Up To A Simplex Or Duplex State. Time Should Not Be Wasted On An Individual Frame Or Unit That Does Not Come Up; Rather, Restore Power To All Equipment That Maintain A Powered Up State. These Are Not Necessarily Sequential Steps</p>	
	1. On Equipment Listed In A Through L, Operate All Power Switches To ON State And Rotate ROS Switch To NORMAL :	
	A. All TMS Frames, Including Controller(s), And IPUB(s)	-
	B. All TSI Frames, Including Controller(s), IPUB(s), And A-LINK(s)	-
	C. All TGR Frames, Including Controller(s), IPUB(s), And Equipment Terminals	-
	D. All DIF Frames, Including Controller(s), IPUB(s), And DIU(s) (Including Individual Units Power Converter)	-
	E. All DT Frames, Including Controller(s), IPUB(s), And DTU(s) (Including Individual Units Power Converter)	-
	F. All VIF Frames, Including Controller(s), IPUB(s), And VIU(s) (Including Individual Units Power Converter)	-
	G. All EST Frames, Including Controller(s), IPUB(s), And ESU(s) (Including Individual Units Power Converter)	-
	H. All SCS Frames, Including All SCU(s)	-
	I. All NSC Frames	-
	J. All Remaining SP Frames Including Controller(s), IPUB(s), Pulse Point(s), And Matrix Frame(s). If SP Type Is SP-1 With Scanner And Signal Distributor Frames, Refer To DLP-503	-
	K. Using Appropriate Capacitor Forming Tool, Replace Any Previously Removed Fuses At ABC Frame For LT-1 Frames	
	L. All Continuity Check Transceiver Circuits	-
12	Preparing For Manual Recovery, Be Sure That The Following Minimum Conditions Exist:	
	<ul style="list-style-type: none"> • The 1A/1B Processor Community Is In A Simplex Powered Up State • The 3B Computer Is Available For Use 	-

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

12 (Contd)	<ul style="list-style-type: none"> • The Office Meets Minimum Restoral Requirements For Network Clock, Base Signal Processors, And PUBB Frame • All Equipment Listed In Item 11 That Maintain Power Has Been Restored To A Powered Up State • DRO Oscillator WRITE WORD, In At Least One DRO, Is Set To 2000. (If No Go To NTP-008) 	-
13	At 3B Computer MCRT (VT100), Perform A Level 4 Boot Using EAI Page In The Command Mode And Enter 54	-
	NOTE: If Machine Does Not Recover After Performing The Following Items, Highly Suspect Would Be The 1A Processor, 3B Computer, Or The PUBB Frame. These Areas Should Be Investigated And Any Required Maintenance Completed. Then, Recovery Should Be Continued Using OFFICE EMERGENCY RECOVERY PROCEDURE Instructions	
14	At Maintenance Control Center (MCC), Complete The Following Steps To Restore Office And Call Processing:	-
	A. 1A Processor:	
	1. Disable Auto PC	-
	2. Depress MODIFIED RECOVERY ACTION (MRA) Key	-
	3. Depress DIRECT DATA INSERT Key 11 and Key 16	-
	4. Depress PHASE THREE REQUEST Key	-
	5. Depress ACTIVATE PROGRAM REQUEST Key	-
	B. 1B Processor:	
	1. At the EAI Page 108, Enter Poke Command 70 (DIS AUTO PC)	-
	2. At the EAI Page 108, Enter Poke Command 84 (MODIFY RECV)	-
	3. At the EAI Page 108, Enter Poke Commands 401, 16, 24 (SET DDI KEYS)	-
	4. At the EAI Page 108, Enter Poke Command 53 (PHASE3)	-
	5. At the EAI Page 108, Enter Poke Command 01 (HARD A)	-
15	At Maintenance TTY, Set Clock Time Of Day	-
16	Release Any MCC Keys (1A) Or Clear Forces (1B Processor) Set Performing Step 14	-

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

	NOTE: With Machine Restored And Call Processing Resumed, The Status Of Service Circuits, Signaling Links, And Service Degraded Equipment Should Be Determined And MCC Keys Cleared	
17	Complete The Following Steps:	
	A. 1A Processor:	—
	1. At The Maintenance TTY, Type And Enter The Following Messages:	—
	A. INH:MACLI,CLASS MTCE;ALL!	—
	B. CLR:MACLI,CLASS MTCE!	—
	2. On MCC, Depress SERVICE DEGRADED Key	—
	3. On MCC, Depress SERVICE CIRCUIT Key	—
	4. On MCC, Depress CCIS SLK Key	—
	B. 1B Processor:	—
	1. At The Maintenance TTY, Type And Enter The Following Messages:	—
	A. INH:MACLI,CLASS MTCE;ALL!	—
	B. CLR:MACLI,CLASS MTCE!	—
	2. At 1B Processor MCC Terminal EAI Page 108, Enter Poke Command 810	—
	3. At 1B Processor MCC Terminal EAI Page 108, Enter Poke Command 866	—
	4. At 1B Processor MCC Terminal EAI Page 108, Enter Poke Command 863	—
18	Using Information From Item 17, Establish A Priority List For Equipment Restoral. Complete Any Maintenance Activity, And Manually Restore Equipment Unconditionally	—
	NOTE: Duplex Failed And Service Degraded Equipment Should Now Have Been Cleared	
19	At MCC, Type And Enter: ALW:MACLI,CLASS MTCE;ALL!	—
20	Return To Normal Office Procedures For Maintenance Of Any Out-Of-Service Equipment	—

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

	NOTE: Use These Procedures To Restore An Office From Either A Partial Or Full-Simplex Mode. Considering The Mode, Complete Only Those Items That Apply To The Present Office Configuration And Equipage. Any Controllers That Become Faulty During The Procedures Should Be Left Out Of Service Until The Other Controllers Have Been Restored. Then, Appropriate Maintenance Procedures Should Be Used To Bring Up Faulty Controllers	
1	Restore Power And, At The Secondary Record (SREC 1) Channel, Input Restoral Messages For The Controller Listed Below: NOTE: After Message Input, Allow The Controller To Restore Before Entering The Next Message	
	1. All TSI Controllers	—
	2. All SP Controllers	—
	3. All DIF Controllers	—
	4. All VIF Controllers	—
	5. All EST Controllers	—
	6. All DT Controllers	—
	7. All TGR Controllers	—
	8. All SCS Controllers	—
	9. All NSC Frames	—
2	Enable All Clock Oscillators If Not Already Enabled	—
3	Restore Power To Network Clock Sync Unit And Rotate ROS Key To NORMAL	—

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

1	At Frame Power Control Switch In Bay 1, Rotate ROS/OFF Switch To ROS Position	-
2	Check That OS Lamp On Power Control Switch Lighted	-
3	Depress ROS Switch To OFF Position	-
4	Check That OFF NORM Lamp On Power Control Switch Lighted	-
5	Connect Monitor Digital Voltmeter	DLP-500
6	Depress And Hold For 2 Seconds ON Pushbutton On Power Control Switch	-
7	Check That Power OFF Lamp On Power Control Switch Is Not Lighted	-
8	Rotate ROS/OFF Switch To NORMAL Position	-
9	Check That OS Lamp Is Not Lighted After Diagnostic Completes	-

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

1	At Frame Power Control Switch in Bay 1, Rotate ROS/OFF Switch To ROS Position	-
2	Check That OS Lamp On Power Control Switch Lighted	-
3	Depress ROS Switch To OFF Position	-
4	Check That OFF NORM Lamp On Power Control Switch Lighted	-
5	Remove Monitor Digital Voltmeter	DLP-502
6	Depress And Hold For 2 Seconds ON Pushbutton On Power Control Switch	-
7	Check That Power OFF Lamp On Power Control Switch Is Not Lighted	-
8	Rotate ROS/OFF Switch To NORMAL Position	-
9	Check That OS Lamp Is Not Lighted After Diagnostic Completes	-

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

1	On DRO Oscillator, Position STROBE Switch To DISABLE If It Is Not Already In That State	—
2	Connect Oscillator Manual Adjustment Unit, ED-4A178, To J20 of DRO Oscillator To Be Rewritten	—
3	Check That Oscillator Manual Adjustment Unit Power On LED Lights	—
4	Adjust Manual Adjustment Unit Thumbwheels To 2000	—
5	On DRO Oscillator, Position STROBE Switch To ENABLE	—
6	On Manual Adjustment Unit, Depress LOAD Pushbutton	—
7	Look At OSC WRT Word To Be Certain That New Setting "Wrote"	—
8	Position STROBE Switch To DISABLE	—
9	Repeat From Step 1 For All Remaining Chains	—

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

	NOTE: DC-to-DC Converters In The Office Shut Down When Input Voltage Drops To Some Point Between +120 V And +105 V. As Batteries Approach The End Of Their Reserves, Frames Begin To Power Down, And Call Processing Fails. IMPORTANT: When This Happens, The +140 V Load Must Be Reduced As Quickly As Possible To Minimize Damage To Battery Plants.																						
1	Power Down All 3B Moving Head Disks (This Step May Be Skipped Only If This Office Has A 1B Processor, And During The Installation, The 625 Converter Plant Was Totally Replaced By Two -48 Volt Battery Plants).	DLP-501																					
2	From Power Plant Data Sheet, TAD-100, Figure 1, Section 8, Identify And Locate All Converter Power Plants That Supply +24 and -48 Volt To Office Equipment	-																					
3	Use TABLE A To Select DLP Describing Power Down/Power Up Procedures For Identified Power Plants	-																					
<table border="1"> <thead> <tr> <th colspan="3">TABLE A</th> </tr> <tr> <th>POWER PLANT TYPE</th> <th>VOLTS SUPPLIED</th> <th>PROCEDURE NUMBER</th> </tr> </thead> <tbody> <tr> <td>620A</td> <td>+24</td> <td>DLP-506</td> </tr> <tr> <td>620C</td> <td>+24</td> <td>DLP-507</td> </tr> <tr> <td>625B</td> <td>-48</td> <td>DLP-508</td> </tr> <tr> <td>625C</td> <td>-48</td> <td>DLP-507</td> </tr> <tr> <td>611N</td> <td>-48</td> <td>DLP-511</td> </tr> </tbody> </table>			TABLE A			POWER PLANT TYPE	VOLTS SUPPLIED	PROCEDURE NUMBER	620A	+24	DLP-506	620C	+24	DLP-507	625B	-48	DLP-508	625C	-48	DLP-507	611N	-48	DLP-511
TABLE A																							
POWER PLANT TYPE	VOLTS SUPPLIED	PROCEDURE NUMBER																					
620A	+24	DLP-506																					
620C	+24	DLP-507																					
625B	-48	DLP-508																					
625C	-48	DLP-507																					
611N	-48	DLP-511																					
4	Using Procedure Selected In Item 3, Power Down all +24 And -48 Volt Converter Type Plants	-																					
5	Complete Battery Load Reduction Procedures	DLP-510																					
6	Continue to Monitor and Record +140 Volt Battery Voltage, TAD-100, Figure 2	TAD-100																					

