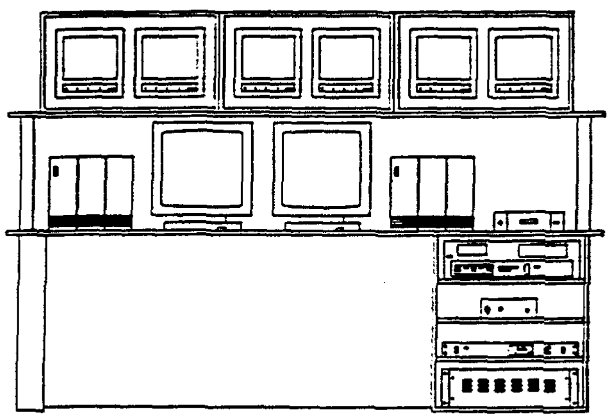
TECHNICAL MANUAL

UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL

TOOLS LIST

FOR THE

INTEGRATED COMMERCIAL INTRUSION DETECTION SYSTEM (ICIDS)



OPERATOR
WORK STATION

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HEADQUARTERS, DEPARTMENT OF THE ARMY

28 FEBRUARY 1995

WARNING

To avoid injury when replacing the printhead, be sure the printer is turned off and the power cord and interface cable disconnected. If the printer has been used recently, the printhead may be hot to the touch. Let it cool before attempting to replace it, or severe burns could result.

To avoid injury when cleaning equipment, be sure that it is turned off and power cord is disconnected.

Denatured alcohol is flammable. Keep all flammable cleaning materials away from open flames. Failure to do so could result in serious injury or death.

The batteries used in the Uninterruptible Power Supply (UPS) system are capable of producing dangerous voltages and extremely high currents. They may cause severe injury if terminals are shorted together or to ground (earth). Extreme care must be taken to avoid electrical shock and bums from contacting battery terminals or shorting terminals during battery installation or maintenance.

To avoid serious injury when working with batteries, wear protective clothing and eye wear. Batteries contain caustic acids and toxic materials and can rupture or leak if mistreated. Remove rings and metal wristwatches or other metal objects and jewelry.

Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds by yourself. Get an assistant. Bend legs while lifting. Don't support heavy weight with your back.

Always use assistants during lifting operations. Use guide ropes to move hanging assemblies.

A lack of attention or being in an improper position during lifting operations can result in serious injury or death. Pay close attention to movements of assemblies being lifted. Do not stand under lifted assembly or in a position where you could be pinned against another object. Watch your footing. The chemicals used in maintenance procedures (such as solvents, primers, paints, and lubricants) may present fire or chemical hazards if used without proper precautions. Observe manufacturers warning labels and the warnings and cautions contained in this manual. Ensure sufficient ventilation exists, protective clothing and equipment is used, and sources of ignition are removed.

High voltage is used in the operation of this equipment. Serious injury or death may result if personnel fail to observe safety precautions. Learn the areas containing high voltage in each component. Be careful not to contact high voltage connections when installing, operating, or maintaining this equipment. When the nature of the operation permits, disconnect equipment from power source before beginning troubleshooting or maintenance procedures. Do not work on live electrical equipment unless there is another person nearby who is familiar with operation and hazards of the equipment and who is competent in administering first aid. When possible, keep one hand away from equipment to reduce hazard of current flowing through vital organs of the body. Remove all jewelry from fingers, wrists, and neck before working on live electrical components.

TECHNICAL MANUAL

No. 5-6350-275-24&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON D.C., 28 February 1995

UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOL LIST FOR INTEGRATED COMMERCIAL INTRUSION DETECTION SYSTEM (ICIDS)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Write a letter or complete and mail a DA Form 2028, Recommended Changes to Publications and Blank Forms, directly to: Commander, Belvoir Research. Development and Engineering Center, Physical Security Management Office, ATTN: AMSAT-I-WTP, 10101 Gridley Road, STE 104. Ft. Belvoir, VA 22060-5818. A reply will be provided to you.

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TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF ILLUSTRATIONS

TABLE OF CONTENTS (Continued)

LIST OF ILLUSTRATIONS (Continued)

TABLE OF CONTENTS (Continued)

LIST OF ILLUSTRATIONS (Continued)

Figure **Page**

TABLE OF CONTENTS (Continued)

LIST OF ILLUSTRATIONS (Continued)

LIST OF FOLDOUTS

LIST OF TABLES

HOW TO USE THIS MANUAL

READ THIS SECTION BEFORE USING THIS MANUAL. This manual covers information about the Integrated Commercial Intrusion Detection System (ICIDS) that a maintenance person should be familiar with to perform efficiently. This ICIDS equipment comes in a variety of sensor configurations, depending on the needs of a given site. Therefore, the maintenance person should be familiar with the site's configuration and use the right information in this manual.

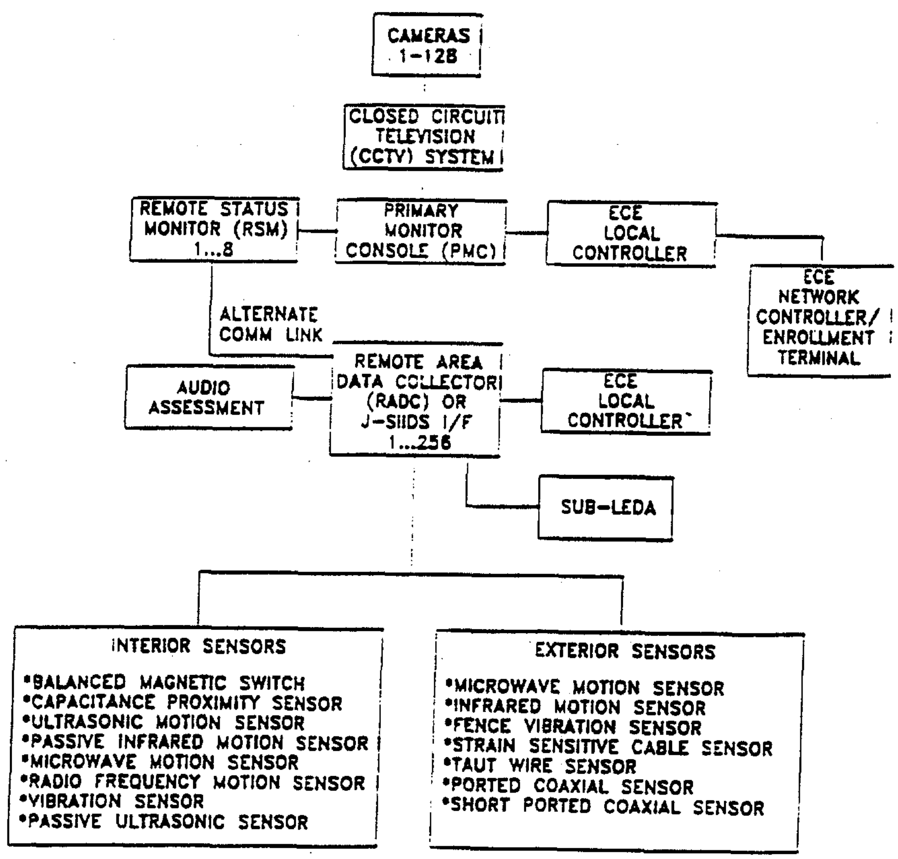
The front cover has an index of boxed in topics that illustrates the sections that are most frequently used. The black bleeder edges of the pages provide you with a quick way to get to the needed material. Be sure to familiarize yourself with this ready reference approach.

This manual provides you with general and specific information about the ICIDS equipment and the basic principles of operation. Instructions for maintenance of the ICIDS follow. The information covers equipment description and data, principles of operation, preventive maintenance, troubleshooting procedures, and removal and replacement procedures. A section is also included that provides procedures for Starpin Keypad operation and for sensor alignment. General maintenance instructions are also provided for routine maintenance of the ICIDS.

The appendixes provide additional information, including a Maintenance Allocation Chart (MAC), Repair Parts and Special Tool List, and Expendable/Durable Items List, which you will find handy after you've become familiar with the equipment.

NOTE:

It is intended that the ICIDS Operator Manual, TM 5-6350-275-10, will be used in conjunction with this manual.



ICIDS Components

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE.

a. Type of Manual: Unit, Direct Support and General Support Maintenance Manual Including Repair Parts and Special Tools List.

b. Equipment Name: Integrated Commercial Intrusion Detection System (ICIDS).

c. Purpose of Equipment: Detects unauthorized intrusions, and generates alarms upon unauthorized entry into secured areas by use of various sensors.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by The Army Maintenance Management System, DA PAM 738-750.

1-3. CORROSION PREVENTION AND CONTROL (CPC). Corrosion Prevention and Control (CPC) of Army material is a continuing concern. It is important that any corrosion problems with this equipment be reported so the problem can be corrected and improvements can be made to prevent the problem in future items.

a. While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials. such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be symptoms of a corrosion problem.

b. If a corrosion problem is identified, it can be reported using Standard Form 368, Product Quality Deficiency Report. Use of key words such as "corrosion", "rust", "deterioration", or "cracking" will assure that the information is, identified as a CPC problem.

c. This form should be submitted to: Commander, U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MDO, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798.

1-4. DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE. For this unclassified document, destroy by any method that will prevent disclosure of contents or reconstruction of the document. Refer to TM 750-244-3 for instructions covering destruction of Army material to prevent enemy use.

1-5. PREPARATION FOR STORAGE OR SHIPMENT. Refer to Chapter 2, Section VII.
Preparation for storage or shipment.

1-6. QUALITY ASSURANCE. Quality Assurance (QA) has been performed on this manual in accordance with MIL-M-85337A (NAVY) and MIL-M-63038C (TM).

1-7. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR). If your ICIDS needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MDO, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798.

1-8. WARRANTY INFORMATION. Purchased contractor support includes warranty on all parts and equipment for a period of one year after installation or government acceptance. Check with your supervisor for more details.

1-9. CALIBRATION. There is no calibration required for the Integrated Commercial Intrusion Detection System (ICIDS).

1-10. NOMENCLATURE CROSS-REFERENCE LIST.

Common Name	Official Name
Cluster	Operator Workstation
Data Acquisition System	Data Encryption System
Door/Window/Turnstile	Portal
ICIDS	Integrated Commercial Intrusion Detection System
Map	Graphic
Mimic	Graphic
Multiplexer	Digital Multiplexer, Audio Multiplexer
PIC	Personnel Identification Cipher
Picture	Graphic
PIN	Personnel Identification Number
Poke	Arrow keys
Profile	Record
Server	Computer (PMC)
Starlink	Keypad
Starpin	Keypad
Upset	Alarm
Video Cassette (or Tape) Recorder	Video Storage and Playback Equipment

1-11. LIST OF ABBREVIATIONS/ACRONYMS

AAD	Audio Assessment Devices
AAL	Additional Authorization List
AC	Alternating Current
Acc DN	Access Denied
Acc IN	Access Inhibited
ACCLEV	Access Level
ACK	Acknowledge
AckAlm	Acknowledged Alarm
ACNTIN	Auto Control Inhibited
Admin	Administration
AGC	Automatic Gain Control
Ah	Ampere hour
ALM DI	Alarm Disabled
ALM EN	Alarm Enabled
ALM IN	Alarm Inhibited
Amp	Amplifier
Amps	Amperes
ATTRS	Attributes
BADPIN	Bad Personnel Identification Number
BII	Basic Issue Items
BMS	Balanced Magnetic Sensor
BMS	Balanced Magnetic Switch
bps	bits per second
CCD	Charged Coupled Device
CCDS	Command, Control, and Display System
CCTV	Closed Circuit Television
CHRON	Chronological
CNTIN	Control Inhibited
CNTL	Control
COEI	Components of End Item
CPC	Corrosion Prevention and Control
CPI	Characters Per Inch
CPS	Capacitance Proximity Sensor
CPU	Central Processing Unit
DAS	Data Acquisition System
DAU	Data Acquisition Unit
db	Decibels
DCX	Data Communications Expansion Module
DES	Data Encryption System
DISPQ	Display Queue
DLOAD	Download
DR AJR	Door Ajar
DR FCD	Door Forced
ECE	Entry Control Equipment
EIPS	Exterior Infrared Perimeter Sensor
EIR	Equipment Improvement Recommendation
EMMS	Exterior Microwave Motion Sensor
FEP	Front End Processor
FMVS	Fence Mounted Vibration Sensor
FO	Fiber Optic
fwd	forward
Ho Pot	Horizontal phase adjustment
H-Hold	Horizontal hold

H-Phase	Horizontal phase
H-Pos	Horizontal positioning
H-Size	Horizontal size
IAC	Intelligent Access Controller
IAU	Intelligent Access Unit
ICIDS	Integrated Commercial Intrusion Detection System
ICS	Intelligent Control Switch
INCID	Incident
J-SIIDS	Joint-Services Interior Intrusion Detection System
kb	kilobyte
kbyte	kilobyte
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light emitting diode
LIU	Line Interface Unit
LPMC	Large Primary Monitor Console
ma	Milliampere
Mb	Megabyte
Mbyte	Megabyte
Mhz	Megahertz
Mic	Microphone
mm	millimeter
MMS	Microwave Motion Sensor
Mux	Multiplexer
OFFNOR	Off Normal
OPS	Operations
OVIEW	Overview
PCCS	Ported Coaxial Cable Sensor
PIC	Personnel Identification Cipher
PICT	Picture
PIMS	Passive Infrared Motion Sensor
PIN	Personnel Identification Number
PMC	Primary Monitor Console
PMCS	Preventive Maintenance, Checks, and Services
Prev	Previous
Pri. Acc. Lev.	Primary Access Level
PRIOR	Priority
PROCED	Procedure
PS	Power Supply
PSTN	Public Switched Telephone Network
PUS	Passive Ultrasonic Sensor
PV	Passback violation
PWA	Printed Wiring Assembly
QIC	Quarter Inch Cassette
RADC	Remote Area Data Collector
RAM	Random Access Memory
Rec	Record
Recon	Reconfiguration
RFMS	Radio Frequency Motion Sensor
RSM	Remote Status Monitor
RTU	Remote Terminal Unit
SCADA	Security Control and Data Acquisition
SCϕ	Subcarrier Phase
Sec. Acc. Lev.	Secondary Access Level
Sel	Select

SICM	Select intercom mode
SPCCS	Short Ported Coaxial Cable Sensor
SPMC	Small Primary Monitor Console
SSCFS	Strain Sensitive Cable Fence Sensor
STN	Station
stn(s)	station or stations
SUMMRY	Summary
TOF	Top of Form
TWFS	Taut Wire Fence Sensor
UMS	Ultrasonic Motion Sensor
UNACK	Unacknowledged
UNK CD	Unknown Card
UPS	Uninterruptible Power Supply
vac	Volts Alternating Current
V-Center	Vertical Center
VCR	Video Cassette Recorder
vdc	Volts Direct Current
VDU	Video Display Unit
VGA	Video Graphics Adapter
V-Hold	Vertical Hold
V-Pos	Vertical Positioning
VTR	Video Tape Recorder
VS	Vibration Sensor
V-Size	Vertical Size

1-12. GLOSSARY. A glossary of terms is provided starting on page Glossary-1.

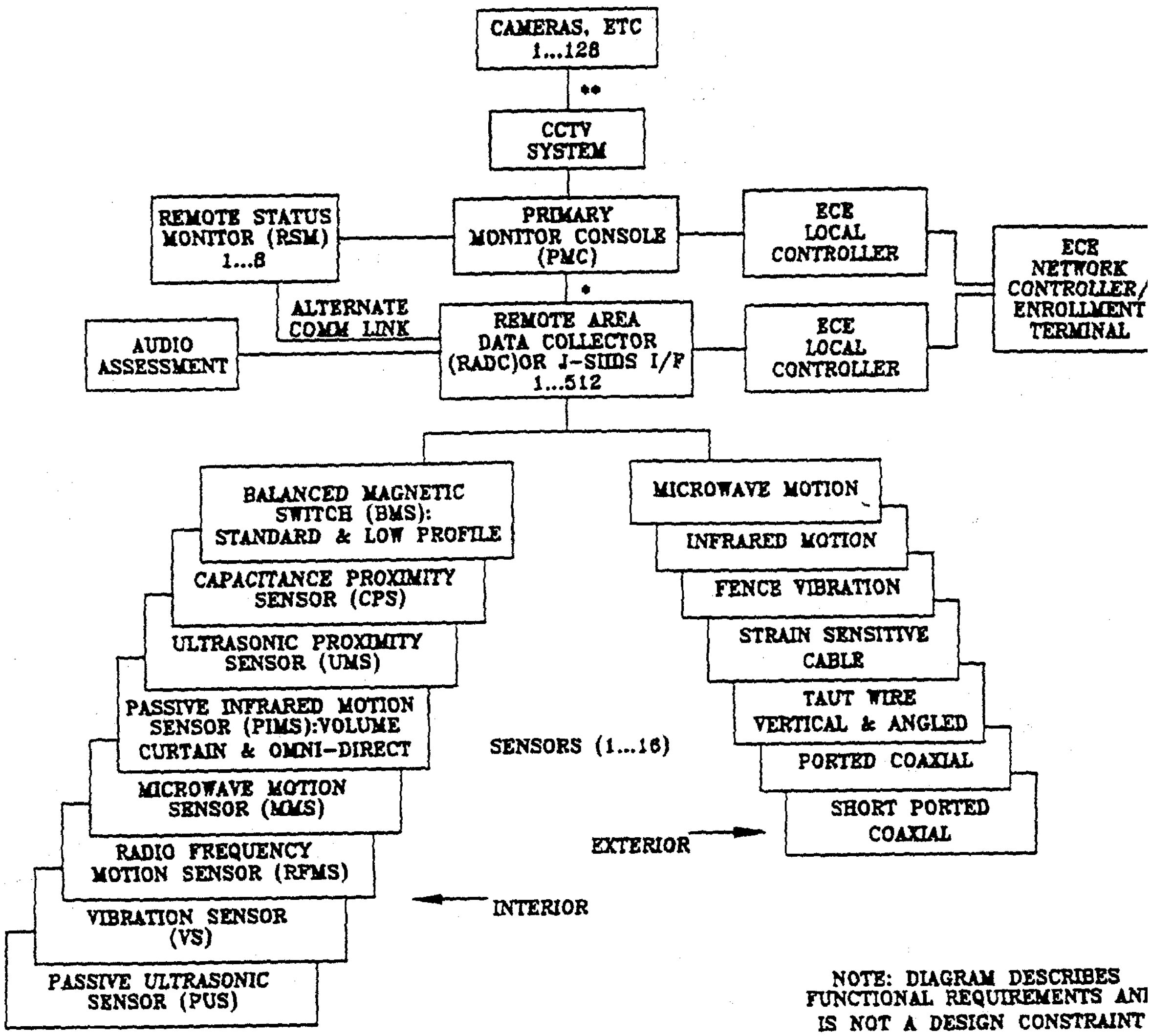
Section II. EQUIPMENT DESCRIPTION AND DATA

1-13. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.
The Integrated Commercial Intrusion Detection System (ICIDS) is a system that provides effective security for certain areas and facilities on a Government installation. ICIDS provides this security by monitoring and controlling personnel entry into these areas and facilities. Sensor devices are part of ICIDS and are used to monitor and detect attempts at unauthorized entry. When the sensors detect intrusions, they generate alarms for the !CIDS operator, who can then take action. ICIDS helps to provide a secure environment on a Government installation and to reduce the need for security patrols and physical checks. Note that ICIDS equipment is installed to meet the unique requirements of individual sites. Therefore some of the optional equipment may not have been installed at your particular site. Figure 1-1 illustrates a typical ICIDS configuration. ICIDS is divided into seven functional areas as follows:

a. Primary Monitor Console (PMC). The control center that monitors intrusion detection devices. The primary monitor console has a primary monitor console, operator workstations, and an uninterruptible power supply for backup power.

PMC CHARACTERISTICS

- System Capacity
  - Sensor Zones (Remote Areas): >512
  - Sensors: >10,240
  - Response Devices
    - Interior: >2048
    - Exterior: >8192
  - Entry Control Zone: 512 w/31 doors each
  - Audio Assessment Zone: 512 w/10 mics



ICIDS COMPONENTS

Figure 1-1. Typical Configuration Integrated Commercial Intrusion Detection System (Page 1 of 2)

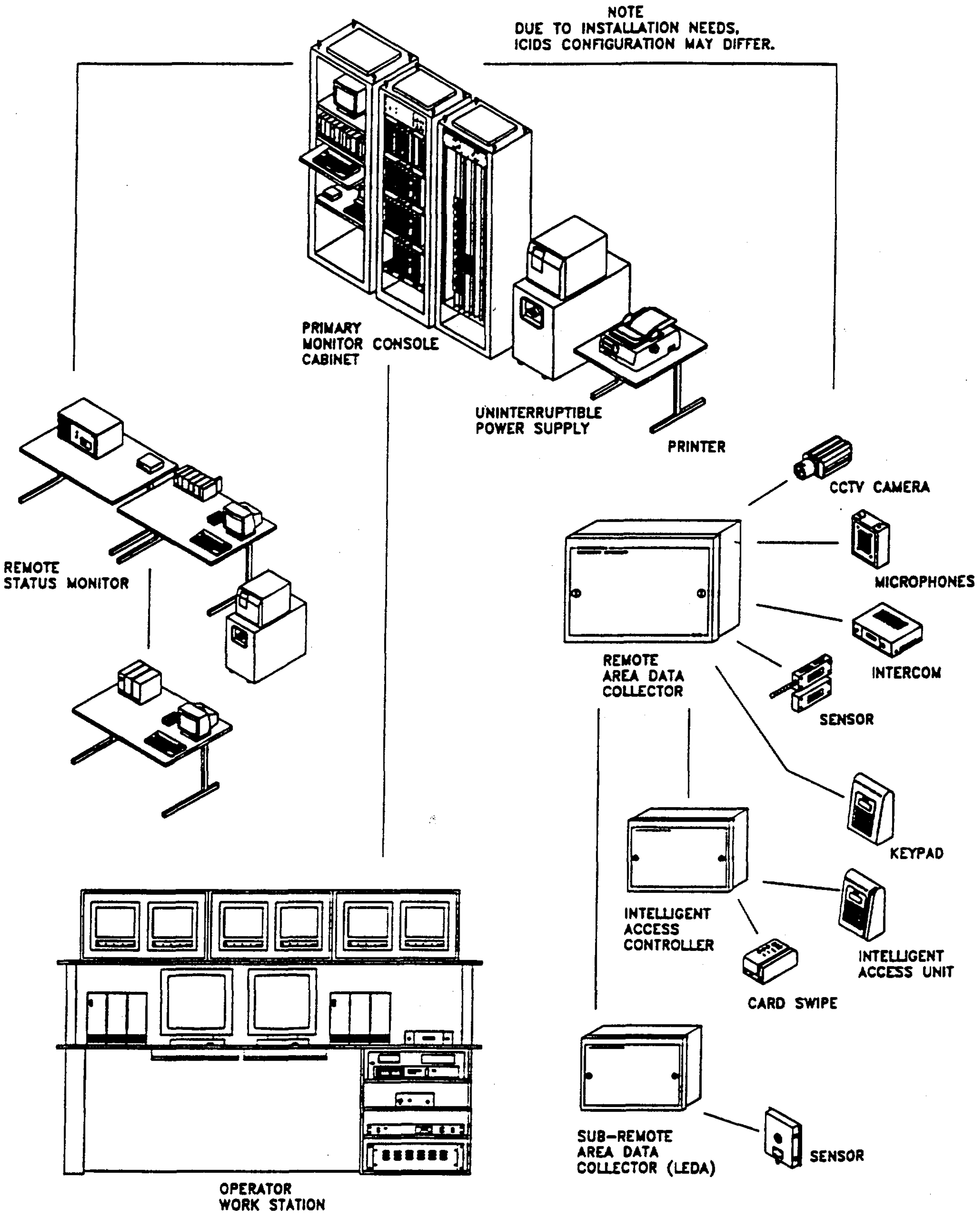


Figure 1-1. Typical Configuration Integrated Commercial Intrusion Detection System (Page 2 of 2)

1-13. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES. (Cont'd)

- Displays
  - Status Display
    - System Status Summary
    - Individual Sensor Status
    - All Status Changes
    - Operator Instructions
    - Alarm Prioritization
    - All Commands and Results
  - Geographic Map Display
    - Detailed Maps of Each Remote Area
    - Geographic Map of All Remote Areas
    - Sensor Mimics
- Uninterruptible Power Supply (6 Hour)
- Printers
  - Logging Printer: Reports, etc.
  - Event Printer: All Events and Operator Actions
- Operator Interfaces
  - Operator Keyboard ("Softkeys")
  - Status Display
  - Geographic Map Display
  - Closed Circuit Television (CCTV) Controls and Monitors
  - Audio Assessment and Intercom
- Audible Alarm Indication
- Data Storage: Volatile and Non-Volatile

PMC CAPABILITIES AND FEATURES

- Central Processing Unit (CPU)

  - 64 kb cache memory - Ensures the processor operates at its full 25MHz speed in over 90% of memory accesses.

  - Modular product design - Allows for easy removal and installation of modules.

  - Random access memory (RAM) - Contains 8 Megabytes of RAM expandable to 24 Megabytes. The RAM board stores all the acquired data from the remote sites to ensure rapid system responses to any changes of status reported by the RADCs.

  - Hard disk - A 320 Megabyte SCSI hard disk assigned to BTOS/CTOS operating system and the applications software, plus the user-definable system database.

  - Graphics card - A 256 kbyte module which supports monochrome and color graphics monitors.

  - Tape streamer - A 1/4 in., 150 Megabyte tape streamer used to download the system disk for historical purposes.

  - Floppy disk - A 1.2 Megabyte, 5.25 in. floppy disk (630 kbytes formatted).

  - Communication ports - Provided through two Communication Expander Modules. Each module provides 1 parallel and 3 serial ports, which allows connection to I/O peripherals, printers, and host- and wide-area networks. The DCX module is the interface between the CPU and the Communications Multiplexers. The DCX module also provides the capability to poll up to 256 RADCs.

PMC CAPABILITIES AND FEATURES (Cont'd)

- Intelligent switch module - Monitors the operational status of the PMC and provides routing of the RS232 cluster data channels, printers, and all system peripherals from the two Data Acquisition Units (DAUS) polling a cluster of workstations. The polling DAU may be selected manually or automatically, the automatic selection providing changeover to the alternate DAU if the polling DAU enters a fault condition.

- Monochrome Monitor - A 12 in. monochrome monitor that displays 29x80 columns. Used for system control, text editing, and monitoring of communications polls.

- Keyboard - Generates system commands and provides keystroke input for ICIDS program execution.

- Event Printer - A 24 pin dot matrix printer that prints data up to 136 columns wide at 10 characters per inch. The printer can use either single sheets or continuous paper, and has eight fonts and two printer emulations. Options include a pull tractor and a serial interface card.

- Modular Power Supplies - Added to the system as expansion modules to support additional add on modular units and to prevent overloading of any power supply.

- Operator Work Station - Consists of an Intel 80386 micro processor, operating at 25 MHz. Allows LAN connectivity and cluster communications circuitry to support daisy chaining of workstations by providing two DB9 connectors.

  - 64kb memory - Enables CPU to operate at full 25MHz speed in over 90% of memory accesses.

  - RAM - Contains 2MB standard memory.

  - Graphics - A built-in 1024x768 high-resolution graphics card that is VGA compatible. The high resolution graphics controller supports all digital monochrome and color monitors.

  - Status display (color monitor) - A 15 in. autoscan color monitor with a tilt-and-swivel base and a non-glare, high-contrast screen.

  - Keyboard - Used to operate the ICIDS systems by the use of functional softkeys.

  - Printer - A 24 pin dot matrix printer, that prints data up to 80 columns wide at 10 characters per inch. Can use either single sheets or continuous paper and has eight fonts and two printer emulations. Options include a pull tractor and a serial interface card.

- Uninterruptible Power Supply (UPS)- A 1.8 kV power source, with 6 hours of battery backup. The UPS comes on line if there is an interrupt of the primary input power. This will maintain system integrity and prevent the loss of any data that is being routed to the CPU.

b. Remote Status Monitor (RSM). The RSM monitors and controls Remote Area Data Collectors. The RSM communicates with the PMC through the 9600 baud modem link. The direct communication line from the RADCs also allows the RSM to take over control of the RADCs through the automatic/manual switch to the RSM communication ports, in the event of a PMC failure.

RSM CHARACTERISTICS

- Status Display - Same As Primary Monitor Console (PMC)
- Up To 8 Remote Status Monitors (RSMs) for Large Primary Monitor Console (LPMC) and Up To 2 Remote Status Monitors (RSMs) for Small Primary Monitor Console (SPMC)
- Switch-Over From Primary Monitor Console (PMC) to Remote Status Monitor (RSM) Manual Or Automatic Without Data Loss
- Identical Hardware and Software to Primary Monitor Console (PMC)
- Uninterruptible Power Supply (6 Hour)
- Two Modes of Operation
  - Monitor Only - Displays All Or Selected Portions Of The Data Displayed At Primary Monitor Console (PMC)
  - Charged Coupled Device (CCD) Mode - Performs All Of The Functions of the Primary Monitor Console (PMC) For Selected Remote Area Data Collectors
- Supports All Primary Monitor Console (PMC) Communications Media RSM CAPABILITIES AND FEATURES

RSM CAPABILITEIS AND FEATURES

- Same as Primary Monitor Console above, except the RSM uses the Data Communication Systems to take control of the RADCs in the event of a Central Processing Unit (CPU) failure.

c. Remote Area Data Collector (RADC). Collects and processes inputs and outputs from sensors and remote terminal units. Up to 16 Intelligent Access Controllers (IACs) (31 Doors) can be multi-dropped on an RS-485 line (AUX 1) port, and up to 31 satellite Leda can be multi-dropped on another RS-485 line (AUX 0) port. Lines can be extended 4000 feet from the RADC location. A port is also provided for the connection of a lap top computer for unit configuration and diagnostics. Standard Data communications from the RADC to the PMC is provided by the Mod 2, 1200 baud modem and the Bell 3002 Data Communication circuit. The RADC can perform standalone access and exit control functions. The RADC carries its own integral power source (12 vdc, 7 amp hr. battery) to maintain system integrity in the event of loss of primary power.

RADC CHARACTERISTICS

- Interior STARGATE 5000:
  - 20 Sensors With Alarm, Tamper, And Self-Test; Expandable
  - 4 Response Devices; Expandable
  - Distance to Sensors and Response Devices (RDs) 150 Meters
  - Up to 31 Doors Entry Control Equipment (ECE) (Entry and Exit)
  - Distance to Door Controllers 4000 Feet
  - 10 Individually Selectable Microphones (Mics)
  - Intercom
- Exterior STARGATE 1000:
  - 32 Sensors With Alarm and Tamper; Expandable
  - 16 Response Devices; Expandable
  - Distance To Sensors 1000 Meters
- Joint-Services Interior Intrusion Detection System (J-SIIDS) Interface
- Locally Configured Using A Laptop Personal Computer (PC)
- Interfaces To All Primary Monitor Console (PMC) Communications Media
- Data Encryption System (DES) Data Authentication System
- Uninterruptible Power Supply (6 Hour); Powers Interior Sensors; 12 or 20 volts direct current (vdc)

RADC CAPABILITIES AND FEATURES

- STARGATE 5000 - The STARGATE 5000 processor board is housed in the interior RADC, sheet steel, NEMA 12, tamper-protected enclosure. The board has three Auxiliary communication ports for:

  - Laptop computer used for configuration and diagnostics
  - Aux 0 used for up to 31 additional remote Ledas and keypads.
  - Aux 1 used for up to 16 Intelligent Access Controllers and 31 doors.

  The board also has a 1200 baud MOD 2 Modem with optional interface for the Encryption Communications Protector for communication to the PMC or RSM.

- STARGATE 1000 - The STARGATE 1000 board is the same as the 5000 except it does not have an AUX 1 port for the connection of an optional Intelligent Access Controller.

  - Sensors interface terminals - Sixteen pin terminals used to connect sensors or other input detections devices.

  - Leda flex - Supports 24 Status/Alarms input and 24 output controls, and is snapped into each RADC. The PWA can also be housed in a separate unit that communicates with the RADC through the AUX 0 port. Each Leda can support up to 24 sensors with 24 outputs for those sensors capable of being self-tested via the keypad from the operator workstation. All sensors provide alarm outputs when triggered, back to the RADC via the RS485 AUX 0 Bus. Up to 31 Ledas can be multi-dropped on an RS-485 line to the RADC. Power for the Leda is provided by the STARGATE board in the RADC.

  - Termination module - Provides visual indicators for up to 12 sensor inputs and controls 12 relay output driven devices to self-test the sensors.

  - Data encryption system (DES) - An optional unit that is enclosed in the RADC and connected to the stargate 5000/1000 processor board.

  - Audio Assessment Device (AAD) - Can handle up to ten microphone inputs used to monitor sounds within a secured area. Can be switched between intercom and audio assessment, via the keyboard, by the workstation operator.

d. Closed Circuit Television (CCTV) System. Enables operator to perform remote surveillance using one or more monitors. In support of intruder detection, the CCTV lets operators undertake remote surveillance of a site through one or more monitors which display the pictures received from a network of CCTV cameras. Each monitor can be configured to display the pictures from a particular camera at all times or from several cameras in a pre-defined sequence. The operator may also use the workstation keyboard to select a particular camera and assign it to a monitor for a clearer display of the secured area. The video display unit will be switched on automatically if an intrusion alarm is generated within the secured area.

CCTV CHARACTERISTICS

- Cameras: The 1/2 in. interior series camera is a rugged high resolution 1/2 in. format, solid state camera for interior CCTV applications. The camera is equipped with back focus, which allows for equally clear video at long and short distances.

  The 2/3 in. exterior series camera is a rugged high resolution 2/3 in. format, solid state camera for CCTV applications. The camera is also equipped with back focus.

CCTV CHARACTERISTICS (Cont'd)

- Video Switcher - A microprocessor based and software programmable, solid state modular switching system. The switcher contains 8 input PWAs for support of 16 camera inputs for each PWA. The switcher also contains 4 input PWAs for support of up to 16 video monitors. The built-in power supply is used in support of the PWAs.

- Monitor - A nine in. black and white display mounted in the CCTV console up to five (5) monitors, with the 5th monitor used for video storage viewing or manual selection.

- Video Synchronization Generator - Provides horizontal, vertical drive, blanking, and synchronization signals at the 75 ohm output connectors.

- Video Synchronization Distribution Amplifier - A standalone item that provides 6 isolated outputs. It is used in applications where separate video feeds are required. This allows for specific pieces of equipment to be connected and disconnected without disturbing the video signal to other destinations.

- Character Generator - The video annotation equipment includes sixteen characters for each video source, a built-in camera identifier, stacked time and date, and a matrix switcher status display.

- Video Storage and Playback Equipment - The video cassette recorder is a front loading VCR that can provide up to 720 hours of time lapse recording.

- Camera Support Equipment - There are four different types of camera support equipment; Interior support or wall mount, exterior support, cantilever camera support and straight camera pole support.

- Lenses - The lens size used on the interior 1/2 in. and exterior 2/3 in. cameras range from 3.5 mm to 75 mm, and are factory installed.

CCTV CAPABILITIES AND FEATURES

- Cameras - The 112 in. series cameras are bright light tolerant, allowing clear pictures with incidental light sources. The variable gain Automatic Gain Control (AGC) circuit provides up to 30 db of additional amplification for increased sensitivity at low light levels while maintaining picture sharpness. These cameras are equipped with a separate BNC connector to accept composite video, or composite sync for genlock operation. The cameras allow for both top and bottom mounting.

  The 2/3 in. series cameras have a variable gain AGC circuit that provides up to 20 db of additional amplification for increased sensitivity at low light levels while maintaining picture sharpness. The lens mount is a standard "C" mount.

- Monitor - The monitor reproduces ten shades of gray. The front panel has a slide switch for power on/off with light emitting diode (LED) pilot light. It has a rotary knob for each of contrast, vertical hold, horizontal-hold, and brightness.

CCTV CAPABILITIES AND FEATURES (Cont'd)

- Video Switcher - Operates on 120 vac, 60 Hz or 220 vac, 50 Hz, and is manually switchable. Expansion and enhancement is allowed by increasing the number of inputs, outputs, and alarm interface. The unit is capable of switching any video input to any video output and has a maximum switch matrix of up to 128 video inputs by 16 video outputs. Up to 16 control keyboards can be connected to the switcher and provides the basic operator interface for system control. Standard keyboard capabilities include manual video call-up, general system programming, and management function. All video inputs and outputs to the switcher main bay and fiber optic equipment use BNC connectors.

- Video Synchronization Generator - Has high stability, in either Master Sync or Genlockable mode.

- Video Synchronization Distribution Amplifiers - The video synchronization distribution amplifier provides six, 75-ohm outputs with greater than 40 db isolation, and has a frequency response of plus or minus 0.2 db to 10 MHz. The unit is DC coupled and requires no signal level adjustment. The looping input allows multiple amplifiers to be "stacked" for additional outputs.

- Video Storage and Playback Equipment - The recorder operates on either 120 vac, 60 Hz or 240 vac 50 Hz. The VCR is capable of recording up to 720 hours on a single cassette tape with 13 user-selectable time-lapse record speeds. The remote contact closure switches the recorder into recording during alarms. The selected alarm recording speed can be programmed to continue for a period up to three minutes or until contact is reopened. The VCR has the following playback features: Time-of-Alarm memory and Alarm Index Search, high speed visual search, 13 playback speeds, still field, field advance, field reverse, and reverse playback.

- Camera Support Equipment - The interior camera mount is 22 inches long to accommodate the length and weight of the camera and housing. The mount has an adjustable head to allow for full adjustment of the camera. The mount is constructed of aluminum and has a corrosion resistant finish.

  The exterior camera and housing are supported on a durable channel mount and secured by stainless steel bands. The channel mount is heavy-duty aluminum with an environmental protected finish.

  The cantilever camera support is an aluminum pole either hinged or straight and is a minimum of 15 feet high. The cantilever arm is 9 feet in length and fitted with a base plate. The pole will withstand a 100 mph wind velocity with gusts to 130 mph. Located inside the pole, 18 inches above the ground, is a double circuit breaker used to provide power to the camera and to the ground fault surge protected AC power outlets. The wiring harness inside the pole will provide two RG-11 U coaxial cables, terminated in BNC connectors for video and sync signals. The camera mount will provide the desired pan and tilt adjustments.

  The straight camera support pole is the same as the cantilever camera support without the cantilever arm.

e. Entry Control Equipment (ECE). A system used to control entry and exit in a particular area. This is a modular system with three main components, the Intelligent Access Controller (IAC), Intelligent Access Unit (IAU), and the Card Reader. The IAC stores card information, ciphers. events, and other information, coordinating and recording access requests/responses from IAUs. The IAU contains the keypad, liquid crystal display, and card reader head. The system is used to control entry and exit of authorized personnel by entering a 4 digit pin number via the keypad or using a magnetic card via the card reader, or the combination of the two. The IAC can operate in a standalone mode, if communications with the host is lost.

ECE CHARACTERISTICS

- Intelligent Access Controller (IAC) - Contains the software that is responsible for entry/exit validation. The IAC always interfaces with the STARGATE 5000 Printed Wiring Assembly.
  - Key pad - Contains, in addition to the key pad, a liquid crystal display (LCD).
  - Starlink keypad - The Starlink Keypad has a 4x4 numeric/character keypad and a liquid crystal display (LCD).
  - Card reader - Is a magnetic stripe reader. The card reader may also be interfaced with the Intelligent Access Unit (IAU) key pad.
  - Combination key pad/card reader - Is a combination of the key pad and card reader stated above, but requires the use of a valid Personal Identification Number (PIN) and a magnetic card before entry verification is allowed.

ECE CAPABILITIES AND FEATURES

- Intelligent Access Controller (IAC) - Up to 16 IACs and 31 doors can be supported by each STARGATE 5000 RADC via a single RS-485 cable connected to the AUX 1 port. The IAC can act as a stand alone unit in the event communications is lost with the RADC and allow entry and exit to the designated area. The IAC can store up to 2000 access tag records, providing fast response times independent of traffic. The IAC provides inputs for door status, request to exit, four aux alarms, and tamper. Outputs are provided for door strike, entry request bell, alarm output, and aux output. The IAC is housed in a tamper protected enclosure. The IAC contains two RS232 Ports to IAUs, which may be mounted up to 50 feet from the IAC. In a standalone operation mode, the IAC is configurable for; 2000 card IDs, door open time-out, door strike active time, "welcome" messages details and flip time, duress initiation conditions, alarm arming code, number of PIN attempts, number of swipe attempts, clippers, time and date, and password protection. Each IAC is provided with its own 12 vdc, 6 amp hr. battery that provides power for the unit if commercial power is lost.
  - Key pad - The Intelligent Access Unit (IAU) has a 4x4 numeric/character key pad and is configurable for PINs having up to 4 digits. The IAU communicates with the IAC over a serial data link with the following options; PIN only or PIN plus magnetic swipe. The LCD display provides requested prompts and clarifies entry denial (e.g., NO PIN ENTERED). The IAU LCD can also be used to display a message to a specified requester. This information would be entered by the operator at the PMC and downloaded to the RADCs. The message would then be flagged the next time the addressee requested an entry. The IAU and key pad can be provided for surface or flush mounting when used as a sole entry device. When used in conjunction with a card reader, it is provided with its own integrated surface mounting enclosure.
  - Starlink keypad - The Starlink Keypad is configured to use a six (6) digit access number called a Personal Identification Code (PIC). It operates as an access/secure initiating device for specific alarm zones of the STARGATE remotes. In addition, it can be used to review the status of the sensors within the zone, extend the normal working hours of the zone, and initiate duress codes and sensor tests.

ECE CAPABILITIES AND FEATURES (Cont'd)

- Card reader - The card reader, reader-only systems interface directly to the IAC. Reader-plus-PIN (or PIN only) systems interface to the IAU which then communicates with the IAC. LED displays are provided for reader-only units and these are amplified by the LCD display on the IAU for PIN-supported transactions. When used in conjunction with the PIN pad, the card reader is incorporated in the IAU surface mounting enclosure. For reader-only applications, the reader is surface mounted, but flush mounting units can be provided if "inserts" cards or tokens are used.

- Combination key pad/card reader - The combined functions described for the Key Pad IAU and the Card Reader listed above apply to the combination key pad/card reader.

f. Sensors. Used to detect unauthorized entry into declared security areas or zones, to include rooms, cabinets, and safes, etc. These sensors may be used to detect movement, heat sources, vibrations or unauthorized forced entry through doorways or other entry ways. These sensors are tamper proof and produce alarms that are monitored by their Remote Terminal Units (RTU) when unauthorized entry or forced entry is detected.

SENSORS CHARACTERISTICS, CAPABILITIES, AND FEATURES

- Interior Sensors

  - Balanced Magnetic Sensor (BMS) (standard and low profile) - A penetration sensor that detects the opening of doors, roll-up doors, and windows. The BMS alarms when the separation between the actuating magnet and switch assembly changes by 0.80 ± 0.40 inches in any plane, or when the local magnetic field has a positive or negative difference from the initial adjustment. The BMS has Rhodium-Plated contacts which prevents sticking and freezing on seldom-used doors. Has pry tamper feature, which signals an alarm if forced removal of sensor. Has life expectancy of 10,000,000 cycles using highly stable Alnico VIII and Arnox V magnets.

  - Capacitance Proximity Sensor (CPS) - As a penetration sensor, it is connected to isolated metal bars, mesh, or screens which cover windows, vents and other openings. As a point sensor it is connected to safes, file cabinets, and other metal objects. The CPS detects the change in capacitance between the connected object and ground resulting from the close approach or touch of an intruder.

    The CPS has a field adjustable sensitivity control. The CPS adjusts to slowly changing values total capacitance caused by environmental changes such as humidity. The unique automatic balancing feature permits connection to objects in daisy-chain fashion with no time consuming tuning procedures. The CPS contains solid-state circuitry that discriminates between natural environmental conditions and intrusion related disturbances. The CPS sensor will protect up to 50 - 4 drawer file cabinets, 50 - office desks, 75 - offices safes, and 15 - vans or small trucks (under cover). The CPS sensor is fully tamper proof and has a test switch for Sensor Test Verification.

  - Microwave Motion Sensor (MMS) - Uses Stereo Doppler to detect the movement or distance a target moves in a set period of time. The MMS sensor can also be mounted in an explosion proof enclosure, used to protect hazardous locations. The MMS uses two receiving channels and a three way sensitivity switch, which is set to sense the distance a target is required to move before causing an alarm. A precision antenna provides for precise control of detection pattern. Special signal processing provides maximum protection against RFI and fluorescent light interference. The unit also has a terminal connection, anti-tamper switch.

SENSORS CHARACTERISTICS, CAPABILITIES, AND FEATURES (Cont'd)

- Passive Infrared Motion Sensor(PIMS) - Highly sensitive to moving infrared sources while offering increased immunity to radio frequency interference (RFI), vibration, static, stray light, rapid temperature changes, and other false alarm sources. The PIMS is housed in a die-cast metal housing that mounts flat on a wall. Types of PIMS include:
  - Volumetric - The detection pattern extends from 8 feet to 30 feet on boresight and at angles up to ± 60 degrees off the boresight.
  - Curtain - The detection pattern extends from the sensor mounting level to the floor, to a minimum of 30 feet on boresight, and at angles up to ± 3 degrees off of boresight. The maximum angle subtended by the sensor is approximately 6 degrees.
  - Omni-directional - The detection pattern extends out to 30 feet from a point directly beneath the sensor and all angles about a line through this point.
- Passive Ultrasonic Sensor (PUS) - A penetration sensor that detects the ultrasonic energy generated by drills and other intrusion tools during attempts to penetrate the perimeter. The PUS detects ultrasonic energy generated by drills or other intrusion tools. The PUS will give output alarms when ultrasonic energy is present and if the sensor is being tampered with. The PUS will give an alarm condition when SELFT+ and SELFT- are connected. This sensor stimulus signal should come from a relay closure in the RADC. When this occurs, an audible tone and a 20 - 30 kHz 70db signal are generated in the PUS, and the PUS will activate its LED and alarm.
- Radio Frequency Motion Sensor (RFMS) - Provides invisible volumetric microwave perimeter protection for a distance of up to 1500 feet. The system consists of a separate transmitter and receiver operating off a 12 vdc source. The RFMS can be mounted on a pole, 3.5 or 4.0 inches outside diameter. The RFMS can operate in and is not affected by all types of environmental conditions; rain, snow, fog, and varying temperature changes. The system can detect movement of less than 4 inches per second, has tamperproof circuitry that activates an alarm if case is opened, and has 6 operating channels that are field selectable.
- Ultrasonic Motion Sensor (UMS) - Emits ultrasonic waves into the area being protected. When these waves are reflected by a moving intruder, their frequency changes. The sensor detects this change in frequency, which is called a Doppler Shift, and initiates an alarm. The UMS is a transceiver consisting of transmitting and receiving transducers. The system generates a

  continuous 26.3 kHz signal which the transducers converts into sound energy in the ultrasonic range. The sensor detects any change in frequency and generates an alarm. The UMS can be mounted on walls, posts, and ceilings. For the best coverage, the sensor should not be mounted higher then 12 feet from the floor. The UMS has a tamper proof switch which generates an alarm if the cover is removed.
- Vibration Sensor (VS) - Provides intrusion detection for all types of solid structures such as vaults, safes, and storage cabinets. The system allows for movement around the area without the risk of creating unwanted alarms. The VS detects structural vibration for all types of solid structures (free-standing or built-in), such as vaults, safes and storage cabinets. It senses vibrations that occur within a 3 to 45 foot radius of where the sensor is mounted. The VS uses a piezoelectric sensor to detect these vibrations and converts these vibrations into electrical signals and generates an alarm. The VS uses three analyzing channels to differentiate between random environmental disturbances and an actual intruder.

SENSORS CHARACTERISTICS, CAPABILITIES, AND FEATURES (Cont'd)

- Exterior Sensors

  - Exterior Microwave Motion Sensor (EMMS) - A bistatic exterior microwave perimeter intrusion detection sensor. In typical application is located near or between fence lines, and detects motion in a specified area, called a detection zone. This detection zone is established by the transmitter sending continuous microwave signals to the receiver. Any motion within the detection zone causes a variation in the received signal strength, which when processed will generate an intrusion notification. The EMMS is a bistatic exterior microwave perimeter intrusion detection sensor. In typical application it is located near or between fence lines. The sensor protects a minimum of 100 meters of fence line and detect intruders crossing the detection zone. The transmitter and receiver units are mounted in a waterproof enclosure.

  - Exterior Infrared Perimeter Sensor (EIPS) - A pedestal mounted, active infrared intrusion sensor consisting of a transmitter and receiver in two outdoor environment post type housings. The sensor alarms when an infrared beam between the transmitter and receiver is interrupted or beam modulation is disturbed. The EIPS uses synchronized Unique Quad beams to reinforce the range and stability in severe weather conditions. The system uses sixteen beam paths to help eliminate nuisance alarms caused by birds, falling leaves and small animals, as all beams must be broken simultaneously to initiate an alarm. The system uses four high power synchronized transmitters that provide a maximum beam arrival distance ten times the rated protection distance. This allows for reliable operation in heavy rain, fog or other poor weather conditions. Four synchronized receivers incorporate automatic gain control circuitry to further enhance bad weather operation. The optical system of both transmitter and receiver can be rotated a full 180 degrees which allows for side aiming. The system has built-in viewfinder for optical alignment and the receivers are equipped with an integral sounder for audible alignment. The receivers uses LEDs for visual indicators to set the receiver sensitivity.

  - Fence Mounted Vibration Sensor (FMVS) - A chainlink fence mounted sensor that assures continuous detection coverage across the full span of the fence panels, including the fence post. It consists of a sufficient number of vibration-detecting transducers to detect the mechanical vibrations caused by intruders climbing, pulling, tugging, or cutting any part of 200 meters of fence paneling. The FMVS senses vibrations that occur within a 3 to 45 foot radius of where it is mounted. The piezoelectric sensor detects vibrations and converts these vibrations into electrical signals. The sensor offers protection against hammering, drilling, cutting tools, thermic lances, diamond disk drills, explosion, and more.

  - Taut Wire Fence Sensor(TWFS - Detects the movement or the increase in length of the taut wire, whenever force is applied to any area between the sensor post. The sensor will detect any direction in movement of the fence and issue an alarm back to the processor system. The TWFSs are housed inside selected area fence posts. The sensor will detect any type of intrusion to include cut or open wires and issue an alarm back to the processor which will identify the location of the attempted entry. Normally double-strand steel barbed wire is used to transfer a movement from the point of intrusion to the sensor.

  - Ported Coaxial Cable Sensor (PCCS) - Is a buried line sensor that detects intruders crossing a detection zone established by transmit and receive cables buried in parallel along a perimeter. A disturbance in the electromagnetic field established between the cables exceeding a predetermined threshold causes the sensor to alarm. With line amplifiers, the sensor is capable of protecting 1600 meters of perimeter. Without the amplifiers, the sensor is capable of protecting 800 meters of perimeter. The PCCS consists of two ported coaxial cables buried 4 to 6 inches below the surface and approximately 84 inches apart. The H-field sensor cables may be buried in or under paved surfaces. The cables are connected to a transmitting unit at one end and a receiving unit at the other end. The detection pattern width is adjustable up to 15

SENSORS CHARACTERISTICS, CAPABILITIES, AND FEATURES (Cont'd)

feet wide and 3.3 feet high and is determined by the distance the cables are placed to one another. The maximum zone length is 500 feet per zone and the maximum sensor cable length to include feed-in coax cable in each line is not to exceed 600 feet. In a multi-zone system, the linked zones are phased and frequency locked to each other, with the failure of any zone not affecting the operation of the adjacent zones. Any disturbances of the field, caused by an intruder, are detected and produce an alarm.

- Short Ported Coaxial Cable Sensor (SPCCS) - Operates similar to the PCCS, except the sensor consists of two 125 meter lengths of cable pairs. Same as PCCS except the cables are of a shorter pre-determined length.

- Strain Sensitive Cable Fence Sensor (SSCFS) - A versatile fence security system that can provide security for up to 1000 feet of sensor cable. The system is easily installed and works on most fence types; chain link, wrought iron, and concrete walls, on fences 5 to 35 feet high. The SSCFS has a solid state digital processor, and has lightening, EMI, and RF protection. It also uses linear coaxial cable for equal sensitivity over the entire zone length. Sensors can be mounted up to 35 feet apart with a total of 100 sensors per zone. The sensor, a piezoelectric detection circuit, is triggered by any attempt to cut, climb, or lift fence. An alarm will be generated when the lines are cut or shorted.

g. Audio Assessment Devices (AADs). The Audio Assessment Unit and Intercom equipment at the PMC provides a telephone line switcher large enough to accommodate 512 single pair lines. This switcher will select the desired line either by local or computer control. The normal mode will be the Audio Assessment mode and the unit will provide the selected line with amplification and connection to the operator listen/talk device. The desired line can be selected from the keyboard. This will normally be done after an alarm has been received from an area and it is desired to listen to the alarmed area microphones for evaluation of the alarm.

AADs CHARACTERISTICS

- Designed To Provide Surveillance And Assessment Capability In Remote Area Protected By ICIDS
- Up To 264 Zones
- Up To 10 Sensor/Zones

AADs CAPABILITIES AND FEATURES

- PMC Audio Module - Allows for voice communications from the PMC operator to the RADC area maintenance personnel.

- Audio Switch Controller - Automatically opens the audio line to the alarm intrusion area. Also allows for manual selection of any one of the 512 audio lines.

- 16 Line Audio Communication Switcher - The audio switcher will select the desired audio line associated with an alarmed RADC automatically via the control computer. The workstation operator can switch between the microphone listening devices and the intercom phone, via the audio switching matrix.

- Audio Assessment Device - Allows for up to 10 microphone connections and an intercom device connection for communications to and from the PMC.

- Audio Assessment Devices (Microphones) - The audio assessment device (AAD) provides assessment capability in remote areas protected by ICIDS. Upon activation of an intrusion alarm in a remote area, audio information from microphones installed in the area is automatically presented to the security monitor at the monitoring location to determine the validity or cause of the alarm. Up to 10 microphones can be connected to the audio interface module. The microphones are used for audio assessment once an alarm has been activated.

- RADC Audio Module - The audio interface module allows for connection and monitoring of up to 10 microphones in the RADCs area. In the audio assessment mode, the audio module will connect the microphones to the audio line back to the PMC. The audio module allows for voice communications from the remote areas to the PMC operator.

- Handset - Is connected to the RADC Audio Assessment Device for two way communications between the RADC and the PMC operator.

1-14. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS. The Integrated Commercial Intrusion Detection System consists of standard and optional equipment. (See Figure 1-1.) Descriptions of the subassemblies follow.

a. Primary Monitor Console (PMC). The Primary Monitor Console (PMC) is the control center that consists of the PMC Cabinet, printers, Uninterruptible Power Supply (UPS), and operator workstations. There are two versions of the PMC. The large is depicted in Figure 1-2, and the small is depicted in Figure 1-3.

NOTE

Access to the PMC Cabinet is limited to maintenance personnel and the Systems Administrator.

(1) Primary Monitor Console (PMC) Cabinet (Large). See Figure 1-4. Location of components on the small PMC Cabinet are similar.

(a) Monitor (Item No. 1). The monitor is a 12 inch high resolution monochrome display with green characters on a dark background. It tilts from 15 to 45 degrees and swivels. The keyboard is attached to the monitor.

(b) +5 vdc Power Supply Control Panel (Item No. 2). The positive 5 volt dc power supply is mounted in the back of PMC cabinet #2 and is powered on and off at the control panel. The control panel has two LEDs for power on indication, and two power on and off switches (fused). The power supplies are redundant and provide operating power to the poller multiplexer and the DES PWA.

(c) +12/-12 vdc Power Supply Control Panel (Item No. 3). Similar to item no. 2, the 12 vdc power supply is mounted in the back of the Control Panel, and provides operating power to the poller multiplexer and the DES.

(d) Quad Switch (Item No. 4). The quad switch switches control of the system between the PMC and the Remote Status Monitor (RSM).

(e) Intelligent Control Switch (ICS)(Item No. 5). The ICS monitors the health of the PMC. If it detects a CPU failure, it switches control of the system from the PMC to the RSM.

(f) Power Supply, 15 vdc (Item No. 6). The 15 vdc power supply provides operating power for the fiber optics module. The 15 vdc power supply is used on the large PMC only.

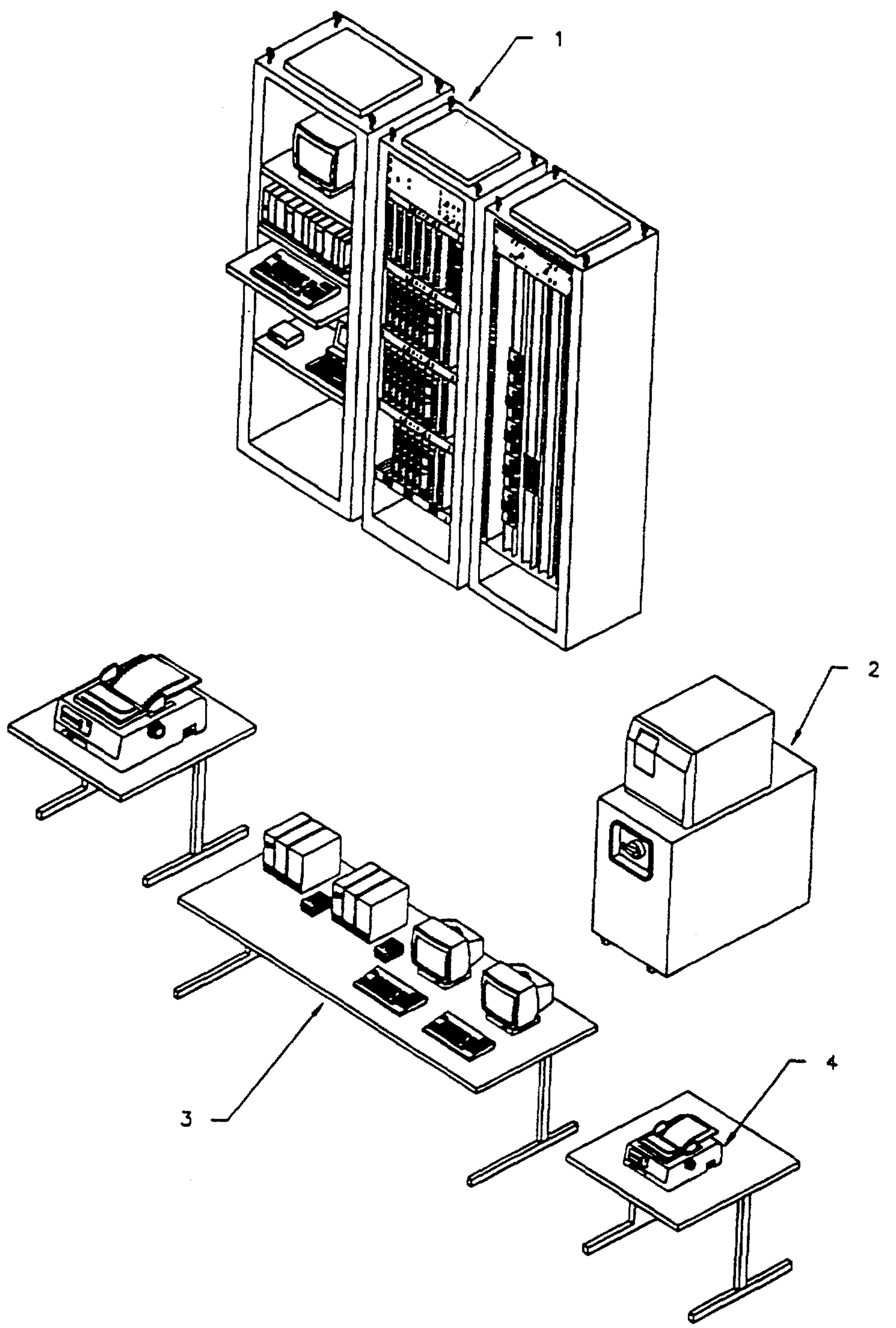


Figure 1-2. Components of Large Primary Monitor Console

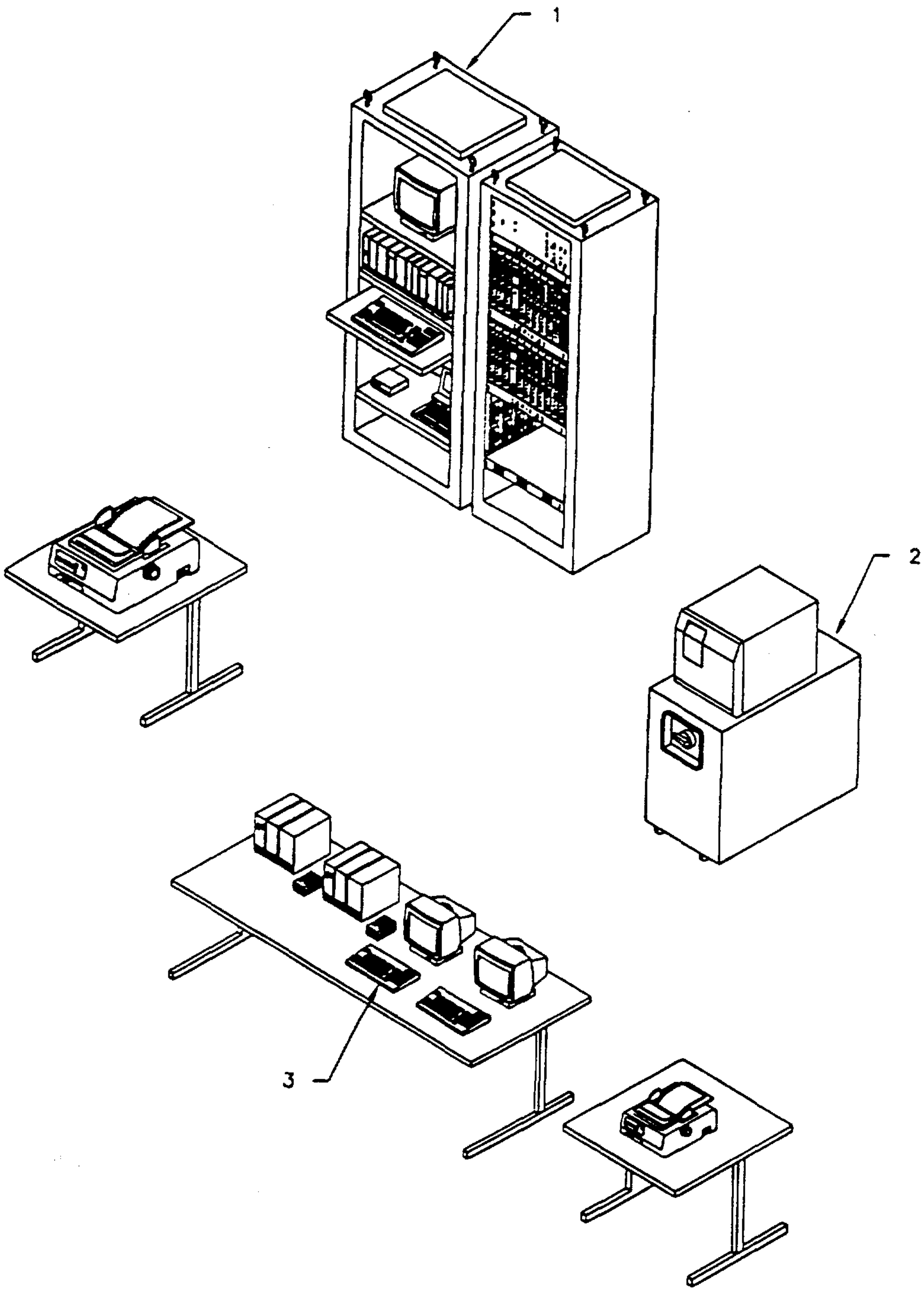


Figure 1-3. Components of Small Primary Monitor Console

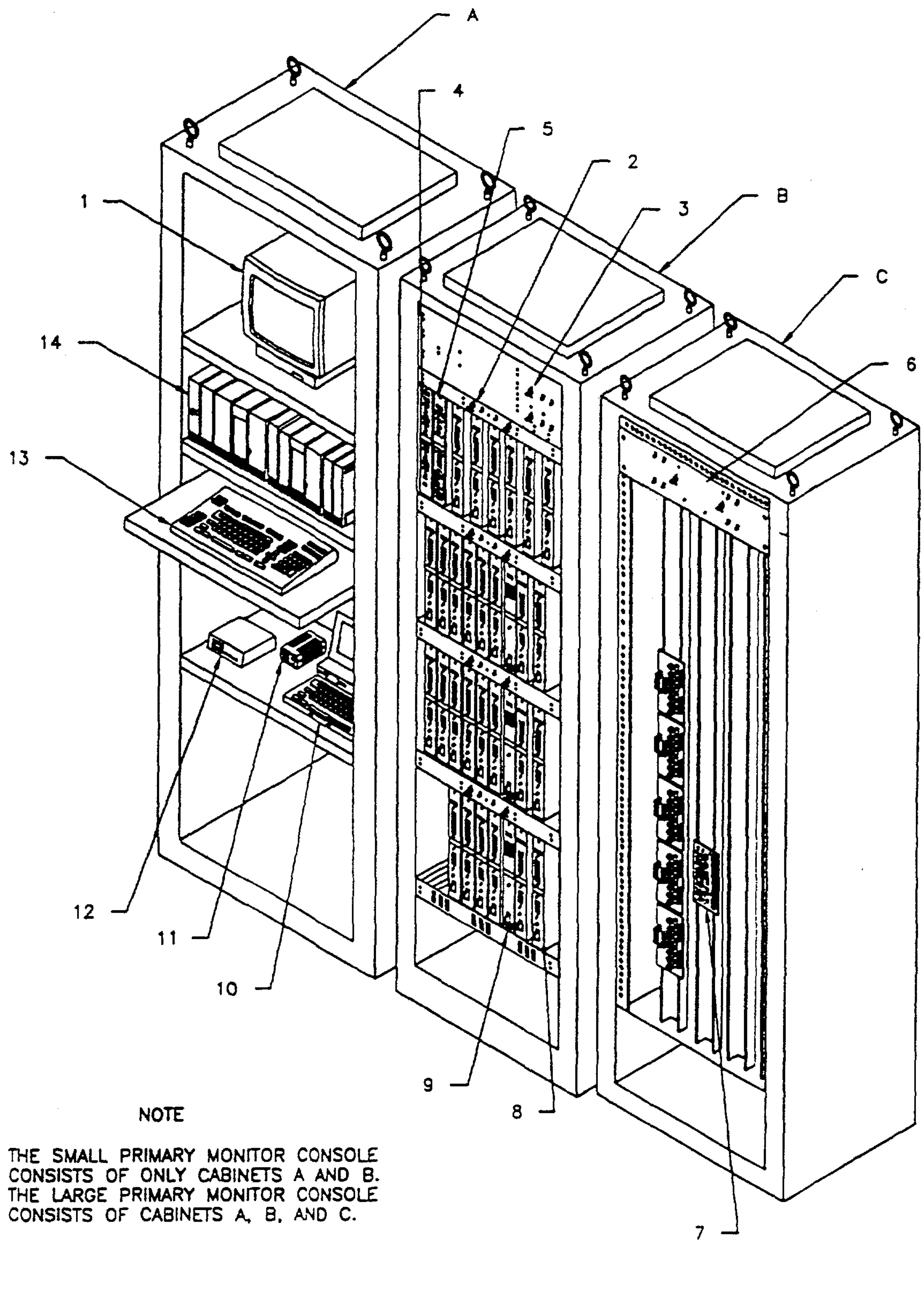


Figure 1-4. Primary Monitor Console Cabinet

(g) Fiber Optics Module (Item No. 7). This module provides fiber optic interface between the PMC and the RADC.

(h) PMC Digital Multiplexer (Item No. 8). This is a PWA that configures the PMC for up to 256 RADCs, and to the DES encoder/decoder PWA.

(i) Data Encryption System (DES) PWA (Optional) (Item No. 9). This PWA is connected to the multiplexer PWA by a ribbon cable. The PWA receives data from the multiplexer, encodes the data, and transmits the encoded data to a remote DES module located in the RADC. The DES PWA also receives encoded data from the remote module, and decodes and sends the data to the multiplexer PWA.

(j) Laptop Computer (Item No. 10). The laptop computer is an 80386 processor used to enroll/program the remote DES Module and the STARGATE PWAs located in the RADCS.

(k) Power Supply Module (Item No. 11). Translates line alternating current (ac) to +35 vdc, which is distributed to each component in the system. The input voltage is 120/240 volts alternating current (vac) selectable.

(l) 9600 Baud Modem (Item No. 12). The 9600 baud modem processes serial digital data.

(m) Keyboard (Item No. 13). The keyboard is the international 112 key configuration. Layout of the keys is the U.S. standard "QWERTY" format, with dedicated function keys, programmable function keys, cursor control keys, and a numeric pad.

(n) Processing Unit (Item No. 14). Consists of:

1. PMC CPU. A compact, modularized information processing system with 16 megabytes of RAM. Also in the processor module are the hard or fixed disk and the flexible (floppy) disk.

2. 150 Megabyte Tape Streamer. The 1/4 inch tape streamer module provides hard disk backup in one full height 1/4 inch streaming tape drive.

3. Four-Port Data Communications Expansion Module. Provides the system with four bidirectional communications ports. These ports are used for low speed data communications to peripherals such as the modem.

(2) Operator Workstation (see Figure 1-5). Location and description of items.

(a) Operator Workstation with CPU (Item No. 1). A compact, modularized information processing system with 2 megabytes of RAM. The Workstation is connected to the Primary Monitor Console (PMC), Control Processing Unit (CPU).

(b) Color Monitor (Item No. 2). The monitor is a 14 inch high resolution color display featuring a tilt and swivel base and a non-glare, high contrast screen. The keyboard is attached to the monitor.

(c) Keyboard (Item No. 3). The keyboard is the international 112 key configuration. Layout of the keys is the U.S. standard "QWERTY" format, with dedicated function keys, programmable function keys, cursor control keys, and a numeric pad.

(d) Power Supply Module (Item No. 4). Translates line ac to +35 vdc, which is distributed to each component in the system. The input voltage is 120/240 vac selectable.

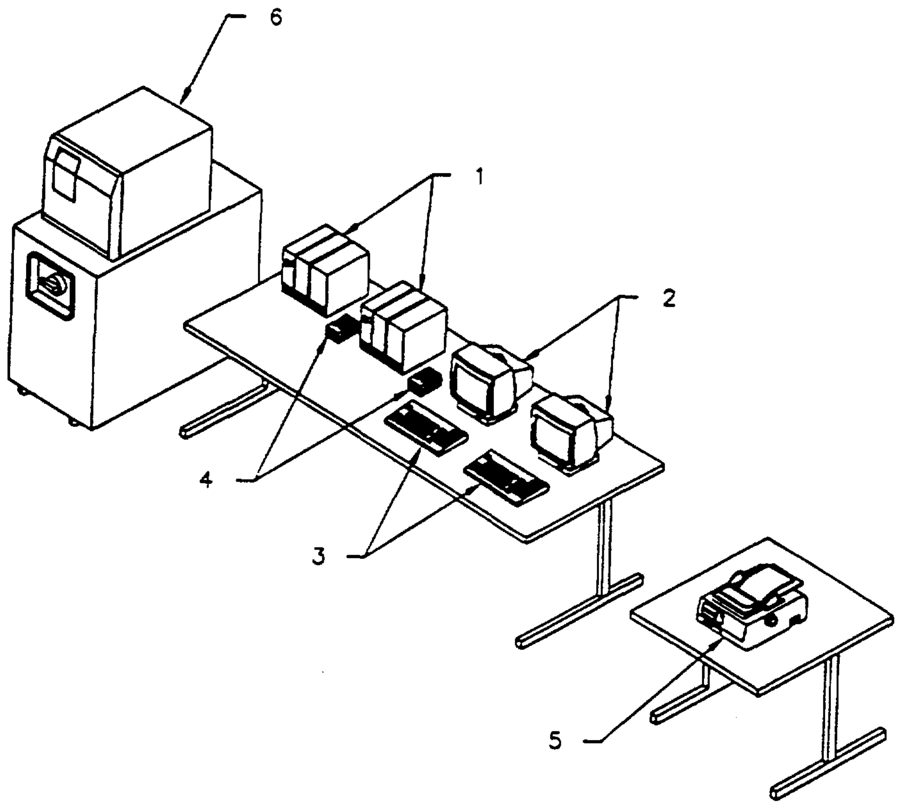


Figure 1-5. Operator Workstation

(e) Logging Printer (Item No. 5). The logging printer is a 24 pin dot matrix desk top printer. The printer prints data up to 80 columns wide at 10 characters per inch. The printer is connected to the workstation via a serial interface.

(f) Uninterruptible Power Supply (UPS) (Item No. 6). The Uninterruptible Power Supply (UPS) provides computer grade, no break power during power outages.

b. Remote Status Monitor (RSM). The RSM is similar to the PMC. The RSM has a PMC, CPU, and an operator workstation. Figure 1-6 depicts the location of each component.

(1) Remote Status Monitor (RSM) Console Cabinet (Item No. 1). The PMC cabinet consists of a +12 vdc power supply, one ICS PWA, one quad switch PWA, and four remote data encryption system modules. Its function is to assume control of the system if the PMC malfunctions.

(2) 9600 Baud Modem (Item No. 2). The modem processes serial digital data.

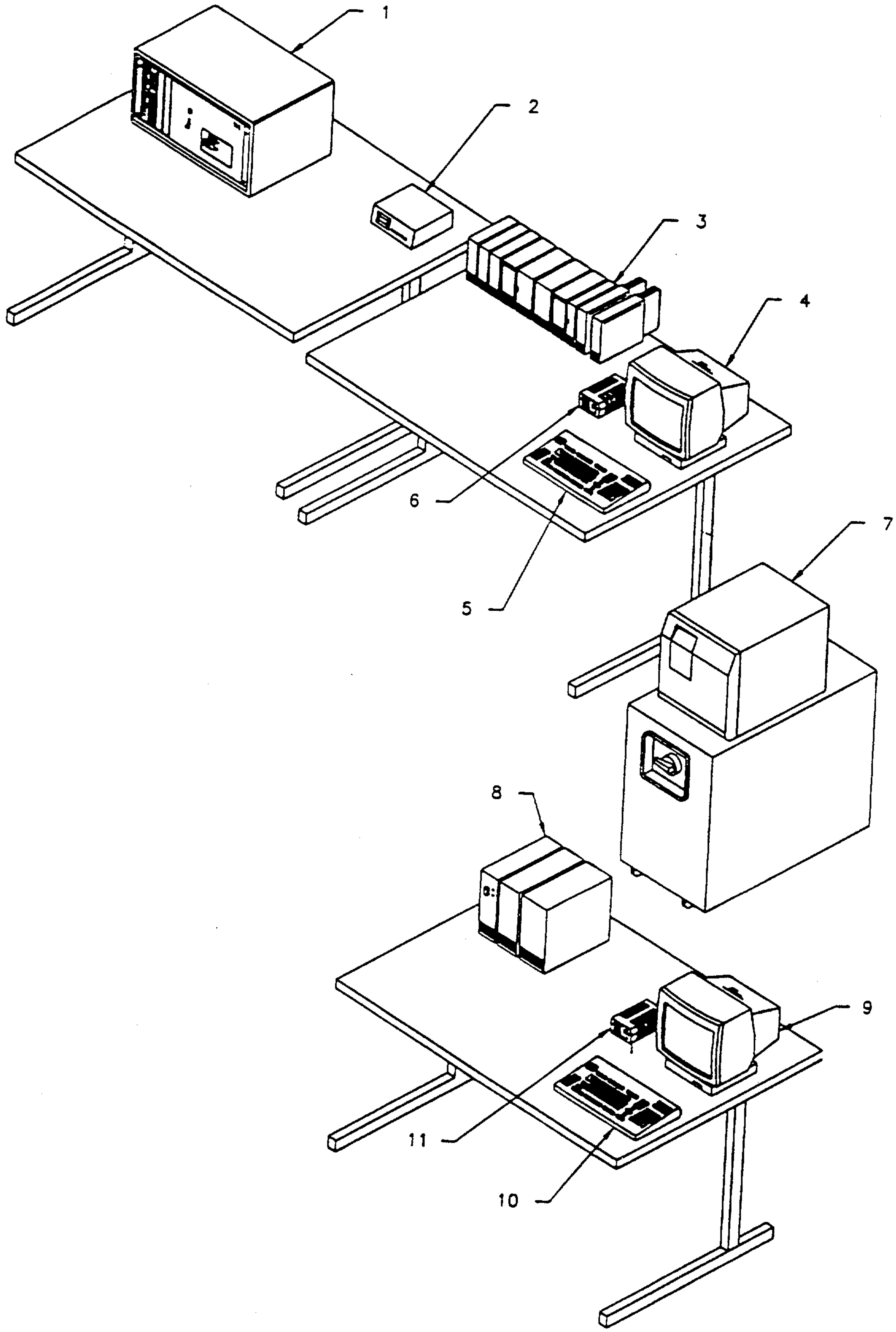


Figure 1-6. Remote Status Monitor

(3) Remote Status Monitor (RSM) Central Processing Unit (CPU) (Item No. 3). Consists of:

(a) CPU. A compact, modularized information processing system with a fixed disk and a flexible (floppy) disk.

(b) 150 Megabyte Tape Streamer. The 1/4 inch tape streamer module provides hard disk backup in one full height 1/4 inch streaming tape drive.

(c) Four-Port Data Communications Expansion Module. Provides four communications ports for data communications to peripherals such as the modem.

(4) Monitor (Item No. 4). The monitor is a 12 inch monochrome display with green characters on a dark background. It tilts from 15 to 45 degrees and swivels.

(5) Keyboard (Item No. 5 and 11). The keyboard is the international 112 key configuration. Layout of the keys is the U.S. standard "QWERTY" format, with dedicated function keys, programmable function keys, cursor control keys, and a numeric pad.

(6) Power Supply Module (Item No. 6 and 12). Translates line ac to 35 vdc, which is distributed to each component in the system. The input voltage is 120/240 vac selectable.

(7) Uninterruptible Power Supply (UPS) (Item No. 7). The Uninterruptible Power Supply (UPS) provides computer grade, no break power during power outages.

(8) Operator Workstation with Central Processing Unit (CPU) (Item No. 8). A compact, modularized information processing system. The Workstation is connected to the PMC CPU.

(9) Color Monitor (Item No. 9). The monitor is a 14 inch high resolution color display featuring a tilt swivel base and a non-glare, high contrast screen.

c. Remote Area Data Collector (RADC) Components (Interior) (+12 V) (see Figure 1-7)

(1) Termination Card (Item 1). A PWA that can interface 12 additional devices to the Leda PWA.

(2) STARGATE 5000 (Item 2). The PWA contains the programs to monitor the status of optional devices and process and forward this information to the PMC. The STARGATE 5000 PWA is used in the Interior RADC. The RADC can monitor and test up to 20 sensors.

(3) Leda (Item 3). A PWA used to connect up to twelve additional sensors via the termination PWA to the RADC via the AUX 0 port. The Leda operates from 12 vdc provided from the STARGATE 5000 or 1000 board or via the keypad IAU.

(4) Mod2-II Modem (Item 4) or Fiber Optic Cable (Optional) (Item 5). The communications network between the RADC and the PMC.

(5) Audio Assessment Controller (item 6). A plug in module used to switch between intercom and audio assessment at the RADC.

(6) Data Encryption System (Item 7) (optional unit). Provides secure data communications (encryption) for specified PMC, RSM, and RADC communications links.

(7) Battery, 12 vdc, 7 amp hr. (Item 8). Consists of a lead acid maintenance free battery. The battery provides for 6 hours of system backup and takes 12 hours to be fully recharged once the battery has been completely drained.

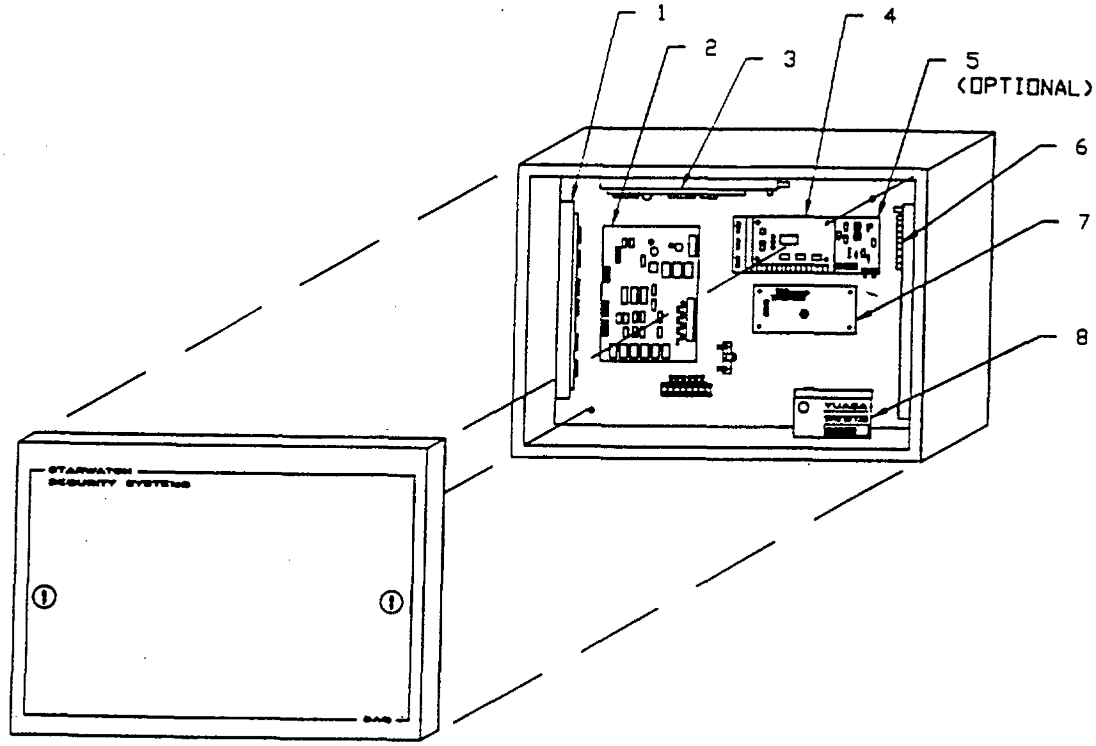


Figure 1-7. Remote Area Data Collector Components, Interior 12 vdc

d. Remote Area Data Collector (RADC) Components (Interior) (+20 V) (see Figure 1-8)

(1) Leda (Item 1). A PWA used to connect up to 12 additional sensors via the termination PWA to the RADC via the AUX 0 port. The Leda operates from 12 vdc provided from the STARGATE 5000 or 1000 board or via the keypad IAU.

(2) Mod2-II Modem (item 2) or Fiber Optic Cable (Optional) (item 3). The communications network between the RADC and the PMC. The modem communicates at a 1200 baud rate between the RADC and the PMC.

(3) Audio Assessment Controller (Item 4). A plug-in module used to switch between intercom and audio assessment at the RADC.

(4) Remote Area Power Supply (Item 5). The remote area power supply associated with the interior RADC supplies operating power to the connected sensors, stimuli, and audio assessment devices. The +20 V, 0.6 amp power supply is used with the installed J-SIIDS sensors.

(5) Data Encryption System (Item 6) (optional unit). Provides secure data communications (encryption) for specified PMC, RSM, and RADC communications links.

(6) Battery, 12 vdc, 7 amp hr. (Item 7). Consists of a lead acid maintenance free battery. The battery provides for 6 hours of system backup and takes 12 hours to be fully recharged once the battery has been completely drained.

(7) STARGATE 5000 (Item 8). The PWA contains the programs to monitor the status of optional devices and process and forward this information to the PMC. The STARGATE 5000 PWA is used in the Interior RADC, and can monitor and test up to 20 sensors.

(8) Termination Card (Item 9). A PWA that can interface 12 additional devices to the Leda PWA.

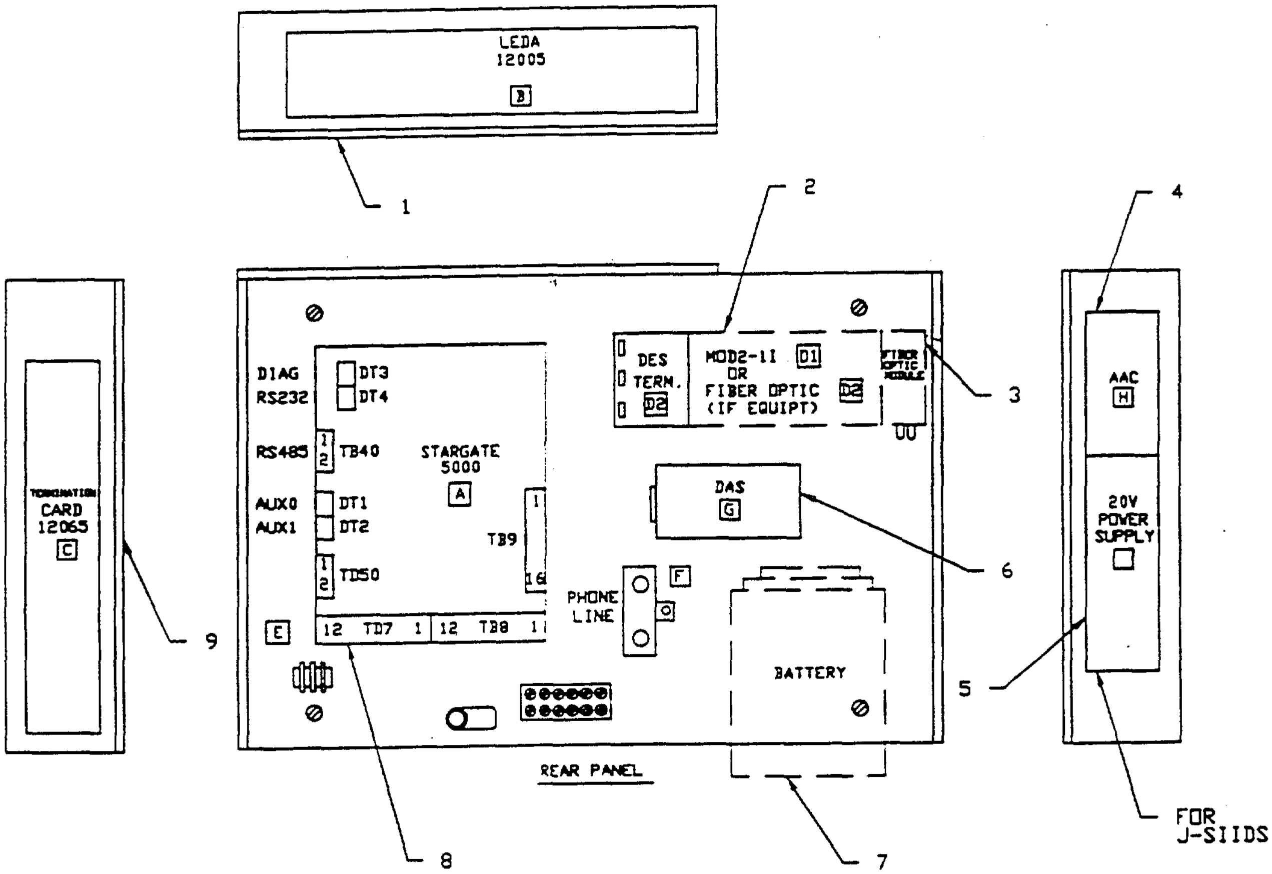


Figure 1-8. Remote Area Data Collector Components, Interior 20vdc

e. Remote Area Data Collector (RADC) Components (Exterior) .(See Figure 1-9)

(1) STARGATE 1000 (item 1). The PWA contains the programs to monitor the status of optional devices and process and forward this information to the PMC. The STARGATE 1000 PWA is used in the Exterior RADC.

(2) Leda (Item 2). A PWA used to connect up to 12 additional sensors via the termination PWA to the RADC via the AUX 0 port. The Leda operates from 12 vdc provided from the stargate 5000 or 1000 board or via the keypad IAU.

(3) Termination Card (Item 3). A PWA that can interface 12 additional devices to the Leda PWA. There are two termination cards in the exterior RADC.

(4) Data Encryption System (Item 4) (optional unit). Provides secure data communications (encryption) for specified PMC, RSM, and RADC communications links.

(5) Heater (Item 5). Thermostatically controlled to maintain acceptable humidity.

(6) Battery, 12 vdc, 7 amp hr. (Item 6). The batteries provide for 6 hour backup and take 12 hours to be fully recharged once completely drained.

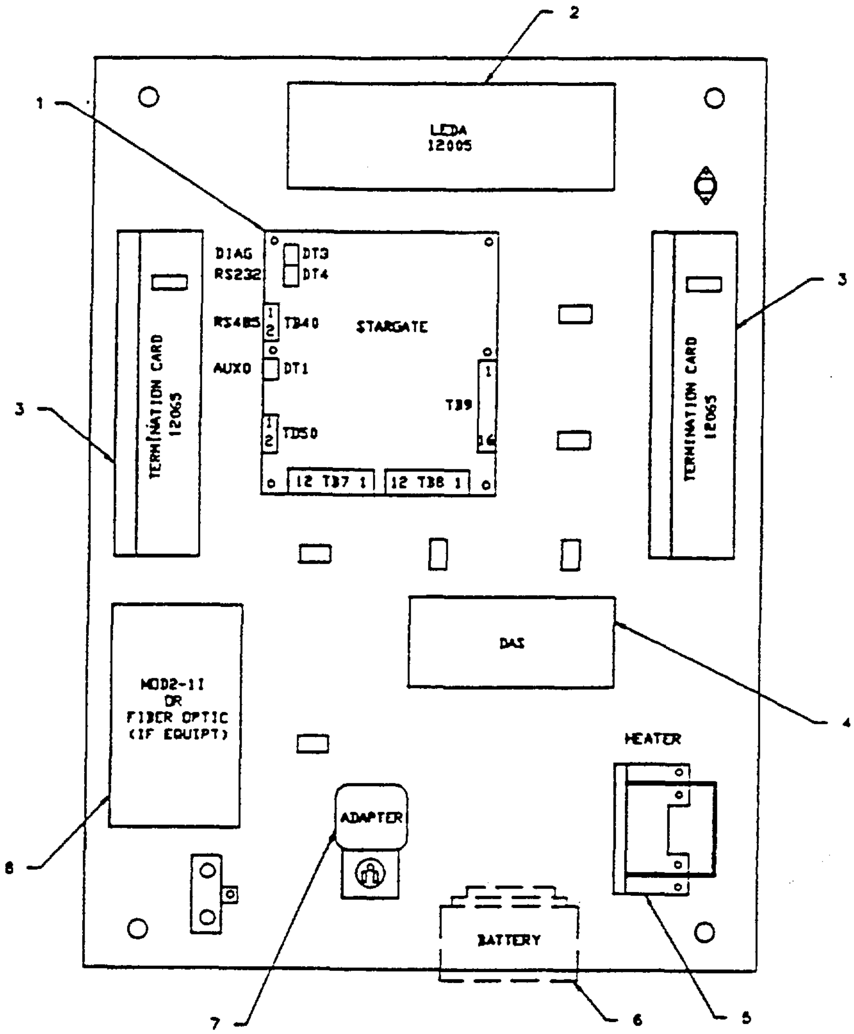


Figure 1-9. Remote Area Data Collector Components (Exterior +12 V)

(7) AC Adapter (Item 7). Steps down the input ac voltage from 120 vac to 18 vac.

(8) Mod2-II Modem or Fiber Optic Cable (Optional) (Item 8). The communications network between the RADC and the PMC. The Mod2-II modem communicates at a 1200 baud rate between the RADC and PMC.

f. Remote Area Data Collector, 12vdc, 8 points, Components (Interior) (See Figure 1-10).

(1) Stargate 5000 PWA (Item 1). Contains the programs to monitor the status of optional devices and process this information to the PMC. The Stargate 5000 PWA is used in the Interior RADC.

(2) Mod2-II Modem (Item 2). Is the communications network between the RADC and the PMC. The Mod2-II modem communicates at a 1200 baud rate between the RADC and the PMC.

(3) Battery, 12vdc, 7 amp hr. (Item 3). Consists of a lead acid maintenance free battery. The battery provides for 7 hours of system backup and takes 12 hours to be fully recharged once the battery has been completely drained.

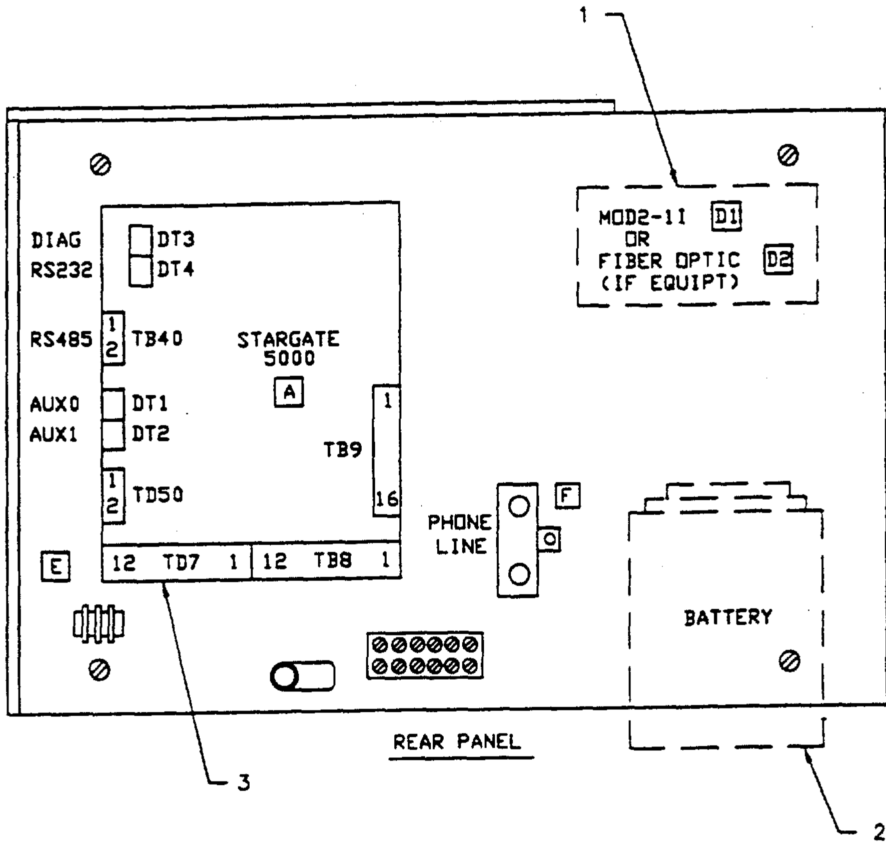


Figure 1-10. Remote Area Data Collector, 12 vdc, 8 Points

g. SubRADC (Leda) with Power Supply, 12 Points, (Interior) (See Figure 1-11).

(1) Leda Flex PWA (item 1). Used to connect up to 12 additional sensors via the termination PWA to the RADC via AUX-0 port. The Leda operates from 12 vdc provided by the in-house power supply.

(2) Tamper Switch (item 2). Provides protection against unauthorized entry of the Sub RADC (Leda) enclosure by generating an alarm via the RADC to the operator work station.

(3) 12 vdc Power Supply (Item 3). Provides operating power for the LEDA Flex PWA, Leda Flex Termination PWA, and external sensors, if required.

(4) Input AC Power Terminal Block (fused) (Item 4). Provides the Interface between the 120 vac input power source and the power supply, while providing overload protection on the main input power line.

(5) Bridge Rectifier (Item 5). Provides 12 vdc input for the LEDA Flex PWA operation. Provides the interface for AC input power loss signal going to the Termination PWA TB-6.

(6) Battery, 12 vdc, 7 amp hr. (Item 6). Consists of a lead acid maintenance free battery. The battery provides for 7 hours of system backup and takes 12 hours to be fully recharged once the battery has been completely drained.

(7) Leda Flex Termination PWA (Item 7±). Provides a means to interface 12 additional devices to the LEDA PWA.

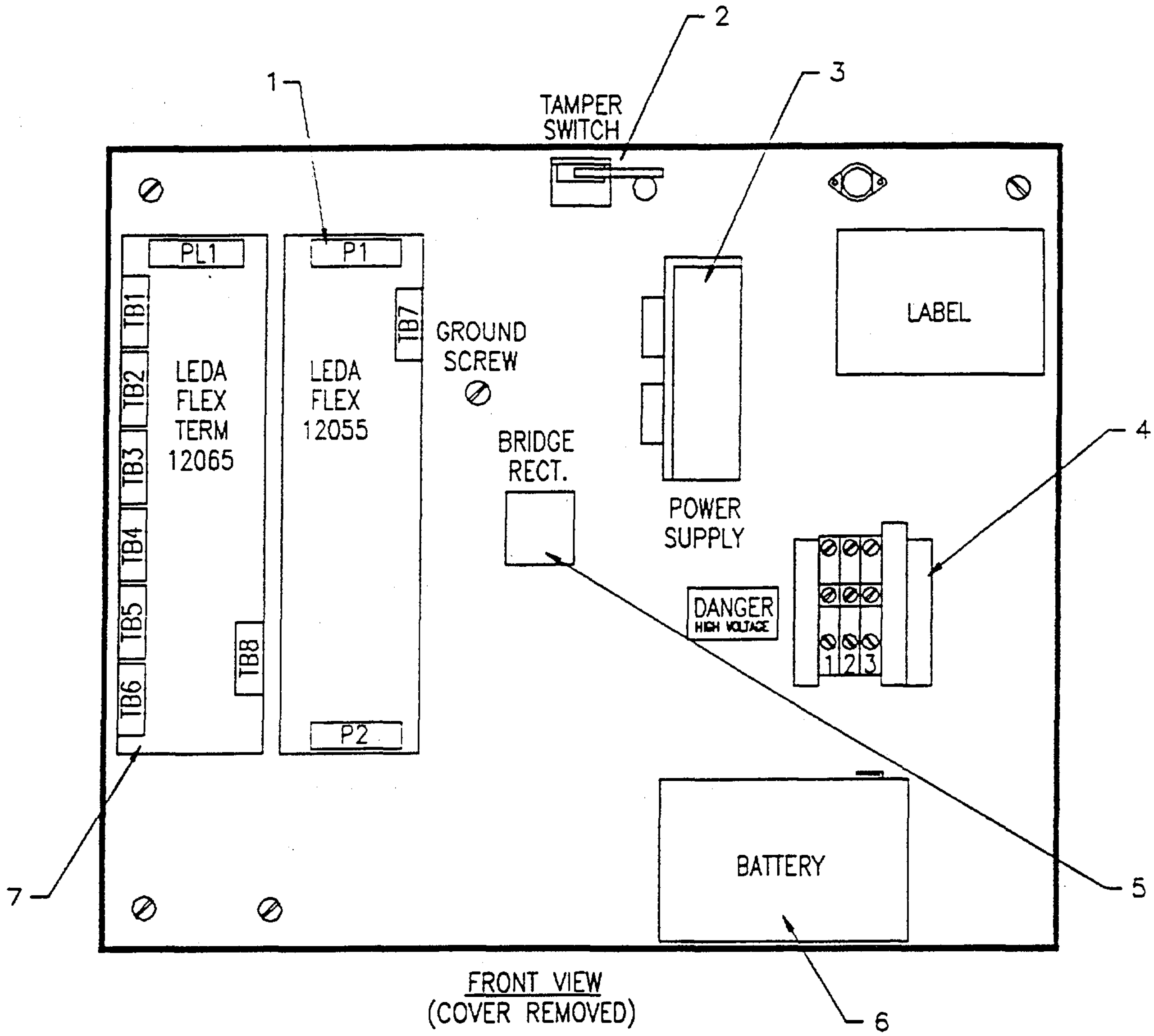


Figure 1-11. SubRADC (LEDA) with Power Supply, 12 Points, Interior

h. SubRADC (LEDA) with Power Supply, 12 Points, (Exterior) (See Figure 1-12).

(1) Leda Flex PWA (Item 1). Used to connect up to 12 additional sensors via the termination PWA to the RADC via AUX-O port. The Leda operates from 12 vdc provided by the in-house power supply.

(2) Thermal Switch (Item 2). Turns the heater on and off when the temperature reaches 55 degrees F.

(3) Tamper Switch (Item 3). Provides protection against unauthorized entry of the Sub-RADC (Leda) enclosure by generating an alarm via the RADC to the operator work station.

(4) Heater (item 4). Prevents humidity from forming within the SubRADC (Leda), (exterior) Nema 4, enclosure by turning on when temperature drops below 55 to 60 degrees F.

(5) Bridge Rectifier (Item 5). Provides 12 vdc input for the Leda Flex PWA, Leda Flex Termination PWA, and external sensors, if required.

(6) 12 vdc Power Supply (Item 6). Provides operating power for the Leda Flex PWA, Leda Flex Termination PWA, and external sensors is required.

(7) Input AC Power Terminal Block (fused) (Item 7). Provides the interface between the 120 vac input power source and the power supply, while providing overload protection on the main input power line.

(8) Battery, 12 vdc, 7 amp hr. (Item 8). Consists of a lead acid maintenance free battery. The battery provides for 7 hours of system backup and takes 12 hours to be fully recharged once the battery has been completely drained.

(9) Leda Flex Termination PWA (Item 9). Provides a means to interface 12 additional devices to the LEDA PWA.

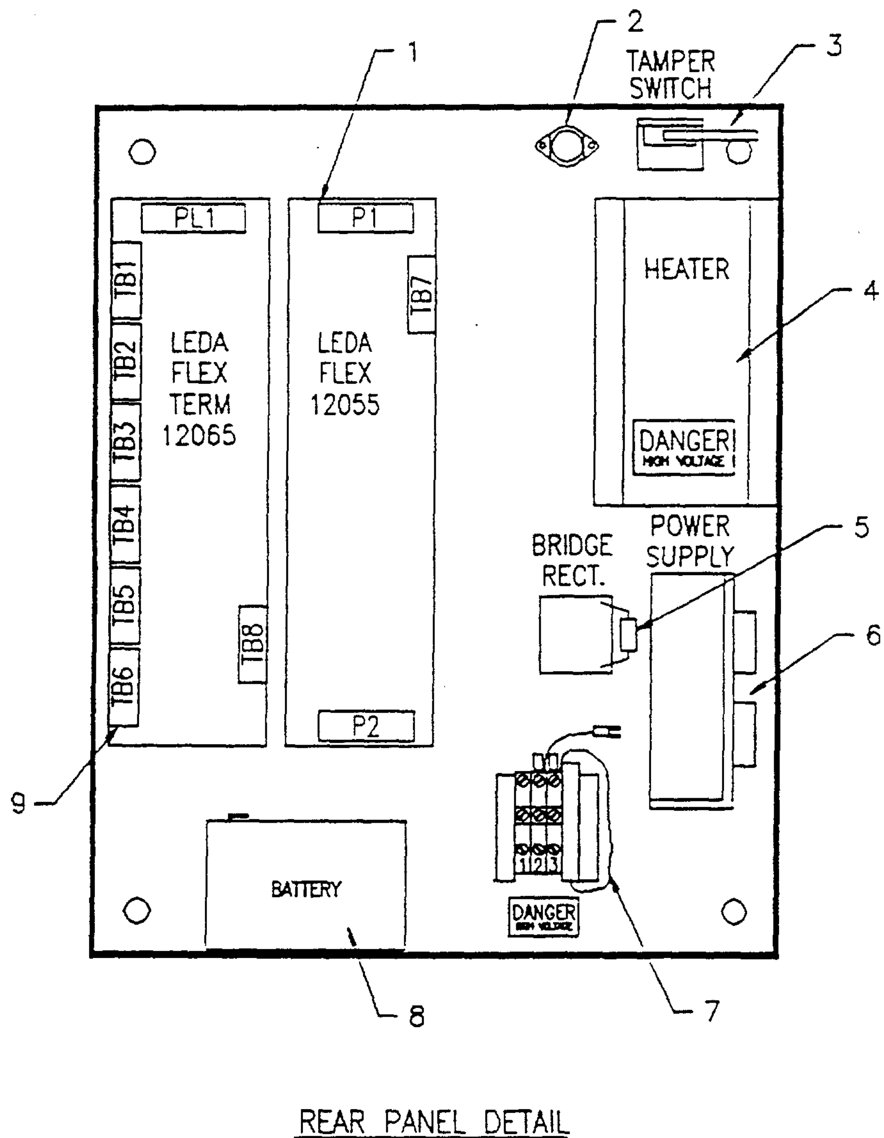


Figure 1-12. Sub RADC (Leda) with Power Supply, 12 Points, Exterior

I. SubRADC (Lead), 12 Points, Interior (See Figure 1-13).

(1) Lead Flex PWA (Item 1). Used to connect up to 12 additional sensors via the termination PWA to the RADC via AUX-O port. The Leda operates from 12 vdc provided by the in-house power supply.

(2) Lead Flex Termination PWA (Item 2). Provides a means to interface 12 additional devices to the Leda PWA.

(3) Tamper Switch (Item 3). Provides protection against unauthorized entry of the Sub-RADC (Leda) enclosure by generating an alarm via the RADC to the operator work station.

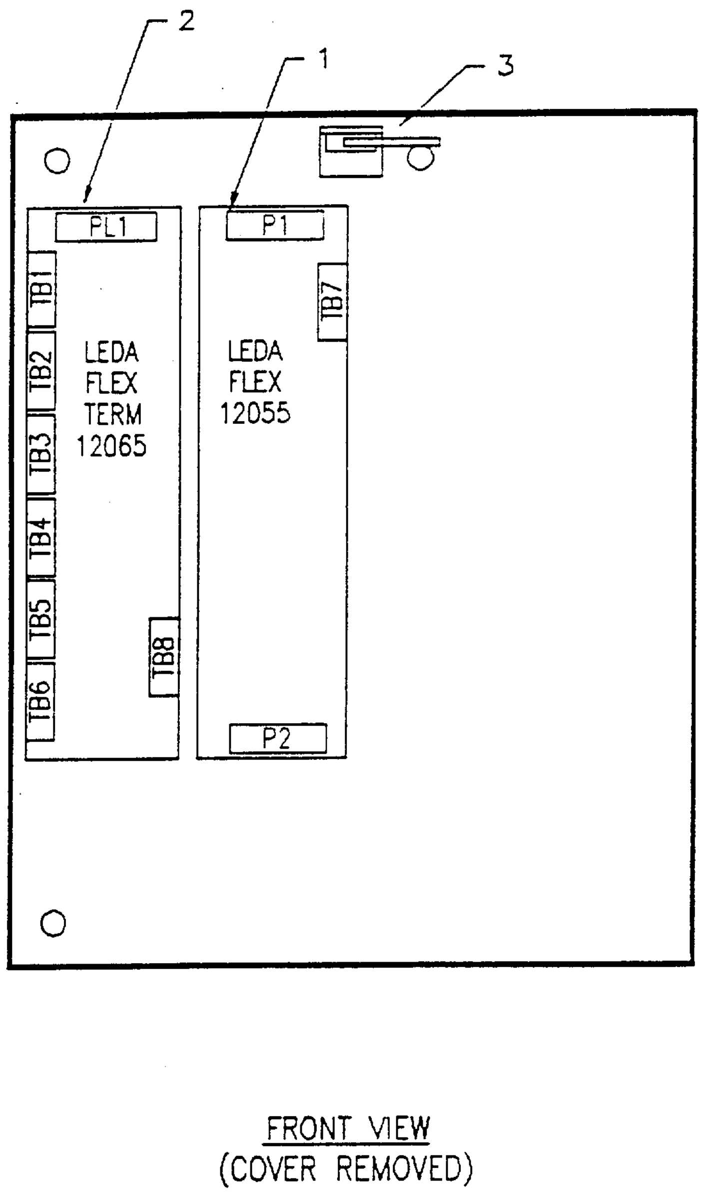


Figure 1-13. SubRADC (Leda), 12 Points, Interior

j. SubRADC (Leda), 12 Points, Exterior (See Figure 1-14).

(1) Leda Flex PWA (Item 1). Used to connect up to 12 additional sensors via the termination PWA to the RADC via AUX-0 port. The Leda operates from 12 vdc provided by the in-house power supply.

(2) Leda Flex Termination PWA (Item 2). Provides a means to interface 12 additional devices to the LEDA PWA.

(3) Thermal Switch (Item 3). Turns the heater on and off when the temperature reaches 55 degrees F.

(4) Tamper Switch (Item 4). Provides protection against unauthorized entry of the Sub-RADC (Leda) enclosure by generating an alarm via the RADC to the operator work station.

(5) Heater (Item 5). Prevents humidity from forming within the SubRADC (Leda), (exterior) Nema 4, enclosure by turning on when temperature drops below 55 to 60 degrees F.

(6) AC Power Receptacle (Item 6). Used to furnish 120 vac power to the heater element.

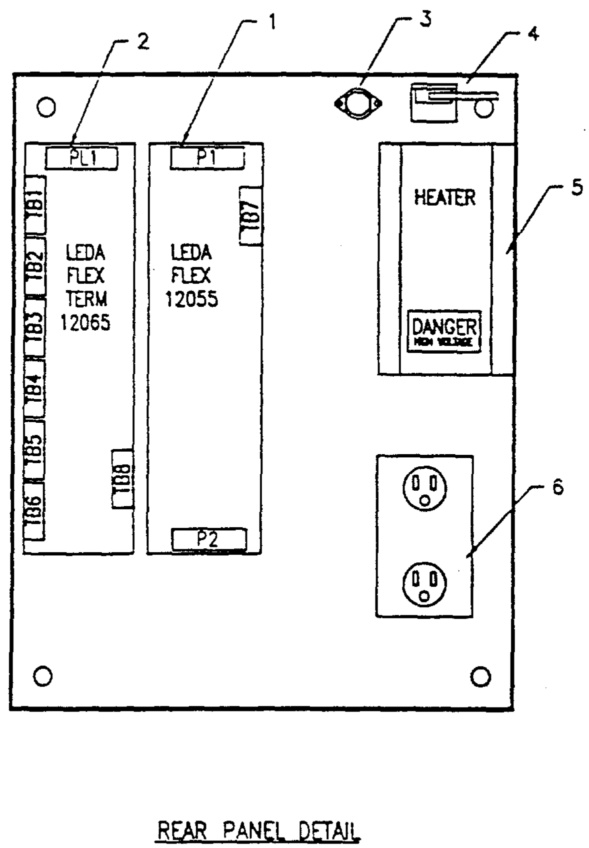


Figure 1-14. SubRADC (Leda), 12 Points, Exterior

k. J-SIIDS to Stargate Interface (See Figure 1-15)

(1) Hinged Panel Assembly (Item 1). Supports the Stargate 1000 PWA and MOD2-II Modem within the J-SIIDS enclosure.

(2) Stargate 5000 PWA (item 2). Contains the programs to monitor the status of optional devices and process this information to the PMC. The Stargate 5000 PWA is used in the Interior RADC.

(3) Mod2-II Modem (Item 3). Is the communications network between the RADC and the PMC. The Mod2-II modem communicates at a 1200 baud rate between the RADC and the PMC.

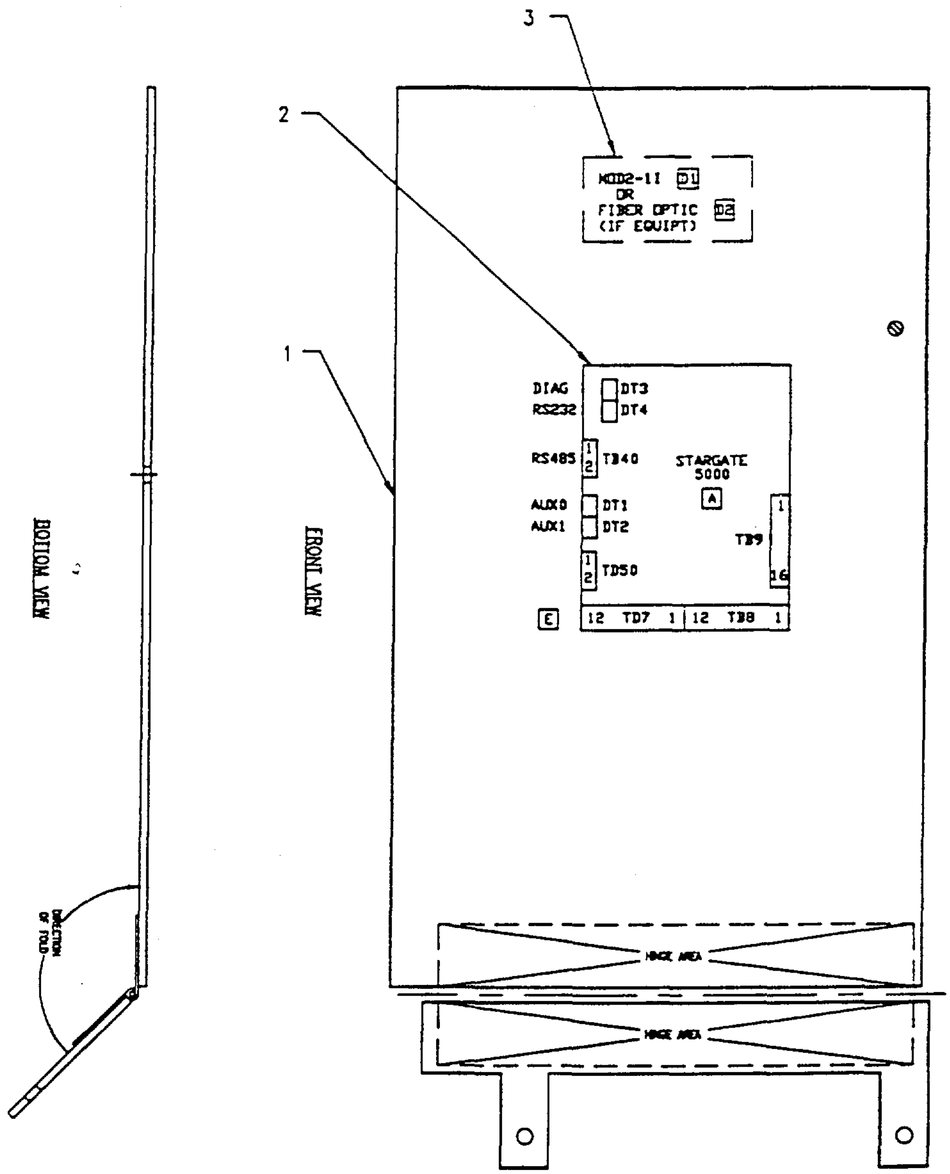


Figure 1-15. J-SIIDS To Stargate Interface

I. J-SIIDS Leda Interface (See Figure 1-16)

(1) Hinged Panel Assembly (Item 1). Supports the Leda Flex PWA and Leda Flex Termination PWA within the J-SIIDS enclosure.

(2) Leda Flex PWA (Item 2). Used to connect up to 12 additional sensors via the termination PWA to the RADC via AUX-O port. The Leda operates from 12 vdc provided by the in-house power supply.

(3) Leda Flex Termination PWA (Item 3). Provides a means to interface 12 additional devices to the LEDA PWA.

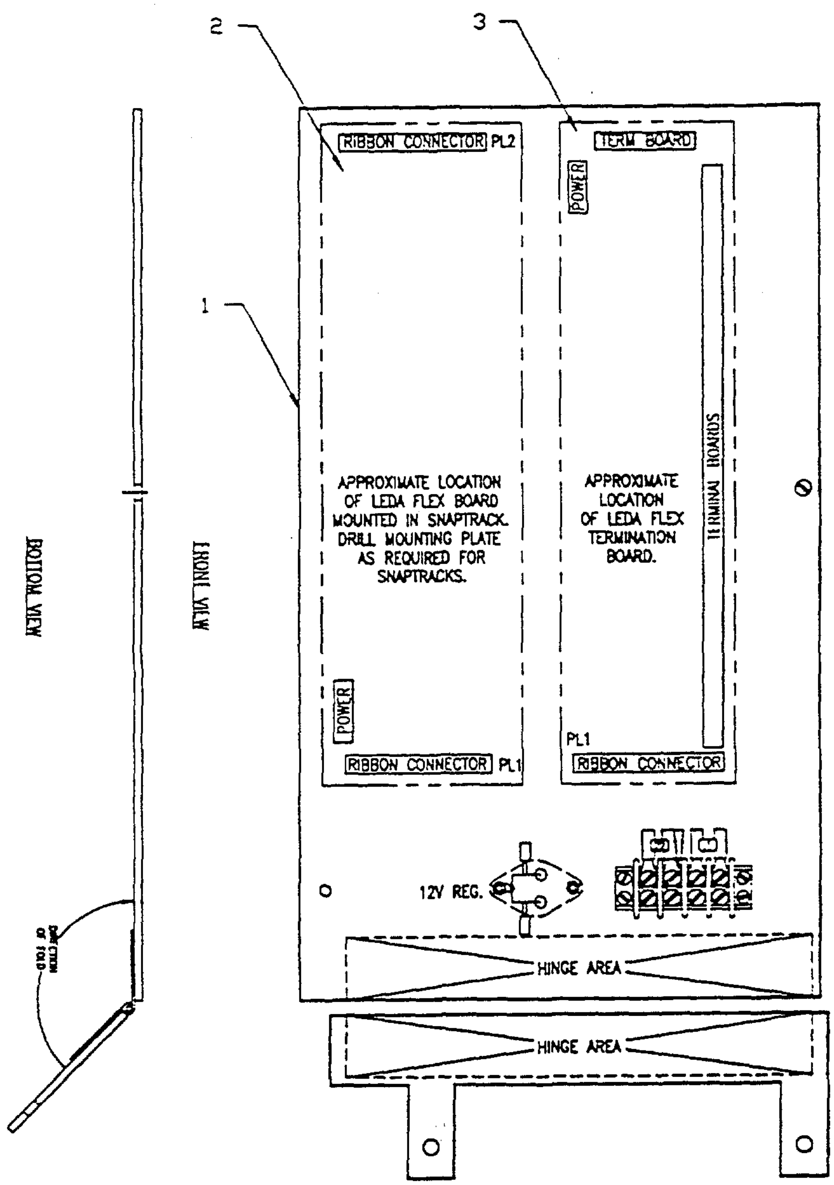


Figure 1-16. J-SIIDS to Leda Interface

m. **J-SIIDS Ganymede Interface (See Figure 1-17)**

(1) Hinged Panel Assembly (Item 1). Supports the Leda Flex PWA and Leda Flex Termination PWA within the J-SIIDS enclosure.

(2) Ganymede B PWA (Item 2). Contains the programs to monitor the status of optional devices, and process this information to the PMC.