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

	<p>NOTE: DC-to-DC Converters In Your Office Shut Down When The Input Voltage Drops To Some Point Between +120V And +105V. As Your Batteries Approach The End Of Their Reserves, Frames Begin To Power Down And Call Processing Fails. Depending On The Voltage Drop Between The Battery Plant And The 4ESS™ Switch, The Battery Maintenance Engineer May Request That You Reduce The Battery Load Before Frames Begin To Power Down.</p> <p>IMPORTANT: When This Happens, The +140V Load Must Be Reduced As Quickly As Possible So That Battery Reversal Does Not Occur. This Action Assures Low Plug-In Element Replacement And Short Restoral Time When AC Is Regained</p>	
1	Determine If Any Peripheral Frames Are Powering Down. If No, Go To Item 2; If Yes, Go To Item 3	—
2	Continue To Monitor Voltage At 15-Minute Intervals, And Continue Maintenance Necessary For Call Processing. When Frames Begin Powering Down, Go To Item 3	—
3	From Information On Power Plant Data Sheet, TAD-100, Figure 1, Determine If Your Office Is Single- Or Dual-Ground Installation. If Single, Go To Item 4; If Dual, Go To Item 5	—
4	Reduce Load On Batteries (Single-Ground Installation)	NTP-009
	<p>NOTE: The Single-Ground-Installation Environment Allows Network Transmission Facilities, 1A Or 1B Processor And 3B Computer To Share Common Power Plants. Depending Upon Office Equipage, There May Be Multiple +24V And -48V Plant Powering Transmission And Network Frames</p>	
5	Reduce Load On Batteries (Dual-Ground Installation)	NTP-009
	<p>NOTE: The Dual-Ground-Installation Environment Guarantees That A Given Plant Powers Only A Transmission Or Processor Network Frame, Not Both</p>	

MAINTENANCE PHILOSOPHY

GENERAL

This volume aids local operations personnel and support organizations if there is an extended loss of ac power (both commercial and emergency generators). A communications link with support organizations may or may not be maintained during the entire outage. The document is used to extend call-processing capability to a maximum and keep equipment and office restoral time to a minimum. Use of these procedures also result in extremely low plug-in replacement and minimum to no-cell damage in the +140 volt battery plant. The step procedures are designed to extend battery operation time to maximum and to allow for possible ac restoral before total battery plant discharge is reached and Battery Cells are destroyed.

Figure 1 and Forms A and B appear as Figures 1, 2, and 3 in this TAD. Figure 1, when completed, contains power plant data (See Figure 1 EXAMPLE). Form A is used to record voltage, temperature, and humidity when necessary, and Form B is used to compute battery reserve status during activity undertaken to extend battery life.

INITIAL PREPARATION

Upon receiving this document, all office personnel become familiar with the procedures, and "dry runs" are initiated to familiarize them with the power plant layout of the individual office. Complete a Power Plant Data Sheet immediately, as accurately as possible, with special attention to the specific loads on a given plant in Step 2. Post the completed data sheet in the maintenance control console area for immediate access by maintenance personnel. Send a copy of the completed data sheet to the immediate support organization. The organization collects similar data from all offices it supports and forward this data to the national support organization. This TOP is reviewed annually by office personnel, and the contents of the data sheet updated as needed to reflect growth changes.

MAINTENANCE PHILOSOPHY

SEQUENCE OF EVENTS

When ac is lost, the following things are done in the order shown. IMPORTANT: At any time ac is restored, these steps are discontinued and restoral procedures are started.

1. Monitor 140 V battery voltage
2. Simplex office to reduce battery load
3. Wait until first frames power down automatically (between 120-105 volts)
4. Power down all converter plants
5. Power down all converter not controlled by frame power switches.

PRECAUTIONS

In an emergency, follow these TOP instructions as accurately as possible. Do not deviate from these directions unless told to do so by the support organizations. Complete the procedures methodically and quickly, and become familiar with upcoming actions to be taken. If there is available personnel, one person remains in constant contact with the on-line support organization to report specified data and TOP progress.

The 140 volt power to a 4ESS office should NOT be removed or restored via the circuit breakers in the 415 battery plant. Doing so causes the following results:

1. Massive loss of converters and circuit packs in the 4ESS switch
2. If AT&T practices were to be followed to restore power through the restoral of manually tripped circuit breakes, ALL the ABC fuses must be removed in the entire 4ESS switch. This provides extended time to "form" all the filter capacitors and replacement of fuses leading to extremely long 4ESS switch restoral to service time

Issue 3	JAN 1995
234-151-022	TAD
PAGE 1 of 7	100

EXCEPTIONS

In some cases, a 4ESS™ switch office may be deriving -48 volt power from a source other than a dc-to-dc converter powered from the +140 volt battery plant (that is, a 611N -48 volt converter plant driven by a -48 volt battery plant). Because the 611N plant isolates the 4ESS switch equipment from the -48 volt battery plant, that plant may provide power for other loads. If this is the case, it is highly unlikely that the loads can be reduced in the same manner as the +140 volt battery loads. Therefore, total battery discharge and loss of the -48 volt plant could occur before the +140 volt plant is lost. If this is the case in your 4ESS switch office, a DVM should be attached, and monitoring should be done on the -48 volt and the 140-volt plants. The -48 voltage could become the determining factor as to when the office is simplexed and subsequently totally powered down. When this procedure is followed, a critical note stating this fact is added to the Power Plant Data Sheet located at the maintenance control console, and the -48 volt plant discharge time is recorded.

If this office is currently running on a 1B Processor, a -48 volt plant or plants were installed as part of that upgrade. The 1B Processor can remain powered up during an extended ac outage. In addition, some offices replaced the 625 converter plant that supplied -48 volt power to the 3B Processor and/or the CNI Ring at that time. If you can determine if this office was modified in that manner, then that equipment can remain powered up because the added plant or plants are lightly loaded

1. This office has a Single <input type="checkbox"/> /Dual <input type="checkbox"/> ground system (check one)	POWER PLANT DATA SHEET			DATE:																		
	M	D	Y																			
2. Record current readings from front panel plant load current meter of each 415 distribution module:		3. Record total number of battery strings for all plants: Battery strings = ____		5. Calculate average current per string (ACS) TOTAL plant drain (Step 4) ____ divided by the number of battery strings (Step 3) ____ = ACS ____																		
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Plant 1</td> <td style="text-align: center;">Plant 2</td> <td style="text-align: center;">Plant 3</td> </tr> <tr> <td>Module 1 ____</td> <td>Module 1 ____</td> <td>Module 1 ____</td> </tr> <tr> <td>Module 2 ____</td> <td>Module 2 ____</td> <td>Module 2 ____</td> </tr> <tr> <td>Module 3 ____</td> <td>Module 3 ____</td> <td>Module 3 ____</td> </tr> <tr> <td>Module 4 ____</td> <td>Module 4 ____</td> <td>Module 4 ____</td> </tr> <tr> <td>TOTAL ____</td> <td>TOTAL ____</td> <td>TOTAL ____</td> </tr> </table>	Plant 1	Plant 2	Plant 3	Module 1 ____	Module 1 ____	Module 1 ____	Module 2 ____	Module 2 ____	Module 2 ____	Module 3 ____	Module 3 ____	Module 3 ____	Module 4 ____	Module 4 ____	Module 4 ____	TOTAL ____	TOTAL ____	TOTAL ____	4. Calculate total plant drain: TOTAL Plant 1 + TOTAL Plant 2 + TOTAL Plant 3 = TOTAL plant drain ____		6. Calculate battery reserve hours (BRH) Ampere hour 1200 divided by the ACS (Step 5) ____ = BRH ____	
Plant 1	Plant 2	Plant 3																				
Module 1 ____	Module 1 ____	Module 1 ____																				
Module 2 ____	Module 2 ____	Module 2 ____																				
Module 3 ____	Module 3 ____	Module 3 ____																				
Module 4 ____	Module 4 ____	Module 4 ____																				
TOTAL ____	TOTAL ____	TOTAL ____																				
				7. Calculate 15% of battery reserve time: battery reserve hours X.15 = 15% point																		

8. Record identification and location of nonessential equipment powered by battery plants:		9. FLOOR NUMBERS (FLN) OF PLANTS			CONVERTER†	NOTES
		FLN	PLANT	LOAD FUNCTION*		
FLN	EQUIPMENT					
* LOAD FUNCTION ENTRIES: NETWORK FRAMES TRANSMISSION FRAMES 1A PROCESSOR 3B COMPUTER NETWORK CLOCK						
† Minimum number of converters required per bus to handle load						

Figure 1 – Power Plant Data Sheet (Sheet 1 of 2)