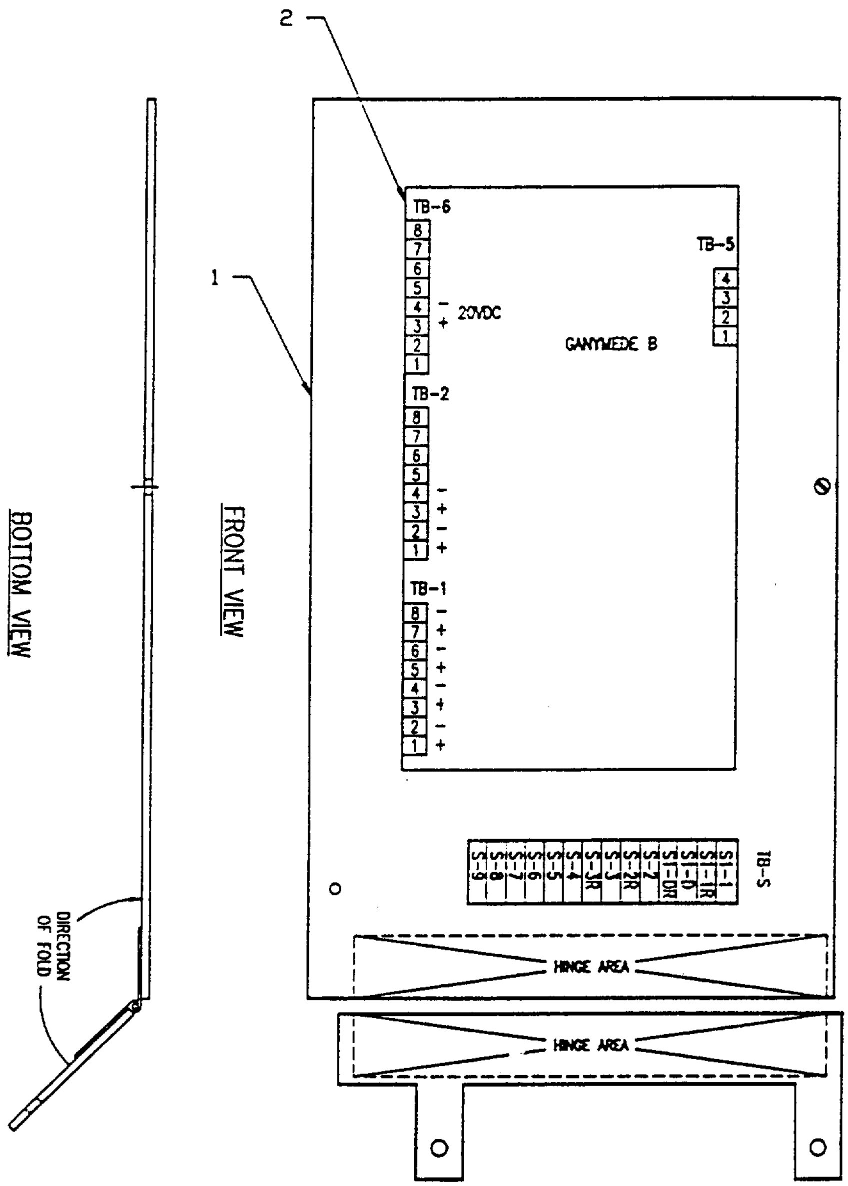


Figure 1-17. J-SIIDS to Ganymede Interface

n. Closed Circuit TV System (CCTV) Components (see Figure 1-18).

(1) Camera (Item No. 1). The 1/2" or 2/3" camera operates at 120/208/240 vac, 60 hertz and 240 vac, 50 hertz, and is automatically switchable. The camera is capable of providing full video output with no gain using an f/1.4 lens and maximum scene illumination.

(2) Video Switcher (Item No. 2). The video switcher can switch any video input to any video output with the maximum switch matrix of up to 128 video inputs by 5 video outputs.

(3) Video Synchronizing Distribution Amplifier (Item No. 3). The video synchronizing distribution amplifier provides six 75-ohm outputs with greater than 40 db isolation.

(4) Video Synchronizing Generator (Item No. 4). The synchronizing generator has high stability in providing video output signals. (5) Video Storage and Playback Equipment (item No. 5). The recorder operates on either 120 vac, 60 hertz or 240 vac, 50 hertz. The Video Cassette Recorder (VCR) is capable of recording up to 720 hours on a single cassette tape, with 12 user-selectable time-lapse record speeds. The remote contact closure switches the recorder into recording during alarms. The selected alarm recording speed can be programmed to continue for a period up to three minutes or until the contact is reopened.

(6) Monitor (Item No. 6). The monitor operates at 120 vac, 60 hertz or 240 vac, 50 hertz, and is manually switchable. The monitor has fast acting acting automatic frequency control. It reproduces ten shades of gray. The front panel has a slide switch for power on/off with Light Emitting Diode (LED) pilot light. It has a rotary knob for each of Contrast, Vertical-Hold, Horizontal-Hold, and Brightness.

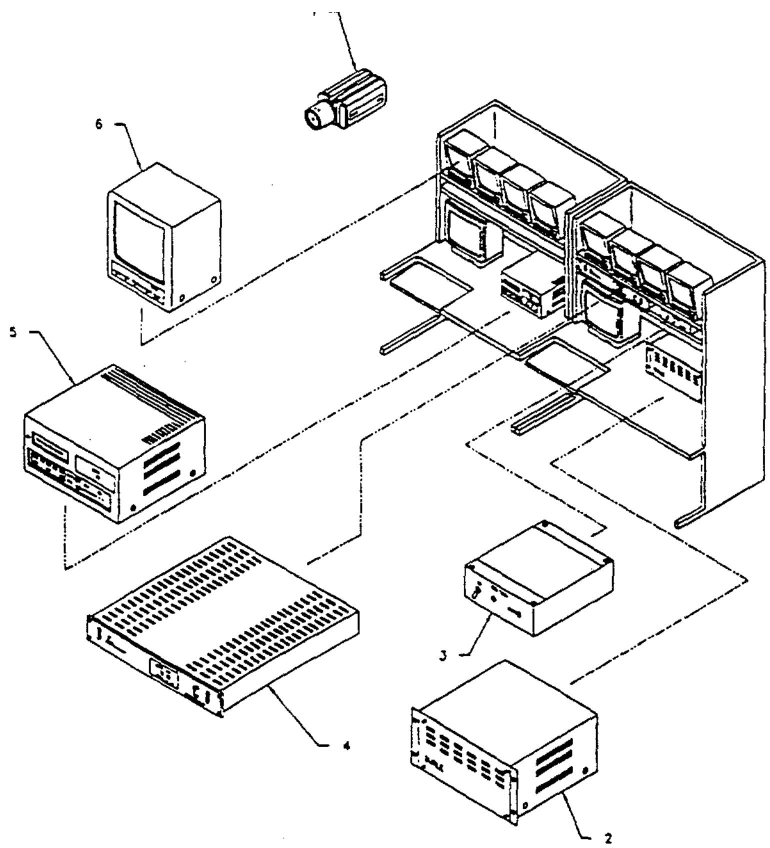


Figure 1-18. Closed Circuit Television Components (CCTV)

o. Entry Control Equipment (ECE) Components (see Figure 1-19). The Entry Control Equipment (ECE) is used to control personnel entry and exit to secure areas, and to alert security monitors to attempts at unauthorized entry.

(1) Intelligent Access Controller (IAC) (Item No. 1). The Intelligent Access Controller (IAC) is a Printed Wiring Assembly (PWA) that provides inputs for door status, requests to exit, four auxiliary alarms, and tamper. Outputs are provided for door strike (electric locks), alarm bell, alarm output, and auxiliary output. In the standalone mode, the Intelligent Access Controller (IAC) can store up to 2000 access tag records.

(2) Intelligent Access Unit (IAU) (Item No. 2). The Intelligent Access Unit (IAU) is a key pad and card swipe device that interfaces with the Intelligent Access Controller (IAC). It is configurable for Personnel Identification Numbers (PINs) up to 10 digits. It also provides a Liquid Crystal Display (LCD) for messages and operational instructions, such as WAIT, ERROR, ACCESS DENIED, ENTER PIN, etc.

(3) Card Reader (Item No. 3). The Card Reader interfaces with the Intelligent Access Controller (IAC) to grant or deny access to a zone. The readers generally fall into two categories: (1) insert or card swipe, or (2) proximity. With a proximity reader, actual insertion of a card is not required. When used alone, the Card Reader is the least secure of the three devices.

(4) Key Pad (Item No. 4). The Key Pad is another type of remote terminal unit that interfaces with the STARGATE Printed Wiring Assembly (PWA). The Key Pad is used to place a zone into the secure mode. It also has some maintenance functions.

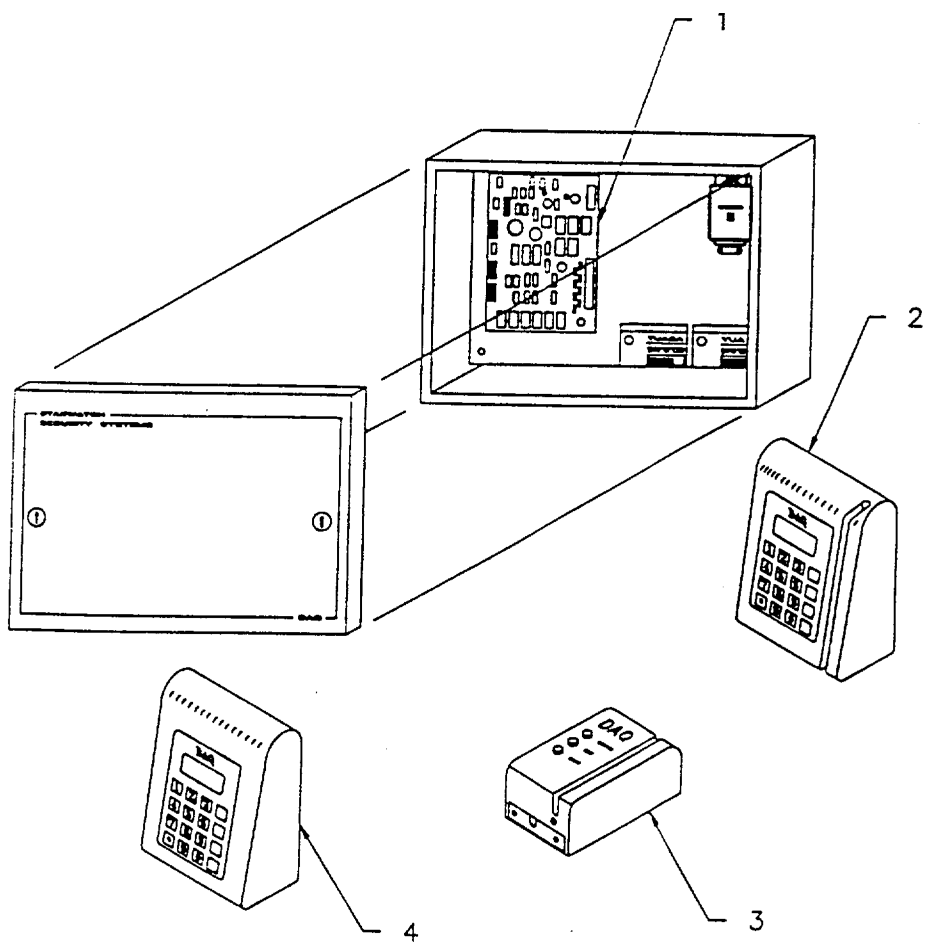


Figure 1-19. Entry Control System Equipment (ECE)

p. Audio Assessment Devices (AAD) Components (see Figure 1-20).

(1) Audio Switcher Control (item No. 1). The audio switcher interfaces with the Primary Monitor Console (PMC), Primary Monitor Console (PMC) audio module, and the 16 line audio switcher. It controls up to 512 communication channels.

(2) Audio Switcher, 16 Line (item No. 2). The 16 line audio switcher is used to interface 16 Remote Area Data Collectors (RADCs) to the PMC. Up to 32 switchers could be integrated into the system.

(3) Intercom Handset (Item No. 3). The handset, used in conjunction with the Remote Area Data Collector (RADC) audio module, is a lift and talk intercom device. When the handset is lifted from the cradle, an alarm is sounded at the operator station, alerting the operator to a communication request.

(4) Auxiliary Audio Console (Item No. 4). The auxiliary audio console is a remote transmitter/microphone.

(5) Audio Assessment Device (AAD) (item No. 5). The Audio Assessment Device (AAD) is a microphone that can be turned on by the ICIDS computer when a sensor detects the presence of an intruder. It interfaces with the Audio Assessment Device (AAD) Printed Wiring Assembly (PWA) in the Remote Area Data Collector (RADC).

(6) Remote Area Data Collector (RADC) Audio Module (Item No. 6). The Remote Area Data Collector (RADC) audio module amplifies the audio signal at the Remote Area Data Collector (RADC). It has a volume control knob. Power is provided through a 120 vac power supply. Interface with other audio devices is through terminal strips.

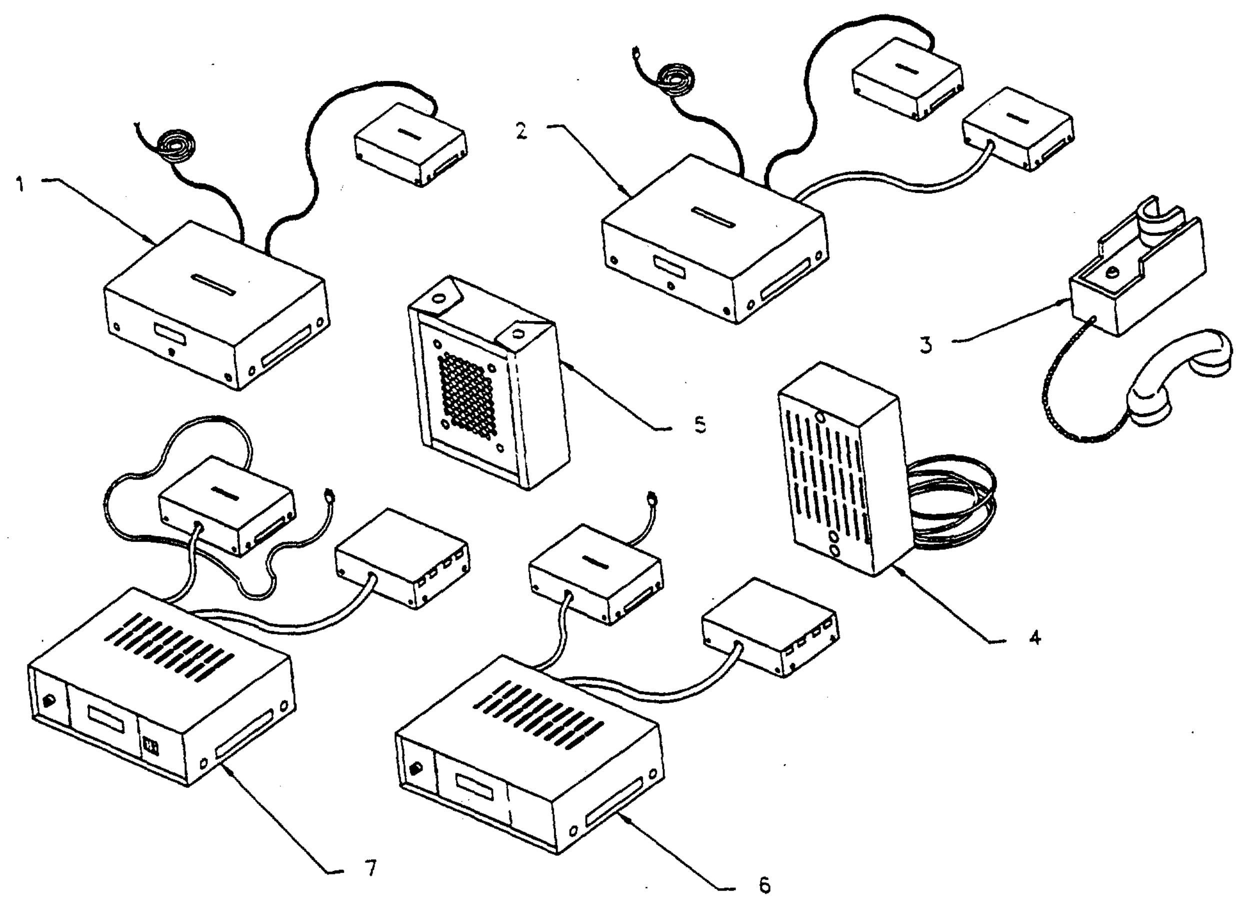


Figure 1-20. Audio Assessment Devices (AAD)

(7) Primary Monitor Console (PMC) Audio Module (Item No. 7). The Primary Monitor Console (PMC) audio module provides the intercom base station and amplifier. It has a volume control knob and a push-to-talk button. Power is provided through the 120 vac power supply. Interface with other audio devices is through terminal strips.

q. Sensor Devices (Exterior) (See Figure 1-21).

(1) Exterior Microwave Motion Sensor (EMMS). The Exterior Microwave Motion Sensor (EMMS) is an exterior microwave perimeter intrusion detection sensor. It is usually located near or between fence lines. The sensor protects a minimum of 100 meters of fence line and detects intruders crossing the detection zone.

(2) Radio Frequency Motion Sensor (RFMS). The Radio Frequency Motion Sensor (RFMS) covers a large area with microwave energy. Any change in energy will be detected by the receiving antenna.

(3) Exterior Infrared Perimeter Sensor (EIPS). The Exterior Infrared Perimeter Sensor (EIPS) is a pedestal mounted, active infrared sensor consisting of a transmitter and receiver in two outdoor Environment post type housings. The sensor alarms when an infrared beam between the transmitter and receiver unit is interrupted or beam modulation is disturbed.

(4) Taut-Wire Fence Sensor (TWFS). The Taut-Wire Fence Sensor (TWFS) is a tensioned barbed wire displacement sensing sensor that detects attempts by a fence climbing intruder. Multiple strands of wire and tensioning devices are attached to either "vertical" or "Y" (angled) outriggers on the fence. The sensor alarms when 60 pounds or more is applied to any strand of the barbed wire or when any strand is deflected by 6 inches or more.

(5) Fence Mounted Vibration Sensor (FMVS). The Fence Mounted Vibration Sensor (FMVS) is a chainlink fence mounted sensor that assures continuous detection coverage across the full span of the fence panels, including the fence post. It consists of vibration-detecting transducers that detect mechanical vibrations caused by intruders climbing, pulling, tugging, or cutting any part of 200 meters of fence paneling.

(6) Ported Coaxial Cable Sensor (PCCS). The Ported Coaxial Cable Sensor (PCCS) detects intruders crossing a detection zone by transmit and receive cables that are buried in parallel along a perimeter. A disturbance in the electromagnetic field between the cables causes the sensor to alarm.

(a) With line amplifiers, the sensor can protect 1600 meters of perimeter.

(b) Without amplifiers, the sensor can protect 800 meters of perimeter.

(7) Strain Sensitive Cable Fence Sensor (SSCFS). The Strain Sensitive Cable Fence Sensor (SSCFS) is an intrusion detection sensor for outdoor perimeter and interior security. It is a passive detector that is mounted on chainlink or weldmesh fences, on interior surfaces. It is designed as a primary sensor for medium security applications of a secondary sensor for high security applications.

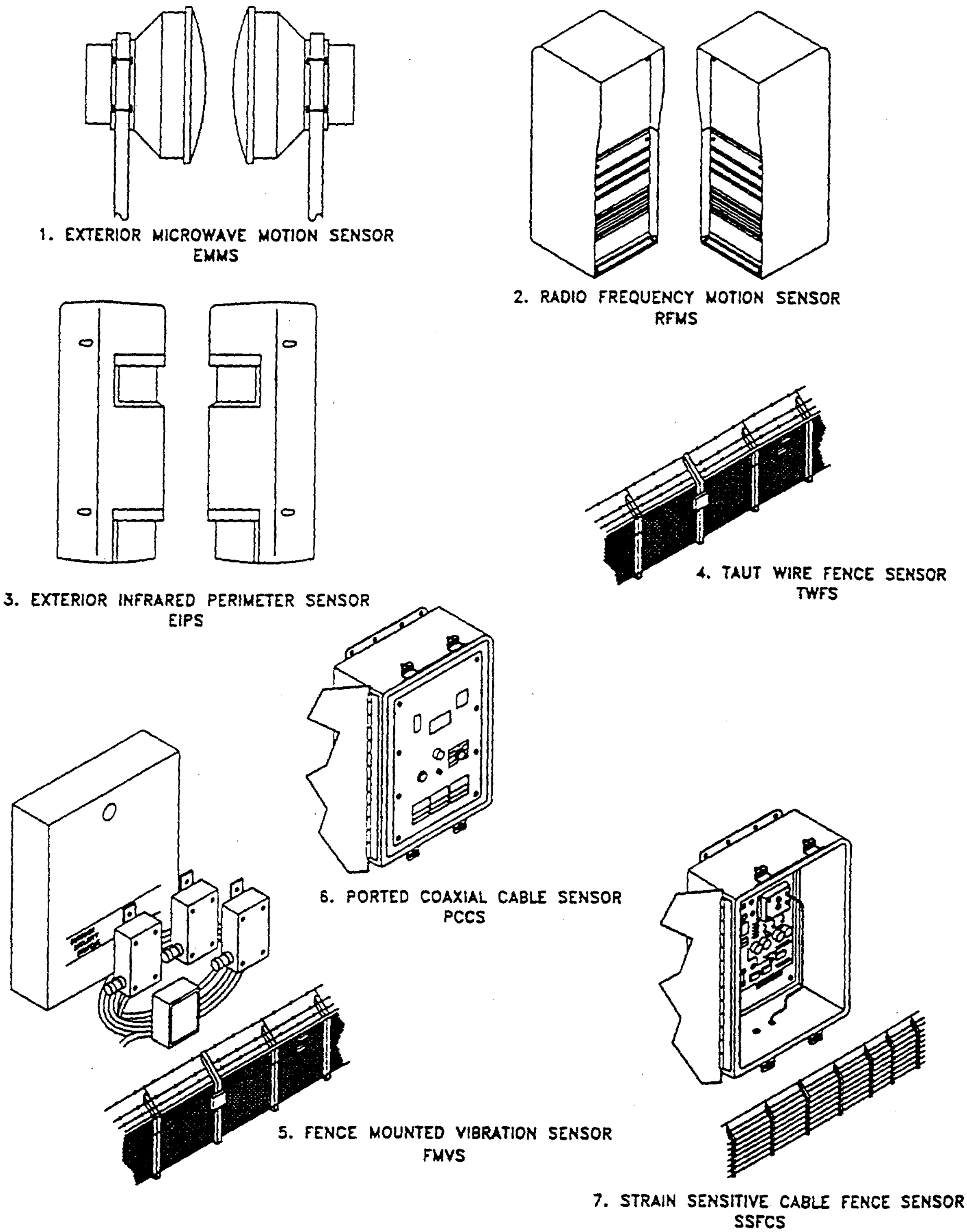


Figure 1-21. Sensor Devices (Exterior)

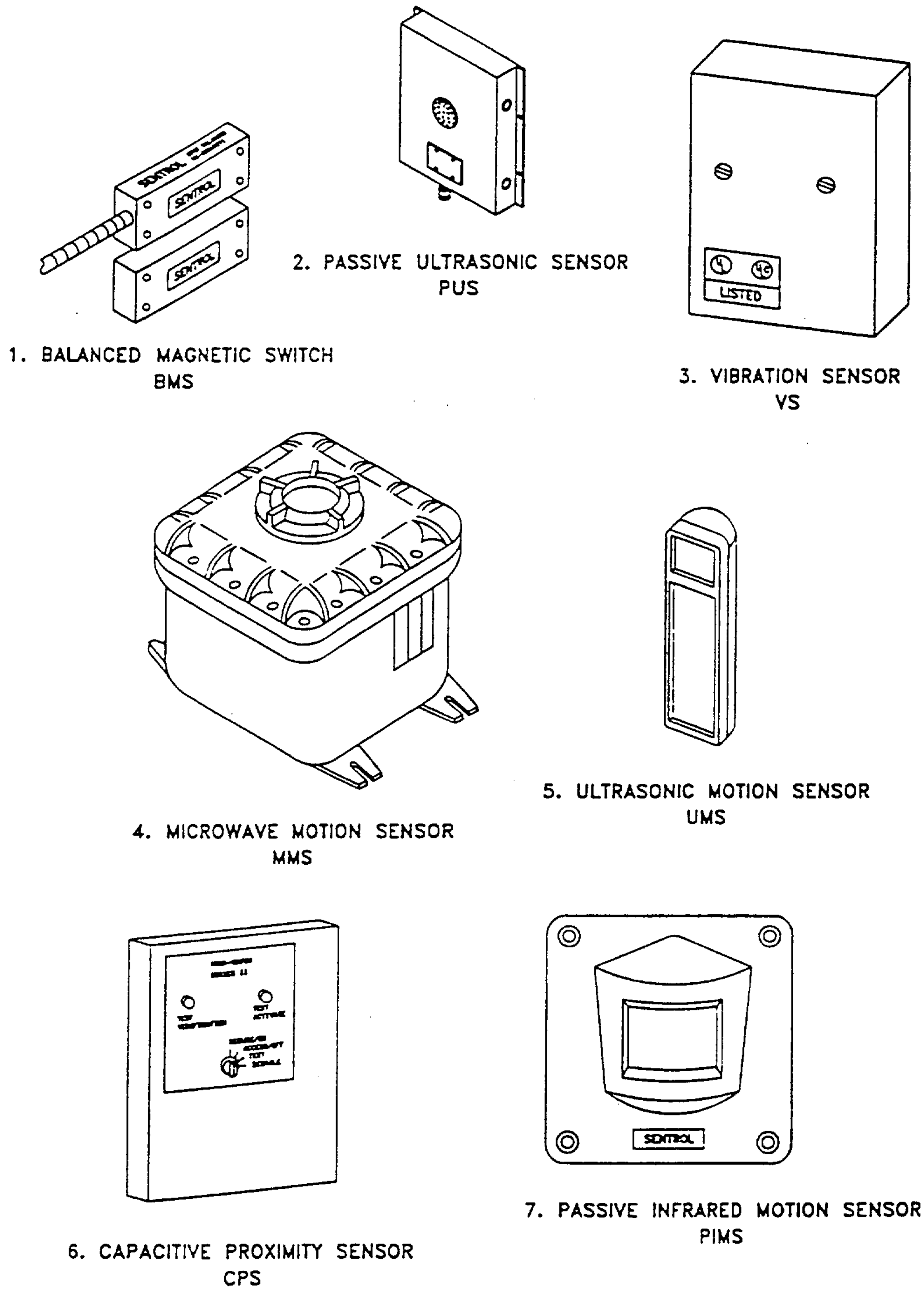


Figure 1-22. Sensor Devices (Interior)

r. Sensor Devices (Interior) (See Figure 1-22.)

(1) Balanced Magnetic Switch (BMS) (standard and low profile). The Balanced Magnetic Switch (BMS) detects the opening of doors, including roll up doors, and windows. The Balanced Magnetic Switch (BMS) will alarm when the separation between the magnet and switch assembly changes by 0.80 ± 0.40 inches on any plane or when the local magnetic field has a positive or negative difference from the initial adjustment.

(2) Passive Ultrasonic Sensor (PUS). The Passive Ultrasonic Sensor (PUS) detects ultrasonic energy generated by drills and other intrusion tools during attempts to penetrate through the perimeter (walls, doors, window, ceilings) of the protected area.

(3) Vibration Sensor (VS). The Vibration Sensor (VS) detects vibrations generated during attempts to penetrate through the perimeter of the protected area.

(4) Microwave Motion Sensor (MMS). The Microwave Motion Sensor (MMS) detects intruder motion within a protected area. It has a single antenna Doppler sensor operating at microwave frequencies.

(5) Ultrasonic Motion Sensor (UMS). The Ultrasonic Motion Sensor (UMS) detects intruder motion within a protected area. The sensor detects Doppler shifts in the ultrasonic signal generated by intruder motion.

(6) Capacitance Proximity Sensor (CPS). The Capacitance Proximity Sensor (CPS) can be used either as a penetration sensor or as a point sensor. The Capacitance Proximity Sensor (CPS) detects the change in capacitance between the connected object and ground resulting from the close approach or touch of an intruder. The Capacitance Proximity Sensor (CPS) has a field adjustable sensitivity control. The Capacitance Proximity Sensor (CPS) adjusts to slowly changing values of total capacitance caused by the environment without alarm.

(a) As a penetration sensor it is connected to isolated metal bars, mesh, or screens which cover windows, vents, and other openings.

(b) As a point sensor it is connected to safes, file cabinets, and other metal objects.

(7) Passive Infrared Motion Sensor (PIMS). The Passive Infrared Motion Sensor (PIMS) detects intruder motion. It is available in three configurations. All configurations alarm at 2 degree celsius temperature differential between the intruder and the background.

(a) Volumetric. The detection pattern extends from 8 feet to 30 feet and at angles up to ± 60 degrees.

(b) Curtain. The detection pattern extends from the sensor mounting level to the floor, to a minimum of 30 feet, and at angles up to ± 3 degrees. The maximum angle covered by the sensor is approximately 6 degrees.

(c) Omni-directional. The detection pattern extends out to 30 feet from a point directly beneath the sensor and all angles about a line through this point.

1-15. DIFFERENCES BETWEEN MODELS. There are two different configurations of the Integrated Commercial Intrusion Detection System: the Large Primary Monitor Console (LPMC), and the Small Primary Monitor Console (SPMC). The difference between the two configurations is the quantities of equipment. The LPMC can monitor up to 256 zones. The SPMC can monitor up to 64 zones. Table 1-1 provides the differences between the Large and Small Primary Monitor Consoles.

Table 1-1. Primary Monitor Console Differences

PRIMARY MONITOR CONSOLE		
Quantity		Description
Large	Small	
2	1	+ 15 vdc Power Supply
1	1	Central Processor Unit (CPU)
16 megabytes	12 megabytes	CPU Memory
1	1	Monitor
1	1	Keyboard
1	1	Tape Streamer
2	2	Power Supply Module
1	1	Event Printer
1	1	Uninterruptible Power Supply (UPS)
33	9	Intelligent Multiplexer Printed Wiring Assembly (PWA)
OPERATOR STATION		
Quantity		Description
Large	Small	
2	2	Central Processor Unit (CPU)
2	2	Monitor
2	2	Keyboard
2	2	Power Supply Module
1	1	Logging Printer

1-16. EQUIPMENT DATA. See paragraph 1-13, Table 1-2 through 1-5 in the Operator's Manual, TM 5-6350-275-10, for the equipment data.

Section III. PRINCIPLES OF OPERATION

1-17. FUNCTIONAL DESCRIPTION. ICIDS is a system of intrusion detection equipment that provides an early warning indication of intrusion attempts to a central monitoring location. ICIDS is installed to enhance the physical security of sites and assets. ICIDS is used by security forces as the principal element for intrusion detection. ICIDS components are configured based on the required site level of protection.

Protection of assets consists of three functions. They are (1) intrusion detection within a specified area, (2) delay of intruders once the protected zone has been penetrated, and (3) assessment of the intrusion and deciding the type of security force response required to prevent asset compromise.

ICIDS provides early warning of attempted actions against a protected asset by an intruder. Intrusion into an area may be attempted by forced entry, covert entry, or insider compromise. These tactics can be performed separately or in combination. Intruders may be motivated to steal. sabotage, or learn about the protected asset.

ICIDS equipment functions are briefly described here with more detailed information provided in the following paragraphs.

a. Primary Monitor Console (PMC). The PMC software program starts when the system is initialized and acquires data from each RADC it is monitoring. If an RADC fails to respond, the system alarms and notifies the operator.

b. Operator Workstation. The Operator Workstation monitors the status of all equipment within the security system. Commands are entered into the system using the workstation keyboard. A legend of the available soft-keys appears on each operator's display and changes to reflect alternative soft-key options.

c. Remote Area Data Collector (RADC). A network of RADCs, also referred to as stations, monitors and controls all intruder detection and access control equipment. Each RADC compiles a list of readings and changes which it transmits to the PMC. The readings are then processed and stored, and operators' displays are updated to reflect any detected changes.

d. Closed Circuit Television (CCTV) System

(1) Purpose. The CCTV enables operators to visually assess the causes of intrusion at a remote site. The video can be viewed on one or more monitors which display the pictures received from a network of CCTV cameras. The operator may use the workstation keyboard to direct the scenes of a particular camera onto a chosen monitor.

(2) Monitors. Video monitors provide near real-time threat assessment capability. Video from cameras in protected areas is displayed as the result of an alarm or by operator selection.

(3) Cameras. The cameras are monochrome cameras used for surveillance of protected areas. The cameras allow threat assessment and recording. Interior cameras are installed either without housings or in tamper protected housings. Exterior cameras are installed in tamper protected housings.

(4) Video Synchronization Generator. The video synchronization generator generates horizontal drive, vertical drive, blanking, and synchronization signals for transmission to the video cameras when synchronization is required.

(5) Video Synchronization Distribution Amplifier. The video synchronization distribution amplifier distributes a synchronization signal to video cameras where camera synchronization is required.

(6) Video Storage Units. The Video Cassette Recorder (VCR) is a time lapse recorder. It is capable of recording for 720 hours on a single cassette tape. The alarm event record time is selectable for up to 3 minutes of automatic recording. Playback functions include: alarm, fast forward, search, fast rewind search, rewind/fast forward, play, slow motion or step field/frame, and pause/still.

(7) Fiber Optic Hardwire Interface. The fiber optic hardwire interface converts a fiber optic video transmission medium to a hardwire transmission medium for the video switcher input.

e. Uninterruptible Power Supply (UPS). The UPS provides true computer grade power upon loss of line AC. The microprocessor determines which system mode it should operate in depending upon line conditions. The UPS can also be operated manually through the control panel.

(1) Auto Mode. In auto, the microprocessor monitors the quality of input power and regularly tests its batteries and inverter. The battery charger keeps the batteries at full voltage.

(2) Inverter Mode. If the microprocessor senses a problem with line power, it switches to inverter mode. The inverter takes dc power from the batteries, converts it into ac, conditions it, and provides computer grade power to the supported system.

f. Entry Control Equipment. Entry control equipment provides the means to automatically unlock doors when authorized personnel wish to enter or leave a particular area. ICIDS can use three types of access control devices. The most common device is the Intelligent Access Unit (IAU). is normally mounted on a wall adjacent to each door. Personnel are issued an identity card, which they present to an access reader each time they wish to enter and/or leave a protected area. Each access is recorded and all attempted breaches in security are reported to operators by system alarms.

The second type of access control device is called a key pad. Personnel use it to enter 6 digit Personnel Identification Ciphers (PICs) and/or 4 digit Personnel Identification Numbers (PINs). It can operate as a stand-alone unit, where the entry of a valid PIN unlocks the door. It may be linked to an access reader so that access is only granted when both a valid card has been presented and a valid PIN is then entered. Each person is allowed up to three attempts to enter the correct PIC or PIN, after which the system reports the incident to the control center by a system alarm.

The third type of access control device is called an access reader, which has two optional features, called Accountability and Messaging. Accountability records the current location of all authorized personnel by monitoring their access into and out of each protected area. Operators can create displays which list the personnel within each protected area and may also review the movements of an employee on a particular day or during a selected time. Messaging permits the System Administrator to send messages to a card holder or a group of card holders.

1-18. SOFTWARE PROGRAMS. The ICIDS programs for carrying out day-to-day operations are known as application programs. They are stored on the hard disk of the CPU and include a data acquisition unit (DAU) program, reconfiguration program, and an operator utility program.

a. DAU Program. The DAU Program retrieves all data recorded by the remote stations, and stores this information in a series of "engineering tables" which form the system database. It acquires data by periodically requesting information from each remote station. When a remote station fails to respond to a pre-determined number of requests, operators are notified by a system alarm.

b. Reconfiguration Program. The Reconfiguration Program allows operators to create and modify the system's database. It can be accessed through any operator workstation and is password protected to prevent use by unauthorized personnel. Information about the number of remote stations, the types of sensors, the conditions that will cause alarms to be generated, and other variables is entered using a series of forms. A comprehensive graphics package provides the means to draw color graphics of the areas and equipment being monitored. Additionally, the program enables reconfiguration personnel to access a number of Operator Profile Records, for tailoring the system to meet the operational needs of each operator. This information includes the commands available to each operator, the remote stations and/or types of equipment in use, and the printers the operator can use.

c. Operator Utility Program. The Operator Utility Program monitors the status of all equipment. It is also password protected and is copied into the memory of a workstation when an operator logs in. Commands are entered through the workstation keyboard and/or an optional mouse. Commands are selected by using 10 soft-keys, so called because their functions are determined by software. A legend of the available soft-keys appears on each operator's display and changes when necessary to reflect alternative soft-key options. By using these soft keys, you can:

* Display the status of monitored equipment.
* Unlock doors remotely.
* Control CCTV equipment.
* Switch non-security related equipment on or off.

1-19. ACCESS CONTROL.

a. General. Access Control is the ability to control and monitor personnel entry and exit. This is achieved by access readers which unlock doors when a person presents a valid card and/or enters a valid PIN. Information for the use of each access reader and door is recorded by the RADC and returned to the PMC. It is then processed and made available for display.

b. Security Zones. A security zone is an area which is protected by access control equipment and whose doors can be controlled to prevent personnel from entering and/or leaving a zone. The status of each security zone is recorded in the system under one of five possible conditions.

(1) Normal. The normal state means that access into and out of the zone is controlled in a standard secure procedure.

(2) No Entry. No entry indicates that access into the zone is prevented; however, personnel may leave as normal.

(3) No Exit. No exit indicates that exit from the zone is prohibited.

(4) No Access. No access means that both entry and exit are prohibited.

(5) Unlocked. The unlocked state means that entry and exit is allowed without the use of Personnel Identification Numbers (PINs) and/or cards.

c. Portals. A portal is a door or gateway through which authorized personnel can gain access to a zone. Each portal is identified by a name, such as main gate, rear door, front door, etc., and number, and may have up to two access readers, one for entry, and the other for exit.

Portals are monitored by ternary points which are used to report the conditions ajar, forced open, and normal.

(1) Ajar. The condition ajar means that the door has been left open for longer than a predefined time.

(2) Forced Open. Forced open indicates that the door was not opened by using a card, by an operator, or automatically by the system.

(3) Normal. Normal means that the door is functioning in a standard secure mode.

d. Incident Recording. Each attempted access through a door is recorded as an event and validity checks are made to prevent breeches in security. The events are stored within an archive file and can be displayed by the [EVENTS] soft-key which is an option under the [PICT] key. In most cases, they are reported by means of systems alarms. The incidents relating to portal access which can be reported are listed below. Except for the first entry, all incidents will be reported by an alarm and will also be reported as a system event.

(1) Valid Access In and Out

(2) Duress Alarm (an additional number to the Personnel Identification Number (PIN) for a secret code)

(3) Wrong Card Type (card from another system)

(4) Unknown Card (valid for system but not registered)

(5) Access Denied (access level violation)

(6) Incorrect Personnel Identification Number (PIN) code (after three tries)

(7) No Personnel Identification Number (PIN) code (card swiped but no Personnel Identification Number (PIN) put in)

(8) Passback Violation In and Out

(9) Door Forced

(10) Door Ajar (held open)

(11) Invalid Card (card invalidated by system)

(12) No Buddy Card (two man rule violation)

(13) Wrong Card Class

(14) Wrong Cipher

(15) Duress Cipher

(16) Cipher Altered

e. Violation Protection. Access readers also include tamper detection devices which monitor the reader's housing and report any attempt at forced entry.

f. Access Levels. Access levels are used to define the zones that each card holder may access, together with the times at which entry/exit will be allowed. They are optional and present the means for increasing security within the protected area by restricting access in accordance with each person's security status. A security guard, for example, could be allowed complete freedom of movement within the protected area at all times, while other employees could be restricted to entering only selected zones between the times 0900 and 1700.

The system can support up to 255 different access levels, each of which defines the access requirements of one or more card holders.

g. Accountability. Accountability allows the current location of personnel to be continually recorded by monitoring their entry/exit through doors. It can be undertaken at two different levels: Full and Partial. Full accountability requires readers on both entry and exit sides of the door.

Partial accountability can be employed where a system only supports entry readers. Similar to full accountability, all entries into a zone are recorded by the system. However, since there are no exit readers, it is not possible to record personnel when they leave zones. It simply corrects the last known zone position. Therefore, it offers a somewhat less reliable form of tracking and cannot be used to report passback violations.

The last registered location of a card holder can be displayed by means of the [SUMMARY] soft-key.

h. Card Holder Profiles. A card holder profile is a collection of personal information relating to an individual. The card holder profiles are created by the system administrator using the reconfiguration program and cannot be changed in the operator mode. However, they are available for display, along with other information relating to card holders, by the [ATTRS] soft-key.

1-20. ALARM GENERATION. Alarms are generated to draw the operator's attention to significant system events, such as the triggering of an intruder detection device or the failure of a communications cable. They are shown by messages which appear on the monitor and an audible warning tone emitted by the workstation. Each message can contain up to three lines of text and includes the condition which caused the alarm to be generated, the time, and the identity and location of the equipment concerned.

a. The conditions which cause alarms to be generated depend on the type of equipment being monitored. Equipment which is monitored by status points can generate alarms each time a change is detected when an exceptional condition arises.

b. Alarms for communications cables or wires can be generated to report the conditions: Failing, Failed, and Recovering. Failing means that the PMC has been unable to communicate successfully with a RADC following a pre-determined number of attempts. Failed means that the number of failures is so great, the cable should be considered inoperable. Recovering alarms are used to indicate significant improvements in a cable's "health".

c. Alarms which reflect the condition of a RADC's cables are termed Telemetry Alarms. Two other types which fall into this category are: RADC Failure alarms and Point Failure alarms. An RADC Failure Alarm is generated when the master station is unable to communicate with an RADC, implying that the problem lies within the RADC itself rather than the communications link(s). Point Failure Alarms indicate that the PMC has not received status information for a particular item of equipment and also imply that the problem lies within the RADC. In both cases, the nature of the alarms suggests that some form of maintenance will be needed on the RADC concerned.

1-21. ALARM QUEUES. An Alarm Queue is a place in which groups of logically or geographically related alarms are maintained. There are 16 alarm queues available. Those used are assigned both a title, which indicates the type of alarms the queue contains, and a reference number in the range 1 16. For example, an alarm queue entitled Security could be used to store all alarms relating to security equipment while another, entitled Telemetry, could be used to maintain telemetry alarms.

a. When an alarm is generated, it is placed in up to four of the available alarm queues and is also tagged with the current time and a priority level. The priority level is a number in the range 1 16 and determines the order in which alarms are stored within each queue. Level 1 is the highest priority and is assigned to alarms which are of greatest importance to operators, such as those indicating intrusion into high-security areas. Level 16 is the lowest level and is assigned to the least significant alarms.

b. The highest priority alarm within each of up to four queues is presented to operators by a specially reserved area of the display called the alarm frame. Typically, each message appearing in this frame contains only one line of text, part or all of which may flash in order to visually alert the operator.

c. There are three processes which can be undertaken on an alarm; it can be acknowledged, cleared, or deferred. Acknowledgment is normally the first course of action and means that the alarm has been accepted and the required operational procedures have been undertaken. When an alarm is acknowledged, it is tagged as such by the system and the next alarm of highest priority replaces it at the top of the queue.

Following acknowledgment, and the satisfactory conclusion of the incident, alarms can be cleared. Clearing an alarm results in its being removed from the appropriate queue. Alarm clearing may be undertaken automatically when the condition which caused the alarm ceases.

The deferral process enables alarms to be set aside for processing at a later time and is used on alarms which cannot be acknowledged or cleared immediately. Deferred alarms are held in a separate section, and only appear in the alarm frame when there are no undefined alarms held within a queue. Operators can display deferred alarms by specifically requesting a list of the deferred section.

1-22. PRIORITY ORDERING OF ALARM QUEUES. The order in which alarms are maintained within each queue is determined by: first, whether or not they have been deferred; second, whether they have been acknowledged; third, their assigned priority levels; and, finally, their age. Undeferred alarms are given precedence over deferred alarms. Unacknowledged alarms have a higher priority than acknowledged alarms. Alarms with the highest priority levels are given precedence over those with lower levels. If two alarms share the same priority, precedence is given to either the oldest or most recent alarm, as defined during the creation of the database.

1-23. AUDIO ASSESSMENT. When a sensor detects an intruder, the system will automatically open a channel to the nearest microphone, turn on a Closed Circuit Television (CCTV) camera and display it on a monitor, and generate an alarm. In addition, the incident will be automatically recorded on the Video Cassette Recorder (VCR). No operator intervention is required.

If someone at a remote location wants to speak to the operator, he or she can pick up a handset (if available) and an alarm is generated at the operator workstation, informing the operator of a communications request.

1-24. BLOCK DIAGRAMS/PRINCIPLES OF OPERATION.

a. Primary Monitor Console (PMC). Foldout FO-1 shows the breakdown of the PMC, a typical RSM. and a typical RADC area. The CPU is connected to the operator workstation by a Local Area Network (LAN) cable. The system is expandable to 22 workstations. The information used to address each RADC is entered at the operator workstation and down loaded into memory. With the data communication auto/manual switch as shown, the PMC is in control of all RADCs through the poll ports, and the Intelligent Line Multiplexed Concentrator. The communications between the CPU and the PMC communications module is at 9600 baud, while the communications subsystems polls the RADCs at 1200 baud. The RSMs are tied to the system through the anti-poll ports. In this configuration, if the PMC fails, the RSMs will automatically assume the responsibility for the RADCs being handled by the CPU. Each RSM can handle up to 256 RADCs.

The PMC also provides a tie-in to the ECE enrollment terminal which enables the operator to verify enrollment of personnel via the IAC. A local RADC at the PMC will support entry/exit to the PMC and any local intrusion detection devices. Also located at the PMC is the audio assessment/intercom and CCTV switching units, and their associated monitors. The Audio Communication Switcher allows for switching between audio listening devices and the intercom phone. The Video Switcher allows for switching between an array of TV cameras to any of its associated monitors. switching between the CCTV cameras, VCR, and its associated monitor.

b. Data Communications Interface. The ICIDS Data Communication Interface, shows the PMC to RSM link in addition to the PMC end of the direct data link to the RADCs (see Figure 1-23). One of two Data Communications Expanders (DCX) is shown with the poll (P) and auto/manual switch to the RSMs. Each DCX contains its own communications processor and memory which, in turn, communicates with the CPU, which relieves the CPU of this communication burden.

The communication processor in the PMC DCX polls the RADCs for data and stores it in its local memory. This memory, in turn, is polled by RSM 1 for this data and updates its own DCX memory which, in turn, is polled by RSM 2 for the same data. With this configuration, both RSM 1 and 2 contain the status of the RADCs and can be monitored at any time for status. Up to 8 RSMs can be tied together in this manner. Through this same communication channel, the RSMs can be assigned to take over control of their areas at any time. The PMC will still be updated via its DCX. If the PMC should fail, the auto/manual switch will switch, so the PMC is bypassed, and allows the RSMs take over the direct data link to the RADCs. This same type of switching function can take place at RSM 1, allowing RSM 2 to also take over for RSM 1. This configuration of the PMC and RSMs assures that no single point of failure will cause a system-wide failure. By the use of the second DCX at the PMC and RSMs and

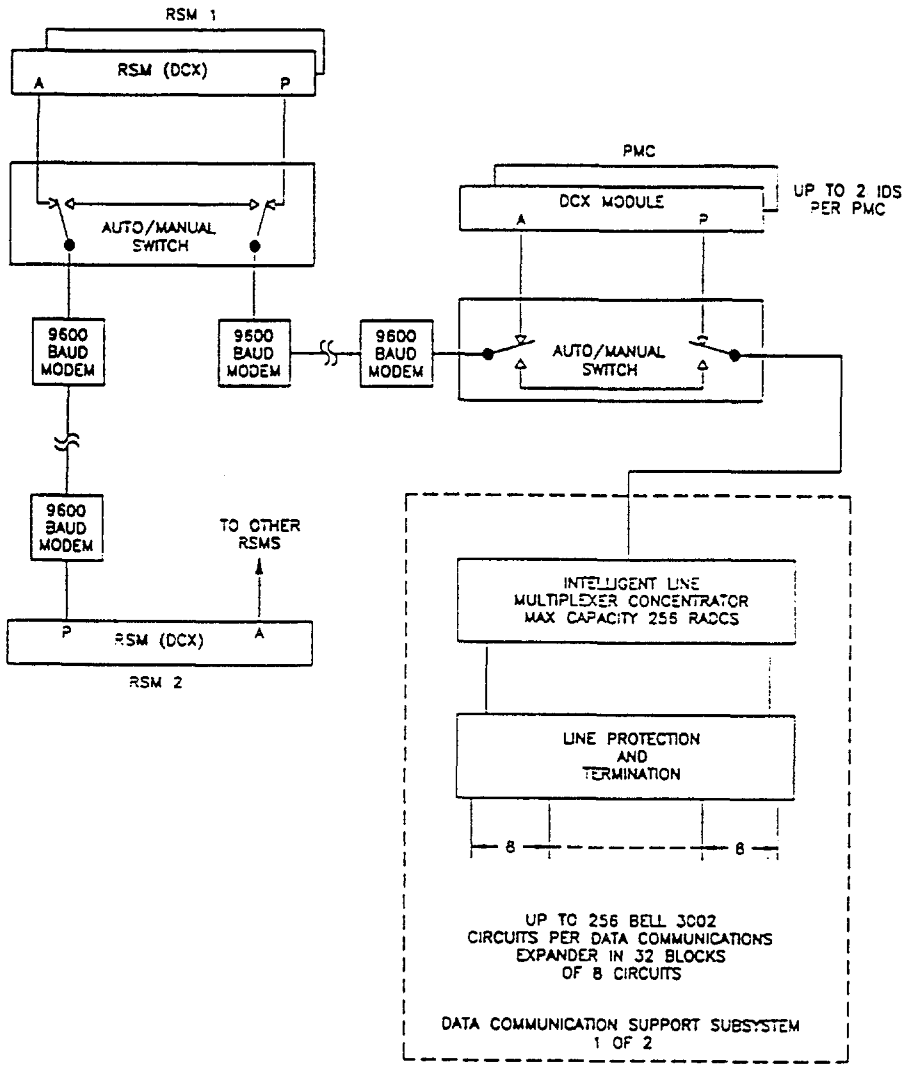


Figure 1-23. ICIDS Data Communications Interface-General Block Diagram

another intelligent line concentrator multiplexer, 256 RADCs can be connected simultaneously to the PMC and RSMs.

The DCX polls the RADCs through a communications subsystem consisting of Intelligent Multiplexed Line Concentrators. This method broadcasts polls to eight lines at a time and selects only the one of eight that was addressed for receiving the answer. Far less noise will result from this method of line selection. Failure of one line concentrator multiplexer will only affect the 8 RADCs on that concentrator so that a system wide failure cannot occur.

c. Line Concentrator. A more detailed diagram of the line concentrator area is shown in Figure 1-24, ICIDS Line Concentrator Block Diagram. Three different line options are indicated on this diagram, Bell 3002 two wire circuits, RS-485 two wire circuits, and dual loop fiber optic circuits. These circuits can be mixed as long as a group of eight are all the same type. The concentrator handles thirty-two groups of eight lines each, for a total of 256 lines. Also a DES module can be added to any group of 8 lines by a simple plug in arrangement. When the DES module is not required, shorting links are used to bypass it.

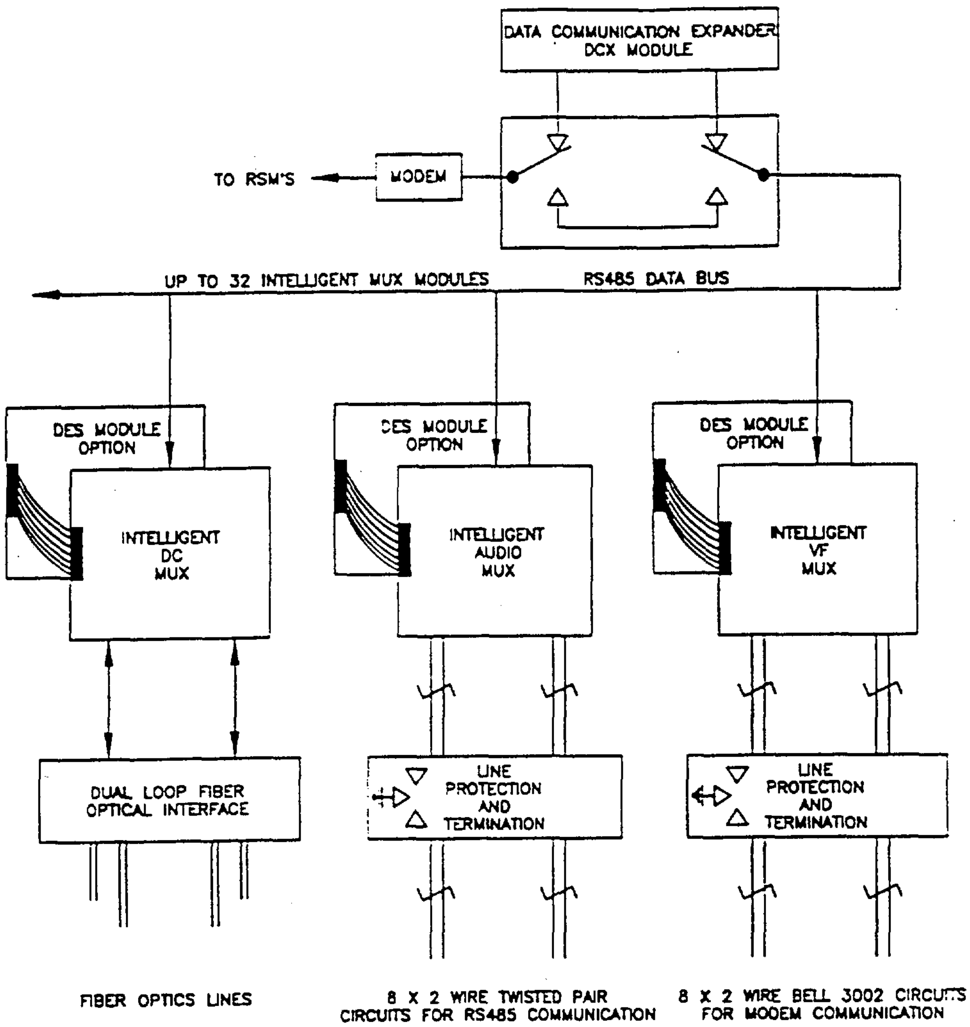


Figure 1-24. ICIDS Line Concentrator-General Block Diagram

d. Intelligent Audio Multiplexer. Figure 1-25, the ICIDS Intelligent Audio Multiplexer General Block Diagram, shows more detail of the Audio Multiplex unit. This unit is more frequently used than the RS485 or Fiber Optic interfaces. Each multiplex unit uses a 647180 micro-processor and through one of its UART ports polls the 8 lines associated with this particular unit. Because of the built in intelligence, this unit selects the desired line among the 8 lines to listen for an answer to the broadcast poll, thus eliminating reception from all lines in the group except the desired line. This method is subject to far less noise because it concentrates on just one line of the 8. Thirty-two of these multiplex units are polled for their data by the Data Communications Expander on the CPU. The DCX will poll the multiplex unit at 9600 baud, while the multiplex unit has a selectable baud rate of up to 19.2 baud. It polls the RADC at 1200 baud. This will enhance the performance and timing over the previous system. The DES module option and the link field indicate how the DES module can be added to a group of 8 multiplexed lines. In addition to the standard data collection from the remote locations, the communication support subsystem through these same multiplex units will also pass all access control card information and access data as required. CCTV command messages will also pass through the same system.

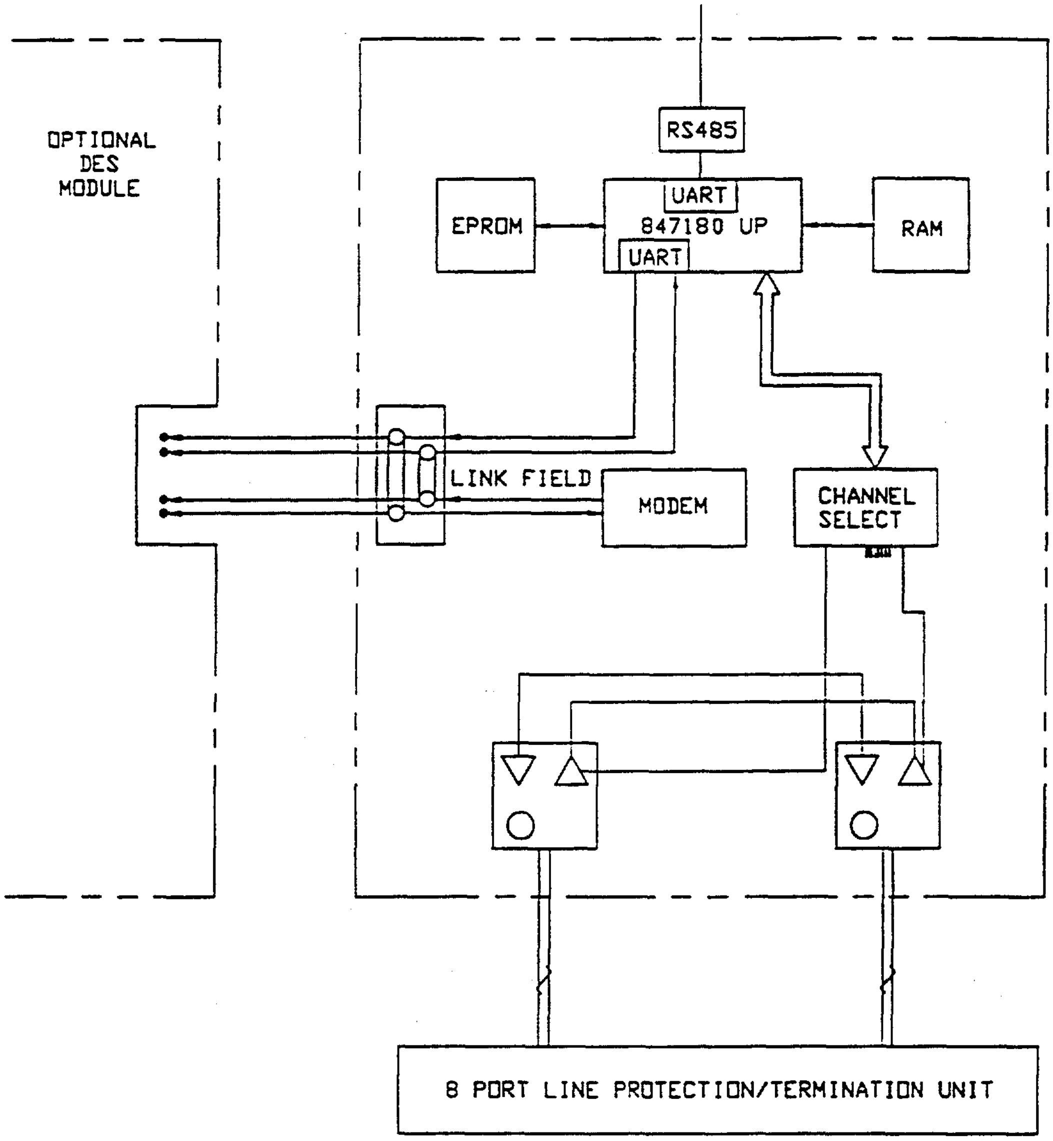


Figure 1-25. ICIDS Intelligent V.F. Multiplexer-General Block Diagram

e. Remote Area Data Collectors (RADCs). (See Figures 1-26 and 1-27.) The RADC provides for local alarm inputs and outputs and also provides extensive sub-unit capabilities. Up to 16 Intelligent Access Controllers (31 doors) can be multi-dropped on an RS-485 line. These lines can extend out from the RADC location some 4000 feet. The CPU and memory capability handles the global capacity that is provided by this distribution of inputs and outputs. An optional keypad provides an interface to personnel so examination of the status can be made. A port is also provided to connect a lap top computer for unit configuration and diagnostics. The audio interface provides the capability for the audio assessment Input devices and the intercom. The encryption device, when required, will be installed in the RADC enclosure. Data communications to the PMC is provided via the Mod 2 modem. A built-in UPS is also provided as part of the RADC.

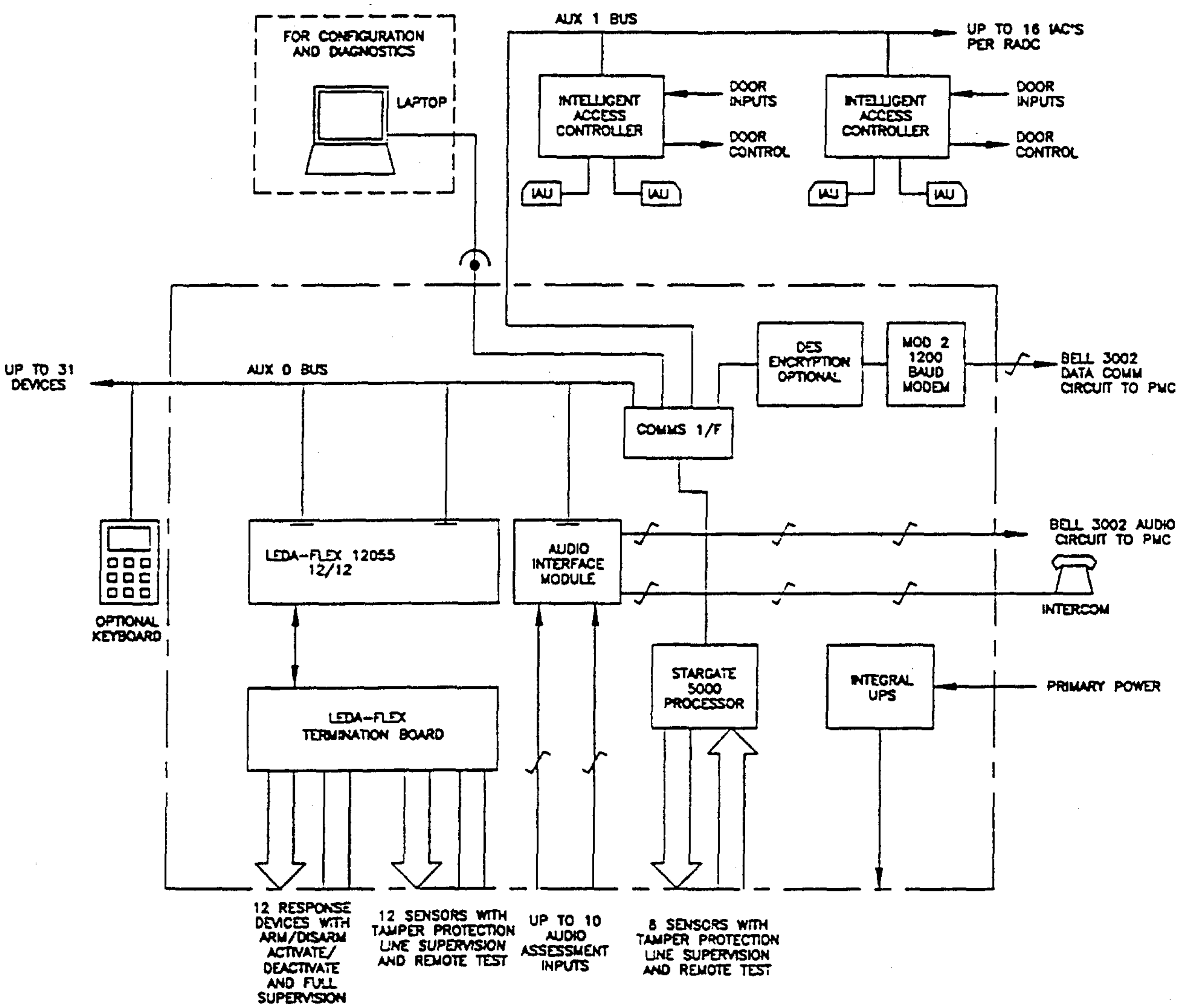


Figure 1-26. ICIDS Interior RADC-General Block Diagram

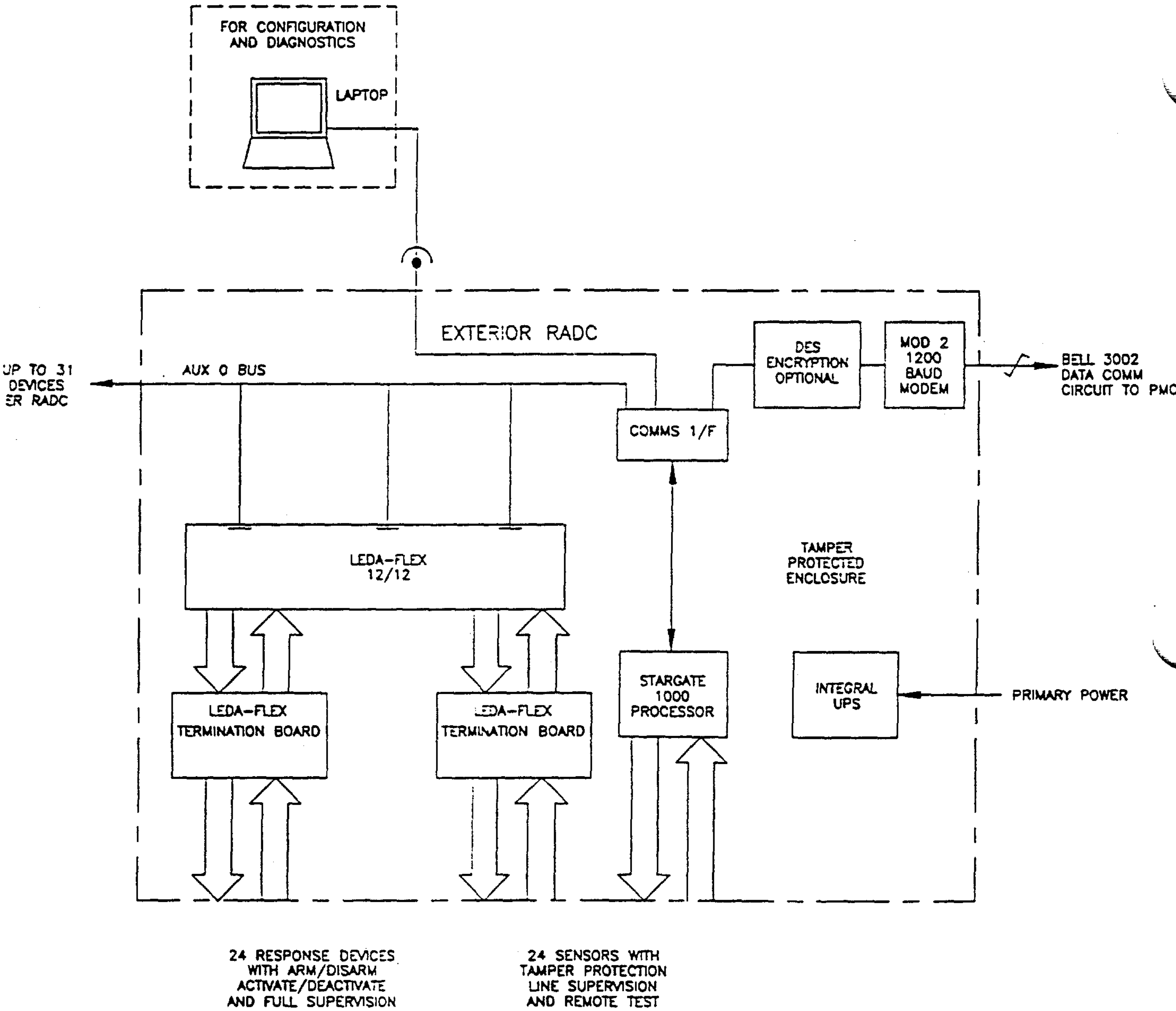


Figure 1-27. ICIDS Exterior RADC-General Block Diagram

The monitoring and control of all intruder detection and access control equipment is carried out by a network of Remote Area Data Collectors. The main feature of the RADC is the STARGATE 5000 PWA (Figure 1-27), which is used in the interior RADC or the STARGATE 1000 PWA (Figure 1-28), used in the exterior RADC. The STARGATE 1000 provides the same information to the PMC as does the 5000 PWA, but the PWA does not have the Comms Port to-support the IAC unit. The STARGATE PWA contains the processor and programs that monitor the sensors, key pad, card reader, Leda PWA and the IAC PWA. Each RADC compiles a detailed list of readings and changes that are detected by sensors and remote Ledas and periodically transmits this information to a computer within the control room known as the Central Processing Unit (CPU). The readings are then processed and compared against a known value and stored. If the compared value is different from the known value an alarm is generated, and the operator display screen is immediately updated to reflect any detected changes.

Data is transferred between the remote area data collector and the communications subsystem via the Mod 2, 1200 baud Modem. The communication system then transfers this information to the CPU through a dedicated communications network at a 9600 baud rate. The CPU continuously monitors the communication system. Options for the communications network include private wires, optical wires, radio schemes and the public switched telephone network (PSTN).

The Leda Flex module interfaces with the Leda Flex Termination Module, which has 12 alarm inputs and 12 outputs, with control functions on the outputs. The input provides alarm, tamper, and full line supervision. These units are snap track boards which are housed within the RADC enclosure. The Leda Flex PWA communicates via the AUX 0 Port to the STARGATE Processor PWA. Up to 31 Ledas can also be placed external to the RADC.

f. Closed Circuit Television (CCTV) System. (See Figure 1-28.) CCTV provides remote surveillance of a site by one or more monitors which display the pictures received from a network of CCTV cameras. Each monitor can be configured to display the pictures of a particular camera at all times or those of several cameras in a pre-defined sequence. Optionally, the operator may use the workstation keyboard to direct the scenes of a particular camera onto a chosen monitor.

(1) Video Switcher. The switcher is microprocessor based, and software programmable with the software supplied as part of the switcher. The switcher is a modular system that will allow for expansion of modification of inputs, outputs, alarm interfaces, and secondary control stations by addition of appropriate modules. Changes or alteration of features under software control are made through on-site software programming. The switcher retains the current program and camera monitor assignments in the event of power loss, and does not require reprogramming to restart the system. The switcher is programmable for switching any video input to any video output, and has a minimum switch matrix capacity of no less than 128 video inputs.

(2) Monitors. Video monitors are monochrome monitors. Each monitor has a nine-inch cathode ray tube (CRT) measured diagonally. The monitors have automatic frequency control and reproduce no less than ten discernible shades of gray. Front panel controls are provided for power on/off, horizontal hold, vertical hold, contrast, and brightness. The monitors are capable of being racked in twin mount kits side by side in an Electronic Industries Association (EIA) standard 19 inch rack. A movable blank panel is provided for rack mounting a single video monitor in either side of the rack. The cabinet holds up to four monitors. The monitors may be wall or ceiling mounted.

(3) Equalization Amplifier. (Optional) The video equalizing amplifier corrects loss in video signal level and high frequency attenuation caused by long distance video signal transmission over hard wire systems. The amplifier has independent signal gain and equalization controls. It provides a minimum of 6 dB of video gain and 12 dB of high frequency compensation.

(4) Distribution Amplifier. (Optional) The video distribution amplifier is used when there is significant loss in the video signal and high frequency attenuation due to long distance transmission over hard wire lines between the video switcher and the monitors.

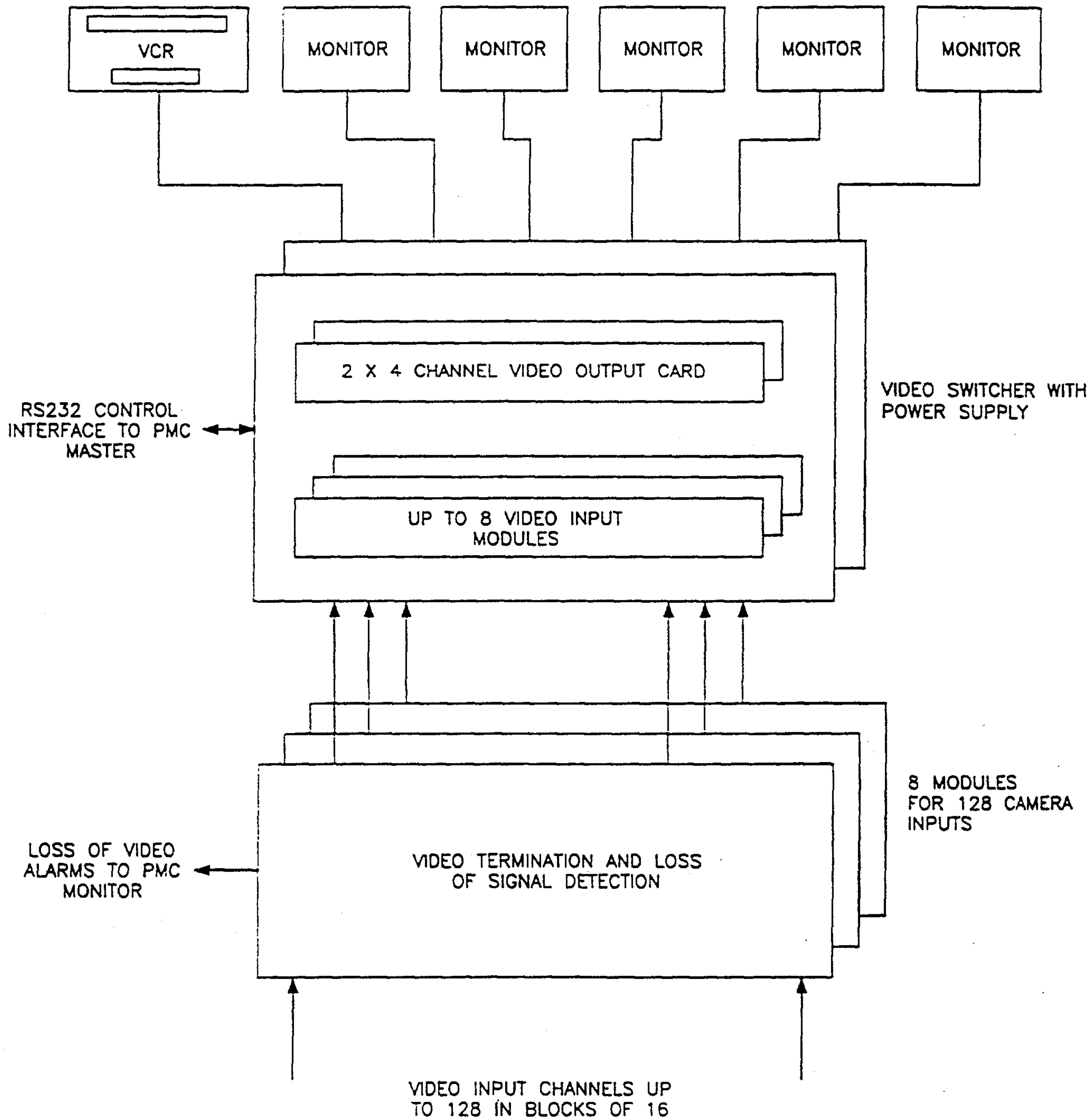


Figure 1-28. ICIDS Video Switching System-General Block Diagram

(5) Cameras. The cameras are solid state monochrome cameras with either a 1/2 or 2/3 inch video imaging array with horizontal resolution of not less than 400 lines. They have automatic black level, automatic white clipper, and automatic gain control. There is a selection of ten different automatic iris lenses ranging from 3.5mm, f/1.3 to 75mm f/1.8. The camera can be housed in a tamper protected interior housing for interior use, and exterior housing for perimeter or other exterior surveillance applications, or a housing that allows for camera operation in hazardous areas. The camera has an input for an external synchronization signal if needed. Video signals from the cameras can be transmitted either by hardwire or fiber optic media. The following is a list of the camera lenses and output cables that may be selected:

(a) Camera Lenses: 3.5mm, 5.7mm, 6.0mm, 9.0mm, 12.0mm, 16.0mm, 28.0mm, 35.0mm, 50.0mm, 70.0mm

(b) Camera Output Cables:

1. 1/2 inch coaxial output
2. 1/2 inch fiber optic output
3. 2/3 inch coaxial output
4. 2/3 inch fiber optic output

(6) Camera Supports. For cameras mounted in interior locations, with or without interior enclosures, the camera can be wall or ceiling mounted. The camera mount has an adjustable head for mounting the camera and is of sufficient length to allow for free and full adjustment of the camera.

For cameras mounted in exterior environments, the camera and lens contained in an environmentally sealed enclosure can be mounted on several types of supports depending on location and usage.

(a) Cantilevered camera support. The camera mounting support is a straight (not hinged) or hinged, cantilever aluminum pole with counterweights and mounting base. All fittings are stainless steel. The pole is capable of supporting 50 pounds and is rated for a wind load of 100 miles per hour. The camera mounting plate locates the camera 180 inches vertically from the base and 105 inches horizontally from the centerline of the pole to the centerline of the camera.

(b) Straight Camera support. The camera mounting support is either a straight (not hinged) aluminum pole or a hinged and counterweighted straight aluminum pole and mounting base with stainless steel fitting. The pole is capable of supporting 50 pounds and is rated for a wind load of 100 miles per hour. The camera mounting plate locates the camera 180 inches vertically from the base and 20 inches horizontally from the centerline of the pole to the centerline of the camera.

(c) Wall mount. The wall mount camera support has an adjustable head for mounting the camera and it is sufficient length to allow for free and full adjustment of the camera. The wall mount and head is capable of supporting not less than 80 pounds. The wall mount and head is constructed of aluminum stainless steel or steel with a corrosion resistant finish.

(7) Video Synchronization Generator. The video synchronization generator generates horizontal drive, vertical drive, blanking and synchronization signals for transmission to the video cameras when synchronization is required.

(8) The Video Synchronization Distribution Amplifier. (Optional) The video synchronization distribution amplifier is a regenerative amplifier that distributes a synchronization signal input to video cameras where camera synchronization is required.

(9) Character Generator. Video annotation equipment generates alphanumeric characters for inclusion in the video signal presented to the monitors. The annotation is programmable for each video source. Annotation to be generated includes individual video source identification, time (hour, minute and second) in a 24 hour format, date (year, month and day), and a unique user-defined title with at least 8 characters. Programmed annotation is retained in memory in the event of alternating current power loss.

(10) Video Storage Units. The video cassette recorder (VCR) is specifically designed as a time lapse recorder for use in security systems. It is capable of recording for 720 hours or more on a single cassette tape with at least 6 user selectable time-lapse record speeds. It has a contact closure alarm signal input provided by the ICIDS Primary Monitor Console which automatically switches the recorder into standard record when an alarm is received. The alarm event record time is selectable for up to 3 minutes of automatic recording. Playback functions include: alarm, fast forward, search, fast rewind search, rewind/fast forward, play, slow motion or step field/frame, and pause/still. A nine-inch monochrome video monitor is available for playback viewing.

(11) Fiber Optic Hardwire Interface. The fiber optic hardwire interface is required to convert from a fiber optic video transmission medium to a hardwire transmission medium for the video switcher input.

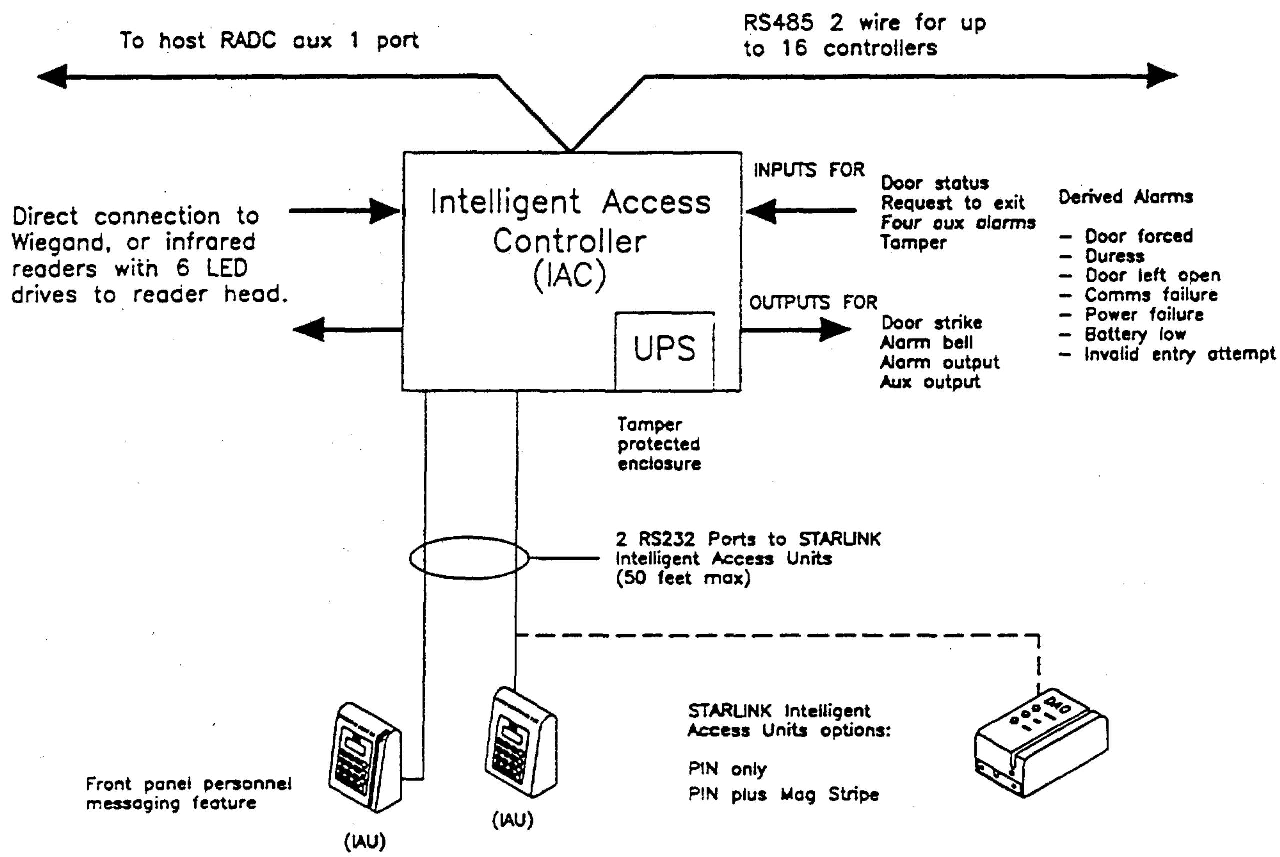
g. Uninterruptible Power Supply. The PMC includes a 120/208/240 vac, 60 Hz, or 240 vac 50 Hz switchable UPS that converts facility power at the level required by the PMC. It provides battery backup capable of supplying power to the PMC during facility power interruption for at least 6 hours. The UPS automatically switches to backup power upon loss of primary power, and reverts when the primary power returns, without interruption or degradation to the functioning of the PMC.

h. Entry Control Equipment (ECE). (See Figure 1-29.) The ECE is optional equipment that may consist of an Intelligent Access Controller, Key Pad entry controller, Card Reader or a combination Key Pad/Card Reader.

The Intelligent Access Controller automatically unlocks doors and gateways (or portals) when authorized personnel wish to enter or leave a particular area. ICIDS can incorporate two types of access control devices. The first is the access reader and is normally mounted on a wall adjacent to each portal. Personnel are each issued a plastic identity card or similar identification medium, which they present to an access reader each time they wish to enter and/or leave a protected area. Details of each access are recorded and all attempted breaches in security are reported to operators by system alarm messages, each accompanied by an audible warning.

Messaging lets operators direct brief messages to individuals or groups of employees through liquid crystal displays (LCDs), mounted on the access readers/cipher units. It can be used to send two messages to each individual, and to send broadcast messages to personnel when they use their cards and/or enter their assigned PIN number.

(1) Key pad. The second type of access control device is called a Cipher and incorporates a keypad which personnel use to enter 4 digit personal identification numbers (PINs). It can operate as either a stand-alone unit, where the entry of a valid PIN unlocks the portal, or may be linked to an access reader so that access is only granted when both a valid card has been presented and a valid PIN is then entered. Each person is allowed up to three attempts to enter the correct PIN, after which the system reports details of the incident to the control center by means of a system alarm.



Configurable for:

- 2000 card IDs standalone
- 8 access levels each 2 time/day bands
- Door open timeout
- Door strike active time
- "Welcome" message details and flip time
- Duress initiation condition
- Alarm arming code
- Number of PIN attempts
- Number of swipe attempts
- Ciphers
- Time and date
- Password protection

Figure 1-29. ICIDS Entry Control Equipment-General Block Diagram

(2) Card reader. The use of access readers provides two optional features for the ICIDS system, called Accountability and Messaging. Accountability enables the current location of all authorized personnel to be recorded by monitoring their access into and out of each protected area. System operators can create displays which list the personnel within each protected area and may also review the movements of an employee on a particular day or during a selected time.

(3) Intelligent Access Unit (IAU). The IAU is a combination keypad and card reader.

(4) Starlink Keypad. The Starlink Keypads operate as Access/Secure initiating devices for their alarm zones. The keypad can also be used to review the status of the sensors in the zone, extend the normal working hours of the zone, and initiate duress codes and sensor tests.

Before operating the keypad, PIC numbers must be assigned to the zone. To use the keypad, the user enters the PIC number on the keypad. The date and time will disappear and "PIC #" followed by an asterisk (a) in place of each digit of the PIC number will appear.

Six digits must be entered for the PIC number. If more digits are entered, the readout will return to the Log Screen. If fewer than six digits are entered, the keypad will return to the login screen. The keypad will allow three attempts to enter the correct PIC number. Then if the number is not entered correctly, the screen will return to the login screen.

I. Sensors. The ICIDS provides a set of interior and exterior sensors for different applications. Each ICIDS site will use a combination of different sensors that will best protect the site according to its individual environment and operational characteristics.

interior sensors detect the presence, movement, sound, or other activities of an intruder. They are for indoor use only. They are categorized into three functional groups: boundary penetration, volumetric motion, and point. Boundary penetration sensors are used on ceilings, roofs, windows, walls, floors, and doors. Volumetric motions sensors detect physical motion within an area. Point sensors protect smaller areas within a larger area, or specific items within an area.

Exterior sensors detect an intruder crossing the boundary of an area being protected. They can be used for protection of materials and equipment stored outdoors within a protected boundary, or for perimeter detection for buildings and other facilities. The exterior sensors perform with a minimum of false alarms caused by wind, rain, ice, standing water, blowing debris, animals, or other environmental sources.

The ICIDS includes a variety of sensors, both interior and exterior, for use in the remote areas. Sensor groupings are as follows:

(1) Interior Penetration Sensors.

(a) Balanced Magnetic Switch (BMS). The BMS contains a magnetic reed that is balanced between an internal bias magnet and an external actuating magnet. When a door or window is opened, the movement of the actuating magnet's field unbalances the switch and causes an alarm. If a bypass is attempted by placing another magnet near the switch, this third field will also unbalance the switch and cause an alarm.

(b) Vibration Sensor (VS). The VS detects vibrations produced by drilling, hammering, cutting, explosions, and other methods of forcible entry. Since a single vibration may not indicate intrusion, the VS will alarm only when several vibrations, or one of explosive magnitude, are detected.

(c) Passive Ultrasonic Sensor (PUS). The PUS is a sound receiver that detects frequencies of 20-30 kHz. Breaking glass, metal striking metal, bolt cutters cutting metal, hissing of an acetylene torch, and shattering of concrete, brick, or cinderblock will generate these high pitched sounds, which the PUS will associate with intrusion into the protected zone. Lower frequency sound will not be recognized by the PUS, thus eliminating false alarms.

(d) Passive Infrared Motion Sensor (PIMS). The PIMS receives and monitors the thermal energy present in its field of view. A sudden change in the thermal energy picture caused by an intruder causes an alarm. This alarm is processed by the RADC and forwarded to the FEP and the operator workstation.

(2) Interior Motion Sensors

(a) Microwave, Ultrasonic, and Radio Frequency Motion Sensors. The MMS, UMS, and RFMS radiate an energy pattern into a protected area. This energy pattern, much like an antenna pattern, becomes the unit's field of view. Any change in the reflection of this energy field will cause an alarm.

(b) Passive Infrared Motion Sensor (PIMS). The PIMS detects intruder motion. It comes in three different configurations.

1. Volumetric. In this configuration, the detection pattern extends from 8 feet to 30 feet on boresight and at angles up to + 60 degrees off boresight.

2. Curtain. In the curtain configuration, the detection pattern extends from the sensor mounting level to the floor, to a minimum of 30 feet on boresight, and at angles of up to + 3 degrees off boresight. The maximum angle subtended by the sensor is approximately 6 degrees.

3. Omnidirectional. In the omnidirectional configuration, the detection pattern extends to 30 feet from a point directly beneath the sensor and all angles about a line through this point.

All configurations alarm on a 2 degree Celsius temperature difference between the intruder and the background.

(3) Interior Point Sensors

(a) Capacitance Proximity Sensor (CPS). The CPS can detect an intruder approaching or touching a metal object by sensing a change in capacitance. When the CPS is attached to a metal object, that object becomes an antenna. When a person approaches or touches the antenna, the amount of capacitance changes because the person has a ground potential or an electromagnetic potential that will affect the field of capacitance. Only metallic objects can be protected with the CPS sensor.

(4) Exterior Line Sensors

(a) Microwave Motion Sensor, Exterior (EMMS). The microwave motion sensors generate a beam of microwave energy, and detect any changes in energy caused by an intruder penetrating the beam. Each sensor consists of a transmitting antenna and a. receiving antenna, separated by 100 to 1200 feet.

(b) Infrared Perimeter Sensor (IPS). The IPS is a pedestal mounted active infrared intrusion sensor consisting of a transmitter and receiver in two outdoor environment post-type housings. The transmitter unit consists of multiple infrared beam emitting transmitters. The receiver unit consists of multiple infrared beam collecting receivers. The sensor alarms when an infrared beam between the transmitter and receiver unit is interrupted or beam modulation is disturbed. Automatic gain control is used to adjust for gradual changes in beam intensity caused by rain, snow, fog, or other environmental conditions. The sensor protects a minimum of 100 meters of fence line and detects intruders crossing the detection zone.

(c) Ported Coaxial Cable Sensor (PCCS). The PCCS is a buried line sensor that detects intruders crossing a detection zone established by transmit and receive cables buried in parallel along a perimeter. A disturbance in the electromagnetic field between the two cables exceeding a predetermined threshold causes the sensor to alarm. Without line amplifiers, the sensor can protect 800 meters of perimeter. With line amplifiers, it can protect up to 1600 meters of perimeter.

(d) Short Ported Coaxial Cable Sensor (SPCCS). The SPCCS operation is similar to the PCCS. The sensor consists of two 125 meter lengths of cable pairs. In one mode of operation, individual alarm outputs are reported for each cable pair. In another mode, both cable pairs report a single alarm output.

(5) Exterior Fence Sensors

(a) Fence Mounted Vibration Sensor (FMVS). The FMVS is a chainlink fence mounted sensor that assures continuous detection coverage across the full span of the fence panels, including the fence post. It consists of a sufficient number of vibration detecting transducers to detect the mechanical vibrations caused by intruders climbing, pulling, tugging, or cutting any part of the 200 meters of fence paneling.

(b) Strain Sensitive Cable Fence Sensor (SSCFS). The SSCFS is a chainlink fence mounted sensor that assures continuous detection coverage across the full span of the fence panels, including the fence posts and outriggers. It consists of strain sensitive coaxial transducers of sufficient length to detect the mechanical vibrations caused by intruders climbing, pulling, tugging, or cutting any part of 100 meters of fence line. The sensor processor can interface with and monitor two adjacent 100 meter segments of cable.

Outdoor perimeter sensors are usually installed in specific lengths called zones or sectors. Each zone of a system provides its own intrusion and supervision alarms. This arrangement provides precise information on the location of any intrusion attempt.

Zone length is determined by the geography of the perimeter, the nature of potential threats, and the degree of security desired. The greater the security requirement, the shorter the zone should be.

The SSCFS can operate with up to 1,000 feet (300 meters) of sensor cable for each zone. The maximum zone length for an SSCFS on a standard 2 meter high fence is 1,000 feet. Shorter zone lengths can be installed, and may be desirable to facilitate CCTV assessment of intrusion activity.

The SSCFS provides an alarm if an intruder attempts to climb over the fence, cut through the fence, lift the fence fabric, or break through a wall, ceiling, or other mounting surface (interior installation).

The SSCFS provides a supervision alarm if there is a short in the cable or it is cut open. The alarm is also initiated by the tamper switch if the processor cover is opened.

The signal processor distinguishes between climb-over and cut-through attempts with a single alarm output. An audio capability option is available for listening to physical disturbances of the fence.

(c) Taut-Wire Fence Sensor (TWFS). The TWFS is an exterior, tensioned, barbed wire displacement sensing sensor capable of detecting attempts by a fence climbing or wire cutting intruder. In application, multiple strands of the wire and tensioning devices are attached to either vertical or Y configured outriggers attached to the fence. The sensor alarms when a lateral force of 60 pounds or more is applied to any strand of the barbed wire or when any strand is laterally deflected 6 inches or more.

CHAPTER 2

UNIT MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION INSTRUCTIONS

2-1. LUBRICATION. There are no lubricating procedures associated with the ICIDS equipment. The only lubricating oil used is for preventive maintenance on the camera support hinge or mounting bracket, if applicable. This lubricating oil is identified in Appendix D, Item 11, Expendable/Durable Items List.

Section II. REPAIR PARTS; TOOLS; SPECIAL TOOLS; TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

2-2. COMMON TOOLS AND EQUIPMENT. Refer to Appendix B, Section III, Tools and Test Equipment Requirements, for a listing of common tools and equipment.

2-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT. There are no special tools or equipment required for unit maintenance of the ICIDS.

2-4. REPAIR PARTS. Refer to Appendix C, Section II, Repair Parts and Special Tools List (RPSTL) for a list of repair parts covering unit maintenance for this equipment.

Section III. SERVICE UPON RECEIPT OF MATERIAL

2-5. INSPECTION. There are no inspection services performed at the Unit Level.

2-6. SERVICE. Not applicable.

Section IV. UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-7. INTRODUCTION. This section describes preventive maintenance checks and services (PMCS) which must be performed by the unit maintenance personnel to maintain the ICIDS in operational condition. Preventive maintenance includes cleaning and inspection procedures. Such procedures are performed as outlined by the PMCS Table 2-1 to detect conditions which might cause the performance of the equipment to deteriorate or cause equipment failure. The PMCS table has been provided so you can keep your equipment in good operating condition and ready for its primary mission.

2-8. EQUIPMENT ILLUSTRATIONS. Figure 2-1 is the illustration and routing diagram showing the order in which checks and services are performed.

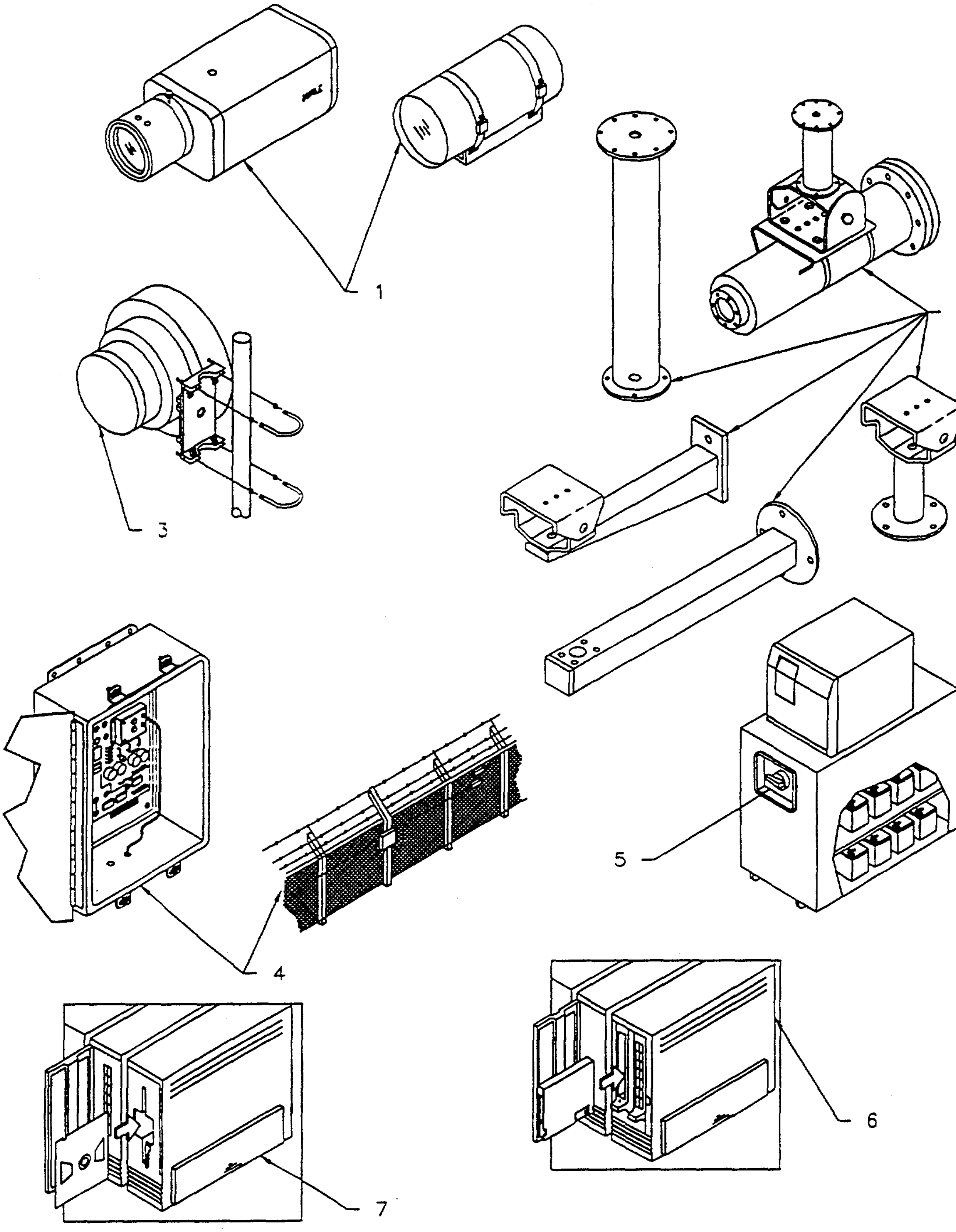


Figure 2-1. PMCS Routing Diagram

2-9. PMCS PROCEDURES. Refer to Table 2-1 for PMCS on the ICIDS.

a. General. The PMCS table has been provided so you can keep your equipment in good operating condition and ready for its primary mission.

b. Warnings and Cautions. Always observe the WARNINGS and CAUTIONS appearing in your PMCS table. Observe these WARNINGS and CAUTIONS to prevent serious injury to yourself and others or prevent your equipment from being damaged.

c. Explanation of Entries.

(1) Item Number Column. Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet), include the item number for the check/service indicating a fault.

(2) Interval Column. This column tells you when you must do the procedure in the procedure column (see note below).

(3) Location, Check/Service Column. This column provides the location and the item to be checked or serviced.

(4) Procedure Column. This column gives the procedure you must do to check or service the item listed in the Check/Service column to know if the equipment is ready or available for its intended mission or for operation. You must do the procedure at the time stated in the interval column.

Table 2-1. Unit Preventive Maintenance Checks and Services for the ICIDS

Item No.	Interval Check/Service	Location: Item to	Procedures
1	Semi-Annual	CCTV Cameras and Housings (Interior and Exterior)	Check for loose cable connections, damage or frayed cables, missing hardware, and visible damage to the housing assembly. Clean housing assembly as necessary with clean water and dry with clean wiping rags (Appendix D, Item 12). Clear camera lens field of view as necessary. Check air pressure for all pressurized camera housing.
2	Semi-Annual	CCTV Camera supports	Check for loose or missing hardware and any visible damage to the camera support. Check hinge pins (if applicable) for rust. Clean and apply lubricant as required to cantilever support, etc. (Appendix D, Item 11).
3	Semi-Annual	Sensors (outdoor, pole mounted, transmitter/ receiver units	Check for loose or missing hardware on mounting brackets, and any visible damage to transceiver assembly. Check mounting hardware for rust; clean and lubricate hinge points as necessary (Appendix D, Item 11). Check for loose cable connections and frayed cables. Remove snow, ice, dirt, and other matter as necessary.
4	Semi-Annual	Sensors (outdoor, fence mounted)	Check for loose or missing hardware on mounting brackets, and any visible damage to processor assembly or sensors. Check for loose cable connections, frayed or cut cables. Remove any debris from fence or fence line.
5	Semi-Annual	Uninterruptible Power Supply (UPS)	Clean the UPS unit with a damp cloth and dry with clean wiping rags (Appendix D, Iteml2). (See paragraph 2-12.)
6	Semi-Annual	Tape Streamer Module	Clean tape head using head cleaning kit (Appendix D, Item 2). (See paragraph 2-10.)
7	Annual	Floppy Diskette Drive	Clean using disk cleaning kit (Appendix D, Item 1). (See paragraph 2-11.)

2-10. CLEANING TAPE STREAMER HEADS

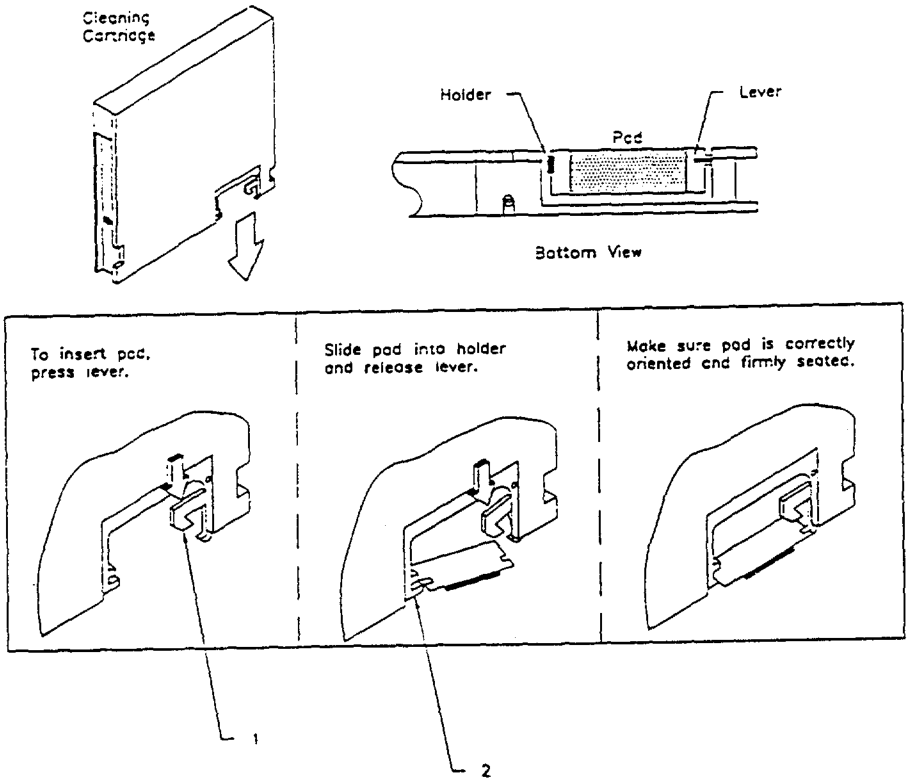


Figure 2-2. Inserting A Cleaning Pad

a. Inserting a Cleaning Pad (Figure 2-2).

(1) Press lever (1) and slide pad (2) into holder.

(2) Release lever and make sure pad is correctly oriented and firmly seated.

b. Cleaning the Tape Head (Figure 2-3).

(1) If the cleaning tape does not have a cleaning pad, insert one in accordance with the above procedure.

(2) Moisten the pad with cleaning solution.

(3) Open the Tape Streamer door (1) and insert the cartridge. Lock the cartridge in place (2). Attach the key (3) to the tape cartridge.

(4) Rotate the key 15 to 20 times to clean the head.

(5) Remove the cleaning cartridge from the tape streamer and return the key and cartridge to the storage compartment.

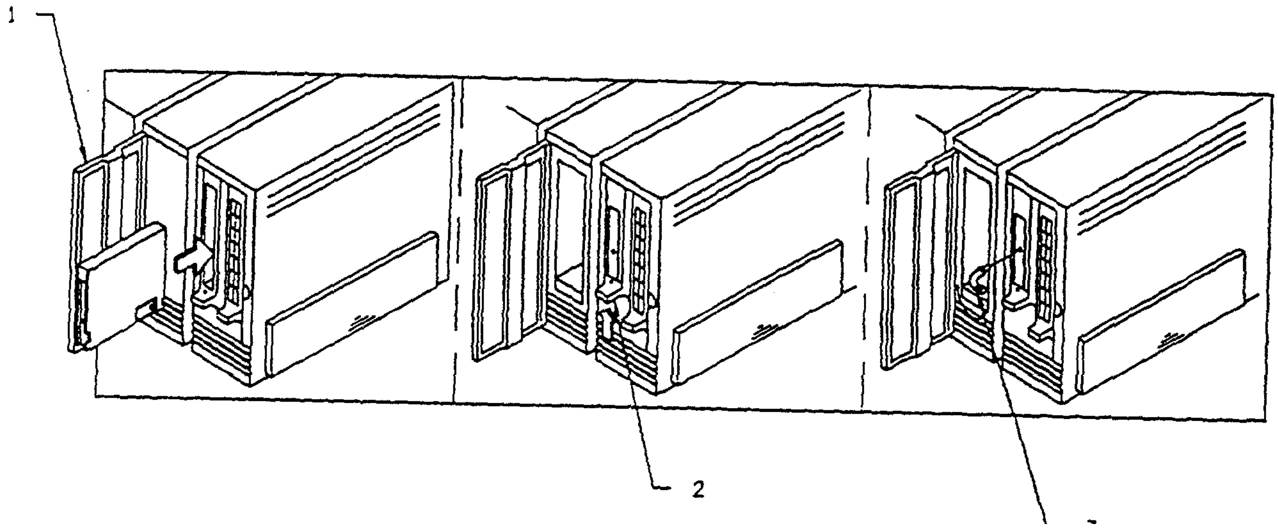


Figure 2-3. Cleaning the Tape Head

2-11. CLEANING DRIVE HEADS

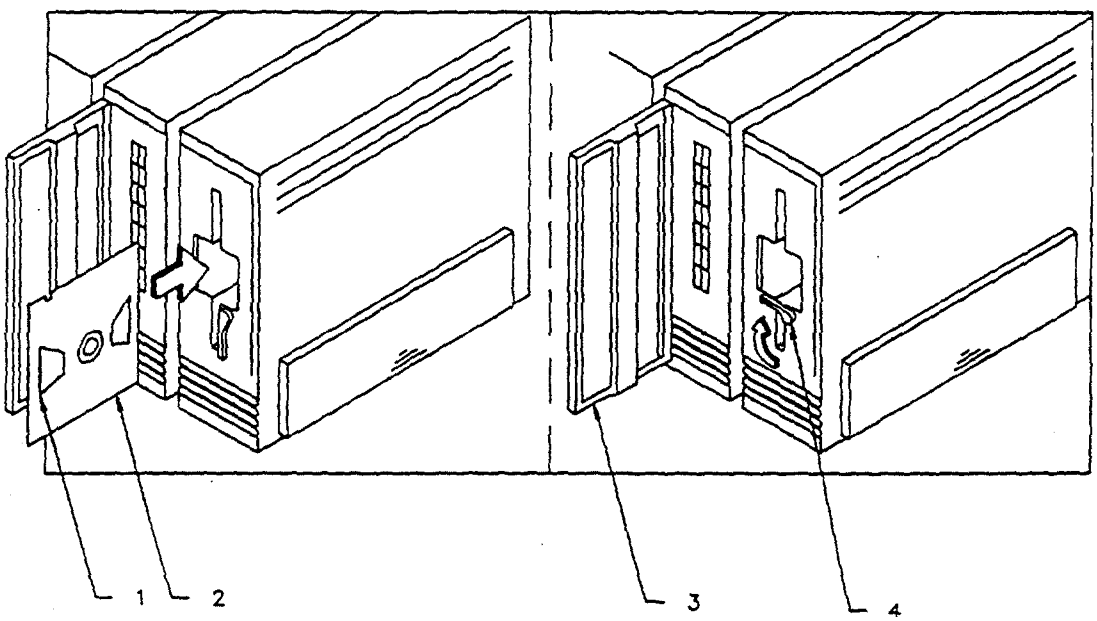


Figure 2-4. Cleaning the Drive Head

a. See Figure 2-4. If the cleaning kit has never been used, remove the two triangular inserts (1) from the cleaning diskette (2).

b. Moisten the cleaning diskette with the disk cleaning fluid.

c. Open the floppy diskette drive door (3) and insert the cleaning diskette. Rotate the locking lever (4) and the diskette drive will activate.

d. Allow the drive to run for 10 to 15 seconds.

e. Record cleaning on the cleaning diskette label. Discard cleaning diskette after 13 uses, or if diskette becomes discolored.

2-12. For cleaning and tightening of the UPS battery terminals and connectors, refer to SAIG.

Section V. UNIT TROUBLESHOOTING PROCEDURES

2-13. SCOPE. There are no troubleshooting procedures at the unit level for maintenance.

Section VI. UNIT MAINTENANCE PROCEDURES

2-14. SCOPE. There are no maintenance procedures at the unit level of maintenance.

Section VII. PREPARATION FOR STORAGE OR SHIPMENT

2-15. GENERAL. There are no special security procedures or special preservation, packaging, packing, marking, or shipping requirements. Because of the purpose and function of the ICIDS equipment, the requirement for storing the equipment is not anticipated or expected. The ICIDS will be operational as long as the activity on the installation remains operational. If there is a base closure, the ICIDS might be administratively stored until shipping and delivery orders were prepared. In this event, the following storage instructions apply:

2-16. ADMINISTRATIVE STORAGE.

- Placement of equipment in administrative storage should be for short periods of time when a shortage of maintenance effort exists. Items should be in mission readiness within 24 hours or within the time factors as determined by the directing authority. During the storage period appropriate maintenance records will be kept.

- Before placing equipment in administrative storage, current maintenance services and Equipment Serviceable Criteria (ESC) evaluations should be completed, shortcomings and deficiencies should be corrected, and all applicable Modification Work Orders (MWOs) should be applied.

- Storage site selection: Inside storage is preferred for items selected for administrative storage. If inside storage is not available, trucks, vans, conex containers, and other containers may be used.

CHAPTER 3
DIRECT SUPPORT (DS) MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS; TOOLS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

3-1. COMMON TOOLS AND EQUIPMENT. Refer to Appendix B, Section III, Tools and Test Equipment Requirements, for a listing of common tools and equipment.

3-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT. There are no special tools or equipment required for maintenance of the ICIDS.

3-3. REPAIR PARTS. Refer to Appendix C, Section II, Repair Parts and Special Tools List (RPSTL) for a list of repair parts covering Direct Support maintenance for this equipment.

Section II. SERVICE UPON RECEIPT OF MATERIAL

3-4. INSPECTION. Direct Support maintenance personnel will perform the following receiving inspections to determine whether the individual components are complete and in an operational condition.

a. Check individual components for loose, broken, or missing hardware, or any sign of damage.

b. Check power cords and interface cables for fraying, and any other visible sign of damage.

c. Check cable connectors for damage. Check for cracked connectors. Check that connector pins are not loose or missing.

d. Check keyboard for loose or missing keys. Check keyboard interface cable for damage or fraying.

e. Check display unit for damage to screen.

3-5. SERVICE. There are no specific service procedures upon receipt of equipment. Note any missing items and ensure that all stock numbers and serial numbers are correct.

Section III. DIRECT SUPPORT TROUBLESHOOTING PROCEDURES

3-6. SCOPE. This section contains troubleshooting and malfunction information and tests for locating and correcting most of the troubles which may develop in the ICIDS components. Each malfunction or trouble symptom for an individual component, unit, or system lists probable causes and suggested corrective actions to remedy the malfunction.

This manual cannot list all possible malfunctions that may occur or all tests, inspections, and corrective actions. If a malfunction is not listed (except when malfunction and cause are obvious), or is not corrected by listed corrective actions, notify the next higher level of maintenance.

Table 3-1 contains an alphabetical listing and location of possible malfunctions that may occur in the ICIDS.

Table 3-1. Symptom Index

ICIDS Equipment	**Troubleshooting Procedure (Table)**
PRIMARY MONITOR CONSOLE/RSM	Table 3-2
Control Processing Unit (CPU)	
Cannot communicate with multiplexers	3-2 (1)
Cannot communicate with single/multiple multiplexers	3-2 (2)
Cannot communicate with single/multiple Remote Area Data Collectors (1-8, 9-16, etc.)	3-2 (3)
Does not switch responsibility to RSM upon failure	3-2 (4)
PMC Monochrome Monitor screen is dark	3-2 (5)
Cannot download or upload data to Tape Streamer	3-2 (6)
B39 Keyboard Inoperative	3-2 (7)
Operator Workstation	
Computer Processing Unit will not power up	3-2 (8)
Cannot communication with CPU	3-2 (9)
Keyboard inoperative	3-2 (10)
Color Monitor screen is dark	3-2 (11)
Printer	
Does not print	3-2 (12)
RSM	
RSM cannot communicate with PMC	3-2 (13)
REMOTE AREA DATA COLLECTOR (RADC)	Table 3-3
STARGATE 1000, 5000 PWA	
Does not communicate with CPU	3-3 (1)
MOD II Modem PWA	
Does not communicate with CPU	3-3 (1)
DAS Module	
Does not communicate with CPU	3-3 (1)
Leda Flex PWA	
Failure indicated at operator workstation	3-3 (2)
Leda Flex Termination PWA	
Failure indicated at operator workstation	3-3 (3)
Audio Assessment Controller	
Cannot turn on microphone(s)	3-3 (4)
DES Module	
Will not allow communications processing	3-3 (5)
SubRADC (LEDA) with Power Supply	Table 34
Leda Flex PWA failure	
Failure Indicated at operator workstation'	3-4 (1)
Leda Flex Termination PWA failure	
Failure indicated at operator workstation	3-4 (2)
Power Supply, AC line loss failure	
Failure indicated at operator workstation	3-4 (3)

Table 3-1. Symptom Index - Continued

ICIDS Equipment	**Troubleshooting Procedure (Table)**
SubRADC (LEDA) WITHOUT POWER SUPPLY	Table 3-5
Leda Flex PWA failure	
Failure indicated at operator workstation	3-5 (1)
Leda Flex Termination PWA failure	
Failure indicated at operator workstation	3-5 (2)
J-SIIDS Interface Assemblies	Table 3-6
J-SIIDS Stargate 1000 Assembly failure	3-6 (1)
J-SIIDS Leda Interface Assembly failure	3-6 (2)
J-SIIDS Leda Flex Termination PWA failure	3-6 (3)
J-SIIDS Ganymede B failure	3-6 (4)
INTELLIGENT ACCESS CONTROLLER (IAC)	Table 3-7
Intelligent Access Controller PWA	
IAC failure	3-7 (1)
Intelligent Access Unit (IAU)	
Keypad, Swipe Card Reader inoperative	3-7 (2)
Starpin Keypad	
Keypad failure	3-7 (3)
Swipe Card Reader	
Swipe Card Reader failure	3-7 (4)
CLOSED CIRCUIT TV (CCTV)	Table 3-8
TV Monitor	
Monitor screen is dark	3-8 (1)
Cannot select monitor(s) for visual display by operator workstation	3-8 (2)
Video Switcher	
Video lost to all monitors	3-8 (3)
CCTV Cameras	
Camera failure	3-8 (4)
VCR	
VCR does not record	3-8 (5)
SENSORS	Table 3-9
Interior Sensors	
Balanced Magnetic Switch failure	3-9 (1)
Passive Infrared Motion Sensor failure	3-9 (2)
Capacitive Proximity Sensor failure	3-9 (3)
Ultrasonic Motion Sensor failure	3-9 (4)
Microwave Motion Sensor failure	3-9 (5)
Radio Frequency Motion Sensor failure	3-9 (6)
Vibration Sensor failure	3-9 (7)
Passive Ultrasonic Sensor failure	3-9 (8)
Exterior Sensors	
Exterior Microwave Motion Sensor failure	3-9 (9)
Infrared Perimeter Sensor failure	3-9 (10)
Fence Mounted Vibration Sensor failure	3-9 (11)
Strain Sensitive Cable Fence Sensor failure	3-9 (12)
Taut Wire Fence Sensor failure	3-9 (13)
Ported Coaxial Cable Sensor failure	3-9 (14)
Electric Door Lock /Door Sensor failure	3-9 (15)

Table 3-1. Symptom Index - Continued

Tables 3-2 through 3-10 list common malfunctions that you may find during the operation or maintenance of the ICIDS components. Perform the tests/inspections and corrective actions in the order listed.

The built-in tests used to prepare the ICIDS system for use should also be utilized for troubleshooting and determining the operability of repaired/replaced units.

NOTE

Before you use this table, be sure you have performed all normal operational checks. If you have a malfunction which is not listed in this table, notify supervisor.

Table 3-2. Primary Monitor Console DS Maintenance Troubleshooting

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. PRIMARY MONITOR CONSOLE (PMC) CENTRAL PROCESSING UNIT (CPU) CANNOT COMMUNICATE WITH PMC MULTIPLEXERS (FO-2).

Step 1. If there is a total system failure being reported at PMC CPU, verify that MUX Modules MSTR LEDs RX, GW, STA, RTS, and TX are flashing on and off and verify ICS "ONLINE" indicator "B" is lit.

If all MUX Modules are indicating a failure, check the + 12 vdc and 5 vdc power on indicator lamps. At least one lamp should be on for the + 12 vdc power supply and one lamp for each equipment rack for the 5 vdc power supply. (Cabinet B)

If both the + 12 vdc power supply lamps are out, turn power on/off switch to off and remove the inline fuse by pressing in on switch and turn counter clockwise, and replace if blown.

If LEDs are not flashing on and off, CPU is not polling MUX Modules. Replace RS232-1 cable (P) between Cabinet A, DCX Module C3 and Cabinet B, RJ45 connector on Rackmount Assembly.

If LEDs are still not flashing on and off, Replace RS232 cable between the CPU PAR port and Cabinet B, Intelligent Module connector.

If processor does not begin polling PMC Multiplexers, replace DCX module C3 on CPU (Para. 3-12). If CPU begins polling Multiplexers, DCX module is bad. If CPU still does not poll Multiplexers, replace ICS switch (Para. 3-26) and then replace the B39 CPU (Para. 3-10). If CPU still does not poll Multiplexers, notify supervisor.

2. CPU CANNOT COMMUNICATE WITH SINGLE/MULTIPLE PMC MULTIPLEXER(S) (FO-2)

Step 1. If a single/multiple station failure is being reported at the PMC CPU, verify that MUX Modules MSTR LEDs RX, GW, STA, RTS, and TX are flashing on and off.

Identify MUX Module(s) in which MSTR LEDs RX, GW, STA, RTS, and TX are not flashing on and off, and replace the MUX Module(s). (Para. 3-26)

If all MUX Modules are indicating a failure, check the ±+ 12 vdc and 5 vdc power on indicator lamps. At least one lamp should be on for the + 12 vdc power supply and one lamp for each equipment rack for the 5 vdc power supply. (Cabinet B)

If both the + 12 vdc power supply lamps are out, turn power on/off switch to off and remove the inline fuse by pressing in on switch and turn counter clockwise, and replace if blown. If the MUX still indicates a failure, replace the + 12 vdc power supply. (Para. 3-27)

If both 5 vdc power supply lamps are off, check the inline fuse located in the power on switch, and replace if blown.

If the MUX still indicates a failure, replace the 5 vdc power supplies for that rack assembly. (Para. 3-28)

Table 3-2. Primary Monitor Console DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

3. PMC CPU DOES NOT COMMUNICATE WITH INDIVIDUAL, MULTIPLE, OR STRING OF RADCS (RADCS STATION NUMBERS 1 THROUGH 8 COMMON TO SAME POLLER MUX) (FO-2)

Step 1. Determine number of RADC stations that are not communicating with PMC CPU by reviewing the alarm queue at the operator workstation or reviewing the event printer printout.

Step 2. On communications rack, locate MUX Module(s) that communicate with RADCs station(s) showing failure.

Step 3. Verify that MUX Module(s), RTU LEDs RTS, TX, CD, RX, and GW are flashing on and off.

If all RTU LEDs are not flashing on and off, replace MUX Module(s). (Para. 3-26)

If RX and GW RTU LEDs are still not flashing on and off, replace Line Interface Unit (LIU) (Para. 3-31) supporting MUX Module(s) that indicate bad communications between RADC(s) and communications cabinet MUX Module.

If an individual, multiple, or string of RADCs are still not communicating with PMC CPU, (refer to Table 3-3, Step 1).

If an individual, multiple, or string of RADCs are still not communicating with PMC CPU, notify supervisor for coordination for telephone line testing.

4. PMC CPU DOES NOT SWITCH RESPONSIBILITY TO RSM UPON FAILURE (Figure 3-1 and FO-3)

Step 1. Verify that the RSM processor assembly begins polling the RADCs.