Issue 3	JAN 1995
234-151-022	TAD
PAGE 3 of 7	100

1. This office has a Single <input checked="" type="checkbox"/> /Dual <input type="checkbox"/> ground system (check one)	POWER PLANT DATA SHEET			DATE:																			
	M	D	Y																				
2. Record current readings from front panel plant load current meter of each 415 distribution module: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Plant 1</td> <td style="text-align: center;">Plant 2</td> <td style="text-align: center;">Plant 3</td> </tr> <tr> <td>Module 1 <u>251</u></td> <td>Module 1 _____</td> <td>Module 1 _____</td> </tr> <tr> <td>Module 2 <u>240</u></td> <td>Module 2 _____</td> <td>Module 2 _____</td> </tr> <tr> <td>Module 3 <u>270</u></td> <td>Module 3 _____</td> <td>Module 3 _____</td> </tr> <tr> <td>Module 4 <u>289</u></td> <td>Module 4 _____</td> <td>Module 4 _____</td> </tr> <tr> <td>TOTAL <u>1050</u></td> <td>TOTAL <u>N/A</u></td> <td>TOTAL <u>N/A</u></td> </tr> </table>		Plant 1	Plant 2	Plant 3	Module 1 <u>251</u>	Module 1 _____	Module 1 _____	Module 2 <u>240</u>	Module 2 _____	Module 2 _____	Module 3 <u>270</u>	Module 3 _____	Module 3 _____	Module 4 <u>289</u>	Module 4 _____	Module 4 _____	TOTAL <u>1050</u>	TOTAL <u>N/A</u>	TOTAL <u>N/A</u>	3. Record total number of battery strings for all plants: Battery strings = <u>4</u>		5. Calculate average current per string (ACS) TOTAL plant drain (Step 4) <u>1050</u> divided by the number of battery strings (Step 3) <u>4</u> = ACS <u>262.5</u>	
Plant 1	Plant 2	Plant 3																					
Module 1 <u>251</u>	Module 1 _____	Module 1 _____																					
Module 2 <u>240</u>	Module 2 _____	Module 2 _____																					
Module 3 <u>270</u>	Module 3 _____	Module 3 _____																					
Module 4 <u>289</u>	Module 4 _____	Module 4 _____																					
TOTAL <u>1050</u>	TOTAL <u>N/A</u>	TOTAL <u>N/A</u>																					
		4. Calculate total plant drain: <table style="width:100%; border-collapse: collapse;"> <tr> <td>TOTAL Plant 1</td> <td style="text-align: right;">1050</td> </tr> <tr> <td>+ TOTAL Plant 2</td> <td style="text-align: right;">-0-</td> </tr> <tr> <td>+ TOTAL Plant 3</td> <td style="text-align: right;">-0-</td> </tr> <tr> <td>= TOTAL plant drain</td> <td style="text-align: right;"><u>1050</u></td> </tr> </table>		TOTAL Plant 1	1050	+ TOTAL Plant 2	-0-	+ TOTAL Plant 3	-0-	= TOTAL plant drain	<u>1050</u>	6. Calculate battery reserve hours (BRH) Ampere hour 1200 divided by the ACS (Step 5) <u>262.5</u> = BRH <u>4.57</u> ~ (4.30 Min)											
TOTAL Plant 1	1050																						
+ TOTAL Plant 2	-0-																						
+ TOTAL Plant 3	-0-																						
= TOTAL plant drain	<u>1050</u>																						
				7. Calculate 15% of battery reserve time: battery reserve hours X .15 = 15% point <u>4.5 hr = 270 Min. X .15 = 40 Min</u>																			

8. Record identification and location of nonessential equipment powered by battery plants:		9. FLOOR NUMBERS (FLN) OF PLANTS			CONVERTER†	NOTES <i>This EXAMPLE depicts a typical office computation for Battery Reserve Time.</i>
		FLN	PLANT	LOAD FUNCTION*		
FLN	EQUIPMENT					
* LOAD FUNCTION ENTRIES: NETWORK FRAMES TRANSMISSION FRAMES 1A PROCESSOR 3B COMPUTER NETWORK CLOCK † Minimum number of converters required per bus to handle load						

EXAMPLE

Figure 1 - Power Plant Data Sheet (2 of 2)

Issue 3	JAN 1995
234-151-022	TAD
PAGE 4 of 7	100

FORM A					
VOLTAGE, TEMPERATURE, AND HUMIDITY					
READINGS*					
DATE					
TIME	TIME	TIME	TIME	TIME	TIME
____ V____ * T____ H____	____ V____ T____ H____				
____ V____	____ V____	____ V____	____ V____	____ V____	____ V____
____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____
____ V____	____ V____	____ V____	____ V____	____ V____	____ V____
____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____
____ V____	____ V____	____ V____	____ V____	____ V____	____ V____
____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____
____ V____	____ V____	____ V____	____ V____	____ V____	____ V____
____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____	____ V____ T____ H____
____ V____	____ V____	____ V____	____ V____	____ V____	____ V____
READINGS SCHEDULES: VOLTAGE (V) 15 MINUTES, TEMPERATURE (T), AND HUMIDITY (H), 30 MINUTES					
* If monitoring -48 volts, insert readings under time notations					

Figure 2 – Voltage, Temperature, and Humidity Readings

FORM B
EXTENDED BATTERY RESERVE CALCULATIONS

<p>1. Record current readings from front panel meter of each 415 distribution module and compute totals:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; width: 33%;">Plant 1</td> <td style="text-align: center; width: 33%;">Plant 2</td> <td style="text-align: center; width: 33%;">Plant 3</td> </tr> <tr> <td>Module 1 _____</td> <td>Module 1 _____</td> <td>Module 1 _____</td> </tr> <tr> <td>Module 2 _____</td> <td>Module 2 _____</td> <td>Module 2 _____</td> </tr> <tr> <td>Module 3 _____</td> <td>Module 3 _____</td> <td>Module 3 _____</td> </tr> <tr> <td>Module 4 _____</td> <td>Module 4 _____</td> <td>Module 4 _____</td> </tr> <tr> <td>TOTAL _____</td> <td>TOTAL _____</td> <td>TOTAL _____</td> </tr> </table>	Plant 1	Plant 2	Plant 3	Module 1 _____	Module 1 _____	Module 1 _____	Module 2 _____	Module 2 _____	Module 2 _____	Module 3 _____	Module 3 _____	Module 3 _____	Module 4 _____	Module 4 _____	Module 4 _____	TOTAL _____	TOTAL _____	TOTAL _____	<p>NOTES:</p>
Plant 1	Plant 2	Plant 3																	
Module 1 _____	Module 1 _____	Module 1 _____																	
Module 2 _____	Module 2 _____	Module 2 _____																	
Module 3 _____	Module 3 _____	Module 3 _____																	
Module 4 _____	Module 4 _____	Module 4 _____																	
TOTAL _____	TOTAL _____	TOTAL _____																	
<p>2. Calculate total plant drain:</p> <p style="padding-left: 20px;">TOTAL AMPS, Plant 1 _____</p> <p>Plus TOTAL AMPS, Plant 2 _____</p> <p>Plus TOTAL AMPS, Plant 3 _____</p> <p>equals TOTAL plant drain _____</p>	<p>7. Calculate reserve ampere hours remaining: Discharge time remaining (Step 5) _____ times original average current per string (Step 6) _____ equals reserve ampere hours remaining _____</p>																		
<p>3. From Step 6, Power Plant Data Sheet, record original battery reserve hours: Original battery reserve hours equals _____</p>	<p>8. From Step 3, Power Plant Data Sheet, record number of battery strings for all plants: Number of strings equals _____</p>																		
<p>4. Record time equipment has been battery powered (time on battery discharge): Time on battery discharge equals _____</p>	<p>9. Calculate new average current per string: TOTAL plant drain (Step 2) _____ divided by number of strings (Step 8) _____ equals average current per string _____</p>																		
<p>5. Calculate amount of discharge time remaining: Original battery reserve hours (Step 3) _____ minus time on battery discharge _____ equals discharge time remaining _____</p>	<p>10. Calculate extended battery reserve hours: Reserve ampere hours remaining (Step 7) _____ divided by average current per string (Step 9) equals extended battery reserve hours _____</p>																		
<p>6. From Step 5, Figure 1, Power Plant Data Sheet, record original average current per string: Original average current per string equals _____</p>																			

Figure 3 – Extended Battery Reserve Calculations (Sheet 1 of 2)

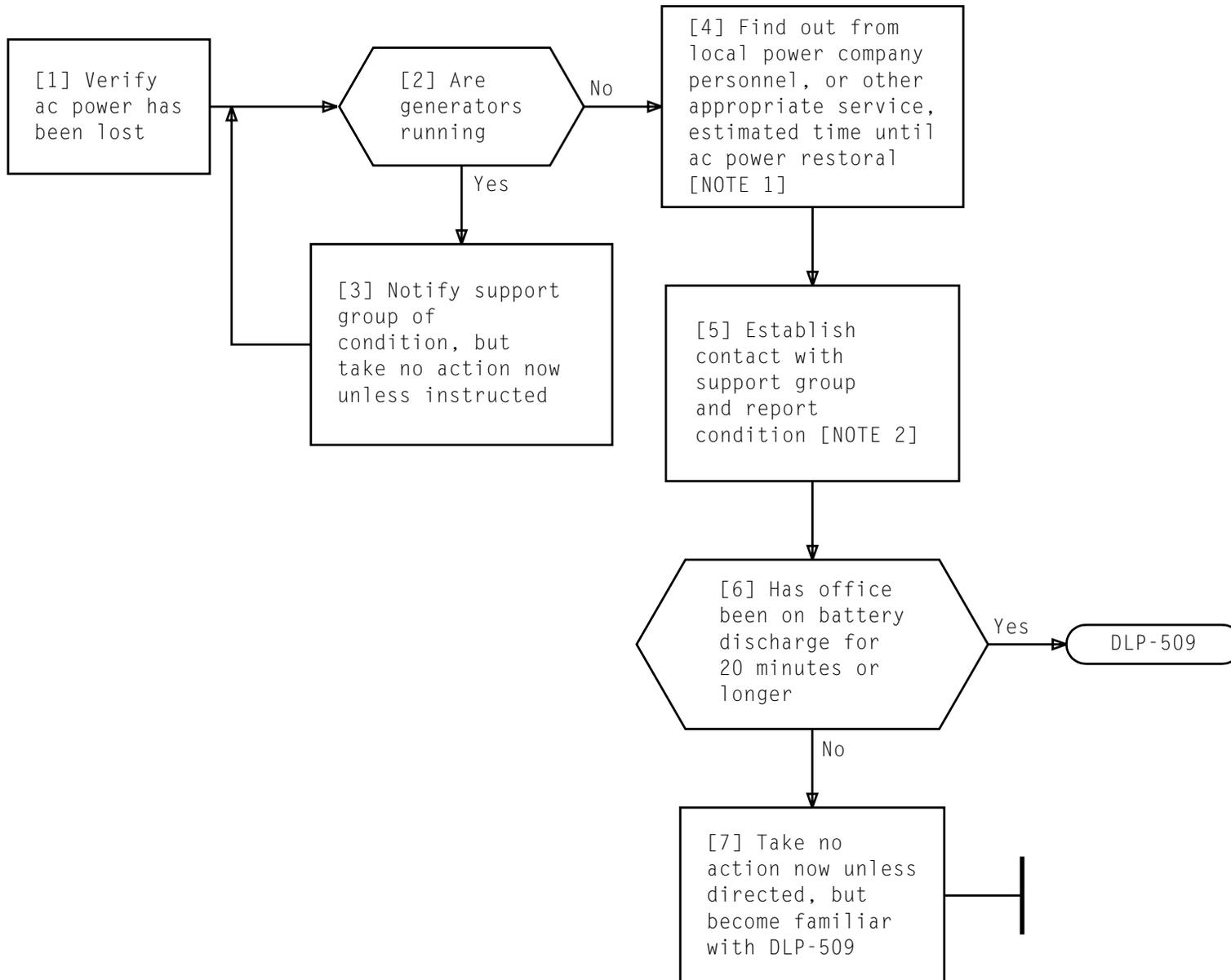
Issue 3	JAN 1995
234-151-022	TAD
PAGE 6 of 7	100

FORM B EXTENDED BATTERY RESERVE CALCULATIONS																			
<p>1. Record current readings from front panel meter of each 415 distribution module and compute totals:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Plant 1</td> <td style="text-align: center;">Plant 2</td> <td style="text-align: center;">Plant 3</td> </tr> <tr> <td>Module 1 <u>200</u></td> <td>Module 1 _____</td> <td>Module 1 _____</td> </tr> <tr> <td>Module 2 <u>192</u></td> <td>Module 2 _____</td> <td>Module 2 _____</td> </tr> <tr> <td>Module 3 <u>230</u></td> <td>Module 3 _____</td> <td>Module 3 _____</td> </tr> <tr> <td>Module 4 <u>236</u></td> <td>Module 4 _____</td> <td>Module 4 _____</td> </tr> <tr> <td>TOTAL <u>858</u></td> <td>TOTAL <u>N/A</u></td> <td>TOTAL <u>N/A</u></td> </tr> </table>	Plant 1	Plant 2	Plant 3	Module 1 <u>200</u>	Module 1 _____	Module 1 _____	Module 2 <u>192</u>	Module 2 _____	Module 2 _____	Module 3 <u>230</u>	Module 3 _____	Module 3 _____	Module 4 <u>236</u>	Module 4 _____	Module 4 _____	TOTAL <u>858</u>	TOTAL <u>N/A</u>	TOTAL <u>N/A</u>	<p>NOTES:</p> <p><i>This example depicts an added 40 minutes of battery discharge time after performing NTP-003, Steps 1-8. (Simplex Network) This is also a conservative extension due to the use of 1200 Amp hours in Step 6, Figure 1.</i></p>
Plant 1	Plant 2	Plant 3																	
Module 1 <u>200</u>	Module 1 _____	Module 1 _____																	
Module 2 <u>192</u>	Module 2 _____	Module 2 _____																	
Module 3 <u>230</u>	Module 3 _____	Module 3 _____																	
Module 4 <u>236</u>	Module 4 _____	Module 4 _____																	
TOTAL <u>858</u>	TOTAL <u>N/A</u>	TOTAL <u>N/A</u>																	
<p>2. Calculate total plant drain:</p> <table style="width: 100%;"> <tr> <td>TOTAL AMPS, Plant 1</td> <td><u>858</u></td> </tr> <tr> <td>Plus TOTAL AMPS, Plant 2</td> <td><u>-0-</u></td> </tr> <tr> <td>Plus TOTAL AMPS, Plant 3</td> <td><u>-0-</u></td> </tr> <tr> <td>equals TOTAL plant drain</td> <td><u>858</u></td> </tr> </table>	TOTAL AMPS, Plant 1	<u>858</u>	Plus TOTAL AMPS, Plant 2	<u>-0-</u>	Plus TOTAL AMPS, Plant 3	<u>-0-</u>	equals TOTAL plant drain	<u>858</u>	<p>7. Calculate reserve ampere hours remaining: Discharge time remaining (Step 5) <u>3:20</u> times original average current per string (Step 6) <u>262.5</u> equals reserve ampere hours remaining <u>840</u></p>										
TOTAL AMPS, Plant 1	<u>858</u>																		
Plus TOTAL AMPS, Plant 2	<u>-0-</u>																		
Plus TOTAL AMPS, Plant 3	<u>-0-</u>																		
equals TOTAL plant drain	<u>858</u>																		
<p>3. From Step 6, Power Plant Data Sheet, record original battery reserve hours: Original battery reserve hours equals <u>4:30</u></p>	<p>8. From Step 3, Power Plant Data Sheet, record number of battery strings for all plants: Number of strings equals <u>4</u></p>																		
<p>4. Record time equipment has been battery powered (time on battery discharge): Time on battery discharge equals <u>1:10</u></p>	<p>9. Calculate new average current per string: TOTAL plant drain (Step 2) <u>840</u> divided by number of strings (Step 8) <u>4</u> equals average current per string <u>210</u></p>																		
<p>5. Calculate amount of discharge time remaining: Original battery reserve hours (Step 3) <u>4:30</u> minus time on battery discharge <u>1:10</u> equals discharge time remaining <u>3:20</u></p>	<p>10. Calculate extended battery reserve hours: Reserve ampere hours remaining (Step 7) <u>840</u> divided by average current per string (Step 9) equals extended battery reserve hours <u>4</u></p>																		
<p>6. From Step 5, Figure 1, Power Plant Data Sheet, record original average current per string: Original average current per string equals <u>262.5</u></p>	<table style="width: 100%;"> <tr> <td><i>ORIG Battery Reserve Hours</i></td> <td style="text-align: right;">= <u>4:30</u></td> </tr> <tr> <td><i>Time-on-Battery Discharge</i></td> <td style="text-align: right;">= <u>1:10</u></td> </tr> <tr> <td><i>ORIG charge Time Remaining</i></td> <td style="text-align: right;">= <u>3:20</u></td> </tr> <tr> <td><i>Extended Battery Hours</i></td> <td style="text-align: right;">= <u>4:00</u></td> </tr> <tr> <td><i>Additional Battery Discharge Time</i></td> <td style="text-align: right;">= <u>:40</u></td> </tr> </table>	<i>ORIG Battery Reserve Hours</i>	= <u>4:30</u>	<i>Time-on-Battery Discharge</i>	= <u>1:10</u>	<i>ORIG charge Time Remaining</i>	= <u>3:20</u>	<i>Extended Battery Hours</i>	= <u>4:00</u>	<i>Additional Battery Discharge Time</i>	= <u>:40</u>								
<i>ORIG Battery Reserve Hours</i>	= <u>4:30</u>																		
<i>Time-on-Battery Discharge</i>	= <u>1:10</u>																		
<i>ORIG charge Time Remaining</i>	= <u>3:20</u>																		
<i>Extended Battery Hours</i>	= <u>4:00</u>																		
<i>Additional Battery Discharge Time</i>	= <u>:40</u>																		

EXAMPLE

Figure 3 – Extended Battery Reserve Calculations (Sheet 2 of 2)

Issue 3	JAN 1995
234-151-022	TAD
PAGE 7 of 7	100



NOTES

1. Estimated time until ac power is regained may change as time passes. Reports on power restoral should be constantly monitored. At any time ac power is restored, these procedures should be stopped and system restoral begun
2. All office backup tapes listed below should be verified as current:
 - Generic
 - ODA
 - NM
 - TOSL

Issue 3	JAN 1995
234-151-022	TAP
PAGE 1 of 1	101

WARNING: 140 volts dc is present. Use care to avoid shorts to ground

1. Remove and power down TSI-2, controller 1
 2. At rear of bay 1, at location shown in TABLE A for applicable frame type, take out two screws and remove protective plastic warning cover
 3. Connect plus (+) lead of DVM to unused fuse position per TABLE A and Figure 1
 4. Connect common (-) lead of DVM to unused comb pin per TABLE A and Figure 1
 5. Position DVM on converter housing unit so it can be easily read from front of frame
 6. Condition DVM to +300 volt dc scale and turn on
 7. Install 1/2 AMP, red, 70D-type fuse in fuse block at location per TABLE A
 8. Check that DVM reads 120 to 150 volts
 9. Power up controller and restore to service
- End of procedure

TABLE A		
FRAME	TSI-A	TSI-B
FUSE LOC	107-10-4T	107-13-4T

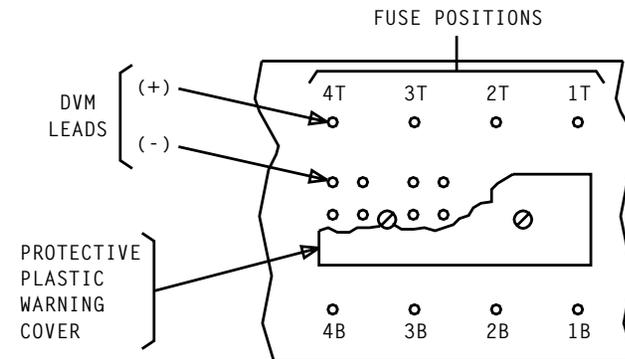


Figure 1 - DVM Connection Location

CONNECT DIGITAL VOLTMETER

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 1	500

NOTE: Removal of 300-MB, and 160-MB MHD (or SCSI drive) is covered in this element. If MHDs are in simplex mode and you are in process of powering down remaining disks, ignore system responses

1. At unit power switch located per TABLE A, operate **ROS/RST** switch to **ROS** position, and wait for **RMV COMPLETED** message

Response: **RMV COMPLETED** message received. Unit label indicates **OOS** or **OOS MAN. oos** and **ROS** LEDs lighted

2. On moving head disk (MHD) operator control panel, release **START** switch and wait 30 seconds

Response: **READY** or **START** lamp steady off

3. On power control unit (or in the case of SCSI, the MHD itself), depress **OFF** and **MOR** switches simultaneously

Response: Type 1 or 2 per TABLE B

4. At unit power switch located per TABLE A, depress **OFF** switch

Response: Major audible alarm and **REPT POWER DOWN** or **REPT UNAVAILABLE** message received at terminal display. MHD label indicates **UNAV** at power switch. **OFF** LED lighted