If RSM does not assume responsibility for the PMC CPU, replace the Data Communications Auto/Manual Switch (Quad Switch Module) on the PMC. (Para. 3-26)

If RSM still does not assume responsibility for the PMC CPU, verify the 9600 baud modem at the PMC displays the message "ONLINE", replace as required. (Para. 3-32)

If RSM still does not assume responsibility for the PMC, verify the 9600 baud modem at the RSM displays the message "ONLINE", replace as required. (Para. 3-35)

If PMC to RSM link is equipped with DAS Modules, verify indicator lights depict equipment synchronization.

If RSM still does not accept responsibility for the PMC, notify supervisor for coordination for telephone line testing.

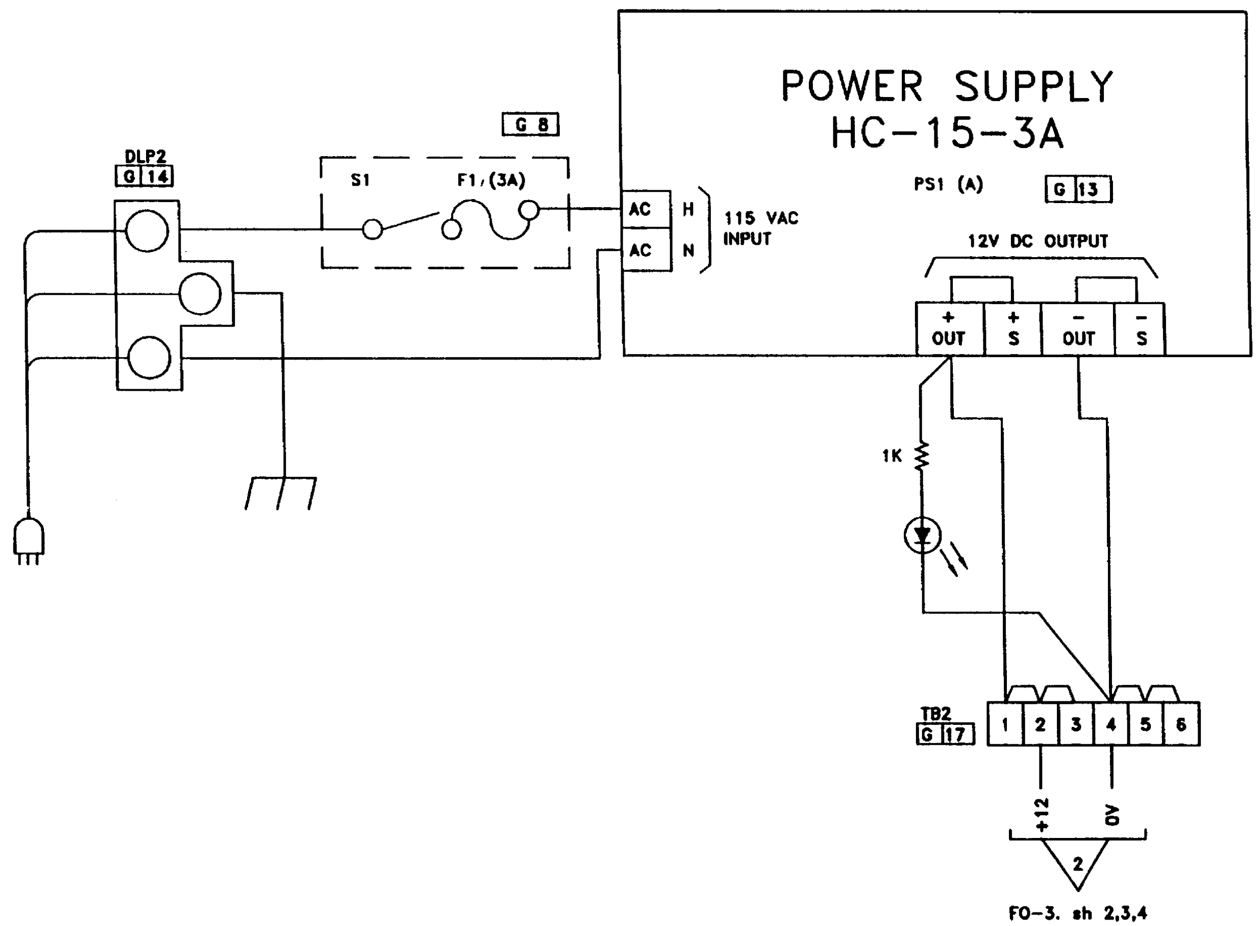


Figure 3-1. RSM Functional Wiring Block Diagram (FO-3 Continuation)

Table 3-2. Primary Monitor Console DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

5. PMC MONOCHROME MONITOR SCREEN IS DARK (Figure 3-2)

Step 1. Adjust contrast and brightness control on black and white monitor (6).

If monitor screen is still dark, go to step 2.

Step 2. Check monitor cable (5) connection at video jack to ensure cable is seated.

If cable is loose or disconnected, connect and adjust contrast and brightness control for proper video.

If monitor screen is still dark, replace monitor (6) (Para. 3-15).

If monitor screen is still dark, replace CPU (1) (Para. 3-10).

6. PMC CPU CANNOT DOWNLOAD OR UPLOAD DATA TO TAPE STREAMER (Figure 3-2)

Step 1. Verify LED indicator on front of tape streamer module is lit.

If lit go to step 2.

If not lit, go to step 3.

Step 2. Replace tape with another tape and perform download procedures. (See TM 5-6350-275-10 for downloading procedures.)

If downloading or uploading to or from tape still cannot be performed, go to step 3.

Step 3. Ensure power supply module (10) is plugged into ac power source and power cable (9) from power supply is plugged into tape streamer module (8) and power supply module (10).

WARNING

Remove the AC power cord to power module, before removing the AC power cord to tape streamer module.

If tape drive will still not upload or download tape, replace power supply module (10) (Para. 3-13).

If tape drive will still not upload or download tape, replace tape streamer (8) (Para. 3-11).

If tape drive will still not upload or download tape, replace PMC CPU (1) (Para. 3-10).

7. B39 KEYBOARD INOPERATIVE (Figure 3-2)

Step 1. PMC does not accept keyboard input.

Replace keyboard (14) (Para. 3-15)

Table 3-2. Primary Monitor Console DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

8. B38 WORKSTATION WILL NOT POWER UP (Figure 3-2)

Step 1. Check power supply module (18) ac power cord (19) to ensure ac cord is fully seated into ac power source and power supply module.

If workstation does not power up, make an ac voltage measurement at ac receptacle by setting multimeter to ac volts, and placing black lead into larger polarized outlet if polarized and red lead into opposite outlet. The voltmeter should read 110 vac to 125 vac.

If reading is correct, replace power supply module (18) and DC power cable (17) (Para. 3-13 and 3-14).

If workstation still does not power up, replace power cord (19) (Para. 3-19).

If workstation still does not power up, replace workstation B38 processor assembly (16) (Para. 3-19).

9. B38 WORKSTATION(S) CANNOT COMMUNICATE WITH THE B39 CPU (Figure 3-2)

Step 1. Check each B38 workstation (16) separately to see whether it can communicate with B39 CPU (1).

If all workstations in chain cannot communicate with B39 CPU, check cluster cable (2) at first B38 workstation (16) to ensure cable is firmly connected to workstation's B38 CPU and PMC B39 CPU (1).

If cluster cable (2) is connected properly to both processors, replace cluster cable (2) (Para. 3-23).

If workstation(s) still do not communicate with PMC CPU, replace first B38 CPU in chain (16) (Para. 3-19).

If workstation(s) still do not communicate with PMC CPU, replace B39 CPU (1) (Para. 3-10).

If workstation(s) still do not communicate with PMC CPU, notify next higher level of maintenance.

If communication has been reestablished to first B38 workstation CPU in chain, go to step 2.

Step 2. Check other workstations (16) in daisy chain, to ensure that communication has been reestablished with PMC CPU (1).

Replace cluster cable (2) between B38 workstation (16) CPU that is not communicating with PMC CPU and B38 workstation CPU that is communicating with PMC CPU.

If B38 workstation CPU still cannot communicate with B39 CPU (1), replace B38 workstation (16) CPU (Para. 3-19).

Table 3-2. Primary Monitor Console DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

10. WORKSTATION KEYBOARD INOPERATIVE (Figure 3-2)

Step 1. Reboot B38 Workstation and check keyboard (27) LEDs for a power on indication. The LEDs should light then go off.

If keyboard LEDs do not light then go off, check keyboard cable (26) to ensure cable is properly seated into keyboard jack and VGA adapter jack (28).

If keyboard is still inoperative, replace keyboard (27) and keyboard cable (26) (Para. 3-20).

If keyboard is still inoperative, replace the video graphic adapter (28). (Para. 3-21)

If keyboard is still inoperative, replace color monitor (24) (Para. 3-20).

If keyboard is still inoperative, replace B38 CPU (16) (Para. 3-19).

11. WORKSTATION MONITOR SCREEN IS DARK (Figure 3-2)

Step 1. Check LED on monitor power on switch to ensure monitor (24) is powered on.

If LED is lit, adjust brightness and contrast knobs on color monitor (24).

If LED is not lit, press power on switch. The LED should light.

If LED is not lit, ensure that monitor power cord (25) is connected to ac power receptacle.

If power cord is connected to receptacle, make an ac voltage measurement at ac receptacle by setting multimeter to ac volts, and placing black lead into larger polarized outlet, if polarized, and red lead into opposite outlet. The voltmeter should read 110 vac to 125 vac.

If reading is correct, go to step 2.

If reading is incorrect, correct input power source.

Step 2. Check color monitor video cable(s) (23) to ensure cable is properly seated into video graphics adapter and video connector jack (29).

If video cable is properly connected, replace video graphics adapter (28) (Para. 3-21).

If color monitor screen is still dark, replace color monitor (24) (Para. 3-20).

If color monitor screen is still dark, replace B38 workstation (16) (Para. 3-19).

Table 3-2. Primary Monitor Console DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

12. PRINTER DOES NOT PRINT (See Figure 3-2)

WARNING

High voltage exists inside the printer assembly. Be careful while making voltage checks, and remove power while replacing assemblies. Otherwise serious injury or death may occur, and serious damage to the equipment may occur.

Step 1. Check the power indication on the printer front panel assembly. The lamp should be on.

If power on lamp is off, remove the input power cable and check for 120 vac at the input receptacle.

If voltage is present, replace the ac power cord (Para. 3-24).

If the power on lamp is on, replace the serial interface cable (Para. 3-24).

If printer still does not print, replace the serial interface PWA (Para. 3-25).

If the printer still does not print, replace the printer assembly (Para. 3-24).

If printer still does not print, replace the B38 or B39 CPU (Para. 3-19 or 3-10).

Table 3-2. Primary Monitor Console DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

13. RSM CANNOT COMMUNICATE WITH PMC

Step 1. Check the power indictor light on the front panel assembly of the RSM. The lamp should be on.

If power on lamp is off:

Check the ON/OFF switch is in the proper position.

If OFF, return the switch to the ON position.

Check the 3 Amp fuse inside the ON/OFF switch.

If blown, replace with like fuse ONLY. (AGC3)

Check that 120VAC is present at outlet.
If voltage is not present or is not proper contact supervisor.
If voltage is present replace RSM. (Para. 3-34)

Step 2. Check that there is a display on the front panel assembly of the modem.

If there is no display:

Check the ON/OFF switch is in the proper position.

If OFF, return the switch to the ON position.

Check the 3/16 Amp fuse.

If blown, replace with like fuse ONLY. (MDL3/16)

Check that 120VAC is present at outlet.
If voltage is not present or is not proper contact supervisor.
If voltage is present replace modem. (Para. 3-35)

Step 3. Check the modem set-up parameters on both the RSM and the PMC. (Ref. Appendix E, E-56)

If parameters are wrong, correct.

Step 4. Troubleshoot B-39 Processor at both the RSM and the PMC. (Table 3-2, 4)

Step 5. Verify phone lines connecting the RSM and the PMC.

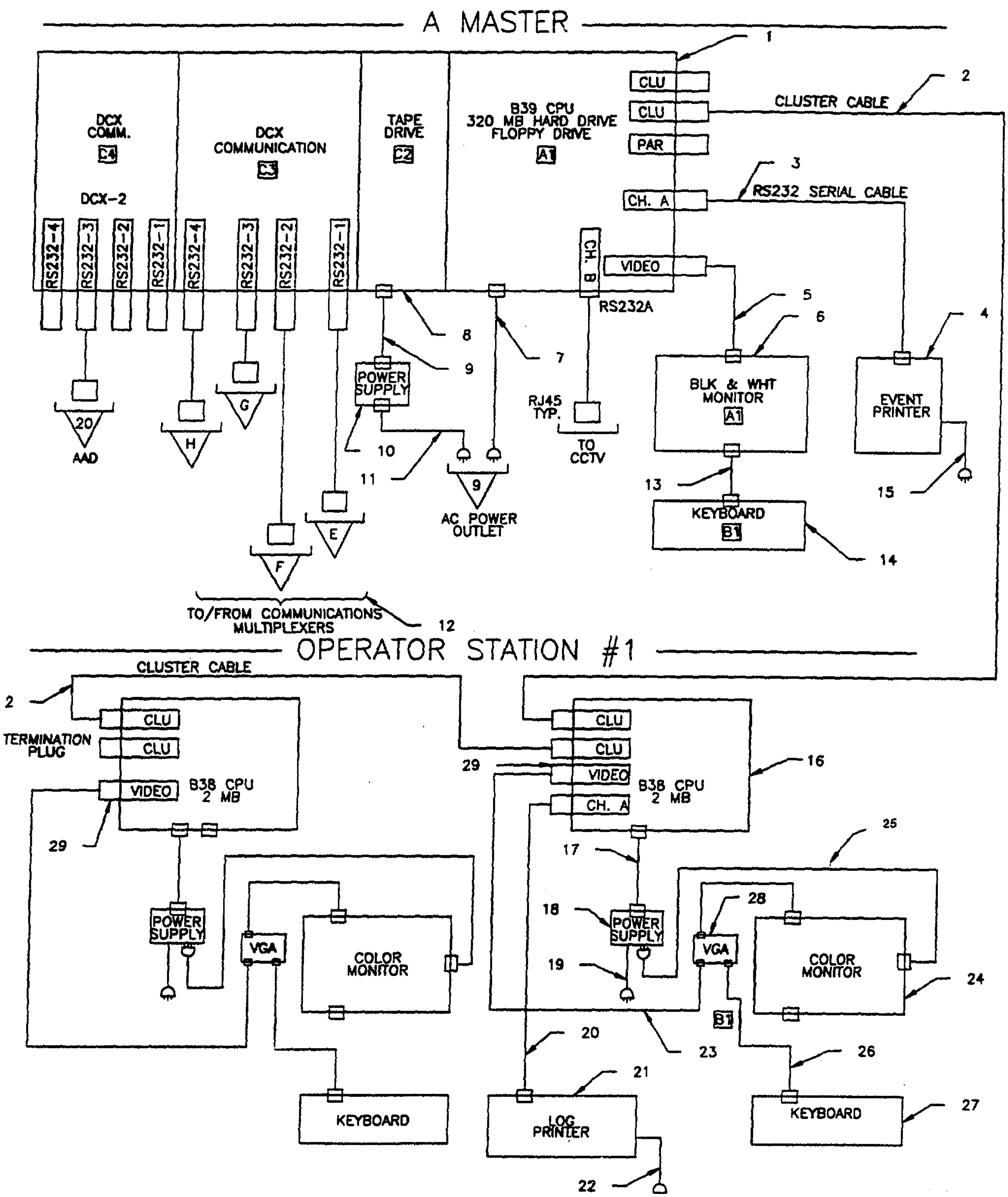


Figure 3-2. B39 CPU and B38 Workstation General Block Diagram

Table 3-3. Remote Area Data Collector DS Maintenance Troubleshooting

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. RADC DOES NOT COMMUNICATE WITH THE PMC CPU (Figure 3-3, and FO-4, 5, 6)

Step 1. On the Stargate PWA, monitor U22 LED 1 (+5 v power). The LED should be on.

If LED is not on, check for 18 VAC across TBI plus 1 and 2.

If voltage is not present, replace the 18 VAC adapter (Para. 3-53 or 3-59)

If the LED is not on, replace the Stargate PWA (Stargate 5000, Para. 3-38) (Stargate 1000, Para. 3-48).

If the LED is on, go to step 2.

Step 2. Monitor the RTS, TD, CD, and RD LEDs on the MOD2-II modem PWA. The LEDs should be flashing on and off.

If the LEDs are flashing on and off, communication from the PMC CPU to the MOD2-II modem PWA is good. Go to step 3.

If the LEDs are not flashing on and off, adjust R18 (TX) level and R10 (RX) level, adjust until the LEDs begin flashing on and off.

If the LEDs are still not flashing on and off, check for +12 v across J1 pins 1 and 2 on the modem PWA.

If voltage is present, replace the modem PWA (Para. 3-42).

If the LEDs are still not flashing on and off, go to Table 3-2 and troubleshoot Malfunction 3.

If Malfunction 3 tests good, down load RSE to stargate and recheck. (Para. 3-130)

If the +12 v is not present at the Mod 2-11 modem J1 pins 1 and 2, go to step 4.

If a DES module is used in the RADC, go to step 5.

Step 3. On the Stargate PWA, monitor the Comms channel Tx LED 2 and the Comms channel Rx LED 3 on U22. The LEDs should be flashing on and off if communications between the RADC and the PMC CPU has been established. Also LEDs 5 and 6 (STN AD and GD PKT) on U23 should be flashing on and off. (LED 5 and 6 will be out if a DES module is connected).

If the LEDs are flashing on and off, the communications channel within the RADC is good. Have comms lines from the PMC CPU to RADC checked for excess noise. (checked by telephone company)

If the LEDs are not flashing on and off, go to step 4.

Table 3-3. Remote Area Data Collector DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. RADC DOES NOT COMMUNICATE WITH THE PMC CPU (Figure 3-3, and FO-4, 5, 6) (continued)

Step 4. On the Stargate PWA, check for +12 v across TB1 pins 3 and 4.

If voltage is present, repair the Wiring between Comms connector DT5 and MOD2-II modem connector J1 pins 1 and 2.

If voltage is not present, replace the Stargate PWA (Stargate 5000, Para. 3-38) (Stargate 1000, Para. 3-48).

If a DES module is used, repair wiring between the DT5 connector and the DAS Terminal connector P1.

Step 5. On the DES module (Para. 3-40), verify that the warning LED is not flashing on and off along with the Key Lost or Wrong Key LED.

If the warning LED is flashing on and off, replace the DES module. If the warning LED is off, to step 6.

Step 6. Verify that the RTU XD and RD LEDs are flashing on and off.

If both are flashing on and off the communication between the RADC and the DES module is good, go to step 7. If the RD LED is flashing on and off and the XD is not, replace the DES module (Para. 3-40).

Step 7. Verify that the Run, RD, GD STA, GD MSG, XD, and GD LD LEDs are flashing on and off.

If LEDs are flashing on and off, communications to the FEP are good. If the LEDs are not flashing on and off, replace the DES module (Para. 3-40).

2. LEDA FLEX PWA FAILURE (FO-4, FO-5, FO-6)

Step 1. On the Leda Flex PWA, monitor the Heartbeat LED. The LED should be flashing on and off approximately once per second.

If the LED is flashing on and off, go to step 2.

If the lamp is not flashing on and off, go to step 4.

Step 2. Monitor the Tx and Rx LEDs on the Leda Flex PWA. The LEDs should flash on and off as data is being transmitted to or received from the Stargate PWA.

If the Tx or Rx LED does not flash on and off, go to step 3.

Step 3. Set multimeter to read ohms and check for open wiring between the Leda Flex PWA TB7 pins 4 and 5 and Stargate PWA AUX 0 Connector pins 2 and 6.

If wiring is good, replace the Leda Flex PWA (Para. 3-39).

If wiring is open, replace the wire and retest.

Table 3-3. Remote Area Data Collector DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. LEDA FLEX PWA FAILURE (continued)

Step 4. Set multimeter to read dc volts. Place negative lead on TB7 pin 2 and the positive lead on TB7 pin 1. The multimeter should read +12 v.

If the multimeter indication is correct, replace the Leda Flex PWA (Para. 3-39).

If dc voltage is not present, check for open wiring between the following points and replace as necessary:

FROM	TO
Leda Flex PWA	Leda Flex Termination PWA
TB7 pin 1	TB8 pin 1
TB7 pin 2	TB8 pin 2
Leda Flex Termination PWA	RADC Panel Assy.
TB8 pin 1	TB-K pin 3
TB8 pin 2	TB-K pin 4
RADC Panel Assy.	Stargate PWA
TB-K pin 3	TB1 pin 3
TB-K pin 4	TB1 pin 4

3. LEDA FLEX TERMINATION PWA FAILURE (FO-4, FO-5, FO-6)

Step 1. Check the power on lamp on the Leda Flex Termination card. The lamp should be on.

If the lamp is on, go to step 5.

If lamp is off, replace the termination card PWA (Para. 3-43).

If the lamp is still off, reinstall the termination card PWA and replace the Leda Flex PWA (Para. 3-37).

If the Leda Flex termination PWA is still showing a failure, go to step 2.

Step 2. Using a multimeter, check for +12 vdc across TB8 pins 1 and 2.

If the voltage is present, replace the PWA. (Para. 3-43)

If the voltage is not present, go to step 3.

Step 3. Using a multimeter, check for +12 vdc across TBK pins 3 and 4 on the RADC rear panel assembly.

If voltage is present, replace wiring between TBK pins 3 and 4 and the Leda Flex Termination Board TB8 pins 1 and 2.

If voltage is not present, go to step 4.

Table 3-3. Remote Area Data Collector DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

3. LEDA FLEX TERMINATION PWA FAILURE (continued)

Step 4. Using a multimeter, check for +12 v across TB1 pins 3 and 4 on the RADC Stargate PWA.

If voltage is present, replace wiring between TB1 pins 3 and 4 on the Stargate PWA and TBK pins 3 and 4 on the RADC rear panel assembly.

If voltage is not present, replace the Stargate PWA. (Stargate 5000, Para. 3-38 and Stargate 1000, Para. 3-48)

Step 5. Make a visual inspection of the 12 LEDs (lamp indicators) on the Leda Flex Termination PWA. The LEDs should be out, unless a sensor is in alarm or tamper (open or short). When the LED is red, the sensor is in alarm. When the LED is green, the sensor is in tamper short. When the LED is amber (red & green), the sensor is in tamper open.

If any of the LEDs are lit, remove the wire(s) to the input terminal(s) of the terminal board for the LED that is lit. The LED should change to amber (tamper open).

If the LED does not change to amber or stays in amber, replace the termination card PWA (Para. 3-43).

4. AUDIO ASSESSMENT CONTROLLER FAILURE (FO-4, FO-5)

Step 1. Using a multimeter, check for +5 vdc across TB2 pin 5 (black lead) and TB1 pins 1 through 8 and TB2 pins 1 and 2 (for microphone 1 through 10). The multimeter should indicate +5 vdc on the terminal board connector pin for the microphone that has been turned on.

If +5 v is not present when either of the above occurs, replace the Audio Assessment Controller (Para. 3-41).

If the +5 vdc is present all the time, replace the Audio Assessment Controller (Para. 3-41).

Table 3-3. Remote Area Data Collector DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

5. DES MODULE WILL NOT ALLOW COMMUNICATIONS PROCESSING (FO-4, FO-5, FO-6). See steps 5 through 7 of malfunction #1 (RADC DOES NOT COMMUNICATE WITH THE PMC CPU).

6. KEYPAD FAILURE (FO-4, 5, 6, 7, 8)

Step 1. Verify that asterisks on each side of the word ACCESS or SECURE are present on the LCD display and that the display is switching between ACCESS or SECURE and the zone number, zone name, and time and date. This indicates that communication between the keypad and RADC/IAC is good.

If the above indication is correct, go to Step 2.

If the LCD display is blank, go to Step 3.

Step 2. Enter a valid PIC number with the keypad entry keys and press GO. A menu should come up on the LCD display, showing ACC EXT CMD DIS or SEC EXT CMD DIS. Press the F1 key to place the zone in ACCESS or SECURE.

If the LCD display changes to ACCESS or SECURE, the keypad is operational. Go to step 3.

If the message is incorrect or the PIC not accepted, replace the keypad (Para. 3-109).

Step 3. Remove the keypad front panel assembly. Check for a blown fuse on the keypad PWA.

If fuse is blown, replace fuse and repeat steps 1 and 2.

If fuse is not blown, go to step 4.

Step 4. Set multimeter to vdc and check for +12 v across TB1 pins 1 and 2.

If voltage is correct, replace the keypad (Para. 3-109).

If voltage is not present, go to step 5.

Step 5. Remove the RADC front panel and check for +12 v across TB1, pins 3 and 4.

If voltage is present, replace the wiring between the RADC PWA, TB1 pins 3 and 4. Perform steps 1 and 2.

If keypad is still not operational, the problem is not the keypad. Replace the RADC (Para. 3-38).

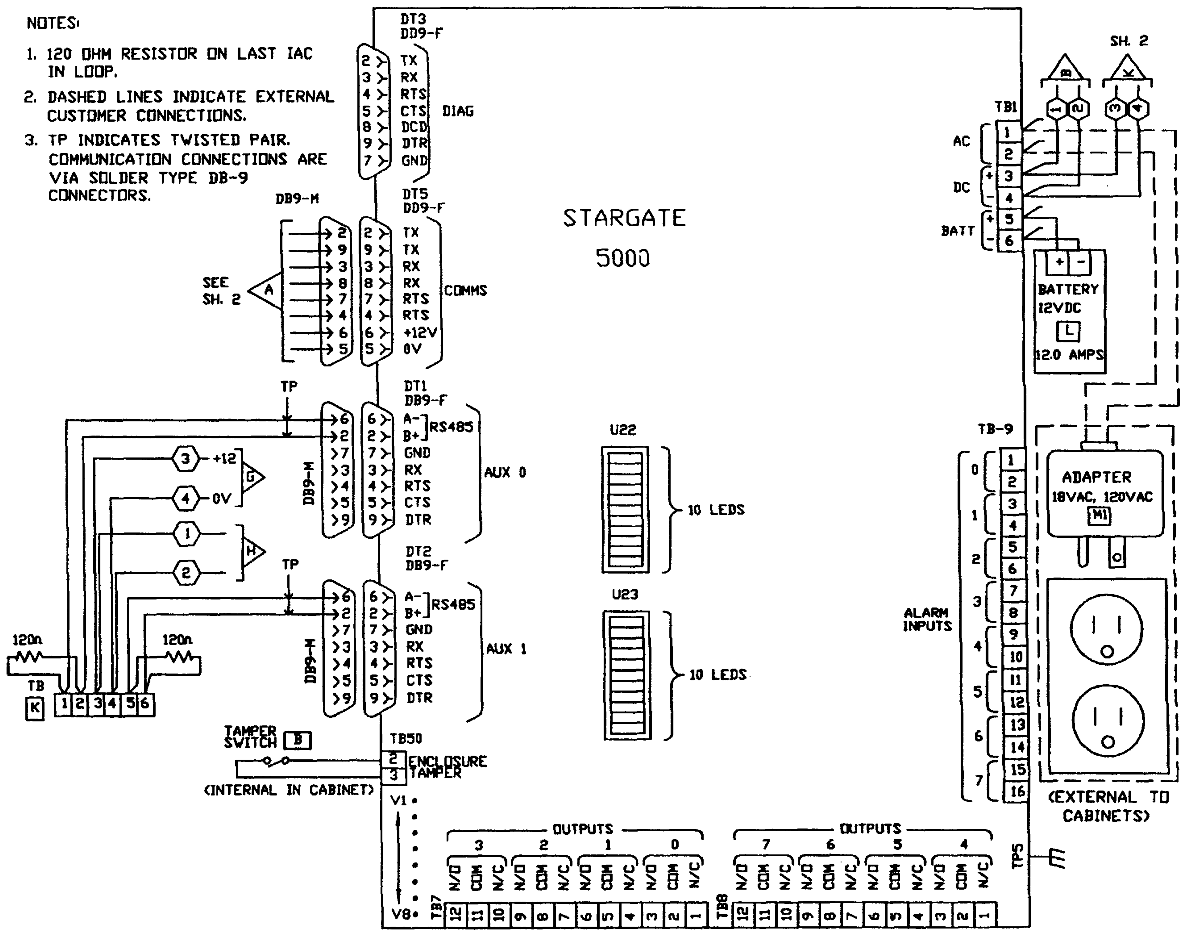


Figure 3-3. Interior RADC, 8 points, 12 VDC Functional Wiring Diagram (Sheet 1 of 2)

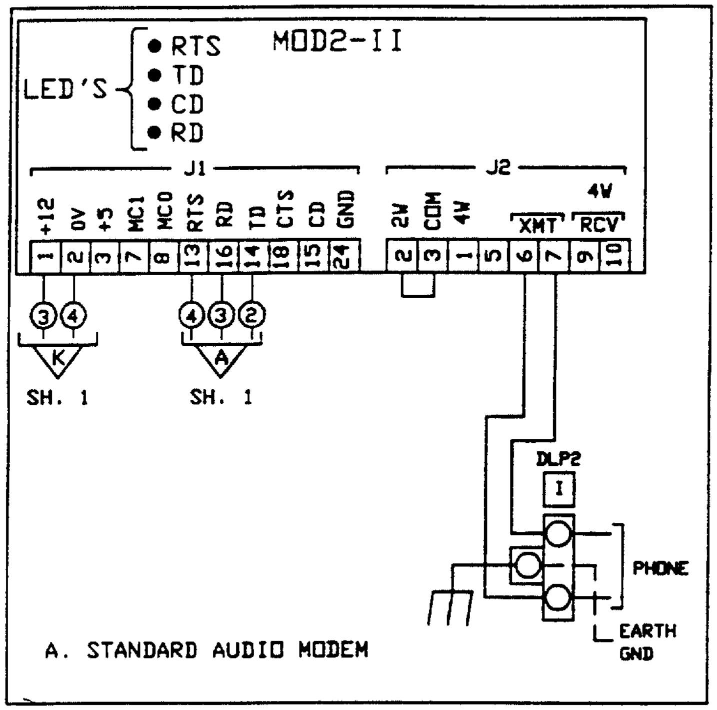


Figure 3-3. Interior RADC, 8 points, 12 VDC Functional Wiring Diagram (Sheet 2 of 2)

Table 3-4. SubRADC (Leda) With Power Supply DS Maintenance Troubleshooting

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. LEDA FLEX PWA FAILURE (Figure 3-4 and 3-6)

Step 1. On the Leda Flex PWA, monitor the Heartbeat LED. The LED should be flashing on and off approximately once per second.

If the LED is flashing on and off, go to step 2.

If the lamp is not flashing on and off, go to step 4.

Step 2. Monitor the Tx and Rx LEDs on the Leda Flex PWA. The LEDs should flash on and off as data is being transmitted to or received from the Stargate PWA.

If the Tx or Rx LED does not flash on and off, go to step 3.

Step 3. Set multimeter to read ohms and check for open wiring between the Leda Flex PWA TB7 pins 4 and 5 and Stargate PWA AUX 0 Connector pins 2 and 6. (Place jumper wire across Stargate PWA AUX 0 Connector pins 2 and 6)

If wiring is good, replace the Leda Flex PWA (Para. 3-63). (Remove jumper wire)

If wiring is open, replace the wire and retest.

Step 4. Set multimeter to read dc volts. Place negative lead on TB7 pin 2 and the positive lead on TB7 pin 1. The multimeter should read +12 v.

NOTE

If there is an AC voltage line loss, an alarm will be generated

If the multimeter indication is correct, replace the Leda Flex PWA (Para. 3-63).

If dc voltage is not present, check for open wiring between the following points and replace as necessary:

FROM	TO
Leda Flex PWA	Bridge Rectifier
TB7 pin 1	+ Positive Terminal
TB7 pin 2	- Negative Terminal on power supply TB

Table 3-4. SubRADC (Leda) With Power Supply DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. LEDA FLEX TERMINATION PWA FAILURE (Figure 3-4 and 3-6)

Step 1. Check the power on lamp on the Leda Flex Termination card. The lamp should be on.

If the lamp is on, go to step 6.

If the lamp is off, replace the termination card PWA (Para. 3-64).

If the lamp is still off, reinstall the termination card PWA and replace the Leda Flex PWA (Para. 3-63).

If the Leda Flex termination PWA is still showing a failure, go to step 2.

Step 2. Using a multimeter, check for +12 vdc across TB8 pins 1 and 2.

If voltage is present, replace the PWA. (Para. 3-64).

If voltage is not present, go to step 3.

Step 3. Using a multimeter, check for +12 vdc across TB7 pins 1 and 2 on the Leda Flex PWA.

If voltage is present, replace wiring between TB7 pins 1 and 2 and the Leda Flex Termination Board TB8 pins 1 and 2.

If voltage is not present, go to step 4.

Step 4. Using a multimeter, check for +12 v across TB1 pins + and - on the power supply PWA.

If voltage is present, replace rectifier assembly. (Para. 3-66)

If voltage is not present, check fuse F1 on power entry module and replace if necessary. (Para. 3-69)

If fuse is not blown, go to step 5.

Step 5. Using a multimeter, check for 120 vac across pins 1 and 2 of power entry module.

If voltage is present, replace the power supply. (Para. 3-65)

If voltage is not present, notify facility engineers.

Step 6. Make a visual inspection of the 12 LEDs (lamp indicators) on the Leda Flex Termination PWA. The LEDs should be out, unless a sensor is in alarm or tamper (open or short). When the LED is red, the sensor is in alarm. When the LED is green, the sensor is in tamper short. When the LED is amber (red & green), the sensor is in tamper open.

If any of the LEDs are lit, remove the wire(s) to the input terminal(s) of the terminal board for the LED that is lit. The LED should change to amber (tamper open).

Table 3-4. SubRADC (Leda) With Power Supply DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. LEDA FLEX TERMINATION PWA FAILURE (continued)

If the LED does not change to amber or stays in amber, replace the termination card PWA (Para. 3-64).

3. POWER SUPPLY, AC LINE LOSS FAILURE (Figure 3-4 and 3-6)

Step 1. Disconnect the 120 vac input power from power source.

Step 2. Remove the power entry module Fuse F1 and check for continuity across fuse.

If fuse is blown, replace (Para. 3-69) and have operator verify there is no longer an AC line loss failure.

If fuse is not blown, go to Step 3.

Step 3. Using a multimeter, check for + 13 to 15 vdc across Power Supply Printed Wiring Assembly + and - output terminals.

If voltage is present, go to step 4.

If voltage is not present, replace Power Supply (Para. 3-65).

Step 4. Check for loose wire between Bridge Rectifier AC line input and Power Supply PWA + terminal and Leda Flex Termination TB 6, pin 7.

Tighten or replace wiring as necessary. Have operator verify the assembly is no longer in alarm.

Table 3-5. SubRADC (Leda) DS Maintenance Troubleshooting

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. LEDA FLEX PWA FAILURE (Figure 3-5 and 3-7)

Step 1. On the Leda Flex PWA, monitor the Heartbeat LED. The LED should be flashing on and off approximately once per second.

If the LED is flashing on and off, go to Step 2.

If the lamp is not flashing on and off, go to Step 4.

Step 2. Monitor the Tx and Rx LEDs on the Leda Flex PWA. The LEDs should flash on and off as data is being transmitted to or received from the Stargate PWA.

If the Tx or Rx LED does not flash on and off, go to Step 3.

Step 3. Set multimeter to read ohms and check for open wiring between the Leda Flex PWA TB7 pins 4 and 5 and Stargate PWA AUX 0 Connector pins 2 and 6. (Place jumper wire across Stargate PWA AUX 0 Connector pins 2 and 6)

If wiring is good, replace the Leda Flex PWA (Para. 3-71). (Remove jumper wire)

If wire is open, replace the wire and retest.

Step 4. Set multimeter to read dc volts. Place negative lead on TB7 pin 2 and the positive lead on TB7 pin 1. The multimeter should read +12v.

If the multimeter indication is correct, replace the Leda Flex PWA (Para. 3-71.)

If dc voltage is not present, check for open wiring between the following points and replace as necessary:

FROM	TO
Leda Flex PWA	RADC Panel Assy.
TB7 pin 1	TB-K pin 3
TB7 pin 2	TB-K pin 4
RADC Panel Assy.	Stargate PWA
TB-K pin 3	TB1 pin 3
TB-K pin 4	TB1 pin 4

Table 3-5. SubRADC (Leda) DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. LEDA FLEX TERMINATION PWA FAILURE (Figure 3-5 and 3-7)

Step 1. Check the lamp on the Leda Flex Termination card. If the lamp is on, go to Step 5.

If lamp is off, replace the termination card PWA (Para. 3-72).

If still off, reinstall the termination card PWA and replace the Leda Flex PWA (Para. 3-71).

If the Leda Flex Termination PWA still shows failure, replace ribbon cable between PL1 and P1.

If the Leda Flex termination PWA is still showing a failure, go to step 2.

Step 2. Using a multimeter, check for +12 vdc across TB8 pins 1 and 2.

If voltage is present, replace the PWA. (Para. 3-72)

If voltage is not present, go to Step 3.

Step 3. Using a multimeter, check for +12 vdc across Leda Flex PWA TB7, pin 1 and 2.

If voltage is present, replace wiring between TB7 pins 1 and 2 and the Leda Flex Termination Board TB8 pins 1 and 2.

If voltage is not present, check for +12 vdc across TBK pins 3 and 4 on the associated RADC rear panel assembly.

If voltage is present, replace the wiring between TBK pins 3 and 4 and Leda Flex PWA, TB7 pins 1 and 2.

If voltage is not present, go to step 4.

Step 4. Using a multimeter, check for +12 v across TB1 pins 3 and 4 on the RADC Stargate PWA.

If voltage is present, replace wiring between TB1 pins 3 and 4 on the Stargate PWA and TBK pins 3 and 4 on the RADC rear panel assembly.

If voltage is not present, replace the Stargate PWA. (Stargate 5000, Para. 3-38 and Stargate 1000, Para. 3-48)

Step 5. Make a visual inspection of the 12 LEDs (lamp indicators) on the Leda Flex Termination PWA. The LEDs should be out, unless a sensor is in alarm or tamper (open or short). When the LED is red, the sensor is in alarm. When the LED is green, the sensor is in tamper short. When the LED is amber (red & green), the sensor is in tamper open.

If any of the LEDs are lit, remove the wire(s) to the input terminal(s) of the terminal board for the LED that is lit. The LED should change to amber (tamper open).

If the LED does not change to amber or stays in amber, replace the termination card PWA (Para.. 3-72).

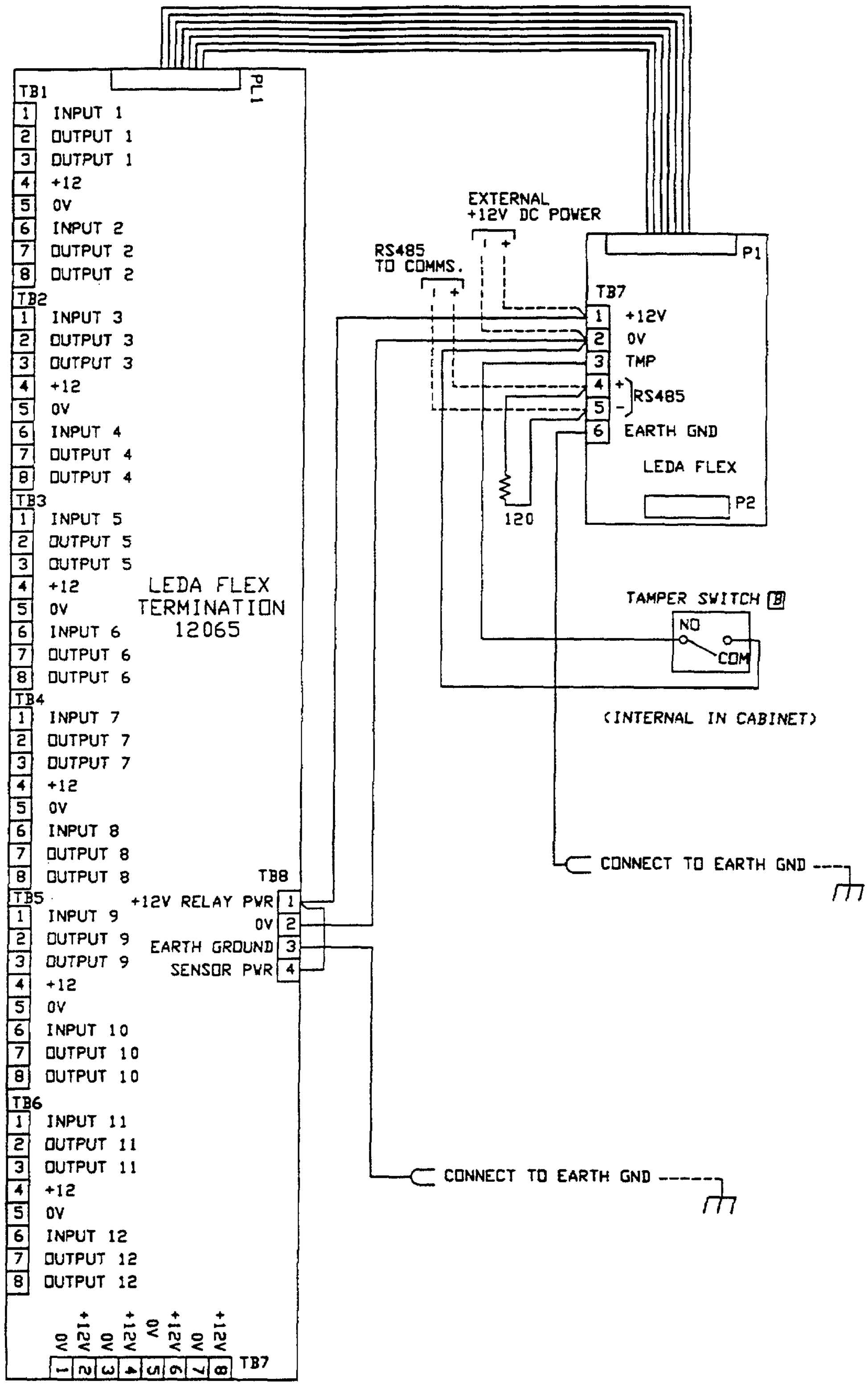
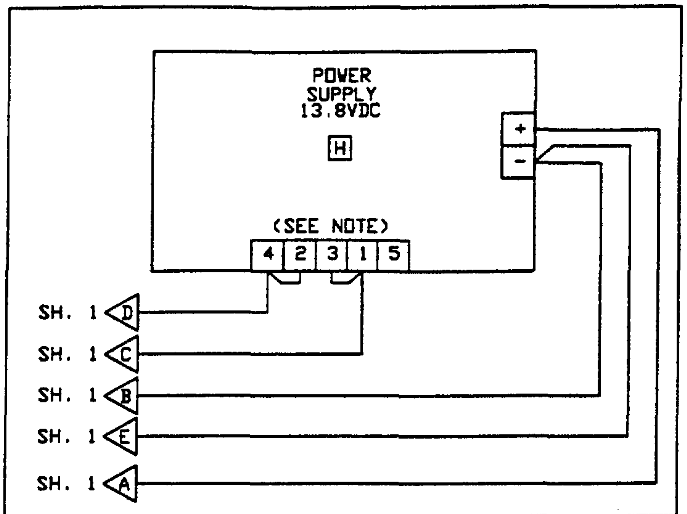


Figure 3-4. SubRADC (Leda) With 12 vdc Power Supply, 12 Points, Interior (Sheet 1 of 2)

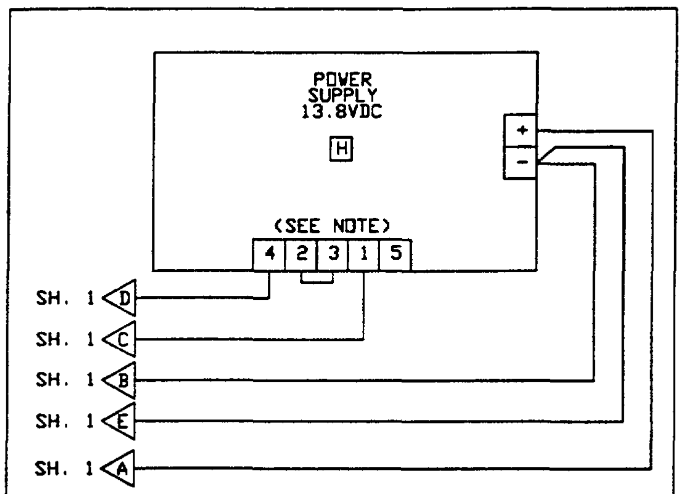
FIGURE A



NOTES:

1. FOR USE OTHER THAN 120VAC, POWER SUPPLY MUST BE MODIFIED.
2. INSULATE PRIMARY TRANSFORMER.
3. HEATER, LOC $\boxed{E}$ IS PT 512-120VAC.

FIGURE B



NOTES:

1. FOR USE OTHER THAN 220VAC, POWER SUPPLY MUST BE MODIFIED.
2. INSULATE PRIMARY TRANSFORMER.
3. HEATER, LOC $\boxed{E}$ IS PT 512-240VAC.

TABLE 1

FOR OPTION	SEE DIAGRAM
-1: 120VAC INPUT	FIGURE A
-2: 220VAC INPUT	FIGURE B

Figure 3-4. SubRADC (Leda) With 12 vdc Power Supply, 12 Points, Interior (Sheet 2 of 2)

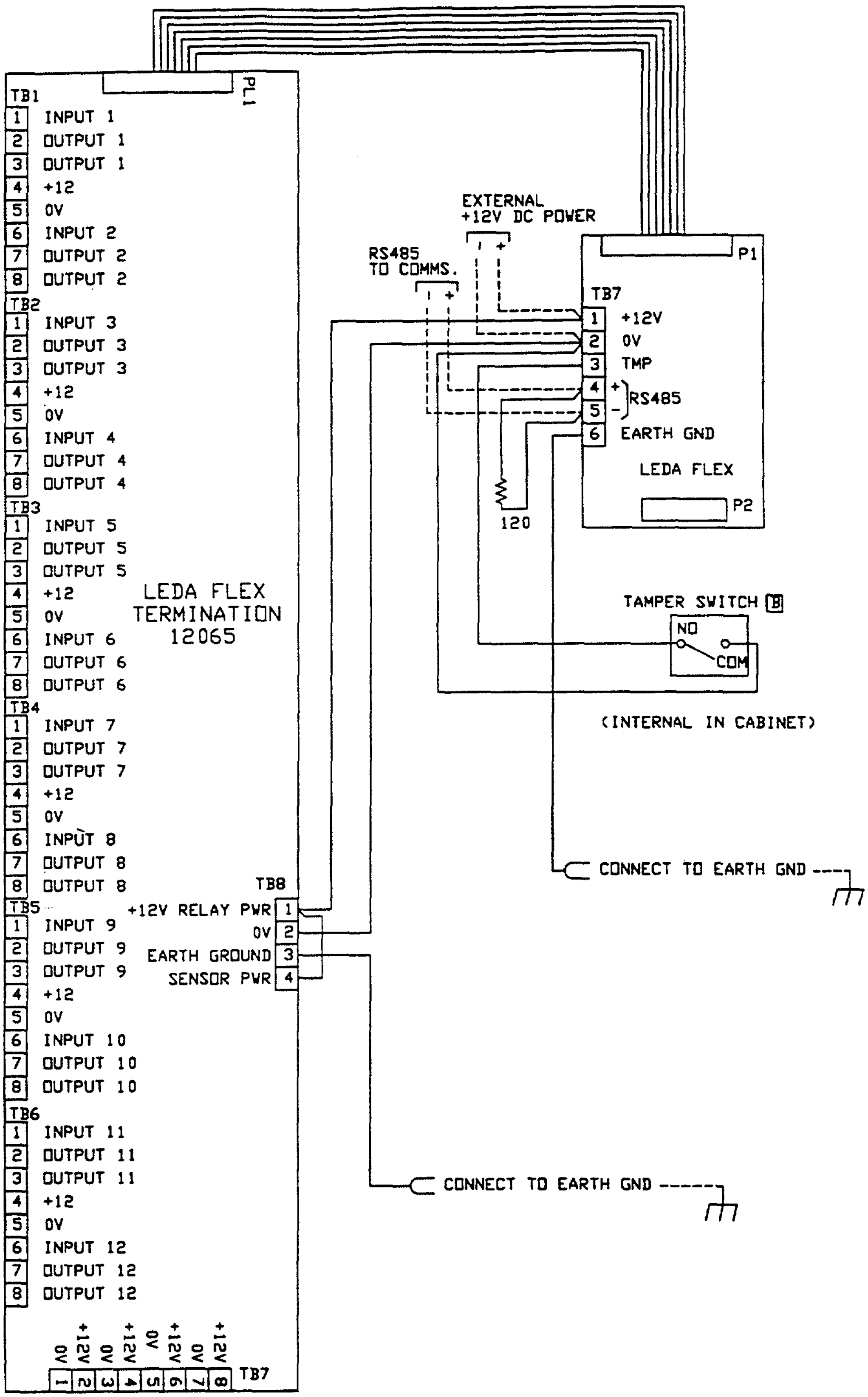


Figure 3-5. SubRADC (Leda) 12 Points, 12 vdc, Interior

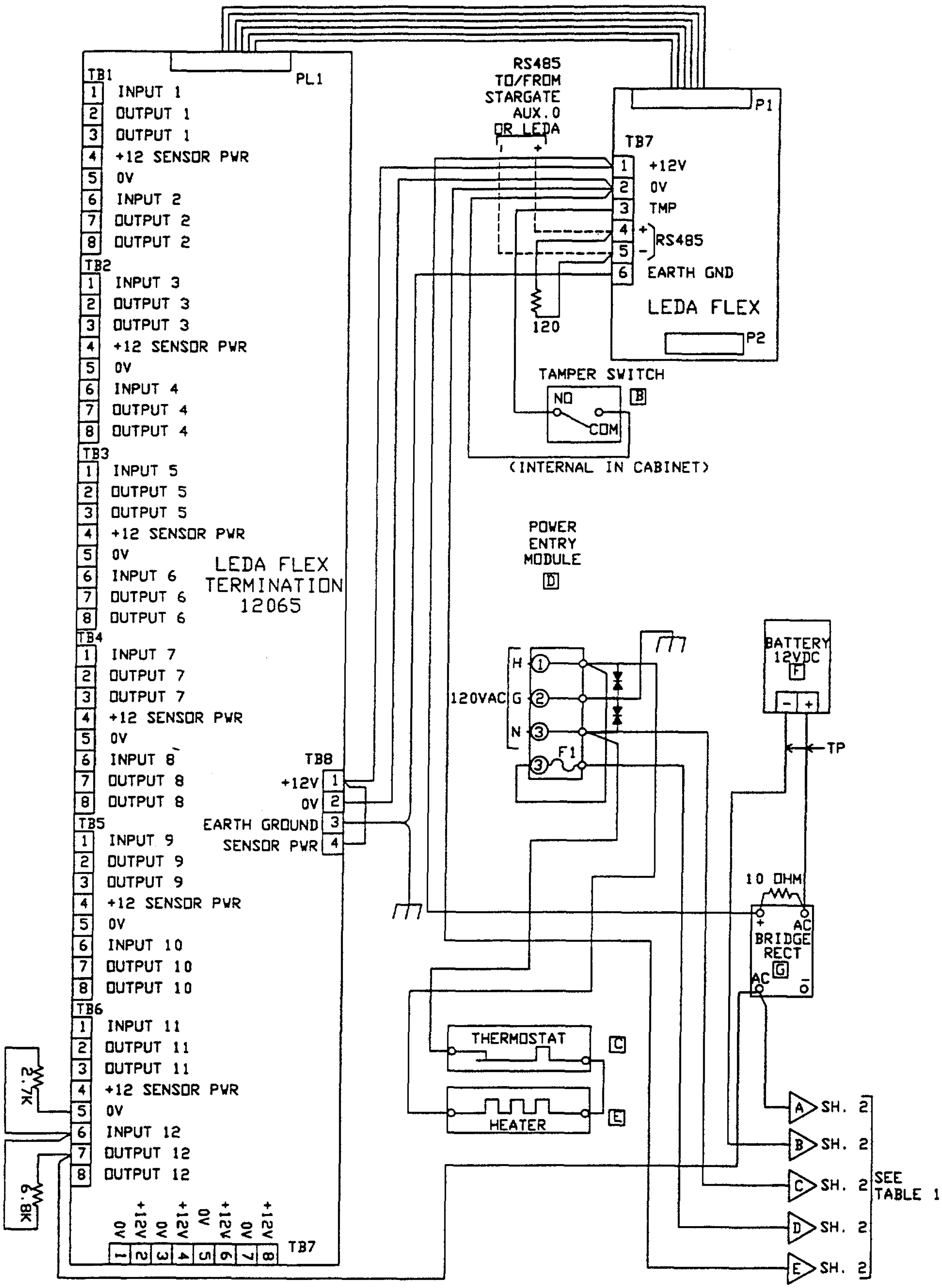
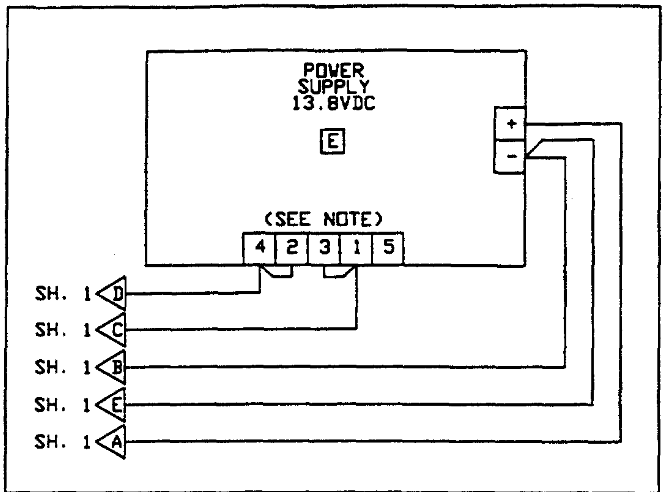


Figure 3-6. SubRADC (Leda), With 12 vdc Power Supply, 12 Points, Exterior (Sheet 1 of 2)

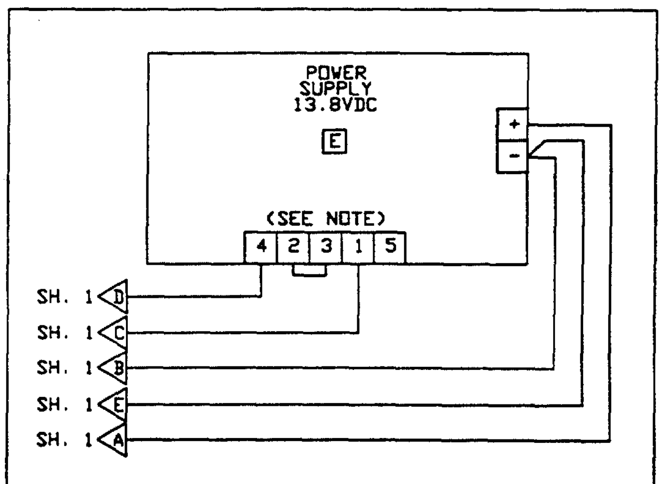
FIGURE A



NOTES:

1. FOR USE OTHER THAN 120VAC, POWER SUPPLY MUST BE MODIFIED.
2. INSULATE PRIMARY TRANSFORMER.

FIGURE B



NOTES:

1. FOR USE OTHER THAN 220VAC, POWER SUPPLY MUST BE MODIFIED.
2. INSULATE PRIMARY TRANSFORMER.

TABLE 1

FOR OPTION	SEE DIAGRAM
-1: 120VAC INPUT	FIGURE A
-2: 220VAC INPUT	FIGURE B

Figure 3-6. SubRADC (Leda), With 12 vdc Power Supply, 12 Points, Exterior (Sheet 2 of 2)

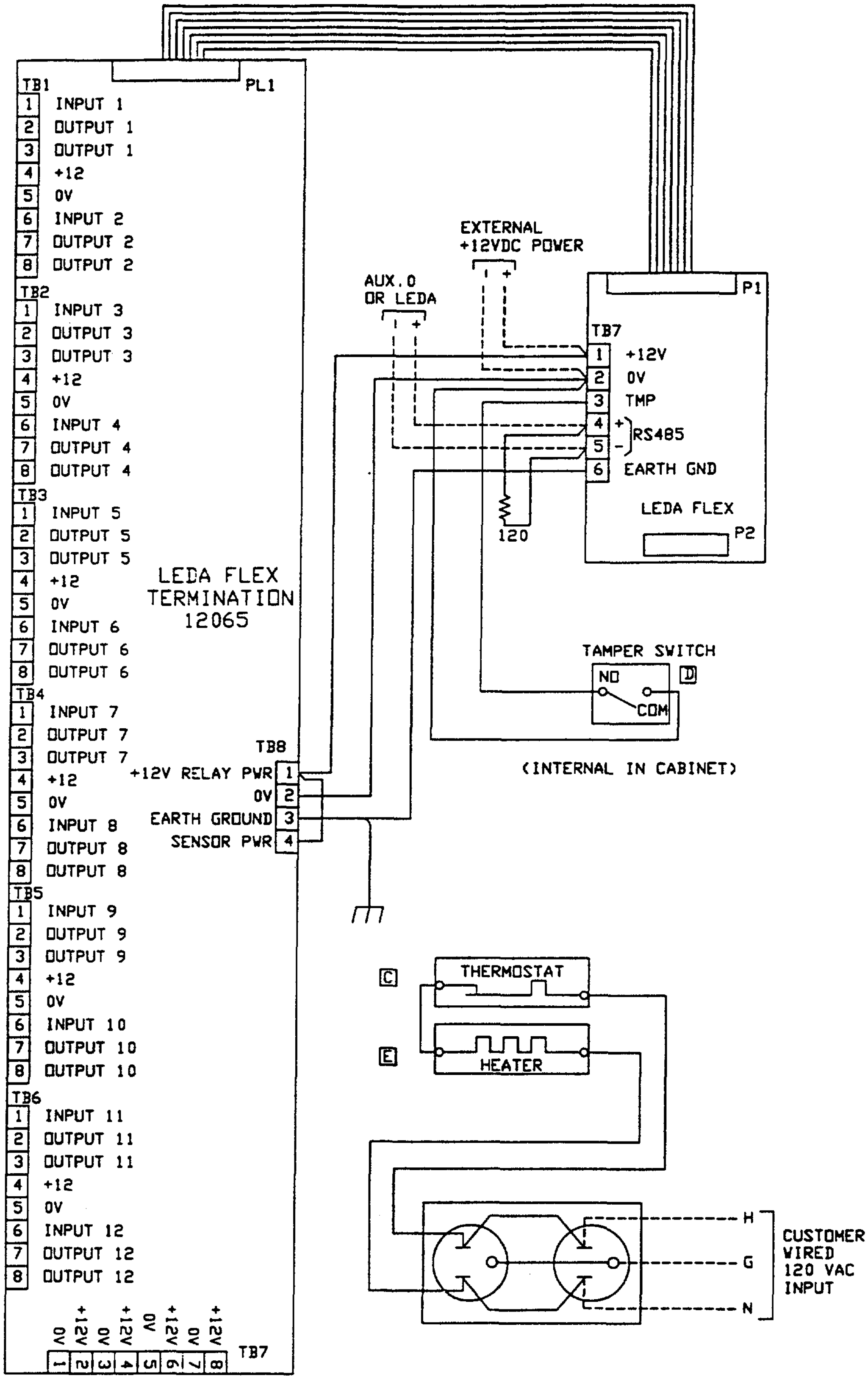


Figure 3-7. SubRADC (Leda), 12 Points, Exterior

Table 3-6. J-SIIDS Interface Assemblies, DS Maintenance Troubleshooting

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. J-SIIDS STARGATE FAILURE (FO-7)

Step 1. On the Stargate PWA, monitor U22 LED 1 (+5 v power). The LED should be on.

If LED is not on, check for 20 VAC on TBI, pins 1 and 2.

If voltage is not present, replace J-SIIDS power supply.

If voltage is present and the LED is not on, replace the Stargate PWA (Stargate 1000, Para. 3-89).

If the LED is on, go to Step 2.

Step 2. Monitor the RTS, TD, CD, and RD LEDs on the MOD2-II modem PWA. The LEDs should be flashing on and off.

If the LEDs are flashing on and off, communication from the PMC CPU to the MOD2-II modem PWA is good. Go to Step 3.

If the LEDs are not flashing on and off, adjust R18 (TX) level and R10 (RX) level, adjust until the LEDs begin flashing on and off.

If the LEDs are still not flashing on and off, check for +12 v across J1 pins 1 and 2 on the modem PWA.

If voltage is present, replace the modem PWA (Para. 3-90).

If the LEDs are still not flashing on and off, go to Table 3-1 and troubleshoot Malfunction 3.

If Malfunction 3 tests good, down load RSE to stargate and recheck. (Para. 3-132)

If the +12 v is not present at the Mod 2-11 modem J1 pins 1 and 2, go to Step 4.

Step 3. On the Stargate PWA, monitor the Comms channel Tx LED 2 and the Comms channel Rx LED 3 on U22. The LEDs should be flashing on and off if communications between the RADC and the PMC CPU has been established. Also LEDs 5 and 6 (STN AD and GD PKT) on U23 should be flashing on and off.

If the LEDs are flashing on and off, the communications channel within the RADC is good. Have comms lines from the PMC CPU to RADC checked for excess noise. (checked by telephone company)

If the LEDs are not flashing on and off, go to Step 4.

Step 4. On the Stargate PWA, check for +12 v across TB1 pins 3 and 4.

If voltage is present, repair the wiring between TB1 pin 3 and 4 and MOD2-II modem connector J1 pins 1 and 2.

If voltage is not present, replace the Stargate PWA (Stargate 1000, Para. 3-89).

Table 3-6. J-SIIDS Interface Assemblies, DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. J-SIIDS LEDA INTERFACE ASSEMBLY FAILURE (FO-8)

Step 1. On the Leda Flex PWA, monitor the Heartbeat LED. The LED should be flashing on and off approximately once per second.

If the LED is flashing on and off, go to Step 2.

If the lamp is not flashing on and off, go to Step 4.

Step 2. Monitor the Tx and Rx LEDs on the Leda Flex PWA. The LEDs should flash on and off as data is being transmitted to or received from the Stargate PWA.

If the Tx or Rx LED does not flash on and off, go to Step 3.

Step 3. Set multimeter to read ohms and check for open wiring between the Leda Flex PWA TB7 pins 4 and 5 and Stargate PWA AUX 0 Connector pins 2 and 6.

NOTE:

Place a jumper wire across pins 2 and 6 on Stargate PWA.

If wiring is good, replace the Leda Flex PWA (Para. 3-92). (Remove jumper wire)

If wire is open, replace the wire and retest.

Step 4. Set multimeter to read dc volts. Place negative lead on TB7 pin 2 and the positive lead on TB7 pin 1. The multimeter should read +12 v.

If the multimeter indication is correct, replace the Leda Flex PWA (Para. 3-92).

If dc voltage is not present, check for open wiring between the following points and replace as necessary:

FROM	TO
Leda Flex PWA	Leda Flex Termination PWA
TB7 pin 1	TB8 pin 1
TB7 pin 2	TB8 pin 2
Leda Flex Termination PWA	12 VDC REGULATOR
TB8 pin 1	TB-1 pin 2
TB8 pin 2	TB-2 pin 3

Table 3-6. J-SIIDS Interface Assemblies, DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

3. J-SIIDS LEDA FLEX TERMINATION PWA FAILURE (FO-8)

Step 1. Check the power on lamp on the Leda Flex termination card. The lamp should be on.

If the lamp is on, go to Step 4.

If lamp is off, replace the termination card PWA (Para. 3-93).

If the lamp is still off, reinstall the termination card PWA and replace the Leda Flex PWA (Para. 3-92).

If the Leda Flex termination PWA is still showing a failure, go to Step 2.

Step 2. Using a multimeter, check for +12 vdc across TB8 pins 1 and 2.

If the voltage is present, replace the PWA. (Para. 3-93)

If the voltage is not present, go to Step 3.

Step 3. Using a multimeter, check for +12 vdc across TB-1 pins 2 and 3 on the Hinged Panel Assembly.

If voltage is present, replace wiring between TB-1 pins 2 and 3 and the Leda Flex Termination Board TB8 pins 1 and 2.

If voltage is not present, replace the J-SIIDS Regulator.

Step 4. Make a visual inspection of the 12 LEDs (lamp indicators) on the Leda Flex Termination PWA. The LEDs should be out, unless a sensor is in alarm or tamper (open or short). When the LED is red, the sensor is in alarm. When the LED is green, the sensor is in tamper short. When the LED is amber (red & green), the sensor is in tamper open.

If any of the LEDs are lit, remove the wire(s) to the input terminal(s) of the terminal board for the LED that is lit. The LED should change to amber (tamper open).

If the LED does not change to amber or stays in amber, replace the termination card PWA (Para. 3-93).

Table 3-6. J-SIIDS Interface Assemblies, DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

4. J-SIIDS GANYMEDE B INTERFACE ASSEMBLY FAILURE (Figure 3-8)

Step 1. Monitor the LED1 indicator for flashing LEDs or LEDs that are on steady.

If all LEDs indicators are off, go to step 2.

If the 5 vdc LED indicator is out, replace the PWA. (Para. 3-94)

If the 12 vdc LED indicator is out, go to step 2.

If the OPTG LED indicator is out, replace the PWA. (Para. 3-94)

If the TX LED indicator is out, replace the PWA. (Para. 3-94)

If the GSTA, GW, and RX LEDs are out, replace the PWA. (Para. 3-94)

If the GSTA, GW, and RX LEDs are still out, replace the associated PMC Multiplexer PWA. (Para. 3-26)

If the GSTA, GW, and RX LEDs are still out, contact supervisor. (Telephone lines needs to be checked)

Step 2. Check the fuses on the PWA to ensure the fuses are not blown.

If fuse(s) are blown, replace fuse(s) with 1 amp, 250 volt fuse and recheck.

If fuse(s) are not blown, go to step 3.

Step 3. Using a voltmeter, check for +20 vdc across PWA TB-6, pins 3 and 4.

If voltage is present, replace the PWA. (Para. 3-94)

If voltage is not present, have the J-SIIDS power supply checked.

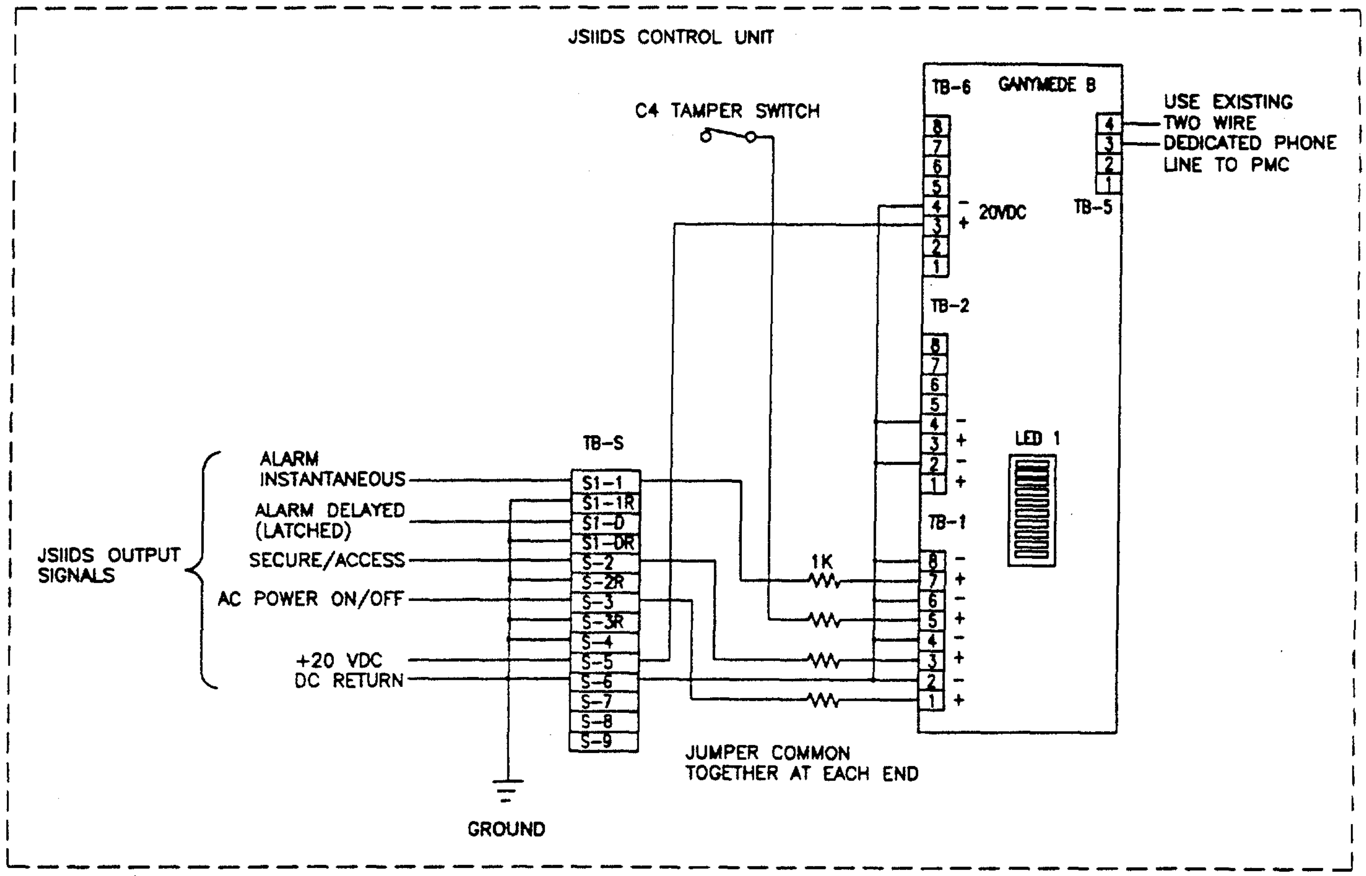


Figure 3-8. J-SIIDS, Ganymede B Interface

Table 3-7. Intelligent Access Controller DS Maintenance Troubleshooting

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. INTELLIGENT ACCESS CONTROLLER FAILURE (FO-9)

Step 1. Monitor LEDs 8 (Sync), 9 (Address sync indicator), and 10 (Address data packet). The LEDs should be flashing on and off if there is good communication between the IAU and host. This is a software function and indicates that the IAC has received the sync packet from the host.

If the LEDs do illuminate, go to step 2.

If the LEDs do not illuminate, go to step 3.

Step 2. Monitor LEDs 1 (RTU transmit indicator TX), 2 (RTU receive indicator RX), and 3 (RTU request to send RTS) on the Intelligent-Access Controller PWA. The LEDs should be flashing on and off if the IAC can communicate with the RADC or other IACs multi-dropped on the RS-485 line. Also monitor LEDs 4, 5, 6, and 7, for proper communications between the IAC, IAUs and Entry Card Readers.

If the LEDs flash on and off, the IAC PWA is good.

If the LEDs do not flash on and off, go to step 3.

Step 3. Check the three fuses on the IAC printed wiring assembly.

If any of the fuses are blown, replace with same type fuse and check the IAC for good communications.

If fuse(s) are not blown, go to step 4.

Step 4. Using a multimeter, check for 12 or 24 vac, depending on option, across TB1 pins 1 and 2.

If voltage is present, replace the IAC Printed Wiring Assembly (Para. 3-105).

If voltage is not present, replace the ac step-down transformer (Para. 3-106).

Table 3-7. Intelligent Access Controller DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. INTELLIGENT ACCESS UNIT FAILURE (FO-9)

Step 1. Verify that asterisks on each side of the site specific designation are present on the LCD Display. This indicates that the communication between the IAU and IAC is good.

If the above indication is correct, go to step 2.

If the LCD Display is blank, go to step 3.

Step 2. Swipe the Swipecard. A message should come up on the LCD Display, “Please Enter Pin”. Enter the four digit "PIN" number via keypad entry keys.

If the message is correct and entry is allowed, the IAU is operational.

If the message is incorrect or entry not allowed, replace the IAU (Para. 3-108).

Step 3. Remove the IAU front panel assembly. Check for a blown fuse on the PWA.

If fuse is blown, replace fuse and repeat steps 1 and 2.

If fuse is not blown, go to step 4.

Step 4. Set multimeter to vdc and check for +12 v across TB1 pins 1 and 2.

If voltage is correct, replace the IAU (Para. 3-108).

If voltage is not present, go to step 5.

Step 5. Remove the IAC front panel and check for +12 v across TB5, pins 1 and 2 for the Entry IAU or TB6, pins 1 and 2 for an Exit IAU.

If voltage is present, replace the wiring between the IAC PWA, TB5 pins 1 and 2 or TB6 pins 1 and 2 and the entry or exit IAU. Perform steps 1 and 2.

If entry is still not allowed, the problem is not the IAU. Go to troubleshooting procedures for the IAC (Table 3-7, Malfunction 1).

Table 3-7. Intelligent Access Controller DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

4. SWIPE CARD READER FAILURE (FO-9)

Step 1. View the Proceed, Wait, and Error LEDs on the swipe card reader. The LEDs should be extinguished.

If the LEDs are out, go to step 2.

If any of the LEDs are on, replace the swipe card reader (Para. 3-110).

Step 2. Using a known good access swipe card, slide card through the swipe card reader. The Proceed LED should illuminate to allow access or exit to and from the secure area. The Wait LED will illuminate if someone is entering or exiting from the opposite side.

If the Proceed LED illuminates, the swipe card reader is operational.

If the Proceed LED does not illuminate, go to step 3.

Step 3. Remove the swipe card reader front cover and check the dc input voltage at fanning stripe, pins 5 and 6. The multimeter should read +12 v.

If voltage check is good, replace the swipe card reader (Para. 3-110).

If voltage is not present, go to step 4.

Step 4. Remove the IAC front panel and check for +12 v across TB7, pins 1 and 4 for the entry reader or TB8, pins 1 and 4 for an exit reader.

If voltage is present, replace the wiring between the IAC PWA, TB7 pins 1 and 4 or TB8 pins 1 and 4 and the entry or exit swipe card reader.

Table 3-8. Closed Circuit TV DS Maintenance Troubleshooting

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. CLOSED CIRCUIT TV MONITOR FAILURE (Figure 3-9)

Step 1. Check the LED power indicator on the front panel of the CCTV monitor. If the LED is on, turn the brightness control knob fully clockwise.

If the monitor screen is still dark, replace the monitor (Para. 3-95).

If the screen shows a gray background, go to step 2.

If the LED power indicator is off, go to step 3.

Step 2. If the CCTV monitor is located next to other CCTV monitors, switch the video input cable with an operational monitor. The monitor should display a picture.

If a picture is not displayed, replace the monitor (Para. 3-95).

If a picture is displayed, replace the video coaxial cable between the monitor and the switcher.

If the picture is still not displayed, go to troubleshooting steps for the video switcher (Table 3-8 Malfunction 2).

Step 3. Check the ac power cord to ensure the cable has not come loose from power source or out from the monitor. If the ac power cord is connected to power source, go to step 4.

Step 4. Using a multimeter, check for 120 vac at the power source.

If 120 vac is present, replace the monitor (Para. 3-95).

If 120 vac is not present, notify facility engineers.

2. CANNOT SELECT CCTV MONITOR(S) FOR VISUAL DISPLAY VIA OPERATOR WORKSTATION (Figure 3-9)

Step 1. Swap the video input cable from a working monitor to the monitor that will not switch to another video display.

If the monitor still does not display other video inputs, replace the monitor and repeat step (Para. 3-95)

If the monitor displays video, replace the coaxial cable between the monitor original input and the video switcher.

If the monitor still does not display video, replace the video output card for that particular monitor (Para. 3-103).

Table 3-8. Closed Circuit TV DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

3. VIDEO LOST TO ALL CCTV MONITORS (Figure 3-9)

Step 1. Remove the video switcher front panel and inspect power supply for blown fuses.

If one or more fuses are blown, replace blown fuses and check the CCTV monitors for video displays.

NOTE
If fiber optic is used, check fuses in fiber optic module, replace fuse or fiber optic module

If video is still not present on all monitors, replace power supply (Para. 3-103).

If video is still not present on the monitors, replace the CPU PWA (Para. 3-103).

If any of the monitors are displaying video, go to step 2.

If all monitors are still not displaying video, replace the video switcher (Para. 3-102).

Step 2. Check the video input and video output PWAs LED indicators. The LEDs should be flashing on and off.

If the LEDs are not flashing on and off, replace the PWA(s) (Para. 3-103).

4. CLOSED CIRCUIT TV CAMERA FAILURE (Figure 3-9)

Step 1. Check the power on indicator lamp on rear of camera. The lamp should be illuminated.

If lamp is on, replace the video coaxial output cable.

If video is still not present, replace the camera (Para. 3-96, 3-97, 3-98 or 3-99, depending on camera type).

If lamp is not on, go to step 2.

Step 2. Using a multimeter, check for 120 vac or 24 vac depending on option, at the ac input power source.

If voltage is not present, notify facility engineer.

If voltage is present, replace the camera (Para. 3-96, 3-97, 3-98 or 3-99, depending on camera type).

Table 3-8. Closed Circuit TV DS Maintenance Troubleshooting - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
5. VCR DOES NOT RECORD (Figure 3-9) Step 1. Check the power on indicator lamp on front of VCR. The lamp should be on. If power on lamp is off, check the AC power cord to ensure it is plugged into AC power source. If power cord is connected, check for 120 vac at power source. If 120 vac is present, replace the VCR. If 120 vac is not present, contact facility engineers. If the power on lamp is on, remove coaxial cable from rear of VCR, input and connect directly to the monitor. If the monitor displays the camera's input video, replace the VCR.

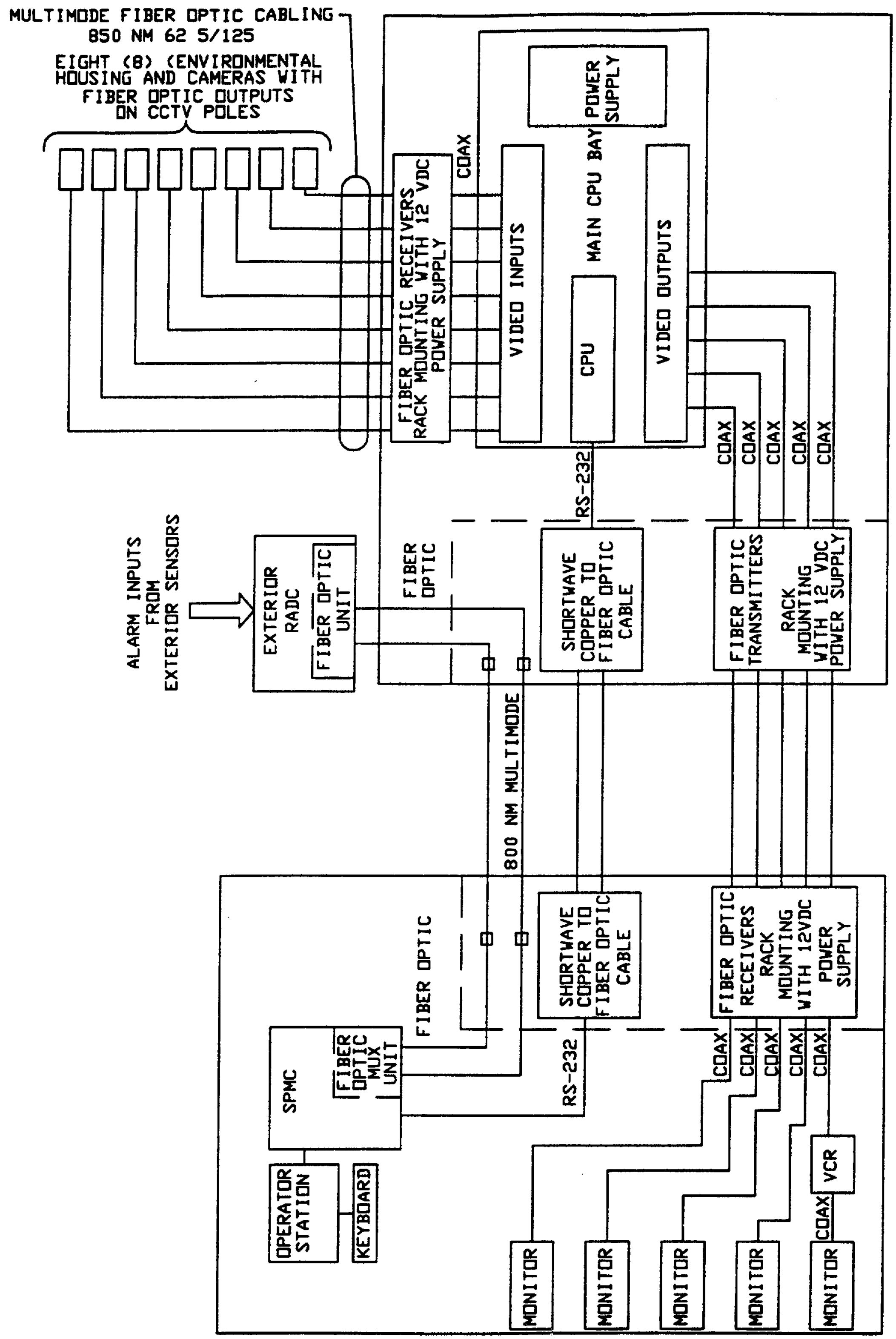


Figure 3-9. Closed Circuit TV General Block Diagram (Typical)

Table 3-9. Sensors DS Maintenance Troubleshooting

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. BALANCED MAGNETIC SWITCH FAILURE (Figure 3-10)

Step 1. Ensure door, window, vent, or type of entry being protected is properly closed or fastened and all mounting hardware is present and tightened down. Check gap between magnet and sensor unit to ensure it is within specified distance according to model number of BMS sensor.

If sensor is still in alarm, go to step 2.

Step 2. Remove the sensor input cable from the Leda Flex Termination PWA or Stargate PWA termination board. Go to sensor output cable assembly interface terminal strip and remove cover. Using a multimeter, place function switch to ohms. Place black lead from multimeter on common lead (6). Place red lead from multimeter on closed loop lead (4). The multimeter should read continuity with door closed.

If meter does not show continuity, replace BMS (Para. 3-111, 3-112, or 3-113).

If meter shows continuity, go to step 3.

Step 3. Open portal to unbalance the BMS. The meter should change from a continuity indication to an open circuit indication.

If indication is correct, the BMS is good, or if the BMS has a tamper switch, go to step 4.

Step 4. Place black lead from multimeter on Supervised common lead (7). Place red lead from multimeter on Tamper lead (8). The multimeter should indicate continuity.

If multimeter does not indicate continuity, replace the BMS (Para. 3-111, 3-112, or 3-113).

If multimeter indicates continuity, the BMS is good. Go to troubleshooting steps for the RADC (Table 3-3).

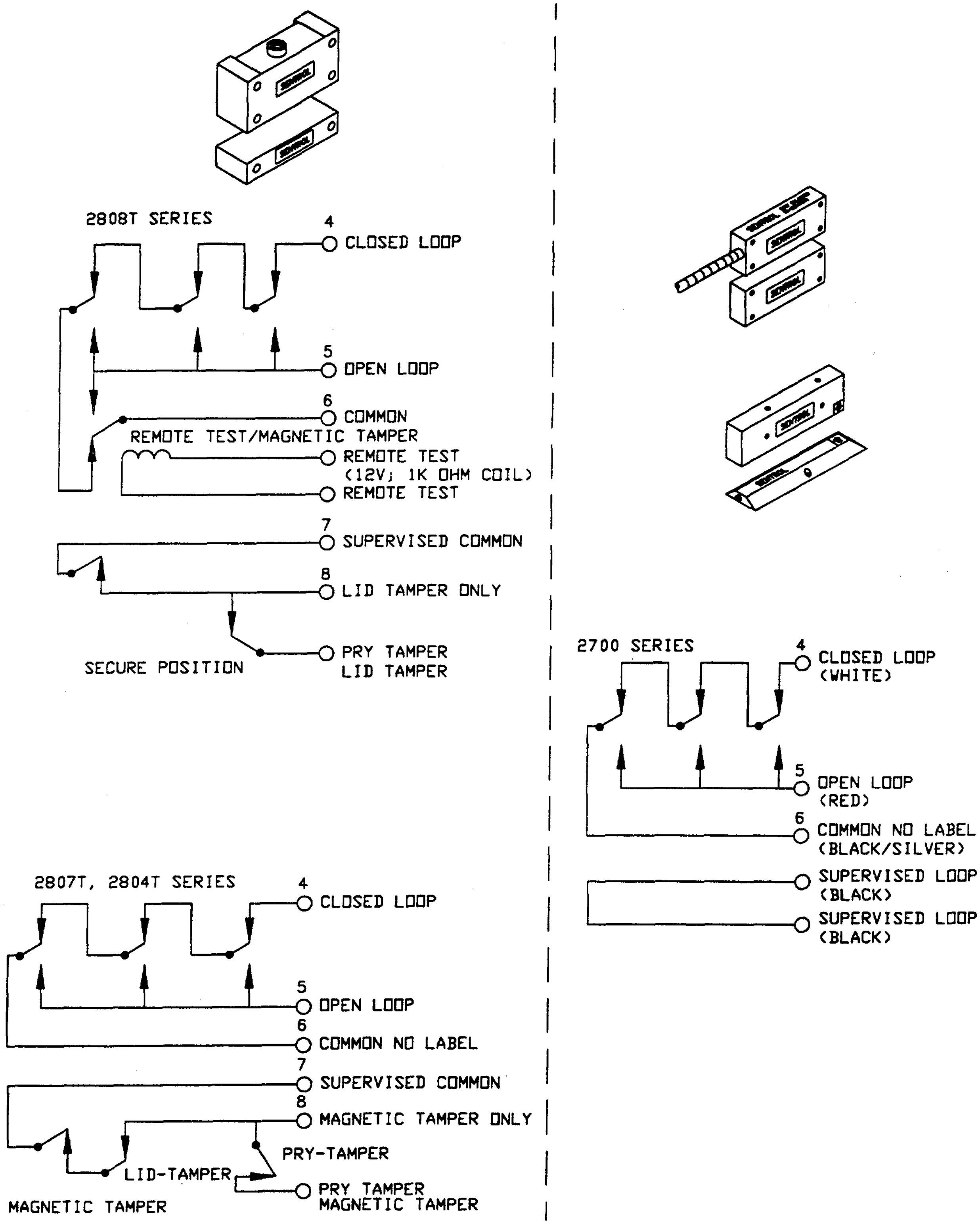


Figure 3-10. Balanced Magnetic Switch Assembly General Block Diagram

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. PASSIVE INFRARED MOTION SENSOR (CURTAIN, OMNI, VOLUME) FAILURE (Figure 3-11)

Step 1. Ensure alarm sensor area is free of personnel and any moving obstacles within detection area.

Step 2. Perform a walk test (per the SAIG) in detection area by moving toward sensor and monitoring LEDs. The LED should be off if there is no movement within protected area and turn red when movement has been detected.

If LED turns red during walk test, sensor unit is good.

If LED does not turn red or is not illuminated, go to step 3.

Step 3. Remove PIR sensor (1) front cover assembly (2) by removing four hex head screws (3). Set multimeter to read vdc. Place negative (black) lead on terminal jack (5) and positive (red) lead on + terminal jack (6). The meter should indicate approximately +12 v.

If voltage is correct, replace PIR sensor assembly (Para. 3-122).

If voltage is not present, go to step 4.

Step 4. Check continuity of wiring between the PIR sensor TB1, pins 5 and 6 and the RADC; TBK pins 3 and 4.

If continuity is present, go to troubleshooting steps for the RADC (Table 3-3).

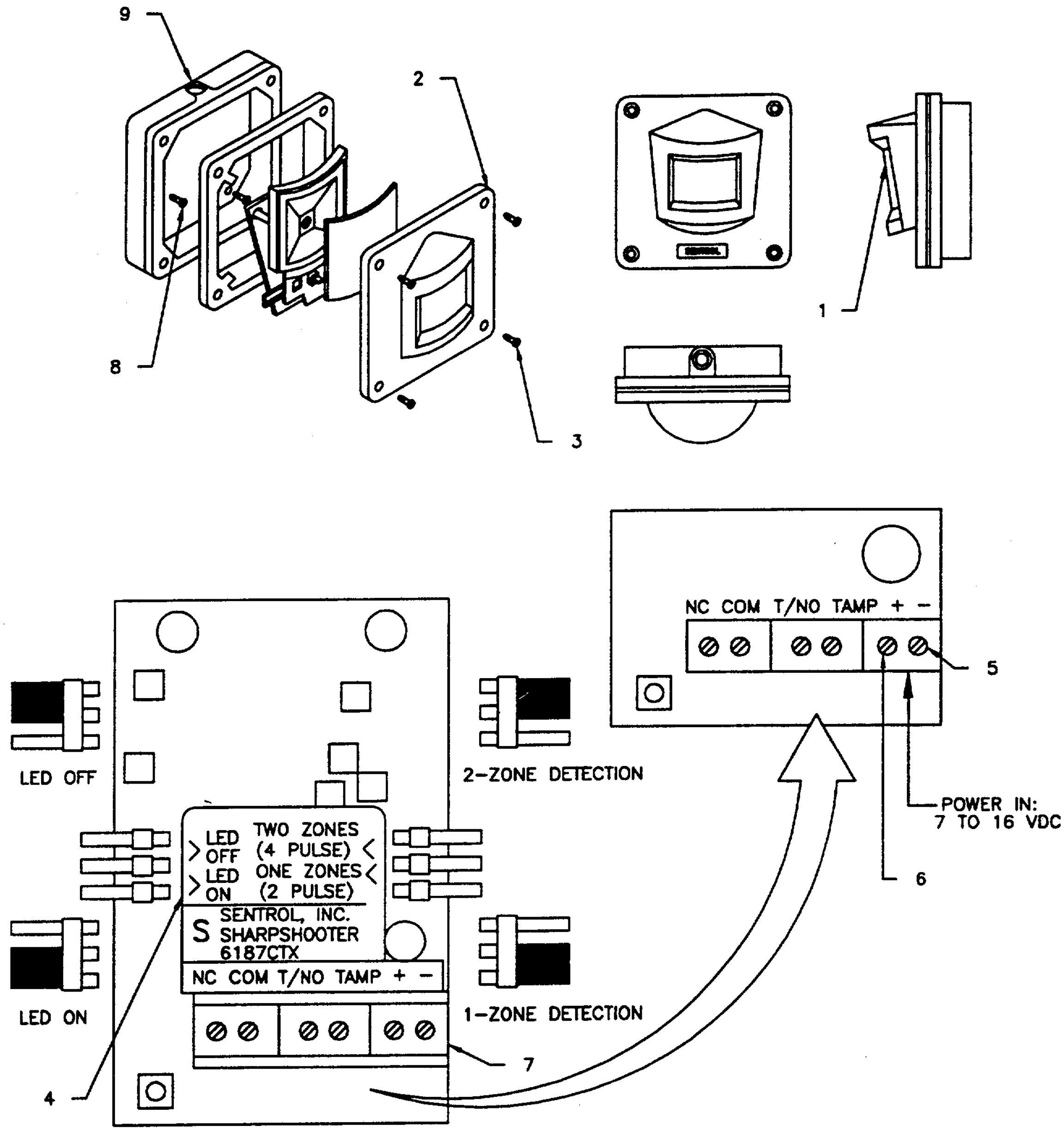


Figure 3-11. Passive Infrared Motion Sensor General Block Diagram

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

3. CAPACITIVE PROXIMITY SENSOR FAILURE (Figure 3-12), SAIG Appendix E Section 2

Step 1. Make sure 16 vac transformer (5) is properly connected to 120 vac power source.

If disconnected from power source, connect, and go to step 2. Step 2. Turn key (4) on Prox-Watch II (3) to test position. Press Test Activate push button (2) and monitor test verification lamp (1).

If Prox-Watch II test verification lamp illuminates, sensor is good.

If lamp does not illuminate, go to step 3.

Step 3. Open access door on Prox-Watch II sensor assembly (3) and make a visual check of fuses (7 and 8).

If fuses are blown, replace and perform self test. If CPS is still inoperative, go to step 4.

Step 4. Set a multimeter to read ac volts. Place multimeter leads across TB1 pins 13 and 14 (6). The meter should indicate 16 vac.

If multimeter reading is correct, check for the presence of the voltages shown below (TP refers to test points located on the circuit card assembly):

From	To	Voltage
TP8	TB1-11	13.7 to 13.9 vdc
TP10	TB1-11	13.0 to 13.4 vdc
TP9	TB1-11	8.8 to 9.2 vdc

If voltage is not correct, replace the PWA (Para. 3-114). If voltage is correct, go to step 5.

Step 5. Check to make sure the interconnect cable to the protected objects is secure and functioning properly. Check the resistance between the sense wire and the termination wire when removed from TB1-7 and TB1-8. It should read 100kohms +10%.

If reading is correct, replace the CPS PWA (Para. 3-114).

If reading is not correct, locate and replace the bad wire and/or resistor.

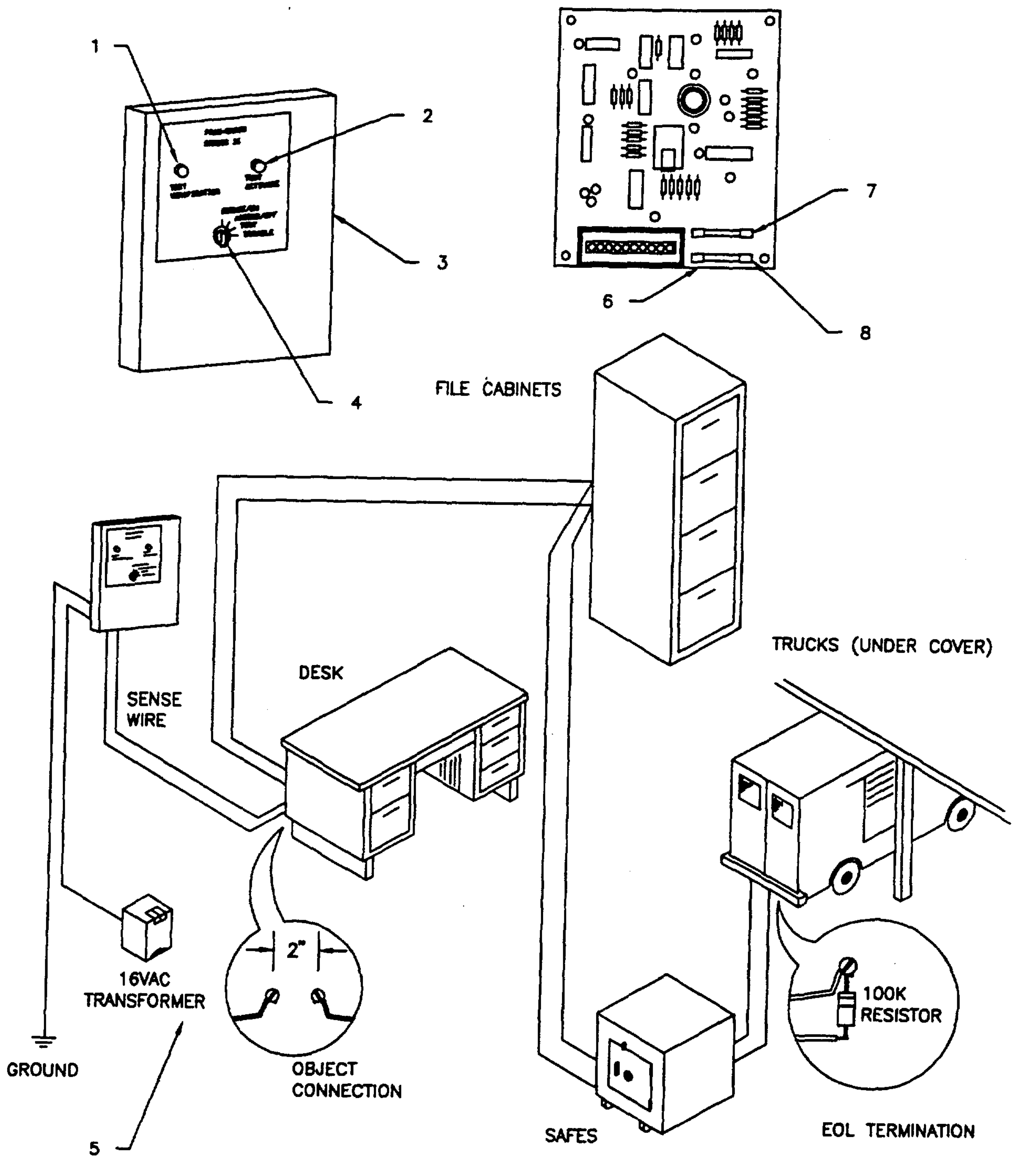


Figure 3-12. Capacitance Proximity Sensor General Block Diagram

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION **TEST OR INSPECTION** **CORRECTIVE ACTION**
4. ULTRASONIC MOTION SENSOR FAILURE (Figure 3-13) Step 1. Perform a walk test (per the SAIG) by moving more than one foot per second toward sensor, or at an angle to sensor, and monitor LED (1). If LED illuminates, sensor unit is good. If LED does not illuminate, go to step 2. Step 2. Remove outer case (2) from sensor unit. Set a multimeter to read vdc and place negative (black) lead on terminal strip (3) pin 1. Place positive (red) lead on terminal strip (3) pin 2. The multimeter should indicate +12 v. If multimeter reads +12 v, replace UMS assembly (Para. 3-128). If multimeter does not read between +8 and +14.5 v, go to step 3. Step 3. Check for +12 v at RADC TBK Pins 3 and 4. If +12 v is present, check continuity and replace wiring as necessary between RADC and sensor assembly. If wiring is good, go to troubleshooting procedures on RADC (Table 3-3).

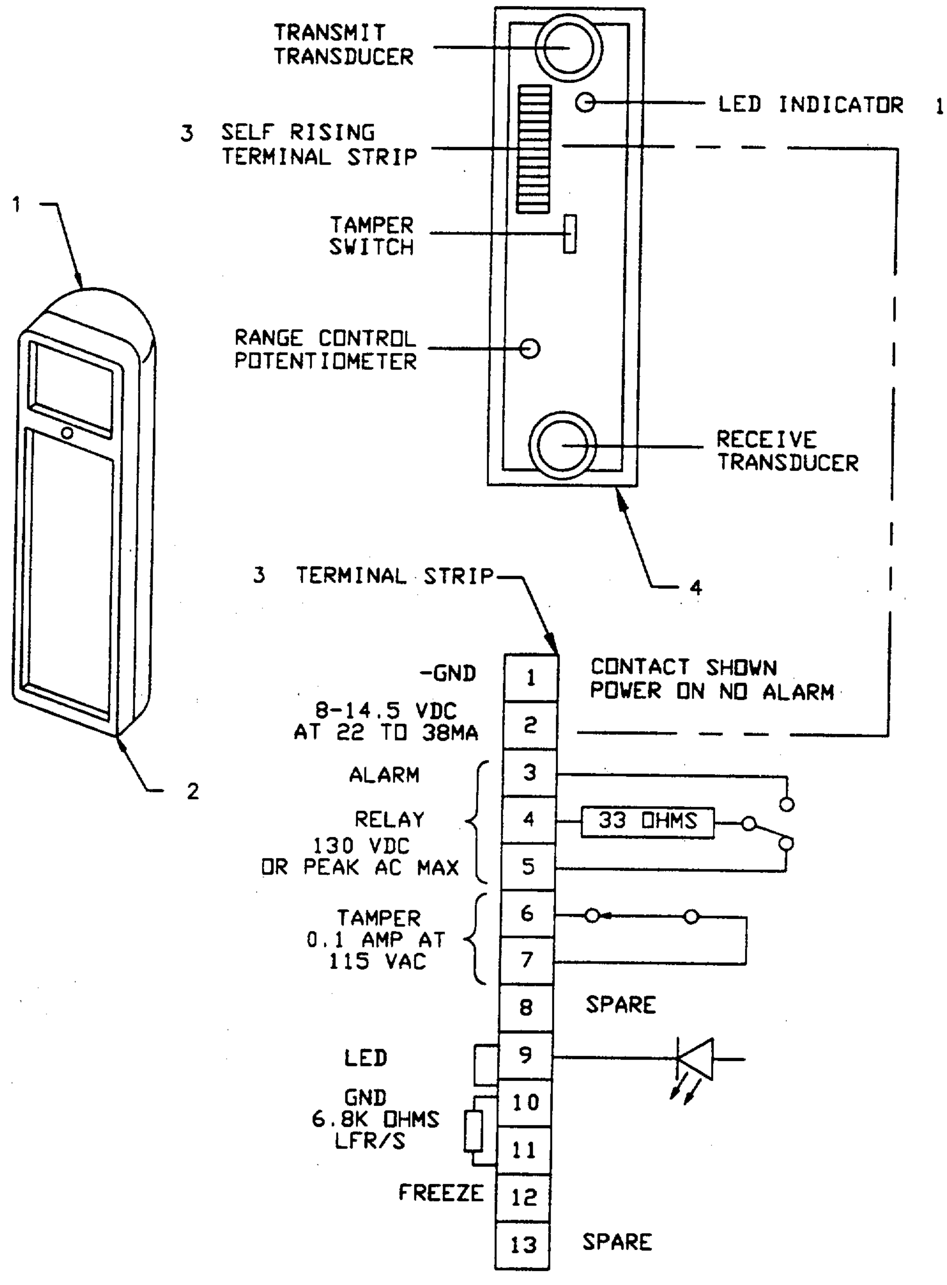


Figure 3-13. Ultrasonic Motion Sensor General Block Diagram

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

5. MICROWAVE MOTION SENSOR FAILURE (Figure 3-14)

Step 1. Perform a walk test (per the SAIG) of sensor unit by moving toward sensor unit and monitoring LED indicator. The green LED should always be illuminated until you begin walk test. The red LED lamp should illuminate when you have taken two to four steps within detection area.

If red LED does not illuminate, go to step 2.

Step 2. Remove outer case from sensor assembly (1 or 3 depending on type of sensor assembly) and check fuse located on PWA (2 or 6).

If fuse is blown, replace fuse and conduct a walk test.

If walk test checks good, replace cover assembly; MMS is good.

If fuse is not blown, go to step 3.

Step 3. Depending on series of sensor, check for following input power voltages at TB (5). For HITECH ac/dc series sensor, set to multimeter to read vac. Place leads across pins 2 and 3 on terminal board. The multimeter should indicate 12 vac. IF a dc input is used, set multimeter to read vdc and place negative lead on TB pin 4 and positive lead on pin 5. multimeter should read +10 to +20 v.

For HITECH ac series sensor, check for 9 to 15 vac across pins 2 and 3 of terminal board.

For HITECH dc series sensor, check for +10 to +20 v by placing negative lead on pin 2 and positive lead on pin 3 of terminal board.

If voltage is present on terminal board, replace Microwave Motion Sensor Assembly (Para. 3-119 or 3-120).

If voltage is not present on terminal board, check input power source and wiring. Replace as necessary.

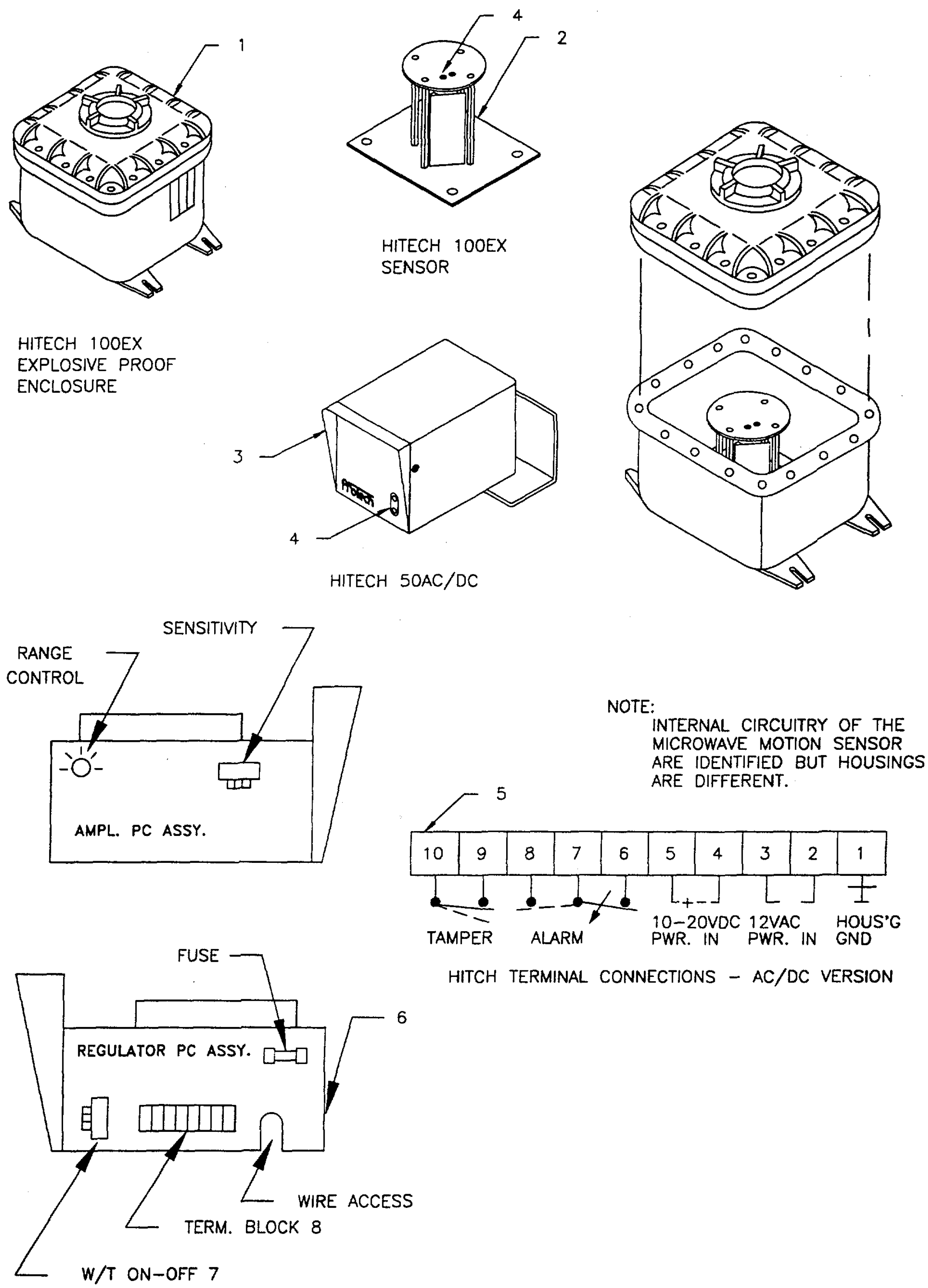


Figure 3-14. Microwave Motion Sensor Assemblies

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

6. RADIO FREQUENCY MOTION SENSOR FAILURE (Figure 3-15)

NOTE

If either transmitter or receiver assembly is replaced, be sure to mark location where assembly was mounted on steel pole. Perform Radio Frequency Motion Sensor AGC alignment procedure. (See SAIG, Appendix E, Section 7)

Step 1. Go to receiver assembly (5) and remove front cover (6) from receiver.

Step 2. Check to ensure power on lamp DS3 (7) is illuminated.

If DS3 is illuminated, go to step 5.

If DS3 is not illuminated, go to step 3.

Step 3. Remove input power and check for a blown fuse F1 (8).

CAUTION

The silk-screen on the PWA is labeled . 1 amp fuse. The correct fuse size is . 25 amp, 250 vac.

If fuse is blown, replace fuse and reconnect input power.

If power on lamp (7) is still not lit, go to step 4.

Step 4. Set multimeter to read dc volts. Place negative (black) lead on TB1 pin 1 and place positive (red) lead on TB1 pin 2. The multimeter should read +12 v.

If multimeter reading is correct, go to step 5.

If multimeter does not read between +11 and +15 v, replace input power source.

Step 5. Perform a walk test (per the SAIG) of area and check LED alarm indicator lamp (9). Lamp should be lit during walk test.

If LED alarm indicator lamp (9) does not illuminate, go to step 6.

Step 6. Go to RFMS transmitter unit (1) and remove front panel cover (3). Check power on LED (2) for a power on indication.

If power on LED (2) is not lit, go to step 7.

If power on LED is lit, go to step 8.

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

6. RADIO FREQUENCY MOTION SENSOR FAILURE (continued)

Step 7. Place multimeter negative lead on TB1 pin 1 and positive lead on pin 2. The multimeter should read from +11 to +15 v.

If multimeter reading is correct, go to step 8.

If multimeter does not read between +11 and +15 v, replace input power source.

Step 8. Place multimeter negative lead on TB1 pin 9 and positive lead on Test Point TP5. The multimeter should read between +3.5 and +5.5 v.

If multimeter reading is correct, replace RFMS Receiver PWA (Para. 3-124).

If multimeter reading is not correct, replace RFMS Transmitter PWA (Para. 3-124).

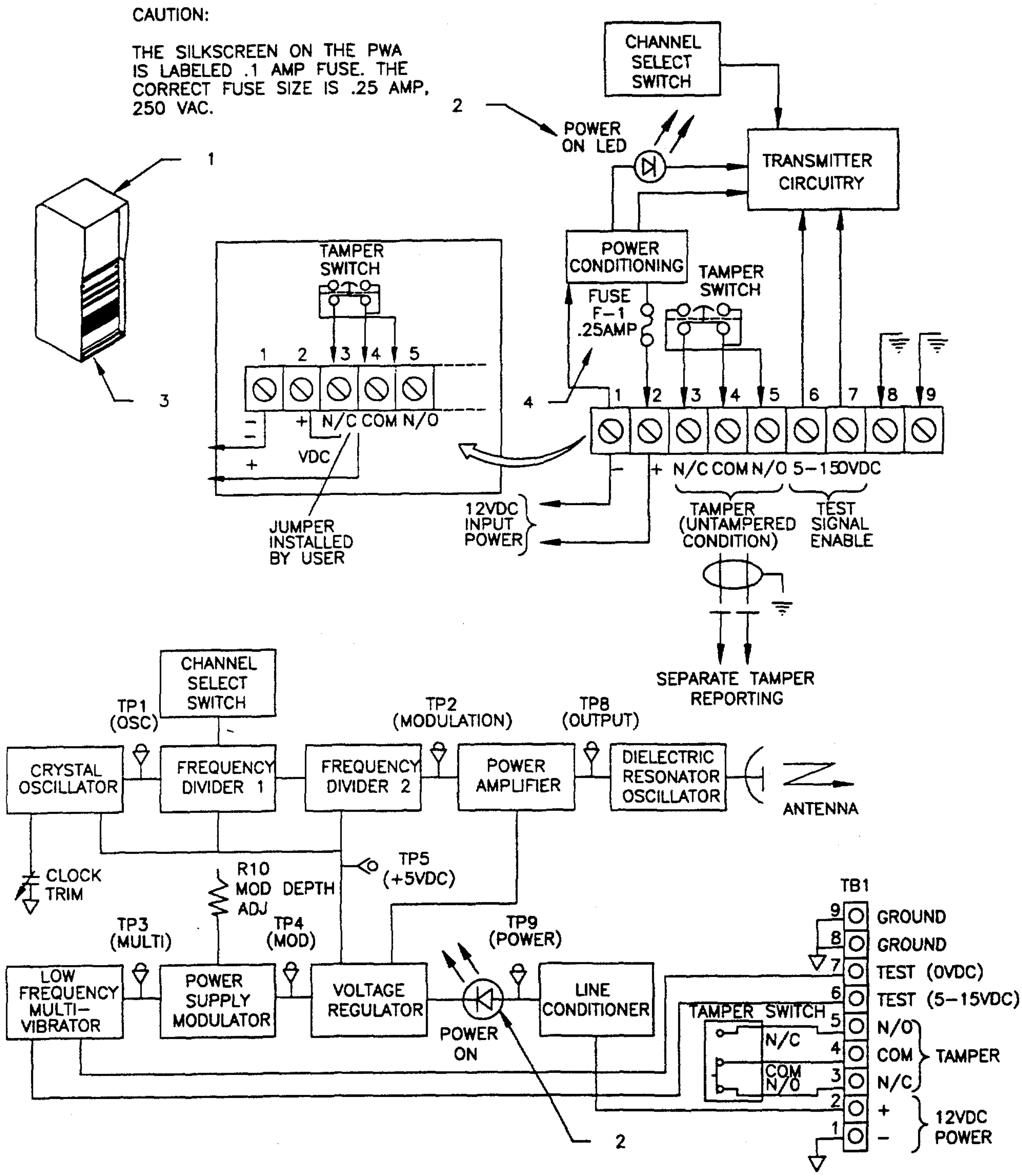


Figure 3-15. Radio Frequency Motion Sensor Functional Block Diagram (Transmitter) (1 of 2)

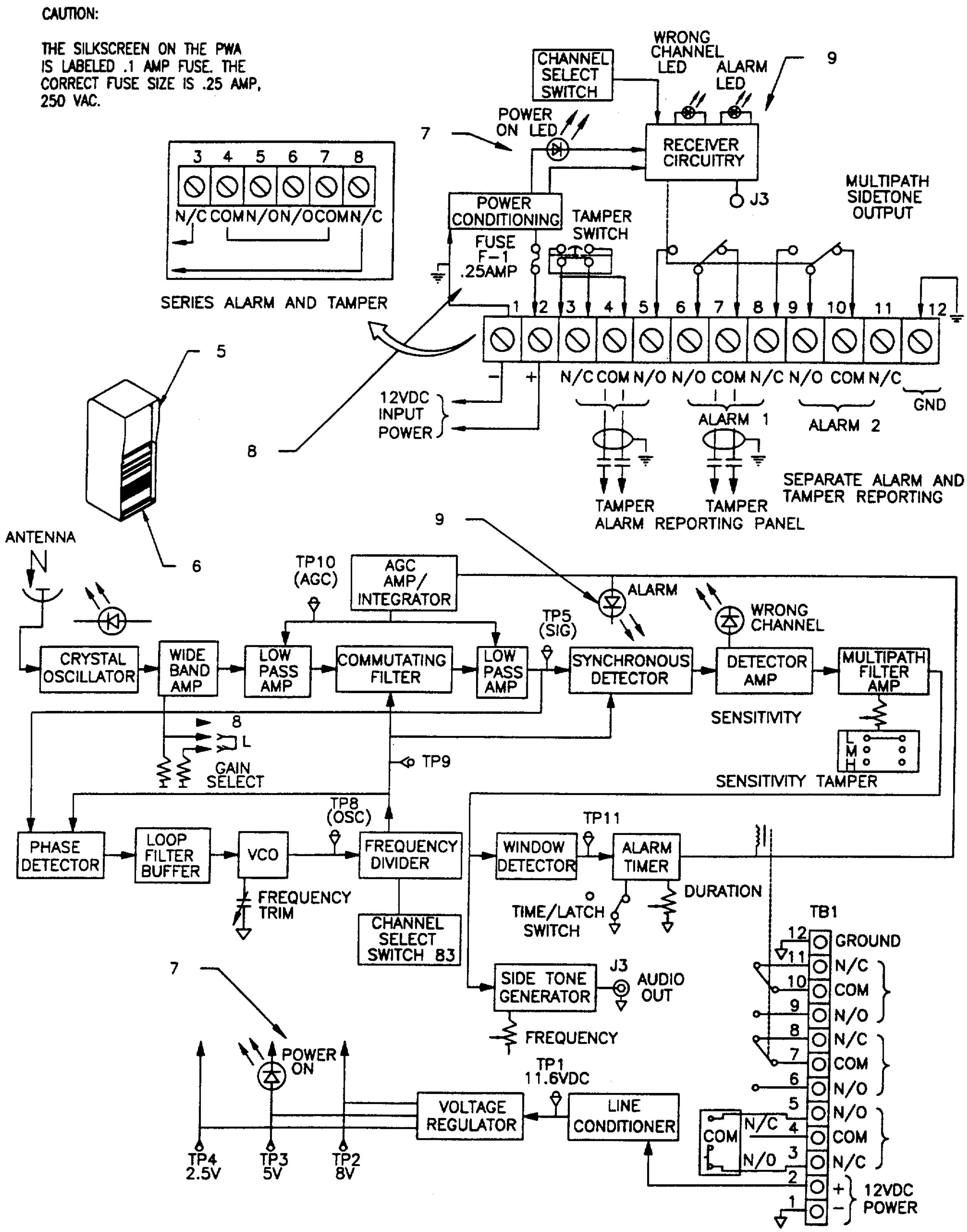


Figure 3-15. Radio Frequency Motion Sensor Functional Block Diagram (Receiver) (2 of 2)

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

7. VIBRATION SENSOR FAILURE (Figure 3-16)

NOTE

Refer to SAIG for details on vibration sensor.

Step 1. Check DV-201 sensor (1) to ensure sensor has no loose or missing hardware.

If sensor is not secure, tighten down and have operator check whether sensor is still in alarm condition.

If sensor is still in alarm, go to step 2.

Step 2. Check cabling (2) to ensure it is secured to sensor (1) and power source.

If cabling is not secure, secure it and recheck sensor assembly for alarm.

If cabling is secure, go to step 3.

Step 3. Remove two screws holding sensor front cover to assembly and remove cover (1).

Step 4. Using a digital multimeter, place multimeter leads across TB1 pins 1 and 2. The multimeter should read approximately 12 vdc.

If multimeter reading is correct, replace sensor assembly (Para. 3-129).

If multimeter reading is not correct, replace power source.

If sensor is still in alarm, go to step 5.

Step 5. Set multimeter to ohms and check for continuity between sensor assembly and RADC.

If continuity is good, problem is not in sensor assembly. Refer to troubleshooting procedures for RADC.

If there is no continuity, replace wiring between sensor and RADC.

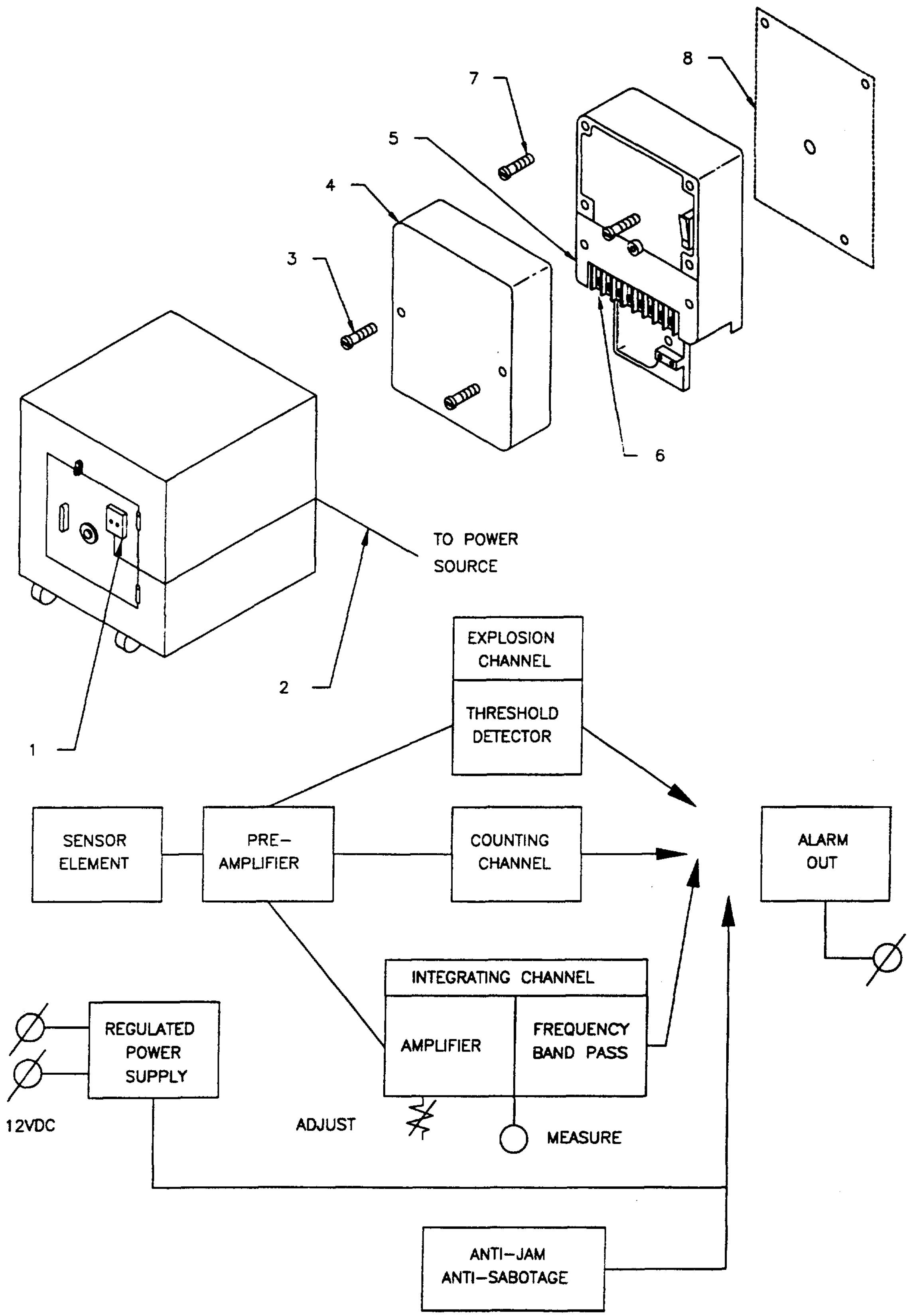


Figure 3-16. Vibration Sensor General Block Diagram

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

8. PASSIVE ULTRASONIC SENSOR FAILURE (Figure 3-17)

Step 1. Remove front cover (2) and perform a walk test (per the SAIG) of PUS protected area while generating an ultrasonic sound, such as jingling of keys. The PUS LED should illuminate.

If LED does not illuminate, go to step 3.

If LED illuminates, the PUS is good. Go to step 2.

Step 2. Check continuity and replace wiring between PUS and RADC as necessary.

If wiring is good, go to troubleshooting procedures for the RADC (Table 3-3).

Step 3. Set multimeter to read vdc and place negative lead on TB1 pin 2 and positive lead on TB1 pin 1. The multimeter should read approximately 12 vdc.

If multimeter indication is correct, replace the PUS (Para. 3-123).

If voltage is not present, check continuity of wiring between the PUS TB1 pins 1 and 2 and RADC Stargate TBK pins 3 and 4.

If continuity is present, the trouble is in the RADC.

If continuity is not present, replace wiring as necessary.

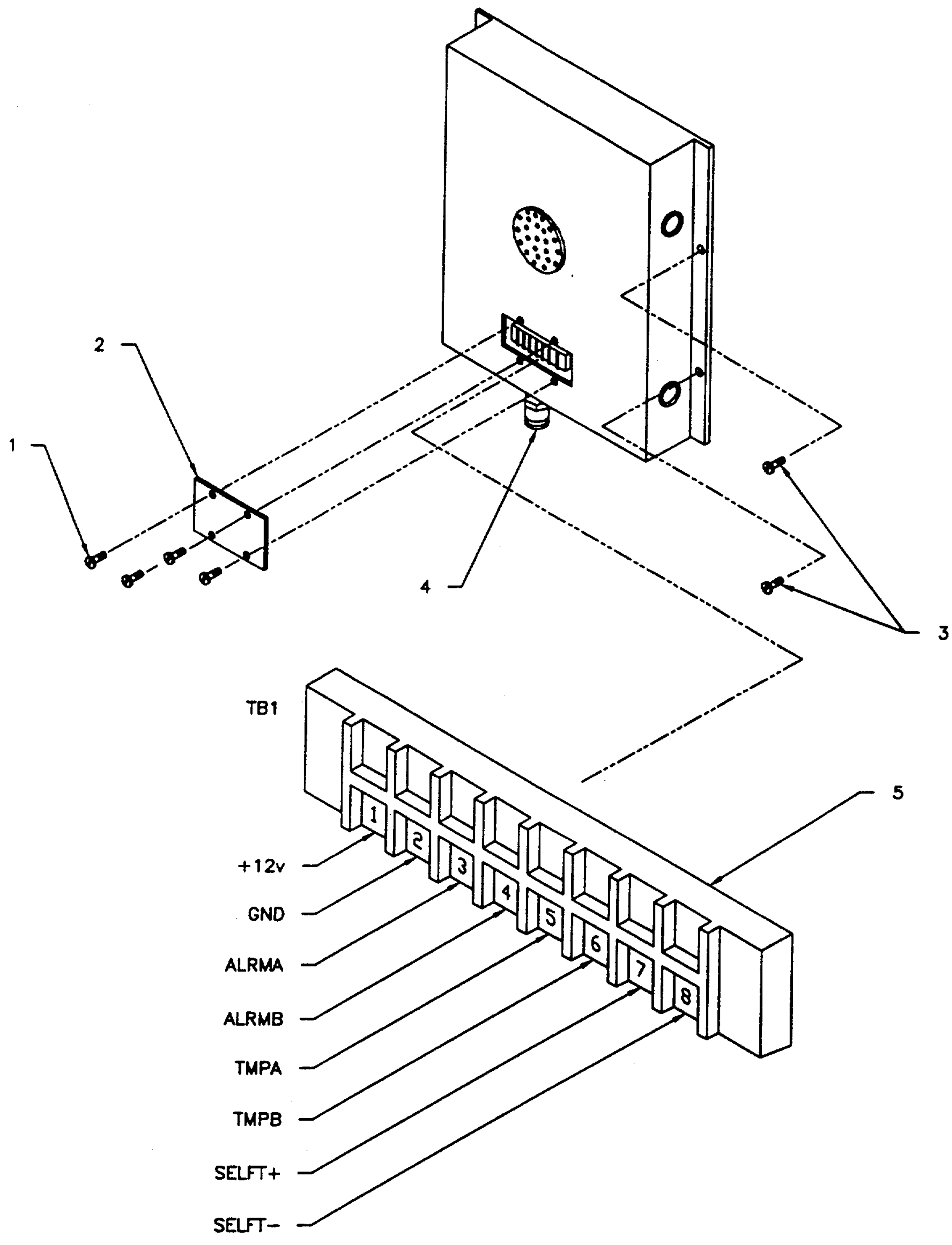


Figure 3-17. Passive Ultrasonic Sensor Assembly

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

9. EXTERIOR MICROWAVE MOTION SENSOR FAILURE (Figure 3-18)

NOTE

If either transmitter or receiver assembly is replaced, mark location where assembly was mounted on steel pole. Perform Radio Frequency Microwave Sensor AGC alignment procedure. (See SAIG, Appendix E, Section 9)

Step 1. Go to receiver assembly (3) and open receiver compartment door (4).

Step 2. Check to ensure power on lamp DS3 (6) is illuminated. If DS3 is illuminated, go to step 5.

If DS3 is not illuminated, go to step 3.

Step 3. Remove input power and check for a blown fuse F1 (7).

CAUTION

The silk-screen on the PWA is labeled . 1 amp fuse. The actual size is .25 amp, 250 vac.

If fuse is blown, replace fuse and reconnect input power. If lamp is still not lit, go to step 4.

Step 4. Set multimeter to read + vdc. Place negative (black) lead on TB1 pin 1 and positive (red) lead on TB1 pin 2. The multimeter should read +12 v.

If multimeter reading is correct, go to step 5.

If multimeter does not read between +11 and +15 v, replace input power source.

Step 5. Perform a walk test (per the SAIG) and check LED alarm indicator lamp (5). It should be lit.

If LED alarm indicator does not illuminate, go to step 6.

Step 6. Go to EMMS transmitter unit (1) and open front panel door (2). Check power on LED (8) DS1 for a power on indication.

If power on LED is not lit, to step 7.

If power on LED is lit, go to step 8.

Step 7. Check for blown fuse (9) on Transmitter Board.

CAUTION

The silkscreen on the PWA is labeled . 1 amp fuse. The actual size is .25 amp, 250 vac.

If fuse is blown, replace fuse.

If fuse is not blown, go to step 8.

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

9. EXTERIOR MICROWAVE MOTION SENSOR FAILURE (continued)

Step 8. Place multimeter negative lead on TB1 pin 1 and positive lead on pin 2. The multimeter should read from +11 to +15 v.

If multimeter reading is correct, go to step 9.

If multimeter does not read between +11 and +15 v, replace input power source.

Step 9. Place multimeter negative lead on TB1 pin 9 and positive lead on Test Point TP5. The multimeter should read between 3.5 and 5.5 vdc.

If multimeter reading is correct, replace EMMS Receiver PWA Assembly (Para. 3-116).

If multimeter reading is not correct, replace EMMS Transmitter PWA Assembly (Para. 3-116).

10. EXTERIOR INFRARED PERIMETER SENSOR FAILURE (Figure 3-19)

Step 1. Perform a walk test (per the SAIG) by entering zone of protection and monitoring LED indicator (2) on receiver (1).

If LED indicator illuminates during walk test and goes out when zone has been cleared, sensor system is good.

If LED is constantly illuminated, replace Receiver Infrared Sensor Assembly (Para. 3-115).

If LED does not illuminate during walk test, go to step 2.

Step 2. Remove receiver housing front cover (3). Set multimeter to read vdc and place multimeter leads across TB1 (4) pins 1 and 2. The multimeter should read +12 v.

If multimeter reads +12 v, go to step 3.

If multimeter does not read +12 v, go to step 4.

Step 3. Remove transmitter housing front cover (6). Place multimeter leads across TB1 (5) pins 1 and 2. The multimeter should read +12 v.

If multimeter reads +12 v, replace receiver assembly (Para. 3-115) and repeat step 1.

If LED still does not illuminate, replace transmitter assembly (Para. 3-115).

If multimeter does not read +12 v, go to step 4.

Step 4. Check for +12 v at RADC, TBK pins 3 and 4.

If +12 v is present, replace wiring between sensor and RADC.

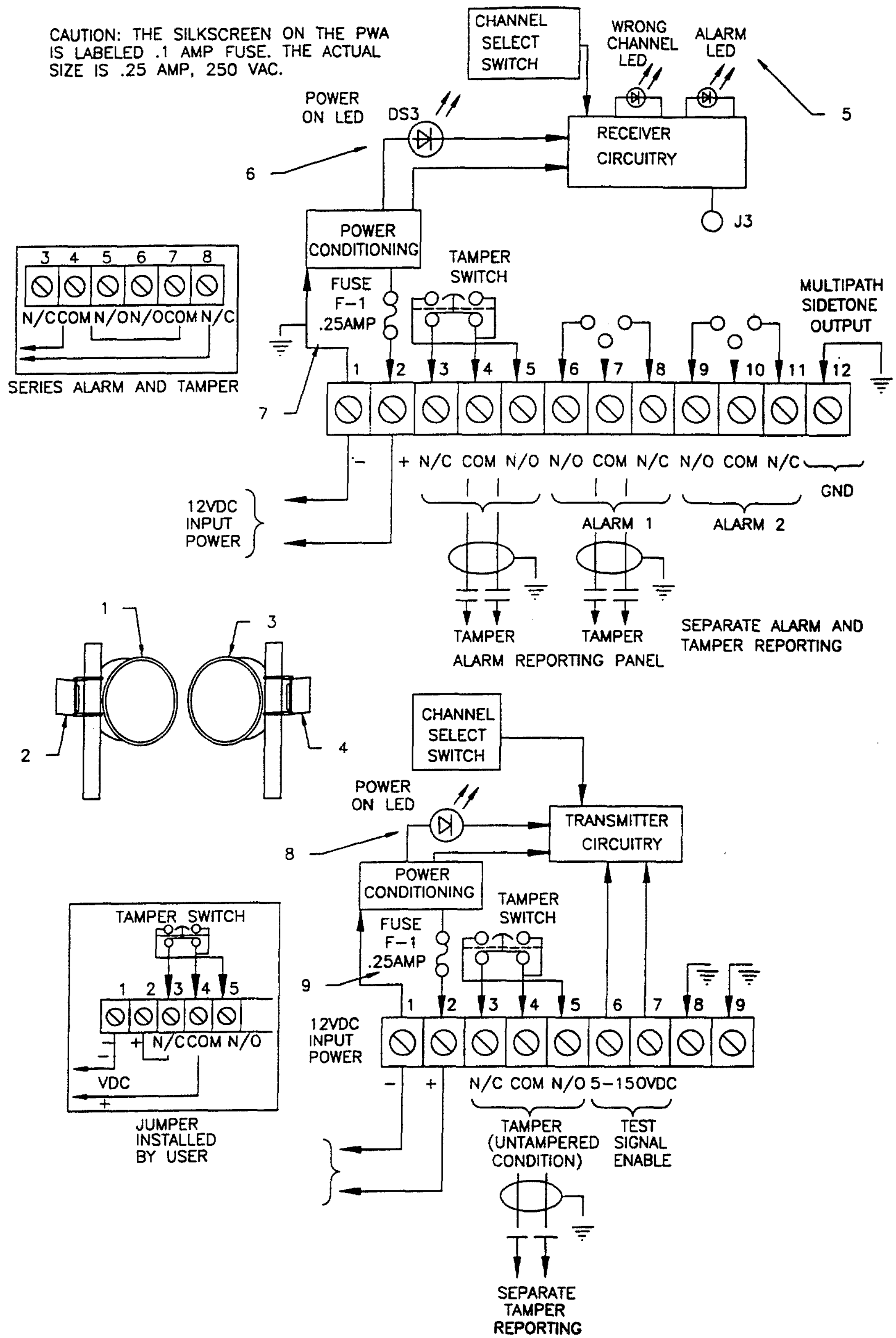


Figure 3-18. Exterior Microwave Motion Sensor General Block Diagram

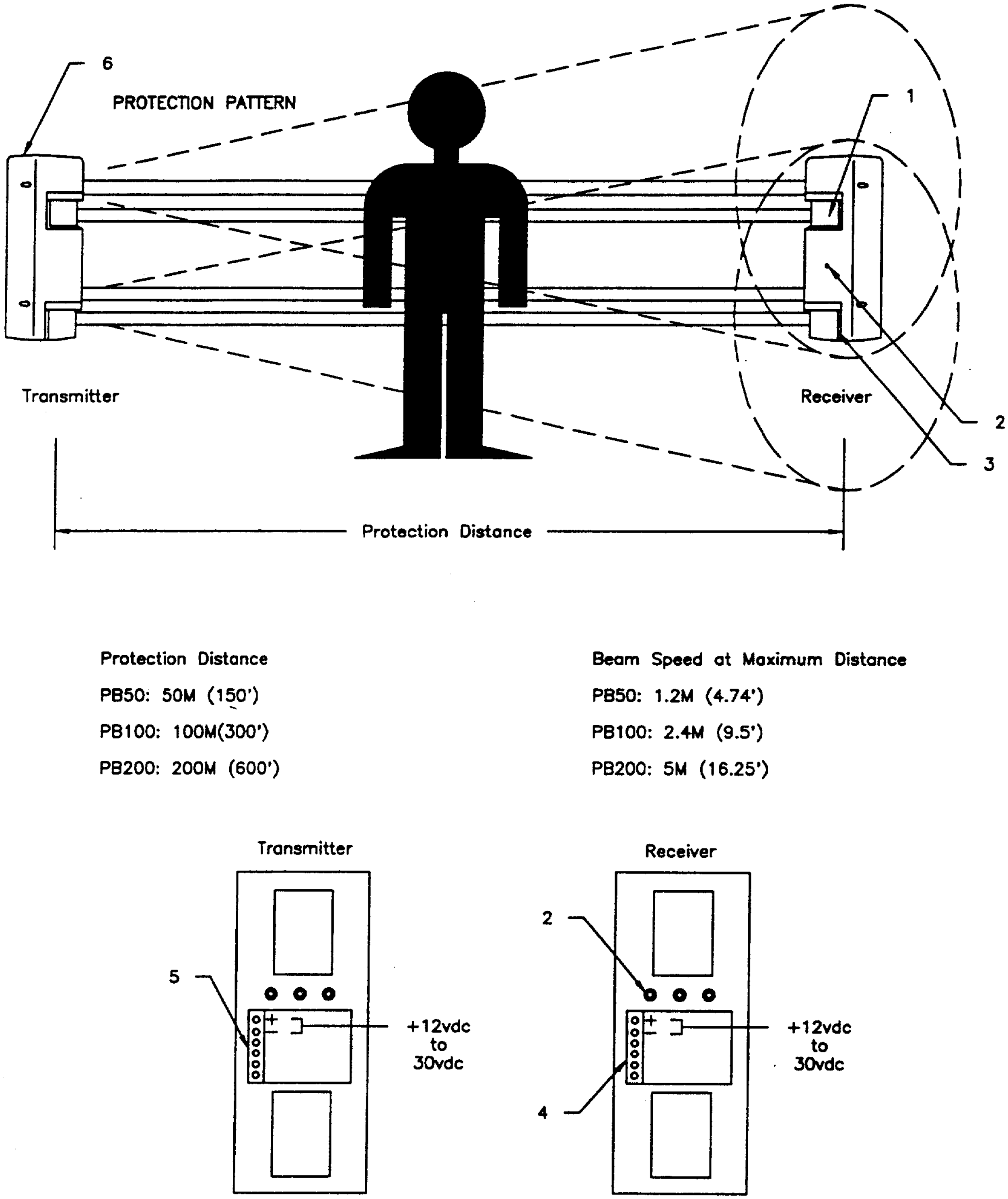


Figure 3-19. Exterior Infrared Perimeter Sensor Assembly

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
11. FENCE-MOUNTED VIBRATION SENSOR FAILURE (Figure 3-20)

NOTE

Refer to the SAIG for details on the fence-mounted vibration sensor.

Step 1. Remove front cover from processor assembly (1) and make a visual inspection of fuse (9) to see if the fuse is blown.

If fuse is blown, replace fuse and go to step 3.

If fuse is not blown, go to step 2.

Step 2. Set multimeter to read vac and place multimeter leads across TB1 pins 1 and 2. The multimeter should read 12 vac.

If multimeter reads 12 vac, go to step 3.

If multimeter does not read 12 vac, replace input power source.

Step 3. Reset alarm by pressing RESET switch (5) up, then releasing.

Step 4. Remove green wire from terminal board (7) pin 6. This should produce a pulsing tone, and alarm relay should also pulse, indicating line supervision system is working correctly.

If a pulsing tone is produced, line supervision system is working correctly. Reconnect green wire to TB1 pin 6.

If a pulsing tone is not produced, replace the processor PWA (Para. 3-117).

If system is still in alarm, go to step 5.

If system in not in alarm, close and secure processor assembly (1) cover and have workstation operator verify that system alarm has been cleared.

Step 5. Have someone, starting at far end of sensor line (8), lightly tap each individual sensor (2) with tip of a screwdriver. The activity light (3) will go on to indicate that sensor is operating. Perform this step until faulty sensor is located.

Remove and replace faulty sensors (Para. 3-118).

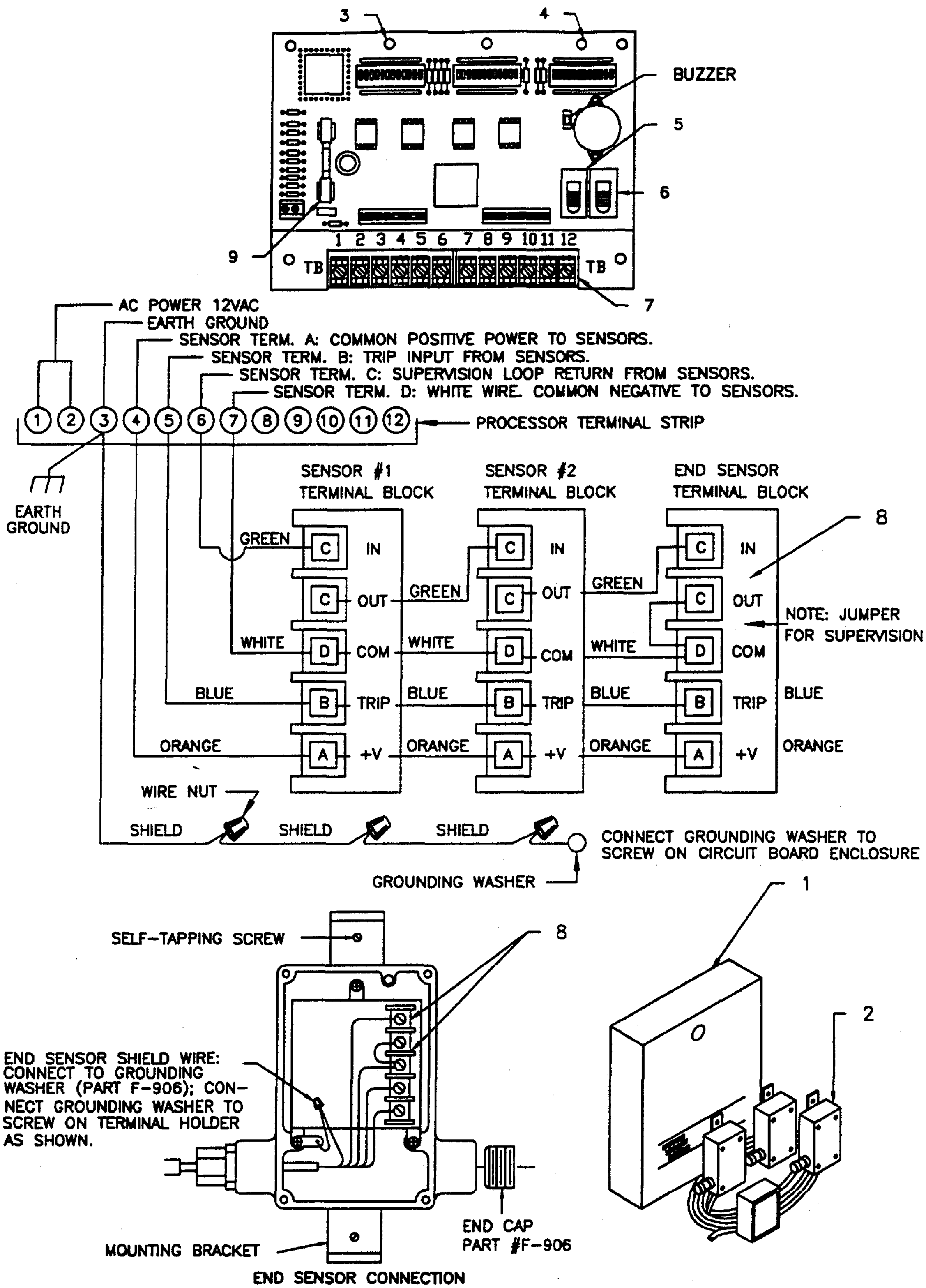


Figure 3-20. Fence-Mounted Vibration Sensor General Block Diagram

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

12. STRAIN-SENSITIVE CABLE FENCE SENSOR FAILURE (Figure 3-21)

NOTE

Refer to the SAIG for details on the strain-sensitive cable fence sensor.

Step 1. Check to ensure 20 vac stepdown transformer (2) is firmly connected to a 120 vac power source.

If assembly sensor is still in alarm status, go to step 2.

Step 2. Open door (4) on processor assembly (1) and check coaxial cables (5) to ensure that cables are connected and locked onto connector.

If cable(s) have come loose from connector, reconnect and verify system is not in alarm status.

If in alarm status, go to step 3.

Step 3. Set multimeter to read VAC. Place leads across TB2 pins 9 and 10 to read 20 VAC.

If reading less than 18 VAC, replace 115/20 VAC step-down transformer.

If system is still in alarm, replace processor assembly PWA (Para. 3-125).

If system is still in alarm, go to step 5.

Step 4. For DC powered sensors, set multimeter to read vdc. Place negative lead on TB2 pin 8 and positive lead on TB2 pin 7. The multimeter should read +12 vdc.

If reading is less than 10 vdc, replace power source.

If system is still in alarm, replace processor assembly PWA (Para. 3-125)

If system is still in alarm, go to step 5.

Step 5. Disconnect coaxial cable between processor and problem zone. For zones with cables over 400 feet, use only an analog meter. Set meter to read ohms and measure cable resistance between center conductor and shield. The meter should read 1 Megohm ± 100 kilohm resistance.

If cable is shorted or open, problem is in line between processor and terminator.

If reading is outside range 1 Megohm ± 100 kilohm, problem is in terminator or junction splice assembly or assemblies. Go to step 6.

Step 6. Visually inspect terminator and each splice junction (6).

If no faults are visible, replace terminator and retest (Para. 3-126).

If necessary, replace splice devices (Para. 3-126) until you get a good meter reading between center conductor and shield of cable at processor.

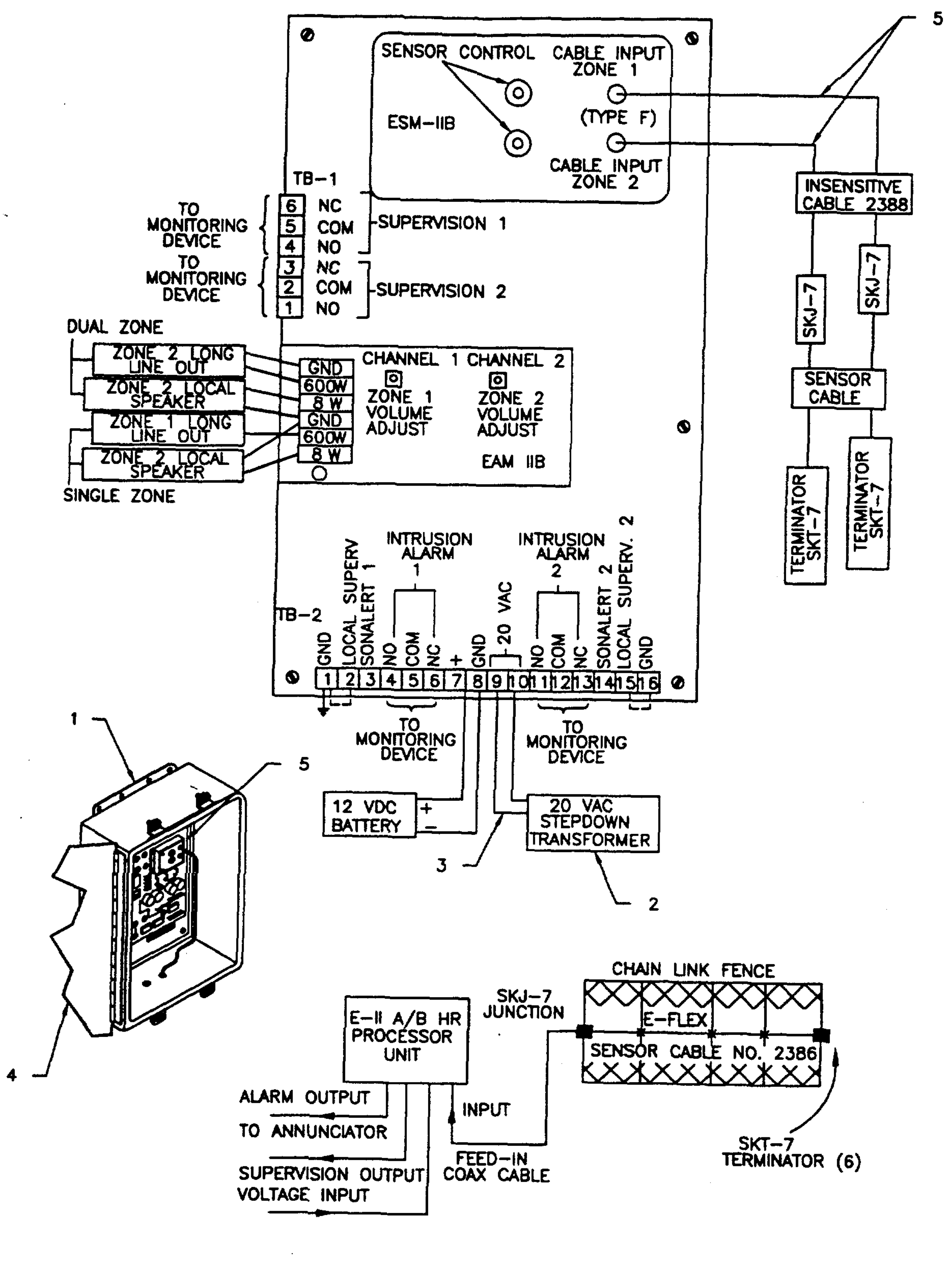


Figure 3-21. Strain Sensitive Cable Fence Sensor Assembly General Block Diagram

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

13. TAUT WIRE FENCE SENSOR FAILURE (Figure 3-22)

NOTE

Refer to SAIG for details on the Taut Wire Fence Sensor.

Step 1. Make a visual inspection of fence and cabling for cut wires or cables.

If cut wires or cables are found, replace.

If no visible defects are found, go to step 2.

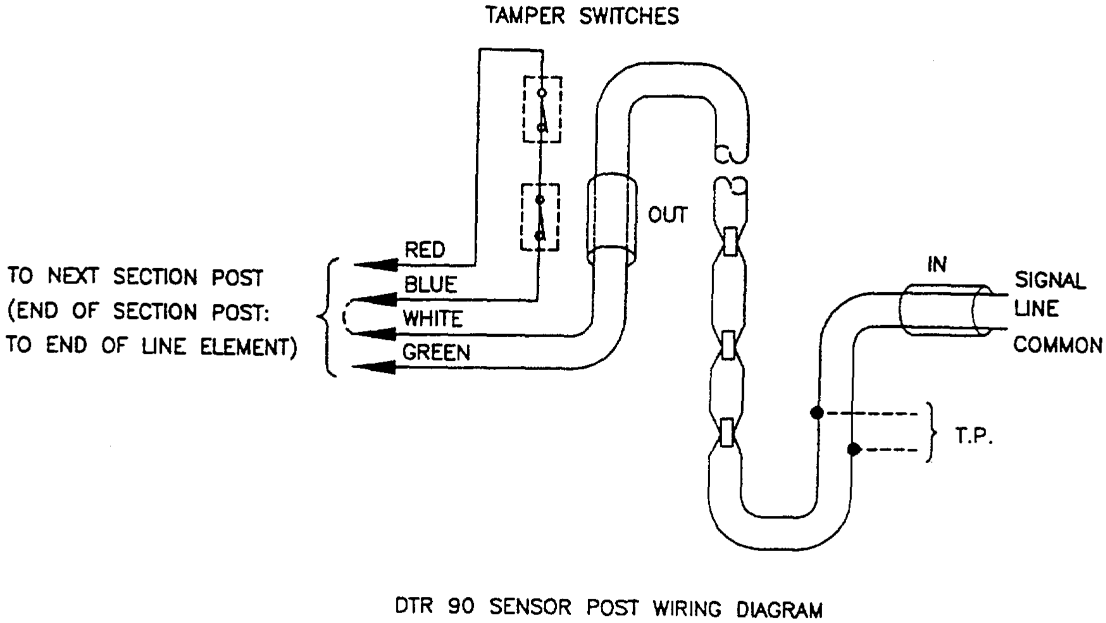
Step 2. Starting at last sensor post in section, connect MAGTEST 90/1 testing device to sensor post's test points. Switch function selector to VOLTAGE position. Switch status selector to zone position. Using a screwdriver or similar tool, slight tap each taut wire several times. No audio signal should be heard.

If an audio signal is heard, check for faulty wiring to sensor; or sensor connected to taut wire is too sensitive. Repair or replace as necessary.

If no audio signal is heard, go to step 3.

Step 3. Switch status selector to POST position. Activate every sensor in post. An audio signal indicates correct activity of activated sensor.

If no sound is heard, sensor has not been activated due to a faulty sensor. Replace sensor unit. (para 3-127)



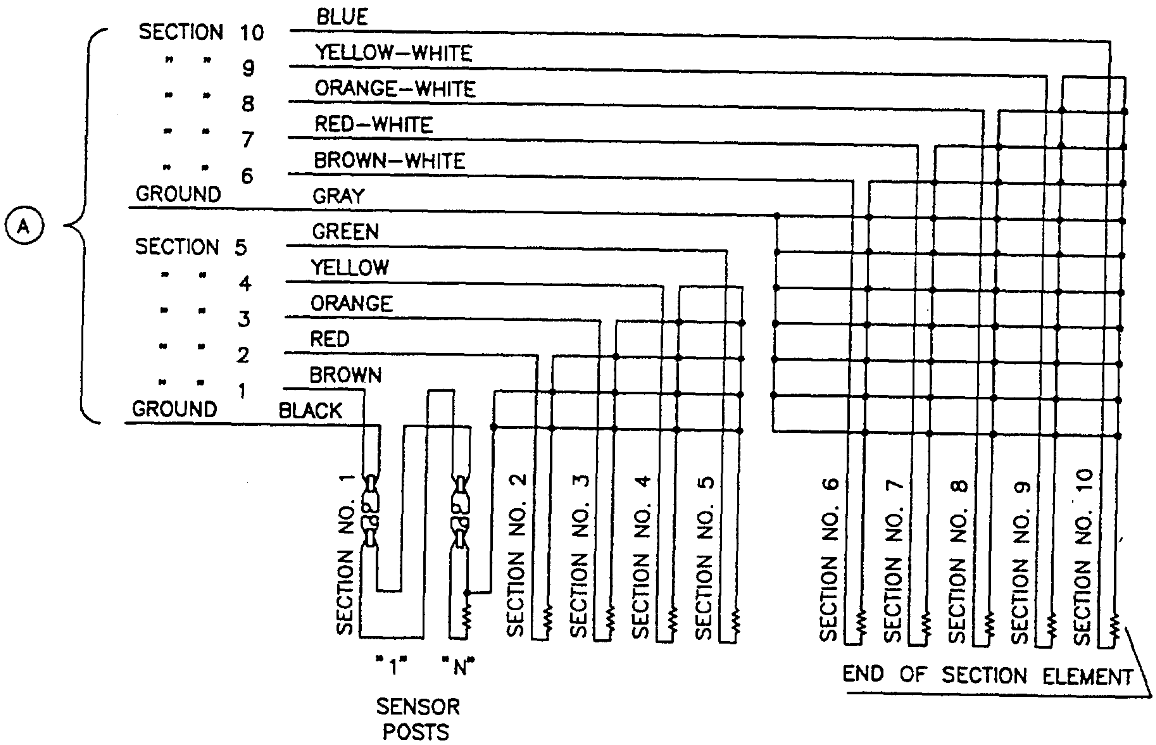


Figure 3-22. Taut-Wire Fence Sensor Assembly General Block Diagram

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

14. SHORT/LONG PORTED COAXIAL CABLE SENSOR FAILURE (Figure 3-23)

NOTE

Refer to SAIG for details on the Short/Long Ported Coaxial Cable Sensors.

Step 1. Open door on transmitter/receiver unit (1) and observe that power switch (2) is on and power on lamp (3) is lit.

If power on lamp is not lit, go to step 2.

If power on lamp is lit, go to step 4.

Step 2. Go to input power supply and check to ensure power supply switch is on. The two dc power on lamps (5) should be lit.

If dc power lamps (5) are not on, remove power, check for blown fuses, if blown, replace fuses.

Step 3. Turn on power supply switch. The dc power on lamps should be on.

If lamps are not on, go to step 4.

If lamps are on, go to step 5.

Step 4. Set multimeter to read vac. Check for correct ac input voltage at input power receptacle.

If input power is correct, replace power supply.

If input power is not correct, contact facility engineers.

Step 5. Press local self test pushbutton (4).

If self test initiates an intrusion alarm for zone in which control box is transmitting unit, processing unit is operational. If an alarm still exists, go to step 6.

Step 6. Check T.P. readings for proper range as shown on scale at bottom of control unit. If T7, T8, or T12 is out of tolerance, do the following. Remove control unit front panel by removing eight screws holding panel to enclosure. Check signal supervision GRN LED, CR22. The LED should be off.

If LED is on, disconnect alarm wires.

If alarm clears, replace control unit (Para. 3-121).

If alarm does not clear, repair or replace cable.

If LED is not illuminated, go to step 7.

Table 3-9. Sensors DS Maintenance Troubleshooting - Continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
14. SHORT/LONG PORTED COAXIAL CABLE SENSOR FAILURE (continued) Step 7. Place T.P. switch to T12. The meter should read between +10 and +30. If reading is above +30 vdc, replace control unit (Para. 3-121). If reading is below +10 vdc, go to step 8. Step 8. Check TX ALC red LED, CR19. The LED should be on. If LED is not on, replace control unit (Para. 3-121). If LED is on, check the TX and RX cables for a short or open center conductor. If cables are good, replace control unit (Para. 3-121). If cables are open or shorted, repair or replace as necessary. 15. ELECTRIC DOOR LOCK/DOOR SENSOR FAILURE (Figure 3-24) **NOTE** Refer to SAIG for details on the Electric Door Lock/Door Sensor. Step 1. Remove cable connector P1 from solenoid connector J1. Using a multimeter, check for 24 vdc across the two input leads on P1 with the exit pushbutton depressed. If voltage is present, replace door lock/door sensor (in accordance with the SAIG). If voltage is not present, go to step 2. Step 2. Open the front panel on the IAC enclosure and check for 24 vdc on the IAC Printed Wiring Assembly TB-2 pins 3 and 4. (Figure FO-9) If voltage is present, replace the wiring between the IAC PWA and the electric door lock. If voltage is not present, the problem is in the IAC. (Table 3-7, malfunction 1)

NOTE

Refer to TM 5-6350-275-10 operating procedures for checking repaired item(s).

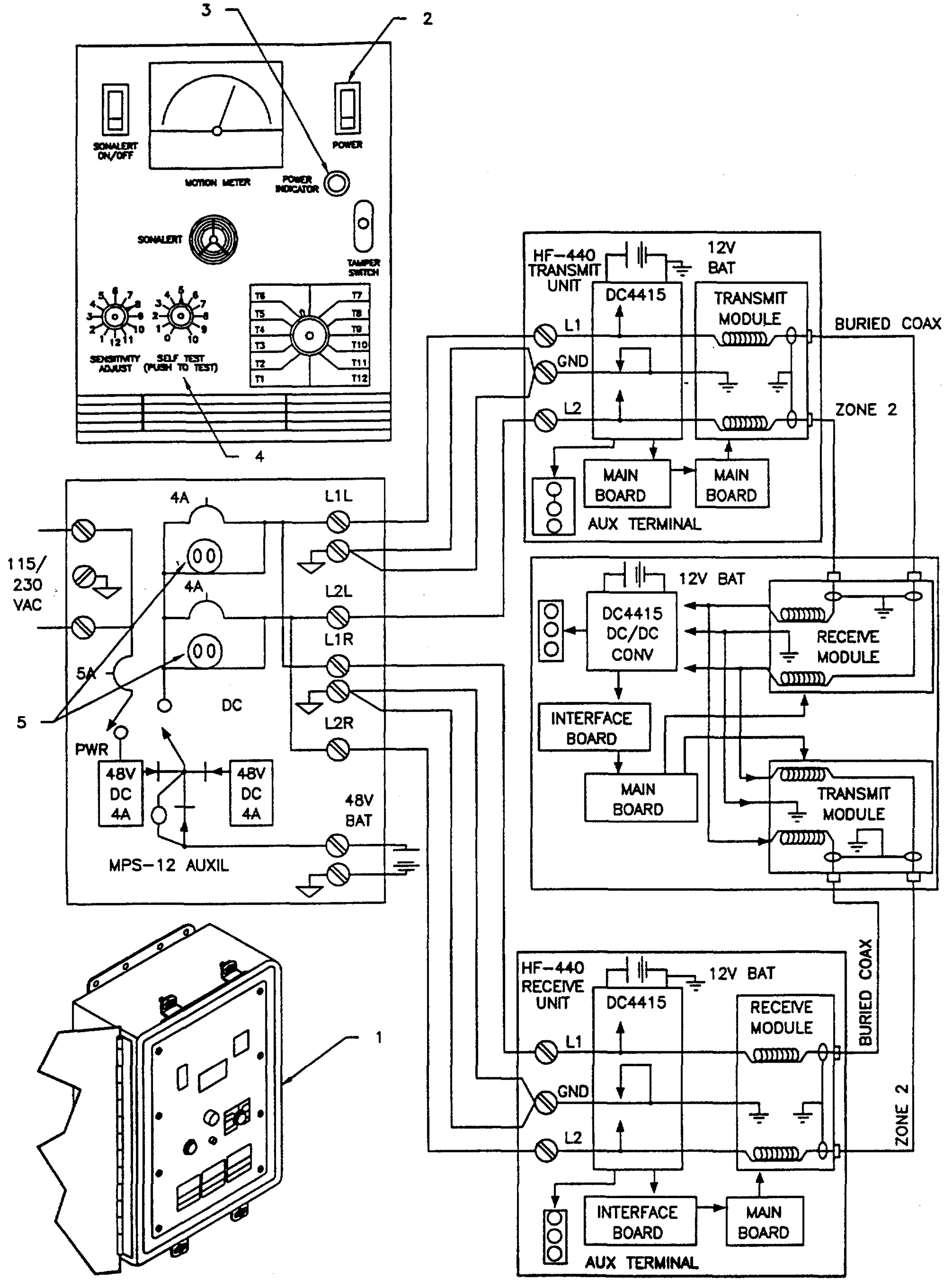


Figure 3-23. Ported Coaxial Cable Sensor General Block Diagram

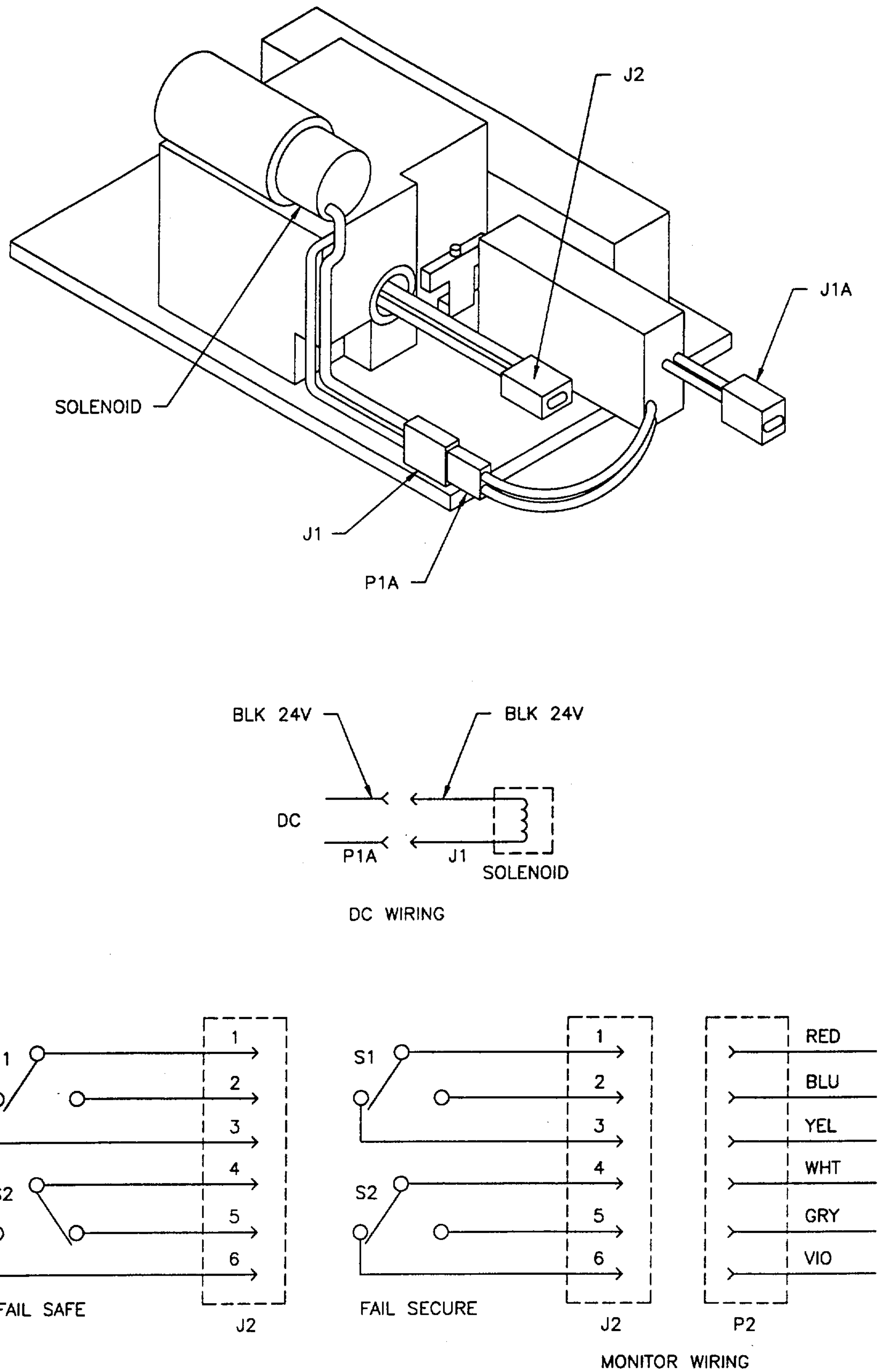


Figure 3-24. Electric Door Lock Sensor General Block Diagram

Table 3-10. UPS DS Maintenance Troubleshooting

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. UPS LED INDICATORS AND FAILURES (Figure 3-25).

Step 1. The UPS front panel LED (5) indicators will be on under various operating conditions. Refer to SAIG for further information and clarification.

If alarm LED (Red when in alarm) indicator is on, refer to SAIG for further information and clarification.

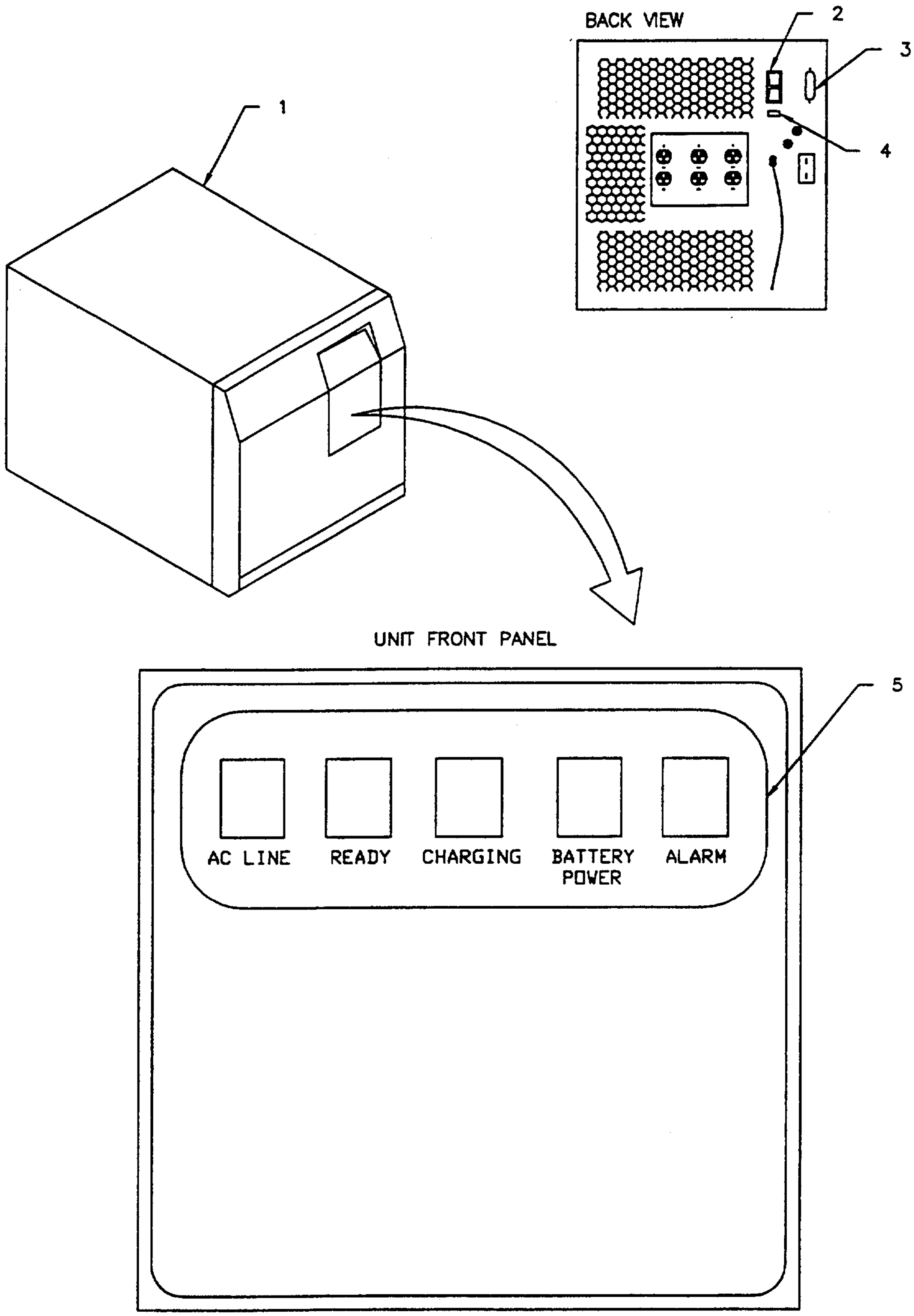


Figure 3-25. Uninterruptible Power System (UPS)

Section IV. DIRECT SUPPORT MAINTENANCE PROCEDURES

3-7. SCOPE. Direct support maintenance procedures consist of the removal and installation of major components of the ICIDS. In some cases, replacement of Printed Wiring Assemblies (PWAs) may be required to restore a unit to operational status.

3-8. PAINTING.

WARNING

Do not use cleaning solvents, primers, or paints near an open flame or sparks. Use only in well-ventilated area. Avoid allowing solvents to contact skin. Wash exposed areas immediately with soap and water.

a. Clean and sand abraded surfaces and apply primer.

b. After primer is fully dry, paint surface using same color and type of paint as originally applied to equipment.

3-9. GENERAL. This section describes Direct Support maintenance and repair of the ICIDS system. Removal and installation procedures for components and circuit card assemblies are outlined in the following paragraphs.

3-10. REPLACE PRIMARY MONITOR CONSOLE (B39) CENTRAL PROCESSING UNIT. (See Figure 3-26).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) General Safety Instructions: Remove all jewelry while working on equipment. Verify new B39 memory configuration is identical to the unit being replaced.	Equipment Condition: PMC cabinet doors open Input power removed Tape Streamer removed (Para. 3-11) DCX removed (Para. 3-12) Materials/Parts: B39 CPU

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

To avoid personal injury, use an adequate number of personnel to lift or move equipment weighing over 50 pounds or oversize equipment. Observe correct lifting techniques. Failure to do so may result in serious injury or death.

a. Removal

(1) Press main power push button (1) to remove internal power to processor assembly and disconnect ac power cord (5) from power source.

(2) Remove cluster cable(s) (7) and/or terminator block from cluster connector jacks (4).

(3) Remove printer serial interface cable (6) from connector (3) and remove monitor cable (2) from graphics card connector.

(4) Remove ribbon cable from parallel connector (12)

b. Installation

(1) To connect Tape Streamer and DCX modules refer to paragraph 3-11 and 3-12.

(2) Connect printer serial interface cable (6) to connector (3) and reconnect monitor cable (2) to graphics card connector.

(3) Connect cluster cable(s) (7) and/or termination block to cluster connector jacks (4).

(4) Connect ribbon cable to parallel connector (12).

(5) Connect ac power cord (5) to power source.

(6) Press main power push button (1) to apply internal power to processor assembly.

(7) Operation System (OS) and Application must be reloaded; notify System Administrator.

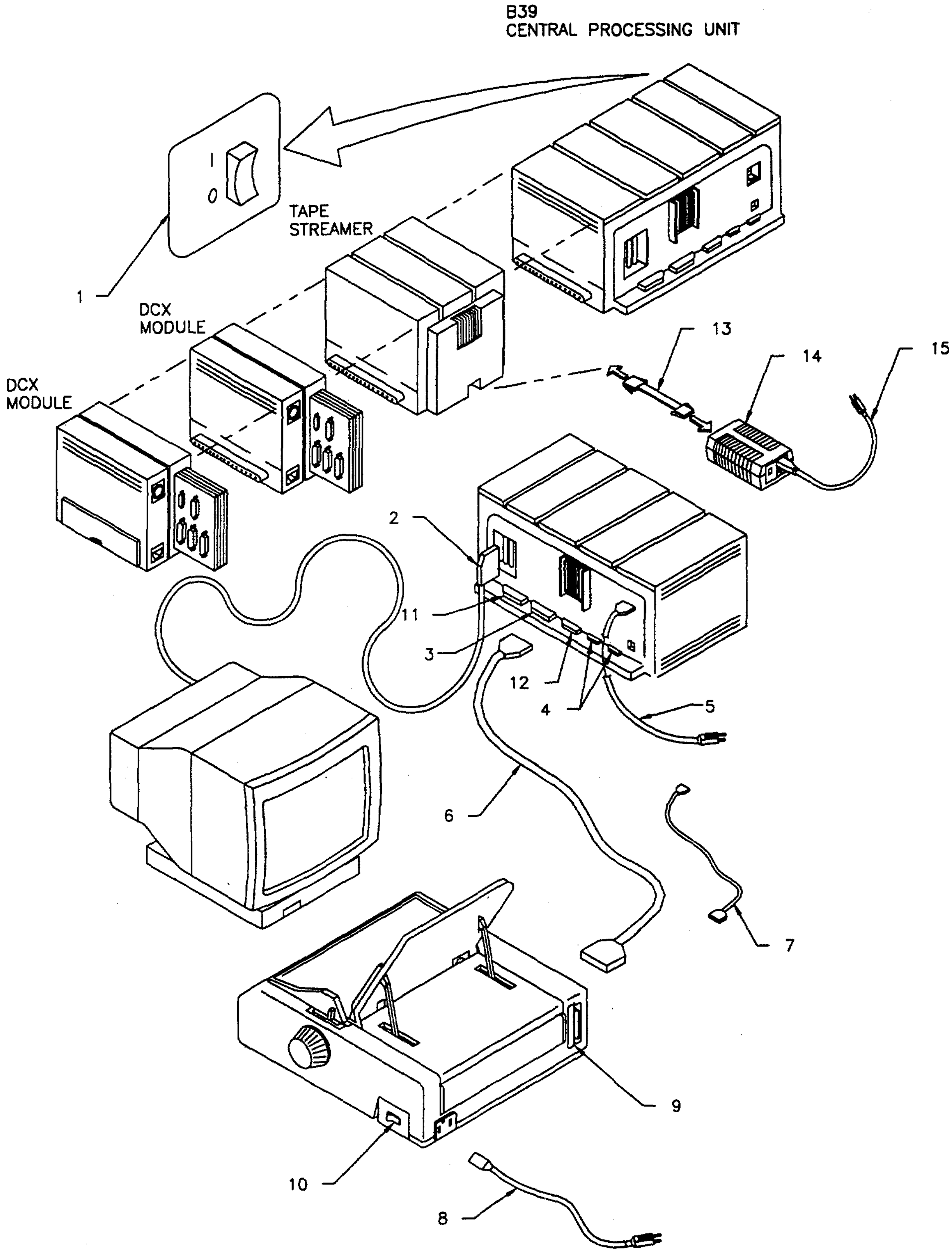


Figure 3-26. B39 Primary Monitor Console CPU Interconnection Diagram

3-11. REPLACE TAPE STREAMER MODULE. (Figure 3-27).

INSERT SUBTITLE HERE!

This task consists of: a. Remove b. Install

INITIAL SETUP:	
General Safety Instructions: Remove all jewelry while working on equipment. Materials/Parts: Tape Streamer Module	Equipment Condition: PMC cabinet doors open Power Module AC power cord and DC power cable removed (para 3-14)

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Press main power push button (1) to remove internal power to B39 processor assembly and disconnect ac power cord from power source.

(2) Lift up on latching lever (6) on tape streamer (3) and DCX module (4) and carefully pull modular units apart.

(3) Remove tape streamer module (3).

b. Installation

(1) Install new tape streamer module (3) by aligning modules bus connectors and carefully push units together.

(2) When connectors are aligned and seated, lower latching lever (6). This locks modular units in place.

(3) Connect the power module (14) ac power cord (15) to power source. (ref. figure 3-26)

(4) Insert dc power cord (13) connector into rear of Tape Streamer Module. (ref. figure 3-26)

(5) Press main power push button (1) to apply internal power to processor assembly.

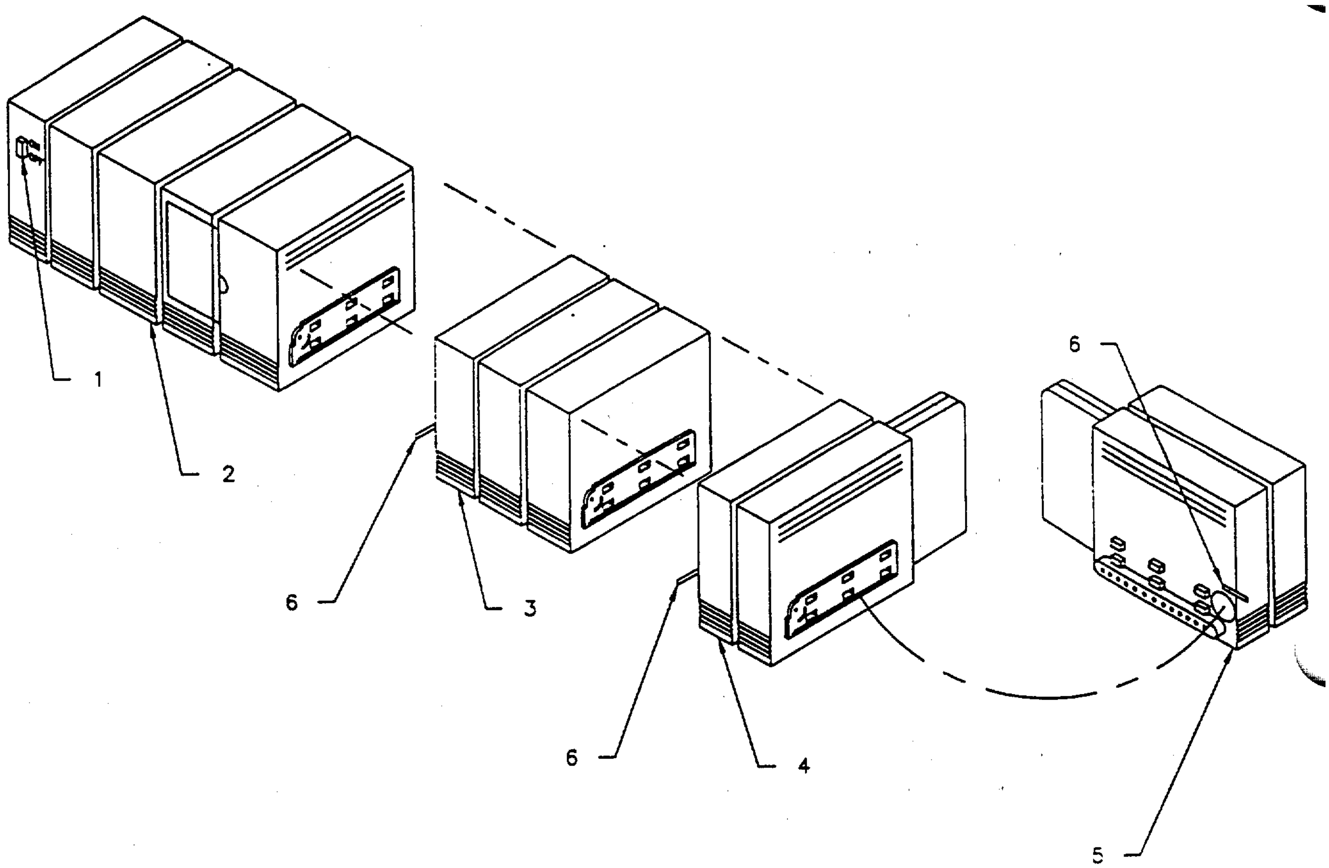


Figure 3-27. B39 Expansion Modules

3-12. REPLACE DCX MODULE. (Figure 3-27)

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) General Safety Instructions: Remove all jewelry while working on equipment.	Equipment Condition: PMC cabinet doors open RS232 cable(s) removed and tagged Tape Streamer power module AC power cord removed from power source (Para. 3-13) Materials/Parts: DCX Module

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Press main power push button (1) to remove internal power to B39 CPU processor assembly (2) and disconnect ac power cord from power source.

(2) Lift up on latching lever (6) on DCX module (4) or (5) if you wish to remove and carefully pull modular units apart.

b. Installation

(1) Install new module by aligning modules bus connectors and carefully push units together.

(2) When connectors are aligned and seated, lower latching lever (6). This locks modular units in place.

(3) Reconnect RS232 cables.

(4) Connect Tape Streamer power module, AC power cord to power source.

(5) Press main power push button (1) to apply internal power to B39 CPU assembly.

3-13. REPLACE POWER MODULE(S). (Figure 3-28).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
General Safety Instructions: Remove all jewelry while working on equipment.	Equipment Condition: PMC cabinet doors open B39 processor assembly power switch off (Para. 3-19) Materials/Parts: Power Module B25-PS or B25-PS1 Power Cable, 36 vdc

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove ac power cord (5) from power module (4).

(2) Remove dc power cord(s) (2) from tape streamer module (3) or B38 processor assembly (8), connector (6) or (9) by pressing plastic connector (7) together and pulling connector out from tape streamer (3) or B38 processor assembly (8).

b. Installation

(1) Connect dc power cord(s) to power module block (4) and to tape streamer (3) or B38 processor assembly (8) by gently pushing cable connectors (7) into power block (4) and connector (6) or (9).

(2) Connect ac power cord (5) to power module (4).

3-14. REPLACE POWER CABLE, 36 VDC. (Figure 3-28).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
General Safety Instructions: Remove all jewelry while working on equipment.	Equipment Condition: PMC cabinet doors open B39 processor assembly power switch off (Para. 3-19) Materials/Parts: Power Cable, 36 vdc

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove ac power cord (5) from power module (4).

(2) Remove dc power cord (2) from tape streamer (3) or B38 processor assembly (8), jack (6) or (9) by pressing plastic connector (7) together and pulling connector out from assembly and power module.

b. Installation

(1) Connect dc power cord (2) to power module block (4) and to tape streamer (3), or B38 processor assembly (8) by gently pushing cable connectors (7) into power block (4) and jack (6) or (9).

(2) Connect ac power cord (5) to power module (4).

(3) Set B38 processor assembly (8) power switch to on.

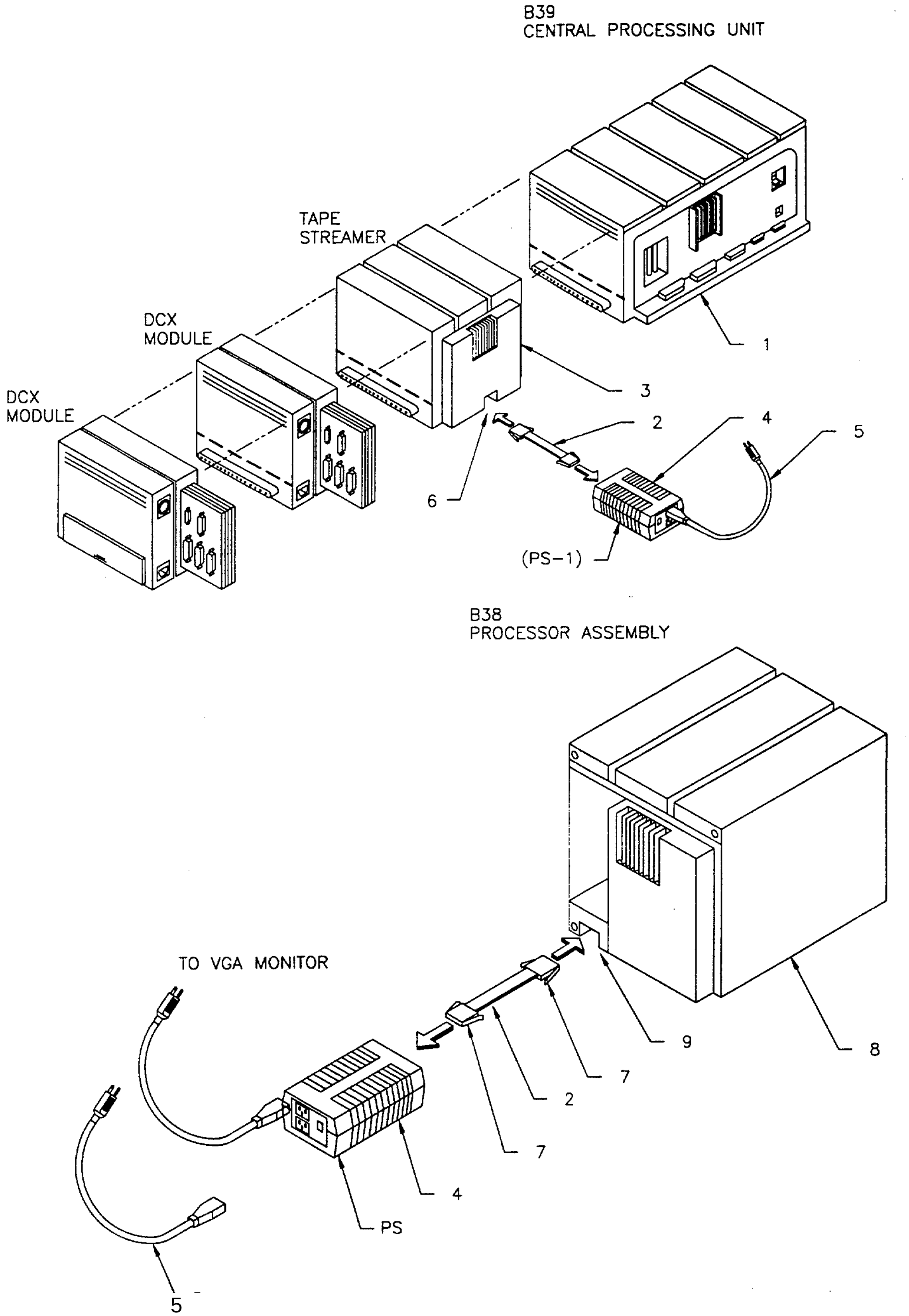


Figure 3-28. B39 or B38 Power Modules

3-15. REPLACE MONOCHROME 9 IN. MONITOR AND KEYBOARD. (Figure 3-29).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) General Safety Instructions: Remove all jewelry while working on equipment.	Equipment Condition: PMC cabinet doors open Materials/Parts: Monochrome Monitor Keyboard

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove video cable connector (3) from B39 CPU by loosening two screws on cable connector and gently pulling cable connector from graphics card connector.

(2) Remove keyboard (6) and cable connector (5) from monitor (4) by pressing plastic clips on keyboard cable connector (5) together and gently pulling cable from monitor (4) connector.

b. Installation

(1) Connect keyboard (6) and cable connector (5) to monitor (4) by gently inserting connector into monitor (4) connector.

(2) Connect video cable connector (3) to B39 CPU by tightening two screws on cable connector.

3-16. REPLACE B39 CPU KEYBOARD CABLE ASSEMBLY. (Figure 3-29).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
General Safety Instructions Remove all jewelry while working on equipment.	Equipment Condition: PMC cabinet doors open Materials/Parts: Keyboard Cable

a. Removal

(1) Press plastic clips on keyboard cable connectors (5) together and gently pull cable from monitor (4) and keyboard (6).

b. Installation

(1) Insert keyboard cable connectors (5) into monitor (4) and keyboard (6) connectors until connectors snap into place.

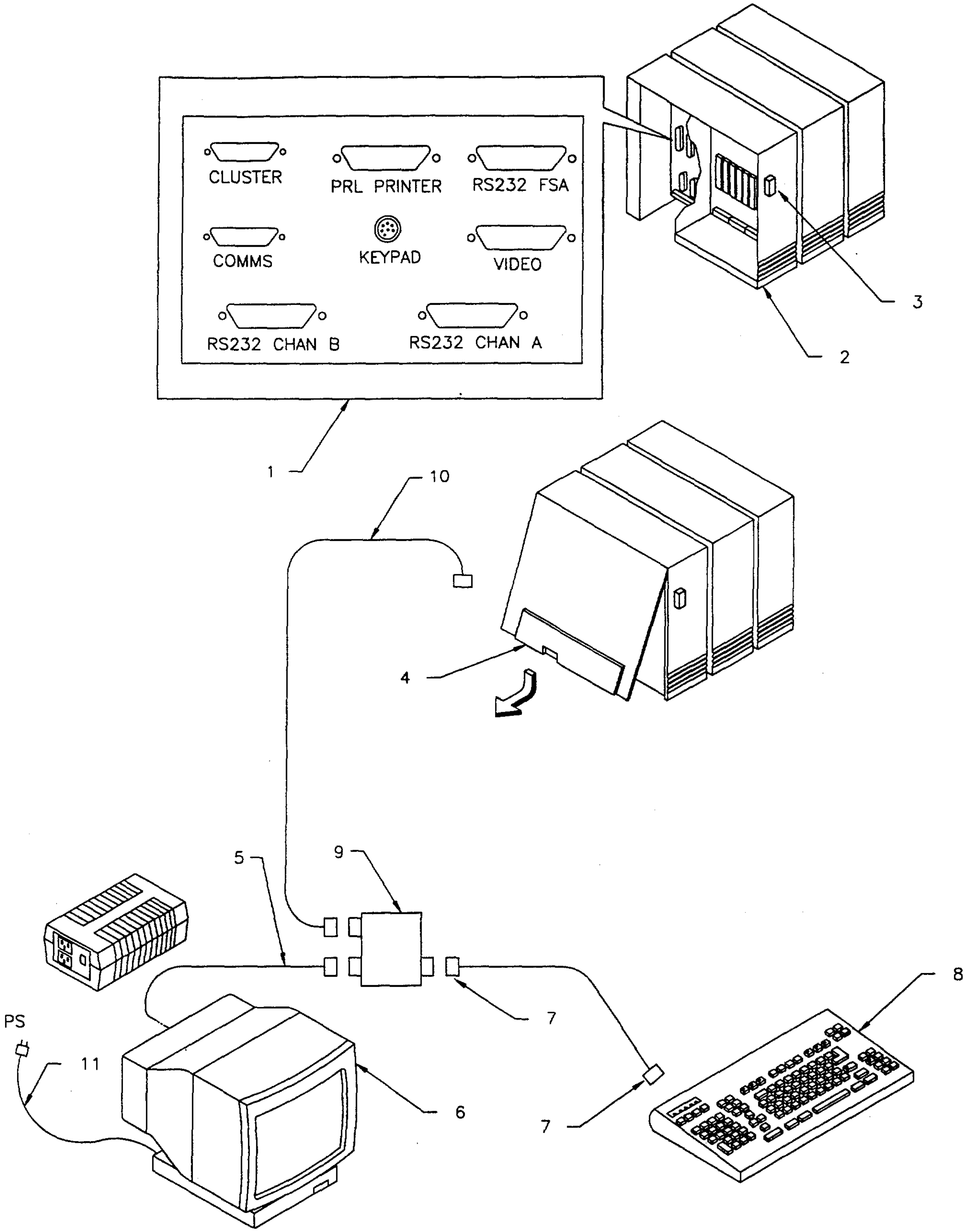


Figure 3-29. Monochrome Monitor and Keyboard Assembly

3-17. REPLACE CENTRAL PROCESSING UNIT (CPU) EVENT PRINTER ASSEMBLY.
(Figure 3-26).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Materials/Parts: Event Printer	General Safety Instructions: Remove all jewelry while working on equipment. Equipment Condition: Serial Interface Card removed (Para. 3-25)

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

To avoid personal injury, use an adequate number of personnel to lift or move equipment weighing over 50 pounds or oversize equipment. Observe correct lifting techniques. Failure to do so may result in serious injury or death.

a. Removal

(1) Press printer power switch (10) to off position.

(2) Remove ac power cord (8) from printer assembly and remove serial interface cable (6) from printer serial interface card connector (9).

b. Installation

(1) Install Serial Interface Card.

(2) Connect serial interface cable (6) to printer serial interface card connector (9).

(3) Connect ac power cord (8) to printer assembly.

(4) Press printer power switch (10) to on position.

(5) Insure printer set-up parameters are correct. (ref. Appendix E pg.E-54)

3-18. REPLACE PRINTER SERIAL INTERFACE CABLE. (Figure 3-26).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Materials/Parts: Serial Interface Cable XC-698-1S	Equipment Condition: PMC cabinet doors open General Safety Instructions: Remove all jewelry while working on equipment.

a. Removal

(1) Press printer power switch (10) to off position.

(2) Remove serial interface cable (6) from B39 CPU connector (3) and Event Printer serial connector (9) by loosening two screws on each end of serial interface cable connector.

(3) Gently pull serial interface cable connectors from B39 CPU connector (3) and printer serial I/O card connector (9).

b. Installation

(1) Gently push serial interface cable connectors onto B39 CPU connector (3) and printer serial i/o card connector (9) and tighten down with two screws on each cable connector.

(2) Press printer power switch (10) to on position.

3-19. REPLACE OPERATOR WORKSTATION, B38 CPU. (Figure 3-30).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Materials/Parts: B38 CPU	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Press power switch (1) in to remove power from B38 CPU (2). Disconnect ac power cord (5) from power module (7), and DC power cord (6) from B38 CPU (2).

(2) Remove B38 CPU side cover (3) and disconnect color monitor cable (8) from video connector on panel (4).

(3) Remove printer serial interface cable (9) from RS232A connector on panel (4) and cluster cable (11) from cluster connector on panel (4).

b. Installation

(1) Install side cover (3) from B38 CPU (2).

(2) Connect printer serial interface cable (9) to RS232A connector on panel (4) and cluster cable (11) to cluster connector jack on panel (4).

(3) Connect color monitor cable (8) to video connector jack on panel (4).

(4) Connect power module, DC power cord (6) to B38 CPU (2) and ac power cord (5) to power module.

(5) Press B38 CPU power switch (1) on to apply power to B38 CPU.

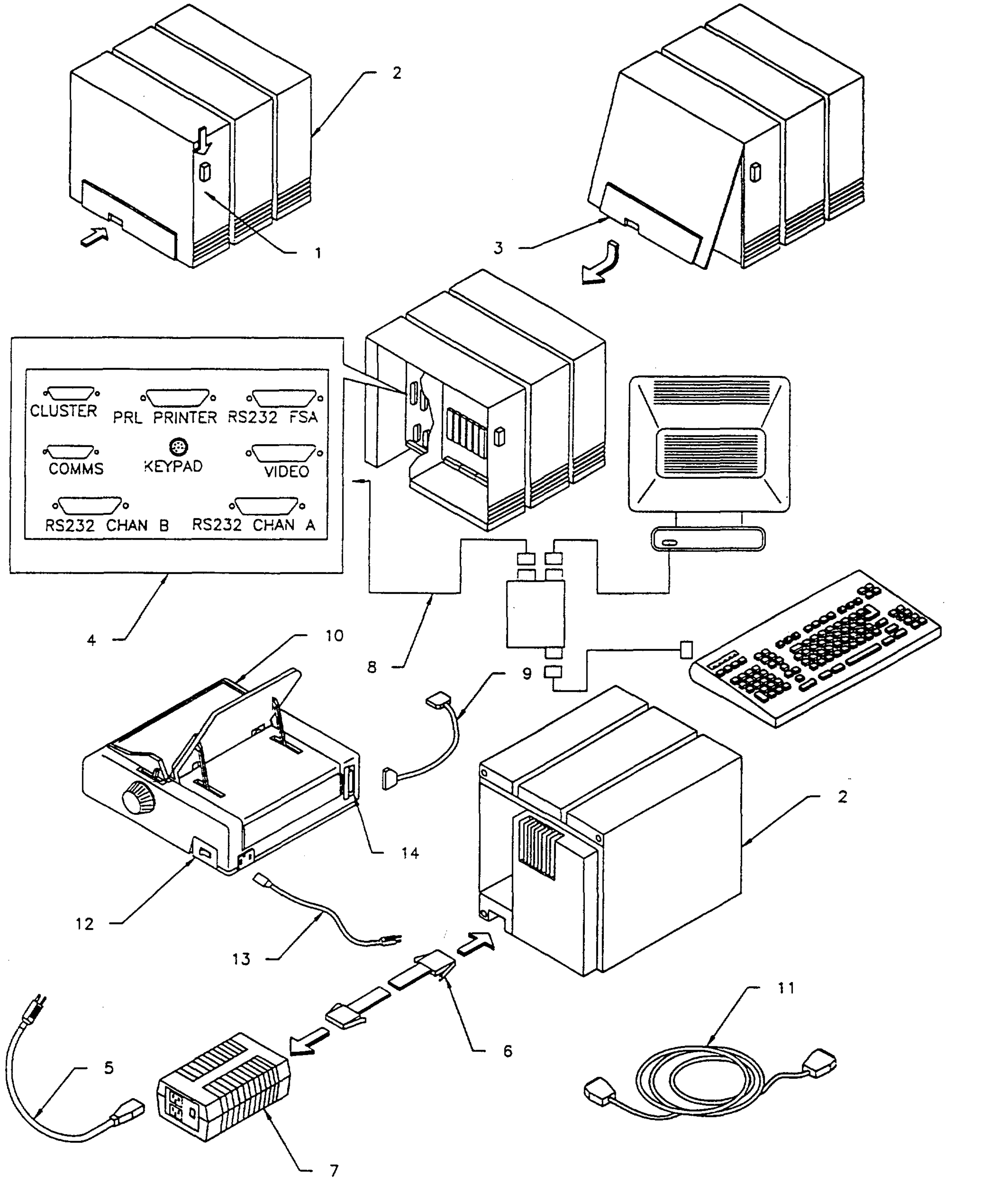


Figure 3-30. Operator Workstation Interconnecting Diagram

3-20. REPLACE COLOR MONITOR AND KEYBOARD ASSEMBLY. (Figure 3-31).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Screwdriver, Flat tip (Item 7, App B) Materials/Parts: Color Monitor Keyboard	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Press color monitor power switch in to remove power from color monitor (6).

(2) Remove color monitor (6) AC power cord (11) from power source.

(3) Remove color monitor video cable (5) from VGA adapter (9).

(4) Remove keyboard cable (7) from VGA adapter (9) by pressing plastic connectors together and gently pulling cable from VGA adapter (9).

b. Installation

(1) Connect keyboard cable (7) to VGA adapter (9) by inserting connector into VGA adapter jack until it snaps into place.

(2) Connect color monitor video cable (5) to VGA adapter (9).

(3) Connect color monitor AC power cord (11) to power source.

(4) Press color monitor power switch in to apply power to color monitor (6).

3-21. REPLACE VIDEO GRAPHICS ADAPTER. (Figure 3-31)

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Equipment Condition: Color monitor power off Materials/Parts: Video Graphics Adaptor	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove keyboard cable (7) from VGA adapter (9).

(2) Loosen the two captive screws on video graphics cable (10) and color monitor video cable (5) and remove from cables from VGA adapter (9).

b. Installation

(1) Connect and secure video graphics cable (10) and color monitor video cable (5) to VGA adapter (9) with the two captive screws on each cable.

(2) Connect keyboard cable (7) to VGA adapter (9) by inserting connector into VGA adapter jack until cable connector locks into place.

3-22. REPLACE POWER MODULE.(Refer to paragraph 3-13 and Figure 3-28.)

3-23. REPLACE CLUSTER CABLE. (Figure 3-30 and 3-26).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Materials/Parts: Cluster Cable 154-1798-253	Equipment Condition: PMC cabinet doors open General Safety Instructions: Remove all jewelry while working on equipment.

a. Removal

(1) Remove B38 CPU (2) side cover (3).

(2) Loosen two captive screws holding cluster cable (11) to cluster connector jack on processor assembly panel (4).

(3) Remove cluster cable (11) from cluster connector.

(4) If connected to B39 CPU assembly (Figure 3-26), loosen two captive screws holding cluster cable (7) to connector jack (4) on rear of B39 CPU assembly and remove cable.

(5) If connected to another B38 CPU, repeat steps 1, 2, and 3 above.

b. Install

(1) Press cluster cable (7) connector down on B39 CPU cluster cable outlet connector (Figure 3-26, item 4) on rear of B39 CPU and tighten with two captive screws. (If previously attached to B39.)

(2) If cluster cable was removed from between two B38 operator workstations (Figure 3-30), place cluster cable (11) connector on cluster connector on B38 CPU panel (4) and tighten with two captive screws.

(3) Repeat step 2 above for second processor assembly connection.

(4) Reinstall B38 CPU (2) side cover (3).

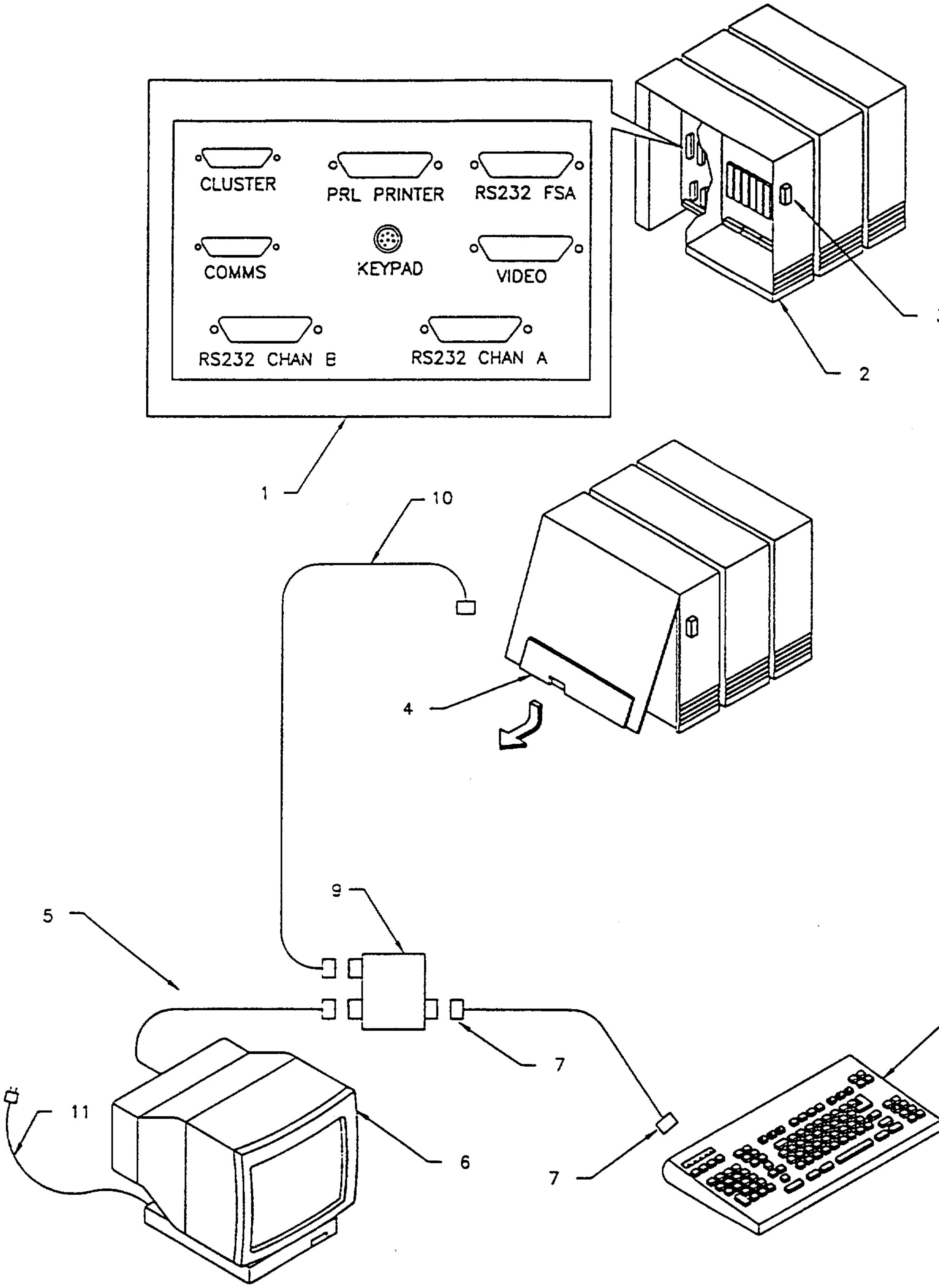


Figure 3-31. B38 Color Monitor, Video Graphics Adapter and Keyboard Assembly

3-24. REPLACE LOG PRINTER ASSEMBLY. (Figure 3-30).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Materials/Parts: Log Printer	General Safety Instructions: Remove all jewelry while working on equipment. Equipment Condition: Serial Interface Card removed (Para. 3-25)

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

To avoid personal injury, use an adequate number of personnel to lift or move equipment weighing over 50 pounds or oversize equipment. Observe correct lifting techniques. Failure to do so may result in serious injury or death.

a. Removal

(1) Press printer power switch (12) to off position and disconnect printer ac power cable (13) from printer (10) and power source.

(2) Remove serial interface cable (9) from serial interface PWA connector (14) by loosening two captive screws on serial interface cable connector, and pulling out on connector.

b. Installation

(1) Install Serial Interface Card.

(2) Connect serial interface cable (9) to serial interface PWA connector (14) by tightening two captive screws on serial interface cable connector.

(3) Connect printer ac power cable (13) to printer (10) and power source.

(4) Press printer power switch (12) to on position to apply power to printer.

(5) Insure printer set-up parameters are correct. (ref. Appendix E pg.E-55)

3-25. REPLACE PRINTER SERIAL INTERFACE PWA. (Figure 3-32).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:

Tools: Screwdriver, Flat tip (Item 6, App B) Materials/Parts: Serial Interface Board PWA AP1337-SI	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while working on electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Place printer (1) power on/off switch (2) to off.

(2) Disconnect ac power cable (3) from AC power source and printer (1).

(3) Loosen two captive screws (6) holding serial interface cable (7) to serial interface PWA (5).

(4) Pull down on serial interface PWA holding pen (4) and remove serial interface PWA (5) from printer (1).

b. Installation

(1) Install serial interface PWA (5) into printer (1) and secure with PWA holding pen (4).

(2) Connect and secure printer interface cable (7) to serial interface PWA (5) by tightening two captive screws (6).

(3) Connect ac power cable (3) to printer (1) and AC power source.

(4) Place printer (1) power on/off switch (2) to on.

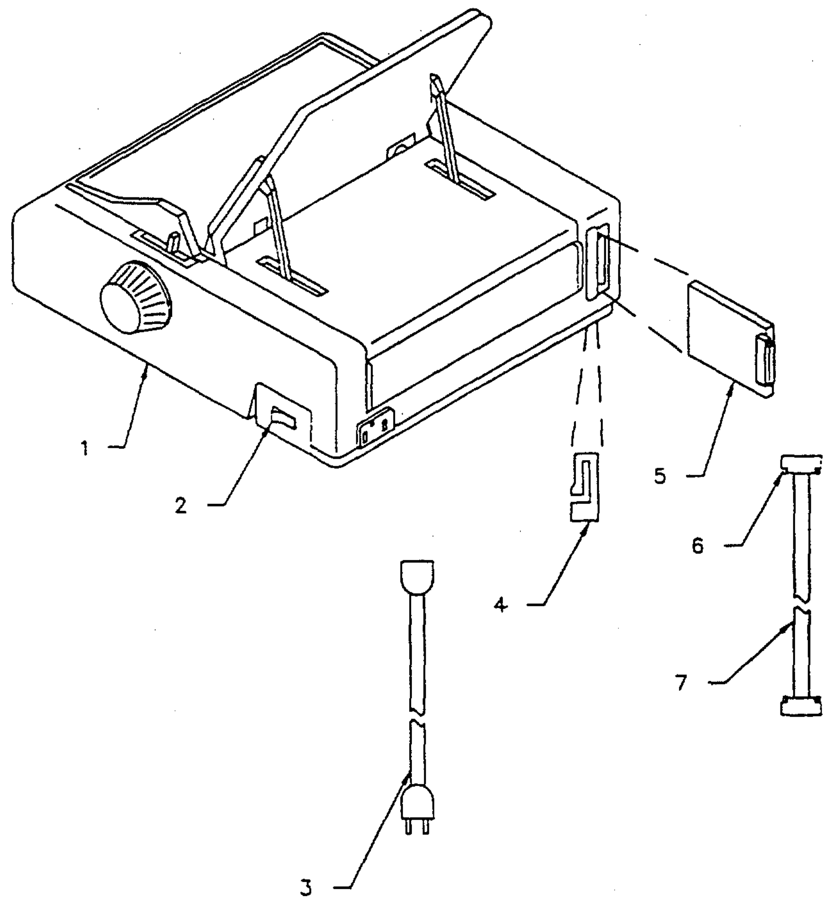


Figure 3-32. Printer Serial Interface Printed Wiring Assembly

3-26. REPLACE PRIMARY MONITOR CONSOLE/RSM ICS SWITCHING UNIT, QUAD SWITCH, AUDIO MULTIPLEXER, DIGITAL MULTIPLEXER, MASTER DES, PMC DES OR ENROLLER DES MODULE. (Figure 3-33)

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Equipment Condition: PMC cabinet doors open Materials/Parts: (As Required) Intelligent Cluster Switch (ICS) or Quad Switch or Audio Multiplexer or Digital Multiplexer or Master DES (MDES) or PMC DES or Enroller DES (EDES)	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronics assemblies.

a. Removal

(1) Using a flat tip screwdriver, loosen captive screws at top and bottom of appropriate module (5, 6, 8, 9, 13) and pull out on module, using handles.

(2) If DES module (8) equipped, remove jumper cable (7) from 9 pin connector at bottom of DES module (8) and adjacent module (9).

(3) Remove module from slotted bracket assembly.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, pages E-28, E-30, E-22, E-7, E-10 or E-4.

(2) Align module with slotted bracket assembly and push module forward until it is fully seated in back panel connector.

(3) Using a flat tip screwdriver, tighten captive screws at top and bottom of each module.

(4) If DES module (8) equipped, connect jumper cable (7) to 9 pin connector at bottom of DES module (8) and 9 pin connector on adjacent module (9).

(5) If Enroller DES module is replaced, refer to DES enrollment procedures (Para. 1-133).

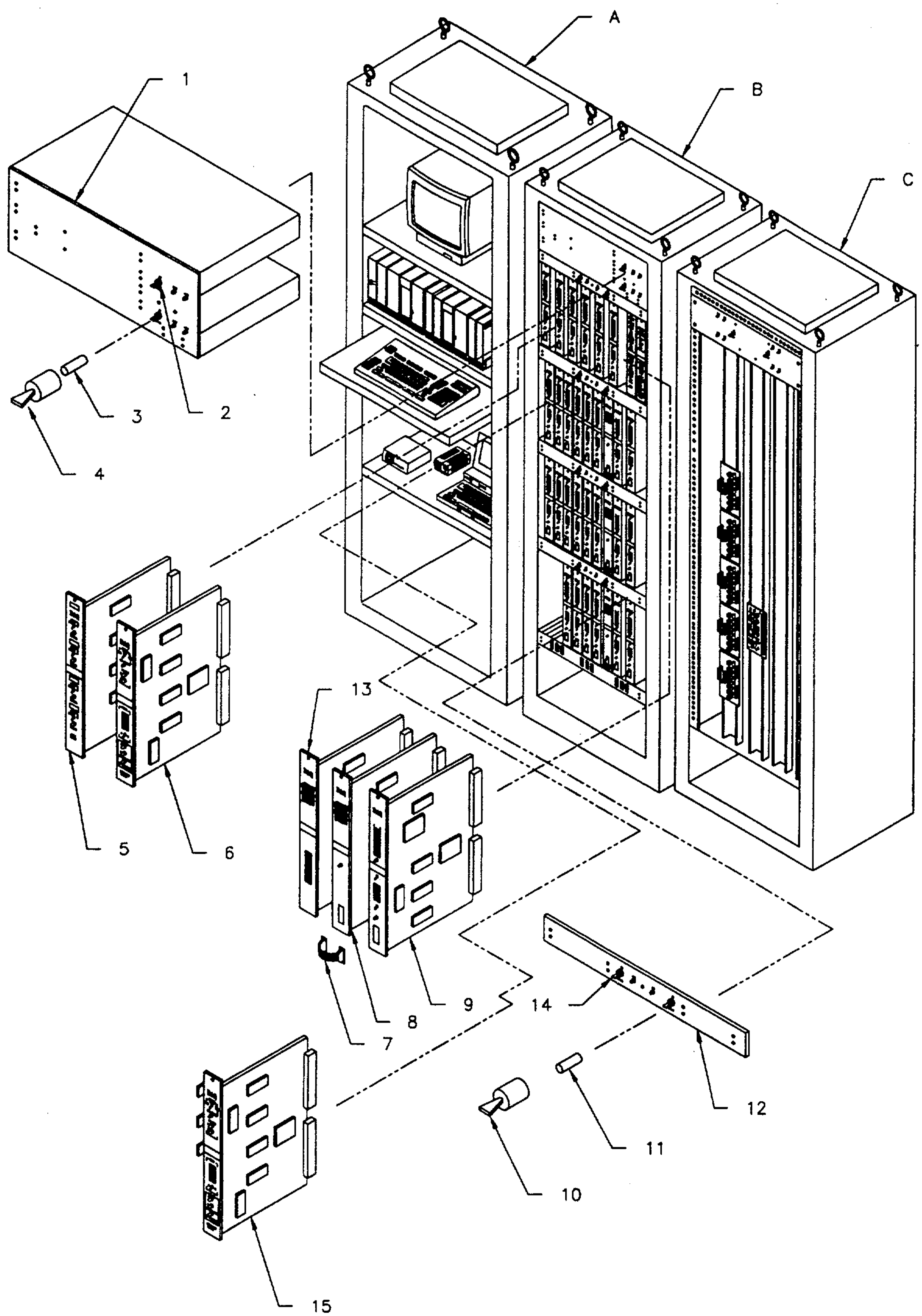


Figure 3-33. Primary Monitor Console Components

3-27. REPLACE PMC COMMUNICATIONS CABINET ± 12 VDC POWER SUPPLY. (Figure 3-33 and 3-34).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Screwdriver, Flat tip (Item 7, App B) Wire Cutters (Item 24, App B) Materials/Parts: ± 12 vdc Power Supply 5105-E05	Equipment Condition: PMC cabinet doors open General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.

WARNING

When working on high-voltage components, always have an additional person present, and keep one hand away from equipment to reduce hazard of current flowing through vital organs of body. Remove all jewelry from fingers, wrists, and neck before working on electrical components. Failure to do so may result in serious injury or death.

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

To avoid personal injury, use an adequate number of personnel to lift or move equipment weighing over 50 pounds or oversize equipment. Observe correct lifting techniques. Failure to do so may result in serious injury or death.

a. Removal

(1) Place power supply A switch (Figure 3-33, 2) and power supply B switch (Figure 3-33, 4) to off.

(2) Open rear door on PMC cabinet #B and remove power supply ac power cord from ac power source.

(3) Remove protective cover (5) by removing four screws (6) holding cover to standoffs (7). (Ref. Fig. 3-34)

(4) Tag and remove wires from power supply input terminal power block. (Item 13)

(5) Tag and remove wires from TB (Item 12) for power supply being replaced.

(6) Remove tie down straps holding input/output wiring to power supply.

(7) Remove four screws (8), washers (9), and nuts (10) holding power supply to front panel assembly (11).

(8) Remove power supply from cabinet #B.

b. Installation

(1) Connect power supply to front panel assembly using four screws (8), washers (9), and nuts (10).

(2) Connect tagged wires to TB (Item 12).

(3) Connect tagged wires to input terminal power block. (Item 13)

(4) Place protective cover (5) over power supply and secure to standoffs (7) using four screws (6).

(5) Connect power supply ac power cord to ac power source.

(6) Tie down input/output wiring to power supply, using plastic tie down straps.

(7) Close rear door on PMC cabinet.

(8) Place power supply A switch (Figure 3-33, 2) and power supply B switch (4) to on.

3-28. REPLACE PMC COMMUNICATIONS CABINET + 5 V POWER SUPPLY. (Figure 3-33 and 3-34).

INITIAL SETUP:

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Screwdriver, Flat tip (Item 7, App B) Materials/Parts: 5 vdc Power Supply	Equipment Condition: PMC cabinet doors open General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.

WARNING

When working on high-voltage components, always have an additional person present, and keep one hand away from equipment to reduce hazard of current flowing through vital organs of body. Remove all jewelry from fingers, wrists, and neck before working on electrical components. Failure to do so may result in serious injury or death.

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Place power supply A switch (Figure 3-33, 14) and power supply B switch (Figure 3-33, 10) to off.

(2) Open rear door on PMC cabinet B and remove power supply ac power cord from ac power source.

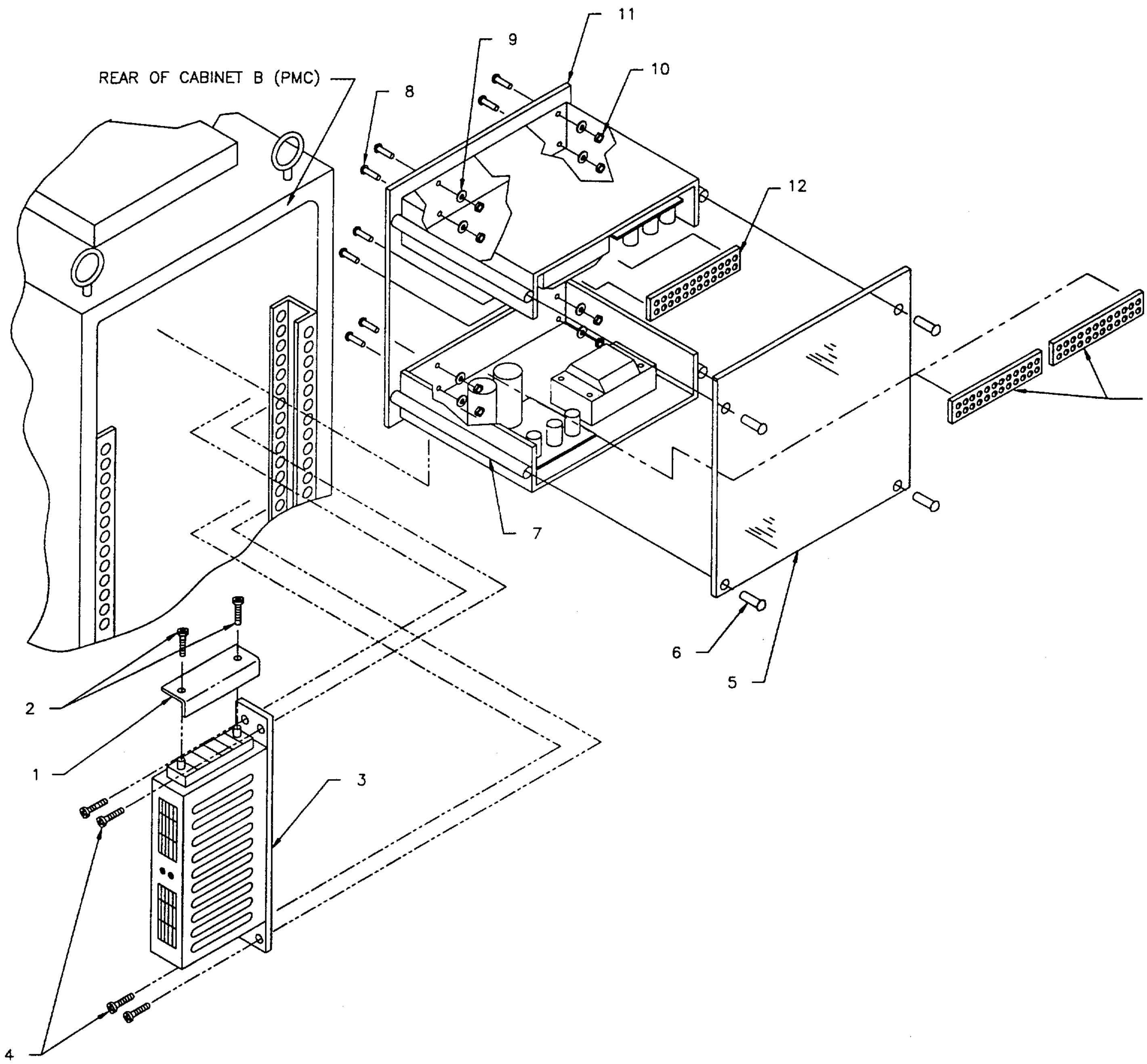


Figure 3-34. PMC 5 vdc and +12 vdc Power Supply Assemblies

(3) Remove protective cover (Figure 3-34, 1) from power supply (3) terminal board by removing two screws (2) holding cover to standoffs.

(4) Tag and remove wires from power supply (3) input terminal board.

(5) Remove four screws (4) holding power supply (3) to side of cabinet B.

b. Installation

(1) Secure power supply (3) to side of cabinet B with four screws (4).

(2) Connect tagged wires to power supply (3) input terminal board.

(3) Replace protective cover (1) over power supply terminal board and secure with two screws (2).

(4) Connect power supply ac power cord to ac power source.

(5) Place power supply A switch (Figure 3-33, 14) and power supply B switch (10) to on.

3-29. REPLACE PMC COMMUNICATIONS CABINET FAN ASSEMBLY. (Figure 3-35).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B)	Equipment Condition: PMC cabinet doors open
Materials/Parts: Fan Assembly	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

When working on high-voltage components, always have an additional person present, and keep one hand away from equipment to reduce hazard of current flowing through vital organs of body. Remove all jewelry from fingers, wrists, and neck before working on electrical components.

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove cover plate (1) on top of cabinet by unscrewing thumb screws (2).

(2) Pry plastic fan guard (3) out of retaining slots with small screw driver.

(3) Remove fan retaining screws (4) from inside cabinet.

(4) Remove wire nuts (5) from wires.

(5) Remove fan (6).

b. Installation

(1) Place fan (6) into position.

(2) Install fan retaining screws (4).

(3) Install wire nuts (5) onto wires.

(4) Carefully flex and place plastic fan guard (3) into retaining slots.

(5) Install cover plate (1) by screwing thumb screws (2).

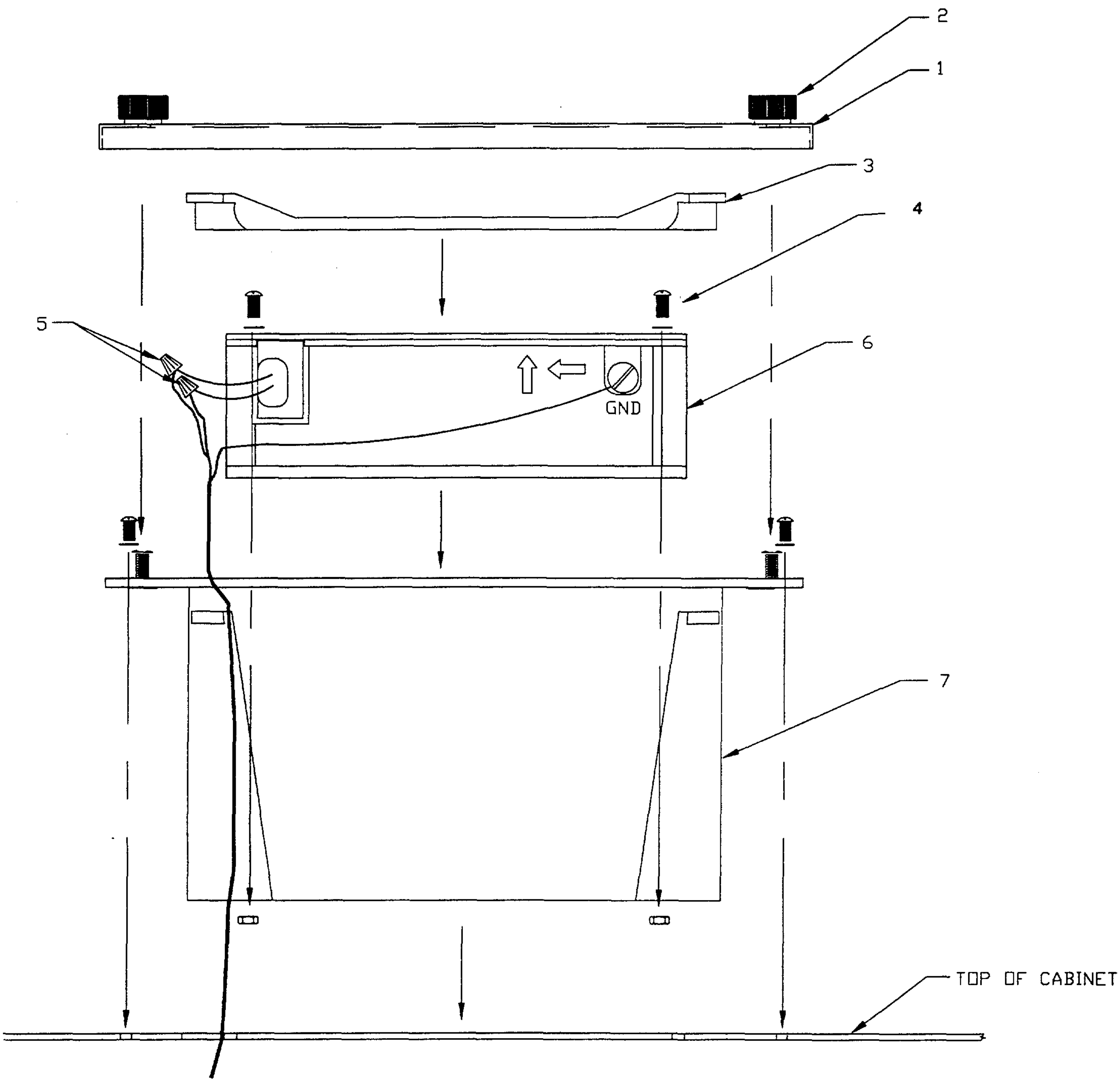


Figure 3-35. PMC Fan Assembly

3-30. REPLACE PMC GANYMEDE B PWA. (See Figure 3-36)

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, flat tip, (Item 6, App B) equipment.	General Safety Instructions: Remove all jewelry while working on
Equipment Condition: Input power removed, Cabinet rear door opened Materials/Parts: Ganymede B PWA	Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove the slip-on terminal board strips from TB-1 (3), TB-2 (2), TB-5 (5) and TB-6 (1).

(2) Remove the Comms cable connector P1 (11) from PWA (4).

(3) Using a flat tip screwdriver, remove the four screws (12) and washers (13) holding the Ganymede B PWA (4) to the side of cabinet.

(4) Place the removed Ganymede B PWA into an ESD protective bag.

b. Installation

(1) Set the link settings and/or switch settings exactly the same as on removed assembly, or refer to Appendix (E page 13) for PWA settings.

(2) Align the Ganymede B PWA (4) mounting holes up with the standoffs and secure with four screws (12) and washers (13).

(3) Connect slip-on terminal strips to TB-1 (3), TB-2 (2), TB-5 (5) and TB-6 (1). (Ensure each terminal strip is properly lined up with terminal pins)

(4) Close the rear access door on cabinet and secure.

3-31. REPLACE PMC LINE INTERFACE UNIT (LIU) PWA. (See Figure 3-36)

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Equipment Condition: Cabinet rear door opened Tools: Screwdriver, flat tip, (Item 6, App B) Materials/Parts: Line Interface Unit PWA	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove ribbon cable from connector P1 (8).

(2) Remove the slip-on terminal block strips from TB-1 (7) and TB-2 (9).

(3) Press out on side of snap track PWA holder (6*) and remove the Line Interface Unit (LIU) PWA (10).

(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Press out on side of smap track PWA holder (6*) and install LIU PWA (10) in snap track alignment slots and release.

(2) Connect ribbon cable to connector P1 (8).

(3) Connect slip-on terminal strip to TB-1 (7) and TB-2 (9).

(4) Close Cabinet rear door and secure.

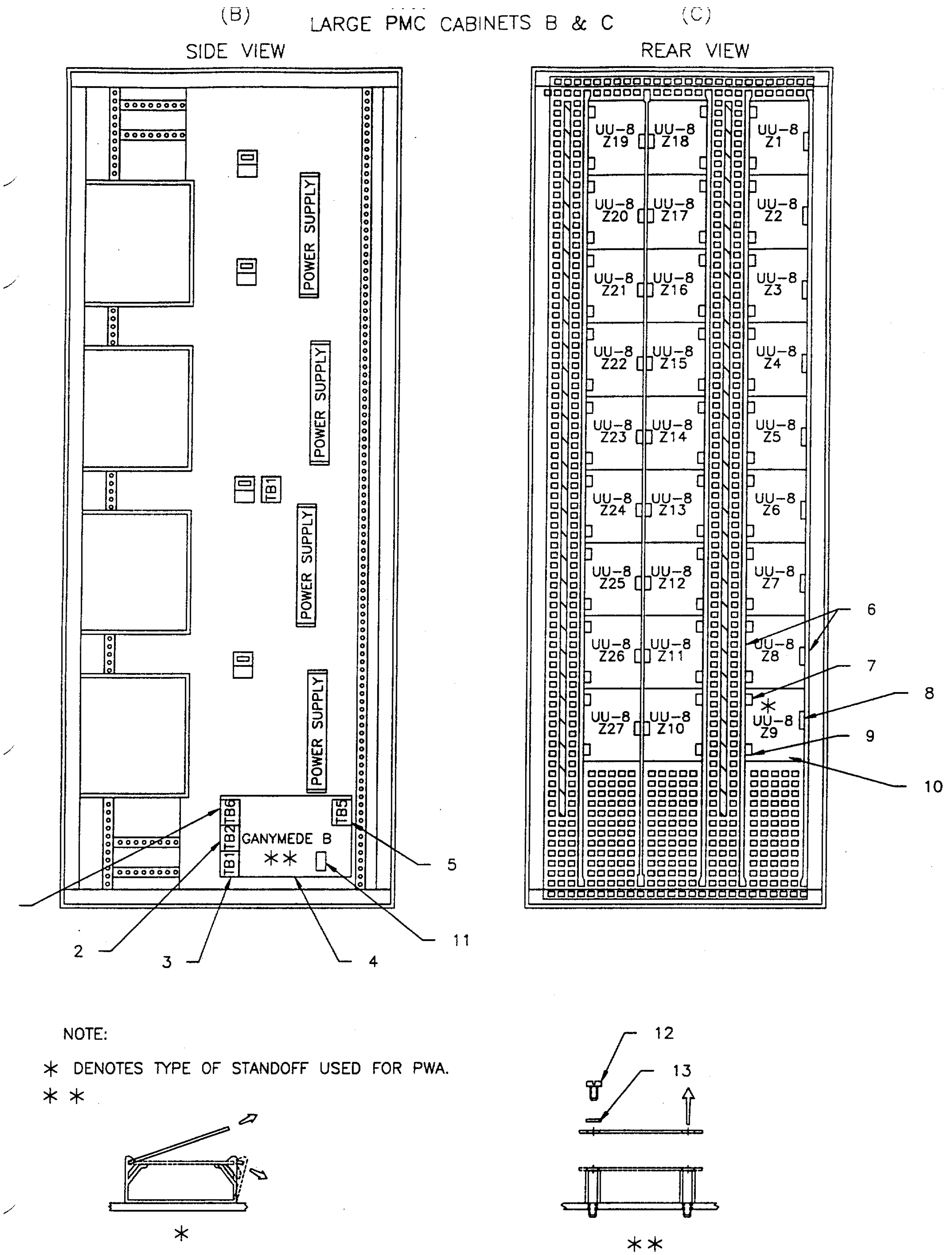


Figure 3-36. Replacement of PMC Ganymede PWA and LIU

3-32. REPLACE PMC 9600 BAUD MODEM. (Figure FO-1).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Equipment Condition: Input power removed Cabinet A rear door opened Materials/Parts: 9600 Baud Modem	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Turn the Modem power switch to off, located on rear of Modem.

(2) Remove audio cable from telset leased line connector on rear or Modem.

(3) Remove the two captive screws holding the RS232 cable to DTE connector on rear of Modem.

(4) Remove the Modem from PMC cabinet A.

b. Installation

(1) Place the Modem in PMC cabinet A.

(2) Connect the RS232 cable to DTE connector and secure with two captive screws.

(3) Connect the audio cable to telset leased line connector.

(4) Connect the AC power cord to AC power source.

(5) Turn the Modem power switch to on.

(6) Set up modem. (Ref. Appendix E, page E-56)

3-33. REPLACE UPS BATTERY(IES).

Due to the specialized requirements for the equipment, refer to the SAIG to determine proper troubleshooting, removal, and replacement procedures.

3-34. REPLACE REMOTE STATUS MONITOR MASTER STATION. (Figure 3-37).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Scow driver, Flat tip (Item 7, App B) Materials/Parts: RSM Assembly.	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Place power on/off switch (14) to off.

(2) Unplug ac power cord from power source.

(3) Tag and remove wires from rear panel on RSM (1).

b. Installation

(1) Connect tagged wires to rear panel connectors on RSM (1).

(2) Plug ac power cord into power source.

(3) Place power on/off switch (14) to on.

NOTE

For replacement of RSM components see paragraphs 3-11, 3-12, 3-13, 3-14, 3-15, 3-16, 3-19, 3-20, 3-21, 3-22, and 3-26.

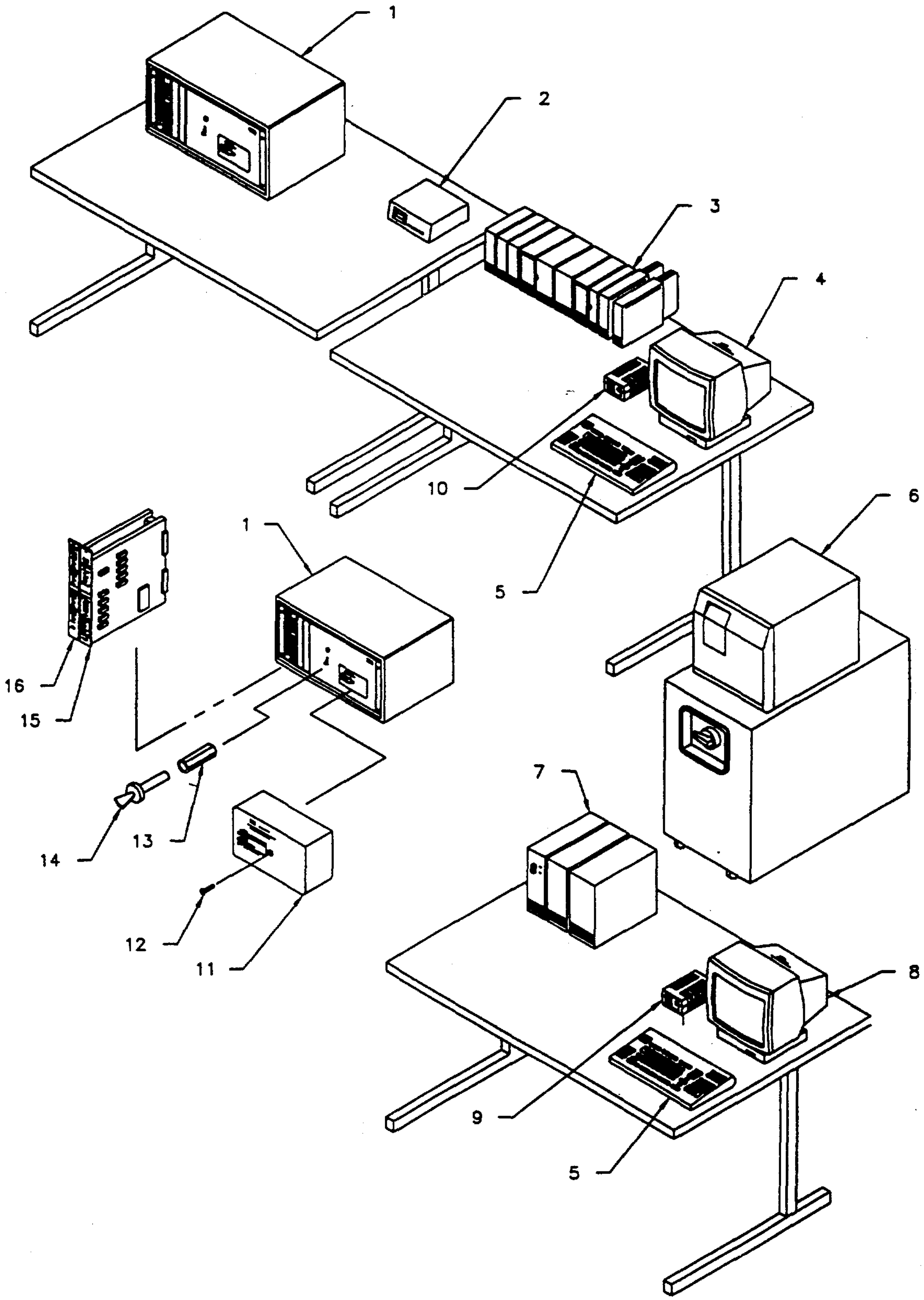


Figure 3-37. Replacement of Remote Status Monitor Master Station

3-35. REPLACE RSM 9600 BAUD MODEM. (See Figure 3-37).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Equipment Condition: Input power removed Materials/Parts: 9600 Baud Modem	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Turn the Modem power switch to off, located on rear of Modem (2).

(2) Remove audio cable from telset leased line connector on rear of Modem (2).

(3) Remove the two captive screws holding the RS232 cable to DTE connector on rear of Modem.

b. Installation

(1) Connect the RS232 cable to DTE connector and secure with two captive screws.

(2) Connect the audio cable to telset leased line connector.

(3) Connect the AC power cord to AC power source.

(4) Turn the Modem (2) power switch to on.

(5) Set up modem. (Ref. Appendix E, page E-57).

3-36. REPLACE RSMA DES MODULE. (Figure 3-37).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Equipment Condition: Input power removed Materials/Parts: RSMA DES Top Module	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Loosen screw (12) holding RSMA DES module (11) to RSM.

(2) Lift up on RSMA DES module (11) and remove from RSM (1).

b. Installation

(1) Enroll the RSMA DES (11) (Ref. Para. 3-133).

(2) Align RSMA DES module (11) up with RSM (1) and gently press down on module to seat connectors.

(3) Secure the RSMA DES module (11) to RSM (1) with screw (12).

(4) Place the RSM (1) power switch (14) to on, wait approximately 1 minute for self test to complete.

(5) Pull out on the RSMA DES module (11) jumper wire in order for the DAS module to synchronize with PMC DES module.

3-37. REPLACE REMOTE AREA DATA COLLECTOR PANEL ASSEMBLY (INTERIOR). (Figure 3-38).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (item 6, App B) Screwdriver, Flat tip (Item 8, App B) Open End Wrench Set (Item 13, App B) Equipment Condition: AC adapter disconnected	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies. Materials/Parts: Remote Area Data Collector (RADC) Assembly

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from enclosure.

(2) Remove slip-on terminal strip from TB1 (14) on Stargate PWA (19).

(3) Tag and remove wires from input side of TB K (11).

(4) Remove phone line input wiring to DLP2 (10) or fiber optic input cables from fiber optic PWA (4).

(5) Using a flat tip screwdriver, remove four screws (16) holding panel assembly (17) to enclosure.

(6) Remove panel assembly (17) from enclosure.

b. Installation

(1) Place panel assembly (17) inside enclosure.

(2) Using a flat tip screwdriver, align and secure panel assembly (17) to enclosure with four round head screws (16).

(3) Connect phone line input wiring to DLP2 (10) or fiber optic cables to fiber optic PWA (4).

(4) Connect tagged wires to input side of TB K (11).

(5) Connect tagged slip-on terminal strip to TB1 on Stargate PWA (19).

(6) Connect AC adapter (35) to power source.

3-37. REPLACE REMOTE AREA DATA COLLECTOR PANEL ASSEMBLY (INTERIOR). (Figure 3-38).
(continued)

(7) Download the RSE data to Stargate 5000 PWA (19). (See paragraph 3-132 for RSE download procedures) and request download from PMC operator.

(8) Place front access cover on enclosure and secure it.

3-38. REPLACE STARGATE 5000 PWA. (Figure 3-38 and FO-4).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools Screwdriver, Flat tip (Item 6, App B) Screwdriver, Flat tip (Item 7, App B) Equipment Condition: AC adapter disconnected Materials/Parts: Stargate 5000 PWA	General Safety Instructions: Remove all jewelry while working on equipment. Wear wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from enclosure.