End of procedure

TABLE A		
UNIT	POWER SWITCH	FRAME
300-MB MHD 0	ED-4C194	MHD 0
300-MB MHD 1	ED-4C194	MHD 1
300-MB MHD 2	ED-4C194	MHD 2
300-MB MHD 3	ED-4C194	MHD 3
160-MB MHD 0	TN-2	MMD 0
160-MB MHD 1	TN-2	MMD 1
160-MB MHD 2	TN-2	MMD 0
160-MB MHD 3	TN-2	MMD 1
160-MB MHD 4	TN-2	MMD 0
160-MB MHD 5	TN-2	MMD 1

TABLE B	
TYPE	RESPONSE
1	Power control panel OFF and ALERT LEDs lighted
2	Output message received:* REPT POWER DOWN MHD a
*a = 0, 1, 2, or 3	

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 1	501

WARNING: 140 volts dc is present. Use care to avoid shorts to ground

1. In fuse block at location shown in TABLE A for applicable frame type, remove 1/2-ampere fuse
 2. Condition DVM to off
 3. Disconnect common (-) lead of DVM from comb pin location shown in Figure 1
 4. Disconnect plus (+) lead of DVM from fuse position at location shown in Figure 1
 5. Replace protective plastic warning cover
 6. Replace fuse cap in fuse block using dummy fuse plug
- End of procedure

TABLE A		
FRAME	TSI-A	TSI-B
FUSE LOC	107-10-4T	107-13-4T

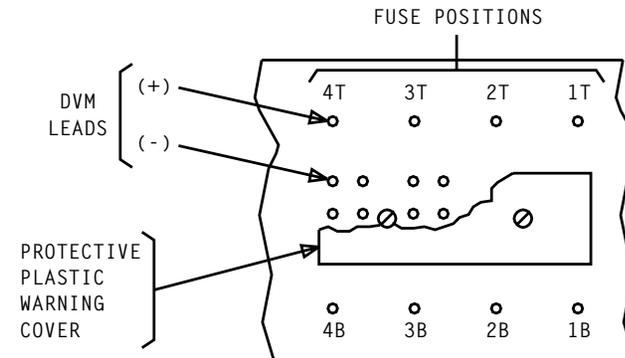


Figure 1 - DVM Connection Location

REMOVE DIGITAL VOLTMETER

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 1	502

1. Refer to TABLE A and locate fuse(s) for any converters with lighted LEDs

2. Remove associated fuse(s)

CAUTION: Be sure to replace fuses in sequence indicated

3. Replace fuse(s) removed in Step 2 in following sequence:

1. All Bxx fuses
2. All Cxx fuses

4. Check that all fuses have been replaced and all LEDs are extinguished; if not, replace fuse(s) and/or replace converter(s)

5. Restore matrix maintenance limit switch to **ALARM ENABLE** and rotate to **ALARM RETIRE** position

End of procedure

TABLE A		
CONVERTER LOCATION	ASSOCIATE FUSES	
	NAME	NAME
12-02	BA0	CA0
12-05	BBO	CBO
12-08	BC0	CC0
12-11	BDO	CDO
12-14	BE0	CE0
12-17	BFO	CFO
12-20	BGO	CGO
12-23	BHO	CHO

RESTORE POWER TO FRAME(S) IF SP TYPE IS SP 1 WITH SCANNER AND DISTRIBUTOR FRAME(S)

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 1	503

At 3B computer MCRT:

1. On terminal display Page 102, type message indicated in TABLE A for appropriate unit

NOTE: All subunits removed from service before unit
RMV COMPLETED message received

Response: Minor audible alarm.
RMV COMPLETED message received.
Unit label indicates OOS MAN.
OOS LED lighted on unit power switch

2. At unit power switch, located per TABLE B, Page 2, operate OFF switch.

Response: Shown in TABLE C, Page 2

End of procedure

TABLE A	
UNIT	INPUT MESSAGE*
CU	RMV:CU a!
DFC	RMV:DFC a!
DUIC	RMV:DUIC a!
IOP	RMV:IO/Pa!
MHD	RMV:MHD a!
MTC	RMV:MTC a!
MTTYC	RMV:MTTYC a!
SCSDC	RMV:SCSDC a!
SDLC	RMV:SDLC a!
TTYC	RMV:TTYC a!
*a = faulty unit member number	
Legend: CU = Control unit DFC = Disk file controller DUIC = Direct user interface controller IOP = Input/output processor MHD = Moving head disk MTC = Magnetic tape controller MTTYC = Maintenance TTY controller SCSDC = Scanner and signal distributor controller SDLC = Synchronous data link controller TTYC = TTY controller	

**REMOVE 3B COMPUTER UNIT FROM SERVICE VIA INPUT MESSAGE AND
REMOVE POWER**

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 2	504

TABLE B		
UNIT	POWER SWITCH	PC FRAME
CU 0	TN-5	Bay 0
CU 1	TN-5	Bay 1
DFC 0	TN-6	Bay 0
DFC 1	TN-6	Bay 1
IOP 0	TN-6	Bay 0
IOP 1	TN-6	Bay 1
Legend: CU = Control unit DFC = Disk file controller IOP = Input/output processor PC = Processor control		

TABLE C	
ITEM	RESPONSE
1	Major audible alarm
2	REPT:POWER DOWN message received
3	At terminal display, Page 102, unit label indicates UNAV or OOS
4	At unit power switch, OFF LED lighted

REMOVE 3B COMPUTER UNIT FROM SERVICE VIA INPUT MESSAGE AND REMOVE POWER

Issue 3	JAN 1995
234-151-022	DLP
PAGE 2 of 2	504

1. At unit power switch located per TABLE A, operate **ON** switch

Response: REPT:POWER UP message received.
 At terminal display Page 102, unit label indicates OOS or OOS MAN. At unit power switch, **OOS** LED lighted

2. If unit is MHD, at MHD operator control panel, depress **START** key

Response: **START** or **READY** lamp lighted in 30 seconds

3. On terminal display Page 102, type message indicated in TABLE B, Page 2

NOTE: All subunits except input/output processor subunits restored to service before RST:COMPLETED message received

Response: RST:COMPLETED UP message received.
 Unit label indicates ACT (CU indicates STBY). **OOS** LED off at unit power switch

End of procedure

TABLE A		
UNIT	POWER SWITCH	FRAME
CU-0	TN-5	PC bay 0
CU-1	TN-5	PC bay 1
DFC-0	TN-6	PC bay 0
DFC-1	TN-6	PC bay 1
IOP-0	TN-6	PC bay 0
IOP-1	TN-6	PC bay 1
MHD-0	ED-4C194	MHD-0
MHD-1	ED-4C194	MHD-1
MHD-2	ED-4C194	MHD-2
MHD-3	ED-4C194	MHD-3
Legend: CU = Control unit DFC = Disk file controller IOP = Input/output processor MHD = Moving head disk PC = Processor control		

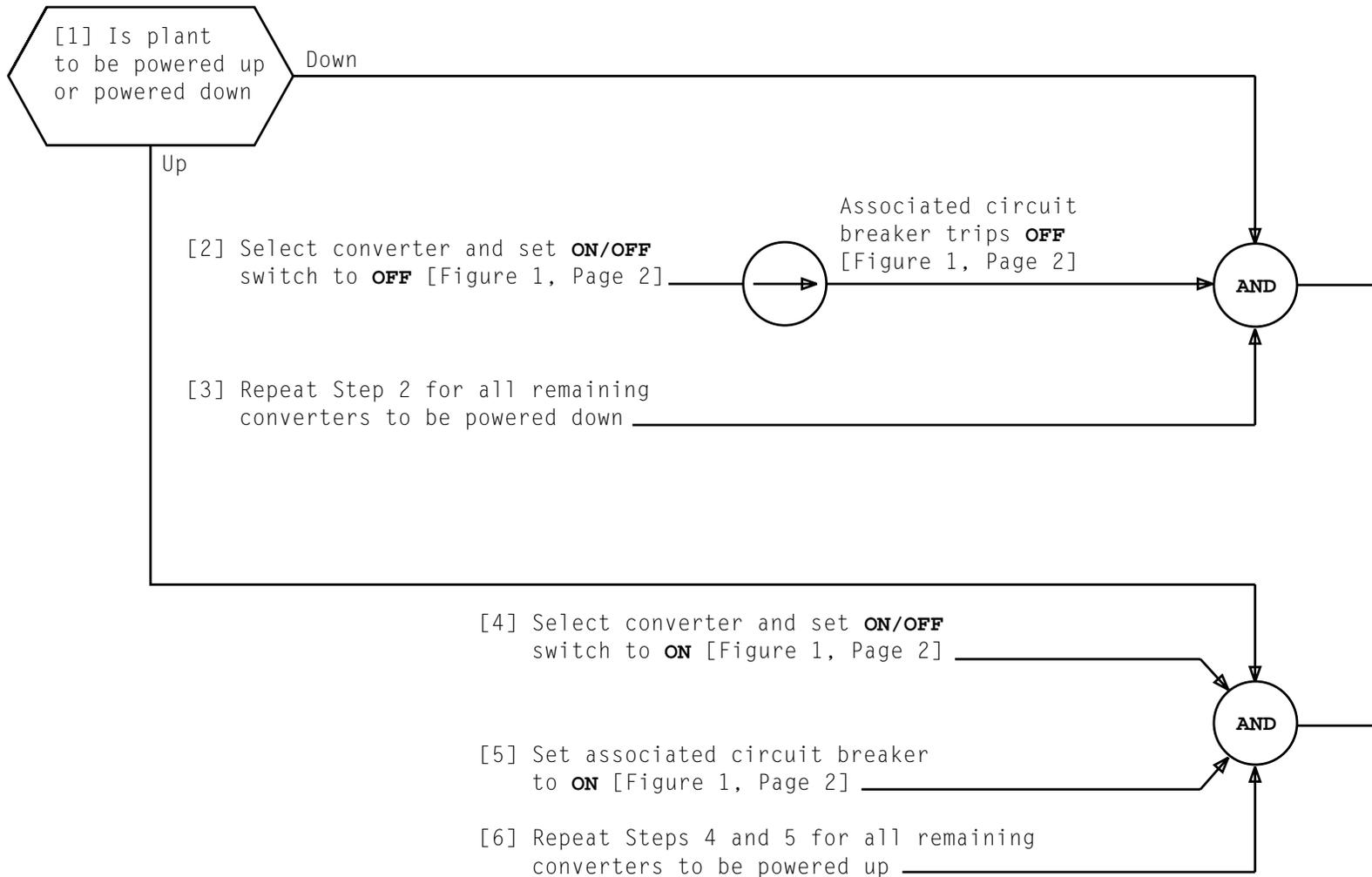
RESTORE POWER TO 3B COMPUTER UNIT AND RESTORE SERVICE USING INPUT MESSAGES

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 2	505

TABLE B	
UNIT	INPUT MESSAGE*
CU	RST:CU a!
DFC	RST:DFC a!
DUIC	RST:DUIC a!
IOP	RST:IO/Pa!
MHD	RST:MHD a!
MTC	RST:MTC a!
MTTYC	RST:MTTYC a!
SCSDC	RST:SCSDC a!
SDLC	RST:SDLC a!
TTYC	RST:TTYC a!
*a = faulty unit member number	
Legend: CU = Control unit DFC = Disk file controller DUIC = Direct user interface controller IOP = Input/output processor MHD = Moving head disk MTC = Magnetic tape controller MTTYC = Maintenance TTY controller SCSDC = Scanner and signal distributor controller SDLC = Synchronous data link controller TTYC = TTY controller	