(2) Remove slip-on terminal strips from TB1, TB7, TB8, TB9, and TB50. (FO-4)

(3) Tag and remove nine pin male connectors from COMMS jack (23) Figure 3-38, AUX 0 jack (21), and AUX 1 jack (20).

(4) Remove green chassis ground wire (22) from PWA (19).

(5) Press in and hold latching mechanism (34) down on each plastic standoff while gently lifting up on PWA. Do this for each of five fasteners until PWA is removed from RADC back panel.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-33.

(2) Align PWA to five latching mechanism (34) and gently press down on each corner of PWA until board locks into place.

(3) Connect green chassis ground wire (22) to PWA (19).

(4) Connect tagged nine pin male connectors to COMMS jack (23), AUX 0 jack (21), and AUX 1 jack (20).

(5) Connect tagged slip-on terminal strip to TB1 (14), TB7, TB8, TB9, and TB50. (FO-4)

(6) Connect AC adapter to power source.

(7) Download the RSE data to Stargate 5000 PWA. (See paragraph 3-132 for RSE download procedures) and request download from PMC operator.

(8) Place front access cover on enclosure and secure it.

3-39. REPLACE LEDA FLEX PWA. (Interior) (Figure 3-38).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.	Equipment Condition: AC adapter disconnected Materials/Parts: Leda Flex PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from enclosure.

(2) Remove slip-on terminal strip from TB7 (24) on PWA (2).

(3) Remove ribbon cable connector P1 (25) from PWA (2).

(4) Remove ribbon cable connector P2 (26) (optional) from PWA (2).

(5) Press out on sides of snap track PWA holder (12) and remove PWA (2).

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-44.

(2) Press out on sides of snap track PWA holder (12) and align and install PWA (2) in snap track slots.

(3) Connect ribbon cable connector P2 (26) (optional) to PWA (2).

(4) Connect ribbon cable connector P1 (25) to PWA (2).

(5) Connect slip-on terminal strip to TB7 (24) on PWA (2).

(6) Connect AC adapter to power source.

(7) Place front access cover on enclosure and secure it.

3-40. REPLACE DATA ENCRYPTION MODULE. (Interior) (Figure 3-38).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Screwdriver, Flat tip (Item 7, App B) Equipment Condition: AC adapter disconnected Materials/Parts: RDES Data encryption module	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from enclosure.

(2) Remove the black wire slip-on terminal lug from negative terminal of 12 vdc battery (9).

(3) Remove input cable from DES module (7).

(4) Using a flat tip screwdriver, loosen captive screw (27) holding programmed DES module (7) to bottom DES assembly.

(5) Pull out on DES module to remove it from lower module interface connector.

b. Installation

(1) Encrypt the new DES module per (paragraph 3-133).

(2) Press in on DES module (7) to connect it with lower module interface connector.

(3) Using a flat tip screwdriver, tighten captive screw (27) to hold programmed DES module (7) to bottom DES assembly.

(4) Connect input cable to lower DES module.

(5) Connect AC adapter to power source.

(6) Connect the black wire slip-on terminal lug to negative terminal of 12 vdc battery (9).

(7) Pull out on jumper wire to allow new DES module (7) to sync with RADC and B39 CPU.

(8) Place front access cover on enclosure and secure it.

3-41. REPLACE AUDIO ASSESSMENT CONTROLLER PWA. (Figure 3-38).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Screwdriver, Flat tip (Item 7, App B) Materials/Parts: Audio assessment controller PWA	Equipment Condition: AC adapter disconnected General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.

a. Removal

(1) Open and remove front access cover from enclosure.

(2) Remove slip-on terminal strip from TB1 and TB2 on PWA (5).

(3) Remove ribbon cable (28) from connector J1.

(4) Press out on sides of snap track (12) PWA holder and remove AAC PWA (5)
.

b. Installation

(1) Press out on sides of snap track (12) PWA holder and install AAC PWA (5) in snap track alignment slots.

(2) Connect ribbon cable (28) to connector J1.

(3) Connect slip-on terminal strip to TB1 and TB2 on PWA (5).

(4) Connect AC adapter to power source.

(5) Place front access cover on enclosure and secure it.

3-42. REPLACE MOD II MODEM PWA. (Interior) (Figure 3-38).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.	Equipment Condition: AC adapter disconnected Materials/Parts: Mod II Modem PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from enclosure.

(2) Remove the black wire slip-on terminal lug from negative terminal of 12 vdc battery (9).

(3) Tag and remove wires from J1 and J2 on Mod II Modem PWA (3).

(4) Press out on sides of snap track PWA holder (12) and remove Mod II Modem PWA (3)
.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-52.

(2) Press out on sides of snap track PWA holder (12) and install Mod II Modem PWA (3) in snap track alignment slots.

(3) Connect the tagged wires to J1 and J2.

(4) Connect the black wire slip-on terminal lug to negative terminal of 12 vdc battery (9).

(5) Connect AC adapter to power source.

(6) Place front access cover on enclosure and secure it.

3-43. REPLACE LEDA FLEX TERMINATION CARD ASSEMBLY. (Interior) (Figure 3-38 and FO-4).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Equipment Condition: AC adapter disconnected Materials/Parts: Leda Flex Termination Card PWA	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from enclosure.

(2) Tag and remove slip-on terminal strip from TB1 through TB8 (FO-4 sheet 4) on PWA (1).

(3) Remove ribbon cable from connector PL1 (29) on PWA (1).

(4) Press out on sides of snap track PWA holder (12) and remove PWA (1).

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-46.

(2) Press out on sides of snap track (12) PWA holder and install PWA (1) in snap track alignment slots.

(3) Connect ribbon cable to connector PL1 (29).

(4) Connect tagged wires to TB1 through TB8 (FO-4 sheet 4).

(5) Connect AC adapter to power source.

(6) Place front access cover on enclosure and secure it.

3-44. REPLACE 12 V BATTERY. (Interior) (Figure 3-38).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Equipment Condition: AC adapter disconnected Materials/Parts: Battery, 12 vdc, 7 AH	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.

a. Removal

(1) Open and remove front access cover from enclosure.

(2) Remove red and black slip-on terminal lugs from positive and negative terminals of 12 v battery (9).

(3) Remove battery from enclosure.

b. Installation

(1) Place 12 v battery (9) in enclosure.

(2) Connect red and black slip-on terminal lugs to positive and negative terminals of 12 v battery.

(3) Connect AC adapter to power source.

(4) Place front access cover on enclosure and secure it.

3-45. REPLACE TAMPER SWITCH.(Interior) (see Figure 3-38).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:

Tools:
Screwdriver, Flat tip (Item 6, App B)

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
Tamper switch

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Replace

(1) Tag and remove the two slip-on connectors (31) from Tamper Switch (30), by holding and pulling out on connectors.

(2) Using a flat tip screwdriver, remove the two screws (33) and flat washers (32) holding Tamper Switch (30) to enclosure.

(3) Remove Tamper Switch from enclosure.

a. Installation

(1) Align Tamper Switch up with enclosure mount (13) and secure with two screws (33) and flat washers (32).

(2) Connect the tagged slip on connectors (31) to Tamper Switch (30).

(3) Connect AC adapter to power source.

(4) Replace enclosure cover and secure.

3-46. REPLACE 20 VDC POWER SUPPLY. (See Figure 3-38).

This task consists of: **a. Remove** **b. Install**

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Equipment Condition: Input power removed Materials/Parts: 20 VDC Power Supply PWA	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Tag and remove wires from 20 vdc power supply (8), TB-1, pins 1 through 6.

(2) Press out on side of snap track assembly holder (12) and remove the 20 vdc power supply (8).

a. Installation

(1) Press out on side of snap track assembly holder (12) and install 20 vdc power supply (8) in snap track alignment slots and release.

(2) Connect the tagged wires to TB-1, pins 1 through 6.

(3) Reconnect the input power to RADC Assembly.

(4) Replace enclosure cover and secure.

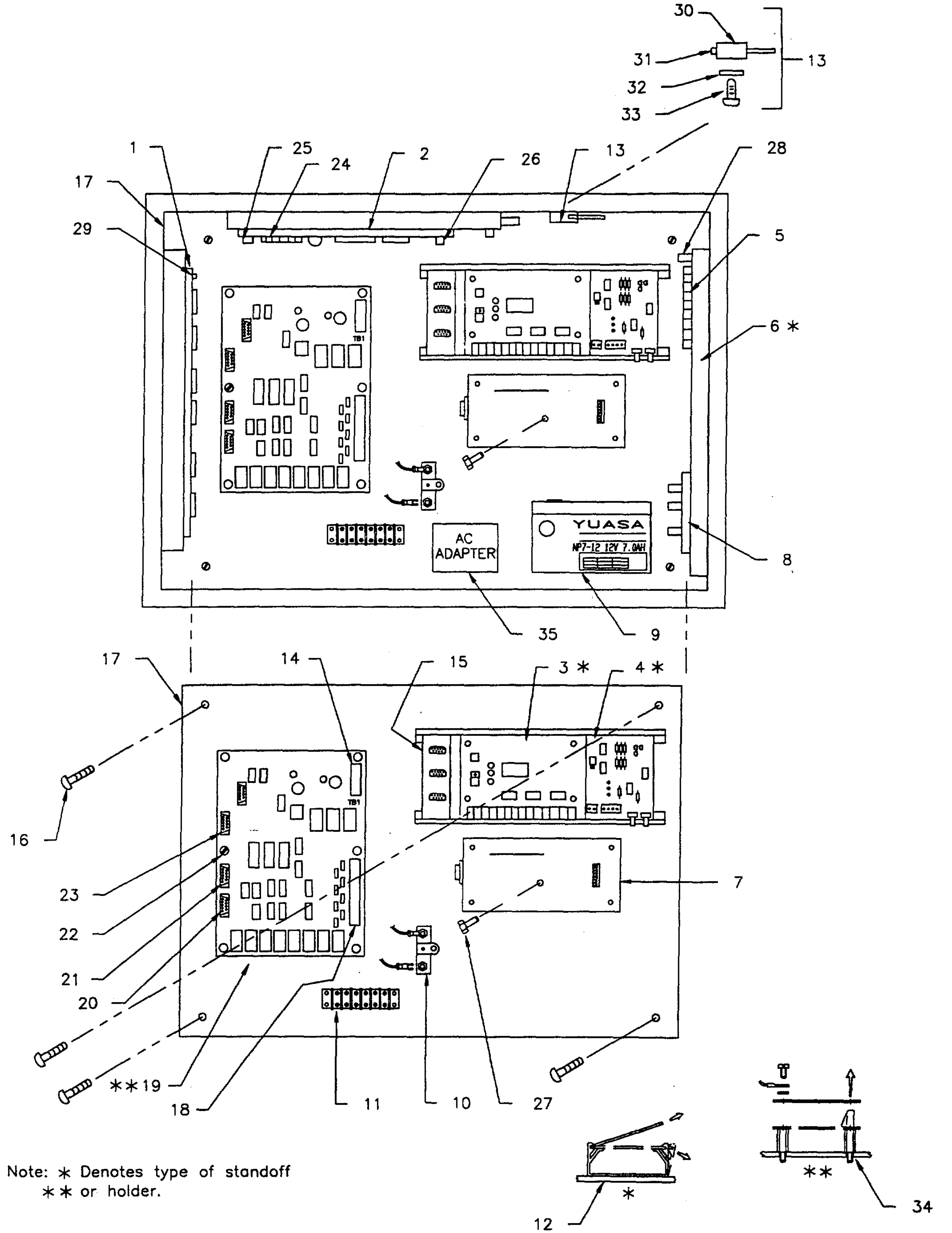


Figure 3-38. Removal and Replacement of interior RADC Assemblies

3-47. REPLACE REMOTE AREA DATA COLLECTOR PANEL ASSEMBLY (EXTERIOR). (Figure 3-39 and FO-6).

This task consists of: a. Remove b. Install

INITIAL SETUP

Tools:
- Screwdriver, Flat tip (Item 6, App B)
- Screwdriver, Flat tip (Item 7, App B)
- Socket Set (Item 11, App B)
- Wire Cutters (Item 24, App B)

Materials/Parts:
- Exterior RADC Assembly

General Safety Instructions:

Remove all jewelry while working on equipment.

Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from NEMA 4 enclosure.

(2) Remove red and black slip-on lugs from 12 v battery (6) and remove battery from enclosure.

(3) Remove ac input power cord from power source.

(4) Remove slip-on terminal strip from TB50 (FO-6 sheet 1) on Stargate PWA (10).

(5) Remove comms cable from DLP2 terminal (8).

(6) Remove four bolts (11) holding panel assembly (1) to NEMA 4 enclosure.

(7) Remove panel assembly (1) from enclosure.

b. Installation

(1) Place panel assembly (1) in NEMA 4 enclosure and secure to standoffs with four bolts.

(2) Connect comms cable to DLP2 terminal (8).

(3) Connect slip-on terminal strip to TB50 (FO-6 sheet 1).

(4) Connect ac input power cord for power receptacle (7) to AC power source.

(5) Place 12 v battery (6) in enclosure and connect red and black slip-on lugs to battery terminals.

(6) Place front access cover on NEMA 4 enclosure and secure it.

(7) Download the RSE data to stargate 5000 PWA (19). (See paragraph 3-132 for RSE download procedures) and request download from PMC Operator.

3-48. REPLACE STARGATE 1000 PWA. (Figure 3-39 and FO-6).

This task consists of: a. Remove b. Install

INITIAL SETUP

Tools:
Screwdriver, Flat tip (Item 6, App B)
Screwdriver, Flat tip (Item 7, App B)

Equipment Condition:
AC adapter disconnected

Materials/Parts:
Stargate 1000 PWA

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from NEMA 4 enclosure.

(2) Remove slip-on terminal strip from TB1, TB7, TB8, TB9, and TB50 (FO-6, sheet 1) on Stargate PWA (10).

(3) Tag and remove nine pin male connectors from COMMS jack and AUX 0 jack (FO-6, sheet 1) on Stargate PWA (10).

(4) Remove green chassis ground wire (17) from stargate 1000 PWA.

(5) Press in and hold latching mechanism (**) down on each plastic standoff while gently lifting up on PWA. Do this for each of five fasteners until PWA is removed from RADC back panel.

b. Installation

(1) Set the link settings and/or switch setting exactly the same as removed assembly or refer to Appendix E, page E-33.

(2) Align PWA to five latching mechanism (**) and gently press down on each comer of PWA until PWA (10) locks into place.

(3) Connect green chassis ground wire (17) to stargate 1000 PWA (10).

(4) Connect tagged nine pin male connectors to COMMS jack and AUX 0 jack (FO-6, sheet 1).

(5) Connect slip-on terminal strip to TB1, TB7, TB8, TB9, and TB50 (FO-6, sheet 1).

(6) Connect AC adapter to power source.

(7) Download the RSE data to Stargate 1000 PWA (10). (See paragraph 3-132 for RSE download procedures) and request download from PMC operator.

(8) Place front access cover on NEMA 4 enclosure and secure it.

3-49. REPLACE LEDA FLEX PWA. (Exterior) (Figure 3-39 and FO-6, sheet 1).

This task consists of: a. Remove b. Install

INITIAL SETUP

Tools:
Screwdriver, Flat tip (Item 6, App B)

Equipment Condition:
AC adapter disconnected

Materials/Parts:
Leda Flex PWA

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from NEMA 4 enclosure.

(2) Remove slip-on terminal strip from TB7 (FO-6, sheet 1) on PWA (2).

(3) Remove ribbon cable connector P1 (FO-6, sheet 1) from PWA (2).

(4) Remove ribbon cable connector P2 (FO-6, sheet 1) from PWA (2).

(5) Press out on side of snap track PWA holder (*) and remove Leda Flex PWA (2) from snap track alignment slots.

b. Installation

(1) Set the link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-44.

(2) Press out on sides of snap track PWA holder (*) and install Leda Flex PWA (2) into snap track alignment slots.

(3) Connect ribbon cable connector P2 to PWA.

(4) Connect ribbon cable connector P1 to PWA.

(5) Connect slip-on terminal strip to TB7 on PWA.

(6) Connect AC adapter to power source.

(7) Place front access cover on NEMA 4 enclosure and secure it.

3-50. REPLACE MOD II MODEM PWA. (Exterior) (Figure 3-39 and FO-6 sheet 2).

This task consists of: a. Remove b. Install

INITIAL SETUP

Tools:
Screwdriver, Flat tip (Item 6, App B)

Equipment Condition:
AC adapter disconnected

Materials/Parts:
Mod II Modem PWA

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from NEMA 4 enclosure.

(2) Remove black wire slip-on lug from 12 vdc battery (6).

(3) Tag and remove wires from J1 and J2 (FO-6, sheet 2) on Mod II Modem PWA (9).

(4) Press out on side of snap track PWA holder (*) and remove Mod II Modem PWA (9) from snap track alignment slots.

b. Installation

(1) Set the link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-52, for PWA settings.

(2) Press out on sides of snap track PWA holder and install Mod II Modem PWA (9) into snap track alignment slots.

(3) Connect tagged wires to J1 and J2 (FO-6, sheet 2).

(4) Connect black wire slip-on terminal lug to 12 vdc battery (6).

(5) Connect AC adapter to power source.

(6) Place front access cover on NEMA 4 enclosure and secure it.

3-51. REPLACE LEDA FLEX TERMINATION CARD PWA. (Figure 3-39 and FO-6, sheet 4).

This task consists of: a. Remove b. Install

INITIAL SETUP

Tools:
Screwdriver, Flat tip (Item 6, App B)

Equipment Condition:
AC adapter disconnected

Materials/Parts:
Leda Flex Termination Card PWA

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while handling electronic assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from NEMA 4 enclosure.

(2) Tag and remove slip-on terminal strip from TB1 through TB8 (FO-6, sheet 4) on Terminator Card PWA (3).

(3) Remove ribbon cable from connector PL1 (FO-6, sheet 4) on Terminator Card PWA (3).

(4) Press out on side of snap track PWA holder (*) and remove Terminator Card PWA (3) from snap track alignment slots.

b. Installation

(1) Set the link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-46, for PWA setting.

(2) Press out on sides of snap track PWA holder (*) and install Terminator Card PWA (3) into snap track alignment slots.

(3) Connect ribbon cable to connector PL1 (FO-6, sheet 4).

(4) Connect tagged wires to TB1 through TB8 (FO-6, sheet 4).

(5) Connect AC adapter to power source.

(6) Place front access cover on NEMA 4 enclosure and secure it.

3-52. REPLACE HEATER ASSEMBLY. (Figure 3-39 and FO-6, sheet 1).

This task consists of: a. Remove b. Install

INITIAL SETUP

Tools:
Screwdriver, Flat tip (Item 6, App B)
Screwdriver, Flat tip (Item 7, App B)

Materials/Parts: (110 VAC PN# 3569-H99)
Heater assembly (220 VAC PN# 5723-H99)

Equipment Condition:
AC adapter disconnected

General Safety Instructions:
Remove all jewelry while working on equipment.

WARNING

When working on high-voltage components, always have an additional person present, and keep one hand away from equipment to reduce hazard of current flowing through vital organs of body. Remove all jewelry from fingers, wrists, and neck before working on electrical components.

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from NEMA 4 enclosure.

(2) Remove ac input power cord for power receptacle (7) from AC power source.

(3) Remove four screws (18), holding heater assembly cover (19) to panel assembly (1).

(4) Remove two ac input power wires from heater assembly (5).

(5) Using a flat tip screwdriver, remove two screws holding heater assembly (5) to panel assembly (1).

(6) Remove heater assembly from enclosure.

b. Installation

CAUTION

Be sure replacement heater is rated at same voltage as the removed one.

(1) Place heater assembly in enclosure.

(2) Align heater assembly with rear panel, and secure it with two screws.

(3) Connect two ac input power wires to heater assembly (5).

(4) Align heater assembly cover (19) with rear panel, and secure with four screws (18).

(5) Connect ac input power cord for power receptacle (7) to AC power source.

(6) Connect AC adapter to power source.

(7) Place front access cover on NEMA 4 enclosure and secure it.

3-53. REPLACE 18 VAC ADAPTER.(Exterior) (Figure 3-39 and FO-6, sheet 1).

This task consists of: a. Remove b. Install

INITIAL SETUP

Tools:
Screwdriver, Flat tip (Item 6, App B)
Wire Cutters (Item 24, App B)

Materials/Parts:
18 vac adapter

Equipment Condition:
AC adapter disconnected

General Safety Instructions:
Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from NEMA 4 enclosure.

(2) Remove ac adapter (12) from ac outlet power receptacle (7).

(3) Disconnect adapter wires from Stargate 1000 PWA (10) TB1 pins 1 and 2.

(4) Remove ac adapter (12) from RADC enclosure.

b. Installation

(1) Place ac adapter (12) in RADC enclosure.

(2) Connect ac adapter two input wires to Stargate 1000 PWA (10) TB1 pins 1 and 2.

(3) Plug in ac adapter (12) to ac outlet power receptacle (7).

(4) Place front access cover on NEMA 4 enclosure and secure it.

3-54. REPLACE 12 V BATTERY.(Exterior) (Figure 3-39).

This task consists of:	a. Remove	b. Install

INITIAL SETUP

Materials/Parts:
12 v Battery, 7 AH

Equipment Condition:
AC adapter disconnected

General Safety Instructions:
Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from NEMA 4 enclosure.

(2) Remove red and black slip-on terminal lugs from positive and negative terminals of 12 vdc battery (6).

(3) Remove battery from enclosure.

b. Installation

(1) Place 12 vdc battery (6) in enclosure.

(2) Connect red and black slip-on terminal lugs to positive and negative terminals of 12 vdc battery.

(3) Connect AC adapter to power source.

(4) Place front access cover on NEMA 4 enclosure and secure it.

3-55. REPLACE TAMPER SWITCH.(Exterior) (See Figure 3-39).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Flat tip screwdriver (Item 6, App B)

Materials/Parts:
Tamper switch

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Replace

(1) Tag and remove the two slip-on connectors (14) from Tamper Switch (13), by holding and pulling out on connectors.

(2) Using a flat tip screwdriver, remove the two screws (16) and flat washers (15) holding and Tamper Switch (13) to enclosure.

(3) Remove Tamper Switch from enclosure.

b. Installation

(1) Align Tamper Switch up with enclosure mount and secure with two screws (16) and flat washers (15).

(2) Connect the tagged wires and connectors (14) to Tamper Switch (13).

(3) Connect AC adapter to power source.

(4) Replace enclosure cover and secure.

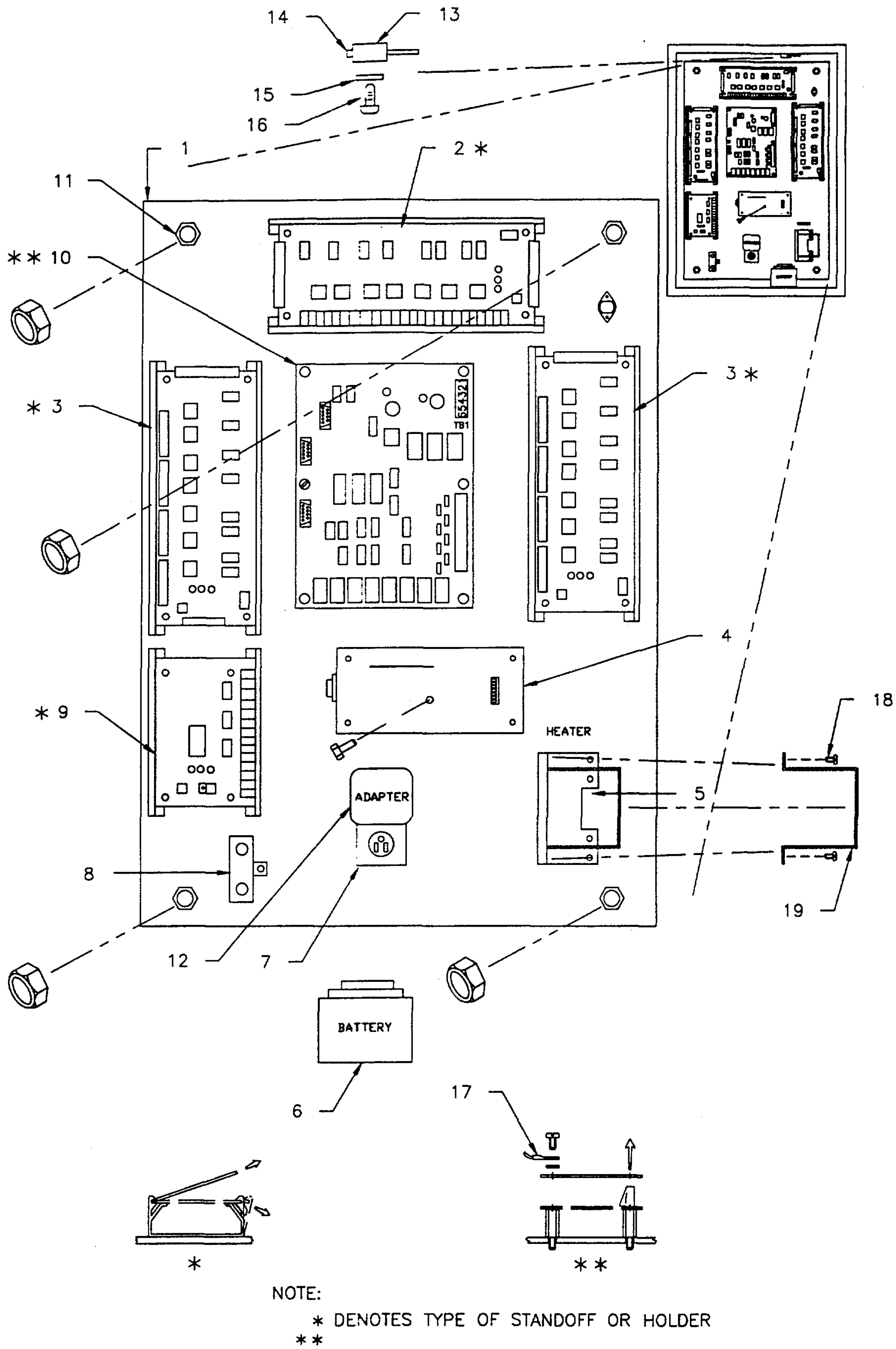


Figure 3-39. Removal and Replacement of Exterior RADC Assemblies

3-56. REPLACE RADC, 12vdc, 8 POINTS, INTERIOR, DEPOPULATED ASSEMBLY.
(Figure 3-40 and 3-3).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
AC Adapter disconnected
Enclosure cover removed

Tools:
Screwdriver, Flat tip (Item 6, App B)
Screwdriver, Flat tip (Item 7, App B)
Open end wrench set (Item 14, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
8 Point RADC Assembly

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Using a flat tip screwdriver, remove AC input wires from Stargate 5000 PWA (1) TB-1 (2) pins 1 and 2.

(2) Remove red and black wires slip-on terminal lugs from positive and negative terminals (26) of 12 vdc battery (25).

(3) Using an open wrench, remove the telephone line comms cable from DPL2 terminals (13) by loosening the two nuts (12) on DPL2 terminal connectors.

(4) Tag wires on Terminal Board K (17) output. Remove using a flat tip screwdriver to loosen screws holding wires in place.

(5) Using a flat tip screwdriver, remove the four screws (7) holding RADC panel assembly (8) to enclosure and remove.

b. Installation

(1) Align the RADC panel assembly (8) up with enclosure standoffs, and secure with four screws (7).

(2) Connect wires to Terminal Board K (17) and secure by tightening the screws on terminal board.

(3) Connect the telephone line comms cable to DPL2 terminals (13) and secure with nuts (12).

(4) Connect the AC input wires to TB-1 (2) pins 1 and 2.

(5) Connect AC adapter to power source.

(6) Connect red and black wires slip-on terminal lugs to positive and negative terminals (26) of 12 vdc battery (25).

(7) Download the RSE data to Stargate 5000 PWA (1). (See paragraph 3-138 for RSE download procedures)

(8) Place front access cover on enclosure and secure.

3-57. REPLACE STARGATE 5000 PWA. (Figure 3-40).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
AC Adapter disconnected
Enclosure cover removed

Tools:
Screwdriver, Flat tip (Item 6, App B)
Screwdriver, Flat tip (Item 7, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
Stargate 5000 PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Tag and remove cable connectors from Comms jack (24), AUX-0 jack (23), and AUX-1 jack (22) by lifting straight up on connectors.

(2) Remove slip-on terminal strips from TB-50 (21), TB-7 (20), TB-8 (19), TB-9 (18), and TB-1 (2) by lifting up on terminal strips.

(3) Using a flat tip screwdriver remove the green ground wire (14) and screw (15) from the Stargate 5000 PWA (1).

(4) Press in and hold latching mechanism (16) down, while gently lifting up on PWA (1). Do this for each of five fasteners until PWA can be removed from standoffs.

(5) Place the removed Stargate PWA (1) into a ESD protective bag.

b. Installation

(1) Set the Link Setting and/or Switch Setting exactly the same as removed assembly or refer to Appendix E, page E-33.

(2) Place the Stargate PWA (1) on plastic standoffs and gently press down on PWA until each of the latching mechanism (16) locks into place.

(3) Connect green ground (14) wire to Stargate PWA using removed screw (15).

(4) Connect slip-on terminal strips to TB-1 (2), TB-7 (20), TB-8 (17), and TB-9 (18). (Ensure each terminal strip is properly lined up with terminal pins)

(5) Connect the tag nine pin male connectors to Comms jack (24), AUX-0 jack (23), and AUX-1 jack (22).

(6) Connect AC adapter to power source.

(7) Download the RSE data to stargate 5000 PWA (1). (See Para. 3-132 for RSE download procedures) Request download from PMC operator.

(8) Place front access cover on enclosure and secure.

3-58. REPLACE MOD 2 MODEM PWA. (Figure 3-40).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
AC Adapter disconnected
Enclosure cover removed

Tools:
Wire cutters (Item 24, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
Mod II Modem PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove the black wire slip-on terminal lug from 12 vdc battery (25).

(2) Tag and remove wires from J1 (11) and J2 (10) by lifting up on terminal strips.

(3) Press out on one side of snap track PWA holder (e) and remove the Mod 2 Modem PWA (9) from snap track PWA holder slots.

(4) Place the removed PWA into ESD protective bag.

b. Installation

(1) Set the Link Setting and/or Switch Setting exactly the same as removed assembly or refer to Appendix E, page E-52, PWA settings.

(2) Press out on sides of snap track PWA holder (e) and install Mod 2 Modem (9) in snap track alignment slots and release.

(3) Connect the tagged wires to J1 (11) and J2 (10).

(4) Connect AC adapter to power source.

(5) Connect the black wire slip-on terminal lug to 12 vdc battery (25).

(6) Place front access cover on enclosure and secure.

3-59. REPLACE 18 VAC ADAPTER. (Figure 3-40 and FO-7).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
AC Adapter disconnected from power source
Enclosure cover removed

Tools:
Screwdriver, Flat tip (Item 6, App B)
Wire cutters (Item 24, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.
Wear ESD wriststrap while working on equipment.

Materials/ Parts:
Tie Wraps (App D, item 13)
18 VAC Adapter

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Using a flat tip screwdriver, loosen the two screws on TB-1 (2) pins 1 and 2 and remove the two AC adapter input wires (FO-7).

(2) Cut the plastic tie wraps (as necessary) and remove the AC adapter wires from enclosure (FO-7).

b. Installation

(1) Run the AC adapter wires through enclosure cable inlets and connect to TB-1 (2) pins 1 and 2 (FO-7).

(2) Use plastic tie wraps to lace the Ac adapter input wires to panel assembly (8).

(3) Connect AC adapter to power source.

(4) Place front access cover on enclosure and secure.

3-60. REPLACE 12 VDC BATTERY. (Figure 3-40).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Enclosure cover removed

Materials/Parts:
12 VDC battery

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove red and black wires slip-on terminal lugs from positive and negative terminals (26) of 12 vdc battery (25).

(2) Remove battery from enclosure.

b. Installation

(1) Place the 12 vdc battery (25) in enclosure.

(2) Connect red and black wires slip-on terminal lugs to positive and negative terminals (26) of 12 vdc battery (25).

(3) Connect AC adapter to power source.

(4) Place front access cover on enclosure and secure.

3-61. REPLACE RADC ENCLOSURE TAMPER SWITCH. (Figure 3-40).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Enclosure cover removed

Tools:
Screwdriver, Flat tip (Item 6, App B)

Materials/Parts:
Tamper switch

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove the two slip-on terminal lugs (4) from the tamper switch (3).

(2) Using a flat tip screwdriver remove the two screws (6) and washers (5) holding the tamper switch (3) to enclosure mount.

b. Installation

(1) Align the tamper switch (3) up with enclosure mount and secure with two screws (6) and washers (5).

(2) Connect the slip-on terminal lugs to tamper switch terminals (4) common and normal open (NO).

(3) Connect AC adapter to power source.

(4) Place front access cover on enclosure and secure.

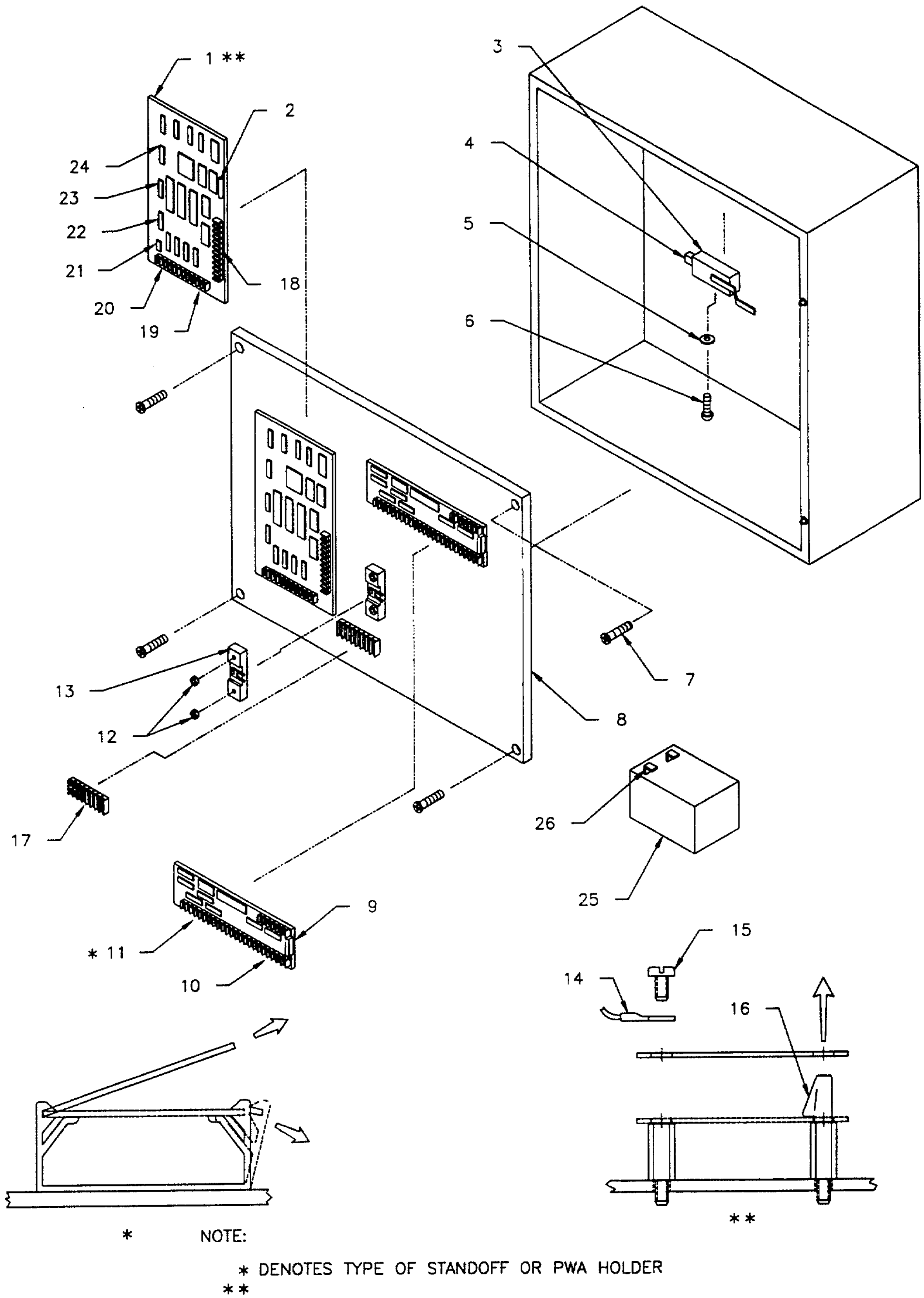


Figure 3-40. Removal and Replacement RADC, 12 VDC, 8 Points, Interior Assemblies

3-62. REPLACE 12 VDC, 12 POINTS, INTERIOR SUB-RADC (LEDA) WITH POWER SUPPLY. (See Figure 3-41).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, flat tip, (Item 6, App B)
Screwdriver, flat tip, (Item 7, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
12 Point Sub-RADC (Leda) /w Power Supply Assembly

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Using a flat tip screwdriver, loosen three screws on input power terminal (24), and remove the three input power cord leads.

(2) Remove the two slip-on terminals from the battery (12) positive and negative terminal connections.

(3) Tag the two wires from tamper switch (6) and remove from Leda Flex PWA TB-7 (3) pins 2 and 3.

(4) Using a flat tip screwdriver, loosen the screws on Leda Flex PWA TB-7 (3), pins 4 and 5. Tag and remove the two data wires.

(5) Using a flat tip screwdriver, remove the five screws (9) holding the Leda Panel Assembly (10) to enclosure and remove the Leda Panel Assembly (10).

b. Installation

(1) Set the link settings and/or switch settings exactly the same as removed assembly or refer to Appendix E, page E-44.

(2) Align the Leda Panel Assembly mounting holes up with the enclosure standoffs and secure with five screws (9).

(3) Connect the two tagged data wires to Leda Flex PWA (2), TB-7 (3), pins 4 and 5.

(4) Connect the two tagged wires from tamper switch (6) to Leda Flex PWA TB-7 (3) pins 2 and 3.

(5) Connect the two slip-on terminals to the battery (12) positive and negative terminal connections.

3-62. REPLACE 12 VDC, 12 POINTS, INTERIOR SUB-RADC (LEDA) WITH POWER SUPPLY. (See Figure 3-41). (continued)

(6) Connect the three input power cord leads to input power terminal (24) and secure using a flat tip screwdriver.

(7) Reconnect input power.

(8) Replace enclosure cover and secure.

3-63. REPLACE LEDA FLEX PWA. (See Figure 3-41).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
Leda Flex PWA

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove slip-on terminal strip from TB-7 (3).

(2) Remove ribbon cable (4) from connector P1.

(3) Press out on side of snap track PWA holder (e) and remove the Leda Flex PWA (2).

(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Set the link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-44.

(2) Press out on side of snap track PWA holder (e) and install Leda Flex PWA (2) in snap track alignment slots and release.

(3) Connect ribbon cable (4) to connector P1.

(4) Connect slip-on terminal strip to TB-7 (3).

(5) Reconnect input power.

(6) Replace enclosure cover and secure.

3-64. REPLACE LEDA FLEX TERMINATION PWA. (See Figure 3-41).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
Leda Flex Termination card PWA

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove ribbon cable (4) from Leda Flex Termination PWA (1) connector PL1.

(2) Remove the slip-on terminal board strips from TB-1 through TB-6 (22), TB-7 (21) and TB-8 (20).

(3) Press out on side of snap track PWA holder (e) and remove the Leda Flex Termination PWA (1).

(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-46.

(2) Press out on side of snap track PWA holder (e) and install Leda Flex Termination PWA (1) in snap track alignment slots and release.

(3) Connect the slip-on terminal board strips to TB-1 through TB-6 (22), TB-7 (21) and TB-8 (20).

(4) Connect ribbon cable (4) to Leda Flex Termination PWA connector PL1.

(5) Reconnect input power.

(6) Replace enclosure cover and secure.

3-65. REPLACE 12 VDC POWER SUPPLY. (See Figure 3-41 and Figure 3-4).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, flat tip, (Item 6, App B)
Screwdriver, flat tip, (Item 7, App B)
Screwdriver, offset flat tip, (Item 43, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
12VDC Power Supply

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Using a flat tip screwdriver, remove the gray wire, connected to power supply (17) transformer, from the input power block terminal 4 (24) output side (Figure 3-4).

(2) Using a flat tip screwdriver, remove the white wire, connected to power supply (17) transformer, from the input power block terminal 3 (24) output side (Figure 3-4).

(3) Remove the two slip-on terminals from the battery (12) positive and negative terminal connections.

(4) Tag and remove three wires from the Rectifier Assembly (19) slip-on terminal connectors.

(5) Tag and remove the AC failure wire from Leda Flex Termination PWA (1), TB-6 (22).

(6) Using an offset flat tip screwdriver, remove the upper screw (13) and washer (14) from power supply assembly (17).

(7) Using a flat tip screwdriver, remove the lower screw (15) and washer (16) from power supply assembly (17) and remove power supply.

b. Installation

(1) Align power supply (17) up with holes in Leda panel assembly (10) and secure to panel using two screws (13 and 15) and washers (14 and 16).

(2) Connect the tagged wires to Rectifier Assembly (19) slip-on terminal connectors.

(3) Connect the two slip-on terminals to the battery (12) positive and negative terminal connections.

(4) Using a flat tip screwdriver, connect the gray wire, connected to power supply transformer, to the input power block terminal 4 (24) output side (Figure 3-4).

3-65. REPLACE 12 VDC POWER SUPPLY. (See Figure 3-41 and Figure 3-4). (continued)

(5) Using a flat tip screwdriver, connect the white wire, connected to power supply transformer, to the input power block terminal 3 (24) output side (Figure 3-4).

(6) Connect tagged AC failure wire to Leda Flex Termination PWA (1), TB-6 (22).

(7) Reconnect input power.

(8) Replace enclosure cover and secure.

3-66. REPLACE RECTIFIER ASSEMBLY. (See Figure 3-41).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
Grease, non-conductive (Item 6, App D)
Wiping rags (Item 9, App D)
Rectifier assembly

General Safety instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Tools:
Screwdriver, flat tip, (Item 7, App B)

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove the slip-on terminal connectors from Rectifier Assembly (19).

(2) Using a flat tip screwdriver, remove screw (18) and washer holding Rectifier Assembly (19) to Leda panel assembly (10) and remove.

(3) Clean non-conductive grease from Leda panel assembly (10) with wiping rags.

b. Installation

(1) Place non-conductive grease on back of Rectifier Assembly (19).

(2) Align Rectifier Assembly (19) up with hole in Leda panel assembly (10) and secure with screw (18) and washer.

(3) Connect the slip-on terminal connectors to Rectifier Assembly terminals (19).

(4) Reconnect input power.

(5) Replace enclosure cover and secure.

3-67. REPLACE 12 VDC BATTERY. (See Figure 3-41).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
12 vdc battery

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove the two slip-on terminals from Battery (12) positive and negative terminals.

(2) Remove Battery (12) in bottom of enclosure.

b. Installation

(1) Place Battery (12) in bottom of enclosure.

(2) Connect the two slip-on terminals to Battery (12) positive and negative terminals.

(3) Reconnect input power.

(4) Replace enclosure cover and secure.

3-68. REPLACE TAMPER SWITCH. (See Figure 3-41).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
Tamper switch

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Tag and remove the two slip-on connectors (5) from Tamper Switch (6), by holding and pulling out on connectors.

(2) Using a flat tip screwdriver, remove the two screws (8) and flat washers (7) holding Tamper Switch (6) to enclosure.

(3) Remove Tamper Switch (6) from enclosure.

b. Installation

(1) Align Tamper Switch (6) up with enclosure mount (23) and secure with two screws (8) and flat washers (7).

(2) Connect the tagged wires and connectors (5) to Tamper Switch (6).

(3) Reconnect input power.

(4) Replace enclosure cover and secure.

3-69. REPLACE IN-LINE FUSE. (See Figure 3-41).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed.

Tools:
Screwdriver, flat tip, (Item 6, App B).

Materials/Parts:
Fuse, 1 AMP, 250 VAC

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open the In-line Fuse Holder located on input power terminal board (24).

(2) Using the flat tip screwdriver, gently lift up on fuse (11) and remove fuse from power terminal (24).

b. Installation

(1) Align fuse (11) on power terminal (24) and gently press down on fuse, until fuse locks into place.

(2) Close the In-line fuse holder on power terminal (24).

(3) Reconnect input power.

(4) Replace enclosure cover and secure.

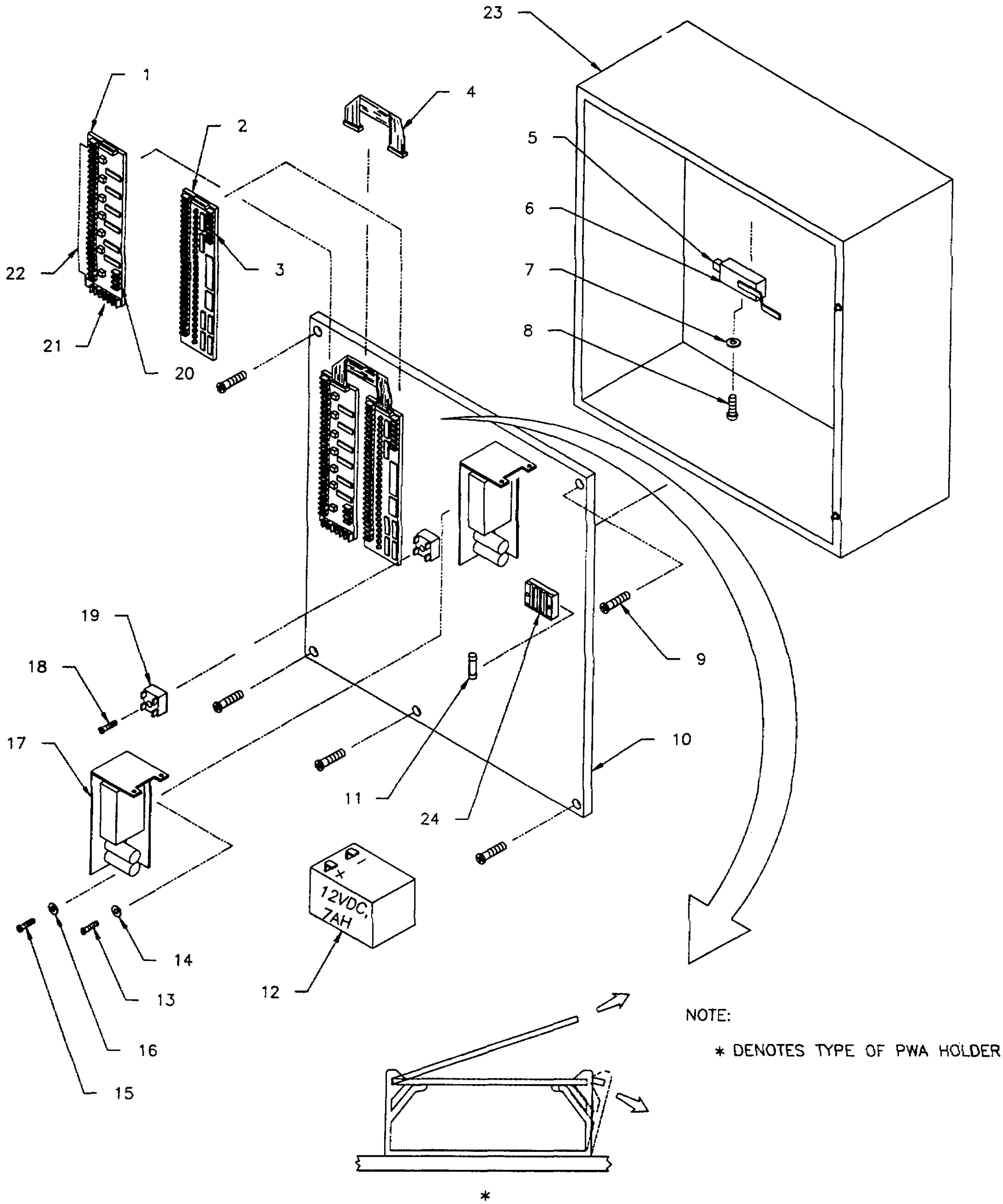


Figure 3-41. Removal and Replacement of SubRADC (Leda), with Power Supply, Interior Assemblies

3-70. REPLACE 12 VDC, 12 POINTS, INTERIOR SUB-RADC (LEDA). (See Figure 3-42).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, flat tip, (Item 6, App B)
Screwdriver, flat tip, (Item 7, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment

Materials/Parts:
12 point Sub-RADC (Leda) Assembly

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove slip on terminal strip from TB-7 (3).

(2) Remove slip on terminal strips (12), (11) and (10) from Leda Flex termination PWA (1).

(3) Using a flat tip screwdriver, remove the five screws (9) holding the Leda Panel Assembly (13) to enclosure and remove the Leda Panel Assembly (13).

b. Installation

(1) Align the Leda Panel Assembly (13) mounting holes up with the enclosure standoffs and secure with five screws (9).

(2) Reconnect slip on terminal strip to Leda Flex PWA TB-7 (3).

(3) Connect the slip on terminal strips (12), (11) AND (10) to Leda Flex termination PWA.

(4) Replace enclosure cover and secure.

3-71. REPLACE LEDA FLEX PWA. (See Figure 3-42).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed.

Materials/Parts:
Leda Flex PWA.

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove slip-on terminal strip from TB-7 (3).

(2) Remove ribbon cable (4) from Leda Flex (2) connector P1.

(3) Press out on side of snap track PWA holder (-) and remove the Leda Flex PWA (2).

(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-44.

(2) Press out on side of snap track PWA holder (e) and install Leda Flex PWA (2) in snap track alignment slots and release.

(3) Connect ribbon cable (4) to Leda Flex PWA connector P1.

(4) Connect slip-on terminal strip to TB-7 (3).

(5) Replace enclosure cover and secure.

3-72. REPLACE LEDA FLEX TERMINATION PWA. (See Figure 3-42).

This task consists of: a. Remove b. Install

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed.

Materials/Parts:
Leda Flex Termination PWA.

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove ribbon cable (4) from Leda Flex Termination PWA (1) connector PL1.

(2) Remove the slip-on terminal board strips from TB-1 through TB-6 (12), TB-7 (11) and TB-8 (10).

(3) Press out on side of snap track PWA holder (e) and remove the Leda Flex Termination PWA (1).

(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-46.

(2) Press out on side of snap track PWA holder (-) and install Leda Flex Termination PWA (1) in snap track alignment slots and release.

(3) Connect the slip-on terminal board strips to TB-1 through TB-6 (12), TB-7 (11) and TB-8 (10).

(4) Connect ribbon cable (4) to Leda Flex Termination PWA (1) connector PL1.

(5) Reconnect input power.

(6) Replace enclosure cover and secure.

3-73. REPLACE TAMPER SWITCH. (See Figure 3-42).

This task covers:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
Tamper switch

General Safety Instructions:
Remove all jewelry while working on equipment.
Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Tag and remove the two slip-on connectors (5) from Tamper Switch (6), by holding and pulling out on connectors.
(2) Using a flat tip screwdriver, remove the two screws (8) and flat washers (7) holding Tamper Switch (6) to enclosure.
(3) Remove Tamper Switch from enclosure.

b. Installation

(1) Align Tamper Switch (6) up with enclosure mount (13) and secure with two screws (8) and flat washers (7).
(2) Connect the tagged wires and connectors (5) to Tamper Switch (6).
(3) Reconnect input power.
(4) Replace enclosure cover and secure.

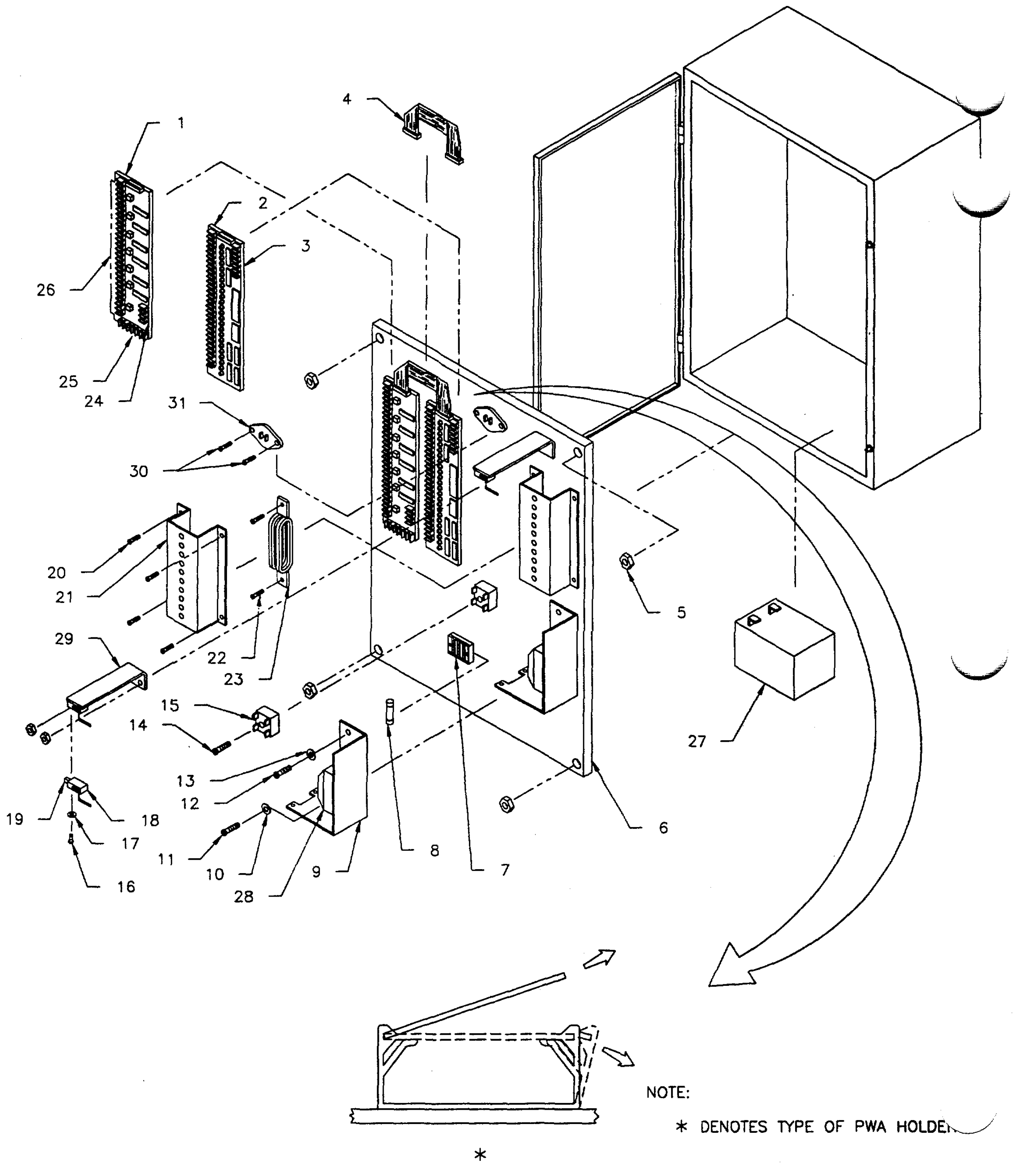


Figure 3-42. Removal and Replacement of SubRADC (Leda), Interior Assemblies

3-74. REPLACE 12 VDC, 12 POINTS, EXTERIOR SUB-RADC (LEDA) WITH POWER SUPPLY. (See Figure 3-43).

This task covers:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, flat tip, (Item 6, App B)
Screwdriver, flat tip, (Item 7, App B)
Open End Wrench (Item 14, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.
Wear ESD wriststrap while working on equipment.

Materials/Parts:
12 Point Exterior Sub-RADC (Leda) /w Power Supply Assembly

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Using a flat tip screwdriver, loosen three screws on input power terminal (7), and remove the three input power cord leads.
(2) Remove the two slip-on terminals from the battery (27) positive and negative terminal connections.
(3) Tag and remove the two wires from tamper switch (18) and Leda Flex PWA TB-7 (3) pins 2 and 3.
(4) Using a flat tip screwdriver, loosen the screws on the Leda Flex PWA (2), TB-7 (3) pins 4 and 5. Tag and remove the two data wires.
(5) Remove slip-on terminal strips (26), (25) and (24) from Leda Flex termination PWA (1).
(6) Using an open end wrench, remove the four nuts (5) holding the Leda Panel Assembly (6) to enclosure and remove the Leda Panel Assembly (6).

b. Installation

(1) Align the Leda Panel Assembly (6) mounting holes up with the enclosure standoffs and secure with four nuts (5).
(2) Connect slip on terminal strips (26), (25) and (24) to Leda Flex termination PWA (1).
(3) Connect the two tagged data wires to Leda Flex PWA (2) TB-7 (3), pins 4 and 5.
(4) Connect the two tagged wires from tamper switch (18) to Leda Flex PWA TB-7 (3) pins 2 and 3.
(5) Connect the two slip-on terminals to the battery (27) positive and negative terminal connections.

3-74. REPLACE 12 VDC, 12 POINTS, EXTERIOR SUB-RADC (LEDA) WITH POWER SUPPLY. (See Figure 3-43). (continued)

(6) Connect the three input power cord leads to input power terminal (7) and secure using a flat tip screwdriver.
(7) Reconnect input power.
(8) Replace enclosure cover and secure.

3-75. REPLACE LEDA FLEX PWA. (See Figure 3-43).

This task consists of:
a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
Leda Flex PWA

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal
(1) Remove slip-on terminal strip from TB-7 (3).

(2) Remove ribbon cable (4) from connector P1.
(3) Press out on side of snap track PWA holder (e) and remove the Leda Flex PWA (2).
(4) Place the removed PWA into an ESD protective bag.

b. Installation
(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-44.
(2) Press out on side of snap track PWA holder (e) and install Leda Flex PWA (2) in snap track alignment slots and release.
(3) Connect ribbon cable (4) to connector P1.
(4) Connect slip-on terminal strip to TB-7 (3).
(5) Reconnect input power.
(6) Replace enclosure cover and secure.

3-76. REPLACE LEDA FLEX TERMINATION PWA. (See Figure 3-43).

This task consists of:
a. Remove **b. Install**

INITIAL SETUP

Equipment Condition: Input power removed Enclosure access cover removed	General Safety Instructions: Remove all jewelry while working on equipment.
Materials/Parts: Leda Flex Termination PWA	Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove ribbon cable (4) from connector PL1.
(2) Remove the slip-on terminal board strips from TB-1 through TB-6 (26), TB-7 (25) and TB-8 (24).
(3) Press out on side of snap track PWA holder (e) and remove the Leda Flex Termination PWA (1).
(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-46.
(2) Press out on side of snap track PWA holder (e) and install Leda Flex Termination PWA (1) in snap track alignment slots and release.
(3) Connect the slip-on terminal board strips to TB-1 through TB-6 (26), TB-7 (25) and TB-8 (24).
(4) Connect ribbon cable (4) to connector PL1.
(5) Reconnect input power.
(6) Replace enclosure cover and secure.

3-77. REPLACE 12 VDC POWER SUPPLY. (See Figure 3-43 and 3-6).

This task consists of:
a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
- Input power removed
- Enclosure access cover removed

Tools:
- Screwdriver, flat tip, (Item 6, App B)
- Screwdriver, flat tip, (Item 7, App B)
- Screwdriver, offset flat tip, (Item 43, App B)

General Safety Instructions:
- Remove all jewelry while working on equipment.
- Wear ESD wriststrap while working on equipment.

Materials/Parts:
- 12 VDC Power Supply

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Using a flat tip screwdriver, remove the gray wire, connected to power supply transformer (28) from the input power block terminal 4 (7) output side (Figure 3-6).
(2) Using a flat tip screwdriver, remove the white wire, connected to power supply transformer (28) from the input power block terminal 3 (7) output side (Figure 3-6).
(3) Remove the two slip-on terminals from the battery (27) positive and negative terminal connections.
(4) Tag and remove three wires from the Rectifier Assembly (15) slip-on terminal connectors.
(5) Tag and remove the AC failure wire (Figure 3-6) from Leda Flex Termination PWA (1), TB-6 (26).
(6) Using an offset flat tip screwdriver, remove the lower screw (11) and washer (10) from power supply assembly (9).
(7) Using a flat tip screwdriver, remove the upper screw (12) and washer (13) from power supply assembly (9) and remove power supply.

b. Installation

(1) Align power supply (9) up with holes in panel assembly (6) and secure to panel using two screw (11 and 12) and washers (10 and 13).
(2) Connect the tagged wires to Rectifier Assembly (15) slip-on terminal connectors.
(3) Connect the two slip-on terminals to the battery (27) positive and negative terminal connections.
(4) Using a flat tip screwdriver, connect the gray wire, connected to power supply transformer (28) to the input power block terminal 4 (7) output side (Figure 3-6).

3-77. REPLACE 12 VDC POWER SUPPLY. (See Figure 3-43 and 3-6). (continued)

(5) Using a flat tip screwdriver, connect the white wire, connected to power supply transformer (28) to the input power block terminal 3 (7) output side (Figure 3-6).
(6) Connect the tagged AC failure wire to Leda Flex Termination PWA (1), TB-6 (26).
(7) Reconnect input power.
(8) Replace enclosure cover and secure.

3-78. REPLACE RECTIFIER ASSEMBLY. (See Figure 3-43).

This task consists of:
a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
Grease, non-conductive (Item 9, App B)
Rectifier assembly

General Safety Instructions:
Remove all jewelry while working on equipment.
Wear ESD wriststrap while working on equipment.

Tools:
Screwdriver, flat tip, (Item 7, App B)

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal
(1) Tag and remove the slip-on terminal connectors from Rectifier Assembly (15).
(2) Using a flat tip screwdriver, remove screw (14) holding Rectifier Assembly (15) to panel (6) and remove.
(3) Clean non-conductive grease from panel (6) with wiping rags (Appendix D, Item 7).

b. Installation
(1) Place non-conductive grease (Appendix D, Item 9) on back of Rectifier Assembly (15).
(2) Align Rectifier Assembly (15) up with hole in panel (6) and secure with screw (14).
(3) Connect the slip-on terminal connectors to Rectifier Assembly terminals (15).
(4) Reconnect input power.
(5) Replace enclosure cover and secure.

3-79. REPLACE 12 VDC BATTERY. (See Figure 3-43).

This task consists of:
a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
12 VDC battery

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal
(1) Remove the two slip-on terminals from Battery (27) positive and negative terminals.
(2) Remove Battery (27) from enclosure.

b. Installation
(1) Place Battery (27) in bottom of enclosure.
(2) Connect the two slip-on terminals to Battery (27) positive and negative terminals.
(3) Reconnect input power.
(4) Replace enclosure cover and secure.

3-80. REPLACE TAMPER SWITCH. (See Figure 3-43).

This task consists of:
a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, flat tip, (Item 6, App B)

Materials/Parts:
Tamper switch

General Safety Instructions:
Remove all jewelry while working on equipment.
Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Tag and remove the two slip-on connectors (19) from Tamper Switch (18), by holding and pulling out on connectors.
(2) Using a flat tip screwdriver, remove the two screws (16) and flat washers (17) holding Tamper Switch (18) to enclosure mount (29).
(3) Remove Tamper Switch from enclosure.

b. Installation

(1) Align Tamper Switch up with enclosure mount (29) and secure with two screws (16) and flat washers (17).
(2) Connect the tagged wires and connectors (19) to Tamper Switch (18).
(3) Reconnect input power.
(4) Replace enclosure cover and secure.

3-81. REPLACE IN-LINE FUSE. (See Figure 3-43).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, flat tip, (Item 6, App B)

Materials/Parts:
Fuse, 1 AMP, 250 VAC

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open the In-line Fuse Holder located on input power terminal board (7).
(2) Using the flat tip screwdriver, gently lift up on fuse (8) and remove fuse from holder.

b. Installation

(1) Align fuse (8) on input power terminal fuse holder and gently press down on fuse, until fuse locks into place.
(2) Close the In-line fuse holder.
(3) Reconnect input power.
(4) Replace enclosure cover and secure.

3-82. REPLACE HEATER AND THERMOSTAT. (See Figure 3-43 and 3-6).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, flat tip, (Item 6, App B)

Materials/Parts:
Heater assembly (110VAC PN# 3569-H99) (220VAC PN# 5723-H99)
Thermostat

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Using a flat tip screwdriver, remove the white wire and gray wire, connected to thermostat (31) and heater (23), from input power terminal block (7) output side pins 1 and 2 (Figure 3-6).
(2) Using a flat tip screwdriver, remove the two screws (30) holding thermostat (31) to panel (6).
(3) Using a flat tip screwdriver, remove the four screws (20) holding heater element cover (21) to panel (6).
(4) Using a flat tip screwdriver, remove the two screws (22) holding the heater element (23) to panel (6) and remove heater element.

b. Installation

CAUTION

Be sure replacement heater is rated at same voltage as the removed one.

(1) Secure heater element (23) to panel (6) using two screws (22).
(2) Secure heater element cover (21) to panel (6) using four screws (20).
(3) Secure thermostat (31) to panel (6) using two screws (30).
(4) Using a flat tip screwdriver, connect the white wire and gray wire, from thermostat (31) and heater (23), to input power terminal block (7) output side, pins 1 and 2 (Figure 3-6).
(5) Reconnect input power.
(6) Replace enclosure cover and secure.

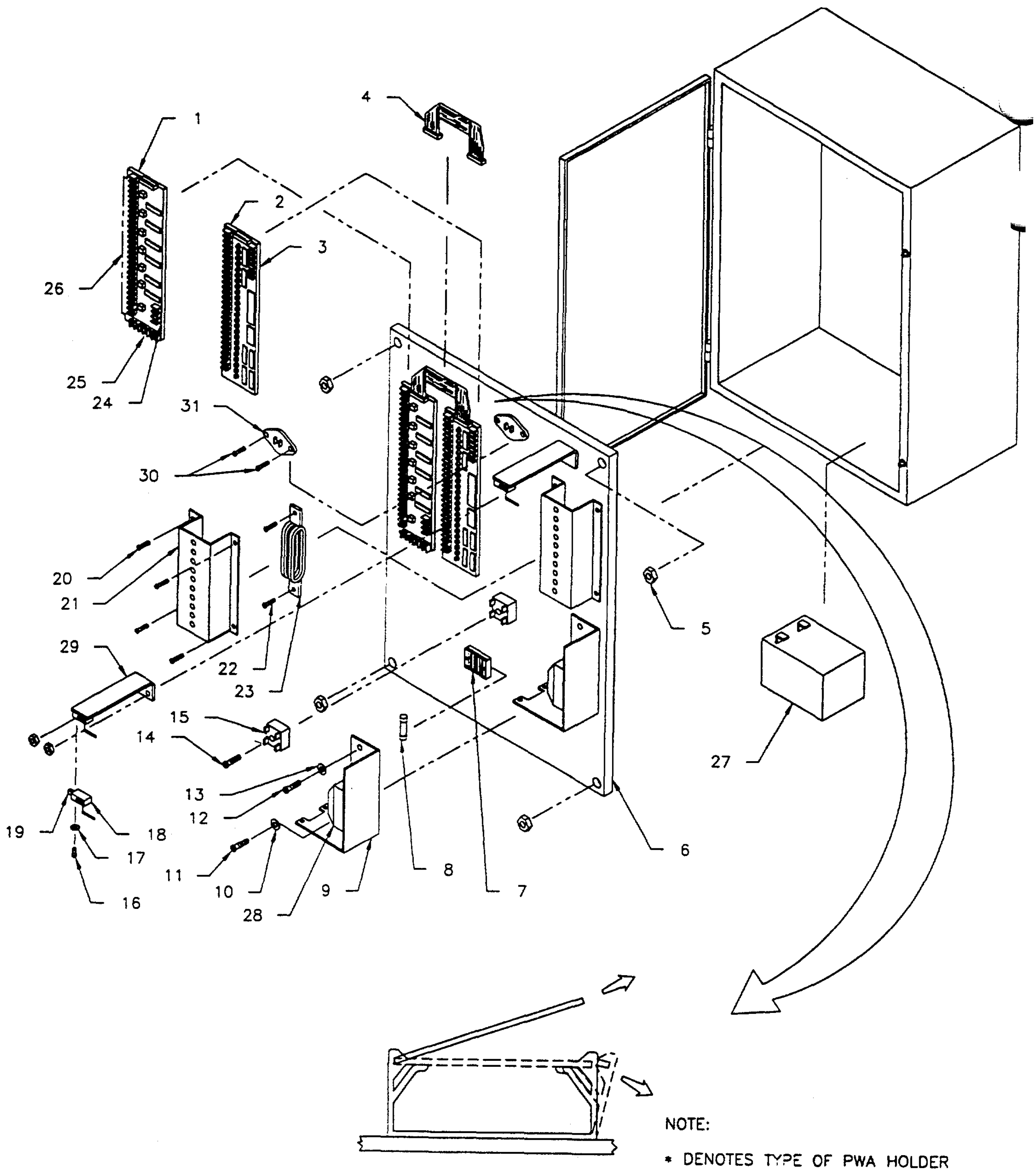


Figure 3-43. Removal and Replacement of SubRADC (Leda), With Power Supply, (Exterior) Assemblies

3-83. REPLACE 12 VDC, 12 POINTS, EXTERIOR SUB-RADC (LEDA). (See Figure 3-44).

This task consists of:
a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Open End Wrench, (item 14, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
12 Point Exterior Sub-RADC (Leda)

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove slip-on terminal strip from Leda Flex PWA TB-7 (3).
(2) Remove slip-on terminal strips (19), (18), and (17) from Leda Flex Termination PWA (1).
(3) Using an open end wrench, remove the four nuts (5) holding the Leda Panel Assembly to enclosure and remove the Leda Panel Assembly (6).

b. Installation

(1) Align the Leda Panel Assembly (6) mounting holes up with the enclosure standoffs and secure with four nuts (5).
(2) Connect slip-on terminal strips (19), (18) and (17) to Leda Flex Termination PWA (1).
(3) Connect slip-on terminal strip to Leda Flex PWA TB-7 (3).
(4) Reconnect input power.
(5) Replace enclosure cover and secure.

3-84. REPLACE LEDA FLEX PWA. (See Figure 3-44).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
Leda Flex PWA

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove slip-on terminal strip from TB-7 (3).
(2) Remove ribbon cable (4) from connector P1.
(3) Press out on side of snap track PWA holder (e) and remove the Leda Flex PWA (2).
(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-44.
(2) Press out on side of snap track PWA holder (e) and install Leda Flex PWA (2) in snap track alignment slots and release.
(3) Connect ribbon cable (4) to connector P1.
(4) Connect slip-on terminal strip to TB-7 (3).
(5) Reconnect input power.
(6) Replace enclosure cover and secure.

3-85. REPLACE LEDA FLEX TERMINATION PWA. (See Figure 3-44).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
Leda Flex Termination PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove ribbon cable (4) from connector PL1.
(2) Remove the slip-on terminal board strips from TB-1 through TB-6 (19), TB-7 (18) and TB-8 (17).
(3) Press out on side of snap track PWA holder (e) and remove the Leda Flex Termination PWA (1).
(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-46.
(2) Press out on side of snap track PWA holder (e) and install Leda Flex Termination PWA (1) in snap track alignment slots and release.
(3) Connect the slip-on terminal board strips to TB-1 through TB-6 (19), TB-7 (18) and TB-8 (17).
(4) Connect ribbon cable (4) to connector PL1.
(5) Reconnect input power.
(6) Replace enclosure cover and secure.

3-86. REPLACE TAMPER SWITCH. (See Figure 3-44).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, flat tip, (Item 7, App B)

Materials/Parts:
Tamper Switch

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Tag and remove the two slip-on connectors (12) from Tamper Switch (11), by holding and pulling out on connectors.
(2) Using a flat tip screwdriver, remove the two screws (9) and flat washers (10) holding Tamper Switch (11) to enclosure mount (22).
(3) Remove Tamper Switch (11) from enclosure.

b. Installation

(1) Align Tamper Switch (11) up with enclosure mount (22) and secure with two screws (9) and flat washers (10).
(2) Connect the tagged wires and connectors (12) to Tamper Switch (11).
(3) Reconnect input power.
(4) Replace enclosure cover and secure.

3-87. REPLACE HEATER AND THERMOSTAT. (See Figure 3-44).

This task consists of:
a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, flat tip, (Item 7, App B)

Materials/Parts:
Heater assembly (110VAC PN# 3569-H99) (220VAC PN# 5723-H99)
Thermostat

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

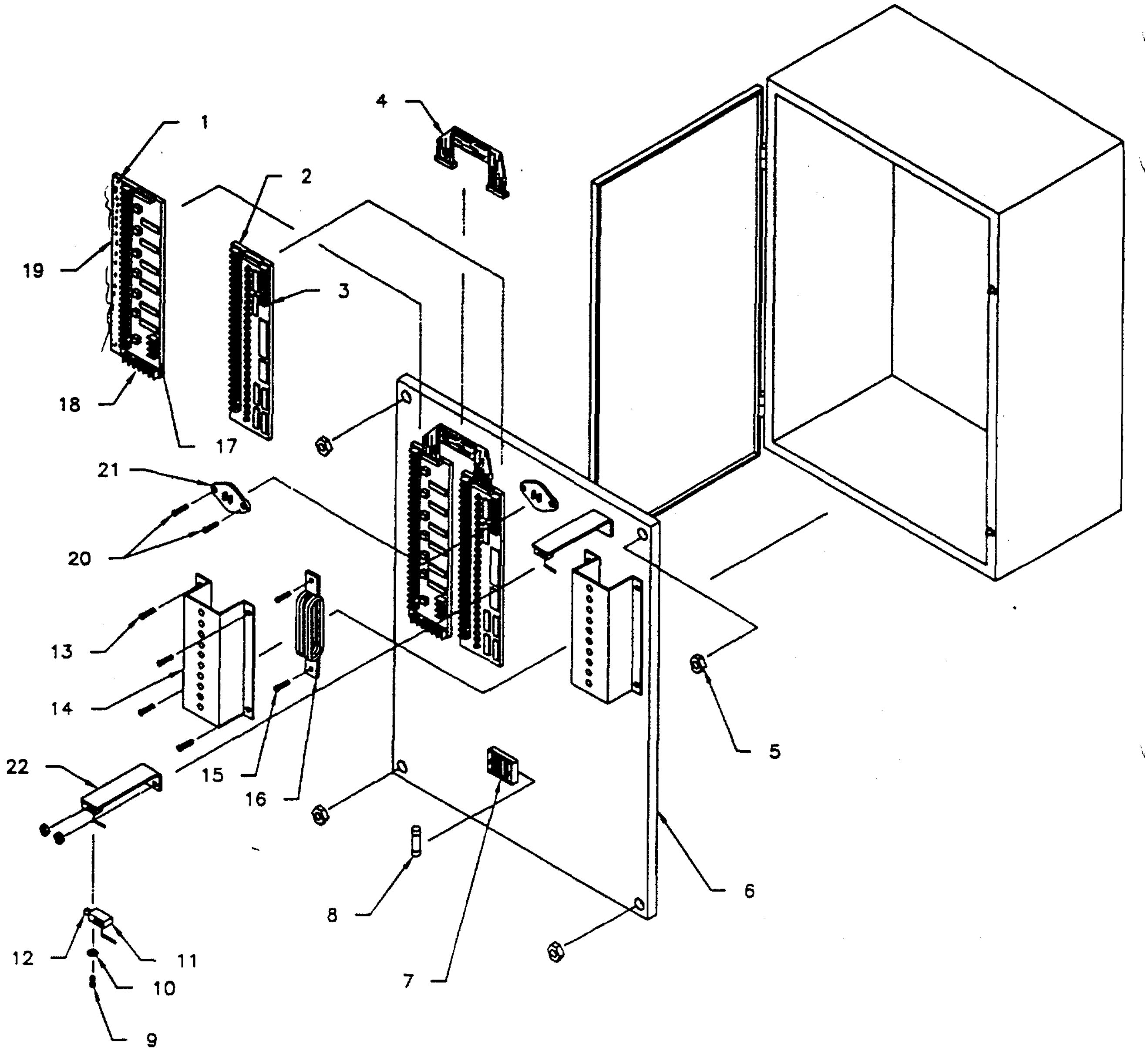
(1) Using a flat tip screwdriver, remove the white wire and grey wire, connected to thermostat (21) and heater (16), from input power terminal block (7) output sidle oins 1 and 2.
(2) Using a flat tip screwdriver, remove the two screws (20) and holding thermostat (21) to panel (6).
(3) Using a flat tip screwdriver, remove the four screws (13) and holding heater element cover (14) to panel (6).
(4) Using a flat tip screwdriver, remove the two screws (15) holding the heater element (16) to panel (6) and remove heater element.

b. Installation

CAUTION

Be sure replacement heater Is rated at same voltage as the removed one.

(1) Secure heater element (16) to panel (6) using two screws (15).
(2) Secure heater element cover (14) to panel (6) using four screws (13).
(3) Secure thermostat (21) to panel (6) using two screws (20).
(4) Using a flat tip screwdriver, connect the white wire and gray wire, from thermostat (21) and heater (16), to input power terminal block (7) output side, pins 1 and 2.
(5) Reconnect input power.
(6) Replace enclosure cover and secure.



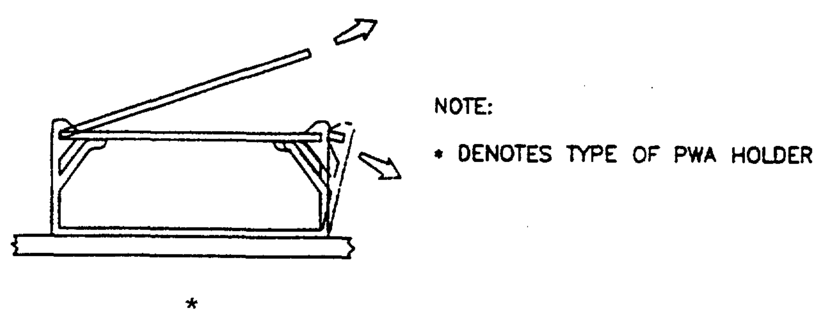


Figure 3-44. Removal and Replacement of SubRADC (Leda), Exterior, Assemblies

3-88. REPLACE J-SIIDS STARGATE 1000 INTERFACE ASSEMBLY (Hinged). (See Figure 3-45).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Open End Wrench, (item 7, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
J-SIIDS Stargate 100 Interface Assembly (Hinged)

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Replace

(1) Remove the slip-on terminal strip from Stargate 1000 PWA, TB-1 (7).
(2) Using a flat tip screwdriver, remove screw (3), and lower the hinged panel assembly (5).
(3) Tag and remove wiring, using a flat tip screwdriver from TB-A, TB-B, TB-C, TB-D, TB-E, and TB-F (6).
(4) Using a flat tip screwdriver, remove the two screws (4) holding the J-SIIDS Stargate Interface Assembly (5) to the J-SIIDS enclosure (14) and remove.

b. Installation

(1) Align the J-SIIDS Stargate Interface Assembly (5) up with the two J-SIIDS enclosure standoffs and secure the Assembly with two screws (4).
(2) Using a flat tip screwdriver, connect the tagged wires to TB-A through TB-F (6).
(3) Raise the hinged panel assembly (5) and secure to J-SIIDS enclosure (14) with screw (3).
(4) Connect slip-on terminal strip to Stargate 1000 PWA TB-1 (7).
(5) Reconnect input power.
(6) Close, lock and secure the J-SIIDS enclosure door.

3-89. REPLACE J-SIIDS STARGATE 1000 PWA ASSEMBLY. (See Figure 3-45).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, flat tip, (Item 7, App B)

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
Stargate 1000 PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Replace

(1) Tag and remove cable connectors from Comms jack (13) and AUX-0 jack (12) by lifting straight up on connectors.
(2) Remove slip-on terminal strips from TB-50 (11), TB-7 (10), TB-8 (9), TB-9 (8) and TB-1 (7) by lifting up on terminal strips.
(3) Using a flat tip screwdriver, remove the green ground wire (14) and screw (15) from Stargate 1000 PWA (1).
(4) Press in and hold latching mechanism (16) down on each plastic standoff (**), while gently lifting up on Stargate PWA (1). Do this for each of the five latching mechanisms until the PWA can be removed from panel assembly (5).
(5) Place the removed Stargate PWA into a ESD protective bag.

b. Installation

(1) Set the link settings and/or switch settings exactly the same as on removed assembly, or refer to Appendix E, page E-33 for PWA settings.
(2) Place the Stargate PWA (1) on plastic standoffs and gently press down on PWA until each of the latching mechanism locks into place.
(3) Connect green ground (14) wire to Stargate PWA using removed screw (15).
(4) Connect slip-on terminal strips to TB-1 (7), TB-7 (10), TB-8 (9) and TB-9 (8) and TB-50 (11).(Ensure each terminal strip is properly lined up with terminal pins)
(5) Connect the tagged nine pin male connectors to Comms jack (13) and AUX-0 jack (12).
(6) Reconnect input power.

(7) Close the front access door on enclosure (14) and secure.

3-90. REPLACE J-SIIDS MODS II MODEM PWA ASSEMBLY. (See Figure 3-45).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
Mod II Modem PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Replace

(1) Remove slip-on terminal strip from Stargate 1000 PWA, TB-1 (7).
(2) Tag and remove wires from J1 (17) and J2 (18) by lifting up on terminal strips.
(3) Press out on one side of snap track PWA holder (*) and remove the Mod2 II Modem PWA (2) from snap track PWA holder slots.
(4) Place the removed PWA into ESD protective bag.

b. Installation

(1) Set the link setting and/or switch setting exactly the same as removed assembly or refer to Appendix E, page E-52, PWA settings.
(2) Press out on sides of snap track PWA holder (*) and install Mod2 II Modem (2) in snap track alignment slots and release.
(3) Connect the tagged wires to J1 (17) and J2 (18).
(4) Connect the slip-on terminal strip to Stargate 1000 PWA, TB-1 (7).
(5) Reconnect input power.
(6) Close the front access door on enclosure and secure.

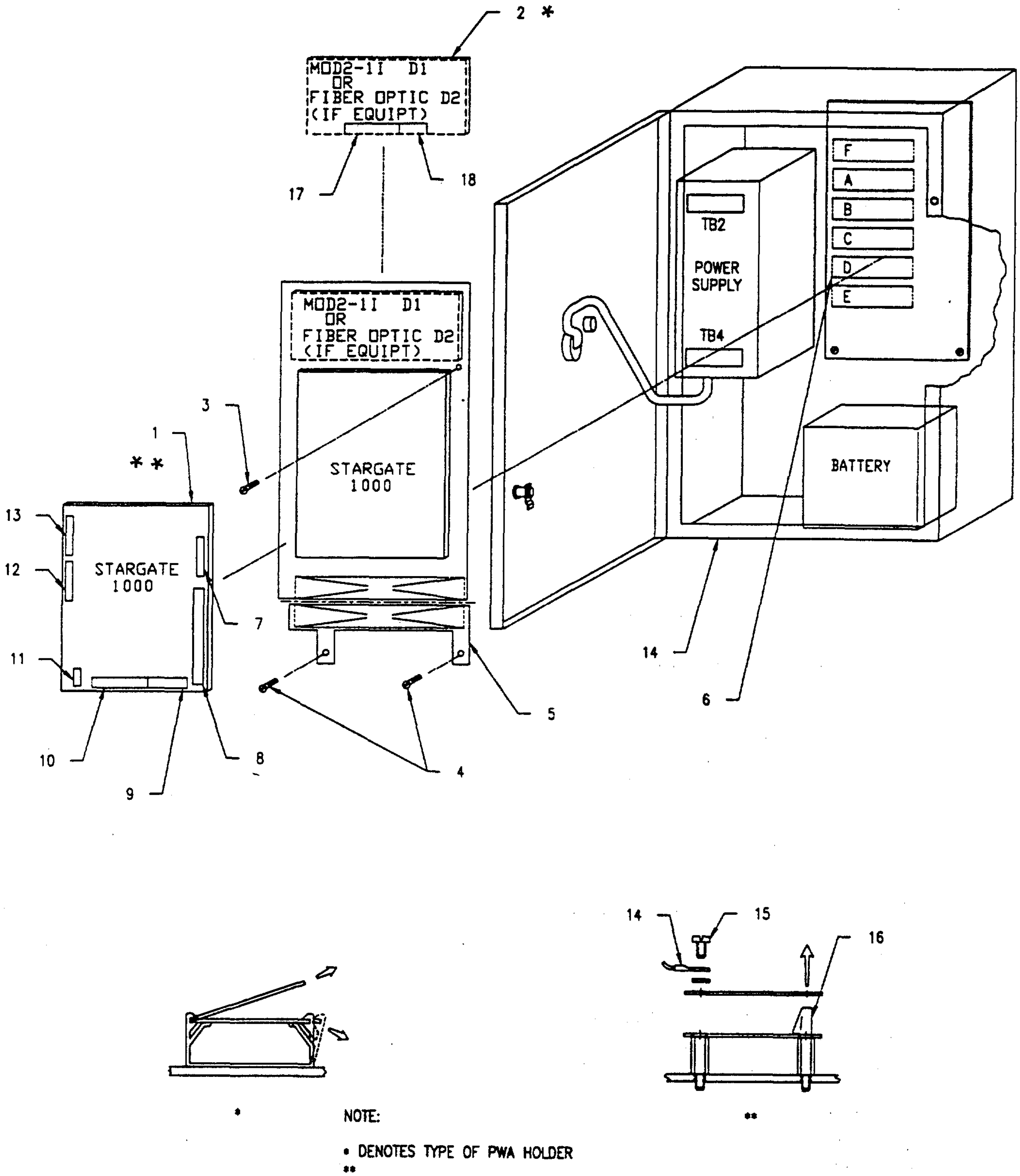


Figure 3-45. Removal and Replacement of J-SIIDS Stargate 1000 Interface Assemblies

3-91. REPLACE J-SIIDS LEDA INTERFACE ASSEMBLY (Hinged). (See Figure 3-46).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Tools:
Screwdriver, Flat tip, (Item 7, App B)

Materials/Parts:
J-SIIDS Leda Interface Assembly (Hinged)

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Replace

(1) Tag and remove the slip-on terminal strip from the Leda Flex PWA (3) TB-7 (4).
(2) Tag and remove slip-on terminal strips from Leda Flex Termination PWA (1) TB-1, TB-2, TB-3, TB-4, TB-5, TB-6 (11), TB-7 (10), and TB-8 (9) by gently lifting up on sides of terminal strips.
(3) Using a flat tip screwdriver, remove screw (8), and lower the hinged panel assembly (5).
(4) Using a flat tip screwdriver, remove the two screws (6) holding the J-SIIDS Leda Interface Assembly (5) to the J-SIIDS enclosure (12) and remove.

b. Installation

(1) Align the J-SIIDS Leda Interface Assembly (5) up with the two J-SIIDS enclosure standoffs and secure the Assembly with two screws (6).
(2) Raise the hinged panel assembly (5) and secure to J-SIIDS enclosure (12) with screw (8).
(3) Using a flat tip screwdriver, connect the tagged wires to TB-1 through TB-6 (11), TB-7(10) and TB-8 (9).
(4) Connect the tagged slip-on terminal strip to Leda Flex PWA (3) TB-7 (4).
(5) Reconnect input power.
(6) Close, lock and secure the J-SIIDS enclosure door.

3-92. REPLACE J-SIIDS LEDA FLEX PWA. (See Figure 3-46).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
Leda Flex PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Replace

(1) Remove slip-on terminal strip from TB-7 (4).
(2) Remove ribbon cable (2) from connector P1.
(3) Press out on side of snap track PWA holder (*) and remove the Leda Flex PWA (3).
(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-44.
(2) Press out on side of snap track PWA holder (*) and install Leda Flex PWA (3) in snap track alignment slots and release.
(3)Connect ribbon cable (2) to connector P1.
(4) Connect slip-on terminal strip to TB-7 (4).
(5) Reconnect input power.
(6) Replace enclosure cover and secure.

3-93. REPLACE J-SIIDS LEDA FLEX TERMINATION PWA. (See Figure 3-46).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

Materials/Parts:
Leda Flex Termination PWA

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

WARNING

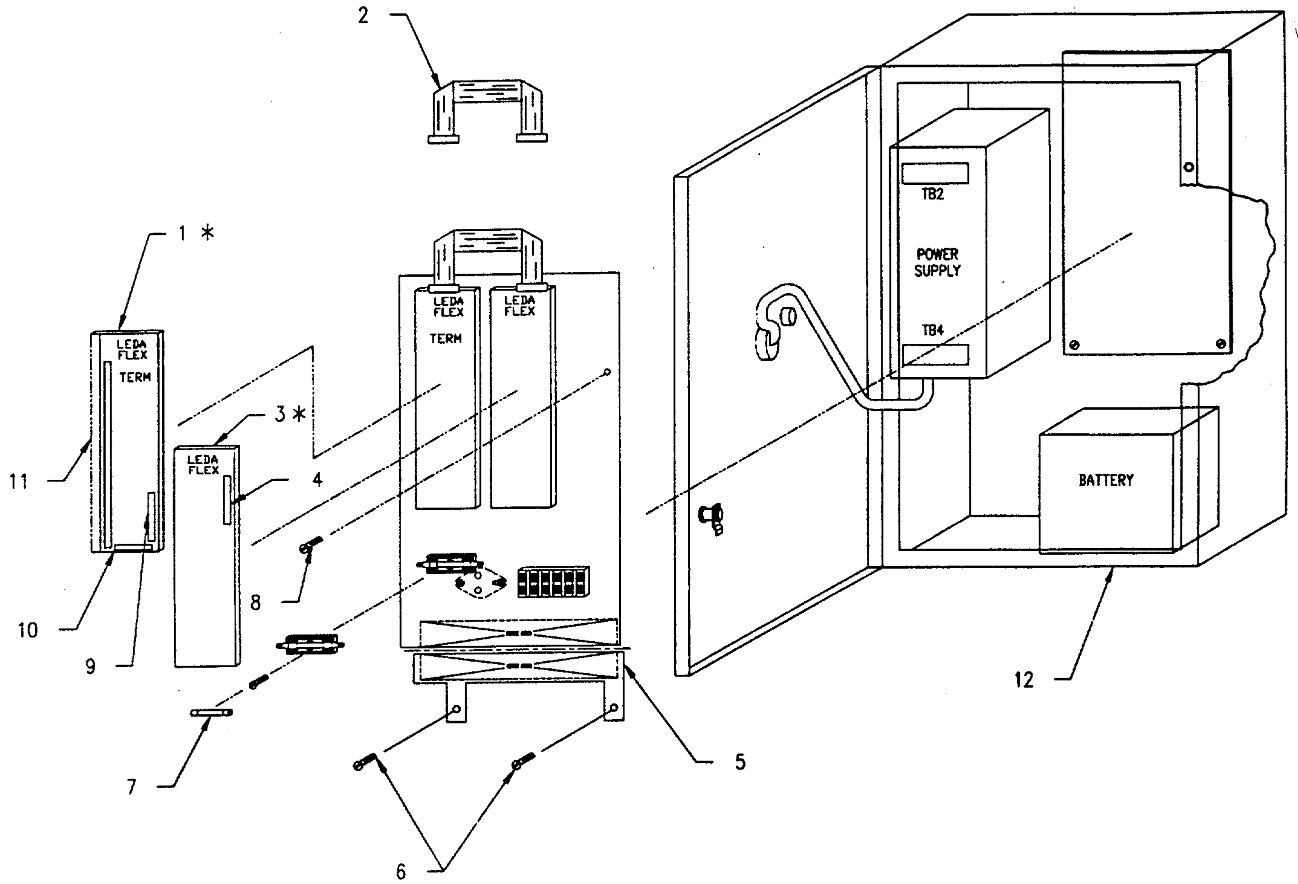
Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

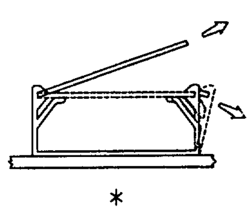
a. Removal

(1) Remove ribbon cable (2) from connector PL1.
(2) Remove the slip-on terminal board strips from TB-1 through TB-6 (11), TB-7 (10) and TB-8 (9).
(3) Press out on side of snap track PWA holder (*) and remove the Leda Flex Termination PWA (1).
(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-46.
(2) Press out on side of snap track PWA holder (*) and install Leda Flex Termination PWA (1) in snap track alignment slots and release.
(3) Connect the slip-on terminal board strips to TB-1 through TB-6 (11), TB-7 (10) and TB-8 (9).
(4) Connect ribbon cable (2) to connector PL1.
(5) Reconnect input power.
(6) Replace enclosure cover and secure.





NOTE:
* DENOTES TYPE OF PWA HOLDER

Figure 3-46. Removal and Replacement of J-SIIDS Leda Interface Assemblies

3-94. REPLACE J-SIIDS GANYMEDE-B INTERFACE ASSEMBLY. (See Figure 3-47).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

Equipment Condition:
Input power removed
Enclosure access cover removed

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
J-SIIDS Ganymede Interface Assembly

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Replace

(1) Remove the slip-on terminal board strips from TB-1 (4), TB-2 (5), TB-6 (6) and TB-5 (2).
(2) Press in and hold latching mechanism (*) down on each plastic standoff (7), while gently lifting up on Ganymede B PWA (1). Do this for each of the four latching mechanisms until the PWA can be removed from enclosure (3).
(3) Place the removed Ganymede B PWA into a ESD protective bag.

b. Installation

(1) Set the link settings and/or switch settings exactly the same as on removed assembly, or refer to Appendix E, page E-13, for PWA settings.
(2) Place the Ganymede B PWA (1) on plastic standoffs and gently press down on PWA until each of the latching mechanism locks into place.
(3) Connect slip-on terminal strips to TB-1 (4), TB-2 (5), TB-5 (2) and TB-6 (6).(Ensure each terminal strip is properly lined up with terminal pins)
(4) Reconnect input power.
(5) Close the front access door on enclosure (3) and secure.

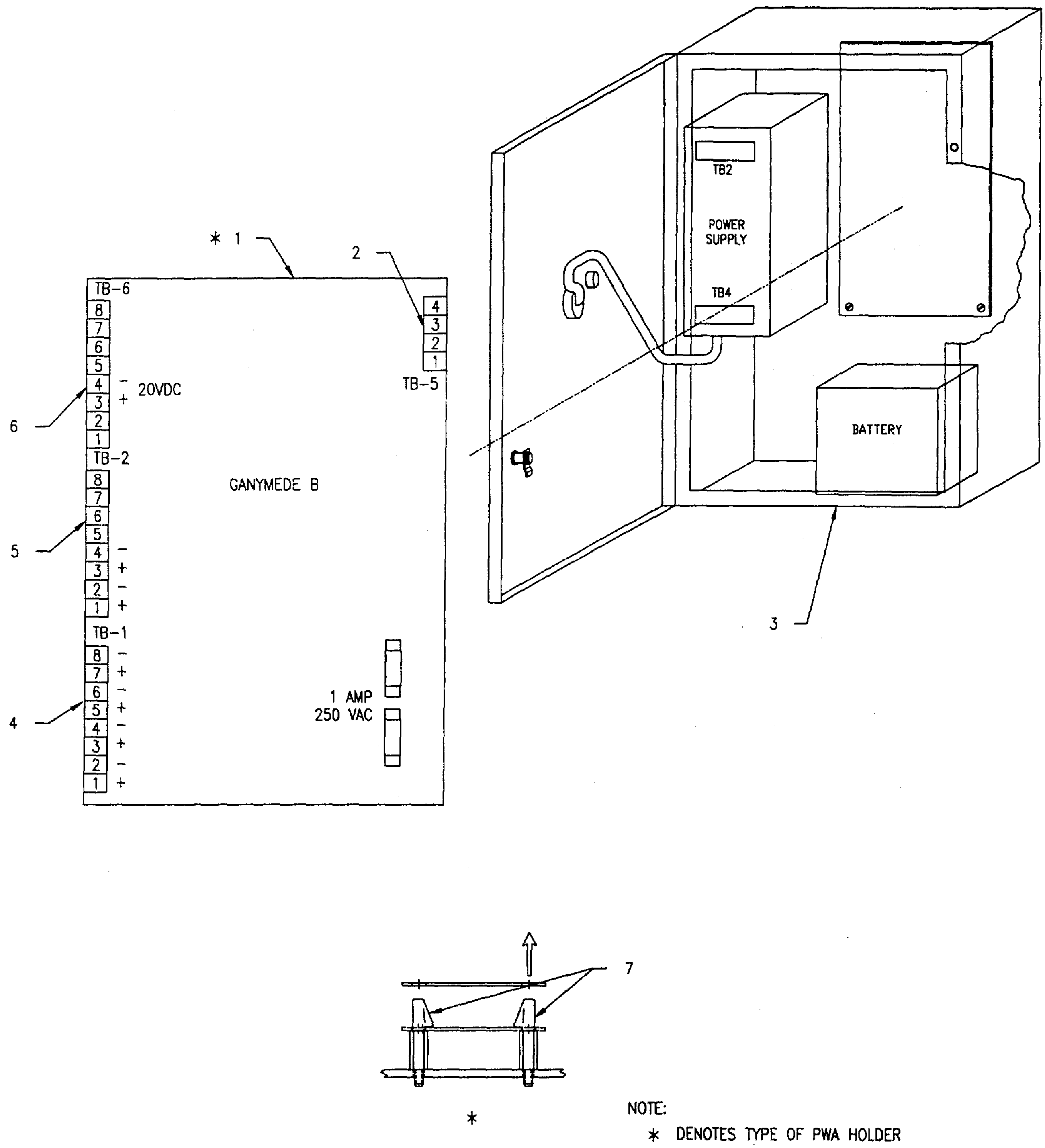


Figure 3-47. Removal and Replacement of J-SIIDS Ganymede B Interface Assembly.

3-95. REPLACE CLOSED CIRCUIT TV MONITOR. (See Figure 3-48).

This task consists of:

a. Remove **b. Install**

INITIAL SETUP

General Safety Instructions:
Remove all jewelry while working on equipment.

Wear ESD wriststrap while working on equipment.

Materials/Parts:
CCTV Monitor

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Press power on/off switch (1) to remove power to monitor (2).
(2) Disconnect input ac power cord (4) from terminal power source.
(3) Tag and remove video in and video out coaxial cables (3) from rear of TV monitor (2).
(4) Remove monitor from CCTV console (5).

b. Installation

(1) Place monitor (2) on CCTV console (5).
(2) Connect tagged coaxial cable to video input and video output jacks (3).
(3) Connect ac input power cord (4) to terminal strip.
(4) Press power on/off switch (1) to apply power to monitor. Power on/off lamp should illuminate.

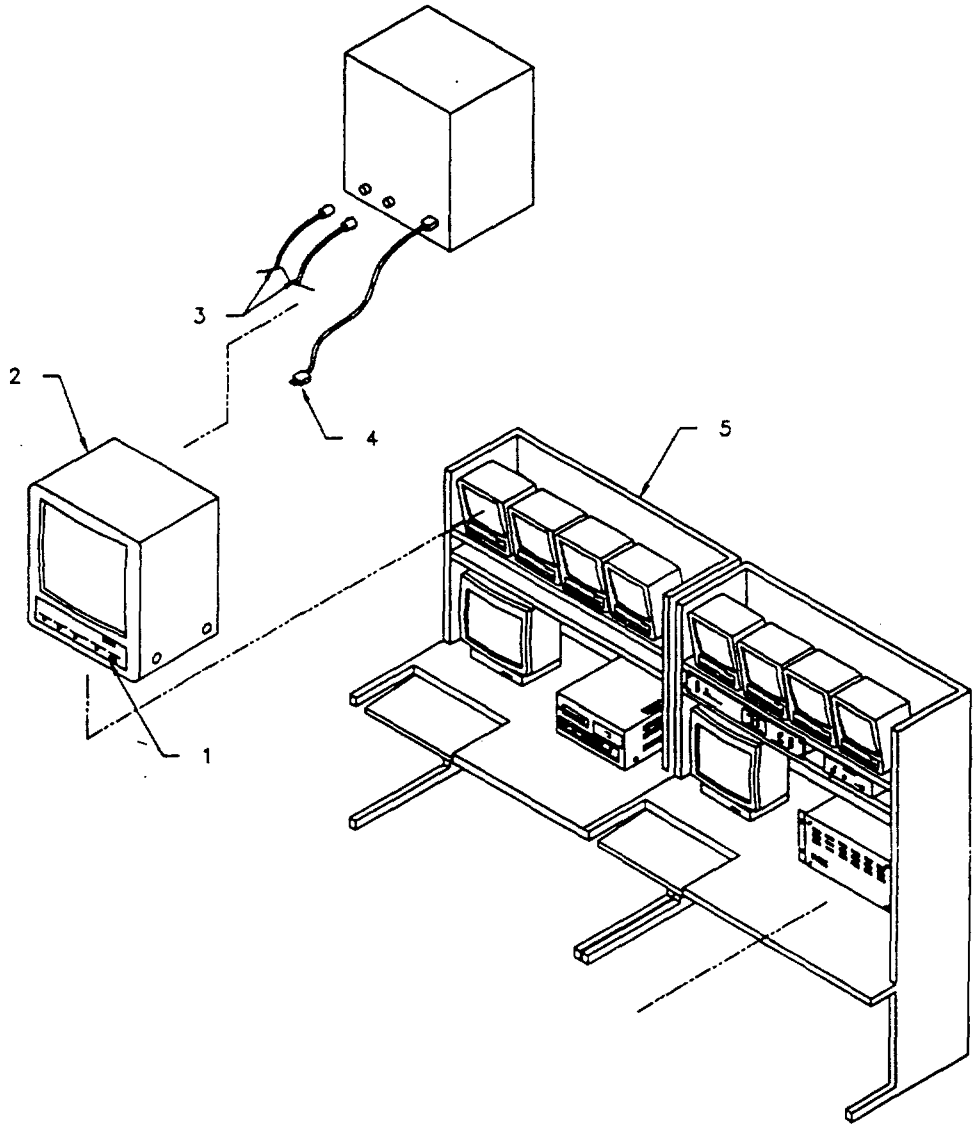


Figure 3-48. Removal and Replacement of CCTV Monitor

3-96. REPLACE CLOSED CIRCUIT TV CAMERA 1/2 IN. (INTERIOR). (Figure 3-49).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Open End Wrench Set (Item 13, App B) Materials/Parts: CCTV Camera 1/2" (Interior)	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Unplug ac power cord (5) from power source.

(2) Remove coaxial cable(s) from Sync In connector (3) and Video output connector (4).

(3) Remove 1/4 in. bolt (2) and mounting hardware from top or bottom of camera housing and mounting bracket and remove camera (1) from mounting bracket.

b. Installation

(1) Place camera onto mounting bracket and remount using 1/4 in. bolt and mounting hardware.

(2) Connect coaxial cable(s) to Sync In connector (3) and Video output connector (4).

(3) Connect ac power cord (5) to power source.

3-97. REPLACE CLOSED CIRCUIT TV CAMERA 2/3 IN. (EXTERIOR). (Figure 3-49).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Open End Wrench Set (Item 13, App B) Materials/Parts: CCTV Camera 2/3" (Exterior)	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Unplug ac power cord (5) from power source.

(2) Remove coaxial cable(s) from Sync In connector (3) and Video output connector (4).

(3) Remove 1/4 in. bolt (2) and mounting hardware from top or bottom of camera housing and mounting bracket. Remove camera (1) from mounting bracket.

b. Installation

(1) Place camera onto mounting bracket and remount using 1/4 in. bolt and mounting hardware.

(2) Connect coaxial cable(s) to Sync In connector (3) and Video output connector (4).

(3) Connect ac power cord (5) to power source.

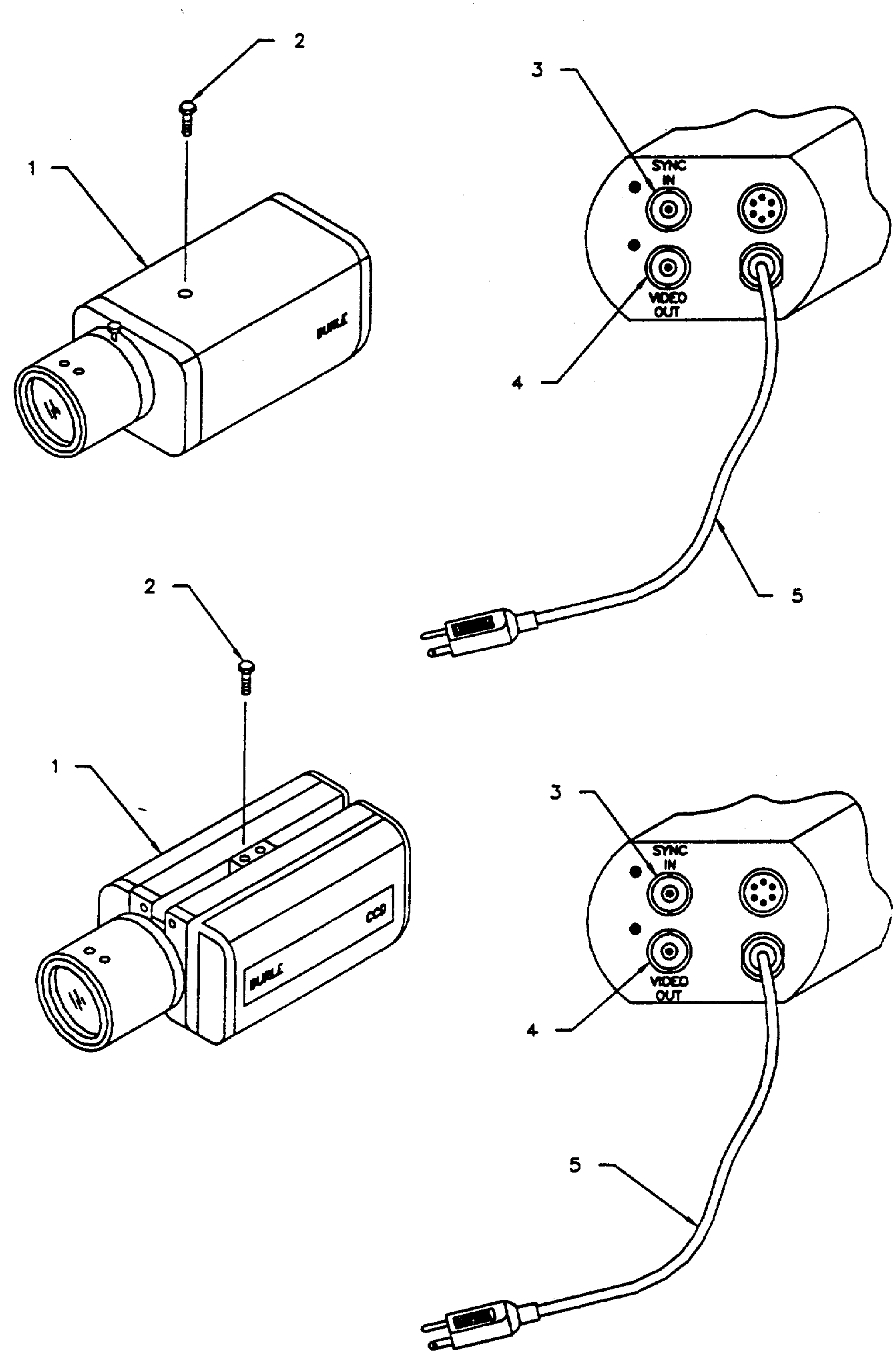


Figure 3-49. Removal and Replacement of CCTV 1/2" Camera (Interior) and 2/3" Camera (Exterior)

3-98. REPLACE CCTV CAMERA AND ENVIRONMENTAL ENCLOSURE ASSEMBLY TC306E/EX. (Figure 3-50).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 7, App B) Materials/Parts: CCTV Camera /w Lens in Pressurized Environmental Enclosure	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove input cable from connector (2) and camera enclosure (1).

(2) Loosen clamp holders (3) using a flat tip screwdriver and remove camera and environmental enclosure from mounting bracket (4).

b. Installation

(1) Insert camera and environmental enclosure in mounting bracket (4) and tighten down with two screws on clamp holders.

(2) Connect input cable to connector (2) on camera enclosure (1).

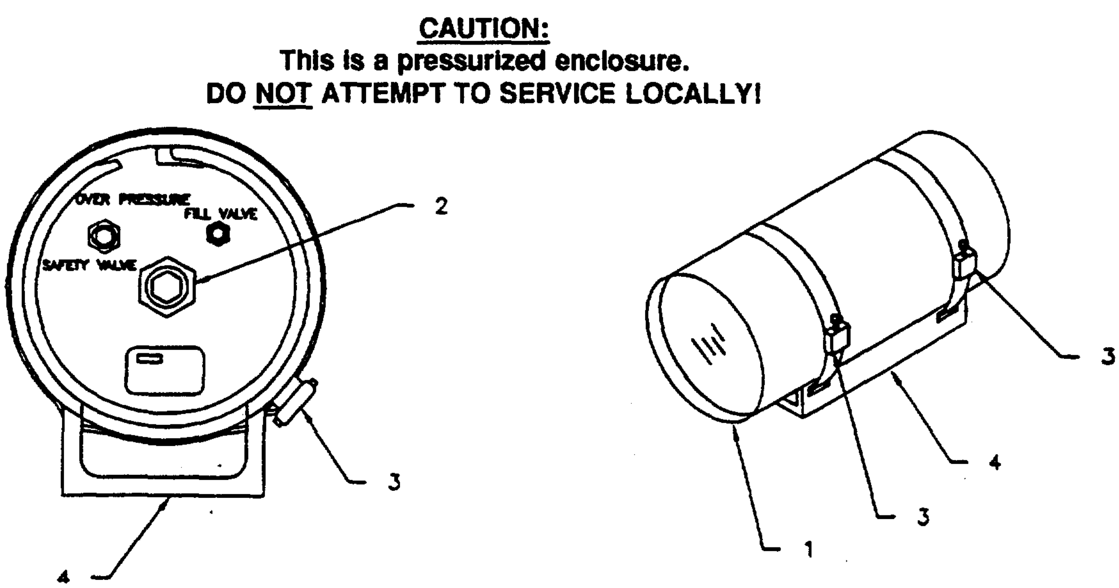


Figure 3-50. Removal and Replacement of CCTV Camera and Environmental Enclosure Assembly (TC 306 E/EX)

3-99. REPLACE CCTV CAMERA AND ENCLOSURE ASSEMBLY TC9353. (Figure 3-51)

This task consists of: a. Remove b. Install

INITIAL SETUP:

Tools:
Screwdriver, Flat tip (Item 5, App B)
Screwdriver, Flat tip (Item 7, App B)

Materials/Parts:
CCTV CAMERA
Enclosure Assembly

General Safety Instructions:
Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Disconnect ac power cord (11) from power source.

(2) Remove two phillips head screws (2) from rear cradle assembly (3).

(3) Pull cradle assembly (3) from housing assembly (1).

(4) Disconnect coaxial cables (6) and lens control cable (4), if used. Use a flat tip screwdriver to remove ac power cable wires (5) from terminal strip.

(5) Remove screw (10), flat washer (9), nylon bushing (8), and plastic washer (7) from cradle assembly (3) and camera (13). Remove camera from cradle assembly (3).

b. Installation

(1) Place and align camera (13) on cradle assembly (3).

(2) Place and align plastic washer (7) between camera mounting assembly and insulated cradle assembly (3). Place nylon bushing (8) and flat washer (9) on screw (10) and align with cradle assembly and camera and tighten assembly down.

(3) Connect ac power cable wires (5) from camera (13) to terminal strip and tighten down with a flat tip screwdriver.

(4) Connect coaxial cable (6) and lens control cable (4) (if used) to camera (13).

(5) Insert cradle assembly (3) into housing assembly (1) and tighten down with two phillips head screws (2).

(6) Connect ac power cord (11) to power source.

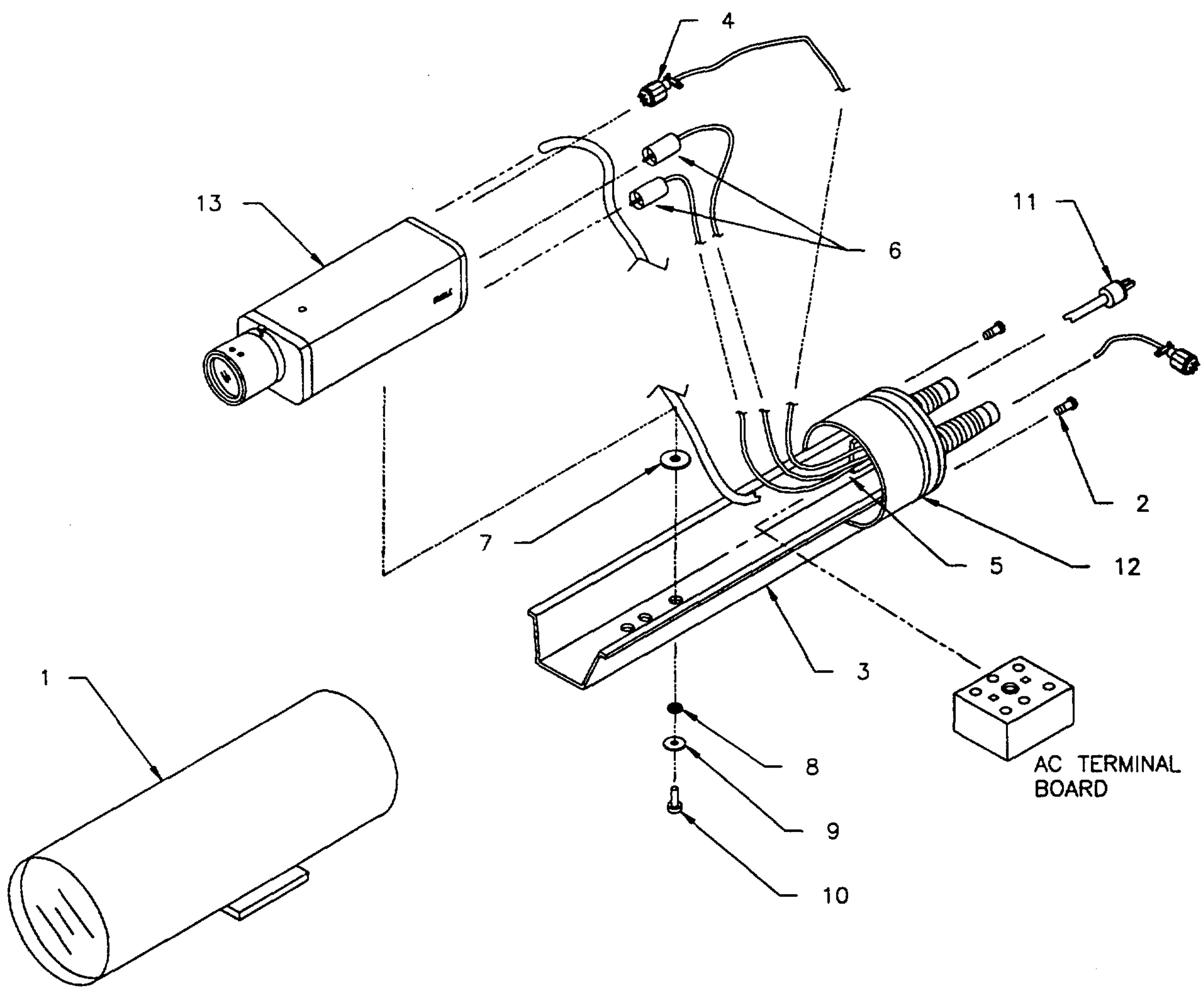


Figure 3-51. Removal and Replacement of CCTV Camera and Indoor Housing Assembly (TC9353)

3-100. REPLACE CCTV SYNC GENERATOR. (Figure 3-52).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
General Safety Instructions: Remove all jewelry while working on equipment.	Materials/Parts: CCTV Sync Generator

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove ac power cord (2) from power source and color sync generator (1) power input connector (4).

(2) Tag and disconnect all coaxial cables from color sync generator (1) coaxial connectors (3).

b. Installation

(1) Connect all tagged coaxial cables to color sync generator (1) coaxial connectors (3).

(2) Connect ac power cord to color sync generator (1) power input connector and to ac power receptacle.

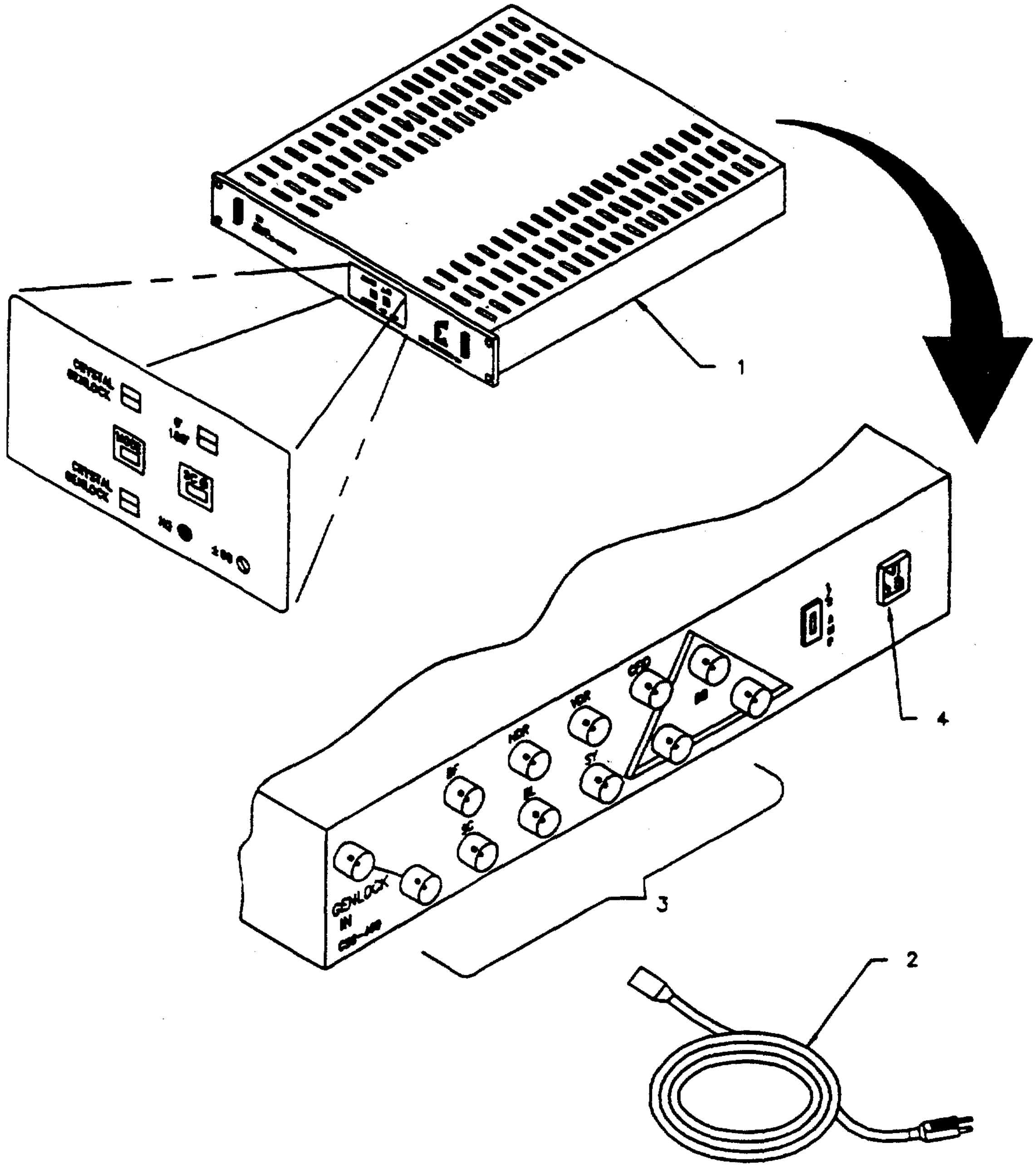


Figure 3-52. Removal and Replacement of CCTV Sync Generator

3-101. REPLACE CCTV VIDEO SYNC AMPLIFIER. (Figure 3-53).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
General Safety Instructions: Remove all jewelry while working on equipment.	Materials/Parts: CCTV Video Sync Amplifier

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Turn off video sync amplifier (2) main power off/on switch (1).