RESTORE POWER TO 3B COMPUTER UNIT AND RESTORE SERVICE USING
INPUT MESSAGES

Issue 3	JAN 1995
234-151-022	DLP
PAGE 2 of 2	505



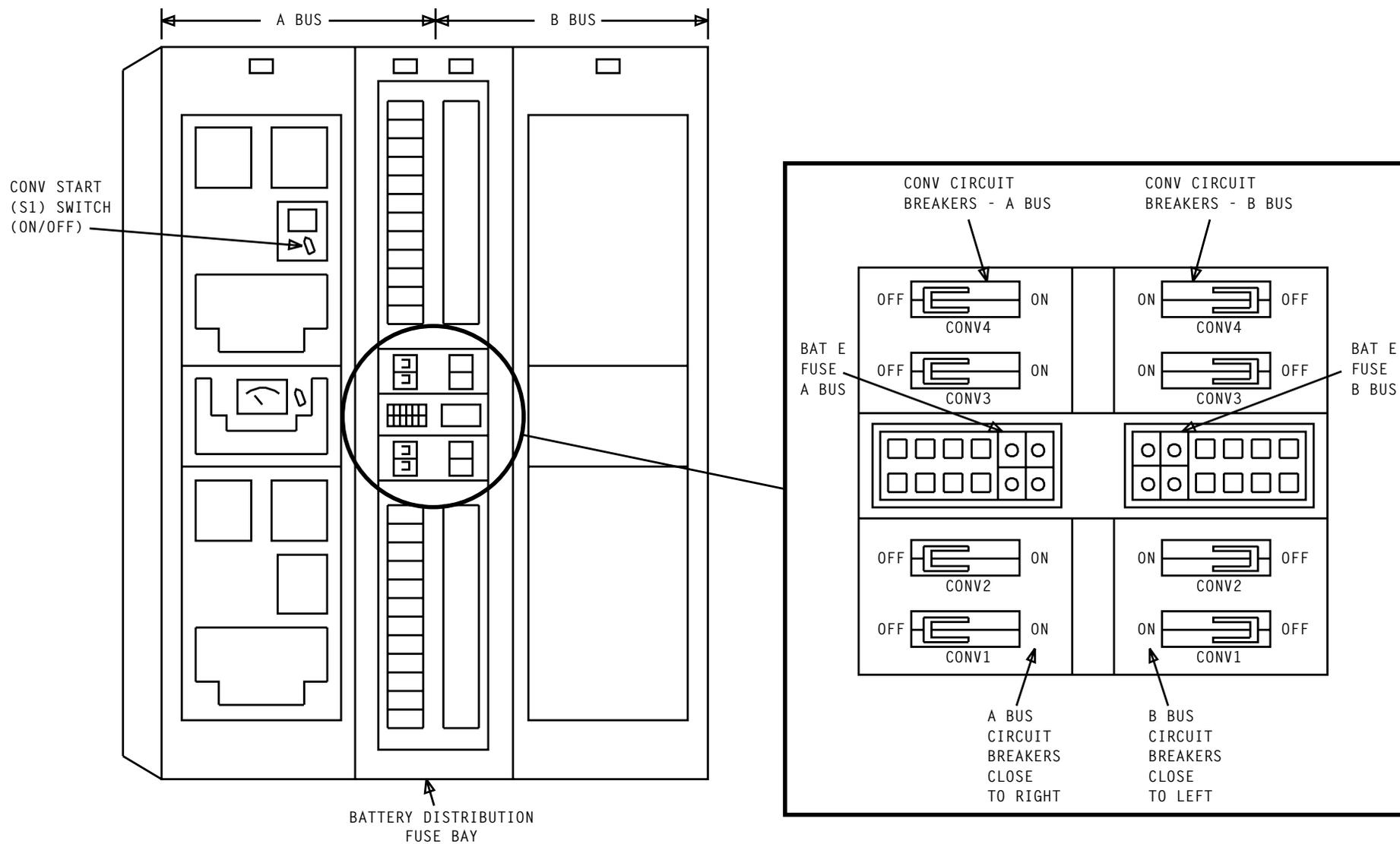
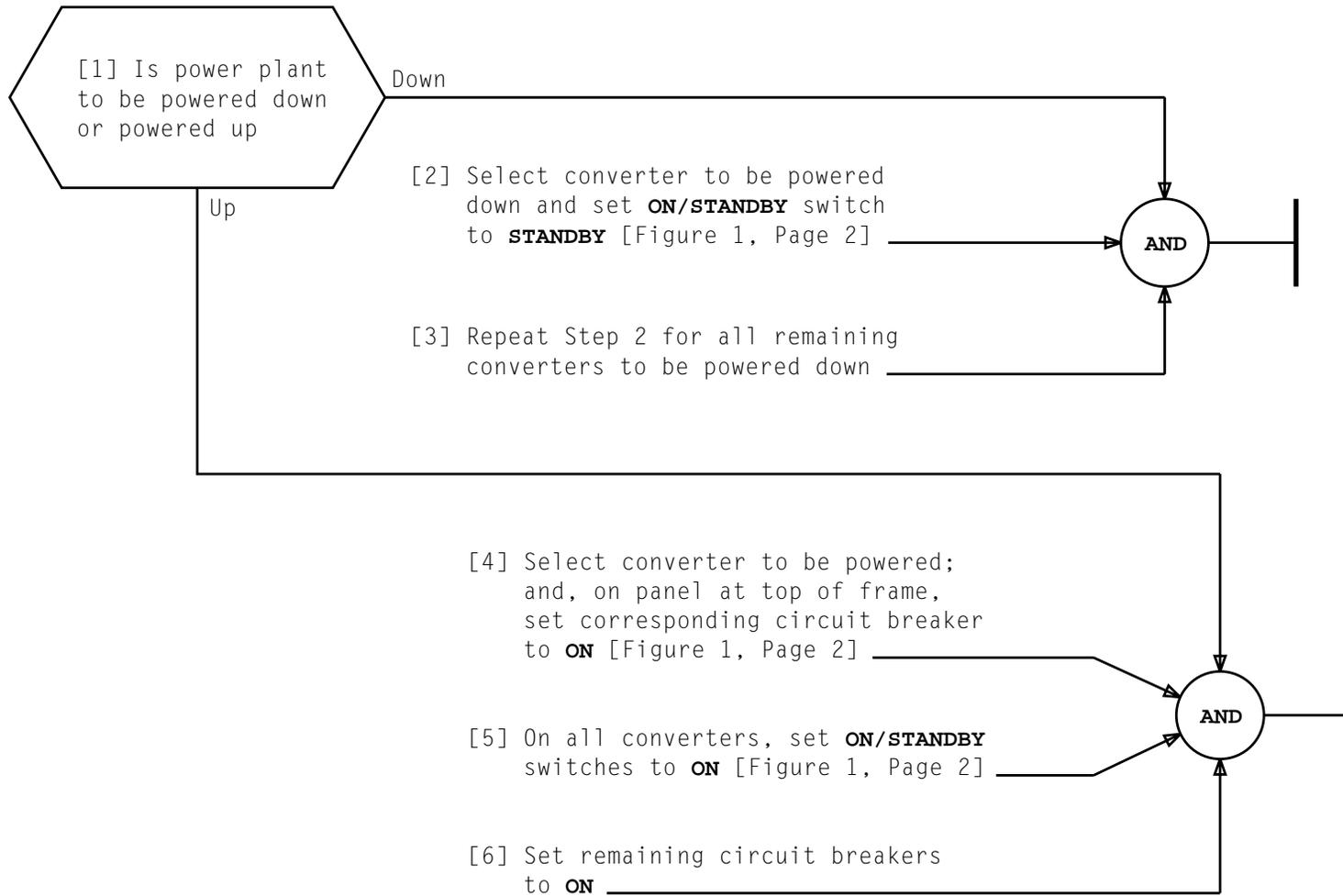


Figure 1 - 620A Power Plant-Front View

Issue 3	JAN 1995
234-151-022	DLP
PAGE 2 of 2	506



POWER DOWN OR POWER UP 620C (24 V) OR 625C (-48 V) POWER PLANT

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 2	507

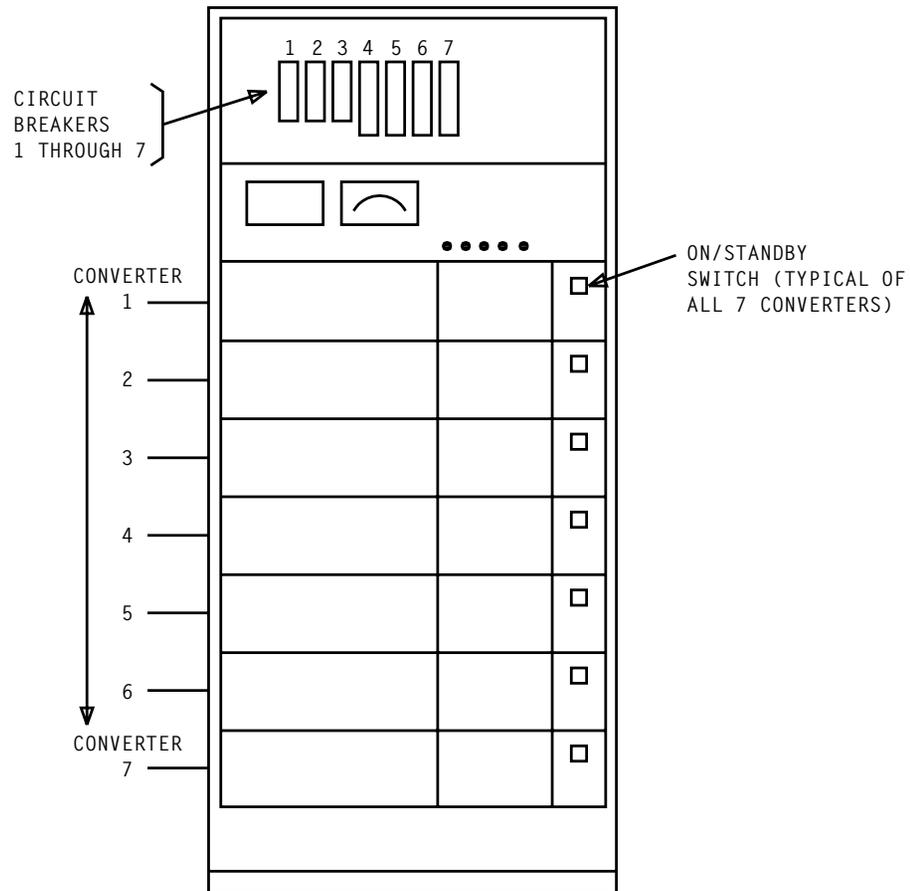


Figure 1 - 620C/625C Power Plant

POWER DOWN OR POWER UP 620C (24 V) OR 625C (-48 V) POWER PLANT

Issue 3	JAN 1995
234-151-022	DLP
PAGE 2 of 2	507

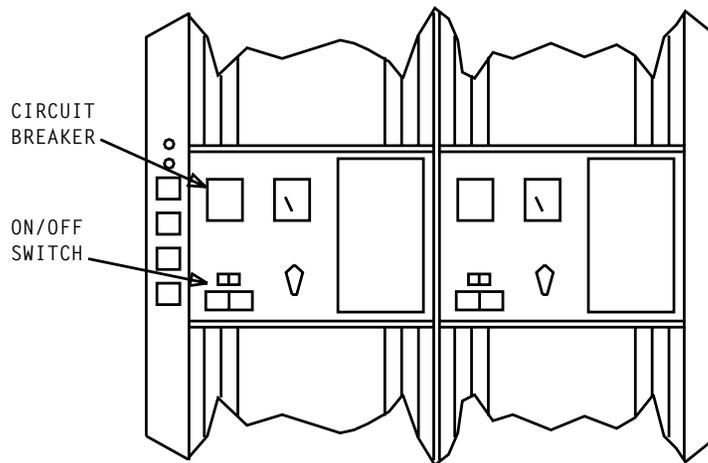
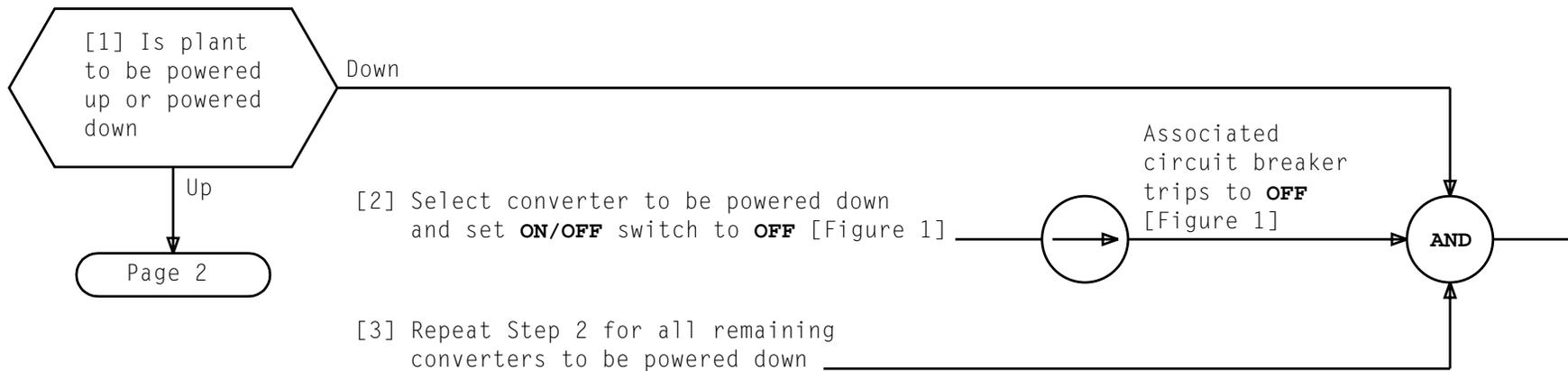


Figure 1 - 625B Power Plant Converter Control Panel

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 2	508

4. Select converter to be powered up and set **ON/OFF** switch to **ON** [Figure 1, Page 1]

5. Set converter circuit breaker to **ON** [Figure 1, Page 1]

6. Repeat Steps 4 and 5 for all remaining converters to be powered up

End of procedure

POWER DOWN OR POWER UP 625B (-48 V) POWER PLANT

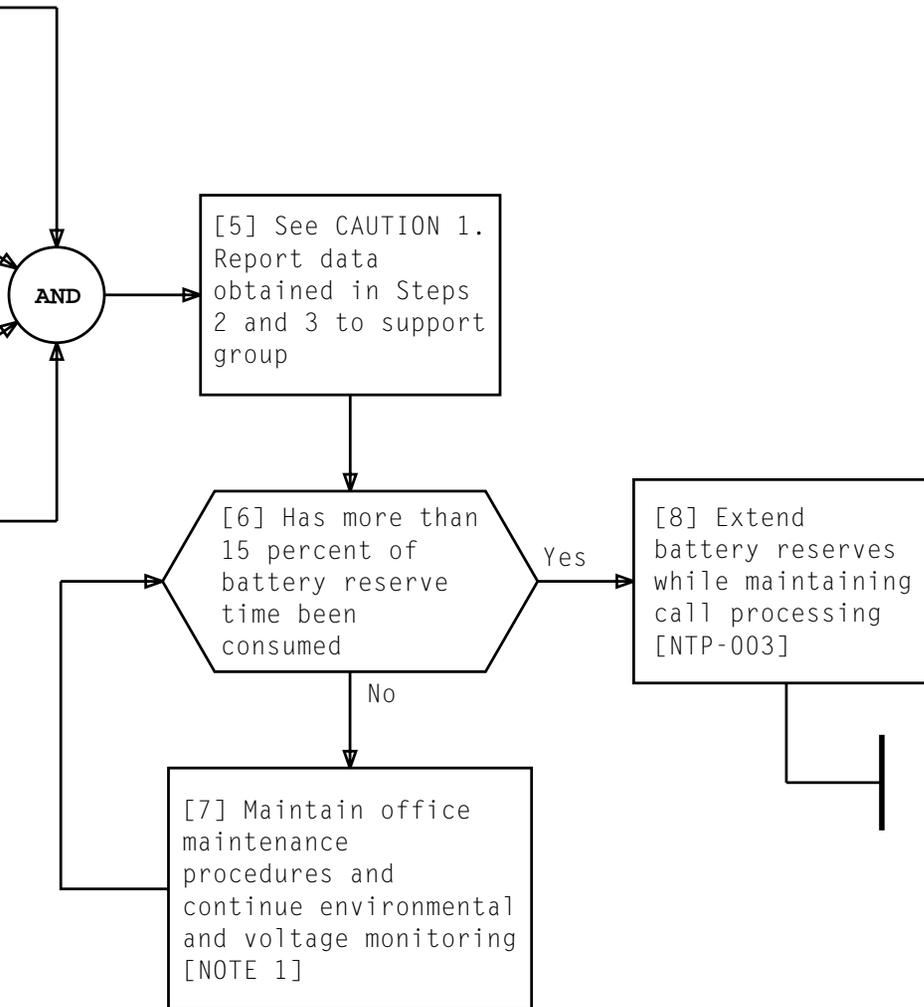
Issue 3	JAN 1995
234-151-022	DLP
PAGE 2 of 2	508

[1] Connect battery-operated digital voltmeter (DVM) between +140 volt and +140 volt return at TSI-2, controller 1 [DLP-500]

[2] Obtain 15 percent of battery reserve time from Power Plant Data Sheet [TAD-100, Figure 3, Page 5] located at maintenance control console

[3] On FORM A, record DVM readings every 15 minutes [TAD-100, Figure 2]

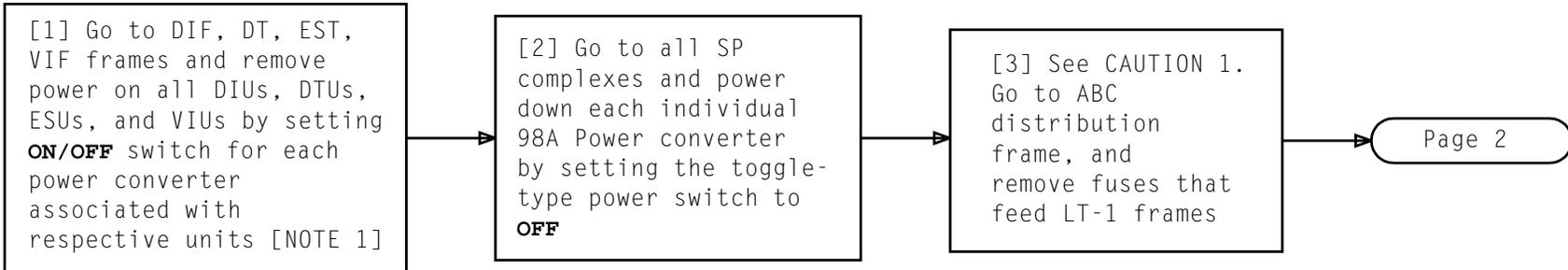
[4] On FORM A, record temperature and humidity readings every 30 minutes [TAD-100, Figure 2, Page 4]



NOTE 1
 You should become familiar with extend battery reserves procedures [NTP-003] in anticipation of reaching 15 percent reserve point