(2) Remove ac power cord (3) from power source.

(3) Tag and remove all coaxial cables from rear panel (4) coax connector jacks.

b. Installation

(1) Connect all tagged coaxial cables to rear panel (4) coax connector jacks.

(2) Connect ac power cord (3) to power source.

(3) Turn on video sync amplifier (2) main power off/on switch (1).

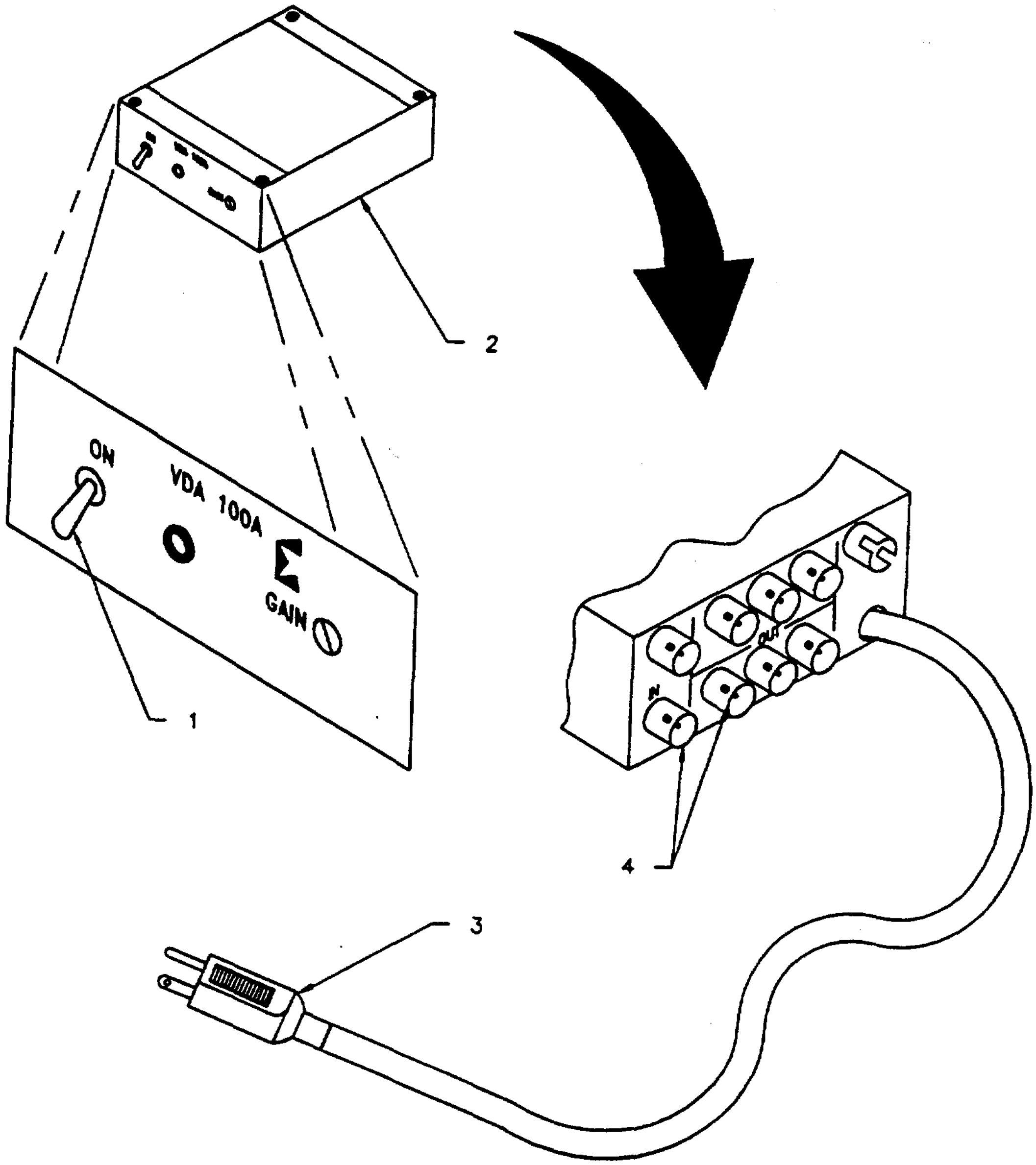


Figure 3-53. Removal and Replacement of CCTV Video Sync Amplifier

3-102. REPLACE VIDEO SWITCHER (Figure 3-54).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
General Safety Instructions: Remove all jewelry while working on equipment.	Materials/Parts: Video Switcher Equipment Condition: All PWAs removed (Ref. 3-103)

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Disconnect ac power cord (3) from power source and video switcher (1).

(2) Tag and remove all cables from video switcher rear panel (2).

(3) Remove video switcher from console or cabinet.

b. Installation

(1) Place video switcher (1) in console or cabinet.

(2) Connect tagged cables to rear panel (2).

(3) Connect ac power cord (3) to video switcher and power source.

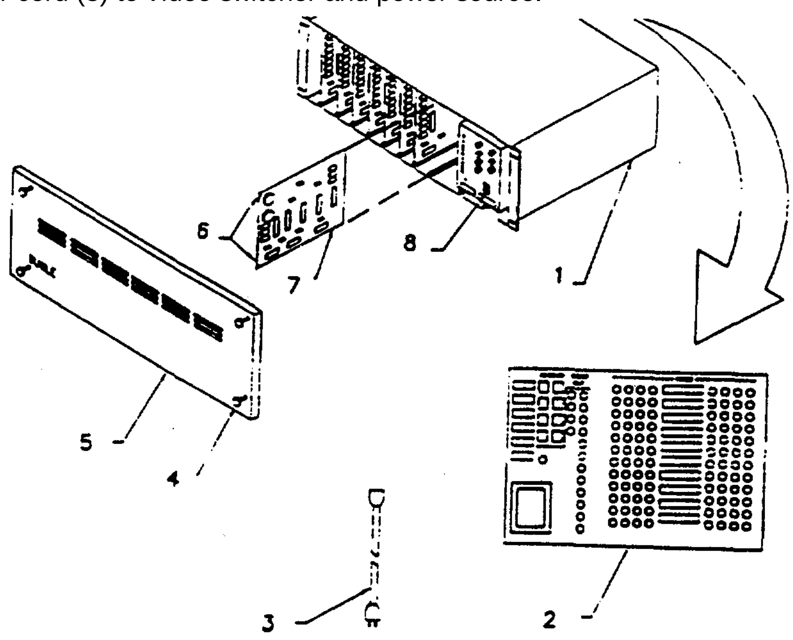


Figure 3-54. Video Switch Assembly

3-103. REPLACE VIDEO SWITCHER PWAs. (Figure 3-54).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Equipment Condition: Input Power Removed Materials/Parts: Video Input PWA or Video Output PWA or Video CPU PWA	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove front panel (5) by loosening four captive hand screws (4) and lifting off panel.

(2) Place power supply on/off switch (8) to off.

(3) Pull out on PWA latch (6) and slide PWA (7) from video switcher (1).

(4) Place the removed PWA into an ESD protective bag.

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E

(2) Place PWA on slotted track in video switch (1) bay and press in on latch (6) until PWA is locked into place.

(3) Place power supply on/off switch (8) to on.

(4) Place front cover (5) on video switcher (1) and secure with four captive screws (4).

c. Programming (Only required if CPU PWA is replaced.)

(1) From Operators console, enter into the RECON mode.

(2) Select CCTV (F2).

(3) Select Camera Identification (F1).

(4) Select camera "1" c/r for "NAME".

(5) Repeat step #4 for all cameras.

(6) Finish (F10) out of recon.

3-104. REPLACE INTELLIGENT ACCESS CONTROLLER REAR PANEL ASSEMBLY. (Figure 3-55).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Open End Wrench Set (Item 13, App B) Equipment Condition: AC input power removed Materials/Parts: Intelligent Access Controller (IAC) rear panel assembly	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove front access door for IAC enclosure (8).

(2) Remove input ac power cord from power source.

(3) Remove positive and negative leads from battery (ies) (5) and remove battery (ies) from IAC enclosure (8).

(4) Tag and remove slip on terminal strips from TB1 through TB14 on IAC Printed Wiring Assembly (1).

(5) Remove four bolts (24) holding rear panel (7) to IAC enclosure (8) and remove panel assembly.

b. Installation

(1) Align rear panel assembly (7) with IAC enclosure standoffs and secure with four bolts (24).

(2) Install battery (ies) (5) in IAC enclosure and connect positive and negative leads to battery terminals.

(3) Connect tagged slip on terminal strips to TB1 through TB14.

(4) Connect ac power cord to power receptacle.

(5) Secure front access door to IAC enclosure.

3-105. REPLACE INTELLIGENT ACCESS CONTROLLER PWA. (Figure 3-55).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while working on equipment.	Equipment Condition: AC input power removed Materials/Parts: Intelligent Access Controller (IAC) PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove front access door from IAC enclosure.

(2) Remove input ac power cord from power source.

(3) Tag and remove slip on terminal strips from TB1 through TB14 on IAC PWA (1).

(4) Press in and hold latching mechanism on each plastic standoff while gently lifting up on PWA. Do this for each of six fasteners until PWA is removed from RADC back panel (7).

b. Installation

(1) Set link settings and/or switch settings exactly the same as removed PWA or refer to Appendix E, page E-37.

(2) Align PWA to five fasteners and gently press down on each corner of PWA until board locks into

(3) Connect tagged slip on terminal strips to TB1 through TB14.

(4) Connect ac power cord to power source.

(5) Secure front access door to IAC enclosure.

3-106. REPLACE STEP-DOWN TRANSFORMER ASSEMBLY. (Figure 3-55).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Materials/Parts: Step-Down Transformer Assembly	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from IAC enclosure.

(2) Remove ac step down power transformer (3) from ac outlet power receptacle (4).

(3) Remove ac input wires from TB1 (9) pins 1 and 2 on IAC PWA (1).

(4) Remove ac power transformer (3) from IAC enclosure (8).

b. Installation

(1) Connect ac input wires to TB1 (9) pins 1 and 2 on IAC PWA (1).

(2) Connect ac transformer (3) to IAC power receptacle (4).

(3) Place front access cover on IAC enclosure and secure it.

3-107. REPLACE 12 V BATTERY. (Figure 3-55).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Materials/Parts: 12 v battery, 4 AH (2ea)	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open and remove front access cover from IAC enclosure.

(2) Remove AC adapter (3) from power receptacle (4).

(3) Remove red and black slip on terminal lugs from positive and negative terminals of 12 v battery or batteries (5).

(4) Remove battery or batteries from enclosure.

b. Installation

(1) Place 12 v battery or batteries (5) into enclosure.

(2) Connect red and black slip on terminal lugs to positive and negative terminals of 12 v battery or batteries (5).

(3) Connect AC adapter (3) to power receptacle (4).

(4) Place front access cover on IAC enclosure and secure.

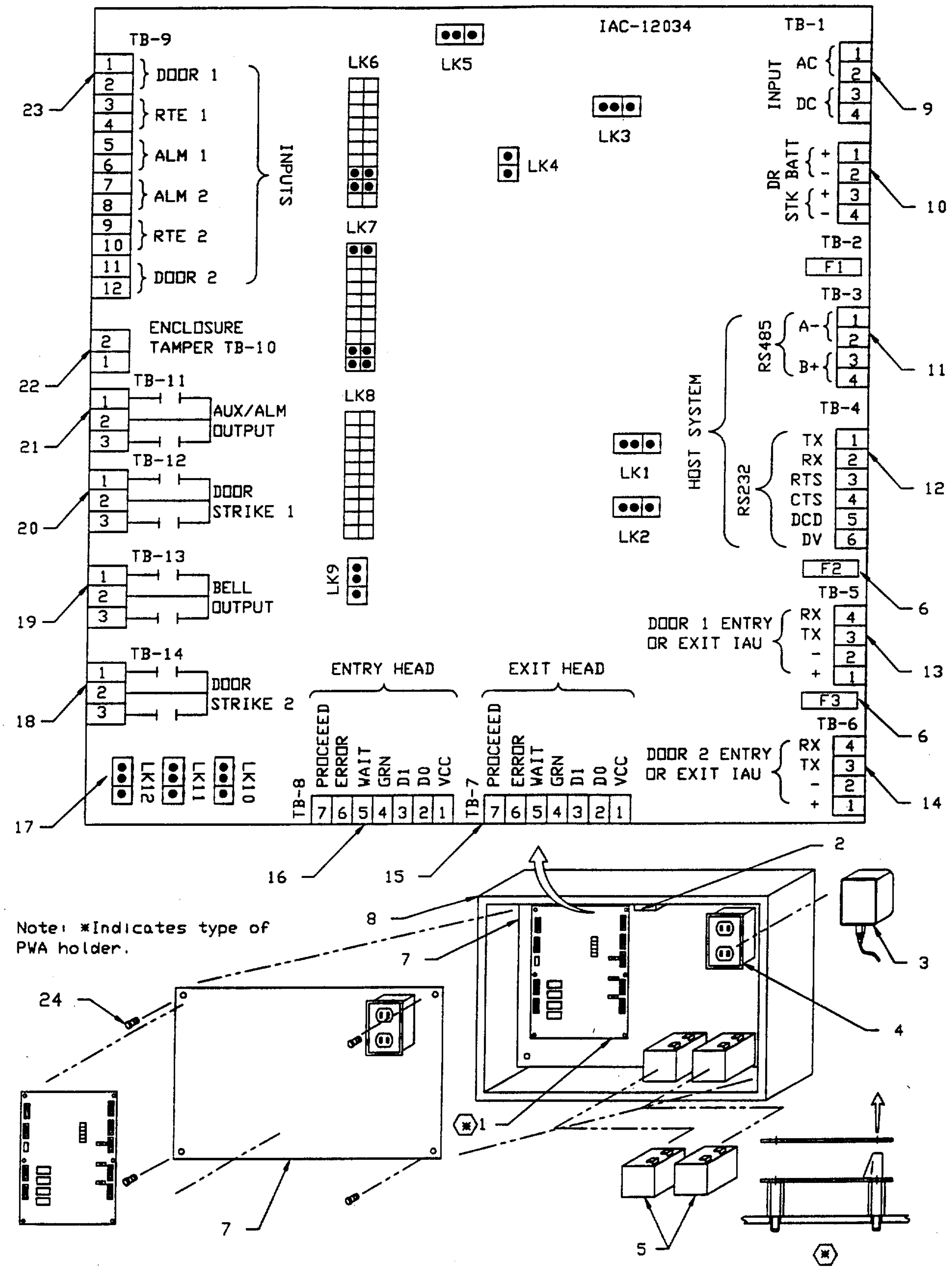


Figure 3-55. Removal and Replacement of intelligent Access Controller Rear Panel and Assemblies

3-108. REPLACE INTELLIGENT ACCESS UNIT. (Figure 3-56).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Tamper Proof Screwdriver (Item 41, App B) Materials/Parts: Intelligent Access Unit (IAU)	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove two tamper proof screws (2) from bottom of front panel assembly (1).

(2) Press in on front panel assembly (1), slide panel up, and pull it away from bracket assembly (4).

(3) Remove input terminal strip from PWA terminal board.

b. Installation

(1) Connect input terminal strip to PWA terminal board. (Ref. Appendix E, E-40)

(2) Align front panel assembly (1) and tamper proof spring (5) with bracket assembly (4). Push in on panel assembly and slide it down until it is locked in position.

(3) Secure outer panel assembly (1), using two tamper proof screws (2).

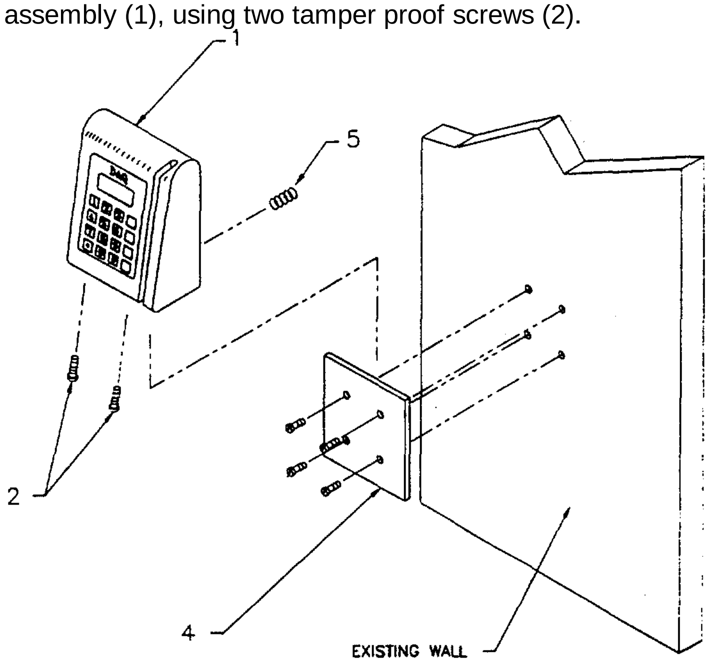


Figure 3-56. Removal and Replacement of Intelligent Access Unit

3-109. REPLACE STARPIN KEYPAD ASSEMBLY. (Figure 3-57).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Tamper Proof Screwdriver (Item 41, App B) Materials/Parts: Starpin Keypad Assembly	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove two tamper proof screws (2) from bottom of front panel assembly (1).

(2) Press in on front panel assembly (1), slide panel up, and pull it away from bracket assembly (4).

(3) Remove input terminal strip from PWA terminal board.

b. Installation

(1) Connect input terminal strip to PWA terminal board. (Ref. Appendix E, E-42)

(2) Align front panel assembly (1) and tamper proof spring (5) with bracket assembly (4). Push in on panel assembly and slide it down until it is locked in position.

(3) Secure front panel assembly (1), using two tamper proof screws (2).

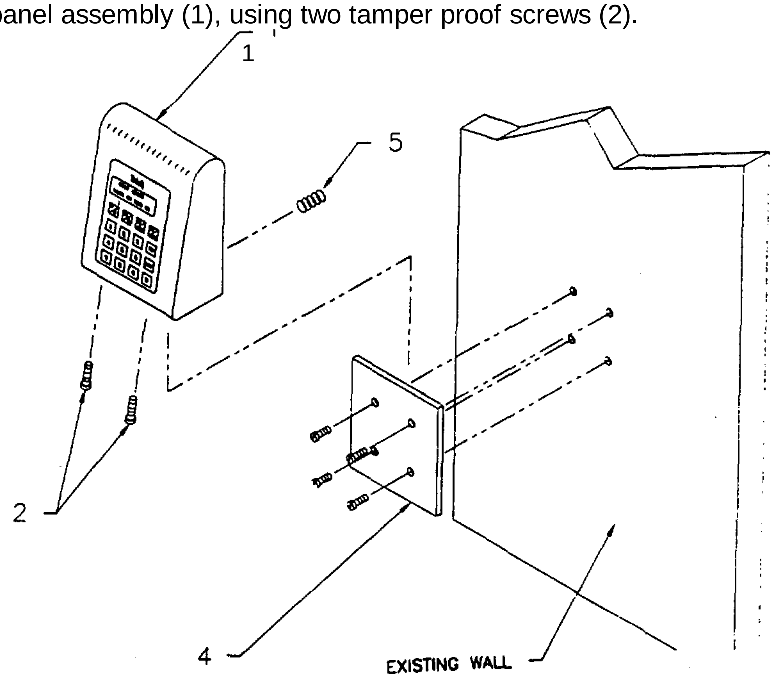


Figure 3-57. Removal and Replacement of Keypad Assembly

3-110. REPLACE SWIPE CARD READER. (Figure 3-58).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Tamper Proof Screwdriver (Item 41, App B) Wire Strippers (Item 10, App. B) Wire Cutters (Item 24, App. B) Soldering Iron (Item 39, App. B)	General Safety Instructions: Remove all jewelry while working on equipment. Materials/Parts: Swipe Card Reader

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove tamper proof screw(s) (2) from bottom of front cover (1).

(2) Press in on front panel assembly (1), slide panel up, and pull it away from bracket assembly (4).

(3) Tag, unsolder and remove wires from swipe card reader terminal board.

b. Installation

(1) Connect tagged wires and solder to swipe card reader terminal board.

(2) Align front panel (1), with bracket assembly (4), push in on panel assembly, and slide it down until locked into position.

(3) Secure front panel assembly (1), using tamper proof screw(s) (2).

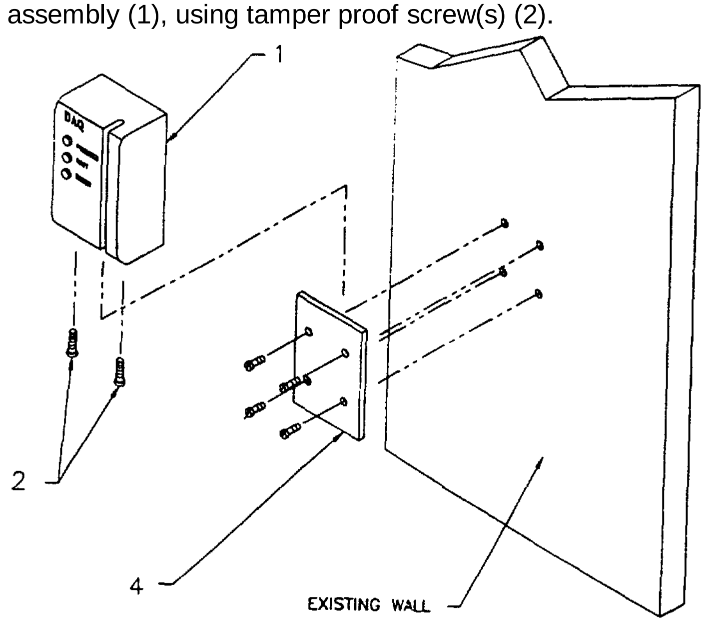


Figure 3-58. Removal and Replacement of Swipe Card Reader Assembly

3-111. REPLACE BALANCED MAGNETIC SWITCH, SENTROL 2700 SERIES. (Figure 3-59).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 7, App B) Materials/Parts: Balanced Magnetic Switch	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove four flathead screws (2) holding sensor switch (1) to protected entrance way.

(2) Tag and disconnect sensor wiring (5) in terminal box.

(3) Remove four flathead screws (4) holding sensor magnet (3) to door assembly.

(4) Remove sensor switch (1) and sensor magnet (3). Leave tamper plate (6) in place.

b. Installation

(1) Align sensor switch and sensor magnet with previously drilled holes and secure with four flathead screws for each assembly.

(2) Connect wires (5) from sensor switch (1) to terminal box.

(3) Align sensor switch with sensor magnet and check for sensitivity (SAIG, Appendix E, Section 1).

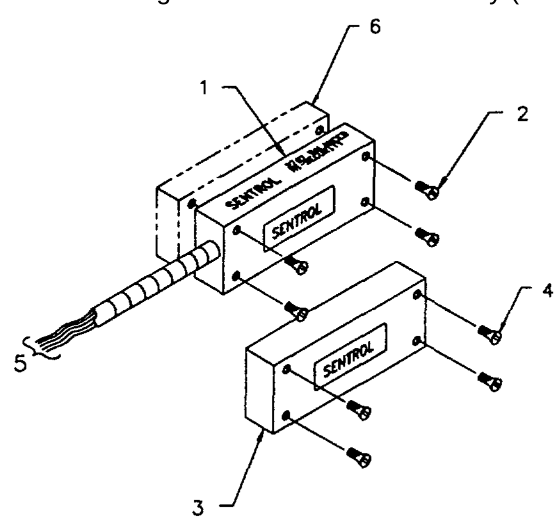


Figure 3-59. Removal and Replacement of Balanced Magnetic Switch Assembly (Sentrol 2700 Series)

3-112. REPLACE BALANCED MAGNETIC SWITCH, SENTROL 2720 SERIES. (Figure 3-60).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 7, App B) Materials/Parts: Balanced Magnetic Switch	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove three flathead screws (4) holding sensor switch (3) to protected entrance way.

(2) Tag and disconnect sensor wiring (5) from terminal box.

(3) Remove two flathead screws (2) holding sensor magnet (1) to door assembly.

(4) Remove sensor switch (3) and sensor magnet (1) from protected assembly.

b. Installation

(1) Align sensor switch and sensor magnet with previously drilled holes and secure with two flathead screws (2), for sensor magnet (1) and three flathead screws (4) for sensor switch assembly (3).

(2) Connect wires (5) from sensor switch to terminal box.

(3) Check for correct alignment between sensor switch (3) and sensor magnet (1) (See SAIG, Appendix E, Section 1).

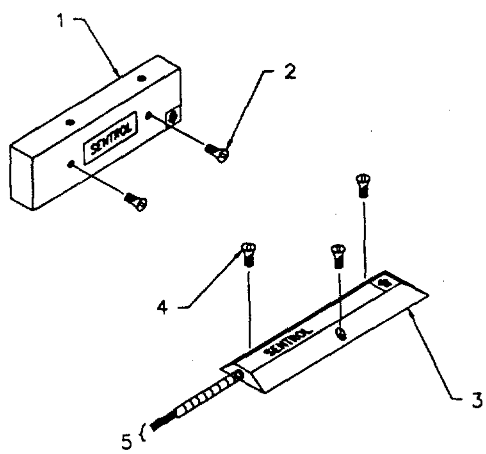


Figure 3-60. Removal and Replacement of Balanced Magnetic Switch Assembly

3-113. REPLACE BALANCED MAGNETIC SWITCH, SENTROL 2800T SERIES. (Figure 3-61).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Cross tip (Item 4, App B) Screwdriver, Cross tip (Item 5, App B) Materials/Parts: Balanced Magnetic Switch	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove four phillips head screws (4) holding sensor switch front plate assembly (3) to sensor switch (1).

(2) Tag and disconnect sensor wiring from terminal board (2), pins 1 through 8. Remove sensor input wiring from sensor switch (1).

(3) Remove four flathead screws (7) holding sensor switch (1) to protected device.

(4) Remove two phillips head screws (5) holding sensor magnet (6) to door assembly.

(5) Remove sensor switch (1) and sensor magnet (6) from protected assembly.

b. Installation

(1) Align sensor switch (1) and sensor magnet (6) with previously drilled holes and secure with two phillips head screws (5) for sensor magnet (6) and four flathead screws (7) for sensor switch assembly (1).

(2) Insert wiring assembly through sensor cable connector and connect tagged wires to terminal board (2).

(3) Install sensor switch front plate (3) using four phillips head screws (4).

(4) Check for correct alignment between sensor switch (1) and sensor magnet (6). (See SAIG, Appendix E, Section 1)

NOTE

Replace switch and magnet as a set.

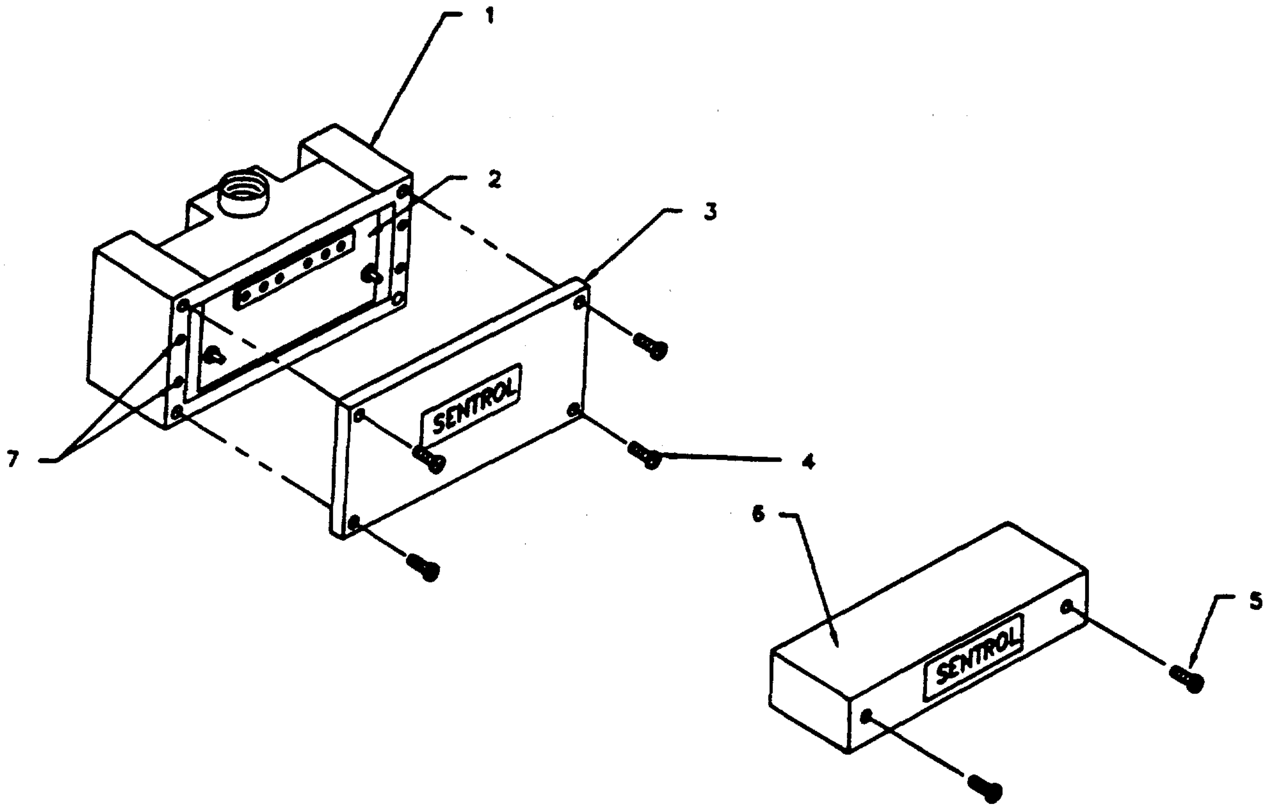


Figure 3-61. Removal and Replacement of Balanced Magnetic Switch Assembly

3-114. REPLACE CAPACITANCE PROXIMITY SENSOR PWA. (Figure 3-62).

This task consists of: a. Removal b. Install

INITIAL SETUP:	
Tools: Screwdriver, Cross tip (Item 5, App B) Screwdriver, Flat tip (Item 7, App B) Materials/Parts: Capacitance Proximity Sensor PWA	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling ESD sensitive PWA.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Disconnect 16 vac transformer from power source.

(2) Remove two round head screws (7) holding door assembly (1) closed.

(3) Tag and remove wiring from TB1 (8) pins 1 through 14 on PWA (2).

(4) Remove four phillips head screws (4) holding PWA (2) to door assembly.

(5) Remove hardware, star washer, and nut from test activate switch (5) and remove switch from door assembly (1).

(6) Tag and disconnect wires from test verification lamp (6).

(7) Remove PWA assembly (2) from enclosure (1).

b. Installation

(1) Connect tagged wires to test verification lamp (6).

(2) Insert test activate switch (6) in door assembly (1) and secure it using star washer and nut.

(3) Align PWA (2) with standoff on front door assembly (1) and secure it using four phillips head screws (4).

(4) Connect tagged wires to TB1 (8) pins 1 through 14.

(5) Close front door assembly (1) and secure it with two round head screws (4).

(6) Connect 16 vac transformer to power source.

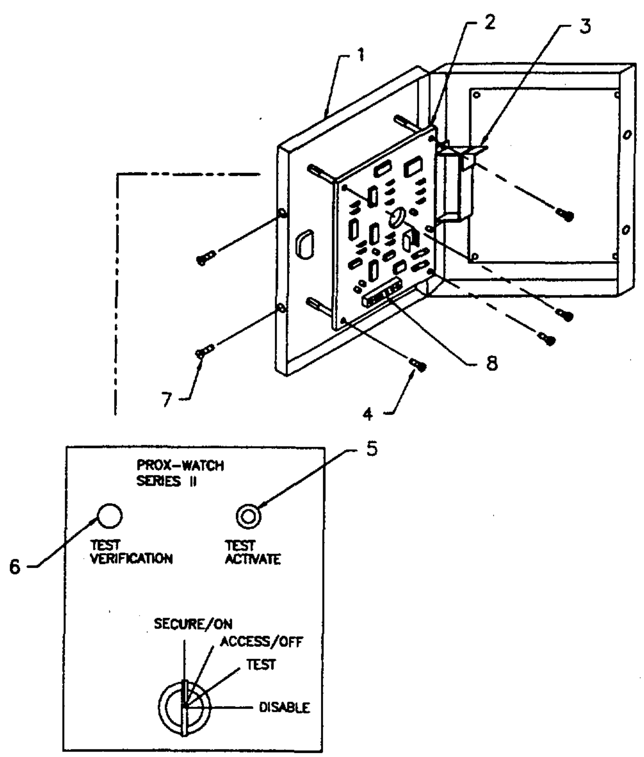


Figure 3-62. Removal and Replacement of Capacitance Proximity Sensor

3-115. REPLACE EXTERIOR INFRARED PERIMETER SENSOR. (Figure 3-63).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Cross tip (Item 5, App B) Screwdriver, Flat tip (Item 7, App B) Materials/Parts: Infrared Perimeter Sensor	Equipment Condition: Input power removed General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove screw (1) at base of front cover (2).

(2) Tag and remove wiring from TB1 (4).

(3) Loosen two screws (3) holding sensor body (5) to mounting bracket (6).

(4) Slide mounting plate downward to detach sensor (5) from mounting bracket (6).

b. Installation

(1) Place sensor (5) on mounting bracket (6) and press upward to lock in place with bracket assembly (6).

(2) Secure sensor body (5) with two screws (3) to mounting bracket (6).

(3) Connect tagged wires to TB1 (4).

(4) Place front cover (2) over sensor and secure it with screw (1).

(5) Check for correct alignment between transmitter and receiver unit. (See SAIG, Appendix E, Section 10).

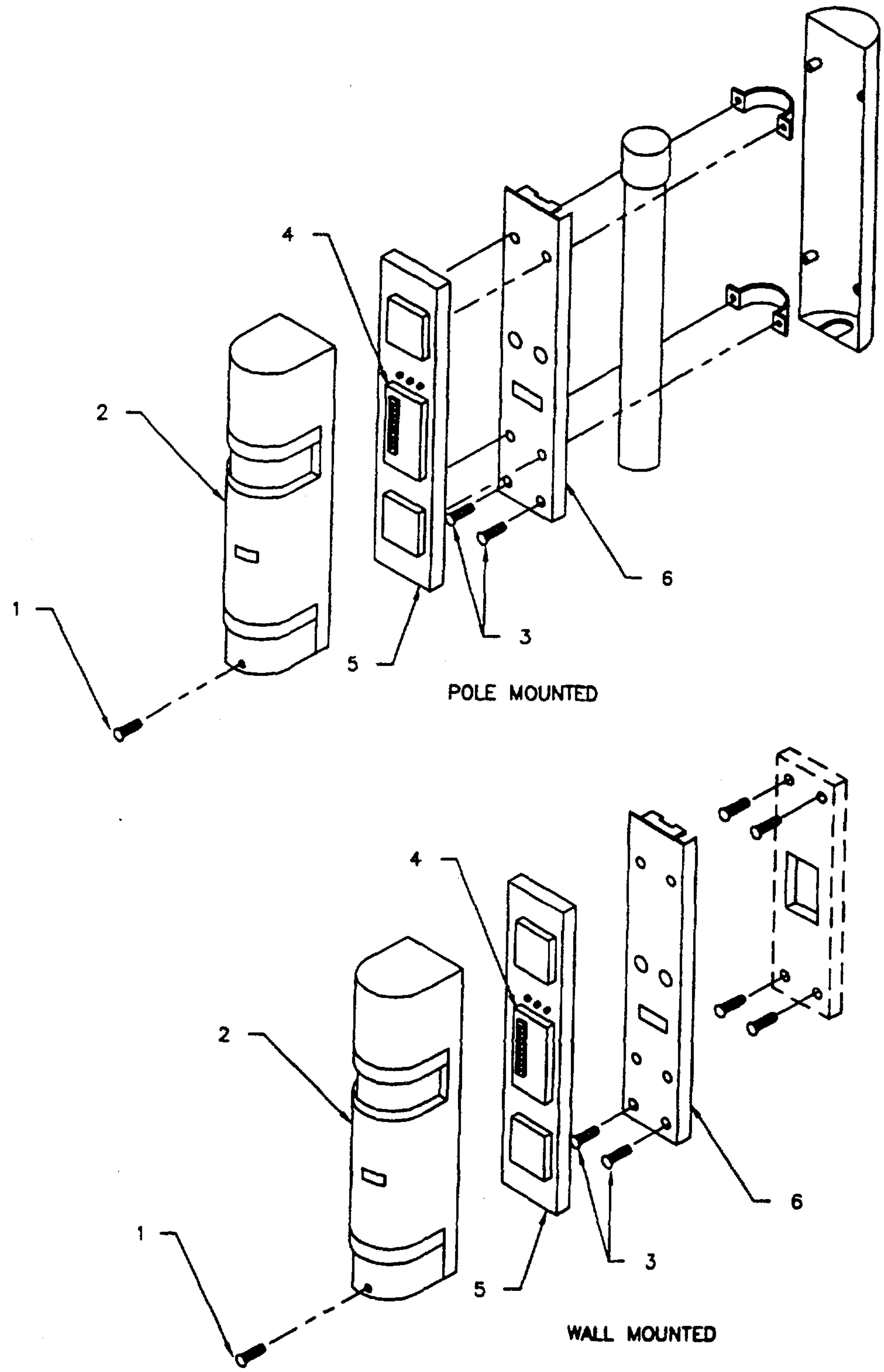


Figure 3-63. Removal and Replacement of Exterior Infrared Perimeter Sensor Assembly

3-116. REPLACE EXTERIOR MICROWAVE MOTION SENSOR, PWA. (Figure 3-64).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Cross tip (Item 5, App B) Screwdriver, Flat tip (Item 6, App B) Open End Wrench Set (Item 13, App B) Materials/Parts: Exterior Microwave Motion Sensor, PWA	Equipment Condition: Input power removed General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling ESD sensitive PWAs.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove input power to transmitter (1) or receiver unit (2).

(2) Open cabinet door by turning two turn-key locks.

(3) Remove coaxial cable from PWA (4 or 6) coaxial connector.

(4) Tag and remove wires from PWA TB1 (5).

(5) Remove two phillips head screws (3) holding PWA (4 or 6) in place and remove PWA.

(6) Place the removed PWA in a ESD protective bag.

b. Installation

(1) Align PWA (4 or 6) with support standoffs and secure with two phillips head screws (3).

(2) Connect tagged wires to PWA TB1 (5).

(3) Connect coaxial cable to PWA (4 or 6) coaxial connector.

(4) Set dip switches to same position as on PWA (4) removed. (See SAIG, Appendix E, Section 8)

(5) Close cabinet door and secure with turn-key locks.

(6) Apply input power to sensor assembly.

(7) Check for correct alignment between transmitter and receiver unit. (See SAIG, Appendix E, Section 9).

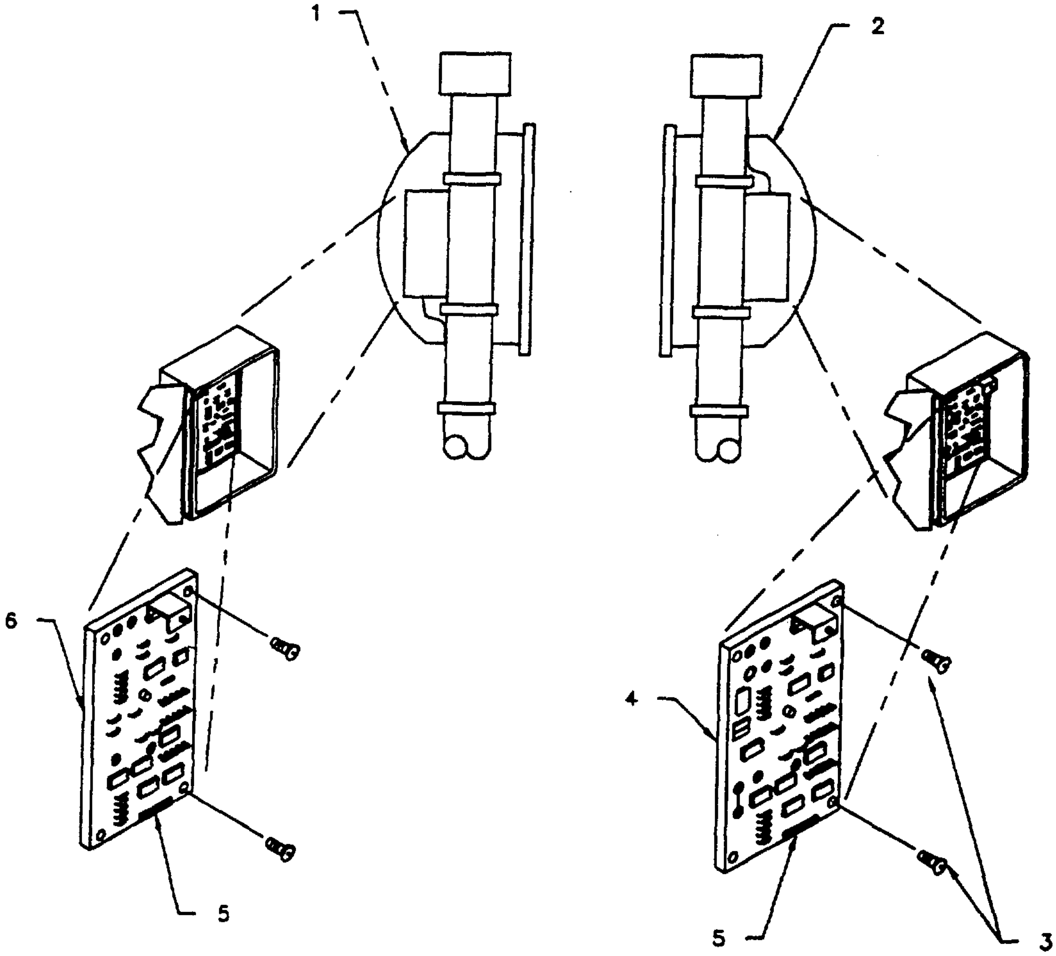


Figure 3-64. Removal and Replacement of Exterior Microwave Motion Sensor PWA

3-117. REPLACE FENCE-MOUNTED VIBRATION SENSOR PROCESSOR, RACON MODEL F-100. (Figure 3-65).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Cross tip (Item 5, App B) Screwdriver, Flat tip (Item 7, App B) Materials/Parts: Fence-Mounted Vibration Sensor Processor PWA	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wriststrap while handling ESD sensitive PWAs.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove 12 vac power transformer from 120 vac power source.

(2) Open front access cover (1) by turning key lock (5).

(3) Tag and remove wires from PWA TB1 (3) pins 1 through 12.

(4) Remove input wiring cable from processor assembly PWA (2).

(5) Remove four phillips head screws (4) holding PWA (2) to enclosure.

(6) Remove processor assembly PWA (2) from its mounting bracket.

(7) Place the removed PWA in a ESD protective bag.

b. Installation

(1) Place processor assembly PWA (2) on mounting bracket and secure with four phillips head screws (4).

(2) Connect tagged wires to PWA TB1 (3) pins 1 through 12.

(3) Ensure all switch settings are the same as on removed processor PWA (2).

(4) Connect 12 vac power transformer to 120 vac power source.

(5) Secure front panel (1) by turning key lock (5) CCW.

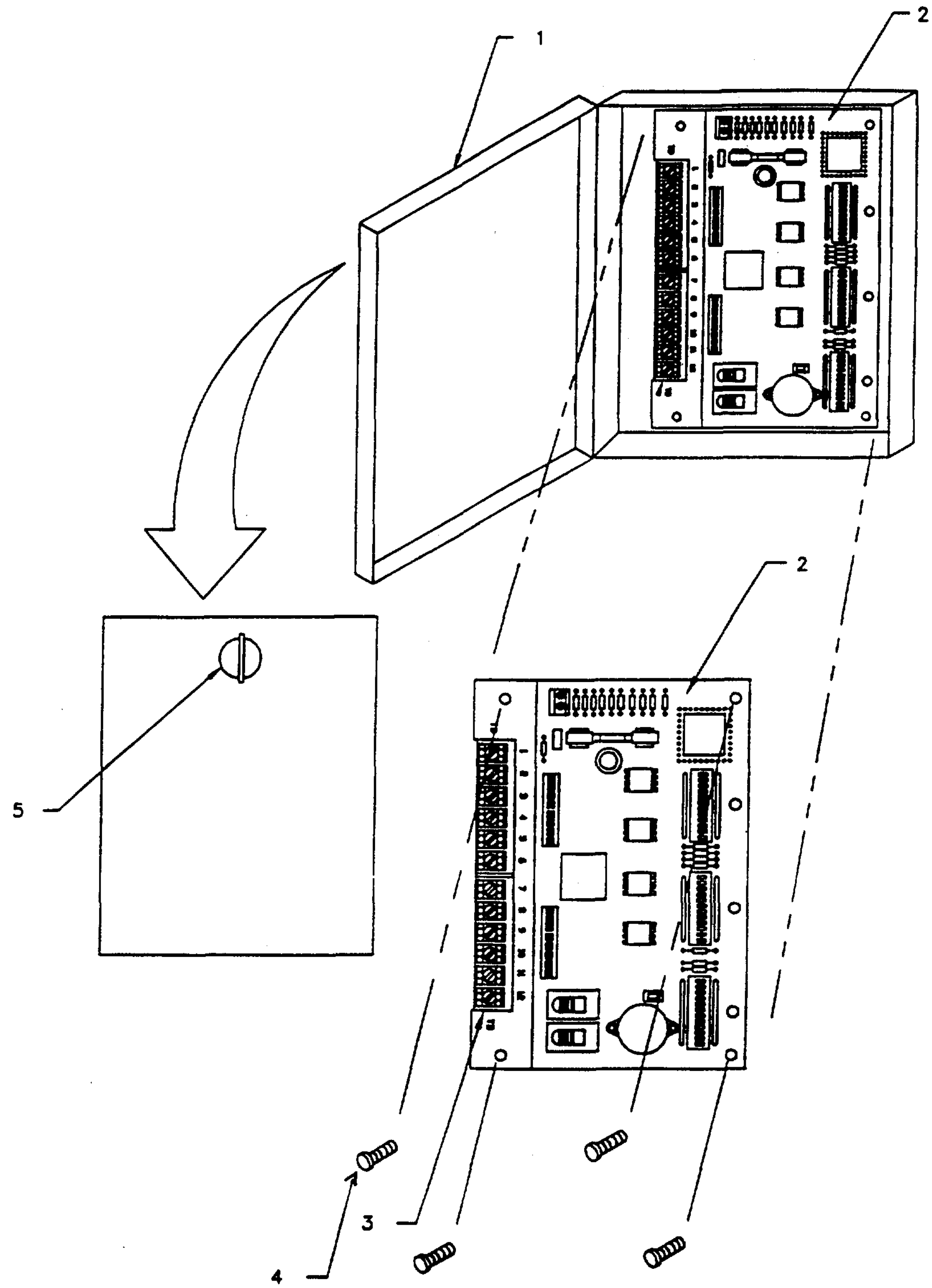


Figure 3-65. Removal and Replacement of Fence Mounted Vibration Sensor Processor Assembly

3-118. REPLACE FENCE-MOUNTED VIBRATION SENSOR. (Figure 3-66).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Cross tip (Item 4, App B) Screwdriver, Flat tip (Item 7, App B) Materials/Parts: Vibration Sensor	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove four socket head screws (2) from sensor cover (1).

(2) Remove sensor shield wire (7) by removing button head screw (3).

(3) Tag and disconnect wiring to circuit board (9).

(4) Remove watertight connector, gasket, washer, and compression nut (4), or remove as shown in (5) if cable is placed through conduit.

(5) Remove cable from sensor housing.

(6) Remove two self tapping screws (8) from mounting bracket (6) and sensor post and remove sensor.

b. Installation

(1) Align sensor housing with sensor post mounting holes and secure with two self tapping screws (8).

(2) Route sensor cable through sensor housing inlets and secure with watertight connector, gasket, washer, and compression nut (4), or as shown with (5).

(3) Connect tagged wiring to circuit board (9).

(4) Connect sensor shield wire (7) to terminal holder with button head screw (3).

(5) Connect sensor cover (1) to sensor housing (9) with four socket head screws (2).

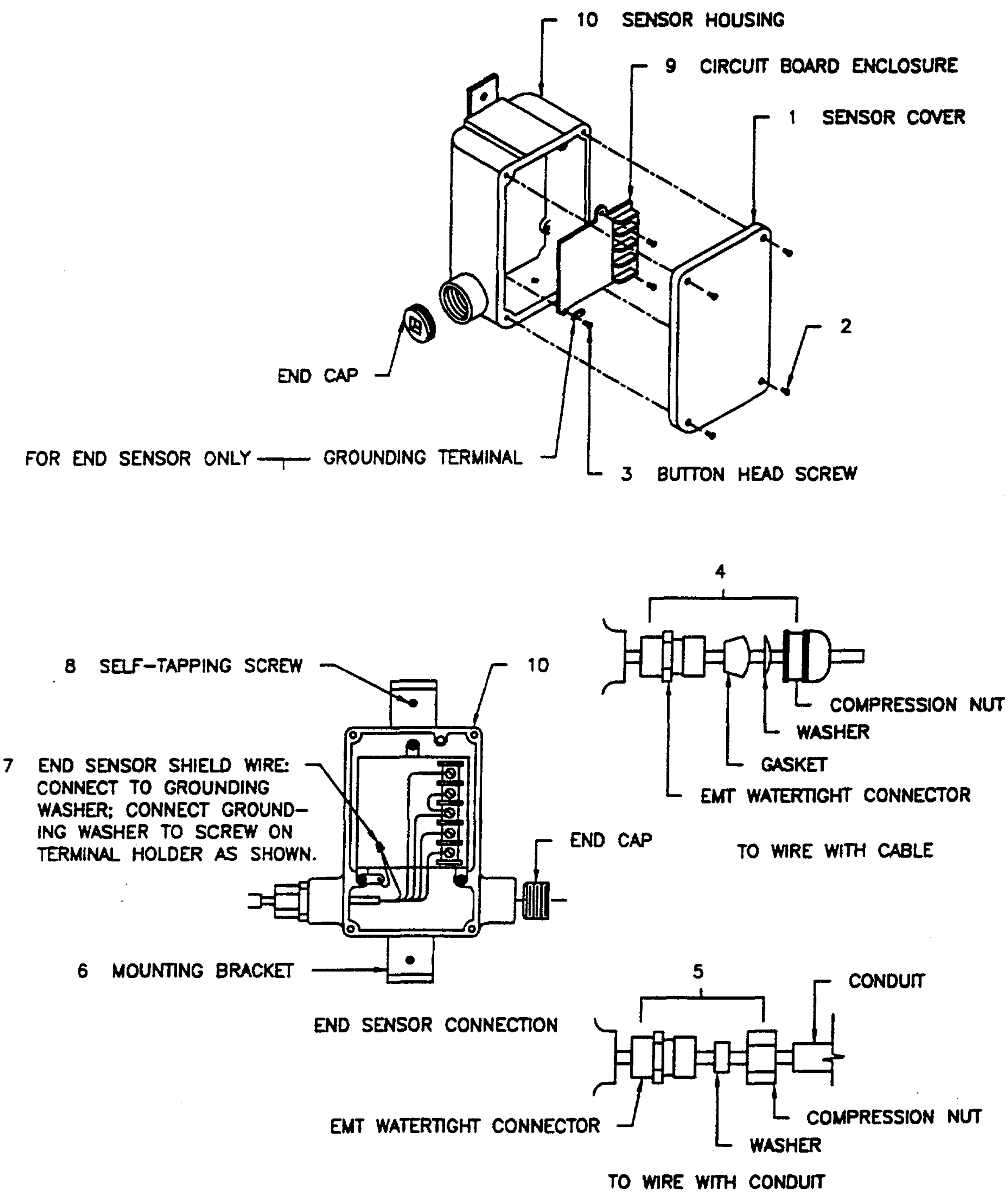


Figure 3-66. Removal and Replacement of Fence Mounted Vibration Sensor Assembly

3-119. REPLACE MICROWAVE MOTION SENSOR, HITECH 50 SERIES. (Figure 3-67).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 7, App B) Open End Wrench Set (Item 13, App B)	General Safety Instructions: Remove all jewelry while working on equipment.
Equipment Condition: Input Power Removed	Materials/Parts: Microwave Motion Sensor, HiTech 50 Series

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove two screws (1) at sides of HITECH sensor housing (3) and remove PWA (2) from sensor housing (3).

(2) Tag and remove wiring from PWA terminal block (6) and housing (3).

(3) Remove bolt (4) holding sensor enclosure (3) to bracket assembly (5). Remove HITECH sensor assembly.

b. Installation

(1) Connect HITECH sensor housing assembly (3) to bracket assembly (5) with bolt (4).

(2) Remove two screws (1) at sides of HITECH sensor housing (3) and remove PWA (2) from sensor housing (3).

(3) Connect tagged wire to PWA terminal block (6).

(4) Install PWA (2) in HITECH sensor housing (3) and secure with two screws (1).

(5) Connect input power ac or dc by turning on input power source or plugging in power source.

(6) Align sensor. Ref. (SAIG, Appendix E, Section 3).

3-120. REPLACE MICROWAVE MOTION SENSOR, HITECH 100 SERIES. (Figure 3-67).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 7, App B) Socket Set (Item 11, App B)	General Safety Instructions: Remove all jewelry while working on equipment.
Equipment Condition: Input power removal	Materials/Parts: Microwave Motion Sensor, HiTech 100 Series

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

To avoid personal injury, use an adequate number of personnel to lift or move equipment weighing over 50 pounds or oversize equipment. Observe correct lifting techniques. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove input power to HITECH 100 sensor.

(2) Remove 16 bolts (9) holding housing cover (7) to housing enclosure (8) and remove cover.

(3) Remove four bolts (10) holding sensor assembly (11) to housing enclosure (8) and remove sensor.

(4) Tag and remove wiring from PWA (12).

b. Installation

(1) Connect tagged wiring to PWA (12).

(2) Insert sensor assembly (11) into housing assembly (8) and secure with four bolts (10).

(3) Place housing cover (7) on housing assembly and secure with 16 bolts (9).

(4) Apply input power to HITECH 100 sensor.

(5) Align sensor. Ref. (SAIG, Appendix E, Section 3).

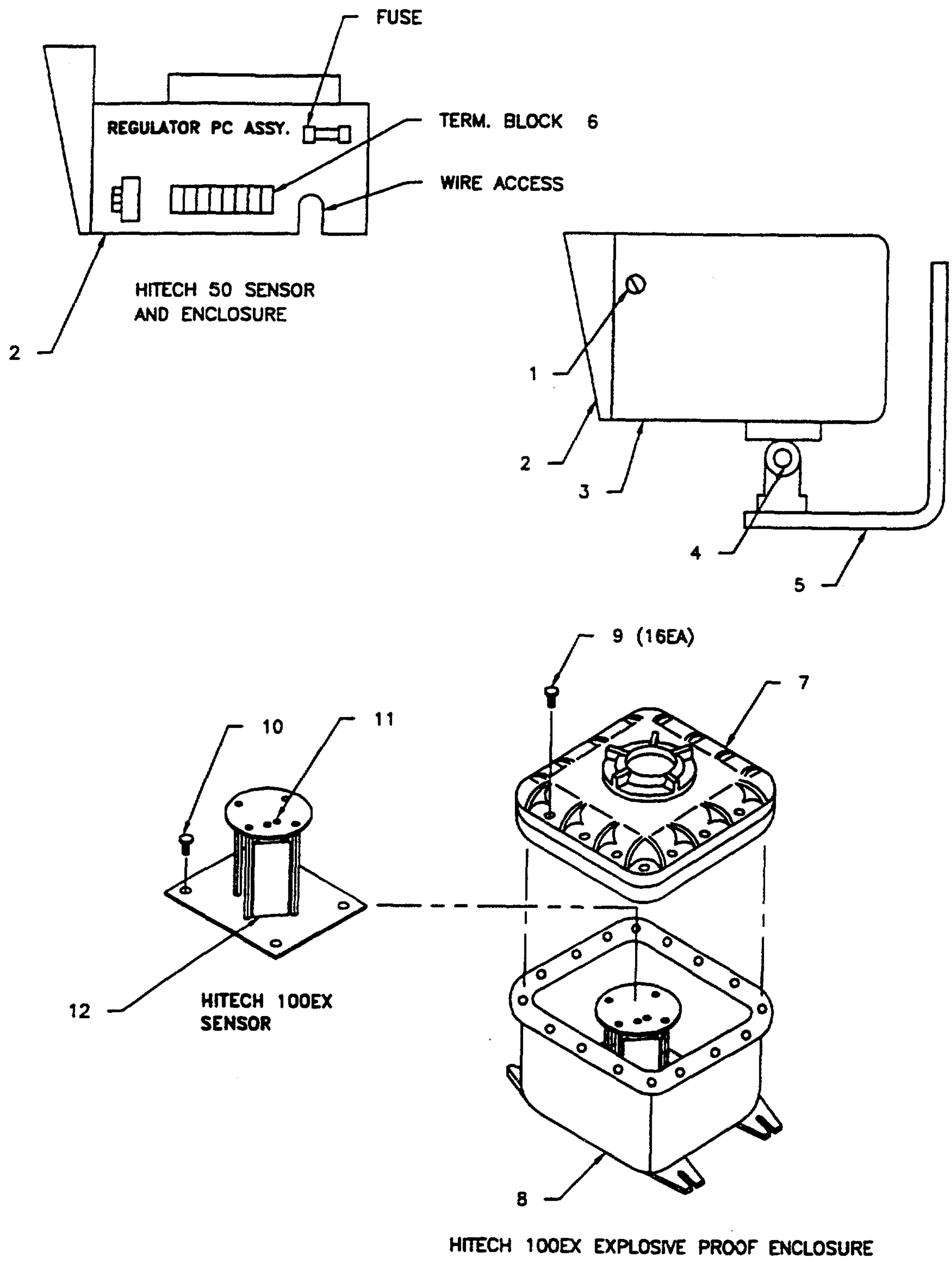


Figure 3-67. Removal and Replacement of Microwave Motion Sensor Assemblies

3-121. REPLACE PORTED COAXIAL SENSOR PROCESSOR ASSEMBLY. (Figure 3-68).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Cross tip (Item 5, App B) Screwdriver, Flat tip (Item 6, App B) Open End Wrench Set (Item 13, App B)	General Safety Instructions: Remove all jewelry while working on equipment. Materials/Parts: Ported Coax Processor PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Loosen six screw lock fasteners (1) and open sensor door.

(2) Press power switch (5) to off.

(3) Remove input power to sensor by unplugging power source.

(4) Turn two turn-lock fastener screws (4) and open front panel (2).

(5) Tag and remove wiring from TB1 (6) and TB2 (7).

(6) Tag and remove coaxial cables from transmit and receive module connectors (8 and 9).

(7) Remove cable assembly and coaxial cables from sensor housing.

(8) Remove eight phillips head screws (11) supporting sensor enclosure (3) and remove.

b. Installation

(1) Align sensor enclosure (3) with mounting holes and secure with eight screws (11).

(2) Connect tagged coaxial cables to receiver module (9) and transmitter module (8), and wiring assembly to TB1 (6) and TB2 (7).

(3) Close front panel (2) and secure with two turn-lock fasteners (4).

(4) Connect input power source.

(5) Turn sensor assembly power switch (5) on.

(6) Close sensor assembly door and secure with six screw lock fasteners (1).

(7) Align sensor. Ref. (SAIG, Appendix E, Section 14).

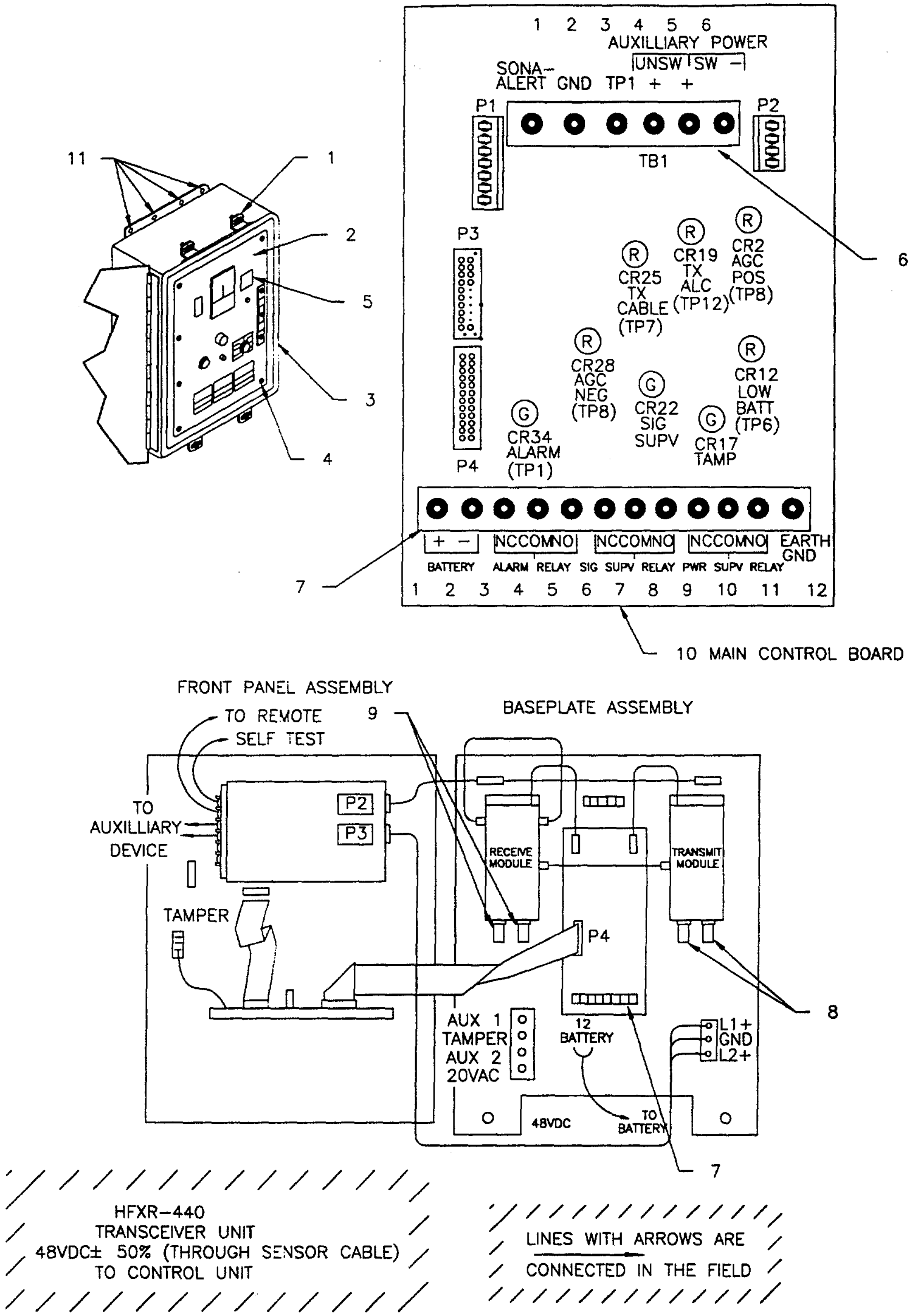


Figure 3-68. Removal and Replacement of Ported Coaxial Sensor Processor Assembly

3-122. REPLACE PASSIVE INFRARED MOTION SENSOR. (Figure 3-11).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Key Set (Item 14, App B)	Equipment Condition: Input power removed
Materials/Parts: Passive Infrared Motion Sensor	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove four socket head screws (3) from front panel assembly (2).

(2) Tag and remove wiring from TB1 (6).

(3) Remove wiring from sensor housing assembly (1).

(4) Remove two screws (9) holding housing assembly (1) to wall support and remove PIMS.

b. Installation

(1) Perform step 1 above on new PIMS.

(2) Align PIMS with wall support mount and secure with two screws (9).

(3) Install wiring through housing (1) and connect to TB1 (6).

(4) Align front panel assembly (2) with housing (1) and secure with four socket head screws (3).

(5) Reconnect input power.

3-123. REPLACE PASSIVE ULTRASONIC SENSOR. (Figure 3-17).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 6, App B) Screwdriver, Flat tip (Item 7, App B) Materials/Parts: Ultrasonic Sensor	Equipment Condition: Input power removed General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove four screws (1) holding plate assembly cover (2) and remove cover.

(2) Tag and remove wiring to TB1 (5).

(3) Loosen nut on cable input connector (4) and remove cable assembly.

(4) Remove four screws (3) holding PUS to support assembly and remove PUS.

b. Installation

(1) Align PUS with support assembly holes and secure with four screws (3).

(2) Insert cable assembly through input connector (4) and secure to PUS housing with nut.

(3) Connect tagged wiring to TB1 (5).

(4) Align plate assembly cover with holes on PUS housing and secure with four screws (1).

(5) Align sensor. Ref. (SAIG, Appendix E, Section 4).

3-124. REPLACE RADIO FREQUENCY MOTION SENSOR PWA. (Figure 3-69).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 7, App B) Open End Wrench Set (Item 13, App B) Equipment Condition: Input power removed	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wrist strap while handling ESD sensitive assemblies. Materials/Parts: Radio Frequency Motion Sensor PWA

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove four screws (1) from front panel assembly (2).

(2) Tag and remove wiring from TB1 (4).

(3) Remove four screw standoffs (3) holding PWA (5) to housing (6) and remove PWA.

b. Installation

(1) Set PWA switch setting the same as removed PWA or reference (SAIG, Appendix E, Section 7).

(2) Align PWA (5) with RFMS housing mounting brackets and secure four screw standoffs (3).

(3) Connect tagged wiring to TB1 (4).

(4) Align front panel assembly (2) with standoffs (3) and secure with four screws (1)

(5) Reconnect input power.

(6) Align sensor. Ref. (SAIG, Appendix E, Section 7).

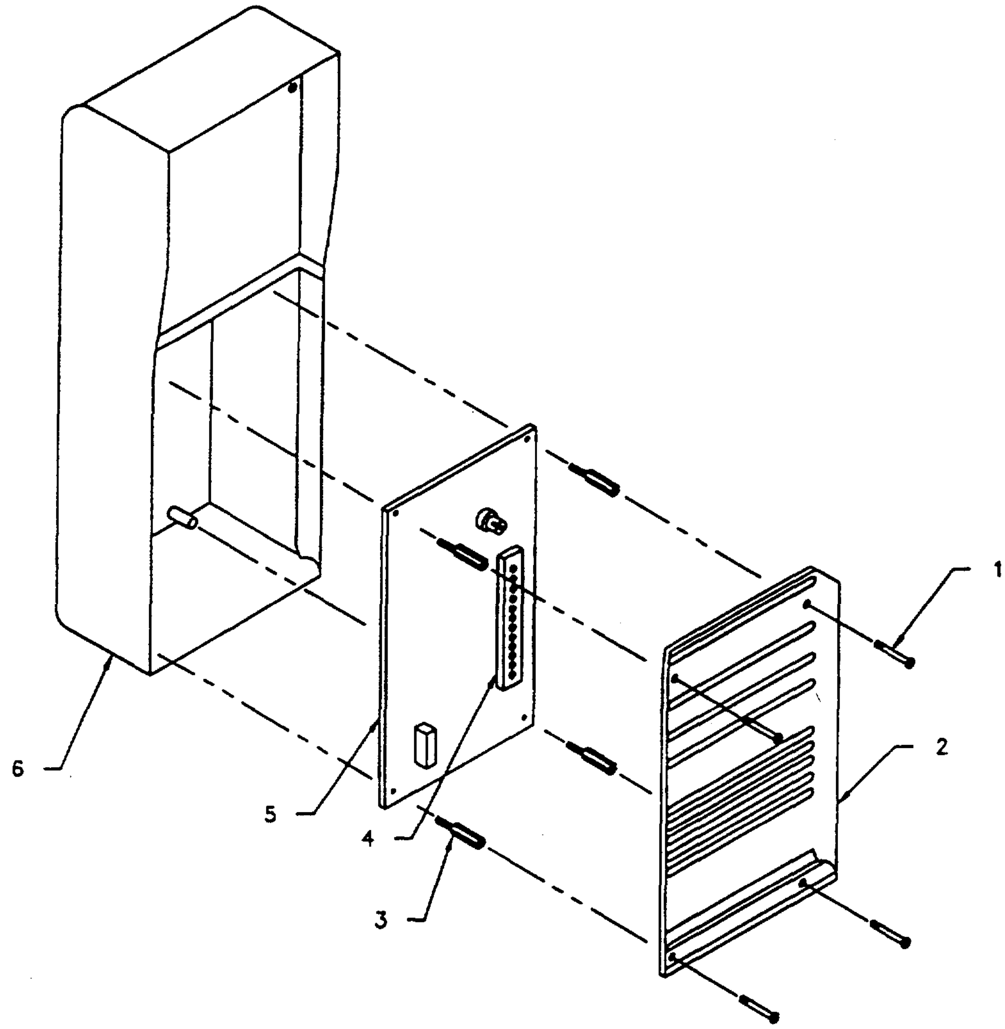


Figure 3-69. Removal and Replacement of Radio Frequency Motion Sensor PWA

3-125. REPLACE STRAIN-SENSITIVE CABLE FENCE SENSOR PROCESSOR PWA.
(Figure 3-70).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Cross tip (Item 5, App B) Screwdriver, Flat tip (Item 7, App B) Open End Wrench Set (Item 13, App B) Materials/Parts: Strain-Sensitive Cable Fence Sensor Processor PWA	General Safety Instructions: Remove all jewelry while working on equipment. Wear ESD wrist strap while handling ESD sensitive assemblies.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Open enclosure door (11) by loosening six screw down fasteners (12).

(2) Remove input power stepdown transformer (7) from power source and TB2 (13) pins 9 and 10. Remove 12 volt battery (8) if connected.

(3) Remove two tamper switch wires (1) from PWA (2) connector pins A and B.

(4) Tag and remove wiring from TB1 (10) and TB2 (13) on PWA.

(5) Remove coaxial cables (5 and 6) from cable inputs 1 and 2.

(6) Remove six phillips head screws (4) and lock washers (3) from PWA (2).

(7) Remove PWA (2) and place in ESD protective bag.

b. Installation

(1) Align PWA (2) with standoffs and secure with six phillips head screws (4) and lockwashers (3).

(2) Connect coaxial cables (5 and 6) to cable inputs 1 and 2.

(3) Connect tagged wires to TB1 and TB2 on PWA.

(4) Connect two tamper switch wires (1) to PWA (2) connector pins A and B.

(5) Connect 20 vac stepdown transformer (7) and 12 volt battery (8) if used.

(6) Close enclosure door (11) and secure with six screw down fasteners (12).

(7) Set sensitive adjustment. Ref. (SAIG, Appendix E, Section 12).

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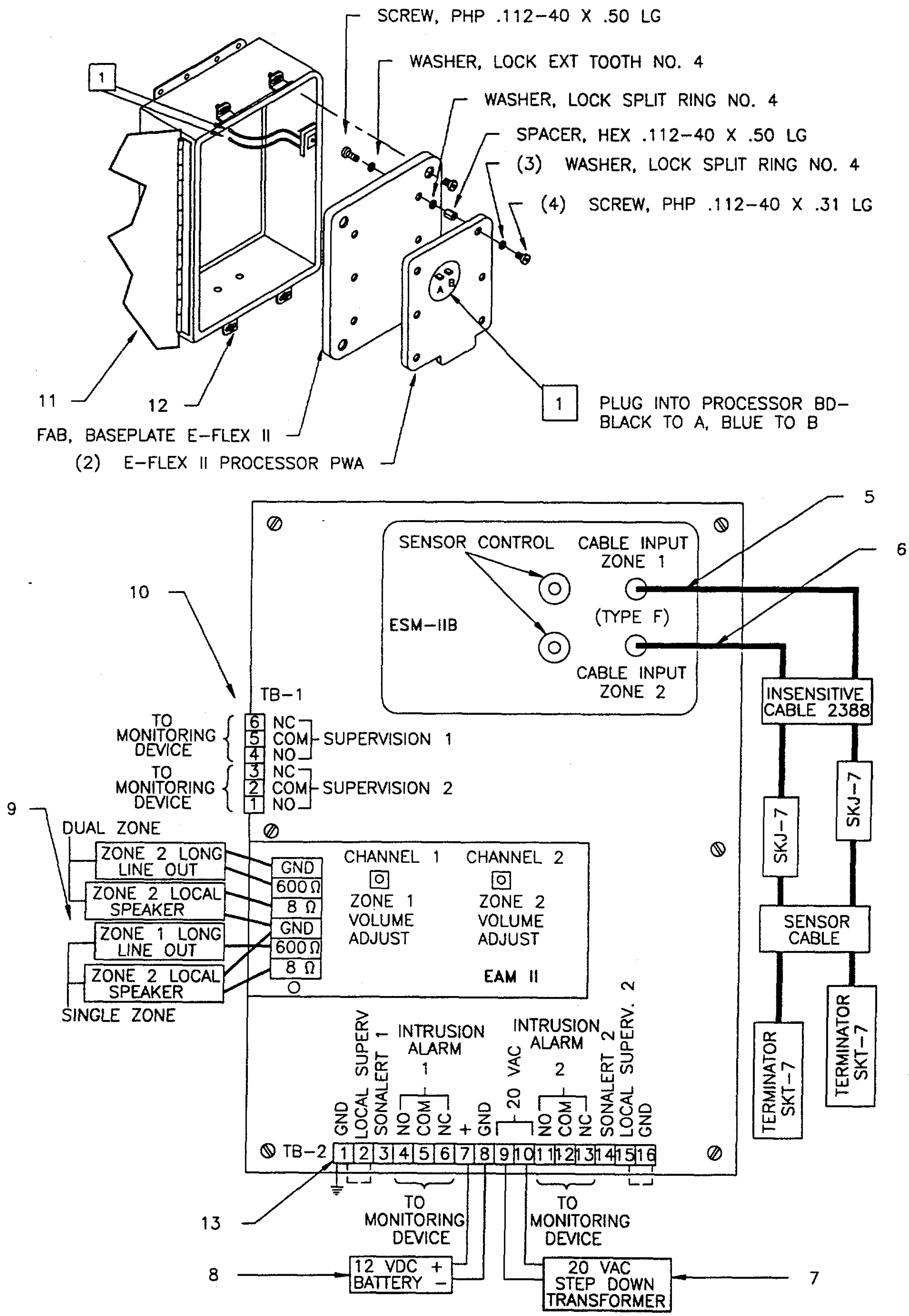


Figure 3-70. Removal and Replacement of Strain Sensitive Cable Sensor (Processor) PWA

3-126. REPLACE STRAIN-SENSITIVE CABLE FENCE SENSOR, JUNCTION SPLICE ASSEMBLY, OR TERMINATION ASSEMBLY. (Figure 3-71 and 3-70).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Cross tip (Item 5, App B) Screwdriver, Flat tip (Item 7, App B) Open End Wrench Set (Item 13, App B) Wire Cutters (Item 24, App B) Wire Strippers (Item 10, App B) Materials/Parts: Junction Splice Assembly Terminator Assembly Tie Wraps (Item 13, App D)	Test Equipment: Digital Multimeter General Safety Instructions: Remove all jewelry while working on equipment.

a. Removal

(1) Disconnect coaxial cables (6) at cable inputs 1 and 2 connectors on processor assembly. (Figure 3-70)

(2) Using diagonal cutting pliers, cut coaxial cables (6) (Figure 3-71) as close to retainer cap (5) as possible.

(3) Using diagonal cutting pliers, cut tie wrap (1) and remove junction splice assembly (2) or terminator assembly (11) from fence.

b. Installation

(1) Remove knockout hole from retainer cap (5).

(2) Insert both cables or cable through cap holes (larger holes for insensitive cable).

(3) With a wire stripper, strip back outer insulation of coaxial cable(s) (6) approximately 1 inch (26 mm).

(4) Cut and fold braided shields (7) back over outer insulation by 0.25 inch.

(5) Strip center conductor insulation (8) to 0.5 inches (13 mm).

(6) Remove PWA (10) shield retainer (4).

(7) Wrap center conductor wires (9) CW around upper screws (3) of splice PWA (10).

(8) Tighten both screws using a No. 3 phillips head screwdriver.

(9) Cut off and discard excess braid and center conductor wire.

(10) Push PWA (10) far enough into terminator housing (2) so black outer insulation of cables is well inside housing.

(11) Test cables for shorts and opens with a digital voltmeter.

(12) Prepare epoxy according to instructions on package.

(13) Fill housing (2) with epoxy compound.

(14) Slide retainer cap (5) into bottom of terminator housing and firmly press it in place.

(15) Fasten assembly kit to fence fabric using UV protected tie wrap (one around neck of housing and one around both cables).

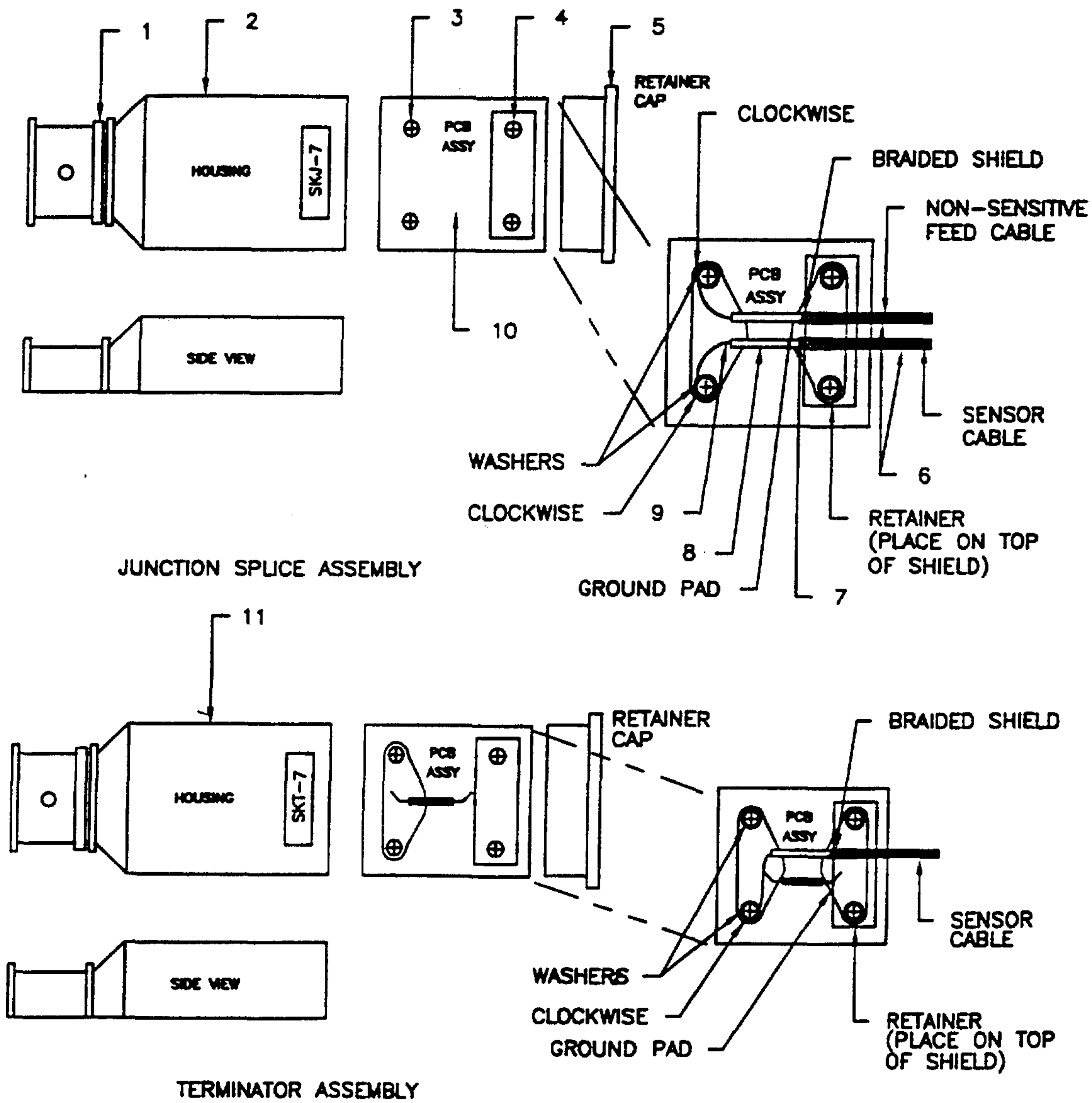


Figure 3-71. Removal and Replacement of Strain Sensitive Cable Sensor

3-127. REPLACE TAUT WIRE 90 FENCE SENSOR. (Figure 3-72).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Opened wrench set (Item 13, App. B) Wire cutters (Item 24, App. B) Wire strippers (Item 10, App. B) Soldering iron (Item 39, App. B) Materials/Parts: Heat shrink tubing (Item 14, App. D) Taut Wire 90 Sensor Post Assembly	Equipment Condition: Access Cover Open General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) For DTR-90 sensor assembly (1), tag and unsolder wire connections (2).

(2) Loosen barb wire mounting bolt (3) and remove wire.

(3) Loosen mounting bolt (4).

(4) Remove sensor assembly (1) from sensor post.

b. Installation

(1) Replace sensor assembly (1) to inside sensor post.

(2) Tighten mounting bolt (4).

(3) Slip heat shrink tubing onto wire.

(4) Solder wire connections.

(5) Shrink heat shrink tubing to size.

(6) Install barb wire and tighten mounting bolt (3).

(7) Set sensitive adjustment. Ref. (SAIG, Appendix E, Section 13).

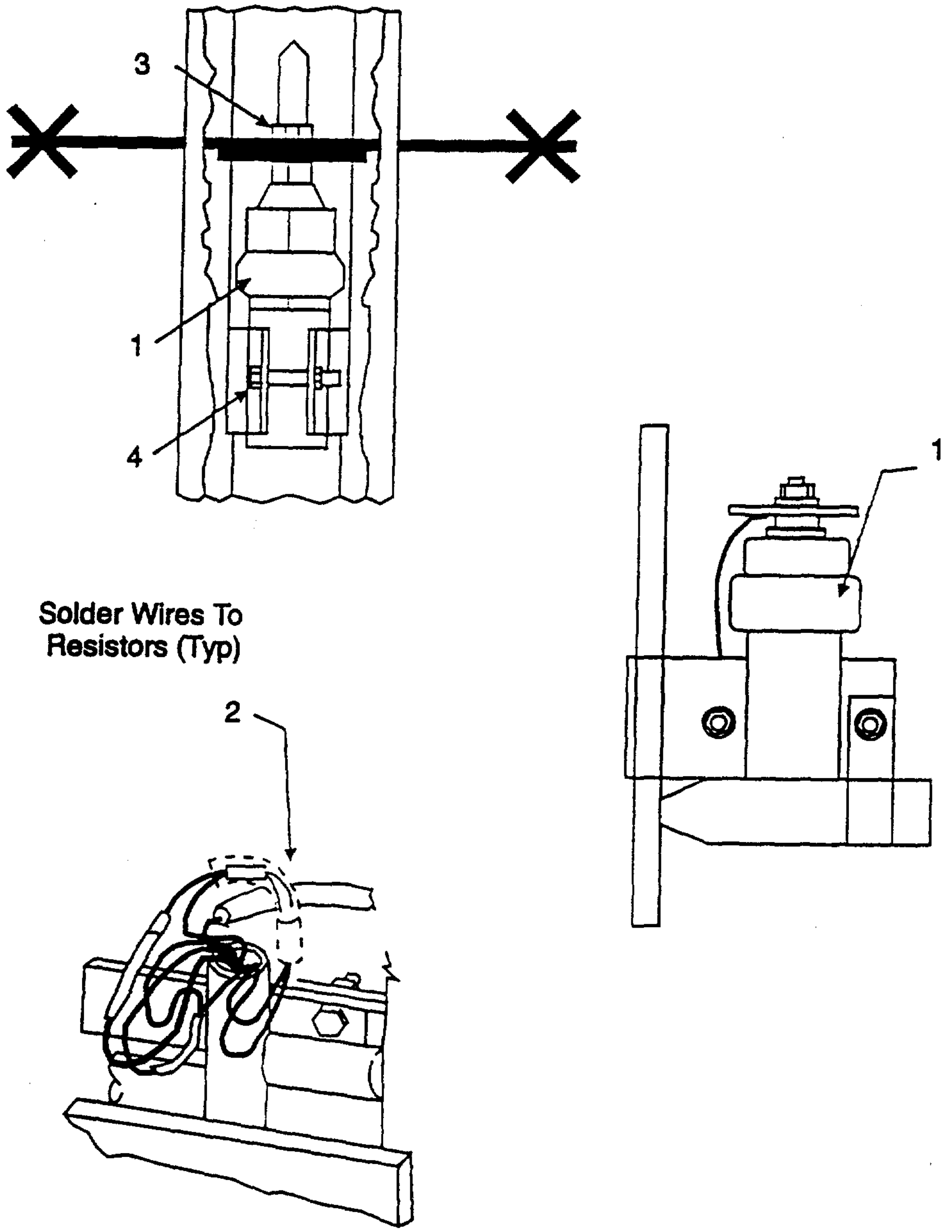


Figure 3-72. Removal and Replacement of Taut Wire 90 Fence Sensor

3-128. REPLACE ULTRASONIC MOTION SENSOR. (Figure 3-13).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Flat tip (Item 7, App B) Open End Wrench Set (Item 13, App B) Materials/Parts: Ultrasonic Motion Sensor	Equipment Condition: Input power removed General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Using a flat tip screwdriver, remove front cover (1) from sensor assembly (2).

(2) Tag and disconnect wiring from TB1 (3).

(3) Remove PWA (4) from sensor assembly (2) by gently pressing out on sides of sensor assembly

(2) and lifting out PWA (4).

(4) Remove wiring assembly from sensor assembly (2).

(5) Remove two screws holding sensor assembly (2) to wall and remove sensor case.

b. Installation

(1) Perform steps 1 and 3 above on new sensor assembly.

(2) Align sensor assembly (2) with mounting holes and secure with two screws.

(3) Secure PWA (4) to sensor assembly (2).

(4) Connect tagged wires to PWA TB1 (3).

(5) Align front cover (1) with sensor assembly (2) and snap it into place.

(6) Reconnect input power.

(7) Set sensitive adjustment. Ref. (SAIG, Appendix E, Section 8).

3-129. REPLACE VIBRATION SENSOR. (Figure 3-16).

This task consists of: a. Remove b. Install

INITIAL SETUP:	
Tools: Screwdriver, Cross tip (Item 5, App B) Screwdriver, Flat tip (Item 7, App B) Materials/Parts: Vibration Sensor	General Safety Instructions: Remove all jewelry while working on equipment.

WARNING

Shut off power source before attempting to disconnect, service, or connect wires or cables. Failure to do so may result in serious injury or death.

a. Removal

(1) Remove power to primary power source.

(2) Remove two screws (3) holding front face plate (4) on sensor housing (5).

(3) Tag and remove wiring from TB1 (6) on sensor board.

(4) Remove three screws (7) holding sensor to back mounting plate (8) and remove sensor from housing.

b. Installation

(1) Align sensor (5) with back housing (8) and secure with three screws (7).

(2) Connect tagged wiring to sensor board TB1 (6).

(3) Align front plate (4) with sensor housing (5) and secure with two flat head screws (3).

(4) Apply power to primary power source.

(5) Set sensitive adjustment. Ref. (SAIG, Appendix E, Section 6).

3-130. REMOVE AND REPLACE RADIO FREQUENCY LINK.

Due to specialized requirements for the equipment and the unit's accessibility, refer to the SAIG to determine proper trouble-shooting, removal and replacement procedures.

3-131. STARPIN KEYPAD OPERATION.

a. Perform the following maintenance procedures to self test, walk test, or shunt zone sensors as necessary. StarPin keypad abbreviations are as follows:

BEL	Bell Test
ACC	Access
AUD	Audible
CLR	Clear
CMD	Command
DIS	Display
EXT	Extended Hours
MTC	Maintenance Mode
PER	Perimeter Sensor
SEC	Secure
SLF	Self Test
SNT	Shunt Sensor
TST	Test Mode
24H	24 Hour Sensor
WLK	Walk Test
ZNE	Zone

b. The Stargate alarm zone keypads operate as access/secure initiating devices for their specific alarm zones of the Stargate remote. In addition, you can use the keypad to review the status of the sensors within the zone, extend the normal working hours of the zone, and initiate duress codes and sensor tests. The following figure illustrates the keypad layout and the LCD readout.

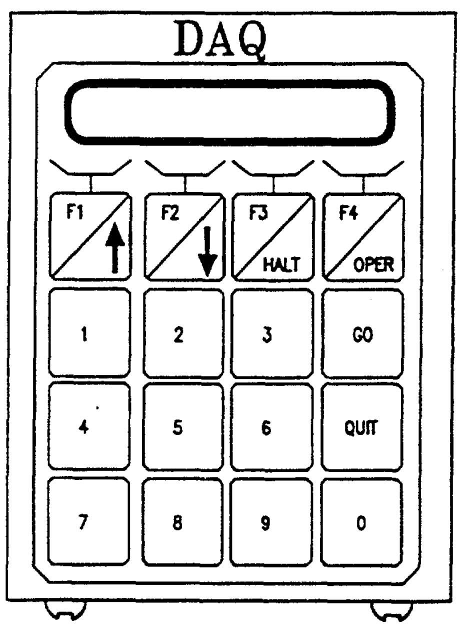


Figure 3-73. Starpin Keypad

3-131. STARPIN KEYPAD OPERATION (CON'T)

c. Initially, the keypad will be sequencing between the status of the zone and the zone details, including the system zone number, the zone name, and the time and date. This is called the login screen. Based on the status of the zone, the display shows either SECURE or ACCESS. The display sequences between this word and the zone data displayed as follows:

0017 4D865
17.45 30 MAR 92

In this example, the system zone number is 17 and the zone name is 4D865. The data is displayed in European format and the time in military format.

Step 1. Login.

To operate the keypad, Personal Identification Cipher (PIC) numbers must be assigned to the zone. To use the keypad, enter the PIC number on the keypad. The date and time disappear and PIC followed by an (*) in place of each digit of the PIC number appears.

Six digits must be entered for the PIC number. If more digits are entered, the readout returns to the login screen. If less than six digits are entered, the keypad times out and returns to the login screen.

In general the keypad allows three attempts (configurable) at entering the correct PIC number. If the number is not entered correctly, the screen returns to the login screen.

Step 2. Zone Access

In each secure zone, certain sensors are classed as entry sensors. When any of these sensors is initiated, the keypad sounds an entry delay sequence that must be completed within a predetermined time to prevent alarms from being sent to the central unit.

When someone enters a zone, the keypad starts an entry tone. During the allowed time, the user enters his or her assigned PIC number followed by GO. The LCD readout displays the following line:

ACC EXT CMD DIS

F1 represents access. Press F1 (ACC) to stop the tone and display the following message:

SEC EXT CMD DIS

After a few seconds, the keypad starts sequencing between displaying ACCESS, indicating the zone is in access state, and the zone details, including the system zone number, the zone name, and the time and date.

Step 3. Extended Access

Five minutes (configurable) before the scheduled end of the work day, the keypad sounds a tone for two seconds each minute. The time must be extended during this five minute period. Failure to extend the time results in an alarm signal to the master station.

3-131. STARPIN KEYPAD OPERATION (CON'T)

To extend the closing time, a user with the required level must enter his or her PIC number followed by GO. The readout displays the following:

SEC EXT CMD DIS

Select F2 (EXT) and quit to extend the time. The display changes from ACCESS to EXTENDED ACCESS, indicating that the zone is now in extended time.

This procedure must be repeated each hour, or as configured, until the zone is secured.

Step 4. Securing Zone

To secure the zone, enter your PIC number followed by GO. The readout displays the following information:

SEC EXT CMD DIS

Select F1 (SEC) to secure the zone. After F1 is selected, all users must be out of the zone for the Stargate to complete the securing process.

After the exit delay, the keypad sounds a four second tone followed by four one second beeps. When you hear this, you know that the zone is sealed correctly.

If any non-exit sensor is operated during the exit delay, or any exit sensor is operated during the sealing process, the zone is not sealed correctly and an alarm is sent to the master.

Step 5. Test Functions

The keypad provides both a walk test and a single sensor test. The walk test places the Stargate into a test mode to any sensor that is declared a zone sensor. The single sensor test controls the sensor through the test feature of certain sensors.

Only supervisor or maintenance access levels permit control of test functions.

Step 6. Walk Test

A test facility is provided to walk test any zone or 24 hour sensor. To test a sensor, the zone must be in access mode. Follow the procedure in Step 2 above to access the zone before continuing with this sequence.

When a zone is in access, enter your PIC number followed by GO. The readout displays the following message:

SEC EXT CMD DIS

Select F4 (DIS). The LCD shows the second level soft-key options: ALM 2H MTC HST. Select F3 (MTC). This places the keypad into the maintenance mode and provides the third level menu:

TST SNT CLR

Select F1 (TST) for the test functions. The keypad displays the third level menu:

WLK SLF ZNE SGL

3-131. STARPIN KEYPAD OPERATION (CON'T)

Select F1 (WLK) and F4 (SGL) simultaneously to start the test sequence. The keypad starts displaying each sensor as it is listed in the Stargate database. The display shows the sensor name and the current condition of the sensor and the tamper alarm.

WLK SLF ZNE SGL
PIR 1 OK OK

The first OK refers to the sensor status, and the second to the tamper state. The keypad continues to scroll through the sensors until either the end of the list is reached or function key F3 (HALT) is selected.

To perform the walk test on a specific sensor, press F3 (HALT) to stop scrolling. Next, using F1 or F2 (the up and down arrows) select the sensor for test. Select F4 (OPER) to provide approximately 30 seconds to activate the sensor. When the sensor is operated, the display changes to:

WALK SLF ZNE SGL
PIR 1 ST OK

ST indicates the sensor is in the test state. When the sensor is operated, the display is:

WALK TEST OK

The keypad times out and returns to the third level menu. If additional testing is required, re-select F1 (WLK) and F4 (SGL).

If the walk test fails, indicating the sensor did not operate, the display times out in approximately 30 seconds, indicating a test failure. The readout displays "Test Failed" for about 30 seconds.

Step 7. Self Test Single

The keypad single test mode provides a test on any zone or 24 hour sensor by controlling the test circuit of the individual sensors. Only the sensors with this feature can be tested in this way.

The single test feature can be operated only from an accessed zone. To single test a sensor, enter your PIC number followed by GO. The following menu appears:

SEC EXT CMD DIS

Select F4 (DIS). The LCD shows the second level soft-key options: ALM 24H MTC HST. Enter F3 (MTC) for maintenance mode, and the third level menu is displayed:

TST SNT CLR

Select F1 (TST) for the test functions. The keypad displays the fourth level menu:

WLK SLF ZNE SGL

3-131. STARPIN KEYPAD OPERATION (CON'T)

Press F2 (SLF) and F4 (SGL) simultaneously to start the display sequence. The keypad displays each sensor as it is listed in the Stargate database. The display shows the sensor name and the current condition of the sensor and the tamper alarm. For example:

WLK SLF ZNE SGL
PIR 1 OK OK

Select F3 (HALT) on the sensor point to be tested. The display freezes on this sensor. To move up or down to other sensors, use F1 (UP) or F3 (DOWN). When the display shows the correct sensor, select F4 (OPER).

WLK SLF ZNE SGL
PIR 1 ST OK

If the test is completed correctly, the display changes to:

WLK SLF ZNE SGL
SGL SELF TEST OK

This indicates successful completion of a self test. If the test fails, the display will indicate "Test Failure".

After the test, the readout will return to the third level menu. If no additional requests are made, the readout will return to the login screen.

Step 8. Self Test Zone

The keypad single test mode provides a test of any zone or 24 hour sensor by controlling the test circuit of the individual sensors. Only sensors with this feature can be tested in this way. The single test can be operated only from an accessed zone.

To single test a sensor, at the first menu enter you PIC number followed by GO. The following menu appears:

SEC EXT CMD DIS

Select F4 (DIS). The LCD shows the second level soft key options: ALM 24H MTC HST. Enter F3 (MTC) for maintenance mode to provide the third level menu:

TST SNT CLR

Select F1 (TST) for the test functions. The keypad displays the fourth level menu.

WLK SLF ZNE SGL

Press F2 (SLF) and F3 (ZNE) simultaneously to start the sequence. The keypad displays:

(PRESS OPER)

3-131 Continued

The keypad starts selecting and controlling each sensor. During the test, the display changes to the following:

WLK SLF ZNE SGL
PIR 1 ST OK

The ST indicates self test. If the test is successful, the ST changes momentarily to SG1 SELF TEST OK to indicate an alarm tested good.

If the sensor fails the test, the display changes to "Test Failure" momentarily.

At the end of the sequence, if all sensors test OK, the keypad displays a test completed message.

Step 9. Sensor Shunt

With the required access level, you can selectively shunt sensors in the alarm state to secure areas if a sensor fails. Only alarm indications can be shunted. Sensor tampers must be corrected. Only zone and perimeter alarms can be shunted. Sensors classed as 24 hour alarm cannot be shunted.

Step 10. Applying Shunt

To apply a shunt to a sensor, log into the keypad to the first menu level by entering your PIC number followed by GO.

In access mode	SEC EXT CMD DIS
In secure mode	ACC EXT CMD DIS

Select F4 (DIS). The LCD shows the second level soft key options: ALM 24H MTC HST. Select f# (MTC) to display the third level menu:

TST SNT CLR

Select F2 (SNT) to display the fourth level menu:

SNT CLR ZNE PER

Select F1 (SNT) with either F3 (ZNE) or F4 (PER) to list sensors defined in the zone. The display scrolls through the points. Use F3 (HALT) to stop the display at the sensor to be shunted. F4 (OPER) applies a shunt to the sensor. The display appears as:

TST SNT CLR
PIR 1 SH OK

The SH indicates a shunted sensor.

After a time-out period, the display returns to the second and the first level menu.

3-131 Continued

Step 11. Clearing Shunt

To clear a shunt from a sensor, log into the keypad by entering your PIC number followed by GO.

In access mode	SEC EXT CMD DIS
In secure mode	ACC EXT CMD DIS

Select F4 (DIS). LCD shows the second level soft key options: ALM 24H MTC HST. Select F3 (MTC) to display the third level menu:

TST SNT CLR

Select F2 (SNT) to display the fourth level menu:

SNT CLR ZNE PER

Select F2 (CLR) with either F3 (ZNE) or F4 (PER) to list sensors defined in the zone. The display scrolls through the points. Use F3 (HALT) to stop the display on the sensor to be cleared. F4 (OPER) clears a shunt from the sensor. The display appears as:

TST SNT CLR
PIR 1 OK OK

After a timeout period, the display returns to the second and the first level menu.

Step 12. Displaying Sensors

The keypad permits you to display sensors in the alarm state without having to run a walk test. To operate this feature, first log into the first level menu.

In access mode	SEC EXT CMD DIS
In secure mode	ACC EXT CMD DIS

Select F4 (DIS). LCD shows the second level soft key options.

If any sensors are in the alarm state, the class type flashes. To display an alarm point, select the function key of the flashing point type (F1 through F4).

The keypad sequences through all points in the alarm state. To stop the sequence select F3 (HALT). The display stops on the selected point.

If no points are in alarm, as indicated by no flashing entry in the third level menu, selecting a zone type results in a "No Valid Sensor" display.

Step 13. Two Man Rule

If the zone is classed as a two man rule zone, follow the above procedures, except you are prompted to enter a second PIC number and, where required, a second PIN number. In these areas, the access level of the second person to enter the numbers is the access level the keypad assumes. The number of the second person will be used in the event recording to the master.

3-131 Continued

Step 14. Duress Codes

The keypad supports the entry of a duress sequence, providing an alarm at the master without any indication to the zone user.

See the zone supervisor for instructions on operating the duress sequence.

3-132. RSE DOWNLOADING PROCEDURES FOR THE RADC STARGATE 5000 AND STARGATE 1000 PWA

a. The following RSE downloading must be done each time an RADC Stargate 5000 or 1000 PWA is replaced.

b. The Europa remote is capable of supporting many hardware combinations. Each remote can be configured to meet your requirements and re-configured to suit your changing needs. Configuration is done with the Remote Software Environment (RSE) editor. With the RSE you can define a configuration, make changes to it, and download it to the remote through a PC connected to the remote's diagnostic port.

With the RSE you can define hardware attached to the remote and the functionality of the remote. RSE defines six functional groups:

1. General parameters
2. I/O bus
3. Slave remotes
4. Telemetry
5. Functions
6. Applications

The RSE can be used with any IBM PC compatible computer, and can be supplied in the following disk formats:

5.25" IBM 360KB
5.25" IBM 1.2MD
3.5" IBM 720KB, IBM 1.44MB

Step 1. Power on the laptop computer and place the RSE diskette in drive A.

Step 2. Connect the serial data cable to the laptop computer and the Remote Area Data Collector Stargate 5000 or 1000 diagnostic port.

Step 3. Type in A: and Enter. This enables the computer to read from or write to drive A.

Step 4. Type RSE and press the Enter key. A list of the current files is displayed, along with the following:

RSE Editor 3rd Gen Version 5.18 English Name of remote?>

Step 5. Select the file name of the remote to be downloaded and press Enter. The following menu appears:

Editor for Europa Remotes (c) RESMDAQ Ltd 1988,1989,1990,1991, 1992,1993 Version 5.18

1. General
2. I/O bus
3. Slave remotes
4. Telemetry
5. Functions
6. Applications
7. Facilities
8. This menu

(name of file selected,Z1 etc.) [Facilities]>

NOTE

Ensure the file selected for downloading is the same as the RADC being downloaded to.

Step 6. Press D. The following appears:

Download to remote
Creating configuration image...Done.
RSE data size : xxxx
RSE bytes available : xxxx
>Download ACE configuration to remote? Press "Y", (yes) and Enter.
Download RSE configuration to remote
Continue?>

Step 7. Press "Y" and Enter. The message "Sending RSE" appears. When downloading is complete, press 9 for Facilities and Q to quit, and Q again to return to the RSE program.

Step 8. Remove power from the laptop computer and disconnect the serial cable from the Stargate PWA diagnostic port and the computer.

Step 9. Have the operator do a download for the replaced RADC Stargate PWA and check to ensure the correct status is being sent to the FEP.

3-133. DES ENROLLMENT PROCEDURES FOR THE RDES AND RSMA MODULES.

NOTE

Reinstall jumper on DES module as per Appendix E-49-52, FO-10

a. The following DES enrollment procedures must be executed each time an RDES or RSMA module is installed.

b. Setup:

Equipment needed;

Laptop computer
Enrollment cable (9 pin)
RDES enrollment cable (ribbon, cable 25 pins)
Formatted 3 ½" diskette

Step 1. Attach RSMA or RSMA Top to the Enrollment DB25 Ribbon Cable Connector.

Step 2. Turn ON the Enrollment Panel

Step 3. Observe the LED Display on the RDES Top

a. If LED 9 is illuminated proceed.

b. If LEDs 12345679 and 10 are illuminated let internal battery charge until LEDs 2 and 9 are illuminated.

c. If LEDs 2 and 9 are illuminated cycle power on the enrollment panel.

Step 4. Connect enrollment cable between laptop computer and 9 pin connector or enrollment panel.

Step 5. Press the power on button on laptop computer.

Step 6. CD DES - Change Director to C:/DES

Step 7. DES1 - Enter Command DES1
Program Menu Displayed

c. To enroll a RSMA or RSMA module:

Step 1. F1 - Press the F1 key.

Step 2. XX - Enter the Group Number (XX=Group Number) (For RSMs, always enter 45 for Group Number).

Step 3. YY - Enter the RTU Number (YY=Station or RTU Number) (For RSMs, YY = RSM Sequence Number).

Step 4. Observe - That the Encryption was Successful

a). Display should state:
Packet received and ACKNOWLEDGED OK (This is from the EDES)

Remote unit Enrolled Successfully (This is from the RSMA)
Press Enter

b). LEDs on the RSMA or RDES Top should be 2, 6, 9 illuminated

Step 5. Enter 17 Digit Number

____, ____, ____, ____, _____, _____ (This number is determined locally)

Step 6. First Entry Received
Re-enter 17 Digit Number

____, ____, ____, ____, _____, _____

Step 7. **"XXX BACKING UP FILES XXX**"

Place diskette containing the "Site" encrypted DES data files into Drive A.

Step 8. Sending Packet ... Packet Received and Acknowledged OK ... Received Block 1-86 File Transfer Complete

Step 9. Compare between current and last file save. Report on number of Bytes that have changed. Press Enter.

Step 10. Main Menu Step 11. Remove diskette and place back into "Site" archived files.

3-134. E-DES DATA RESTORAL.

a. If an E-DES PWA module must be replaced, the following E-DES data restoral procedure must be performed:

b. Setup:

Equipment Needed:

Laptop Computer
Enrollment Cable (Computer, 9 pin connector)
Diskette containing the "Site" encrypted DES data files.

Step 1. Connect enrollment cable between laptop computer and 9 pin connector on enrollment panel.

Step 2. Press the power on button on laptop computer.

Step 3. F4 Download to Enrollment Unit

Step 4. Insert diskette.

Step 5. Enter 17 Digit Number

____, ____, ____, ____, _____, _____(This number is the same number used for the last file save).

Step 6. SENDING PACKET
Packet Received and ACKNOWLEDGED OK
Sending Block 1-86
**** FILE TRANSFER COMPLETE ****

Step 7. Main Menu

Step 8. Remove diskette and place back in "Site" archive file.

Place diskette containing the Site encrypted DES data into Drive A:

3-135. FINAL INSPECTION/TEST.

a. **General**. This section provides final inspection and test procedures to ensure the ICIDS system is functioning after repair. After satisfactory completion of these inspections/tests, the ICIDS should be functional.

b. **Final Inspection**.

(1) Check that the power switches on the processing units, monitors, power supplies, and sensor units operate smoothly.

(2) Check that the circuit breakers on the power supplies operate correctly.

(3) Check cabling for cracked or broken insulation.

(4) Check that all hardware is securely fastened.

(5) Ensure that individual assembly covers are fastened.

c. **Final Test**.

(1) Perform operational checkout procedures as described in TM 5-6350-275-10, paragraphs 2-7 through 2-9.

(2) Upon satisfactory completion of final test, the ICIDS will be functional.

CHAPTER 4

GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

4-1. There is no General Support Maintenance for the ICIDS system. The next level of maintenance is contractor support.

APPENDIX A

REFERENCES

A-1. SCOPE. This appendix lists all forms, field manuals, and technical manuals referenced in this manual.

A-2. FORMS.

Recommended Changes to Publications .... DA Form 2028
Recommended Changes to Equipment and Technical Manuals .... DA Form 2028-2
Equipment Inspection and Maintenance Worksheet .... DA Form 2404
Quality Deficiency Report .... Standard Form 368

A-3. TECHNICAL MANUALS

Operators Manual for the Integrated Commercial Intrusion Detection System (ICIDS) .... TM 5-6350-275-10
Procedures for Destructions of Equipment to Prevent Enemy use .... TM 750-244-3

A-4. MISCELLANEOUS PUBLICATIONS

The Army Maintenance Management System (TAMMS) .... DA PAM 738-750
Manuals, Technical: Organization or Aviation Unit, Direct Support
or Aviation Intermediate, and General Support Maintenance .... MIL-M-63038B(TM)
Manuals, Technical: Quality Assurance Program .... MIL-M-85337A(NAVY)
ICIDS Selection Application and Installation Guide (SAIG) ....

NOTE:
To obtain copies of SAIG,
contact:
PSEMO Research Center
AMSAT-I-WTP
10401 Gridley Road. Suite 110
Ft. Belvoir, VA 22060-5818

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1 GENERAL.

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance levels.

b. The Maintenance Allocation Chart (MAC) in Section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2 MAINTENANCE FUNCTIONS. Maintenance functions will be limited to and defined as follows:

a. **Inspect**. To determine the serviceability of an item by comparing its physical, mechanical, or electrical characteristics with prescribed standards through examination. (e.g. by sight, sound, or feel).

b. **Test**. To verify serviceability and detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. **Service**. Operations required periodically to keep an item in proper operating condition; i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or gases.

d. **Adjust**. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by resetting the operating characteristics to specified parameters.

e. **Align**. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. **Calibrate**. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. **Remove/Install**. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of replacing, seating, or fixing into position a spare, repair part. or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. **Replace.** To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the third position of the SMR code.

i **Repair**. The application of maintenance services (inspect, test, service, adjust, align, calibrate, or replace), including fault location/troubleshooting (the process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or unit under test), removal/installation, and disassembly/assembly procedures, and maintenance actions (welding, grinding, riveting, straightening, facing, re-machining, and/or resurfacing) to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. **Overhaul**. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e. DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. **Rebuild**. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/components.

B-3 COLUMN ENTRIES. Columns used in the maintenance allocation chart, Section II are explained below:

a. **Column 1, Group Numbers**. Column 1 lists functional group code numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. **Column 2, Component/Assembly**. Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. **Column 3, Maintenance Functions**. Column 3 lists the functions to be performed on the item listed in column 2.

d. **Column 4, Maintenance Category**. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

C Operator or Crew
O Unit Maintenance
F Direct Support Maintenance
H General Support Maintenance
L Specialized Repair Activity (SRA)
D Depot Maintenance

e. **Column 5, Tools and Equipment**. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated functions.

f. **Column 6, Remarks**. Column 6 contains an alphabetic code which leads to the remark in Section IV of Appendix B, which is pertinent to the item opposite the particular code.

B-4 COLUMN ENTRIES. Column entries used in the Tool and Test Equipment Requirements, Section III, are explained below:

a. **Column 1, Tool or Test Equipment Reference Code**. The numbers in this column coincide with the code used in the MAC, Section II, Column 5. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. **Column 2, Maintenance Level**. The lowest level of maintenance authorized to use the tools or test equipment.

c. **Column 3, Nomenclature**. Name or identification of the tool or test equipment.

d. **Column 4, National Stock Number**. This column lists the National stock number of the specific tool or test equipment.

e. **Column 5, Tool Number**. This column lists the manufacturer's part number of the tool followed by the Commercial and Government Entity Code (CAGEC) in parentheses.

f. **Column 6, Remarks**. This column lists additional information or codes that may be required.

B-5 COLUMN ENTRIES. Column entries used in Section IV - Remarks are explained below:

a. **Reference Code**. This code refers to the appropriate item listed in Section II - Maintenance Allocation Chart, column 6.

b. **Remarks**. This column provides the required explanatory information necessary to clarify items appearing in Section II - Maintenance Allocation Chart.

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	 O	 F	 H	 D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
00	ICIDS								
01	Command Control and Display								
0101	Primary Monitor Console, Large								
010101	Central Processing Unit	Replace Repair			.5			6, 17, 18	A
01010101	Module, Tape Streamer	Service Replace Repair	.2		 .1			6, 18	 A
01010102	Module, DCX	Replace Repair			.2			6, 18	 A
010102	Power Supply Module, PS	Replace			.1			17	
01010201	Power Cable, 36 vdc	Replace			.1			17	
010103	Power Supply Module, PS1	Replace			.1			6	
010104	Monitor, Monochrome	Replace Repair			.2				6, 17 A
010105	Keyboard, 112 U.S. Format	Replace Repair			.1			6	 A
01010501	Cable Assembly, Keyboard	Replace			.1			17	
010106	Printer, Dot Matrix, 136 Columns	Inspect Service Replace Repair	.1 .2		 .2			6	 A
01010601	Printer Cable, Serial interface	Inspect Replace	.1		 .1			6, 17	
01010602	Serial Interface Board	Replace			.1			18	
010101603	Printhead	Inspect Replace	.1 .1					6	
010107	Processor Assy, Operator Workstation	Inspect Test Replace Repair	.1 .1		 .3			6, 17, 18	 A
01010701	Connector Terminator	Replace			.1			17	
01010702	Power Cord, AC	Inspect Replace	.1		 .1			6, 17	

NOTE
Tool numbers in column (5) refer to the "replace" maintenance functions

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
010108	Monitor, Color 14 Inch	Inspect Service Replace Repair	.1 .1		 .2			6, 7	 A
010109	Adapter, Video Graphics	Inspect Replace	.1		 .2			6, 17	
010110	Cable, Cluster, 25 Foot	Inspect Replace	.1		 .2			6, 17	
010111	Printer, Dot Matrix, 80 Columns	Inspect Service Replace Repair	.1 .2		 .2			 6, 17, 18	 A
010112	Printed Wiring Assembly, Quad Switchboard	Replace Repair			.1			6, 7, 18	 A
010113	Printed Wiring Assembly, ICS Switchboard	Replace Repair			.1			6, 7, 18	 A
010114	Printed Wiring Assembly, Audio Multiplexer	Replace Repair			.1			6, 7, 18	 A
010115	Printed Wiring Assembly, Digital Multiplexer	Replace Repair			.1			6, 7, 18	 A
010116	Printed Wiring Assembly, Data Encryption System	Replace Repair			.1			6, 7, 18	 A
010117	Power Supply, Dual 12 vdc	Replace			1.0			6, 7, 24, 13, 10	
010118	Power Supply, 5 vdc	Replace			.5			6, 7, 24, 10, 5	
010119	Fan Assembly, PMC Cabinet(s)	Replace			.6			6, 7, 24, 10	
010120	Printed Wiring Assembly, Line Interface Unit	Replace			.2			6, 7, 17	
010121	9600 Baud Modem	Replace			.2			6, 7, 17	
010122	Power Supply, Uninterruptible	Replace Repair							A A
01012201	Extended Run Time, UPS	Replace Repair							A A
01012202	Battery, Lead Acid, 12 vdc	Replace							A

NOTE

Tool numbers in column (5) refer to the "replace" maintenance functions

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	 O	 F	 H	 D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
0102	Primary Monitor Console, Small								
010201	Central Processing Unit	Replace Repair			.5			6, 17, 18	 A
01020101	Module, Tape Streamer	Service Replace Repair	.2		 .1			6, 18	 A
01020102	Module, DCX	Replace Repair			.2			6, 18	 A
010202	Power Supply Module, PS	Replace			.1			17	
01020201	Power Cable, 36 vdc	Replace			.1			17	
010203	Power Supply Module, PS1	Replace			.1			6	
010204	Monitor, Monochrome	Replace Repair			.2			6, 17	 A
010205	Keyboard, 112 U.S. Format	Replace Repair			.1			6	 A
01020501	Cable Assembly, Keyboard	Replace			.1			17	
010206	Printer, Dot Matrix, 136 Columns	Inspect Service Replace Repair	.1 .2		 .2			6	 A
01020601	Printer Cable, Serial Interface	Inspect Replace	.1		 .1			6, 17	
01020602	Serial Interface Board	Replace			.1			18	
01020603	Printhead	Inspect Replace	.1 .1	6					
010207	Processor Assy, Operator Workstation Replace Repair	Inspect Test	.1 .1		 .3				 A
01010701	Connector Terminator	Replace			.1			17	
01010702	Power Cord, AC	Inspect Replace	.1		 .1			6, 17	
010208	Monitor, Color 14 Inch	Inspect Service Replace Repair	.1 .1		 .2			6, 7	 A
010209	Adapter, Video Graphics	Inspect Replace	.1		 .1			6, 17	

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
010210	Cable, Cluster, 25 Foot	Inspect Replace	.1		 .2			6, 17	
010211	Printer, Dot Matrix, 80 Columns	Inspect Service Replace Repair	.1 .2		 .2			6, 17, 18	 A
010212	Printed Wiring Assembly, Quad Switchboard	Replace Repair			.1			6, 7, 18	 A
010213	Printed Wiring Assembly, ICS Switchboard	Replace Repair			.1			6, 7, 18	 A
010214	Printed Wiring Assembly, Audio Multiplexer	Replace Repair			.1			6, 7, 18	 A
010215	Printed Wiring Assembly, Digital Multiplexer	Replace Repair			.1			6, 7, 18	 A
010216	Printed Wiring Assembly, Data Encryption System	Replace Repair			.1			6, 7, 18	 A
010217	Power Supply, Dual 12 vdc	Replace			.1.0			6, 7, 24, 13, 10	
010218	Power Supply, 5 vdc	Replace			.5			6, 7, 24, 10, 5	
010219	Fan Assembly, PMC Cabinet(s)	Replace			.6			6, 7, 24, 10	
010220	Printed Wiring Assembly, Line Interface Unit	Replace			.2			6, 7, 17	
010221	9600 Baud Modem	Replace			.2			6, 7, 17	
010222	Power Supply, Uninterruptible	Replace Repair							A A
01022201	Extended Run Time, UPS	Replace Repair							A A
01022202	Battery, Lead Acid, 12 vdc	Replace							A
0103	Remote Status Monitor								
010301	Remote Status Monitor Master Station	Inspect Service Replace Repair	.1 .1		 .7			6, 7, 17, 18, 20	 A
010301	Central Processing Unit	Replace Repair			.5			6, 17, 18	 A

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	 O	 F	 H	 D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
01020101	Module, Tape Streamer	Service Replace Repair	.1		 .1			6, 18	 A
01030102	Module, DCX	Replace Repair			.2			6, 18	 A
010302	Power Supply Module, PS	Replace			.1			17	
01030201	Power Cable, 36 vdc	Replace						17	
010303	Power Supply Module, PS1	Replace			.1			6	
010304	Monitor, Monochrome Repair	Replace			.2			6, 17	 A
010305	Keyboard, 112 U.S. Format	Replace Repair			.1			6	 A
01030501	Cable Assembly, Keyboard	Replace			.1			17	
010306	Processor Assy, Operator Workstation	Inspect Test Replace Repair			.1 .1 .3			6, 17, 18	 A
01010701	Connector Terminator	Replace			.1			17	
01010702	Power Cord, AC Replace	Inspect	.1		 .1			6, 17	
010307	Monitor, Color 14 Inch	Inspect Service Replace Repair	.1 .1		 .2			6, 7	 A
010308	Adapter, Video Graphics	Inspect Replace	.1		 .1			6, 17	
010309	Cable, Cluster, 25 Foot	Inspect Replace	.1		 .2			6, 17	
010310	Printed Wiring Assembly, Quad Switchboard	Replace Repair			.1			6, 7, 18	 A
010311	Printed Wiring Assembly, ICS Switchboard	Replace Repair			.1			6, 7, 18	 A
010312	Printed Wiring Assembly, Data Encryption System	Replace Repair			.1			6, 7, 18	 A
010313	9600 Baud Modem	Replace			.2			6, 7, 17	

NOTE
Tool numbers in column (5) refer to the "replace" maintenance functions

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	 O	 F	 H	 D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
010314	Power Supply, Uninterruptible	Repair Replace							A A
01031401	Extended Run Time, UPS	Replace Repair							A A
01031402	Battery, Lead Acid, 12 vdc	Replace							A
02	Remote Area Data Collectors								
0201	Remote Area Data Collector, 12 vdc Interior	Replace Repair			.5			6, 8, 17, 18, 13, 20	A
020101	Printed Wiring Assembly, Stargate	Replace Repair			.4			6, 7, 17, 18	A
5000									
020102	Printed Wiring Assembly, Leda Flex	Replace Repair			.2			6, 7, 17, 18	A
020103	Data Encryption Module	Replace Repair			.1			6, 7, 17, 18	A
020104	Audio Assessment Controller	Replace Repair			.2			6, 7, 17, 18	A
020105	Printed Wiring Assembly, Mod2 Modem	Replace Repair			.2			6, 7, 17, 18	A
020106	Printed Wiring Assembly, Leda	Replace Repair			.2			6, 7, 17, 18	A
020107	Battery, 12 vdc, Replace 7 amp hr.	Replace			.1			6, 7	
020108	Tamper Switch	Replace			.2			6, 7	
0202	Remote Area Data Collector, 20 vdc Interior	Replace Repair			.5			6, 8, 17, 18, 13, 20	A
020201	Printed Wiring Assembly, Stargate	Replace Repair			.4			6, 7, 17, 18	A
5000									
020202	Printed Wiring Assembly, Leda Flex	Replace Repair			.2			6, 7, 17, 18	A
020203	Data Encryption Module	Replace Repair			.1			6, 7, 17, 18	A
020204	Audio Assessment Controller	Replace Repair			.2			6, 7, 17, 18	A
020205	Printed Wiring Assembly, Mod2 Modem	Replace Repair			.2			6, 7, 17, 18	A

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
020206	Printed Wiring Assembly, Leda Flex Termination	Replace Repair			.2			6, 7, 17, 18	A
020207	Battery, 12 vdc, 7 amp hr.	Replace			.1			6, 7	
020208	Tamper Switch	Replace			.2			6, 7	
020209	Power Supply, 20 vdc	Replace			.2			6, 7	
0203	Remote Area Data Collector, 12 vdc Exterior	Replace Repair			.5			6, 7, 11, 24, 17	A
020301	Printed Wiring Assembly, Stargate	Replace Repair			.4			6, 7, 17	A
1000									
020302	Printed Wiring Assembly, Leda Flex	Replace Repair			.2			6, 7	A
020303	Printed Wiring Assembly, Mod2 Modem	Replace Repair			.2			6, 7	A
020304	Printed Wiring Assembly, Leda Flex Termination	Replace Repair			.2			6, 7	A
020305	Heater, 120 vac	Replace			.4			6, 7, 24, 17	
020306	Adapter, 120 vac to 18 vac	Replace			.2			6, 17, 24, 10, 18	
020307	Battery, 12 vdc, 7 amp hr.	Replace			.1			7	
020308	Tamper Switch	Replace			.2			6, 7, 17,	
0204	Remote Area Data Collector, 12 vdc, 8 Points, Interior, Depopulated	Replace Repair			.4			6, 7, 14, 18	A
020401	Printed Wiring Assembly, Stargate	Replace Repair			.4			6, 7, 18	A
5000									
020402	Printed Wiring Assembly, Mod 2 Modem	Replace Repair			.2			6, 7, 18	A
020403	Adapter, AC, 120 vac to 18 vac	Replace			.2			6, 24	
020404	Battery, 12 vdc, 7 amp hr.	Replace	.1					6	
020405	Tamper Switch	Replace	.2					6, 7	

NOTE
Tool numbers in column (5) refer to the “replace” maintenance functions

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	 O	 F	 H	 D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
0205	Sub-RADA (Leda)	Replace			.5			6, 7, 18	
020501	with Power Supply, 12 Points, Interior Printed Wiring	Repair Replace			.2			7, 17, 18	A
020502	Assembly, Leda Flex Printed Wiring	Repair Replace			.2			7, 17, 18	A
020503	Assembly, Leda Flex Termination Power Supply, 12 vdc	Repair Replace			.4			6, 7, 43, 18	A
020504	Rectifier Assy.	Replace			.2			7, 18	
020505	Battery, 12 vdc,	Replace			.1				
020506	7 amp hr. Tamper Switch	Replace			.2			7, 18	
0206	Sub-RADC (Leda),	Replace			.4			6, 7, 18	
020601	12 Points, Interior Printed Wiring	Repair Replace			.1			7, 17, 18	A
020602	Assembly, Leda Flex Printed Wiring	Repair Replace			.2			7, 17, 18	A
020603	Assembly, Leda Flex Termination Tamper Switch	Repair Replace			.2			7, 18	A
0207	Sub-RADC (Leda)	Replace			.5			6, 7, 14, 18	
020701	with Power Supply, 12 Points, Exterior Printed Wiring	Repair Replace			.2			7, 17, 18	A
020702	Assembly, Leda Flex Printed Wiring	Repair Replace			.2			7, 17, 18	A
020703	Assembly, Leda Flex Termination Power Supply, 12 vdc	Repair Replace			.4			6, 7, 43, 18	A
020704	Rectifier Assembly	Replace			.2			7, 18	
020705	Heater, 120 vac	Replace			.4			6, 7	
020706	Thermostat	Replace			.3			6, 7	
020707	Battery, 12 vdc,	Replace			.1			18	
020708	7 amp hr. Tamper Switch	Replace			.2			7, 18	
0208	Sub-RADC (Leda), 12 Points, Exterior	Replace Repair			.4			14, 18	A
020801	Printed Wiring Assembly, Leda Flex	Replace Repair			.2			7, 17, 18	A

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	 O	 F	 H	 D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
020802	Printed Wiring Assembly, Leda Flex Termination	Replace Repair			.2			7, 17, 18	 A
020803	Tamper Switch	Replace			.2			7, 18	
03	J-SIIDS Interface Assemblies								
0301	J-SIIDS Stargate 1000 Interface Assy.	Replace Repair			.5			6, 7, 18	 A
030101	Printed Wiring Assembly, Stargate 1000	Replace Repair			.4			6, 7, 18	 A
030102	Printed Wiring Assembly, Mod 2	Replace Repair			.2			6, 7, 18	 A
0302	J-SIIDS Leda Interface Assy.	Replace Repair			.5			7, 18	 A
030201	Printed Wiring Assembly, Leda Flex	Replace Repair			.2			6, 7, 18	 A
030202	Printed Wiring Assembly, Leda Flex Termination	Replace Repair			.2			6, 7, 18	 A
0303	J-SIIDS Ganymede B Interface Assembly	Replace Repair			.5			18	 A
030301	Printed Wiring Assembly, Ganymede B	Replace Repair			.4				 A
04	Closed Circuit Television (CCTV)	Replace Repair							
0401	Monitor, 9 Inch Monochrome	Replace Repair			.2				 A
0402	Camera, ½ Inch, Interior with Lens	Inspect Service Replace Repair		.1 .1	 .4 .4			13	 A
0403	Camera, 2/3 Inch, Exterior with lens	Inspect Service Replace Repair	.1 .1		 .4			13	 A
0404	CCTV Camera and Environmental Enclosure(s)	Inspect Service Replace Repair	.1 .2		 .8			7	 A
0405	Generator, Color Sync	Replace Repair			.1				 A

NOTE
Tool numbers in column (5) refer to the "replace" maintenance functions

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
0406	Amplifier, Video Sync Repair	Replace			.1				A
0407	Switcher, Video	Replace Repair			1.0				A
040701	Printed Wiring Assembly, Video Input	Replace Repair			.1			6, 7, 18	A
040702	Printed Wiring Assembly, Video Output	Replace Repair			.1			6, 7, 18	A
040703	Printed Wiring Assembly, CPU	Replace Repair			.1			6, 7, 18	A
040704	Printed Wiring Assembly, Power Supply	Replace Repair			.1				A
0408	Recorder, Video Cassette	Replace Repair			.5				A
0409	Mounts, CCTV Camera	Inspect Service		.1 .2				6, 7, 13, 11	
0410	Lens, Camera, 3.5MM Replace	Inspect Service		.1 .1	.2				
0411	Lens, Camera, 5.7MM	Inspect Service Replace		.1 .1	.2				
0412	Lens, Camera, 6.0 MM	Inspect Service Replace		.1 .1	.2				
0413	Lens, camera, 9.0 MM Service	Inspect Replace		.1 .1	.2				
0414	Lens, Camera, 12, OMM	Inspect Service Replace		.1 .1	.2				
0415	Lens, Camera, 16.0 MM	Inspect Service Replace		.1 .1	.2				
0416	Lens, Camera, 28.0 MM	Inspect Service Replace		.1 .1	.2				
0417	Lens, Camera, 35.0 MM	Inspect Service Replace		.1 .1	.2				

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	 O	 F	 H	 D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
0418	Lens, Camera, 50.0 MM	Inspect Service Replace		.1 .1	 .2				
0419	Lens, Camera, 75.0 MM	Inspect Service Replace		.1 .1	 .2				
05	Entry Control Equipment								
0501	Controller, Intelligent Access Assy.	Replace Repair			.5			6, 7, 13, 18, 37	 A
050101	Printed Wiring Assembly, Intelligent Access Controller	Replace Repair			.4			6, 7, 18	 A
050102	Adapter, AC, 120 vac to 18 vac	Replace			.2			6, 18	
050103	Battery, 12 vdc (UPS)	Replace			.1			6, 18	
0502	Intelligent Access Unit	Replace Repair			.3			41, 18	 A
0503	Keypad, Starlink	Replace Repair			.3			 4, 18	 A
0504	Reader, Swipe Card	Replace Repair			.3			10, 41, 24, 39	 A
06	Sensors							6, 7	
0601	Switch, Balanced Magnetic	Replace			.5			6, 7	
0602	Switch, Balanced Magnetic	Replace			.5			6, 7	
0603	Switch, Balanced Magnetic	Replace			.8			6, 7, 4, 5	
0604	Sensor, Capacitance Proximity	Replace Repair			.5			6, 7, 5, 13	 A
0605	Sensor, Passive Infrared	Replace			.5			6, 7, 5	
0606	Sensor, Microwave Motion, Interior	Replace Repair			.8			7, 13, 11, 37	 A
0607	Sensor, Microwave Motion, Interior, Explosive Housing	Replace Repair			1.0			7, 13, 11, 37	 A
0608	Sensor Ultrasonic Motion	Replace			.5			6, 7, 18, 37	
0609	Sensor, Passive Ultrasonic Motion	Replace			.5			6, 7, 13, 37	

NOTE

Tool numbers in column (5) refer to the "replace" maintenance functionsB-15

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	 O	 F	 H	 D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
0610	Sensor, Radio Frequency Motion	Replace Repair			.6			7, 13, 37	 A
0611	Sensor, Vibration	Inspect Replace		.1	 .4			7, 13	
0612	Sensor, Exterior Infrared Perimeter	Inspect Replace		.1	.8			5, 7	
0613	Sensor, Exterior Microwave Motion	Replace Repair			.3			5, 6, 7, 13, 37	 A
0614	Processor, Fence Mounted Vibration Sensor	Replace Repair		.8				6, 7, 4, 5	 A
061401	Sensor, Fence Mounted Vibration	Inspect Replace		.1	 .5			4, 7, 14, 34	
0615	Printed Wiring Assembly, Strain Sensitive Cable Sensor (Processor) ESM-II B	Replace Repair			.8			5, 6, 7, 13	 A
061501	Junction Splice Assy., Strain Sensitive Cable Sensor	Inspect Replace		.1	 1.0			5, 6, 7, 13, 24, 10, 37	
061502	Termination Assy., Strain Sensitive Cable Sensor	Inspect Replace		.1	 1.0			5, 6, 7, 13, 24, 10	
0616	Sensor, Taut Wire 90	Inspect Replace			.2			7, 13, 24, 10, 39, 19, 26	
0617	Processor Assembly, Ported Coaxial Sensor	Inspect Test Replace Repair		.1	 .2 .8				 A
07	Audio Assessment Devices								
0701	Audio Module, PMC	Replace			.5				
0702	Audio Module, RADC	Replace			.2				
0703	Audio Assessment Device, Switcher Controller	Replace			.8				
0704	Switcher, 16 Line	Replace			1.0				
0705	Audio Assessment Device	Replace			.8			39, 40	
0706	Auxiliary Audio Module	Replace			.8			39, 40	
0707	Handset	Replace			.5				

NOTE
Tool numbers in column (5) refer to the "replace" maintenance functions

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) EQUIPMENT	(6) TOOLS AND REMARKS
08	Radio Frequency Equipment								
0801	Power Supply, Radio Frequency (Transmitter)	Replace Repair			.6				 A
0802	Power Supply, Radio Frequency (Receiver)	Replace Repair			.6				 A

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS
Integrated Commercial Intrusion Detection System (ICIDS)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	F	Tool Box, portable		
2	F	Wrench, adjustable 6"	5120-00-264-3795	
3	F	Wrench, ratchet ½" x 9/16"	5120-00-831-1053	
4	F	Screwdriver, cross tip 4" long, no. 0 tip	5120-00-060-2004	
5	F	Screwdriver, cross tip 4" long, no. 2 tip	5120-00-234-8913	
6	F	Screwdriver, pocket clip 4" long, 1/8" wide	5120-00-542-2281	
7	F	Screwdriver, flat tip 6" long, ¼" wide	5120-00-596-8653	
8	F	Screwdriver, flat tip 6" long ½" wide		
9	deleted.	deleted.		
10	F	Wire Strippers		
11	F	Socket Set ¼" square drive, (inch) 1/8" - ¾"		
12	F	Socket, deep well, 12 points, 9/16", ¼" square drive		
13	F	Open End Wrench Set, (inch) 1/8" - ½"	5120-00-148-9488	
14	F	Open End Wrench Set, socket head screw 3/8" - 1"	5120-00-293-3453	
15	F	Key Set, (inch) 1/8" - ½"	5120-00-315-3358	
16	F	Wrench, open end, offset 90 and 45 degrees, 5/8"		
17	F	Pliers, standard 6" long	5120-00-223-7397	
18	F	Pliers, long nose, 6" long	5120-00-268-3579	
19	F	Pliers, lineman, 8" long w/cutters, insulated handle	5120-00-756-1156	
20	F	Pliers, curved nose		

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS
Integrated Commercial Intrusion Detection System (ICIDS)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
21	F	Crimping Tool, wire splice, AMP No. 47907		
22	F	Crimping Tool, wire splice, AMP No. 47386		
23	F	Crimping Tool, wire splice, AMP No. 49900		
24	F	Wire Cutters, diagonal 6" long	5110-00-239-8253	
25	F	Torque Wrench, click type 4 to 20 ft-lbs, ¼" square drive		
26	F	Heat Gun, blower		
27	F	Measuring Tape, 10 foot	5210-00-086-4988	
28	F	Megger, 500 volt		
29	F	Mag Tester 90-1		
30	F	Standard Propane Torch, with JT-682 tip		
31	F	Wrench, 7/16", open and box end combination	5120-00-228-9505	
32	F	Wrench, ½", open and box end combination	5120-00-228-9506	
33	F	Wrench, 9/16", open and box end combination	5120-00-228-9507	
34	F	Wrench, adjustable, 10"	5120-00-449-8083	
35	F	Flashlight		
36	F	Knife, pocket		
37	F	Sonalert/Motion Meter (Model 2391)		
38	F	Digital Multimeter (Fluke 8062B)		
39	F	Audio Amplifier/Speaker (Optional)		
40	F	Tone Generator and Receiver		
41	F	Tamper Proof Screwdriver		
42	deleted.	deleted.		
43	F	Screwdriver Offset Flat Tip		

Section IV. REMARKS

Integrated Commercial Intrusion Detection System (ICIDS)

REFERENCE CODE	REMARKS
A	The concept for maintenance is Life Cycle Subcontractor Support (LCSS). Maintenance management shall be administered at the Direct Support (DS) level and is designated as a Special Repair Activity (SRA).

APPENDIX C
REPAIR PARTS AND SPECIAL TOOLS LIST

SECTION I. INTRODUCTION

1. **Scope**. This RPSTL lists spares and repair parts required for performance of unit and direct support maintenance of the Integrated Commercial Intrusion Detection System (ICIDS). Special tools are not applicable to this RPSTL.

2. **Explanation of Columns**.

a. **Item Number (Column (1)).** Indicates the number used to identify items called out in each associated illustration.

b. Item Number (Column (1)) (Column (2)). Indicates the number of the illustration that depicts the repair parts.

c. CAGEC (Column (3)). The Commercial and Government Entity Code (CAGEC) is a five-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

d. Vendor Part Number (Column (4)). Indicates the primary number used by the manufacturer (individual, company, firm corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

e. Description (Column (5)). This column includes the following information:

(1) The Federal item name and, when required, a minimum description to identify the item.

(2) Items that are included in kits and sets are listed below the name of the kit or set.

(3) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry.

(4) The statement "END OF FIGURE" appears just below the last item description in Column 5 for a given figure.

NOTE

*** An asterisk denotes optional equipment**

f. QTY (Column (6)). The QTY (quantity per figure column) indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group. sub-functional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

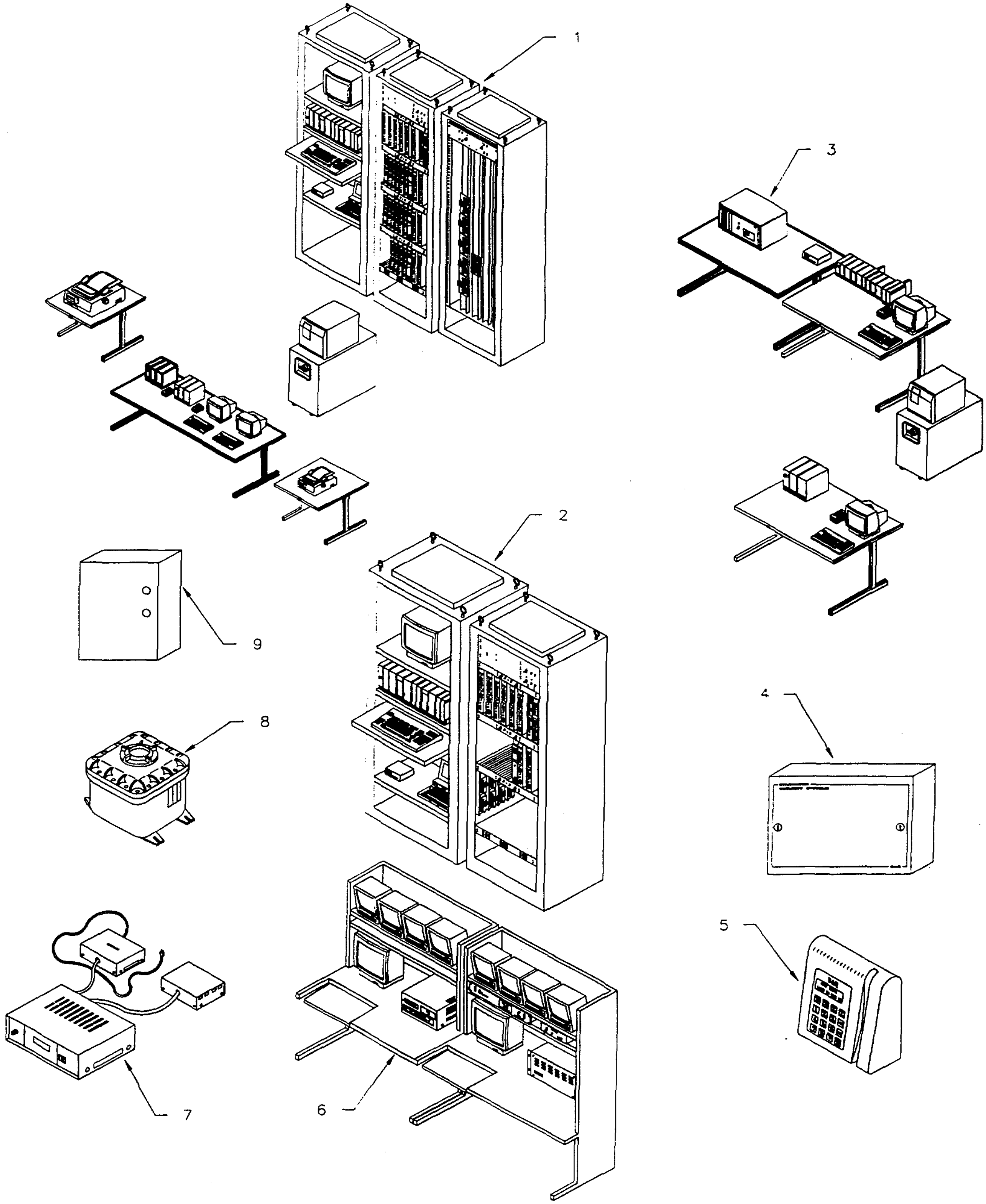


Figure C-1. Integrated Commercial Intrusion Detection System (ICIDS)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
				INTEGRATED COMMERCIAL INTRUSION DETECTION SYSTEM	
1	C-1	4F312	5050A	PRIMARY MONITOR CONSOLE (LARGE) .... SEE FIGURE C-2	1
2	C-1	4F312	5051A	PRIMARY MONITOR CONSOLE (SMALL)* .... SEE FIGURE C-3	1
3	C-1	4F312	5052A	REMOTE STATUS MONITOR* .... SEE FIGURE C-4	1
4	C-1	4F312	4981-ACB	REMOTE AREA DATA COLLECTOR .... (REPRESENTATIVE) SEE FIGURE C-5	1
5	C-1	4F312	NONE	ENTRY CONTROL EQUIPMENT* .... (REPRESENTATIVE) SEE FIGURE C-18	V
6	C-1	OBMR4	NONE	CLOSED CIRCUIT TELEVISION* .... (REPRESENTATIVE) (CCTV) SEE FIGURE C-23	V
7	C-1	4F312	NONE	AUDIO ASSESSMENT DEVICES* .... (REPRESENTATIVE) SEE FIGURE C-29	V
8	C-1	4F312	NONE	SENSORS .... (REPRESENTATIVE) SEE FIGURE C-30	V
9	C-1	4F312	NONE	J-SIIDS INTERFACE DEVICES* .... (REPRESENTATIVE) SEE FIGURE C-14	V
				END OF FIGURE C-1	

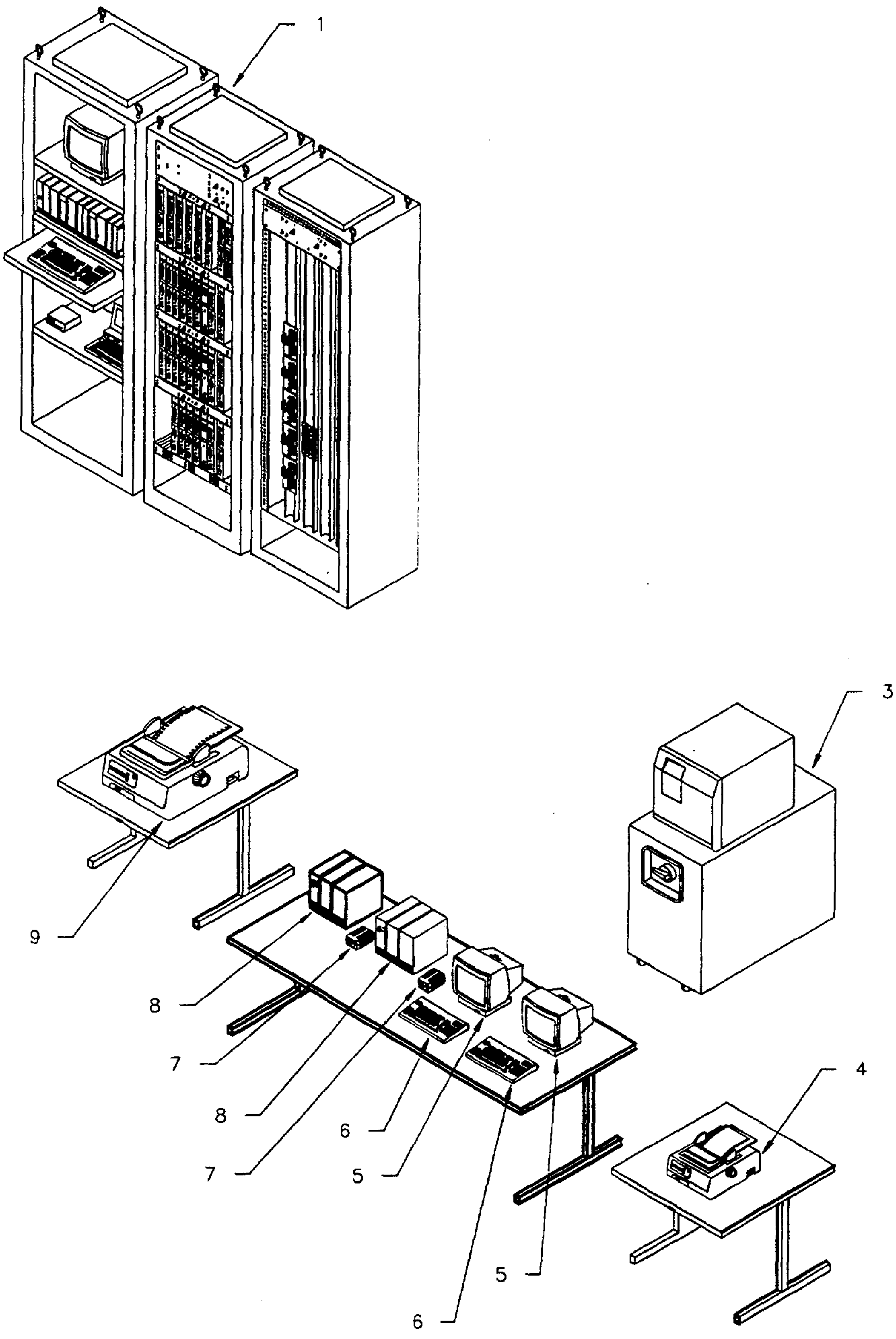


Figure C-2. Primary Monitor Console (Large) (Sheet 1 of 8)

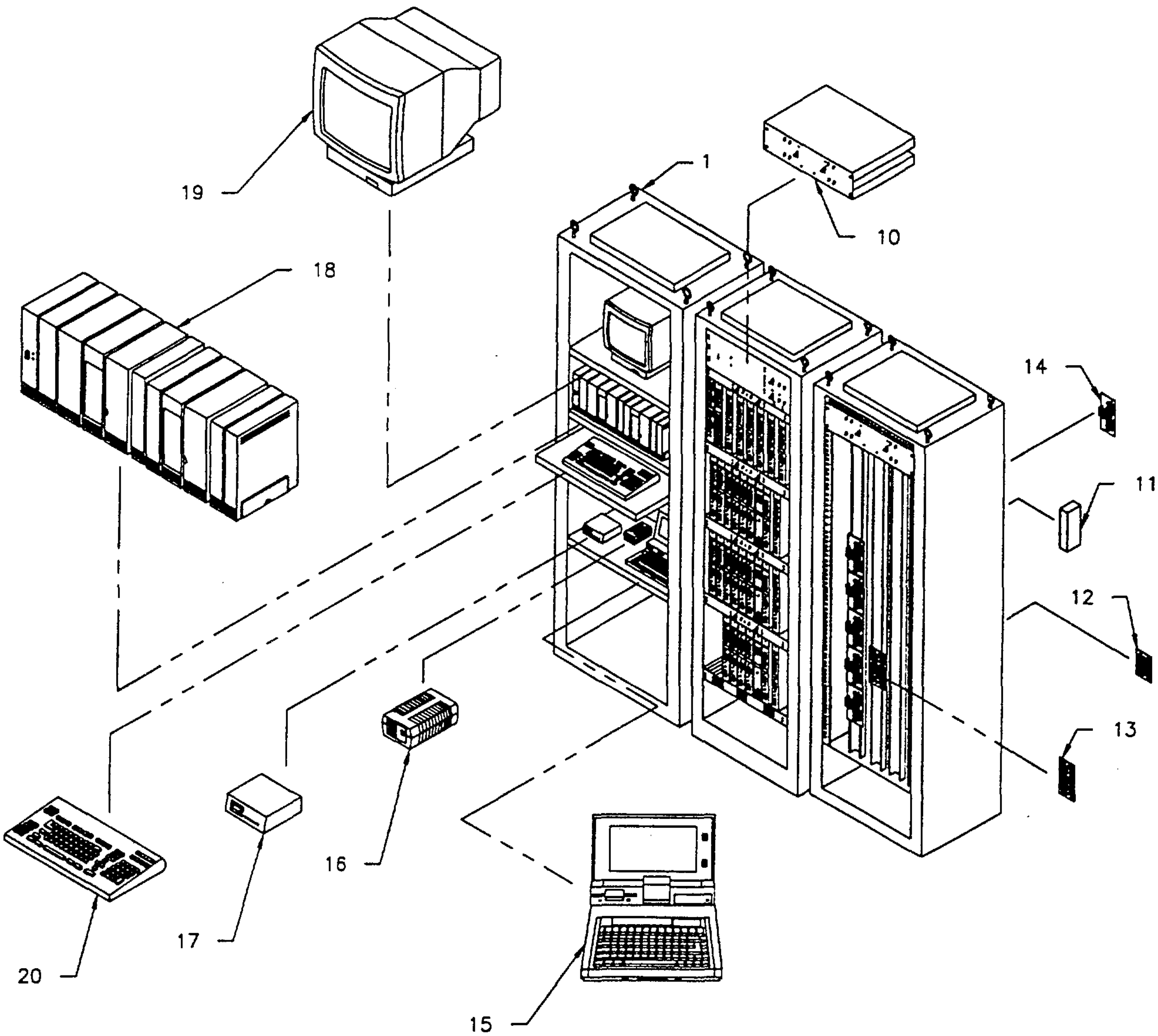


Figure C-2. Primary Monitor Console (Large) (Sheet 2 of 8)

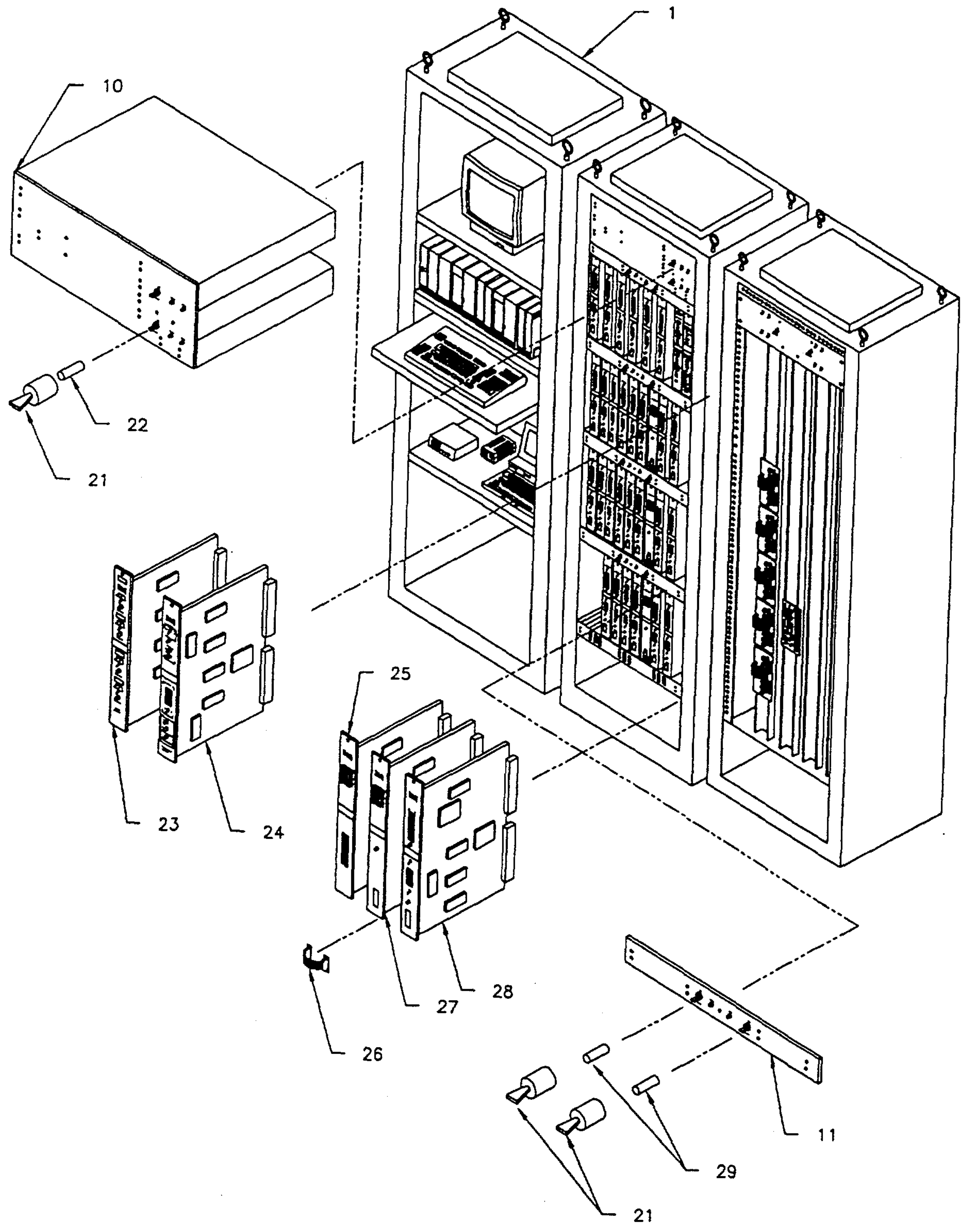


Figure C-2. Primary Monitor Console (Large) (Sheet 3 of 8)

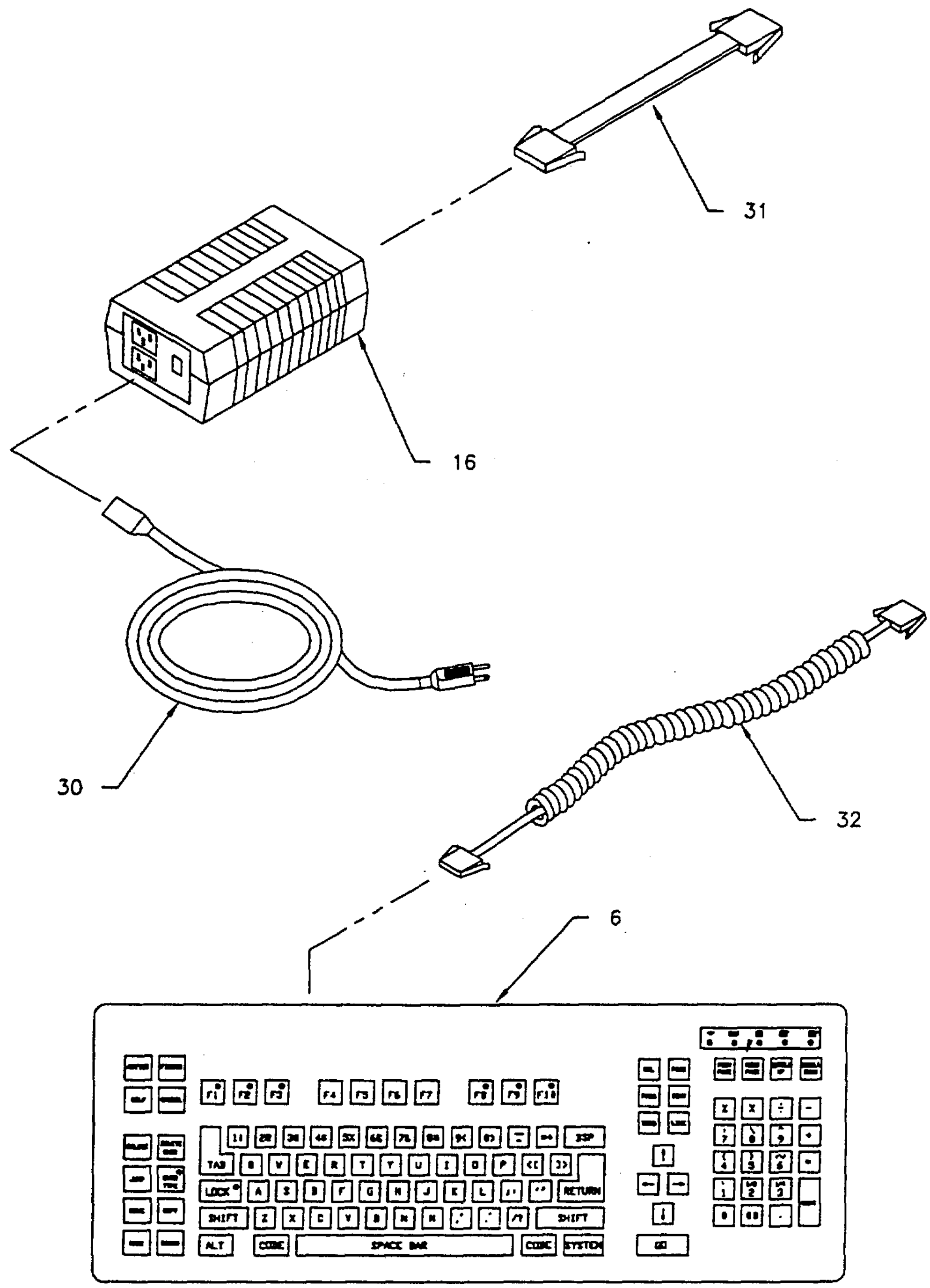


Figure C-2 ,'Primary Monitor Console (Large) (Sheet 4 of 8)

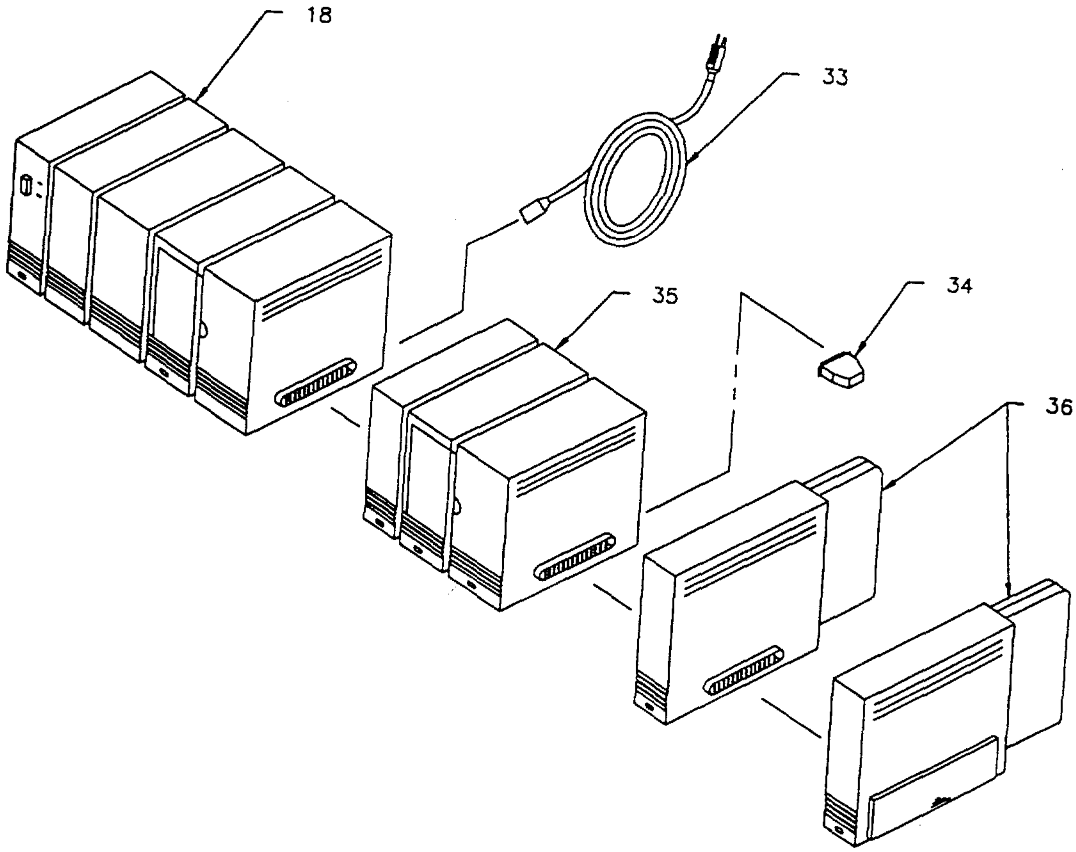


Figure C-2 . Primary Monitor Console (Large) (Sheet- 5 of 8)

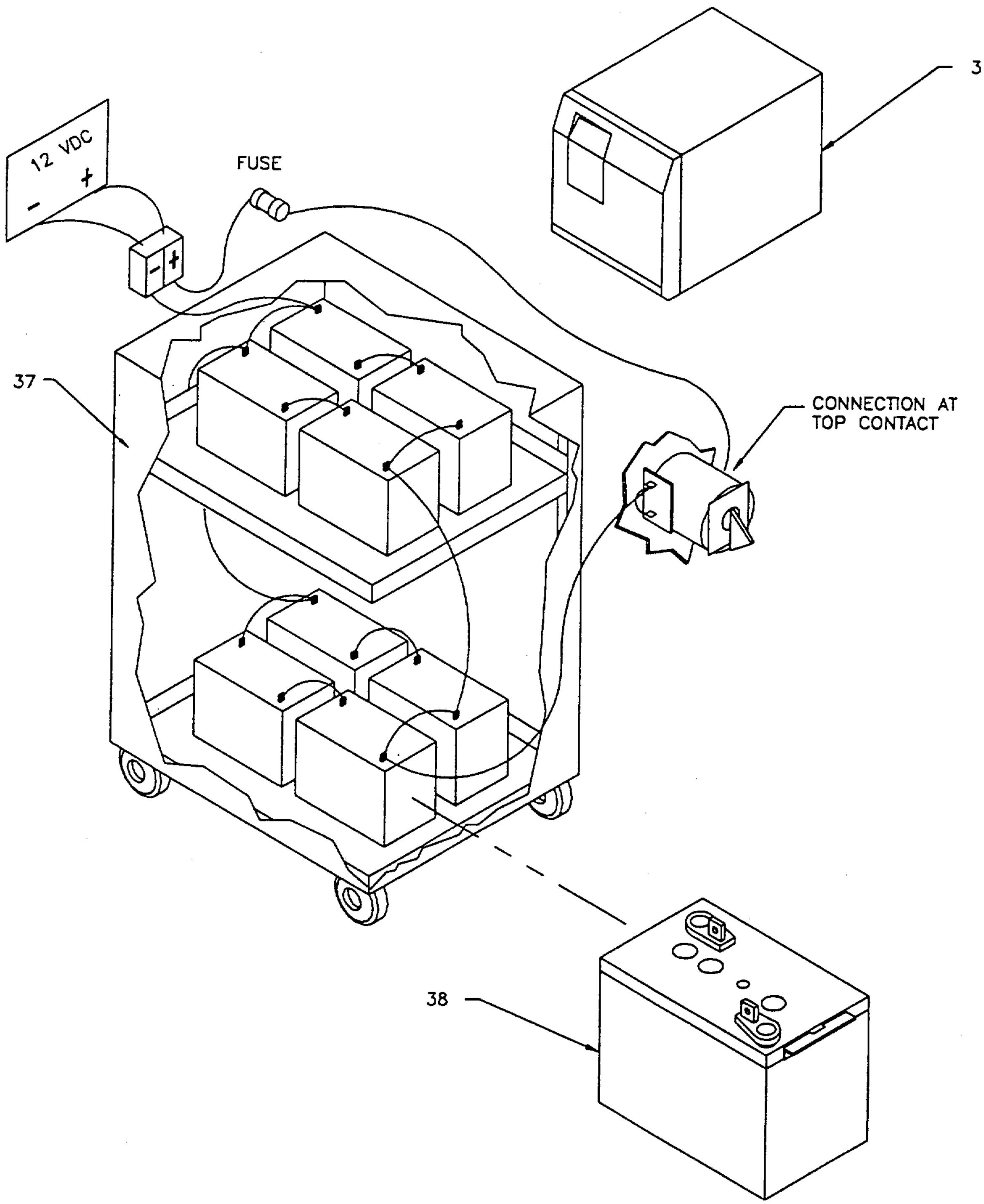


Figure C-2 . Primary Monitor Console (Large) (Sheet 6 of 8)

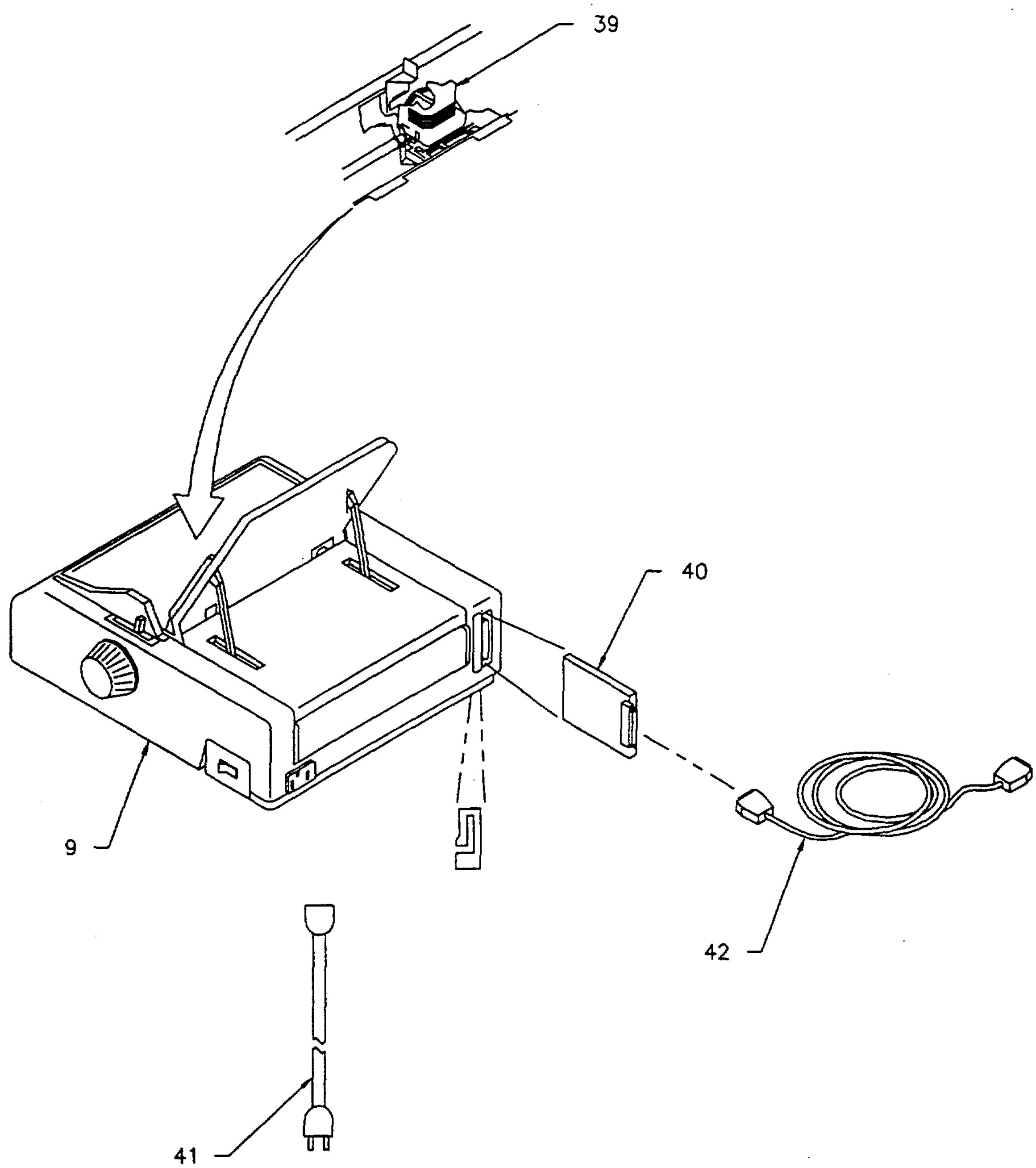


Figure C-2 . Primary Monitor Console (Large) (Sheet 7 of 8)

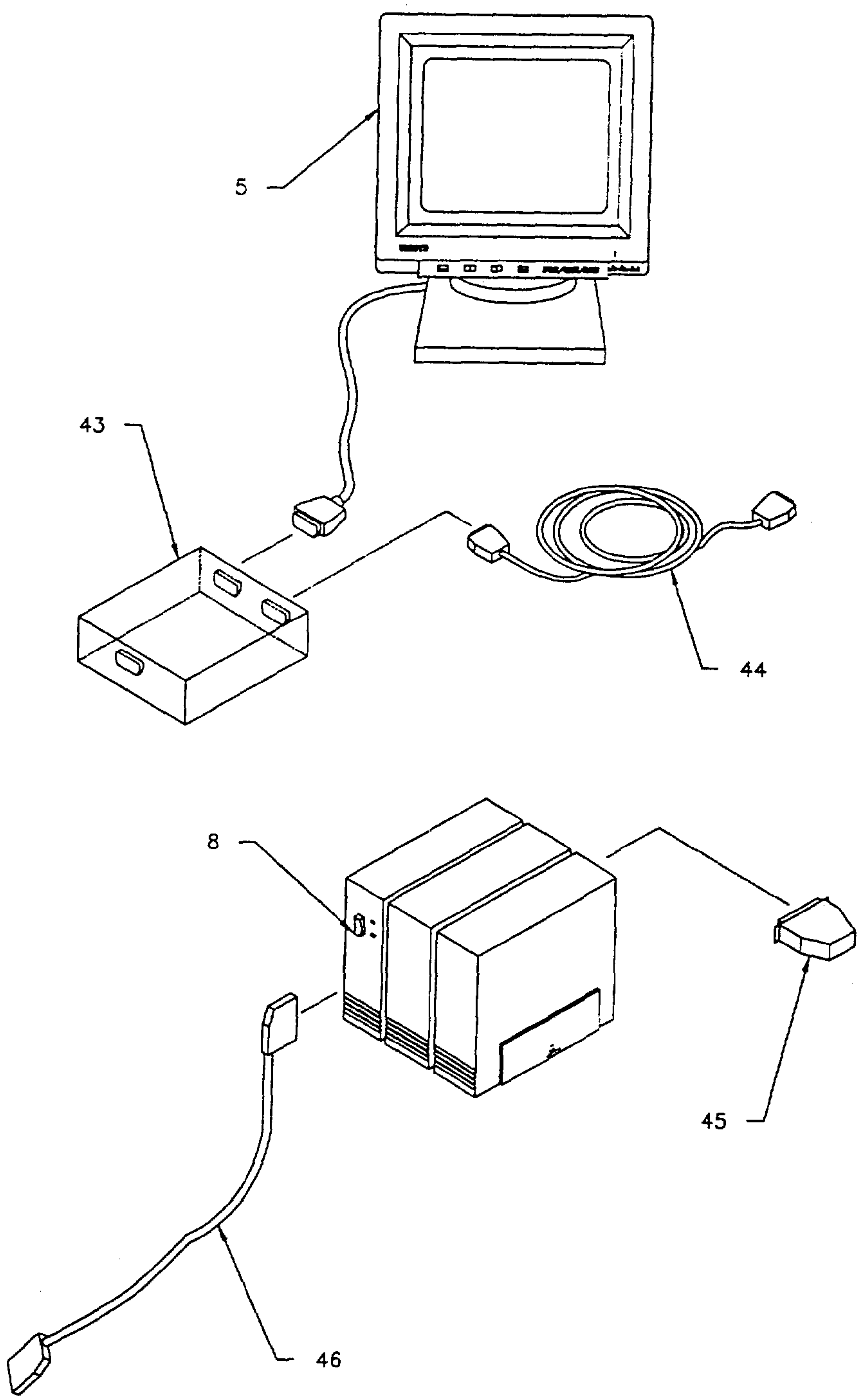


Figure C2. Primary Monitor Console (Large) (Sheet 8 of 8)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-2	4F312	5050A	PRIMARY MONITOR CONSOLE (LARGE)	1
2	C-2	4F312	5051A	PRIMARY MONITOR CONSOLE (SMALL)* .... SEE FIGURE C-3	1
3	C-2	4F312	14-1014-118	UNINTERRUPTIBLE POWER SUPPLY	1
4	C-2	4F312	AP1337	PRINTER, DOT MATRIX, 80 COLUMNS	1
5	C-2	4F312	B25-VDC	MONITOR, COLOR 14 INCH VGA	2
6	C-2	4F312	B25-K5	KEYBOARD, 112 KEYS, U.S. FORMAT	3
7	C-2	4F312	B25-PS1	POWER SUPPLY MODULE, 36 VDC	2
8	C-2	4F312	B38-GXL	PROCESSOR, OPERATOR WORKSTATION........ 80396 25 MHZ	2
9	C-2	4F312	AP1339	PRINTER, DOT MATRIX, 136 COLUMNS	1
10	C-2	4F312	HDD15-5A	POWER SUPPLY, DUAL, 12 VDC	2(3)
11	C-2	4F312	ACE101	POWER SUPPLY, 5 VDC	8
12	C-2	4F312	4978-ACB-3	PRINTED WIRING ASSEMBLY, GANYMEDE B ...	1
13	C-2	4F312	5067-A	FIBER OPTIC MODULE*	V
14	C-2	4F312	5028-ACB	PRINTED WIRING ASSEMBLY, LINE .... INTERFACE UNIT	32
15	C-2	4F312	B-3883-216644	COMPUTER, LAPTOP 80366	1
16	C-2	4F312	B25-PS	MODULE, POWER SUPPLY, 36 VDC	V
17	C-2	4F312	UDS V.32	MODEM, 9600 BAUD	1
18	C-2	4F312	B39/w16MB	PROCESSOR ASSEMBLY, CENTRAL	1
19	C-2	4F312	B25-D1	MONITOR, MONOCHROME, 12 INCH	1
20	C-2	4F312	B25-K5	KEYBOARD, 112 KEYS, U.S. FORMAT	1
				POWER SUPPLY PANEL, DUAL, 12 VDC (ITEM 10)	2
21	C-2	4F312	4076-H	•HOLDER, FUSE	10
22	C-2	4F312	BUSS 3A 250 VAC	••FUSE, 250 VOLT, 3 AMP	2(4)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
23	C-2	4F312	4248-ACB	PRINTED WIRING ASSEMBLY, ICS .... SWITCHBOARD	1
24	C-2	4F312	4229-ACB	PRINTED WIRING ASSEMBLY, QUAD .... SWITCHBOARD (-1 MASTER DES, -2 ENROLLER DES, -3 PMC DES)	1
25	C-2	4F312	4678-ACB	PRINTED WIRING ASSEMBLY, DATA .... ENCRYPTION SYSTEM	V
26	C-2	4F312	4785-ACA	•CABLE, INTERFACE, MULTIPLEXER/DES	V
27	C-2	4F312	4704-ACB-2	PRINTED WIRING ASSEMBLY, AUDIO .... MULTIPLEXER	32
28	C-2	4F312	4641-ACB-3	PRINTED WIRING ASSEMBLY, DIGITAL .... MULTIPLEXER (RS485, 8 CHANNEL, -4 RS232, 8 CHANNEL)	1
29	C-2	4F312	BUSS 5A 250 VAC	•FUSE, 250 VOLT, 5 AMP	8
30	C-2	4F312	B25-LC	•POWER CORD, AC	1
31	C-2	4F312	3677-5005	•POWER CABLE, 36 VDC	1
32	C-2	4F312	VP2078-69-00	•CABLE, KEYBOARD	3

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
33	C-2	4F312	B25-LC	•AC POWER CABLE	1
34	C-2	4F312	15-2015-889	•CONNECTOR, TERMINATION, 100 OHM	1
35	C-2	4F312	B25-TS2	•TAPE STREAMER MODULE, 50 MB, SCSI	1
36	C-2	4F312	B25-DCX	•COMMUNICATIONS EXPANDER MODULE, 4 PORT	2
37	C-2	4F312	14-1005-876	•EXTENDED RUN TIME. UPS	1
38	C-2	4F312	BATA-050	••BATTERY, LEAD ACID, MAINTENANCE FREE 12 VDC	8
39	C-2	4F312	75-1825-902	•PRINTHEAD	1
40	C-2	4F312	AP1337-SI	•SERIAL INTERFACE BOARD, PWA	1
41	C-2	4F312	B25-LC	•POWER CABLE, AC	1
42	C-2	4F312	XC-698-IS	•PRINTER CABLE, SERIAL INTERFACE	1
43	C-2	4F312	B25-VKA	•ADAPTER, VIDEO GRAPHICS	2
44	C-2	4F312	NONE	•CABLE, VIDEO GRAPHICS ADAPTER	2
45	C-2	4F312 889	15-2015-	•CONNECTOR, TERMINATION	2
46	C-2	4F312 253	154-1798-	•CLUSTER CABLE, 25 FEET	2

END OF FIGURE C-2

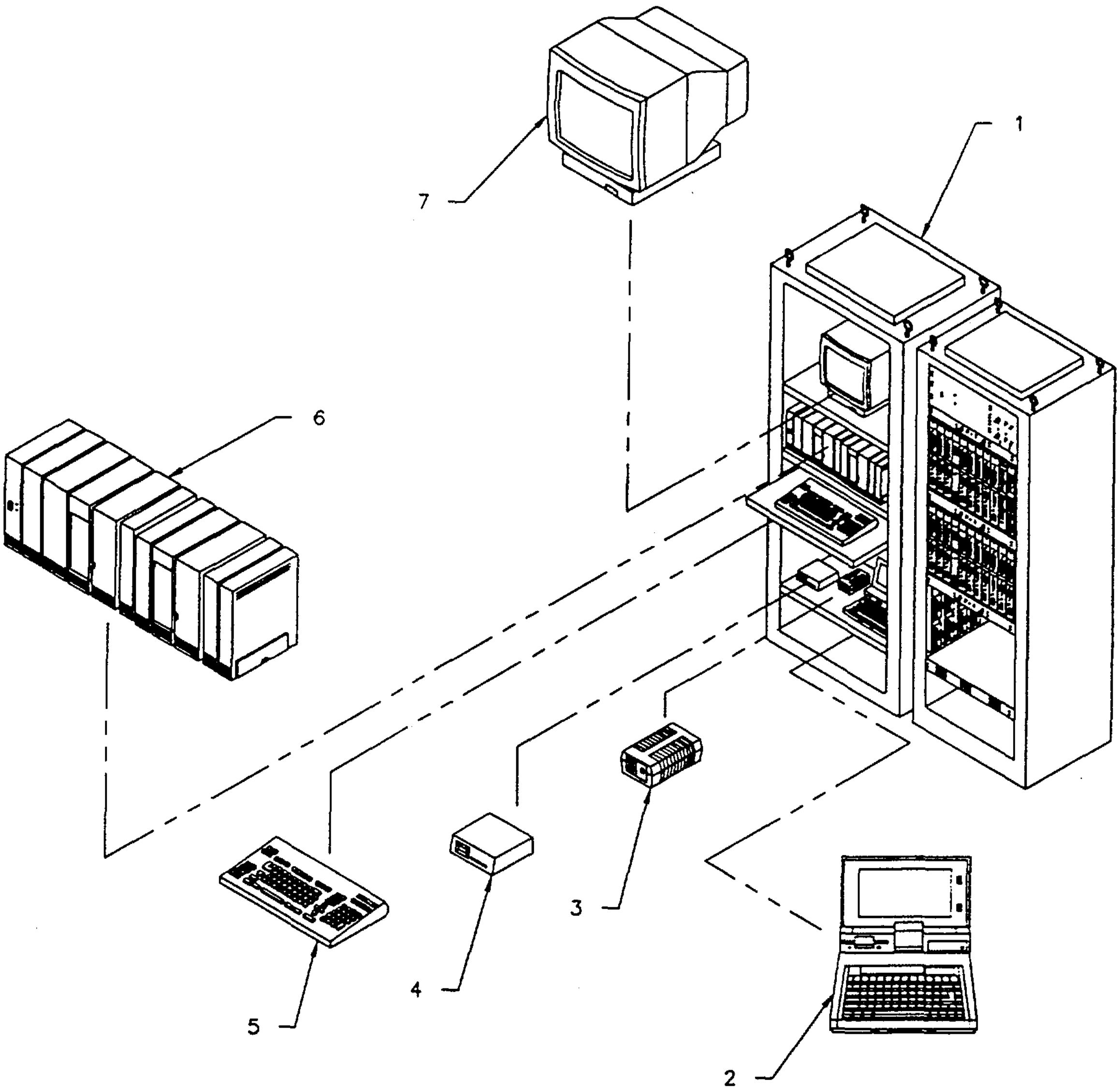


Figure C-3 . Primary Monitor Console (Small) (Sheet 1 of 6)

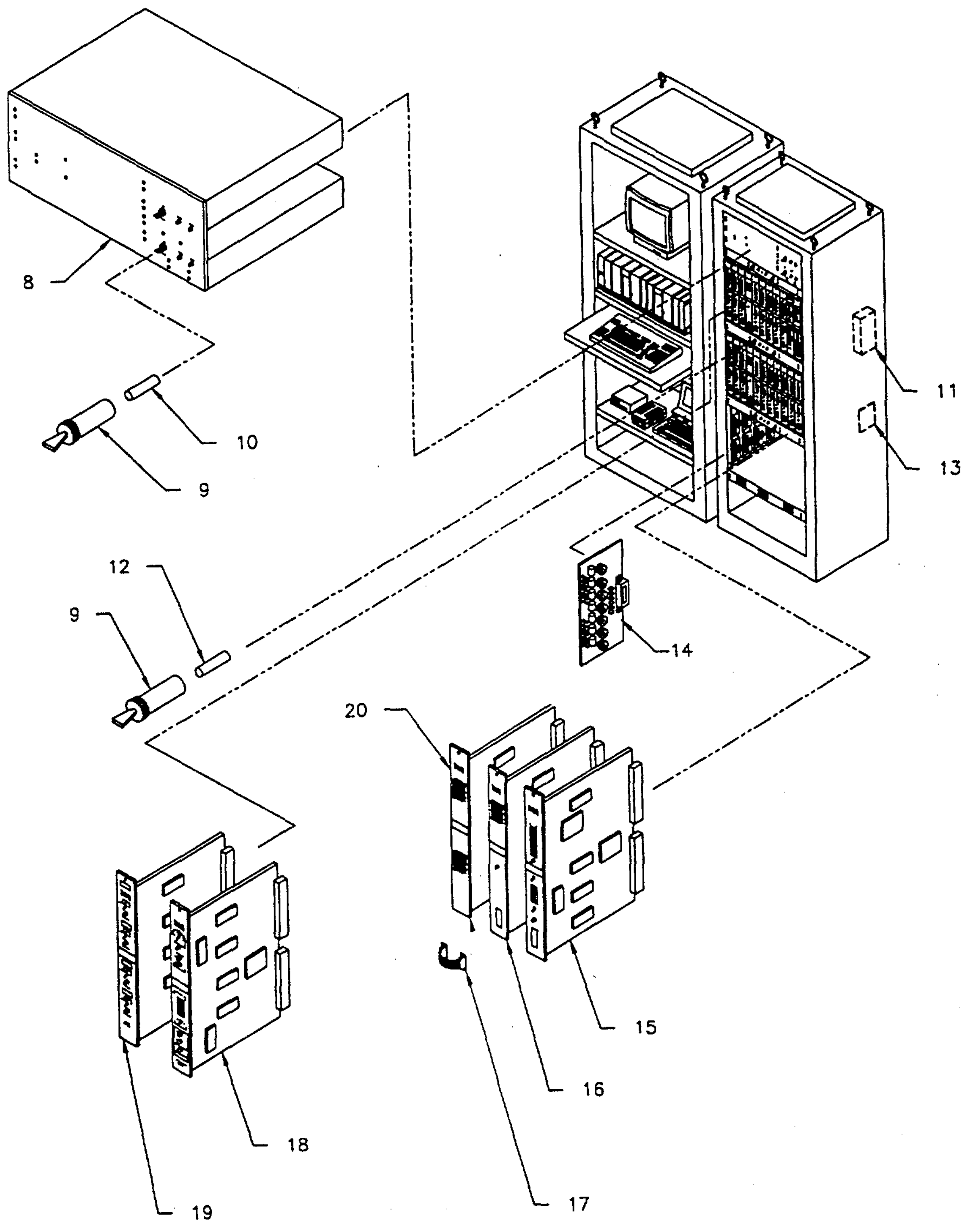


Figure C-3 Primary Monitor Console (Small) (Sheet 2 of 6)

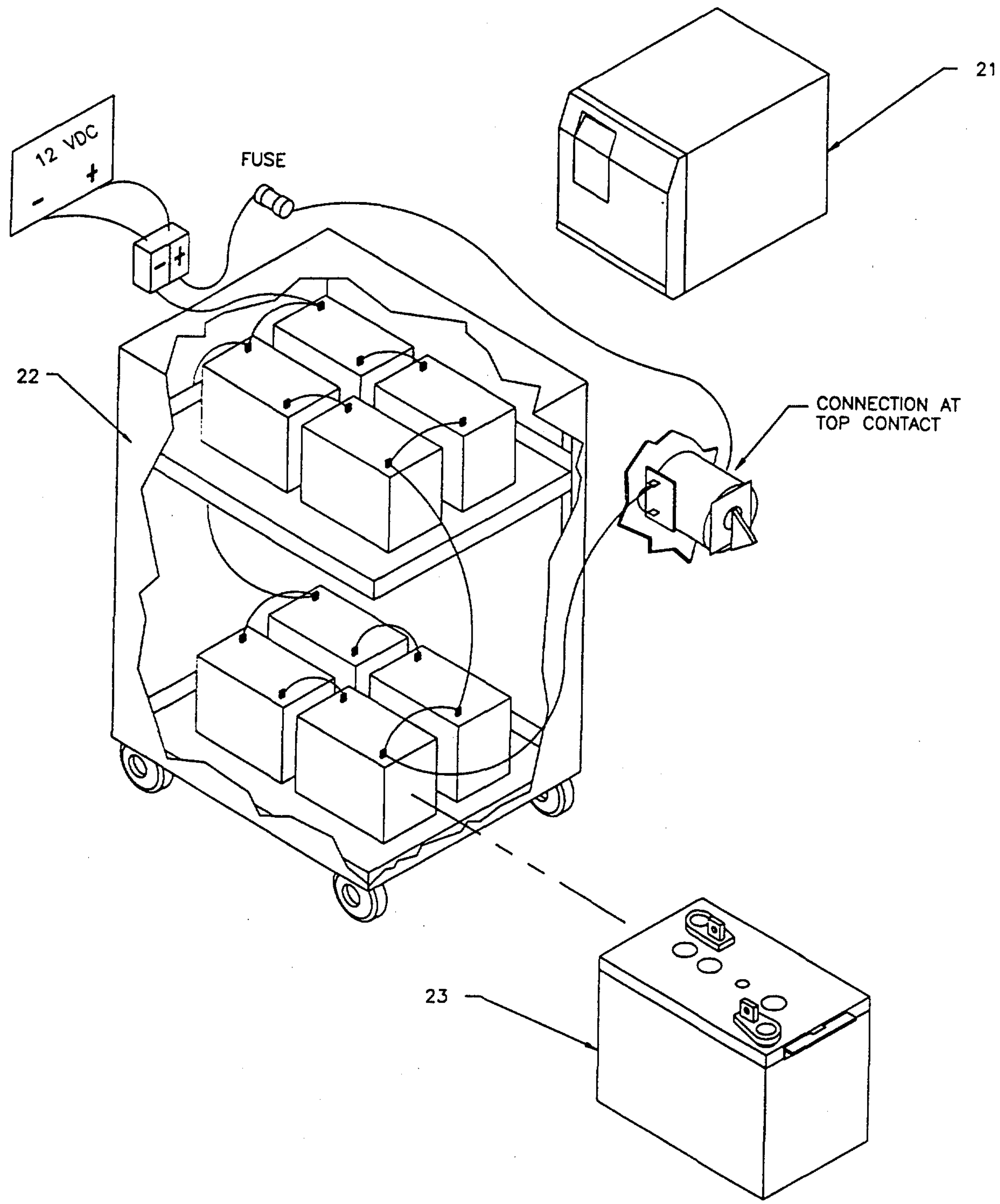


Figure C-3. Primary Monitor Console (Small) (Sheet 3 of 6)

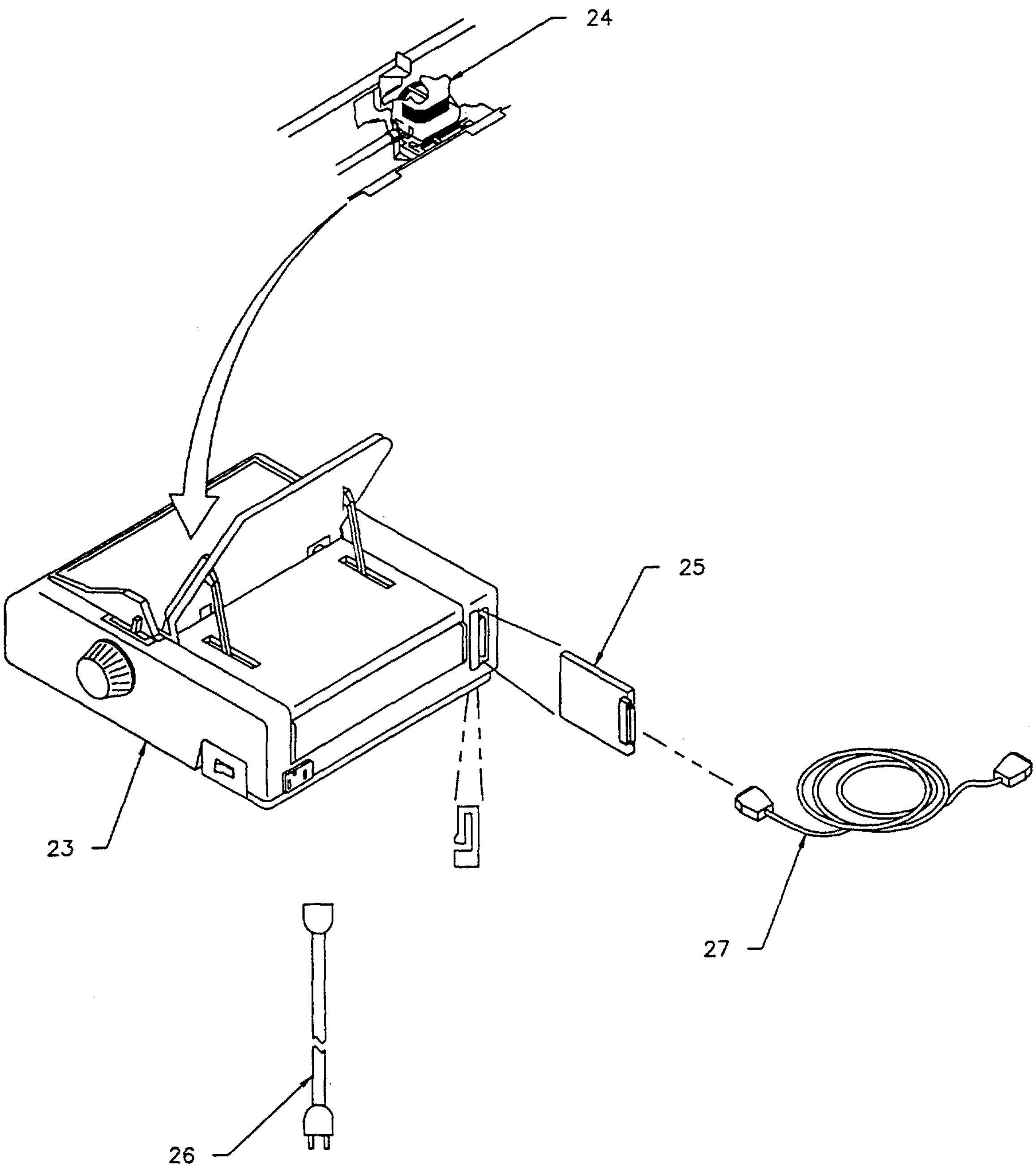


Figure C-3 . Primary Monitor Console (Small) (Sheet 4 of 6)

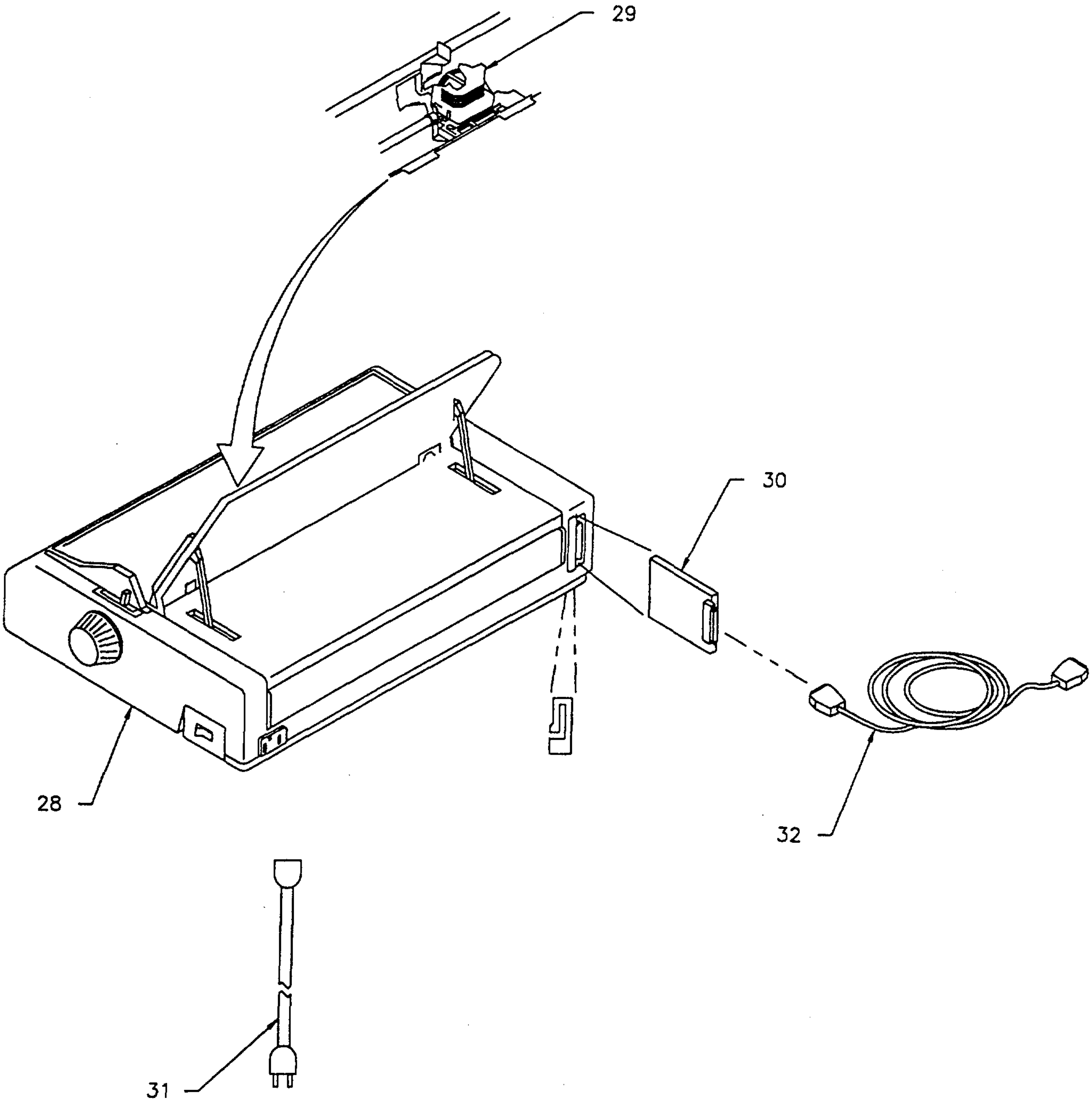


Figure C3 . Primary Monitor Console (Small) (Sheet 5 of 6)

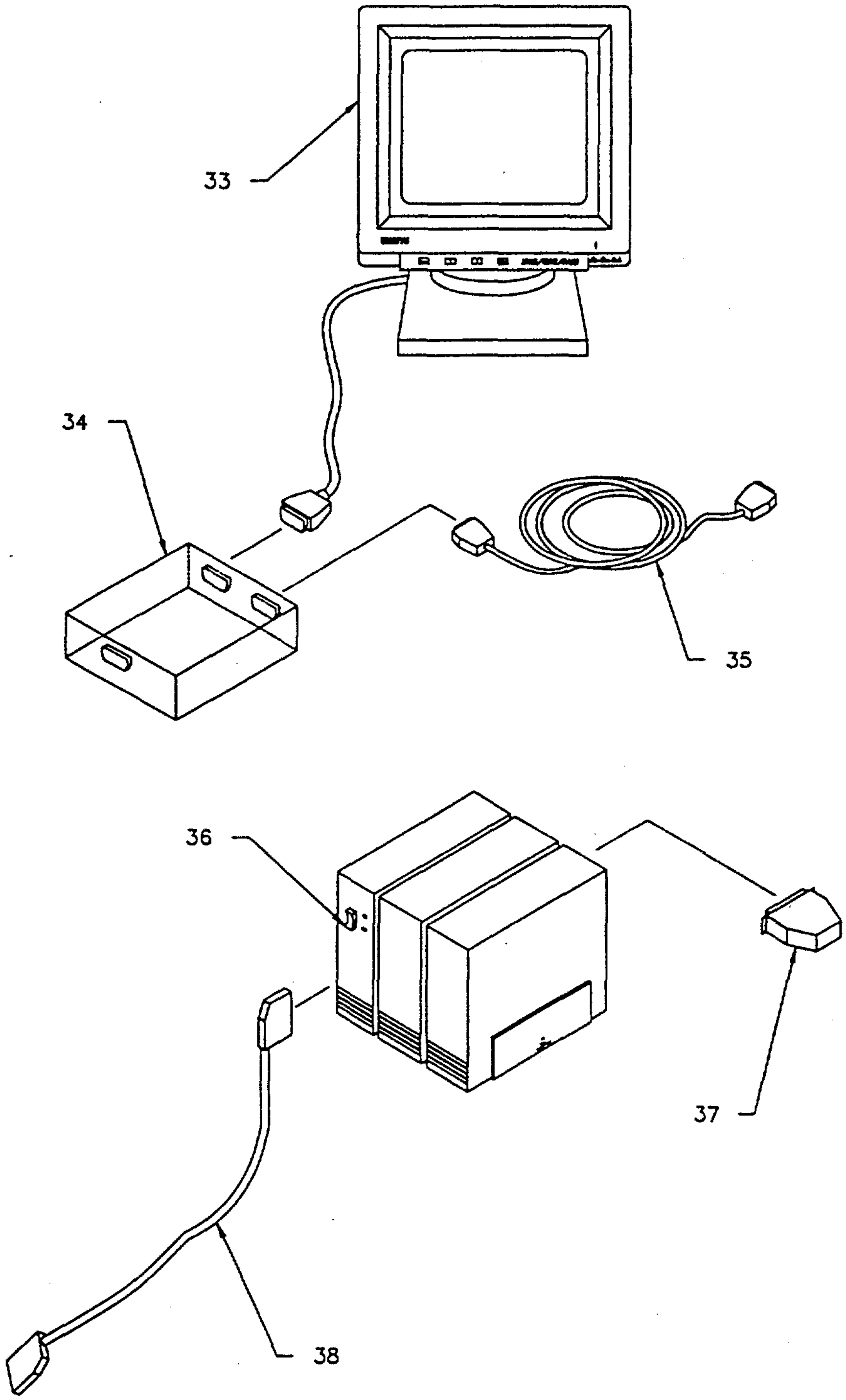


Figure C-3. Primary Monitor Console (Small) (Sheet 6 of 6)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-3	4F312	5051A	PRIMARY MONITOR CONSOLE (SMALL)*	1
2	C-3	4F312	B-3883-216644	COMPUTER, LAPTOP, 80386..............................	1
3	C-3	4F312	B25-PS	MODULE, POWER SUPPLY, 36 VDC...................	V
4	C-3	4F312	UDS V.32	9600 BAUD MODEM*...	1
5	C-3	4F312	B25-K5	KEYBOARD, 112 KEYS, U.S. FORMAT................	3
6	C-3	4F312	B39/w12MB	PROCESSOR ASSEMBLY, CENTRAL.................	1
7	C-3	4F312	B25-D1	MONITOR, MONOCHROME, 12 INCH.................	1
8	C-3	4F312	HDD15-5a	POWER SUPPLY, DUAL 12 VDC	2
9	C-3	4F312	4076-H	•FUSE HOLDER, CIRCUIT BREAKER SWITCH....	8
10	C-3	4F312	BUSS 3A	••FUSE, 250 VOLT, 3 AMP...................................	2
11	C-3	4F312	ACE101	•POWER SUPPLY, 5 VDC	6
12	C-3	4F312	BUSS 3A,	••FUSE, 250 VOLT, 5 AMP...................................	6
13	C-3	4F312	4978-ACB-3	PRINTED WIRING ASSEMBLY, GANYMEDE B	1
14	C-3	4F312	5028-ACB	PRINTED WIRING ASSEMBLY, LINE................... INTERFACE UNIT	8
15	C-3	4F312	4641-ACB	PRINTED WIRING ASSEMBLY, DIGITAL MULTI- . PLEXER	1
16	C-3	4F312	4678-ACB	PRINTED WIRING ASSEMBLY, DATA .... ENCRYPTION SYSTEM	V
17	C-3	4F312	4785-ACA	•CABLE, INTERFACE MULTIPLEXER/DES	V
18	C-3	4F312	4221-B01	PRINTED WIRING ASSEMBLY, QUAD .... SWITCHBOARD	1
19	C-3	4F312	4241-B01	PRINTED WIRING ASSEMBLY, ICS..................... SWITCHBOARD	1

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
20	C-3	4F312	4704-ACB	PRINTED WIRING ASSEMBLY, AUDIO .... MULTIPLEXER	8
21	C-3	4F312	14-1014-118	POWER SUPPLY, UNINTERRUPTIBLE, 1.8 KVA .	1
22	C-3	4F312	14-1005-876	•EXTENDED RUN TIME, UPS...............................	1
23	C-3	4F312	BATA-050	BATTERY, LEAD ACID, MAINTENANCE FREE..... 12VDC	8
24	C-3	4F312	AP1337	PRINTER, DOT MATRIX, 80 COLUMNS................	1
24	C-3	4F312	75-1825-902	•PRINTHEAD...	1
25	C-3	4F312	AP1337-SI	•SERIAL INTERFACE BOARD, PWA.....................	1
26	C-3	4F312	B25-LC	•POWER CABLE, AC	1
27	C-3	4F312	XC-698-IS	•PRINTER CABLE, SERIAL INTERFACE...............	1
28	C-3	4F312	AP1339	PRINTER, DOT MATRIX, 136 COLUMNS..............	1
29	C-3	4F312	75-1825-902	•PRINTHEAD	1
30	C-3	4F312	AP1337-SI	•SERIAL INTERFACE BOARD, PWA.....................	1
31	C-3	4F312	B25-LC	•POWER CABLE, AC	1
32	C-3	AF312	XC-698-IS	•PRINTER CABLE, SERIAL INTERFACE...............	1
33	C-3	4F312	B25-VDC	MONITOR, COLOR SYNC VGA.............................	2
34	C-3	4F312	B25-VKA	•ADAPTER, VIDEO GRAPHICS	2
35	C-3	4F312	NONE	••CABLE, VIDEO GRAPHICS ADAPTER	2
36	C-3	4F312	B38-GXL	PROCESSOR, 80386, 25 MHZ..............................	2
37	C-3	4F312	15-2015-	•CONNECTOR, TERMINATION	2
38	C-3	4F312	154-1798-253	•CABLE, CLUSTER, 25 FOOT	2

END OF FIGURE C-3

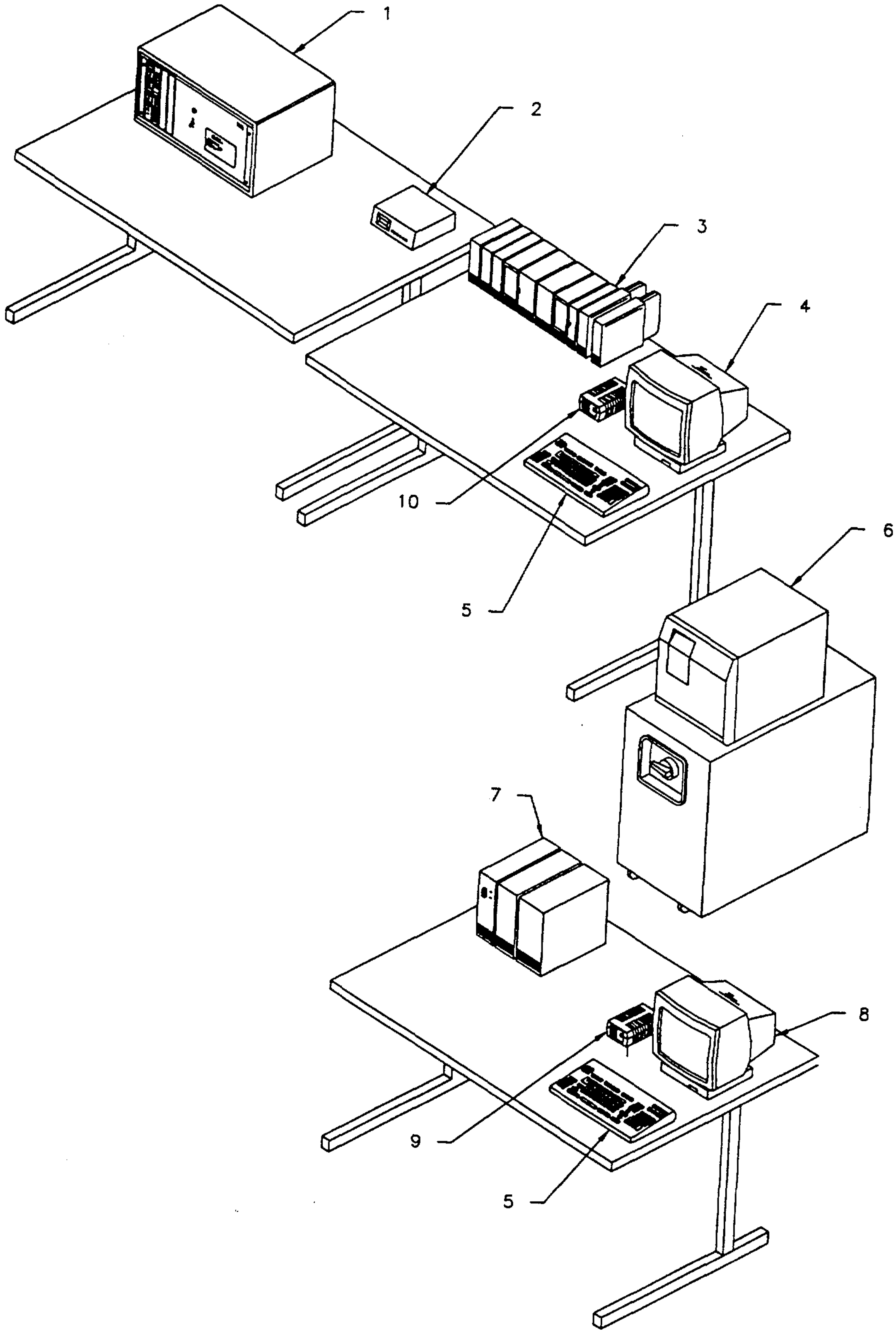


Figure C-4 . Remote Status Monitor Master Station (Sheet 1 of 4)

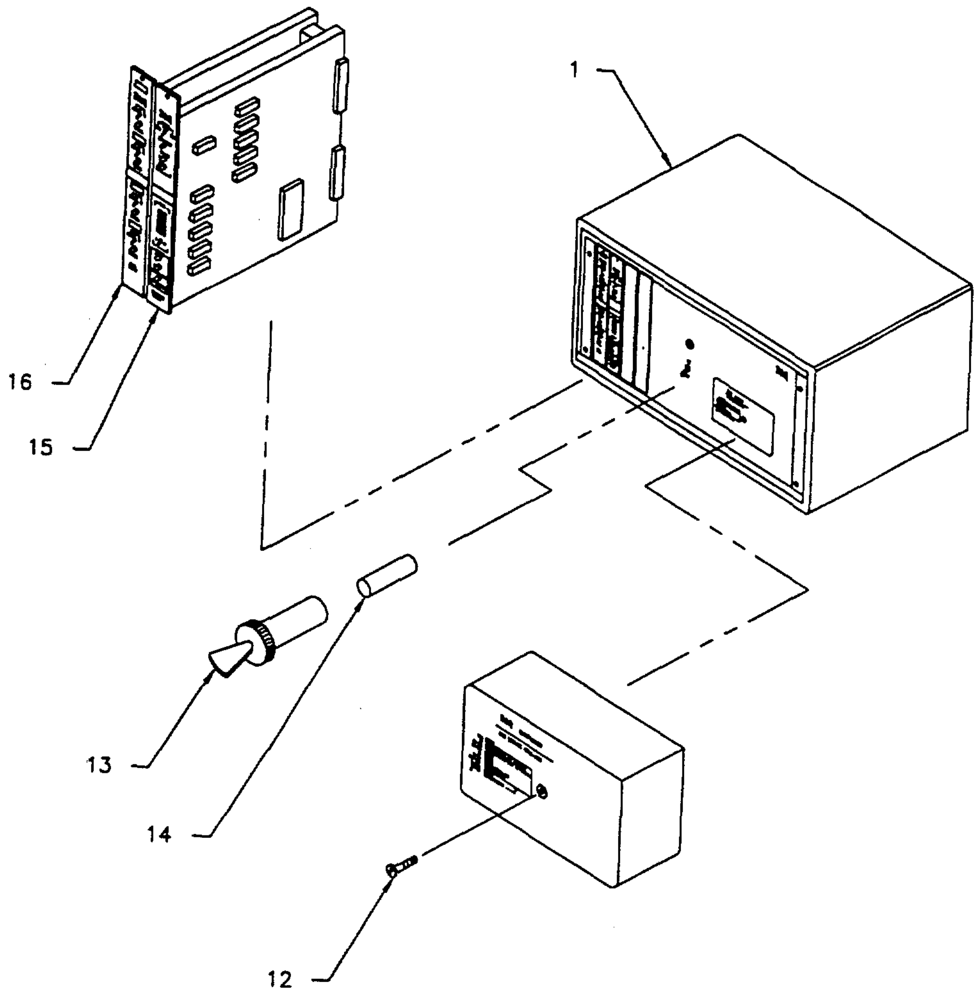


Figure C-4 . Remote Status Monitor Master Station (Sheet 2 of 4)

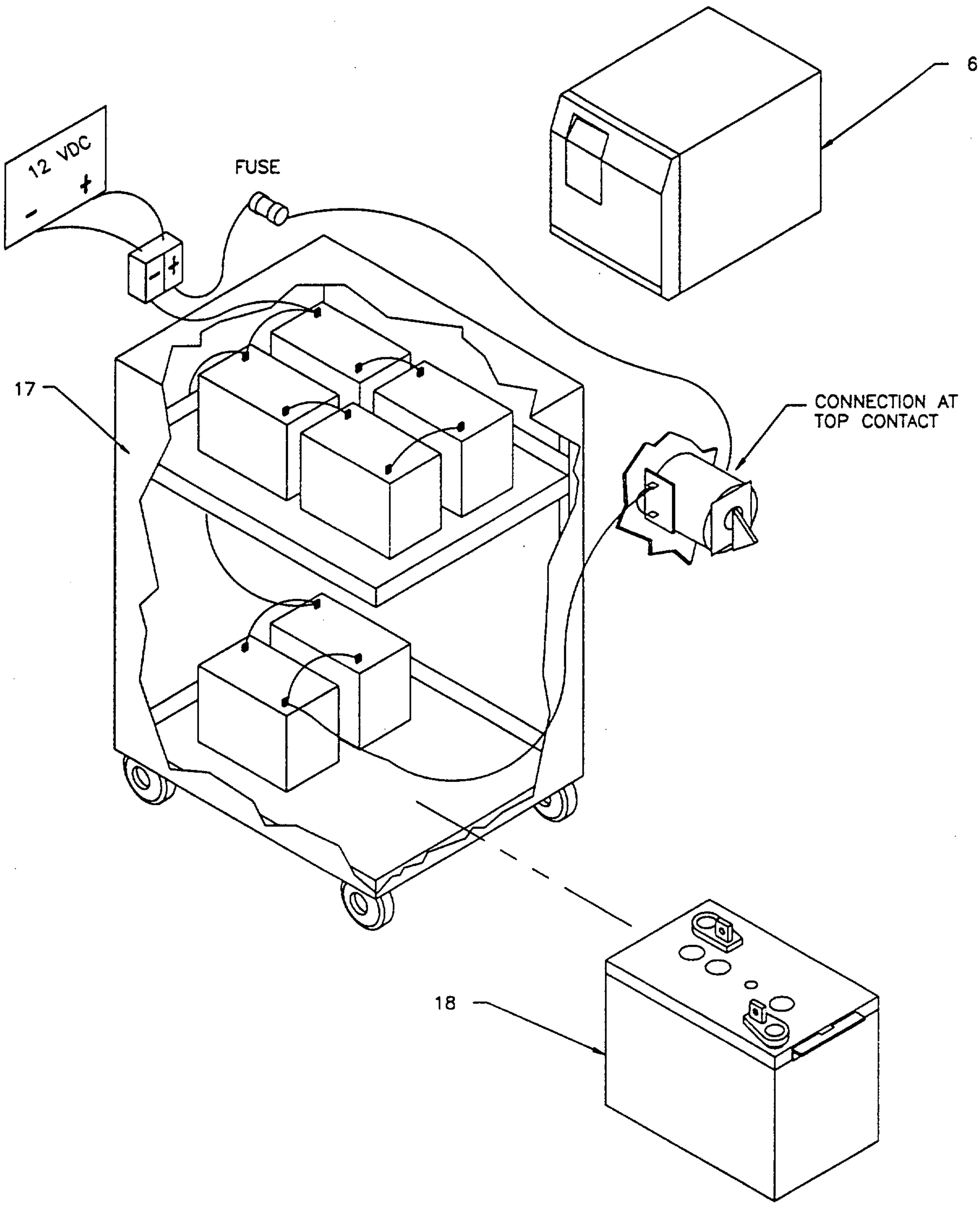


Figure C-4 . Remote Status Monitor Master Station (Sheet 3 of 4)

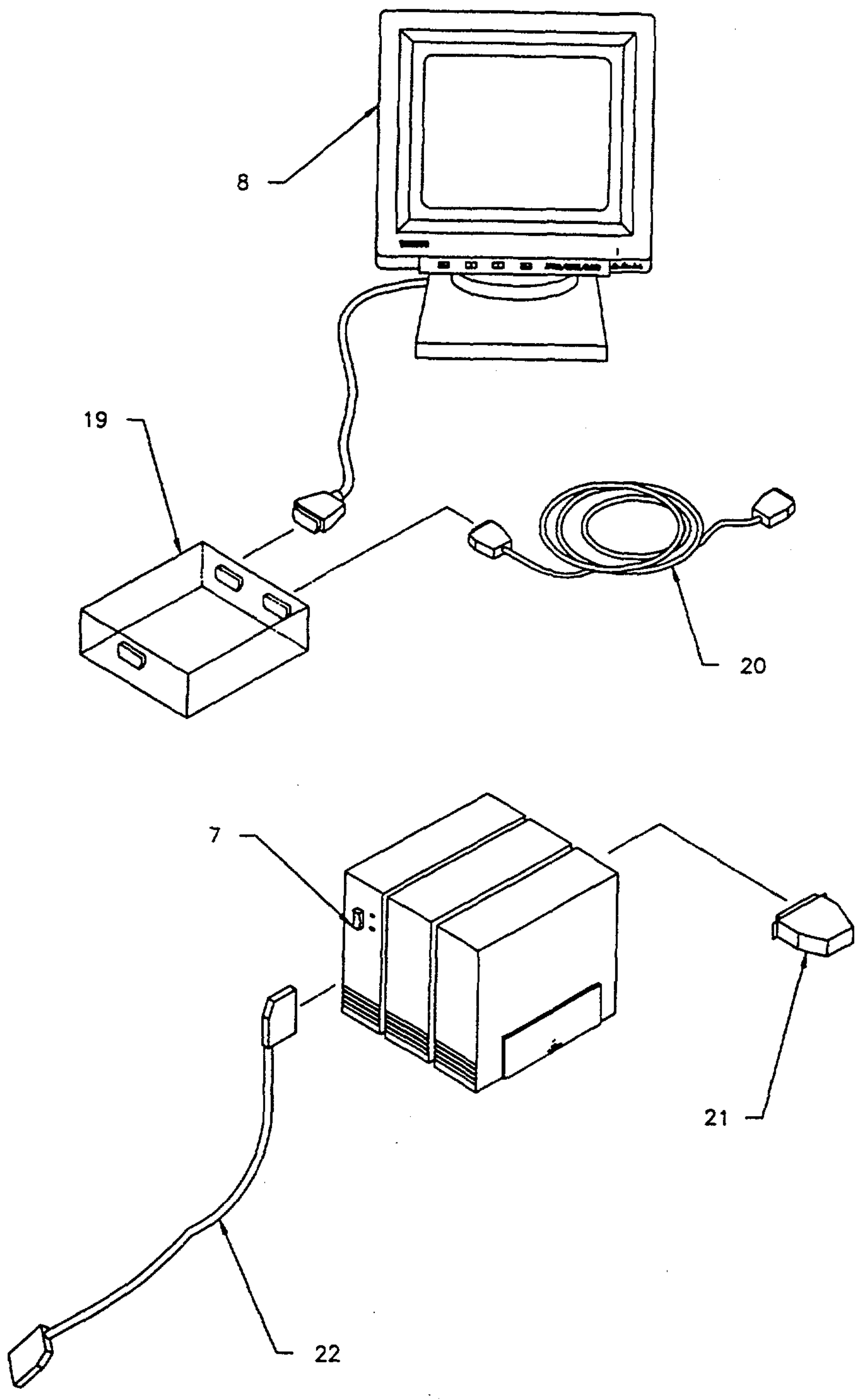


Figure C-4 . Remote Status Monitor Master Station (Sheet 4 of 4)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-4	4F312	5052A	REMOTE STATUS MONITOR MASTER STATION*	1
2	C-4	4F312	UDS V.32	MODEM, 9600 BAUD	1
3	C-4	4F312	B39/w16MB	PROCESSING ASSEMBLY, CENTRAL (LPMC).....	1
3	C-4	4F312	B39/w12MB	PROCESSING ASSEMBLY, CENTRAL (SPMC)	1
4	C-4	4F312	B25-D1	MONITOR, MONOCHROME, 12 INCH..................	1
5	C-4	4F312	B25-K5	KEYBOARD, 112 KEYS U.S. FORMAT	2
6	C-4	4F312	14-1008-110	POWER SUPPLY, UNINTERRUPTIBLE, .85 KVA .	1
7	C-4	4F312	B38-GXL	PROCESSOR, 80386, 25 MHZ..............................	1
8	C-4	4F312	B25-VDC	MONITOR, COLOR, SYNC VGA...........................	1
9	C-4	4F312	B25-PS	MODULE, POWER SUPPLY, 36 VDC...................	1
10	C-4	4F312	B25-PS1	MODULE, POWER SUPPLY, 36 VDC...................	1
11	C-4	4F312	4649-ACU	•DATA ENCRYPTION SYSTEM, REMOTE	1
12	C-4	4F312	1696-N01	••SCREW	1
13	C-4	4F312	4076-H	•FUSE HOLDER/POWER SWITCH	1
14	C-4	4F312	BUSS 3A 250VAC	••FUSE, 250 VOLTS, 3 AMPS	1
15	C-4	4F312	4229-ACB	•PRINTED WIRING ASSEMBLY, QUAD SWITCH . SWITCHBOARD	1
16	C-4	4F312	4248-ACB	•PRINTED WIRING ASSEMBLY, ICS .... SWITCHBOARD	1
			14-1008 110	POWER SUPPLY, UNINTERRUPTIBLE, .85 KVA . (ITEM 6)	1
17	C-4	4F312	14-1003-863	•EXTENDED RUN TIME, UPS...............................	1

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
18	C-4	4F312	BATA-050	••BATTERY, LEAD ACID, MAINTENANCE .... FREE 12 VDC	6
19	C-4	4F312	B25-VKA	•ADAPTER, VIDEO GRAPHICS	1
20	C-4	4F312	NONE	••CABLE, VIDEO GRAPHICS ADAPTER	1
21	C-4	4F312	15-2015-889	•CONNECTOR, TERMINATION	1
22	C-4	4F312	154-1798-253	•CABLE, CLUSTER, 25 FOOT	1

END OF FIGURE C-4

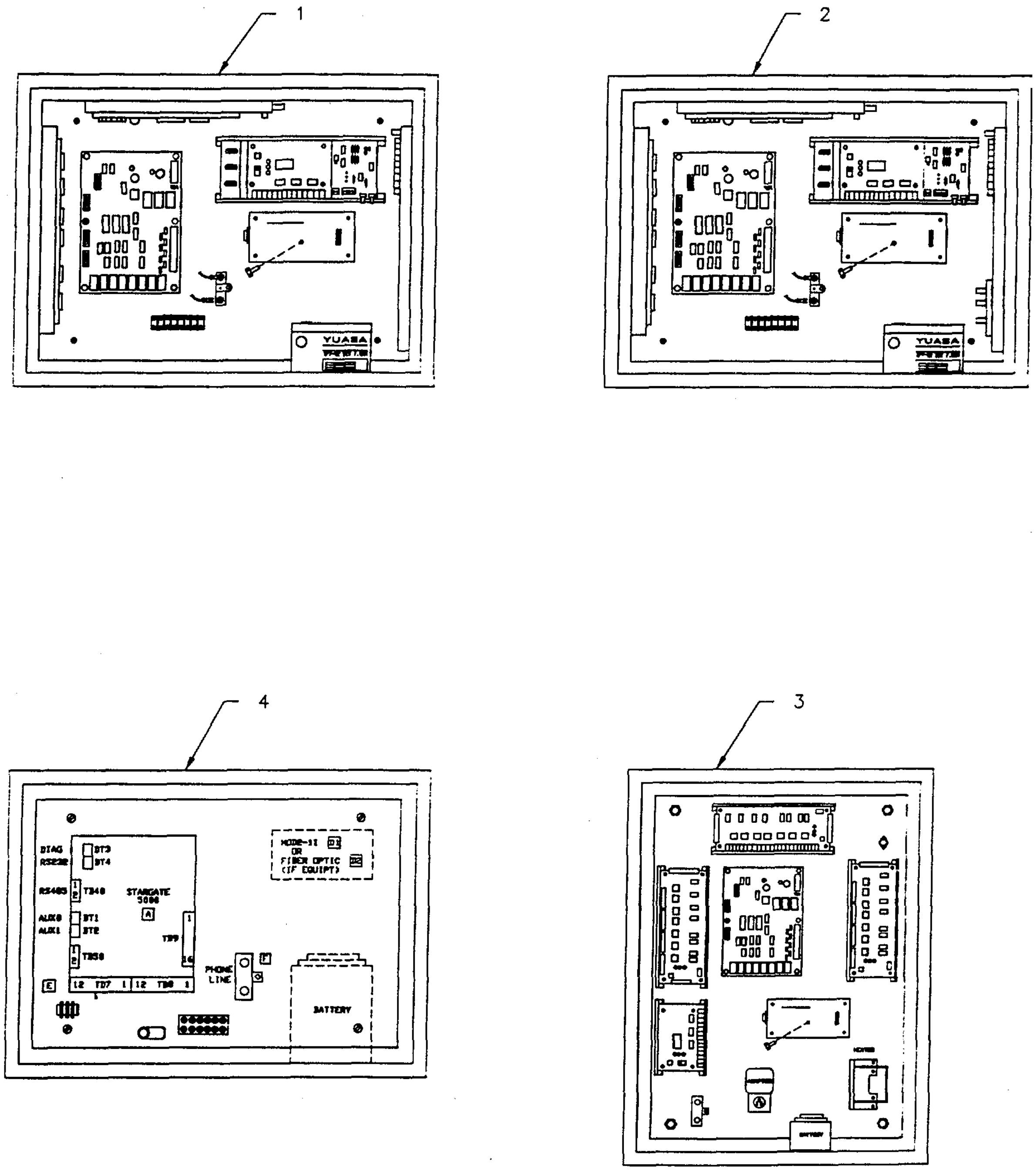


Figure C-5. Remote Area Data Collectors/SubRADC (Ledas) (Sheet 1 of 2)

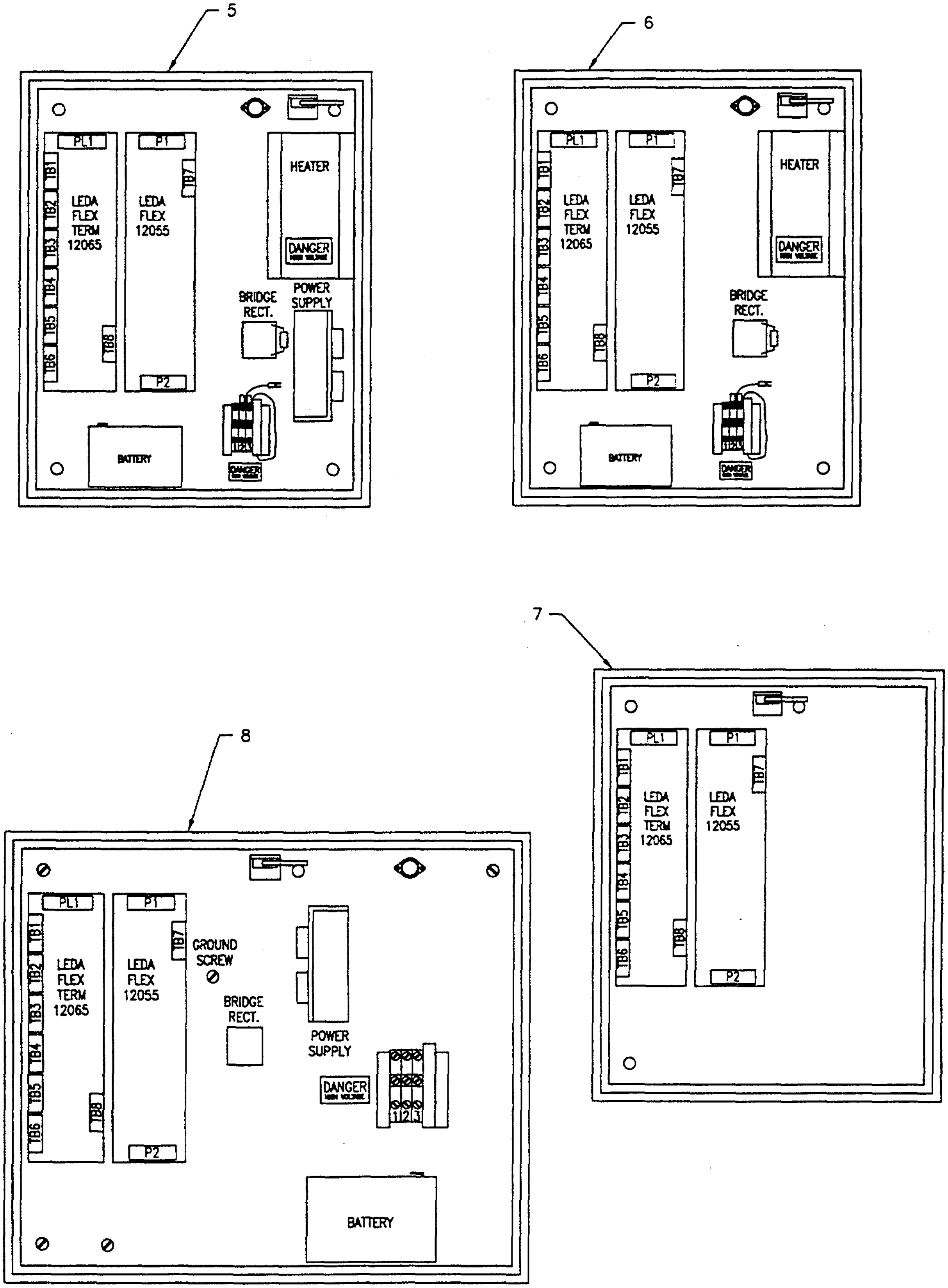


Figure C5. Remote Area Data Collectors/SubRADC (Ledas) (Sheet 2 of 2)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-5	4F312	4976-ACU	REMOTE AREA DATA COLLECTOR, (RADC)....... INTERIOR, 20 POINTS, 12 VDC (SEE FIGURE C-6)	1
2	C-5	4F312	5009-ACU	REMOTE AREA DATA COLLECTOR, (RADC)....... INTERIOR, 20 POINTS, 20 VDC (SEE FIGURE C-7)	1
3	C-5	4F312	5010-ACU	REMOTE AREA DATA COLLECTOR, (RADC)....... EXTERIOR, 32 POINTS, 12 VDC (SEE FIGURE C-8)	1
4	C-5	4F312	5209-ACU	REMOTE AREA DATA COLLECTOR, (RADC)....... INTERIOR, 8 POINTS, 12 VDC (SEE FIGURE C-9)	1
5	C-5	4F312	5480-ACU	SUB-RADC (LEDA), WITH POWER SUPPLY, ... EXTERIOR, 12 POINTS, 12 VDC (SEE FIGURE C-12)	1
6	C-5	4F312	5257-ACU	SUB-RADC (LEDA), EXTERIOR, 12 POINTS,........ 12 VDC (SEE FIGURE C-13)	1
7	C-5	4F312	5232-ACU	SUB-RADC (LEDA), INTERIOR, 12 POINTS.......... 12 VDC (SEE FIGURE C-11)	1
8	C-5	4F312	5259-ACU	SUB-RADC (LEDA), WITH POWER SUPPLY, ... INTERIOR, 12 POINTS, 12 VDC (SEE FIGURE C-10)	1

END OF FIGURE C-5

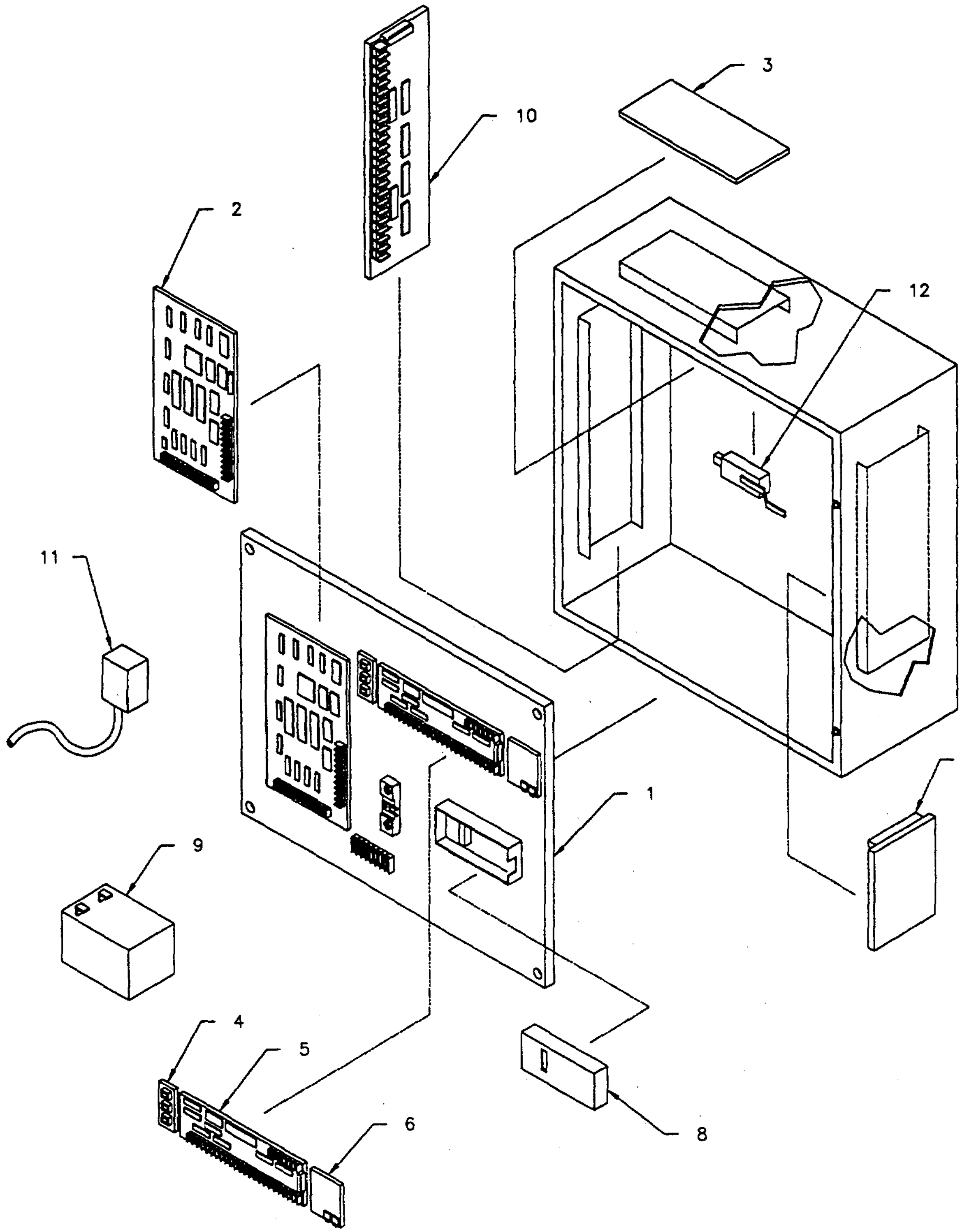


Figure C-6. Remote Area Data Collector 12 VDC Interior

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-6	4F312	4976-ACU	REMOTE AREA DATA COLLECTOR, (RADC)....... INTERIOR, 20 POINTS, 12 VDC	1
2	C-6	4F312	4981-ACB-2	•PRINTED WIRING ASSEMBLY, STARGATE 5000	1
3	C-6	4F312	5044-ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX	1
4	C-6	4F312	NONE	•DES TERMINAL*	1
5	C-6	4F312	3869-ACB-1	•MOD2, II MODEM, 1200 BAUD	1
6	C-6	4F312	5064A 5067A	•FIBER OPTIC MODULE (LW)* .... •FIBER OPTIC MODULE (SW)*	1 1
7	C-6	4F312	5059A	•AUDIO ASSESSMENT MODULE*	1
8	C-6	4F312	4649A	•MODULE, DATA ENCRYPTION*	1
9	C-6	19612	NP7-12	•BATTERY, 12 VDC, 7 AHR	1
10	C-6	4F312	5024-ACB	•PRINTED WIRING ASSEMBLY, LEDA FLEX ...... TERMINATION	1
11	C-6	4F312	5286-APS	•ADAPTER, 120 VAC TO 18 VAC, 60 HZ	1
12	C-6	4F312	4894-H	•TAMPER SWITCH	1

END OF FIGURE C-6

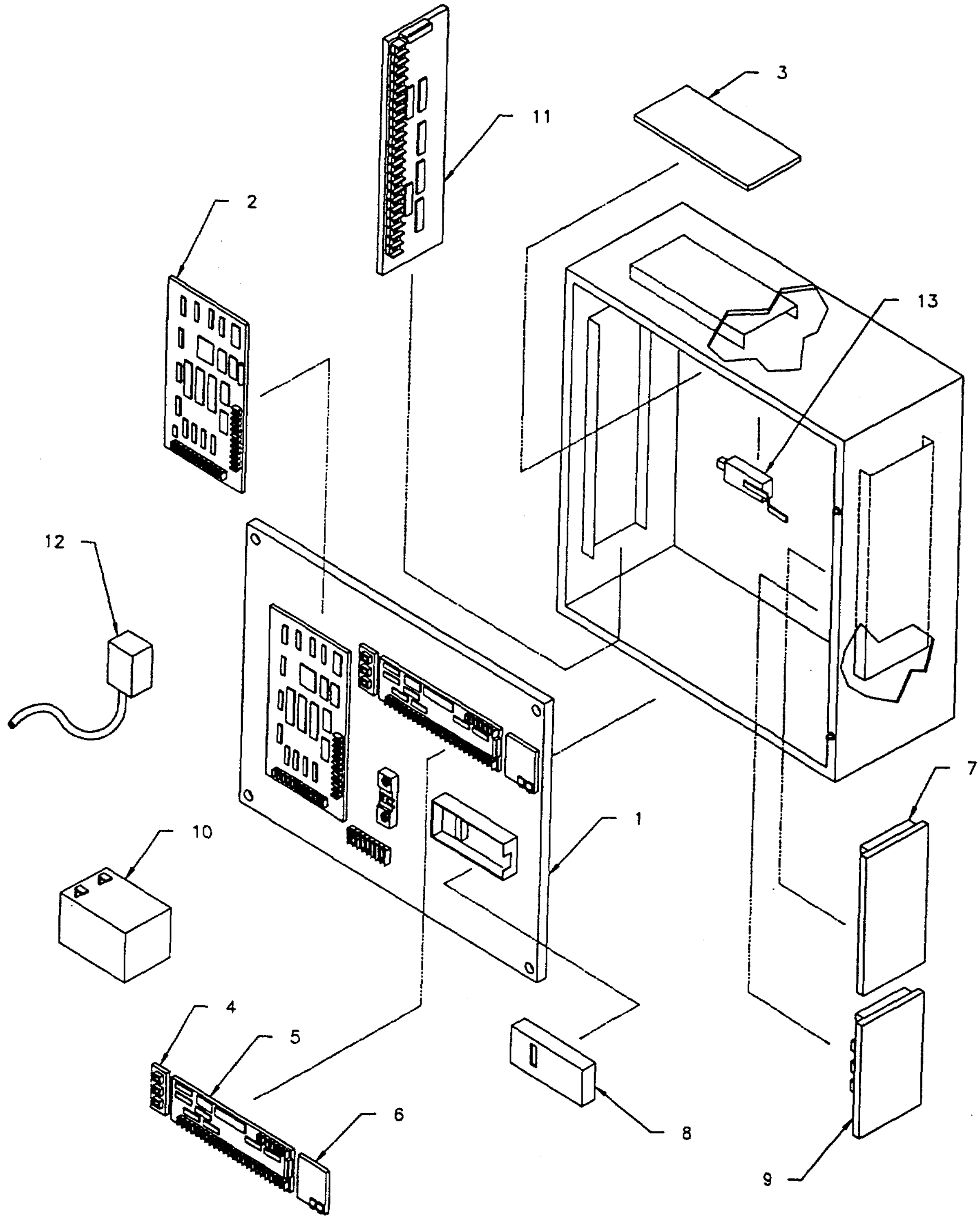


Figure C-7. Remote Area Data Collector 20 VDC Interior

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-7	4F312	5009-ACU	REMOTE AREA DATA COLLECTOR, (RADC) .... INTERIOR, 20 POINTS, 20 VDC	1
2	C-7	4F312	4981-ACB-2	•PRINTED WIRING ASSEMBLY, STARGATE 5000	1
3	C-7	4F312	5044-ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX.......	1
4	C-7	4F312	NONE	•DES TERMINAL*	1
5	C-7	4F312	3869-ACB-1	•MOD2 II MODEM, 1200 BAUD	1
6	C-7	4F312	5064A 5067A	•FIBER OPTIC MODULE (LW)* .... •FIBER OPTIC MODULE (SW)*	1 1
7	C-7	4F312	5059A	•AUDIO ASSESSMENT MODULE*	1
8	C-7	4F312	4649A	•MODULE, DATA ENCRYPTION*	1
9	C-7	4F312	5048-ACB	•POWER SUPPLY, 20 VDC	1
10	C-7	19612	NP12-12	•BATTERY, 12 VDC, 12 AHR	1
11	C-7	4F312	5024-ACB	•PRINTED WIRING ASSEMBLY, LEDA FLEX ...... TERMINATION	1
12	C-7	4F312	5286-APS	•ADAPTER, 120 VAC TO 18 VAC, 60 HZ	1
13	C-7	4F312	4894-H	•TAMPER SWITCH	1