CAUTION 1
At any time ac power is restored, these procedures should be stopped and office restoration procedures begun

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 1	509



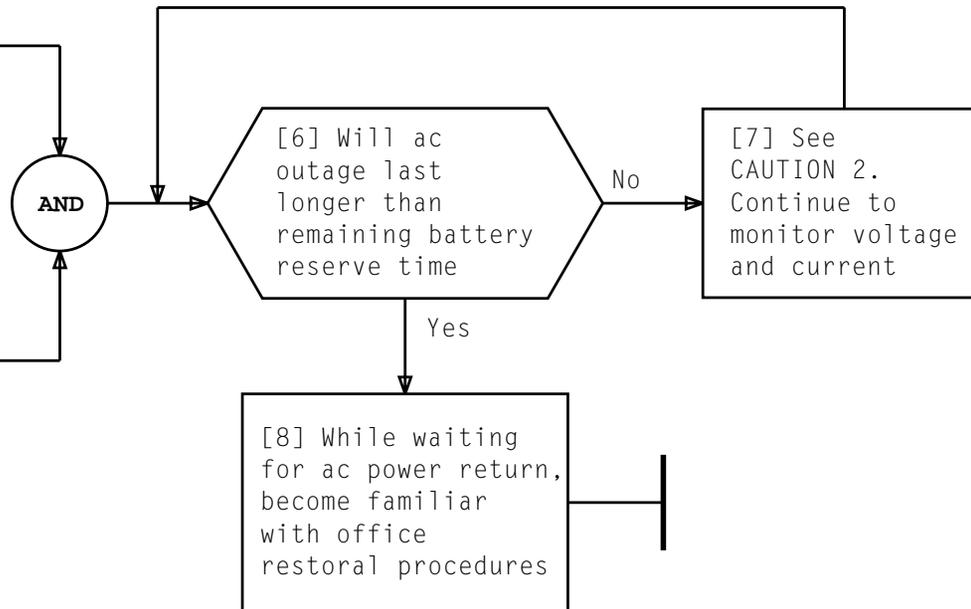
NOTE 1
 Powering down these units has a direct and significant impact on the system, dependent upon office equipage. For example, units of a fully equipped DIF represent a 10-amp 140-V load. Removal of power from these units slows down office restoration

*CAUTION 1
 These are the only fuses to be removed from machine throughout the entire procedure*

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 2	510

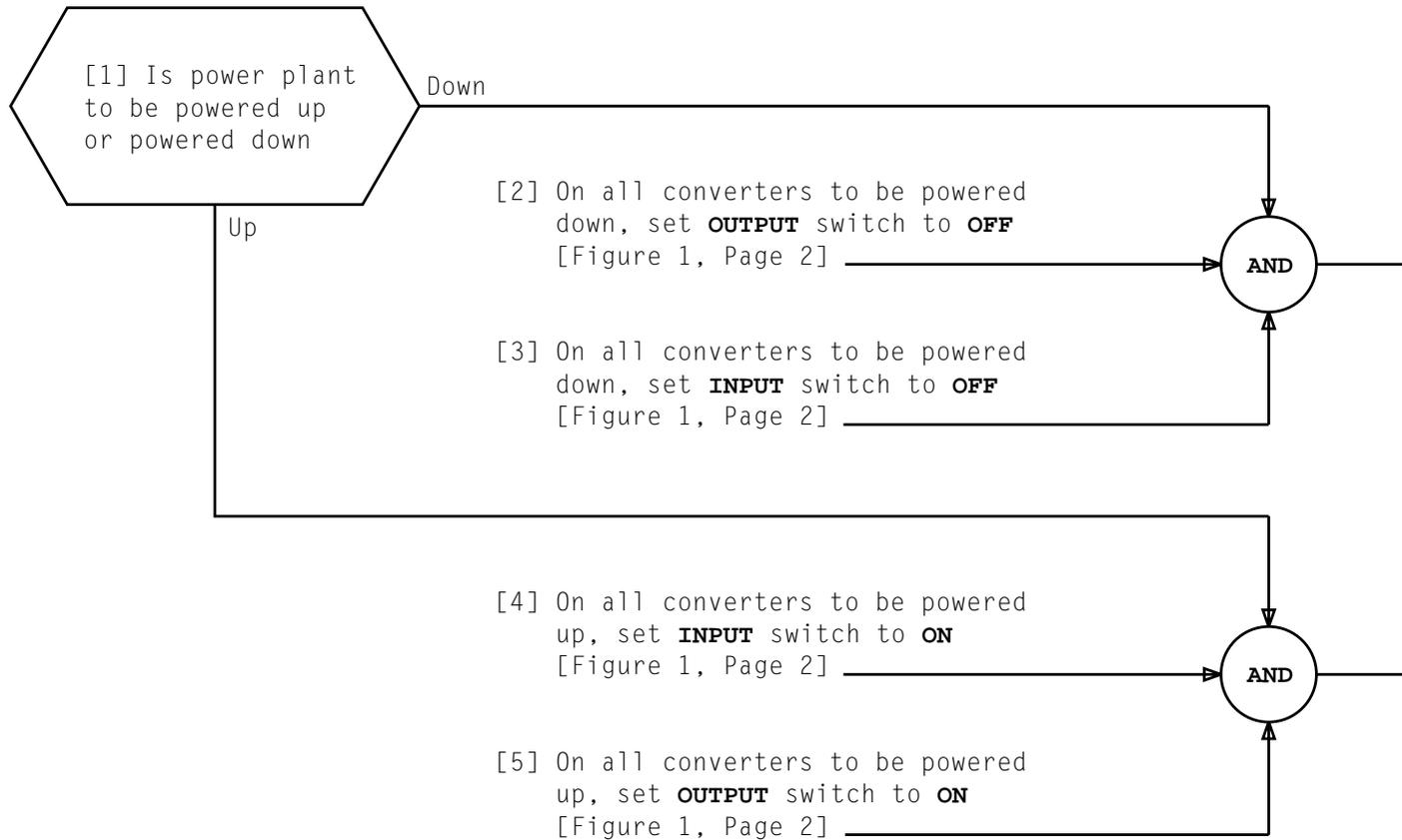
[4] Obtain and record reading from DVM

[5] Using FORM B, record new total current drains on all 415 power distribution modules, and report them to on-line support group [TAD-100, Figure 3, Page 6]



CAUTION 2
At any time ac power is restored, abort these procedures immediately and begin powerup process

Issue 3	JAN 1995
234-151-022	DLP
PAGE 2 of 2	510



POWER DOWN OR POWER UP 611N (-48 V) POWER PLANT

Issue 3	JAN 1995
234-151-022	DLP
PAGE 1 of 2	511

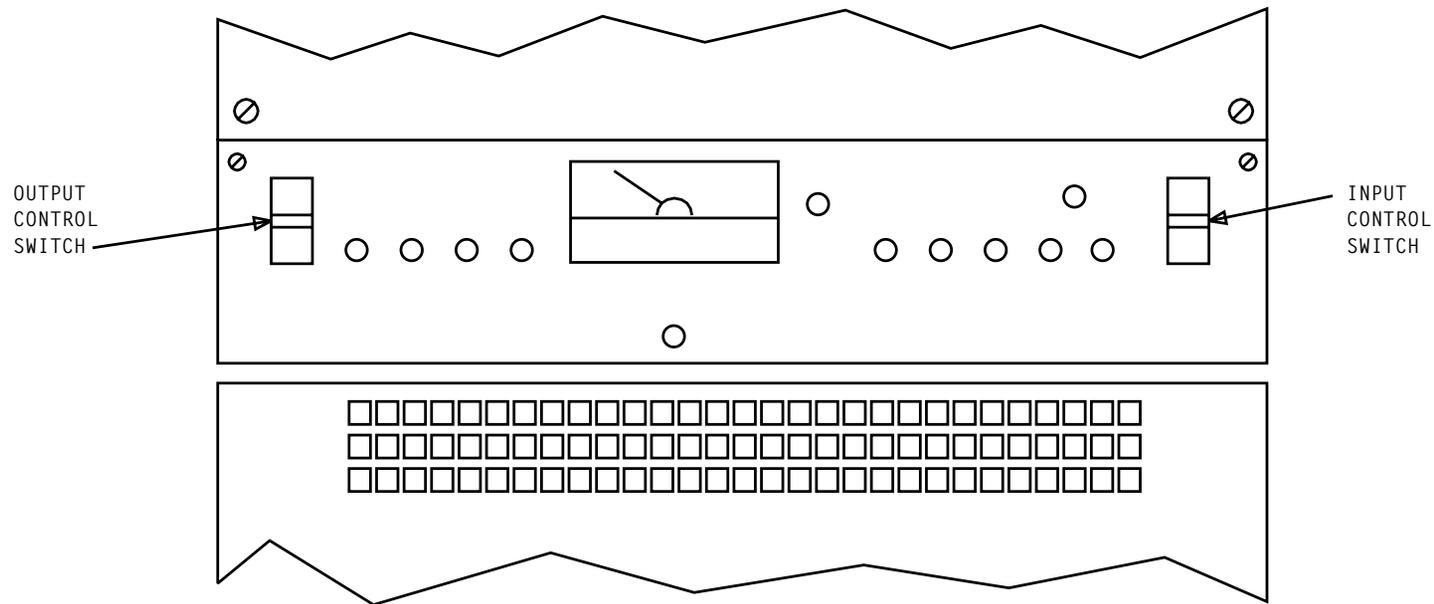


Figure 1 - 611N Power Plant - 48-V Converter

POWER DOWN OR POWER UP 611N (-48 V) POWER PLANT

Issue 3	JAN 1995
234-151-022	DLP
PAGE 2 of 2	511

ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE	ITEM	ISSUE
IXL-001 NTP-002 • NTP-003 • NTP-004 NTP-005											
NTP-006 NTP-007 NTP-008 • NTP-009 NTP-010											
• TAD-100 TAP-101 DLP-500 DLP-501 DLP-502											
DLP-503 DLP-504 DLP-505 DLP-506 DLP-507											
DLP-508 DLP-509 • DLP-510 DLP-511 • CKL-891											
TNG-893											

• REVISED OR ADDED ITEM

CANCELED ITEM

Issue 3 | JAN 1995

234-151-022 | CKL

PAGE 1 of 1 | 891

CHECKLIST