END OF FIGURE C-7

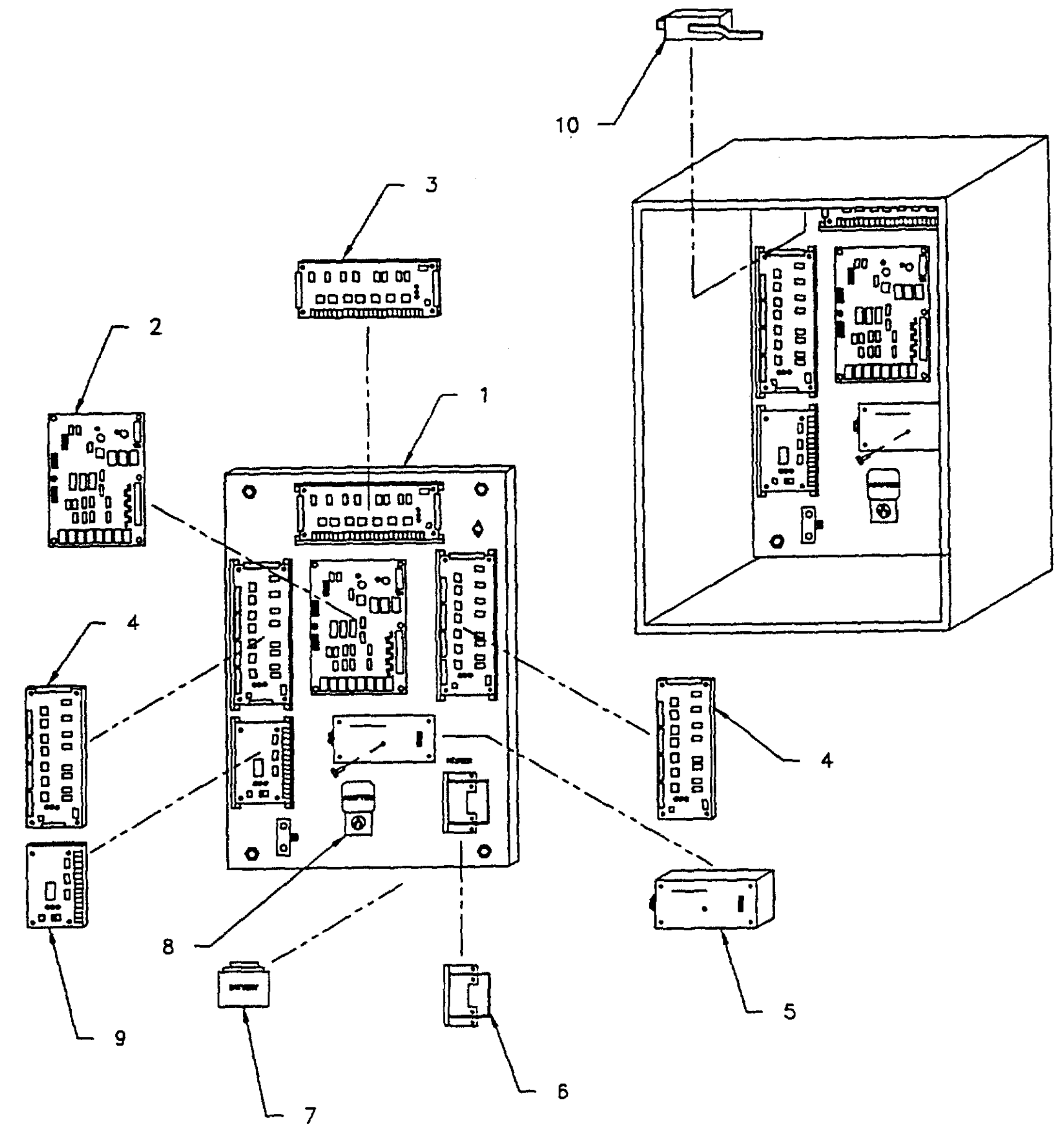


FIGURE C-8. Remote Area Data Collector 12 VDC Exterior

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-8	4F312	5010-ACU	REMOTE AREA DATA COLLECTOR, (RADC) ...... EXTERIOR, 32 POINTS, 12 VDC	1
2	C-8	4F312	4981-ACB-1	•PRINTED WIRING ASSEMBLY, STARGATE 1000	1
3	C-8	4F312	5044-ACB-V1	•PRINTED WIRING ASSEMBLY, LEDA FLEX ...... TERMINATION	1
4	CB	4F312	5024-ACB	•PRINTED WIRING ASSEMBLY, LEDA FLEX ...... TERMINATION	2
5	C-8	4F312	4649A	•MODULE, DATA ENCRYPTION*	1
6	C-8	4F312	3569-H99	•HEATER, 120 VAC	1
			5723-H99	•HEATER, 240 VAC*	1
7	C-8	19612	NP7-12	•BATTERY, 12 VDC, 7 AHR	1
8	C-8	4F312	5286-APS	•ADAPTER, 120 VAC T O 18 VAC, 60 HZ	1
9	C-8	4F312	3869-ACB-V1	•MOD2 II MODEM, 1200 BAUD	1
10	C-8	4F312	4894-H	•TAMPER SWITCH	1

END OF FIGURE C-8

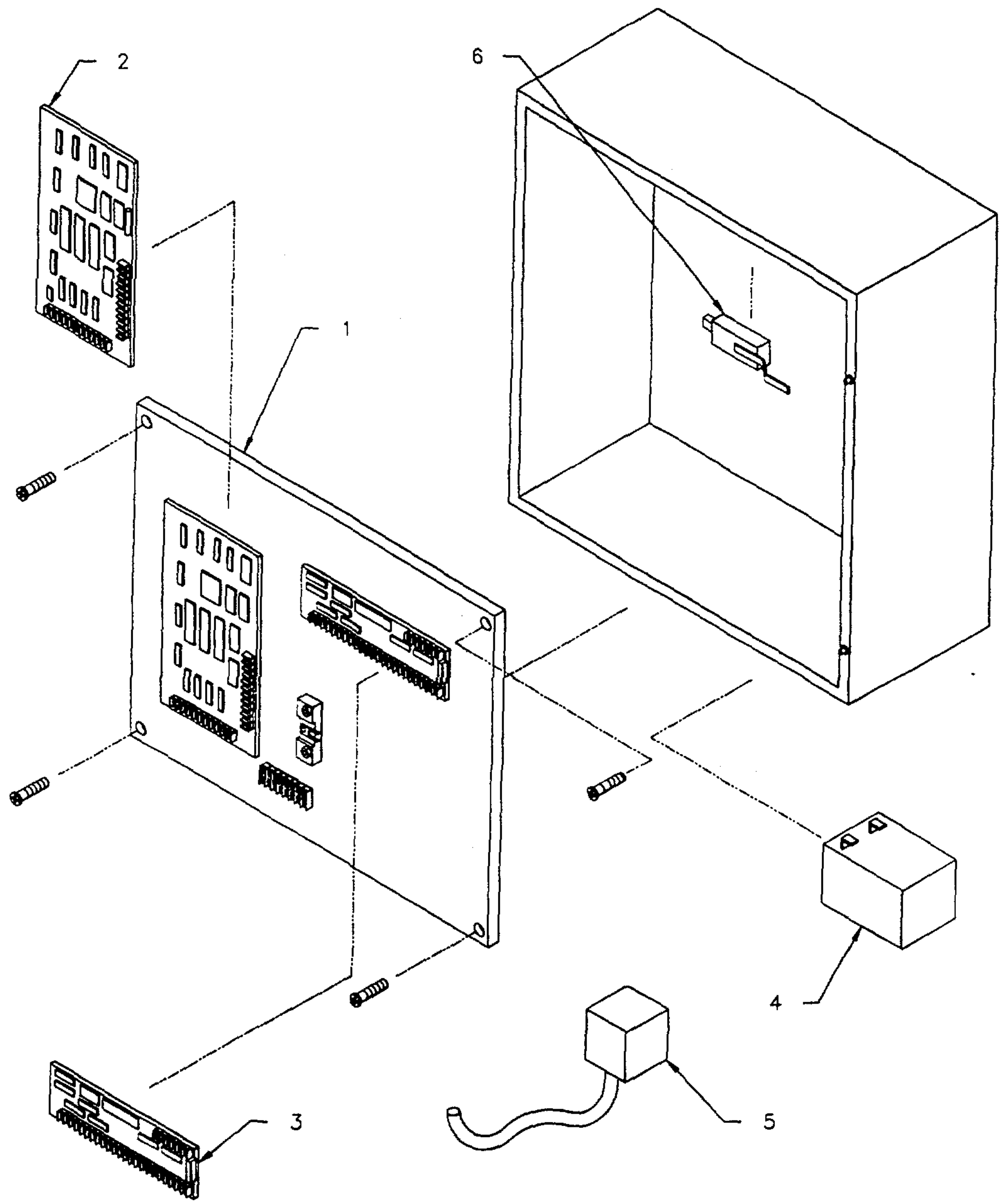


Figure C-9. Remote Area Data Collector (RADC) Interior, 8 Points, 12 VDC

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-9	4F312	5209-ACU	REMOTE AREA DATA COLLECTOR, (RADC) ...... INTERIOR, 8 POINTS, 12 VDC	1
2	C-9	4F312	4981-ACB-2	•PRINTED WIRING ASSEMBLY, STARGATE 5000	1
3	C-9	4F312	3869-ACB-1	•MOD2 II MODEM, 1200 BAUD	1
		4F312	5064A	•FIBER OPTIC MODULE (LW)*	1
			5067A	•FIBER OPTIC MODULE (SW)*	1
4	C-9	19612	NP7-12	•BATTERY, 12 VDC, 7 AHR	1
5	C-9	4F312	5286-APS	•ADAPTER, 120 VAC T· 18 VAC, 60 HZ	1
6	C-9	4F312	4894-H	•TAMPER SWITCH	1

END OF FIGURE C-9

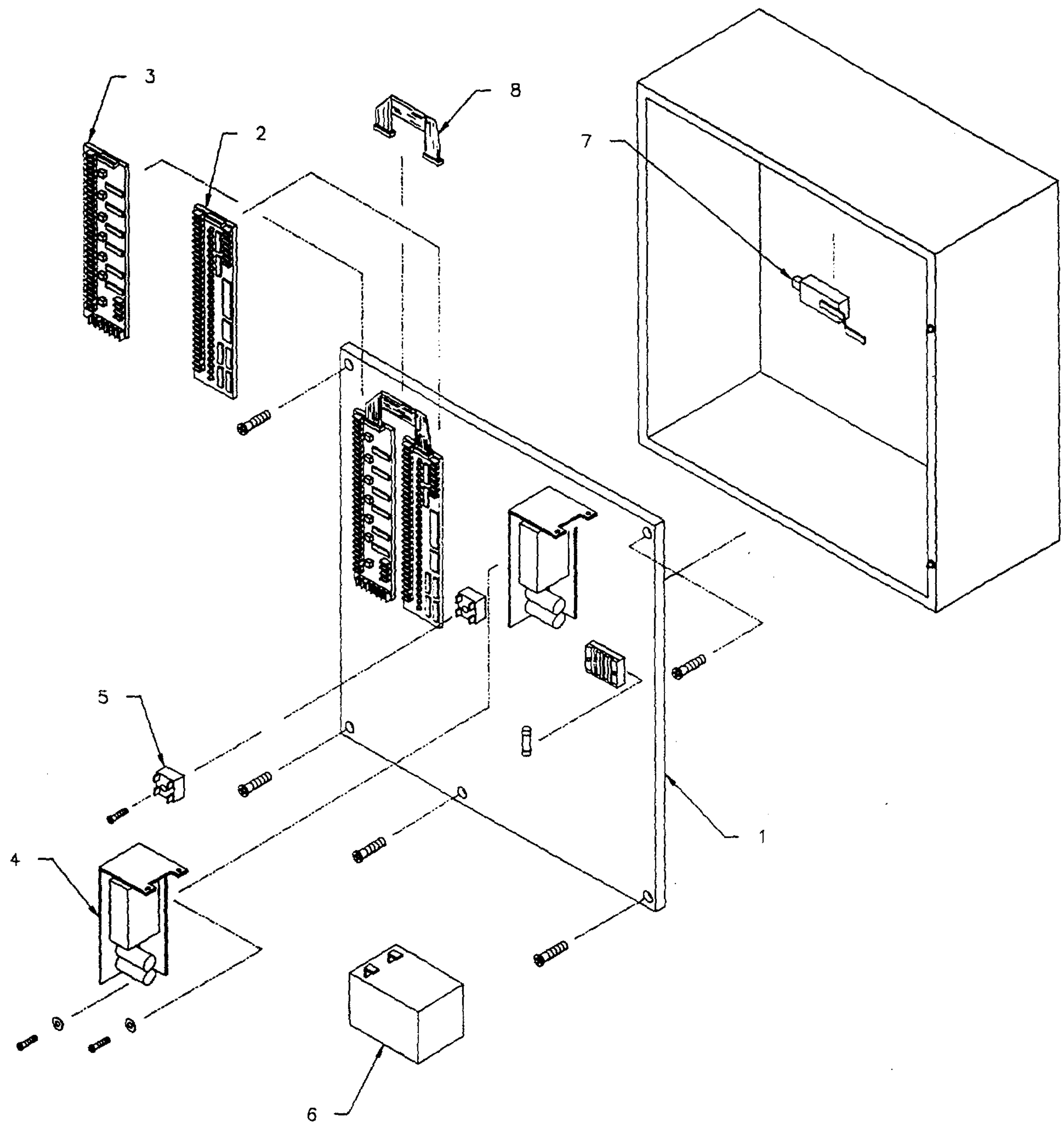


Figure C-10. Sub-RADC (Leda) with Power Supply, Interior 12 Points, 12 VDC

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-10	4F312	5259-ACU	SUB-RADC (LEDA) WITH POWER SUPPLY .... INTERIOR, 12 POINTS, 120 VAC INPUT, 12 VDC OUTPUT	1
2	C-10	4F312	5044-ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX	1
3	C-10	4F312	5024-ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX ...... TERMINATION	2
4	C-10	4F312	3863-PS	•POWER SUPPLY, 15 VDC, .9A	1
5	C-10	4F312	3599-S	••RECTIFIER, BRIDGE	1
6	C-10	19612	NP7-12	•BATTERY, 12 VDC, 7 AHR	1
7	C-10	4F312	4894-H	•TAMPER SWITCH	1
8	C-10	4F312	5238-ACA	•CABLE ASSEMBLY, LEDA FLEX (P1) TO .... LEDA FLEX TERMINATION (PL1)	1

END OF FIGURE C-10

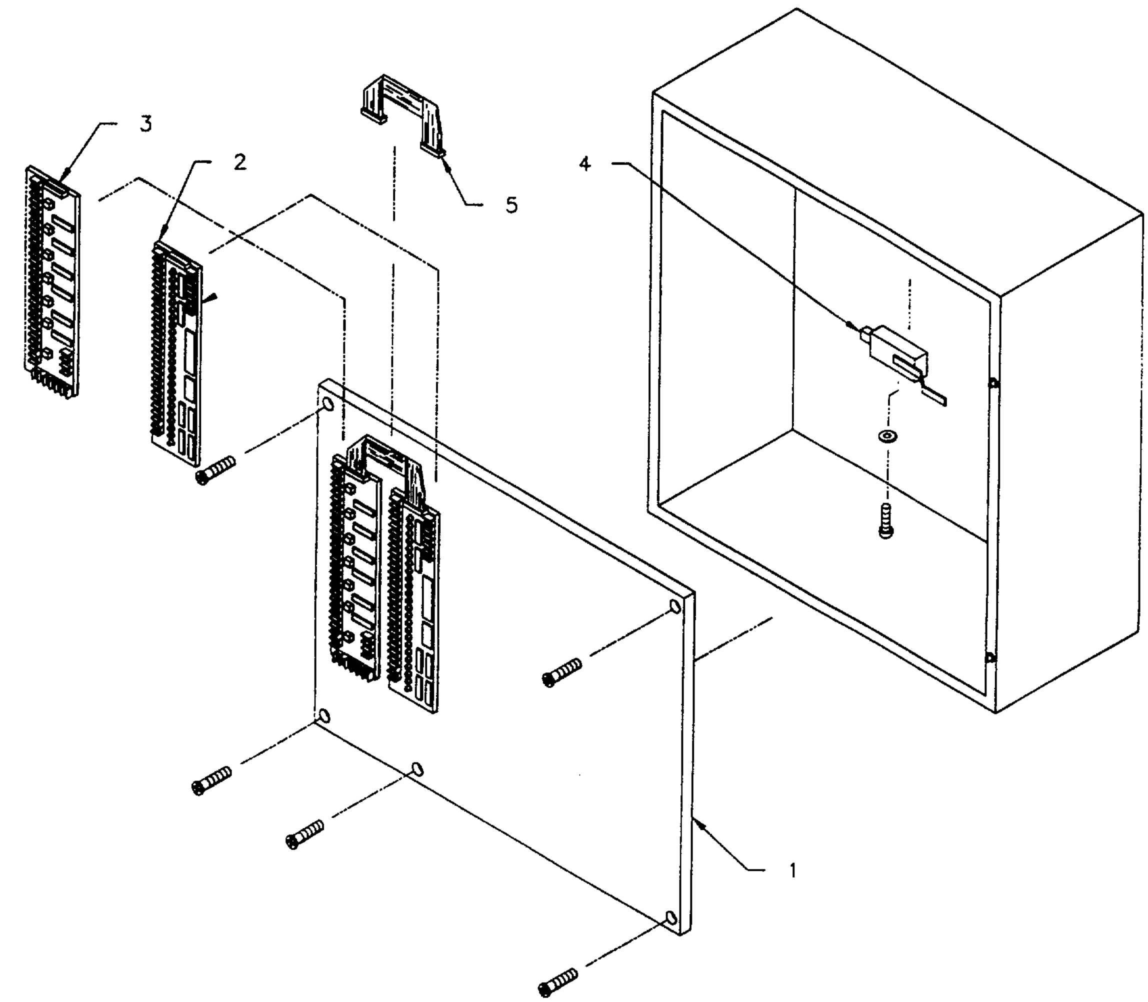


Figure C-11. Sub-RADC (Leda), Interior, 12 Points. 12 VDC

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-ll	4F312	5232-ACU	SUB-RADC (LEDA) INTERIOR, 12 POINTS, 12 VDC	1
2	C-11	4F312	5044-ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX	1
3	C-11	4F312	5024 ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX ...... TERMINATION	2
4	C-11	4F312	4894-H	•TAMPER SWITCH	1
5	C-11	4F312	5238-ACA	•CABLE ASSEMBLY, LEDA FLEX (P1) TO .... LEDA FLEX TERMINATION (PL1)	1

END OF FIGURE C-11

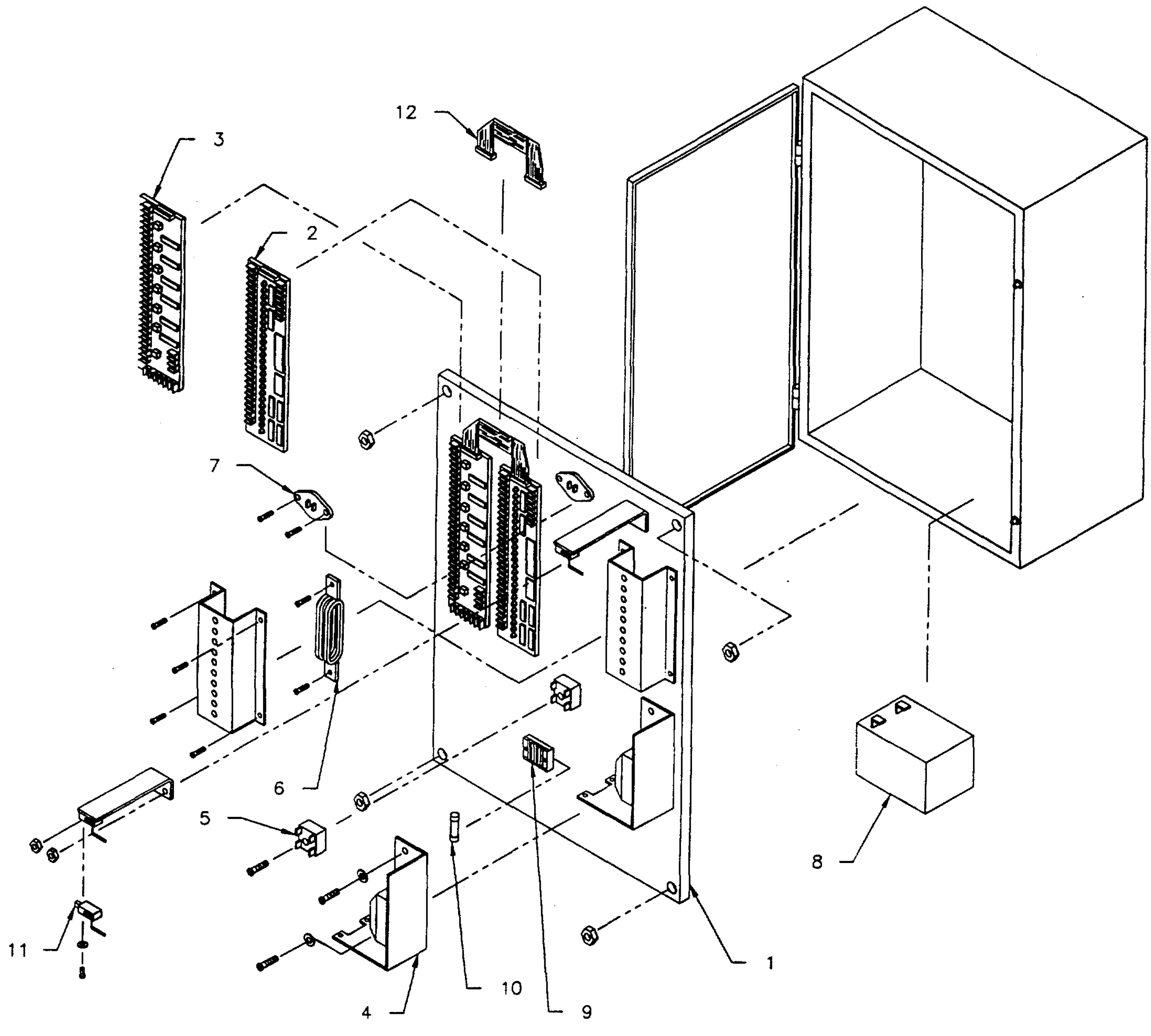


Figure C-12. SubRADC (Leda) with Power Supply, Exterior, 12 Points, 12 VDC

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-12	4F312	5480-ACU-1	SUB-RADC (LEDA) WITH POWER SUPPLY .... EXTERIOR, 12 POINTS, 120 VAC INPUT, 12 VDC OUTPUT	1
		4F312	5480-ACU-2	SUB-RADC (LEDA) WITH POWER SUPPLY, * ..... EXTERIOR, 12 POINTS, 220 VAC INPUT, 12 VDC OUTPUT	1
2	C-12	4F312	5044-ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX	1
3	C-12	4F312	5024-ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX ...... TERMINATION	2
4	C-12	4F312	3863-PS	•POWER SUPPLY, 15 ADC, .9A	1
5	C-12	4F312	3599-S	•RECTIFIER, BRIDGE	1
6	C-12	4F312	3569-H99	•HEATER, 120 VAC	1
			5723-H99	•HEATER, 240 VAC *	1
7	C-12	4F312	4276-H99	•THERMOSTAT, 60 DEGREE	1
8	C-12	19612	NP7-12	•BATTERY, 12 VDC, 7 AHR	1
9	C-12	4F312	5355-A-1	•POWER ENTRY MODULE	1
10	C-12	4F312	5357-H	•FUSE, 250 VOLTS, 1 AMP	1
11	C-12	4F312	4894-H	•TAMPER SWITCH	1
12	C-12	4F312	5238-ACA	•CABLE ASSEMBLY, LEDA FLEX (P1) TO .... LEDA FLEX TERMINATION (PL1)	1

END OF FIGURE C-12

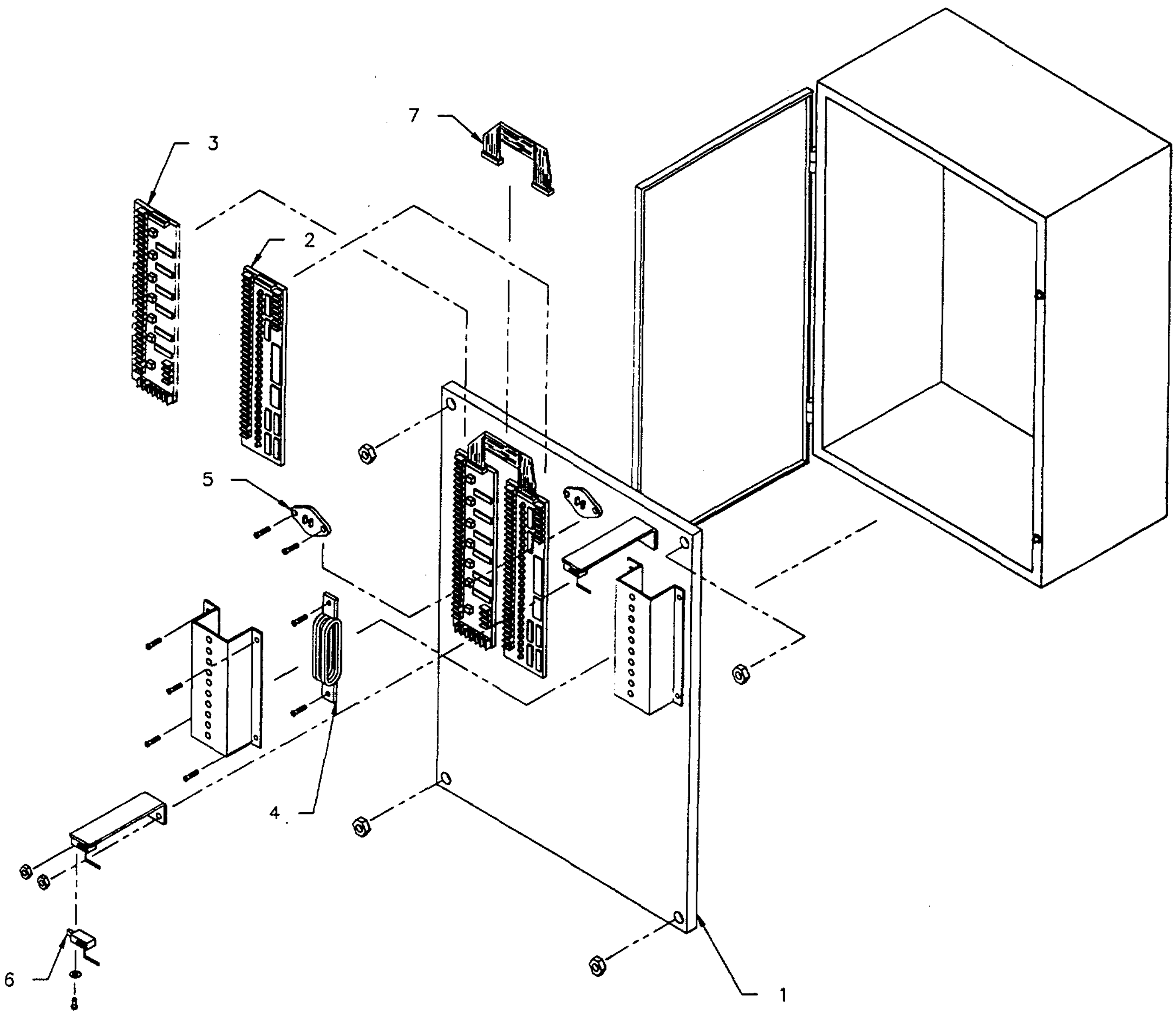


Figure C-13. SubRADC (Leda), Exterior, 12 Points, 12 VDC

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-13	4F312	5257-ACU	SUB-RADC (LEDA) EXTERIOR, 12 POINTS .... 12 VDC	1
2	C-13	4F312	5044-ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX	1
3	C-13	4F312	5024 ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX ...... TERMINATION	2
4	C-13	4F312	3569-H99	•HEATER, 120 VAC	1
5	C-13	4F312	4276-H99	•THERMOSTAT, 60 DEGREE	1
6	C-13	4F312	4894-H	•TAMPER SWITCH	1
7	C-13	4F312	5238-ACA	•CABLE ASSEMBLY, LEDA FLEX (P1) TO .... LEDA FLEX TERMINATION (PL1)	1

END OF FIGURE C-13

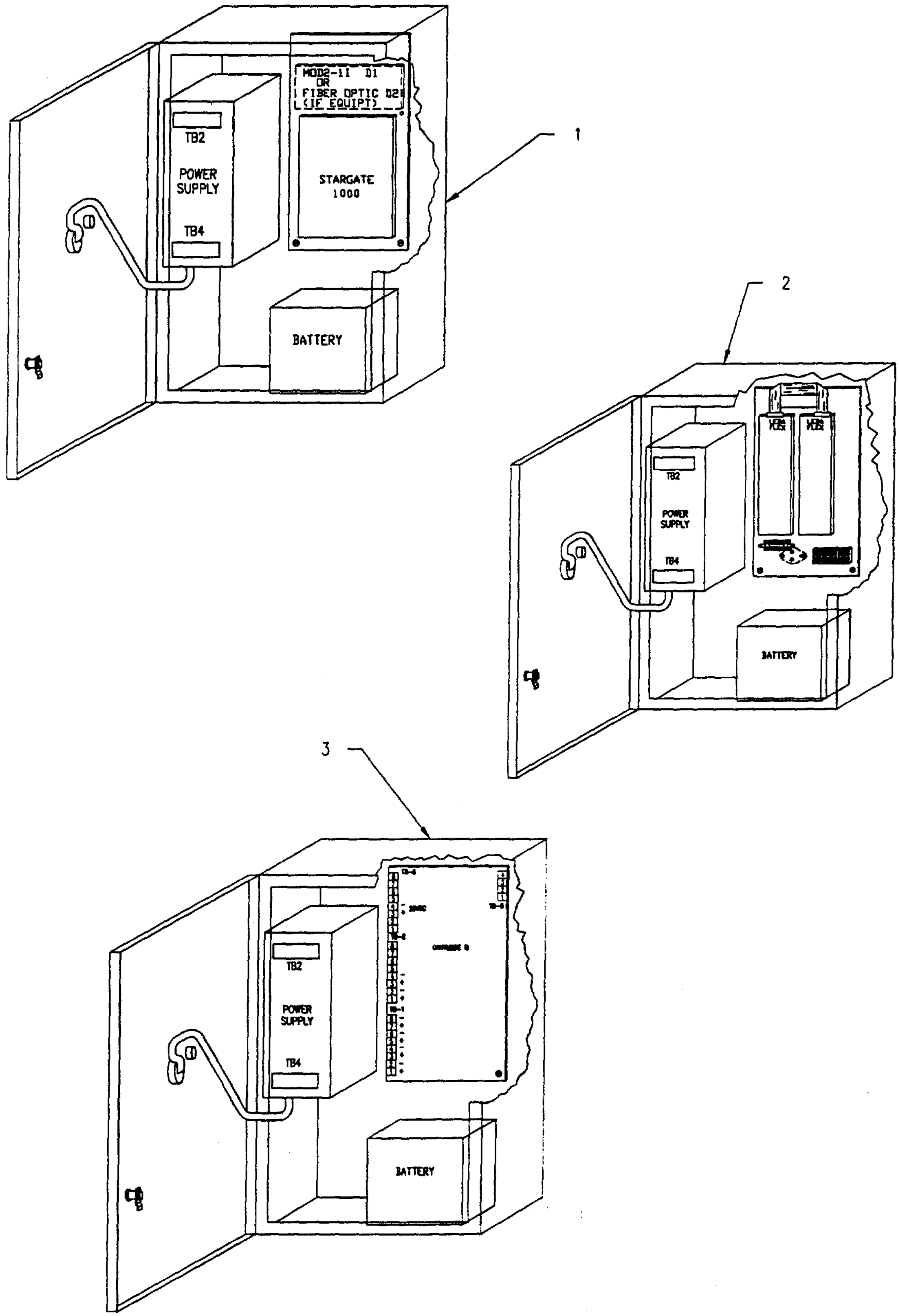


Figure C-14. J-SIIDS Interface Devices

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-14	4F312	5325-ACU	J-SIIDS STARGATE 1000 INTERFACE .... SEE FIGURE C-15	V
2	C-14	4F312	5326-ACU	J-SIIDS LEDA FLEX INTERFACE .... SEE FIGURE C-16	V
3	C-14	4F312	4978-ACB	J-SIIDS GANYMEDE B INTERFACE .... SEE FIGURE C-17	V

END OF FIGURE C-14

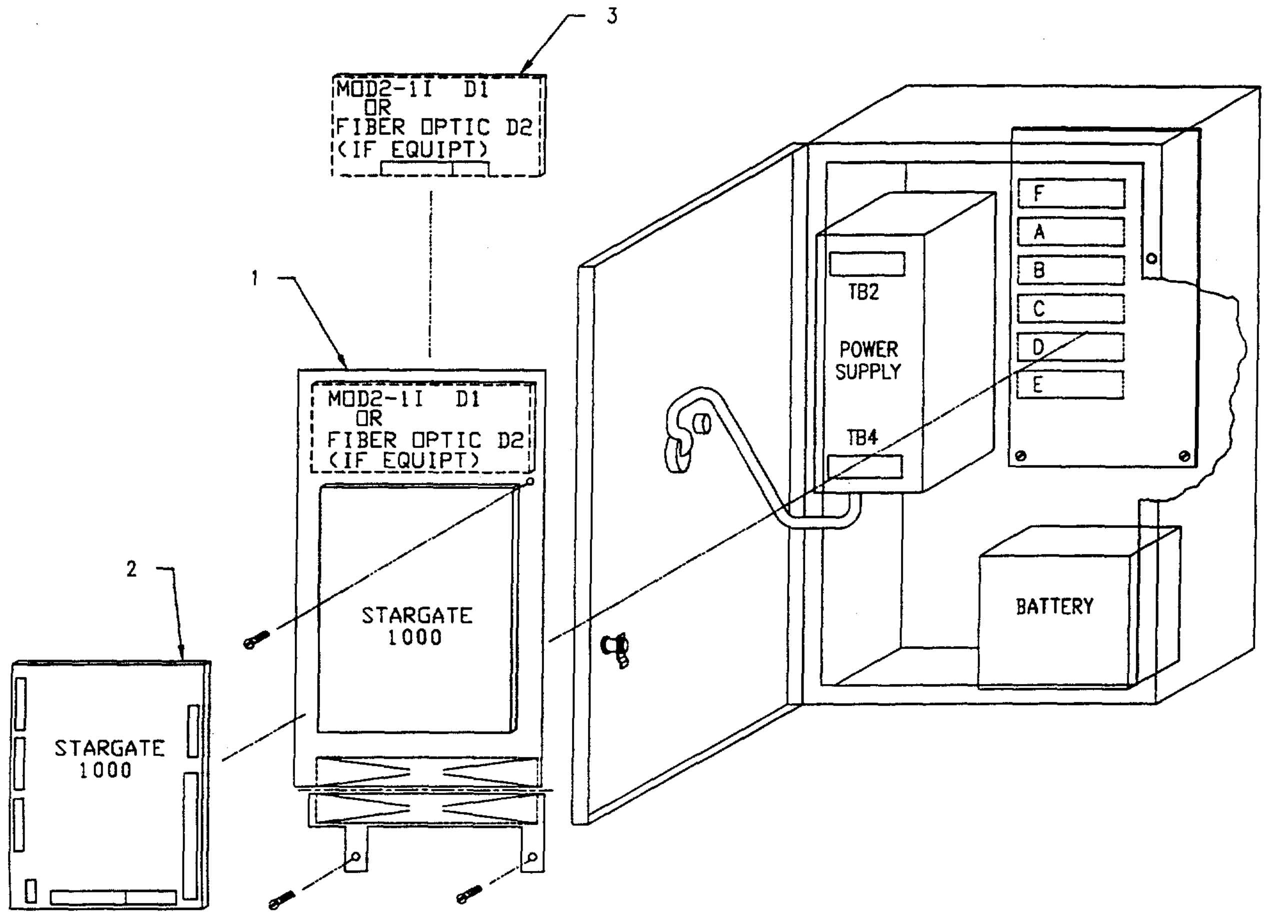


Figure C-15. J-SIIDS, Stargate 1000 Interface

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-15	4F312	5325-ACU	J-SIIDS, STARGATE 1000 INTERFACE	1
2	C-15	4F312	4981-ACB-1	•PRINTED WIRING ASSEMBLY, STARGATE 1000	1
3	C-15	4F312	3869-ACB-1	•MOD2 II MODEM	1

END OF FIGURE C-15

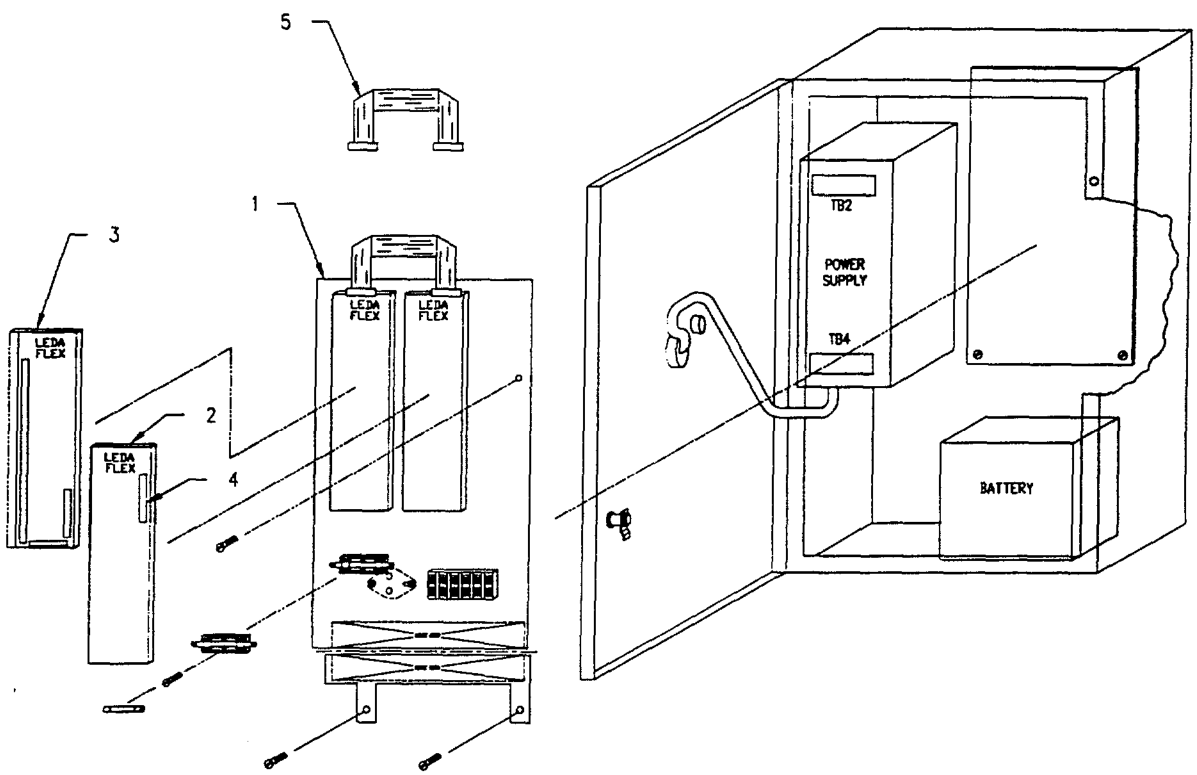


Figure C-16. J-SIIDS Leda Flex Interface

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-16	4F312	5326-ACU	J-SIIDS LEDA FLEX INTERFACE	1
2	C-16	4F312	5044-ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX	1
3	C-16	4F312	5024-ACB-1	•PRINTED WIRING ASSEMBLY, LEDA FLEX ...... TERMINATION	1
4	C-16	4F312	5653-A	•LEDA-J-SIIDS WIRING HARNESS	1
5	C-16	4F312	5238-ACA	•CABLE ASSEMBLY, LEDA FLEX (P1) TO .... LEDA FLEX TERMINATION (PL1)	1

END OF FIGURE C-16

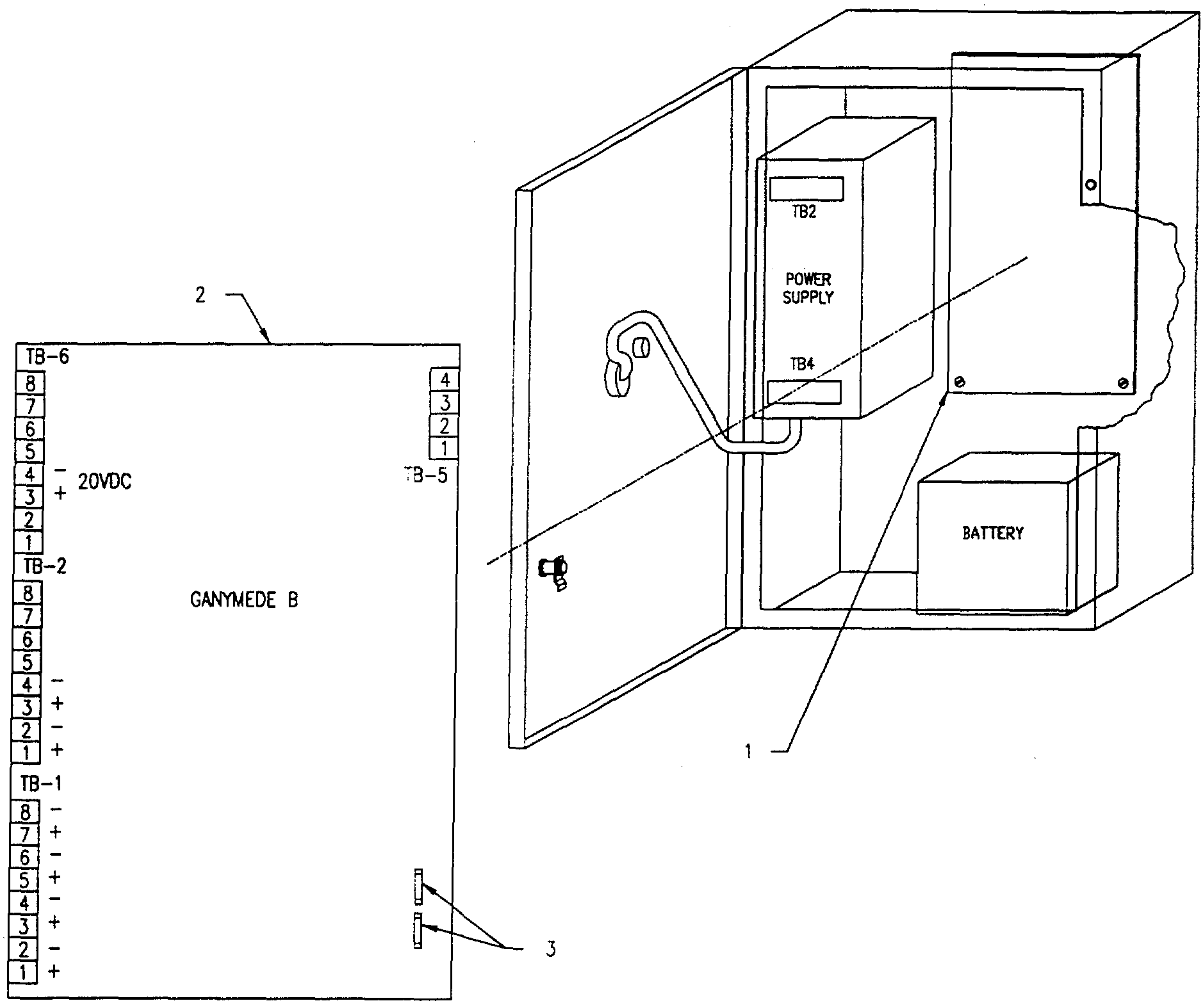


Figure C-17. J-SIIDS Ganymede B Interface

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-17	4F312	5011-ACU	J-SIIDS GANYMEDE B INTERFACE	1
2	C-17	4F312	4978-ACB-1	•PRINTED WIRING ASSEMBLY, GANYMEDE B .	1
3	C-17	4F312	BUSS 1A, 250 VAC	• •FUSE, 250 VOLT, 1 AMP	2

END OF FIGURE C-17

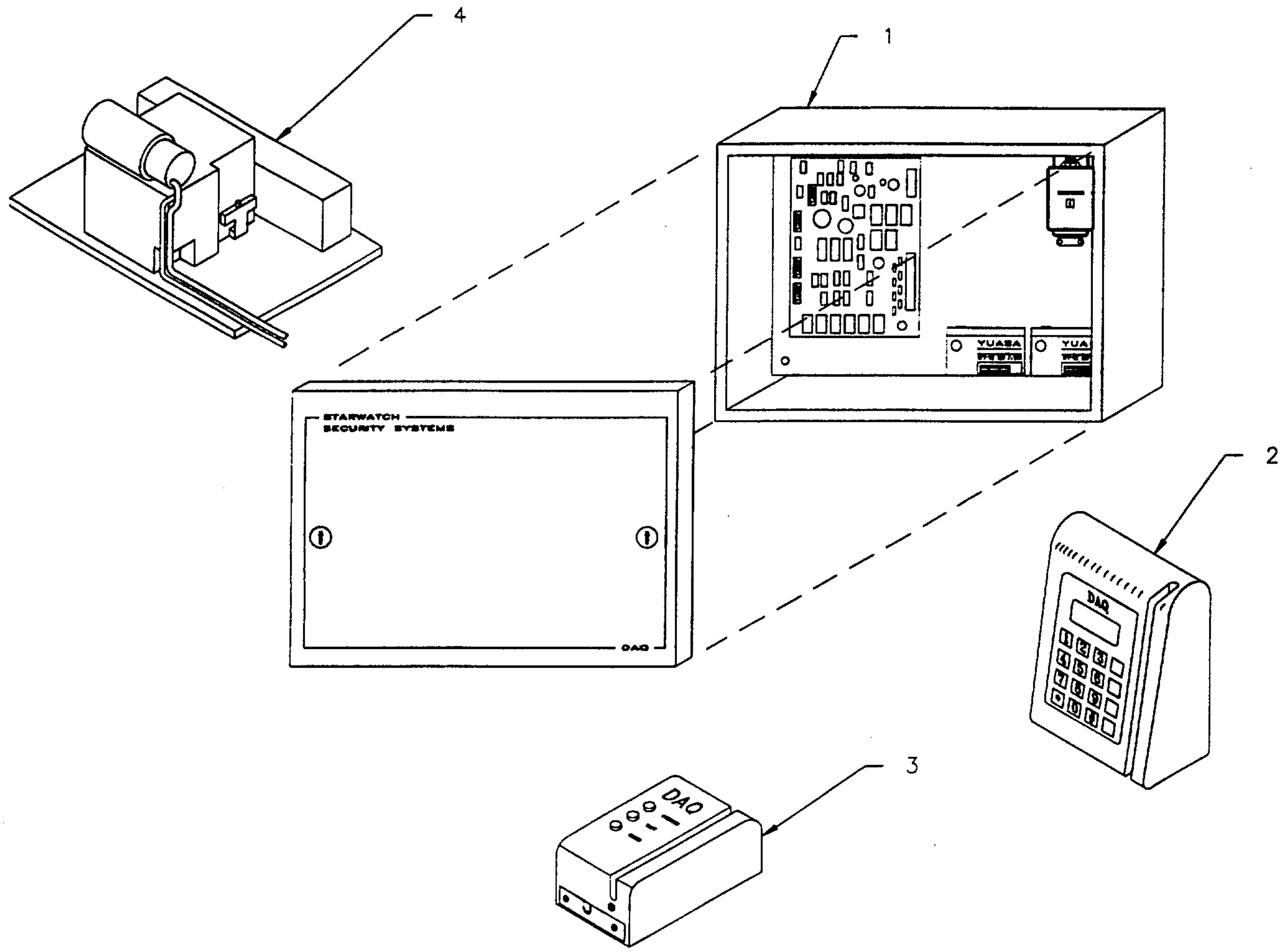


Figure C-18. Entry Control Equipment

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-18	4F312	5123-A	PROGRAMMABLE CONTROLLER, INTELLIGENT ACCESS SEE FIGURE C-19	1
2	C-18	4F312	4887-ACU	KEYPAD/CARDREADER, INTELLIGENT ACCESS UNIT (IAC) SEE FIGURE C-20	1
3	C-18	4F312	4888-ACU	CARD READER SEE FIGURE C-21	1
4	C-18	5X520	6211X24 VDCX32D	DOOR LOCK, ELECTRIC, TYPE 1	1
4	C-18	5X520	6211X24 VDCX32D	DOOR LOCK, ELECTRIC, TYPE 2	
4	C-18	5X520	6216X24 VDCX32D	DOOR LOCK, ELECTRIC, TYPE 3	1
4	C-18	5X520	6113X24 VDCX32D	DOOR LOCK, ELECTRIC, TYPE 4	1

END OF FIGURE C-18

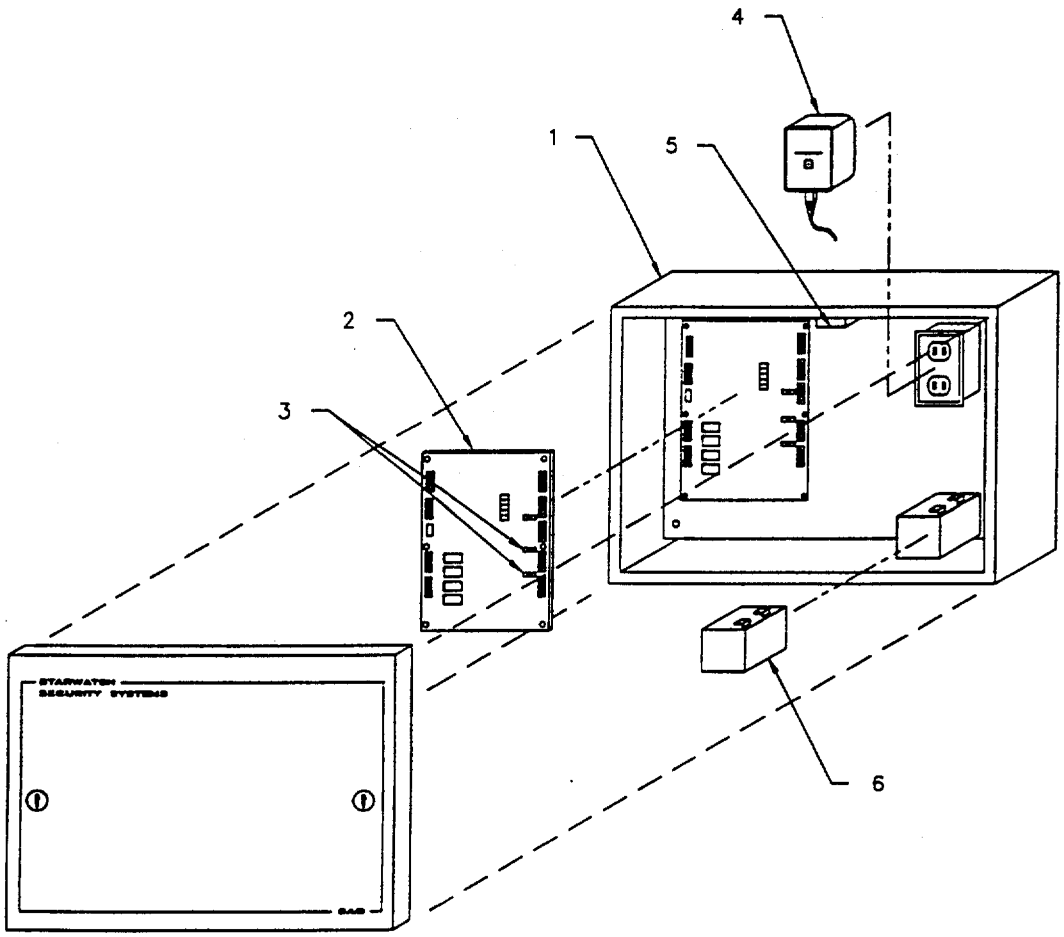


Figure C19. Intelligent Access Controller Assembly

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-19	4F312	5123-A-2	INTELLIGENT ACCESS CONTROL ASSEMBLY ..	1
2	C-19	4F312	4690-ACB	•PRINTED WIRING ASSEMBLY, INTELLIGENT .. ACCESS CONTROLLER	1
3	C-19	4F312	BUSS 5A, 250 VAC	FUSE F1, 250 VOLT, 5 AMP	1
			BUSS 250 MA, 250 VAC	•FUSE F2, F3, 250 VOLT, 250 IAMP	2
4	C-19	4F312	4896-APS	•ADAPTER, 120 VAC TO 24 VAC, 60 HZ	1
5	C-19	4F312	4894-H	•TAMPER SWITCH	1
6	C-19	19612	NP4-12	BATTERY, 12 V, 4 AHR	2

END OF FIGURE C-19

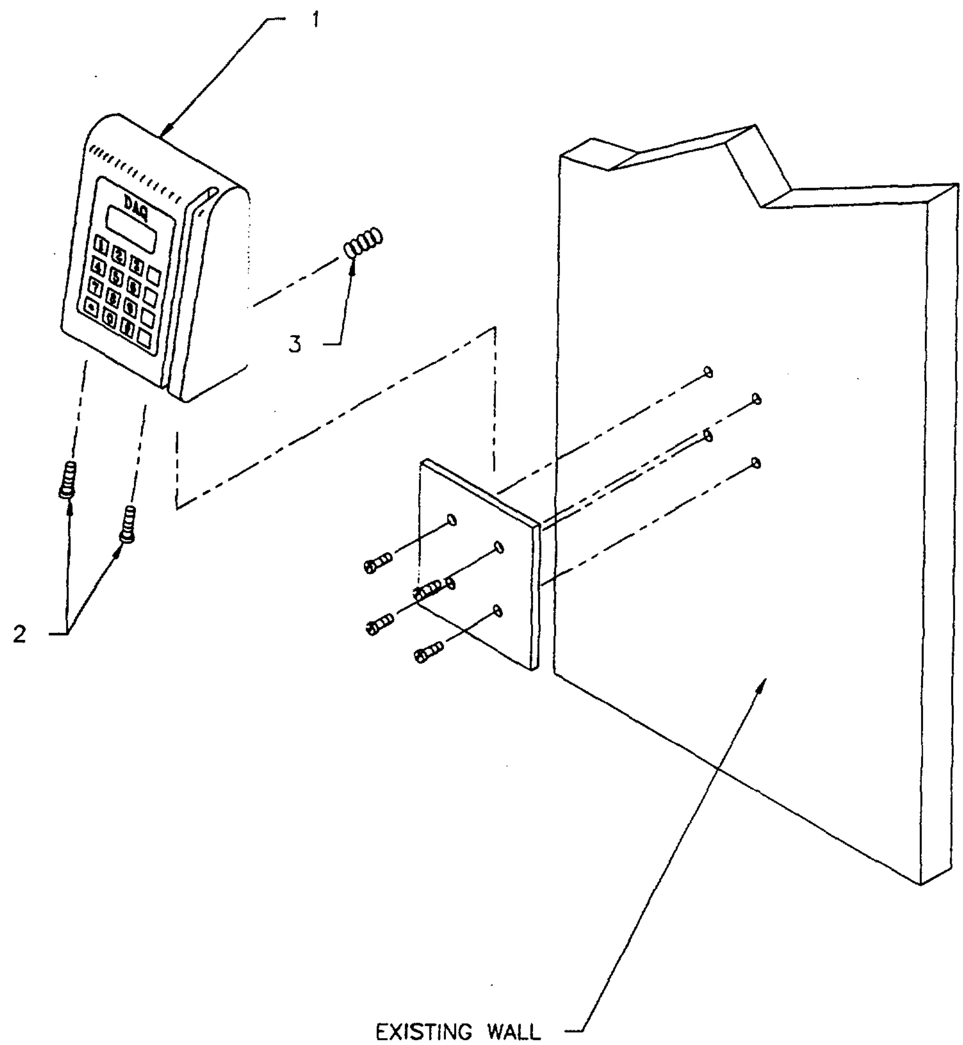


Figure C-20. Keypad/Cardreader, Intelligent Access Unit

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-20	4F312	4887-ACU	KEYPAD/CARDREADER, INTELLIGENT ACCESS UNIT	1
2	C-20	4F312	NONE	•SCREWS, TAMPER PROOF	2
3	C-20	4F312	NONE	•TAMPER SWITCH SPRING	1

END OF FIGURE C-20

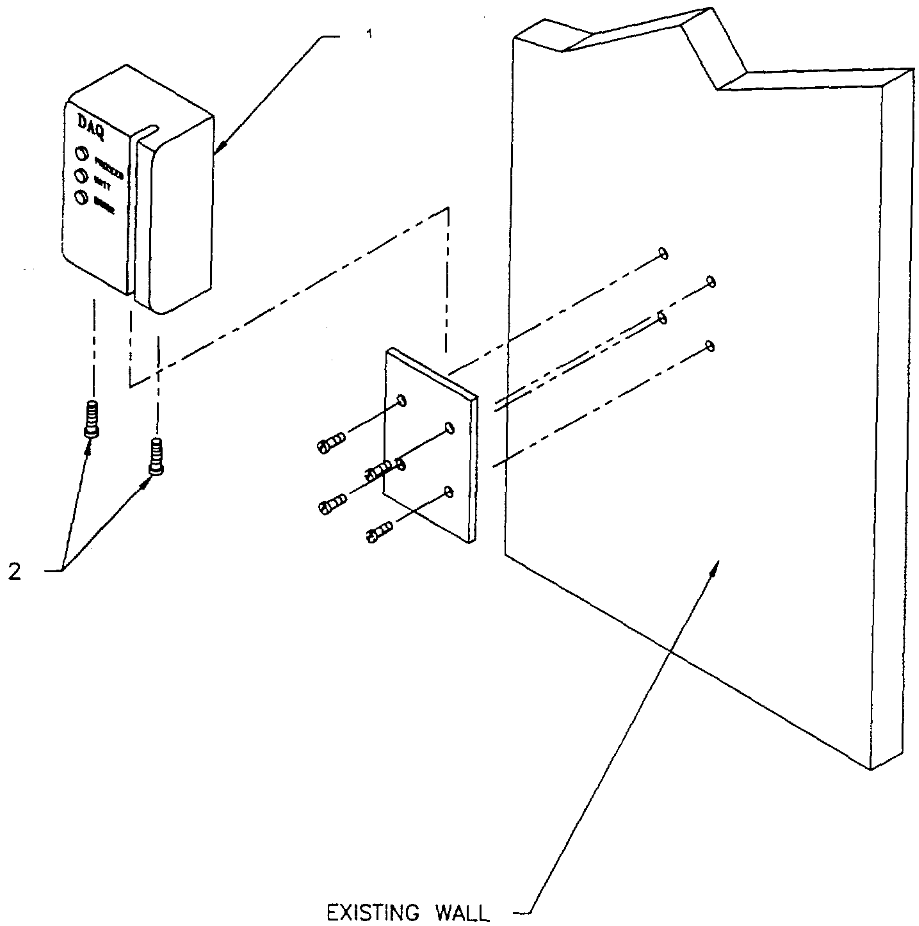


Figure C-21. Card Reader

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-21	4F312	4888-ACU	CARD READER	1
2	C-21	4F312	NONE	●● SCREWS, TAMPER PROOF	2
				END OF FIGURE C-21	

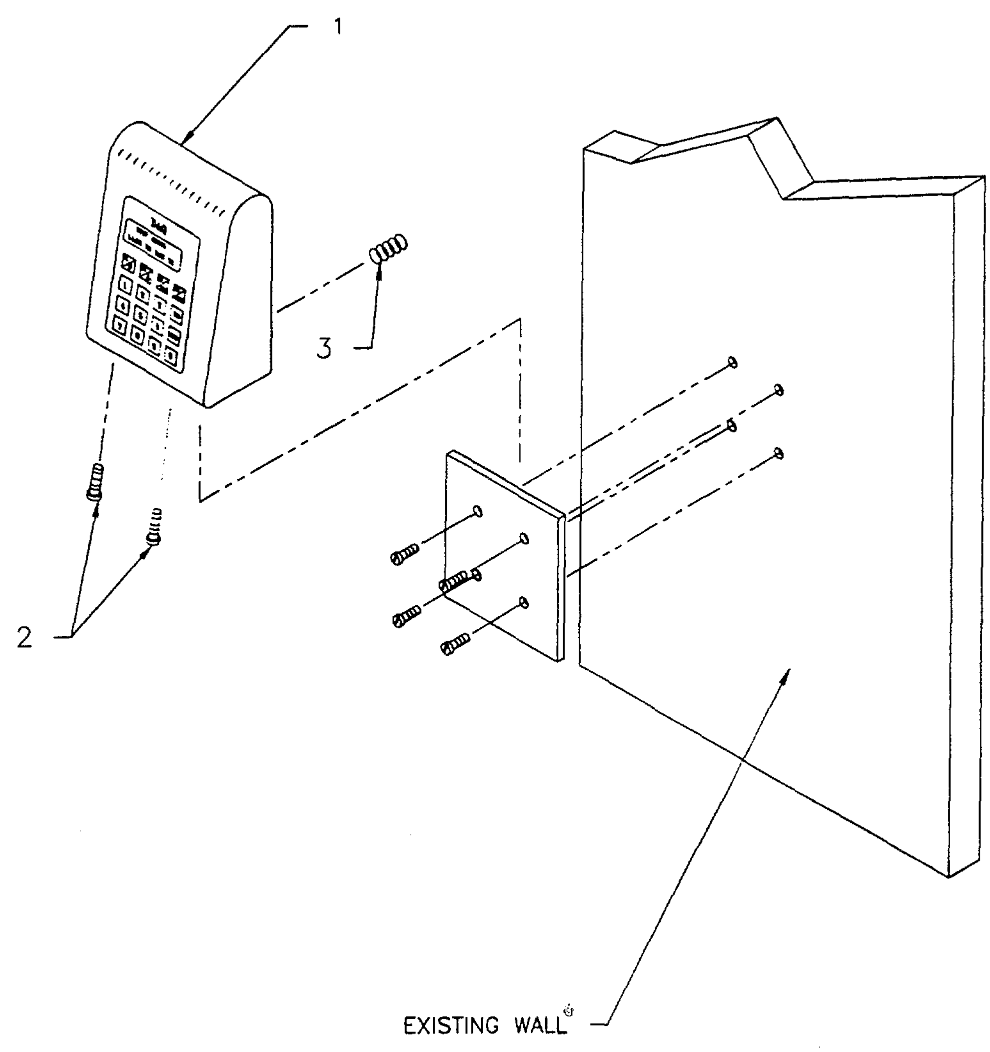


Figure C-22. Keypad, Starpin

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-22	4F312	4889-ACU	KEYPAD, STARPIN	1
2	C-22	4F312	NONE	●● SCREWS, TAMPER PROOF	2
3	C-22	4F312	NONE	●● TAMPER SWITCH SPRING	1

END OF FIGURE C-22

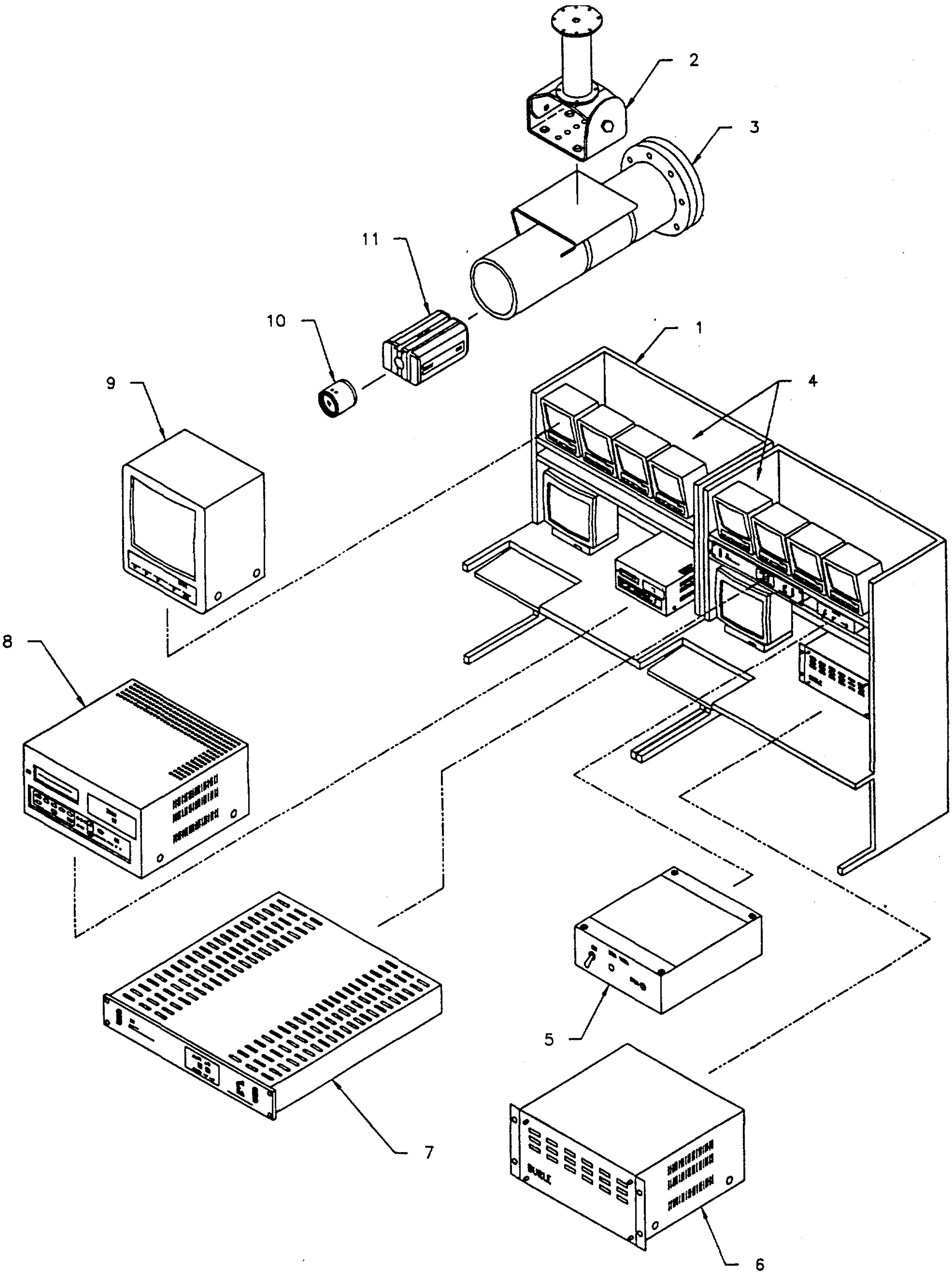


Figure C23. Closed Circuit Television System

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-23	4F312	NONE	CLOSE CIRCUIT TELEVISION SYSTEM *	1
2	C-23	OBMR4	NONE	CAMERA MOUNTING EQUIPMENT .... SEE FIGURE C-24	V
3	C-23	OBMR4	NONE	PRESSURIZED CAMERA HOUSINGS .... SEE FIGURE C-25	V
4	C-23	4F312	TC8601-K488	CCTV CONSOLE GROUP, 120 VAC/50 HZ	V
4	C-23	4F312	TC8601-K488X	CCTV CONSOLE GROUP, 220 VAC/50 HZ	V
5	C-23	OBMR4	VDA-100A	SYNCHRONIZING AMPLIFIER, VIDEO	1
6	C-23	OBMR4	TC8601	VIDEO SWITCHER .... SEE FIGURE C-28	1
7	C-23	OBMR4	CSG-460	SYNCHRONIZING GENERATOR, COLOR	1
8	C-23	OBMR4	TC3960	VIDEO STORAGE UNIT	1
9	C-23	OBMR4	TC1909A	MONITOR, 9 INCH MONOCHROME .... 120 VAC/60 HZ..	V
		OBMR4	TC1909AX	MONITOR, 9 INCH MONOCHROME .... 220 VAC/50 HZ..	V
10	C-23	OBMR4	NONE	LENSES, AUTO IRIS .... SEE FIGURE C-27	V
11	C-23	OBMR4	NONE	CAMERA, CCTV.. SEE FIGURE C-26	V
				END OF FIGURE C-23	

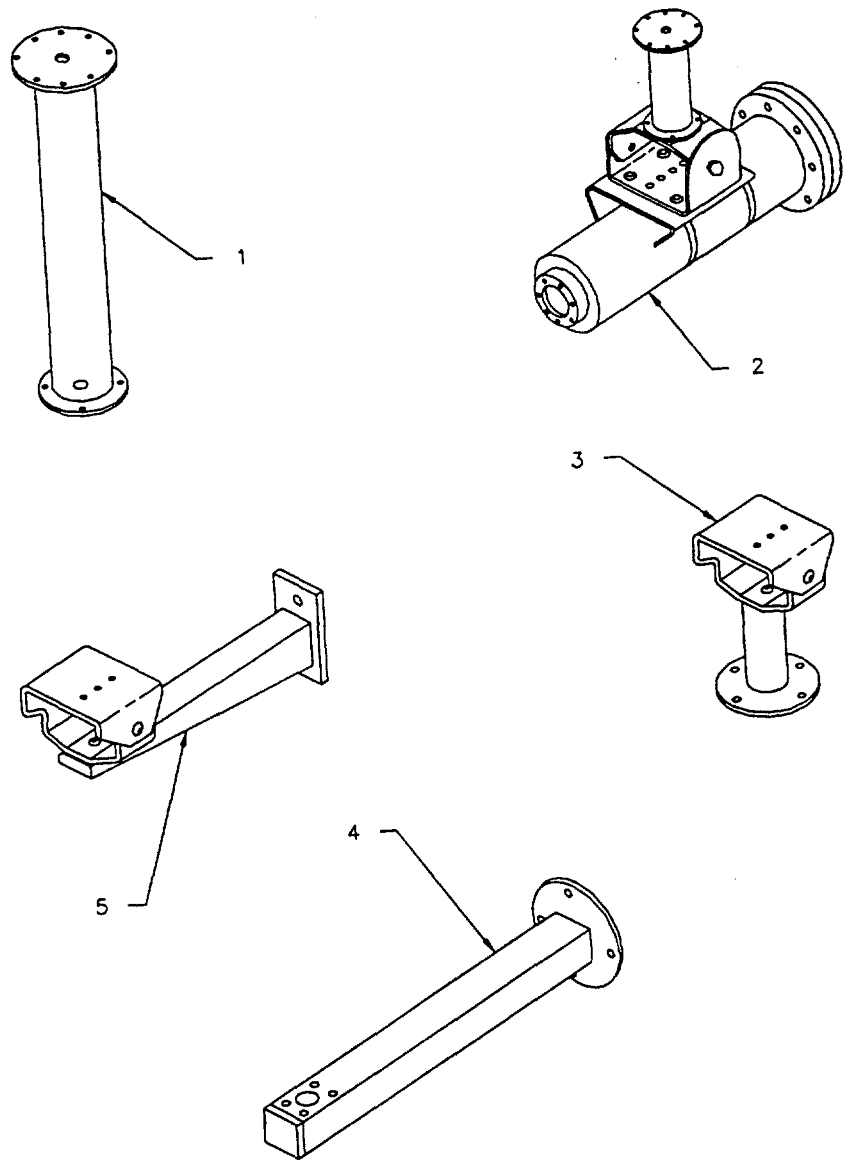


Figure C24. Camera Mounts

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-24	OCPY3	PM2000	PEDESTAL MOUNT, UNIVERSAL	1
2	C-24	OCPY3	B70189	TILTING CANTILEVER POLE	1
3	C-24	OCPY3	MM22	PEDESTAL MOUNT, ENCLOSURE	1
4	C-24	OCPY3	WM2000	WALL MOUNT, MEDIUM DUTY	1
5	C-24	OCPY3	EM22	ENCLOSURE MOUNT, UNIVERSAL WALL	1

END OF FIGURE C-24

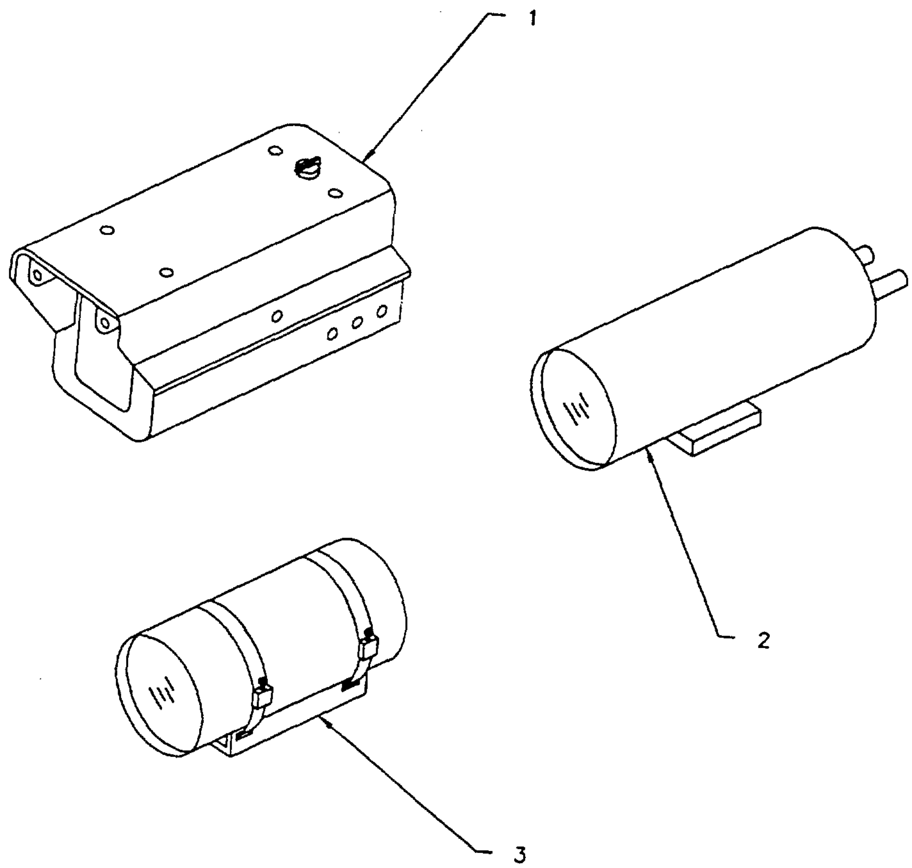


Figure C25. Pressurized Cameras and Camera Housings

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-25	OBMR4	TC9340	CAMERA HOUSING, WEATHERPROOF .... MEDIUM 2/3 FORMAT	1
2	C-25	OBMR4	TC9353	CAMERA HOUSING, INDOOR .... 1/2 FORMAT	1
3	C-25	OBMR4	TC306E	ASSEMBLED PRESSURIZED ENVIRONMENTALLY HOUSED CAMERA WITH SUNSHIELD 2/3 FORMAT	1

END OF FIGURE C-25

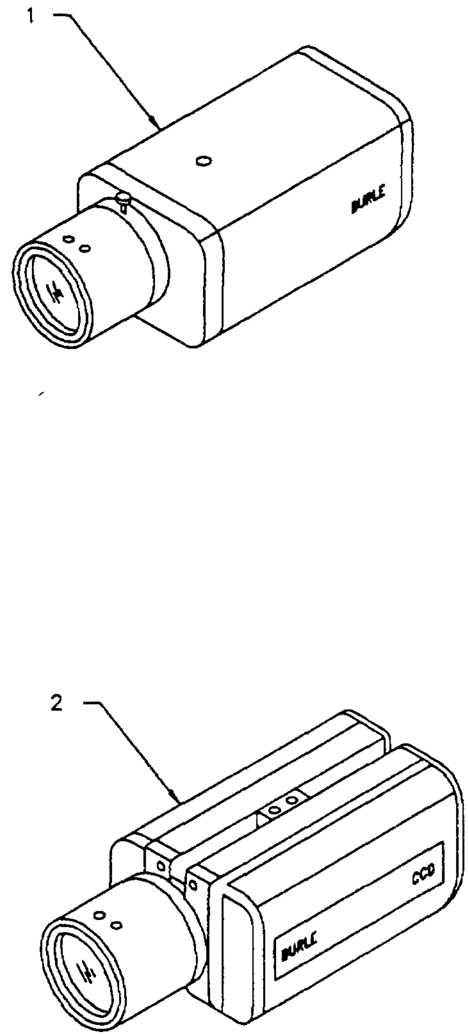


Figure C26. CCTV Cameras

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-26	OBMR4	TC301E	CAMERA, 2/3" FORMAT, 120 VAC, 60 H..............	1
1	C-26	OBMR4	TC301EX	CAMERA, 2/3" FORMAT, 220 VAC, 50 HZ	1
2	C-26	OBMR4	TC651EA	CAMERA, 1/2" FORMAT 120 VAC, 60 HZ	1
2	C-26	OBMR4	TC651EAX	CAMERA, 1/2" FORMAT 220 VAC, 50 HZ	1

END OF FIGURE C-26

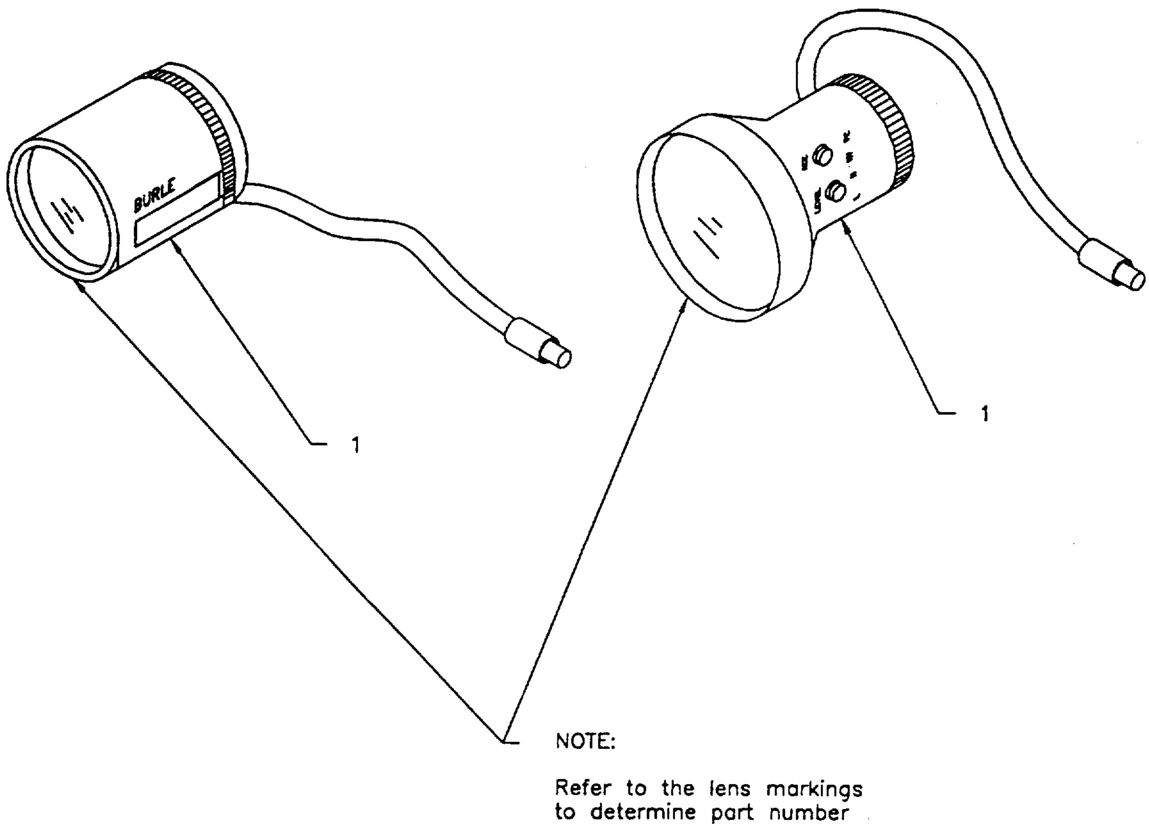


Figure C27. Camera Lenses

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-27	OBMR4	TC1804/D2	CAMERA LENS, 3.5MM	1
1	C-27	OBMR4	TC1805/D2	CAMERA LENS, 5.7MM	1
1	C-27	OBMR4	TC1805/D2	CAMERA LENS, 6.0MM	1
1	C-27	OBMR4	TC1809/D2	CAMERA LENS, 9.0MM	1
1	C-27	OBMR4	TC1812/D2	CAMERA LENS, 12.0MM	1
1	C-27	OBMR4	TC1816/D2	CAMERA LENS, 16.0MM	1
1	C-27	OBMR4	TC1824/D2	CAMERA LENS, 28.0MM	1
1	C-27	OBMR4	TC1835/D2	CAMERA LENS, 35.0MM	1
1	C-27.	OBMR4	TC1849/D2	CAMERA LENS, 50.0MM	1
1	C-27	OBMR4	TC1874/D2	CAMERA LENS, 75.0MM	1

END OF FIGURE C-27

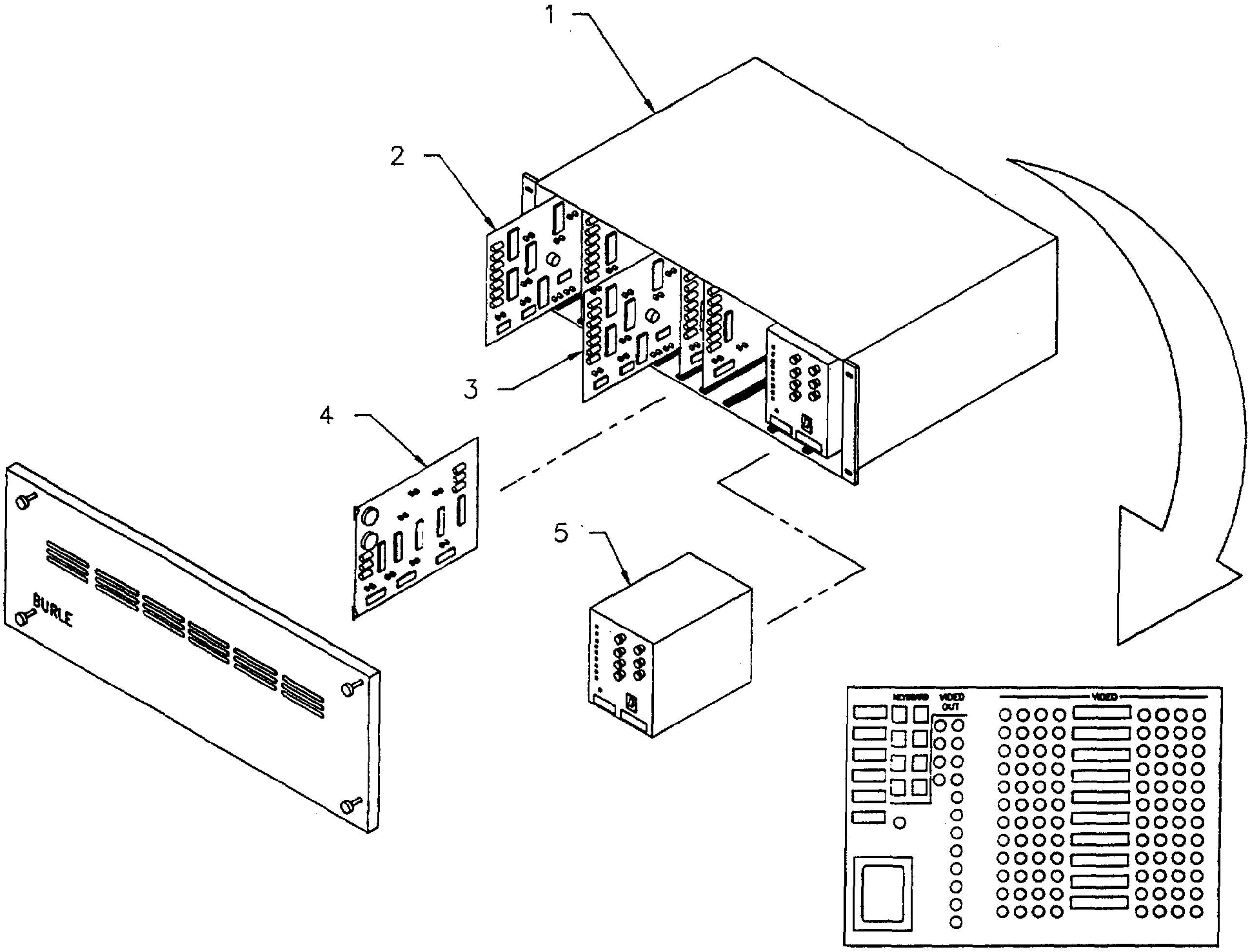


Figure C-28. Video Switcher

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-28	OBMR4	TC8601	VIDEO SWITCHER	1
2	C-28	OBMR4	TC8620	● VIDEO INPUT MODULES	8
3	C-28	OBMR4	TC8834	● VIDEO OUTPUT MODULES	4
4	C-28	OBMR4	TC8610	● CPU MODULE	1
5	C-28	OBMR4	TC8805	● POWER SUPPLY MODULE	1

END OF FIGURE C-28

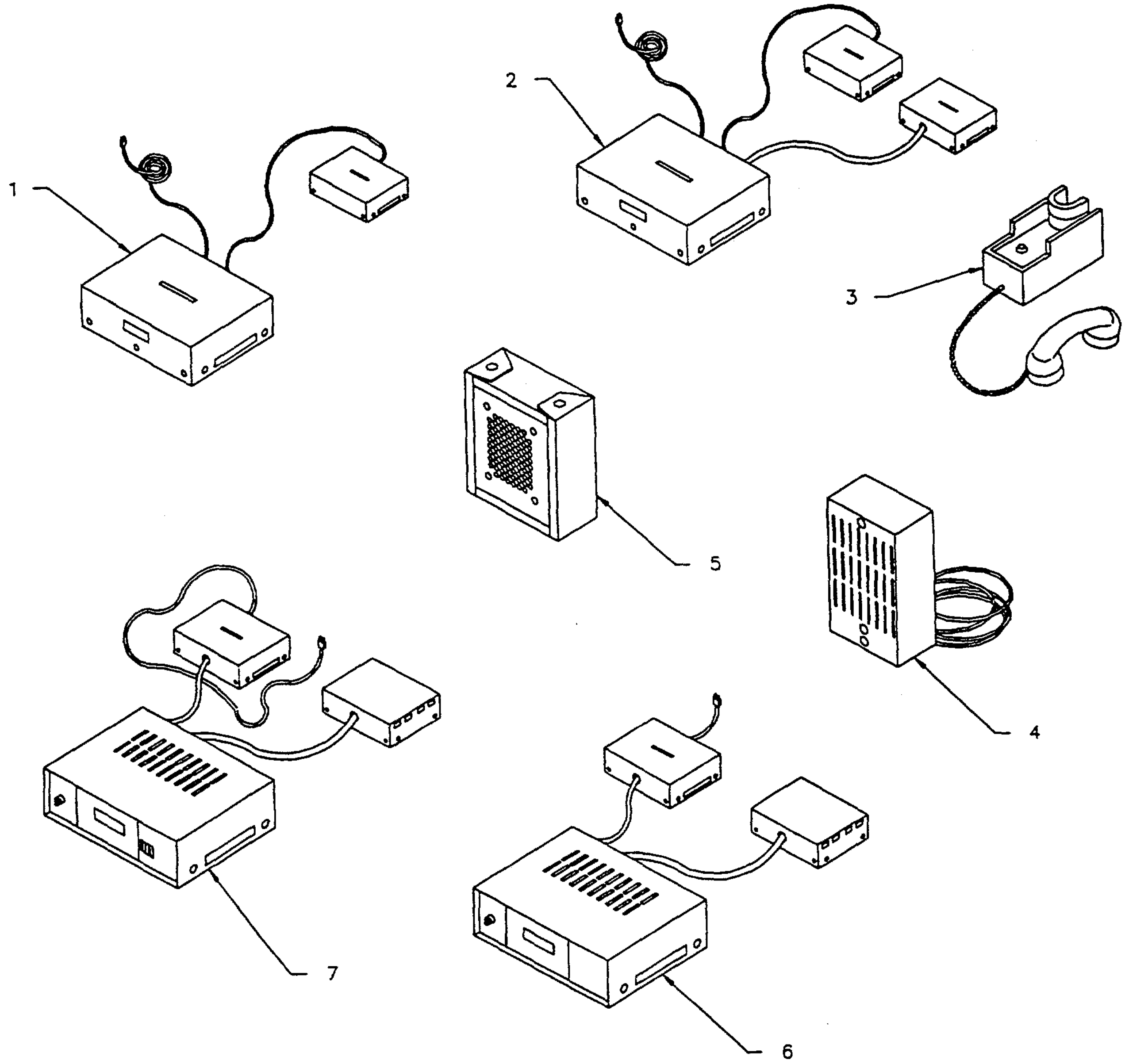


Figure C29. Audio Assessment Devices

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-29	59078	TAP-ASC-512	AUDIO SWITCHER CONTROLLER*	1
2	C-29	59078	TAP-ASM-16	AUDIO SWITCHER, 16 LINE*	1
3	C-29	59078	NONE	HANDSET*	1
4	C-29	59078	TAP-IR/SM	AUXILIARY AUDIO MODULE*	1
5	C-29	59078	K-LR-2RS-SM	AUDIO ASSESSMENT DEVICE*	1
6	C-29	59078	K-CRP-10TRLD/112/XR	AUDIO MODULE, RADC*	1
7	C-29	59078	K-CRP-MCRDL/SR	AUDIO MODULE, PMC*	1

END OF FIGURE C-29

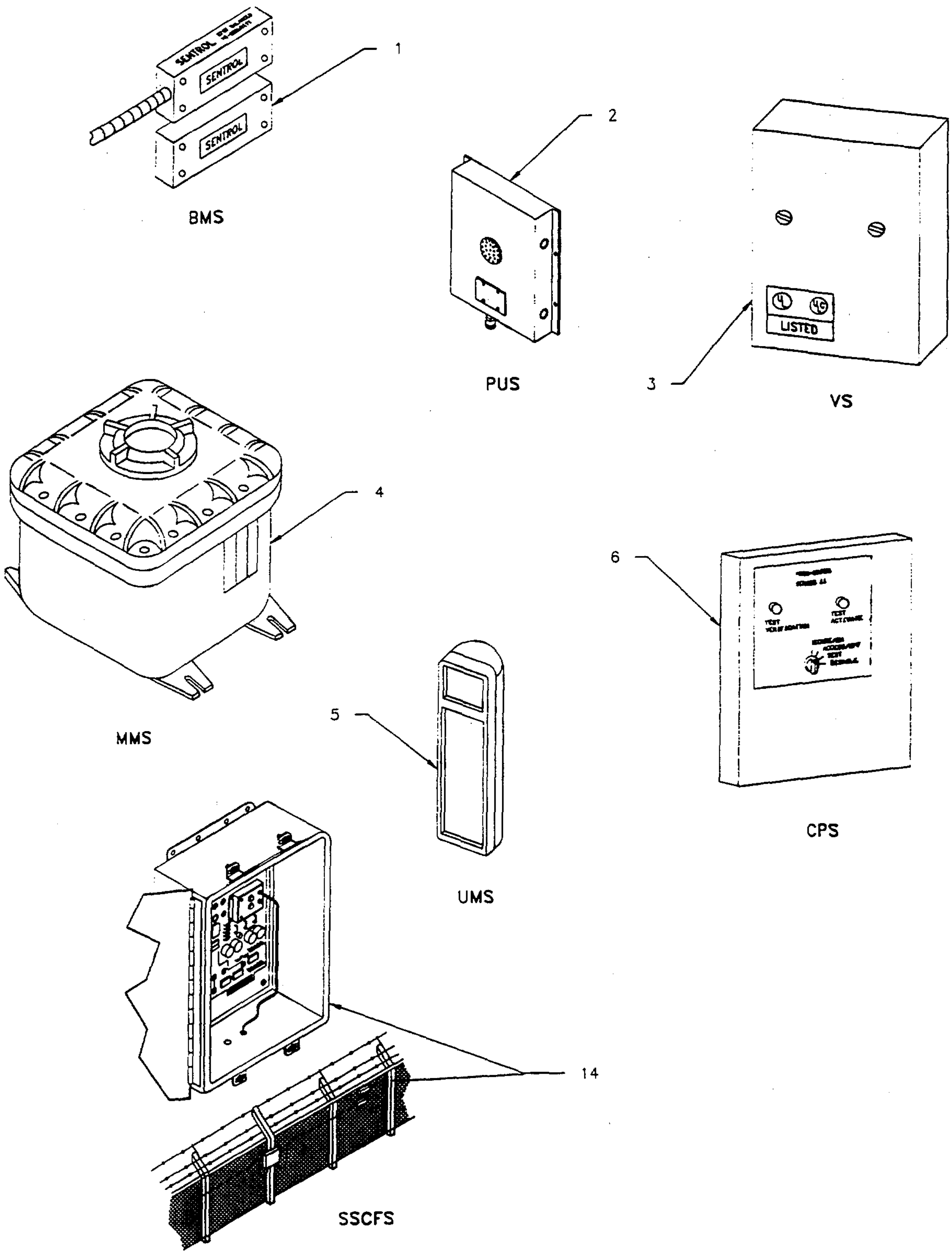


Figure C-30. Sensors (Sheet 1 of 2)

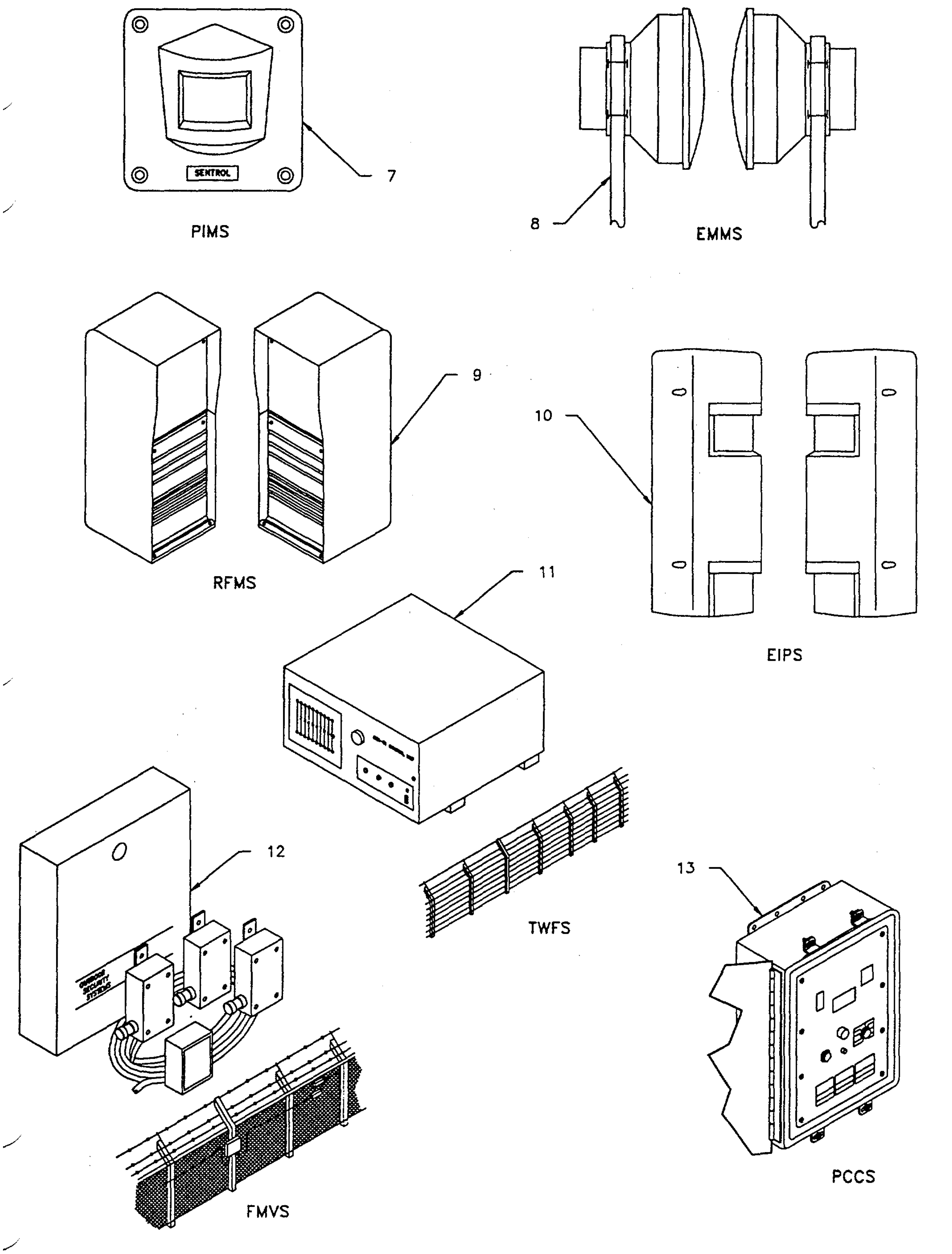


Figure C-30. Sensors (Sheet 2 of 2)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-30	63909	2706AP-L4	BALANCED MAGNETIC SWITCH (BMS) .... (SEE FIGURE C-35)	1
2	C-30	4F312	DCR-1/ DST-E	PASSIVE ULTRASONIC SENSOR (PUS)	1
3	C-30	OM7N9	DV201	VIBRATION SENSOR (VS)	1
4	C-30	OCXZ62	HT100 DC/ST-1	MICROWAVE MOTION SENSOR (MMS) .... (SEE FIGURE C-36)	1
5	C-30	OM7N9	DV169	ULTRASONIC MOTION SENSOR (UMS)	1
6	C-30	OAP26	PROX-WATCH II	CAPACITANCE PROXIMITY SENSOR (CPS)	1
7	C-30	63909	6187CTX-N6	PASSIVE INFRARED MOTION SENSOR (PIMS) . (SEE FIGURE C-31)	1
8	C-30	59260	14101	EXTERIOR MICROWAVE MOTION SENSOR (EMMS) (SEE FIGURE C-32)	1
9.	C-30	59260	RACON 16001	RADIO FREQUENCY MOTION SENSOR (RFMS). (SEE FIGURE C-34)	1
10	C-30	2J610	PB-100F/ FL	EXTERIOR INFRARED PERIMETER SENSOR (EIPS) (SEE FIGURE C-39)	1
11	C-30	7Y065	SP9-0420-06	TAUT WIRE FENCE SENSOR (TWES) .... (SEE FIGURE C-40)	1
12	C-30	59260	F-100 FENCE GUARD	FENCE MOUNTED VIBRATION SENSOR (FMVS) (SEE FIGURE C-33)	1
13	C-30	7N003	H-FIELD 440	PORTED COAXIAL CABLE SENSOR (PCCS)	1
14	C-30	7N003	EFLEX II	STRAIN SENSITIVE CABLE FENCE SENSOR...... (SSCFS) (SEE FIGURE C-41)	1

END OF FIGURE C-30

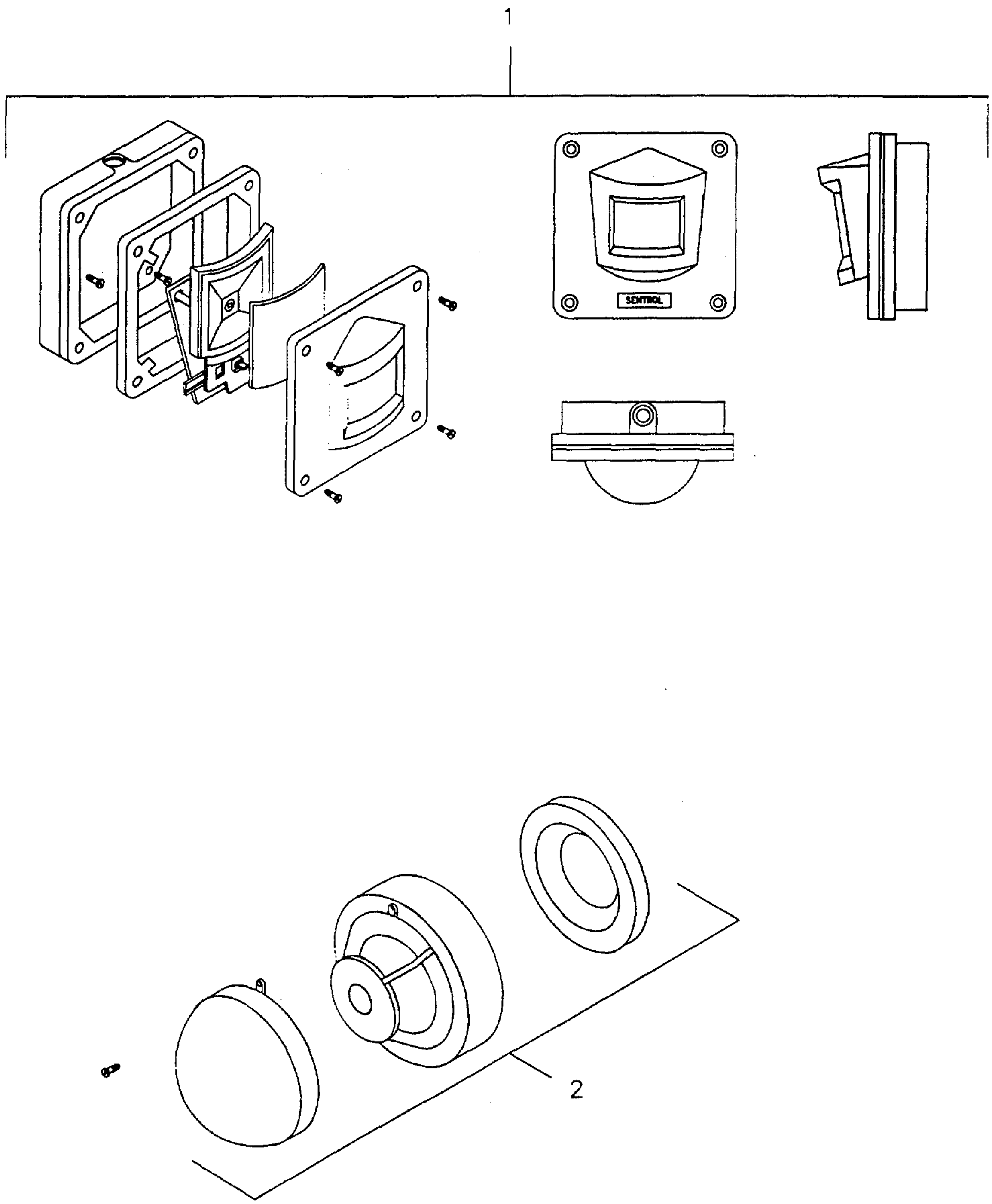


Figure C-31. Passive Infrared Motion Sensor (PIMS)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-31	63909	6197	SENSOR, PASSIVE INFRARED MOTION .... (VOLUME) TYPE 1 AND 3	1
1	C-31	63909	6187CTX -N6	SENSOR, PASSIVE INFRARED MOTION .... (VOLUME) TYPE 2	1
1	C-31	63909	6187CTX -N	SENSOR, PASSIVE INFRARED MOTION .... (VOLUME) TYPE 4	1
1	C-31	63909	6197	SENSOR, PASSIVE INFRARED MOTION .... (CURTAIN) WIDE ANGLE TYPE 1 AND 3	1
1	C-31	63909	6187	SENSOR, PASSIVE INFRARED MOTION .... CTX/-N6 (CURTAIN) WIDE ANGLE TYPE 2	1
1	C-31	63909	6187CTX	SENSOR, PASSIVE INFRARED MOTION .... (CURTAIN) WIDE ANGLE TYPE 4	1
2	C-31	63909	6357CTBB	SENSOR, PASSIVE INFRARED, (OMNI-DIR) .... TYPE 1	1
2	C-31	2J610	PA-7100 -T	SENSOR, PASSIVE INFRARED, (OMNI-DIR) .... TYPE 2	1
2	C-31	2J610	PA-7100 A-E	SENSOR, PASSIVE INFRARED, (OMNI-DIR) .... TYPE 4	1

END OF FIGURE C-31

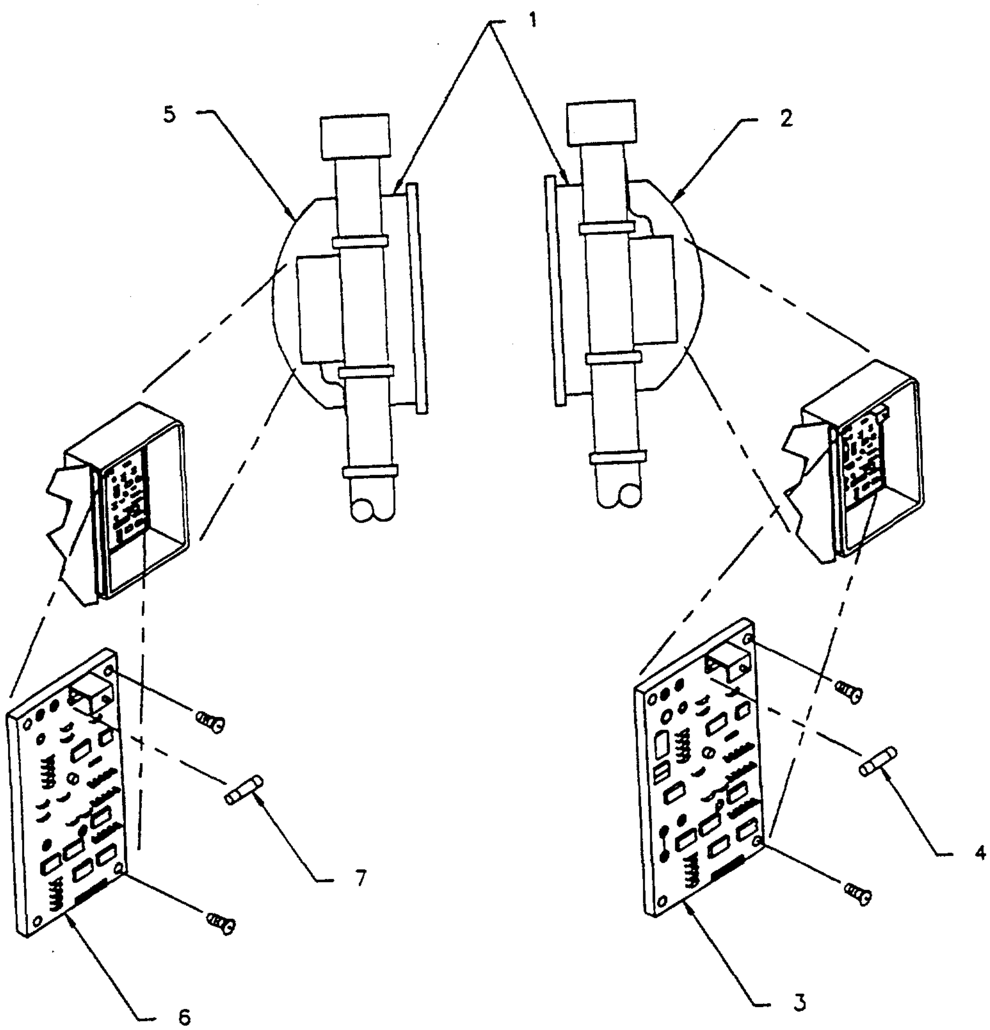


Figure C-32. Exterior Microwave Motion Sensor Assemblies (EMMS)(Transmitter/Receiver)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-32	59260	14101	EXTERIOR MICROWAVE MOTION SENSOR. ...... (EMMS)	1
2	C-32	59260	10070-100-01	● MICROWAVE MOTION SENSOR, TRANSMITTER EXTERIOR	1
3	C0-32	59260	10053-102-01	●●PRINTED WIRING ASSEMBLY, TRANSMITTER	1
4	C-32	4F312	BUSS .25A, 250 VAC	●●● FUSE 250 VOLT, .25 AMP	1
5	C-32	59260	10070-101-01	● MICROWAVE MOTION SENSOR, RECEIVER .. EXTERIOR	1
6	C-32	59260	10053-114-01	●● PRINTED WIRING ASSEMBLY, RECEIVER ...	1
7	C-32	4F312	BUSS .25A, 250 VAC	●●● FUSE 250 VOLT, .25 AMP	1

END OF FIGURE C-32

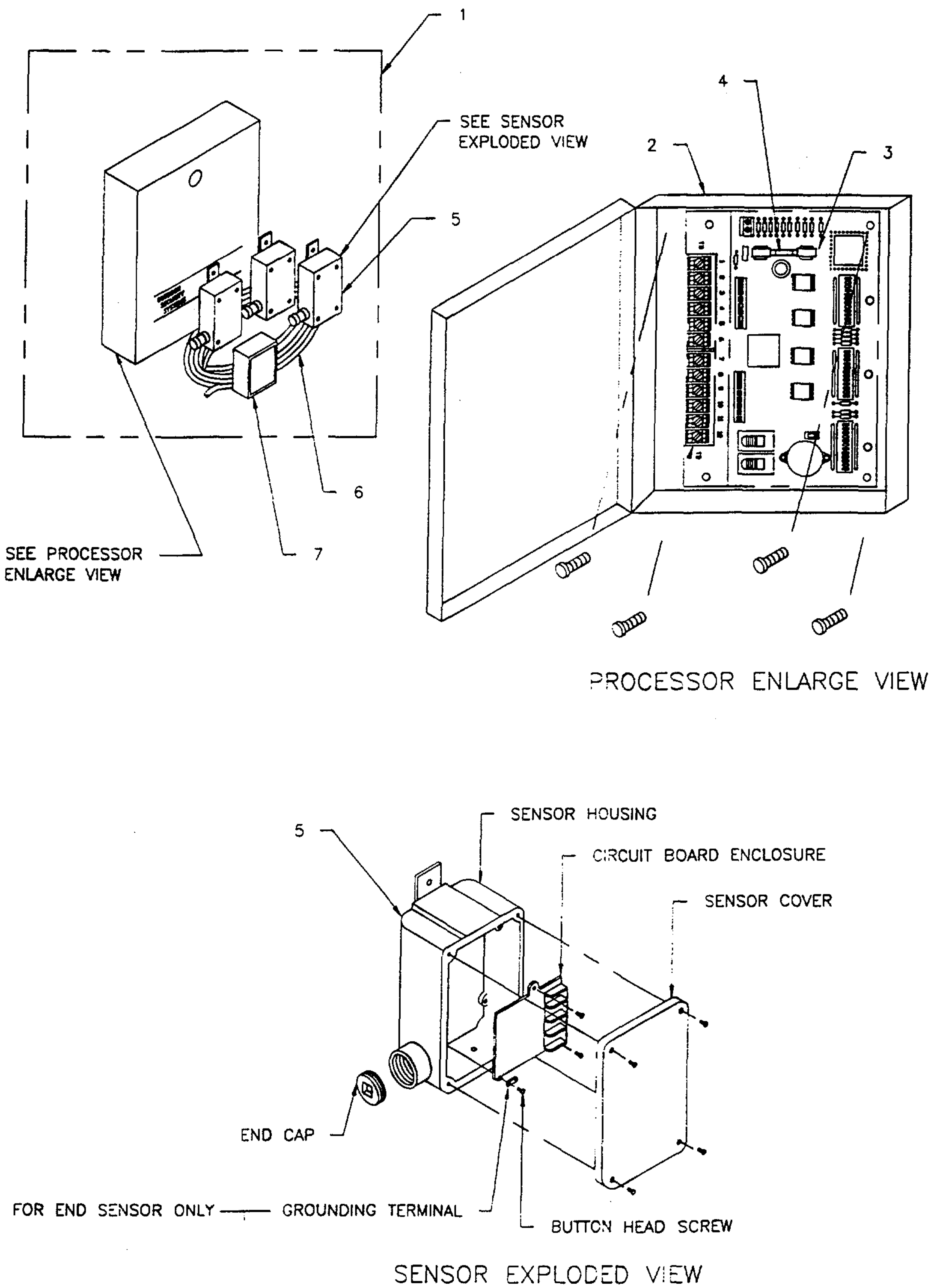


Figure C-33. Fence Mounted Vibration Sensor Assembly (FMVS)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-33	59260	F-100 FENCE GUARD	FENCE MOUNTED VIBRATION SENSOR .... ASSEMBLY	1
2	C-33	59260	NONE	● PROCESSOR, FENCE MOUNTED VIBRATION. SENSOR	1
3	C-33	59260	NONE	●● PRINTED WIRING ASSEMBLY, PROCESSOR	1
4	C-33	4F312	BUSS-.5A, 250VAC	●●●FUSE, 250 VOLT, .5	1
5	C-33	59260	NONE	● SENSOR, FENCE MOUNTED VIBRATION	V
6	C-33	59260	5-908	● CABLE, SHIELDED, DIRECT BURIAL FOUR .... CONDUCTOR, AWG 20	V
7	C-33	59260	NONE	● POWER SUPPLY, AC	1

END OF FIGURE C-33

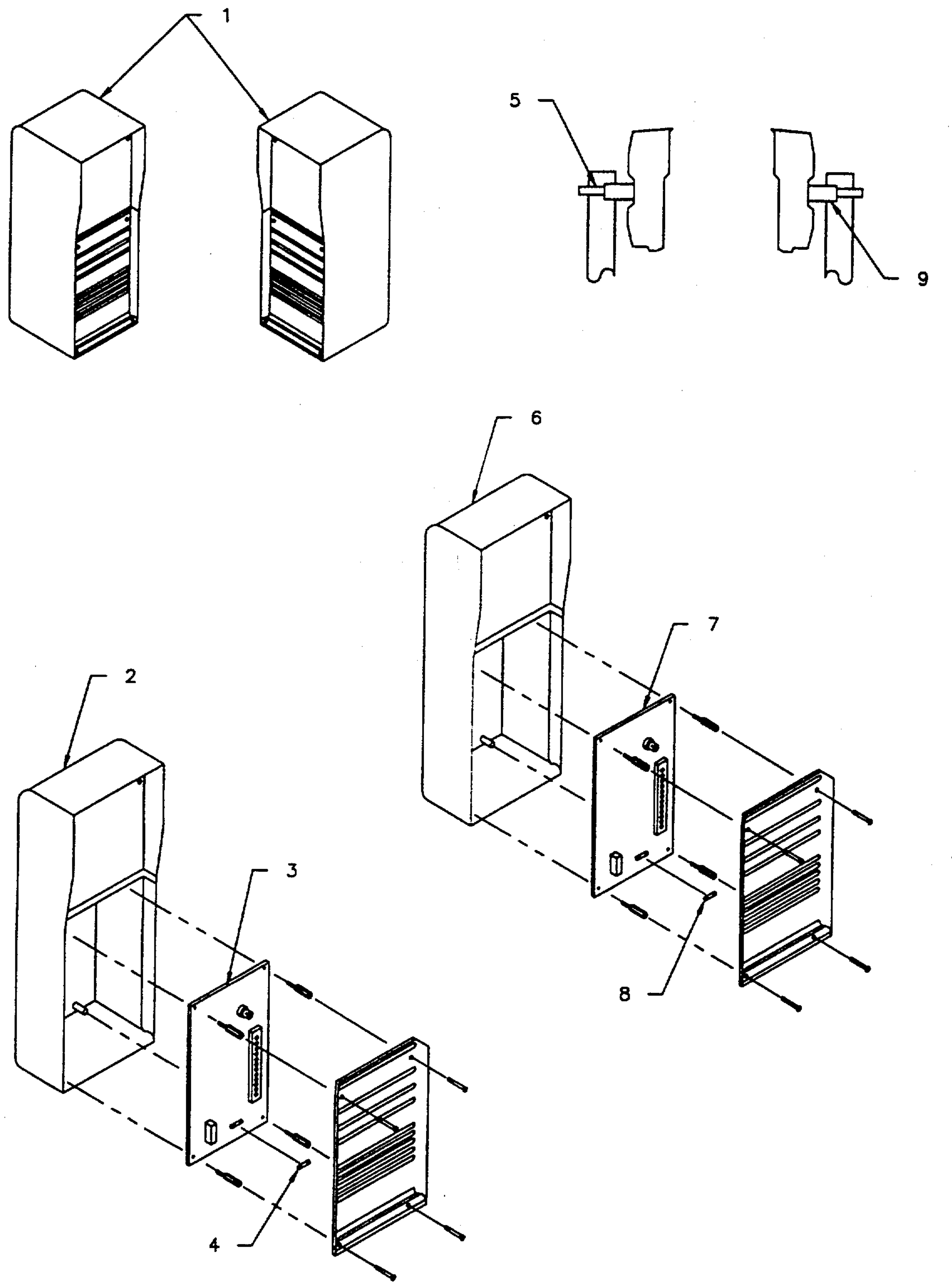


Figure C34. Radio Frequency Motion Sensor (RFMS)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-34	59260	RACON 16001	RADIO FREQUENCY MOTION SENSOR (RFMS) (TYPE 1, 2, 3, 4)	1
2	C-34	59260	10053-100-01	● TRANSMITTER, RADIO FREQUENCY MOTION SENSOR	1
3	C-34	59260	10053-103-REVC	●● PRINTED WIRING ASSEMBLY, TRANSMITTER	1
4	C-34		BUSS .25A, 250VAC	●● FUSE, 250 VOLT, .25 AMP	1
5	C-34	59260	10053-105-02	● MOUNTING, HARDWARE KIT	1
6	C-34	59260	10053-101-01	● RECEIVER, RADIO FREQUENCY MOTION ..... SENSOR	1
7	C-34	59260	10053-102-REVC	●● PRINTED WIRING ASSEMBLY, RECEIVER ...	1
8	C-34	BUSS	*. .25A, 205VAC	●●FUSE, 250 VOLT, .25 AMP	1
9	C-34	59260	10053-105-02	● MOUNTING, HARDWARE KIT	1

END OF FIGURE C-34

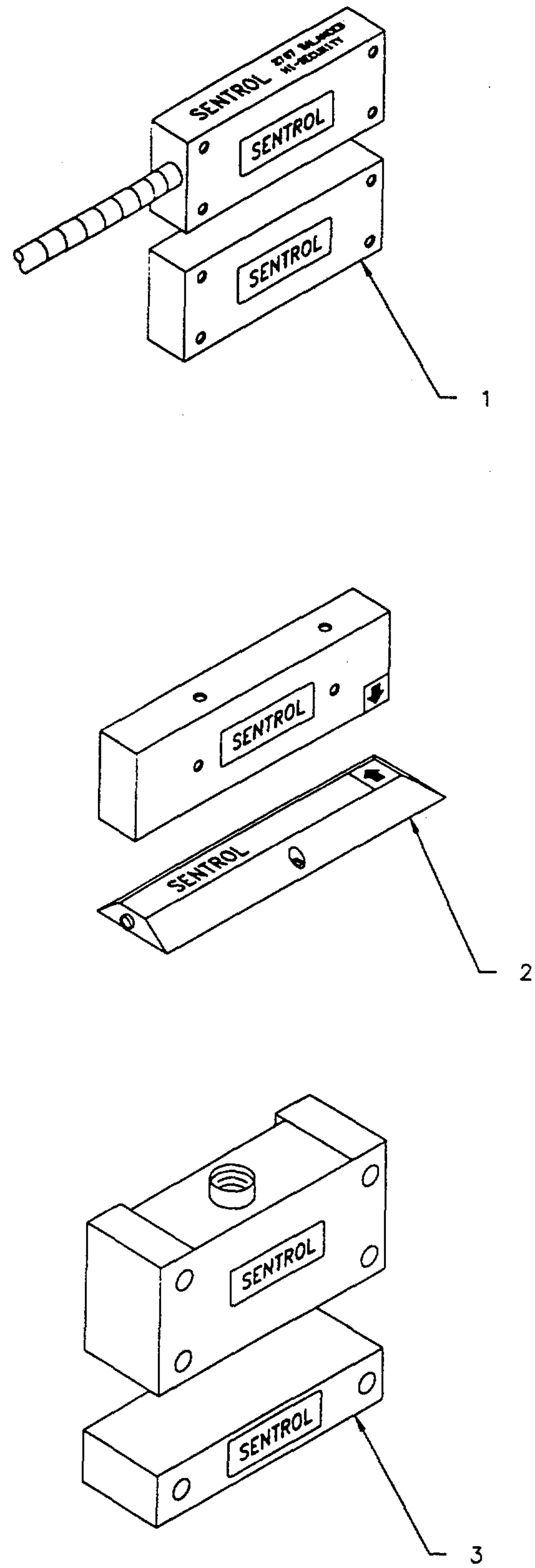


Figure C35. Balanced Magnetic Switch (BMS)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-35	63909	2706AP-L4	BALANCED MAGNETIC SWITCH (BMS), TYPE 2. SEE FIGURE C-35	1
1	C-35	63909	2707A-L24	BALANCED MAGNETIC SWITCH (BMS), TYPE 4	1
2	C-35	63909	2727A-L7	BALANCED MAGNETIC SWITCH (BMS), TYPE 4	1
3	C-35	63909	2808T-M2	BALANCED MAGNETIC SWITCH (BMS), TYPE 1	1
3	C-35	63909	2807T-M10	BALANCED MAGNETIC SWITCH (BMS), TYPE 3	1

END OF FIGURE C-35

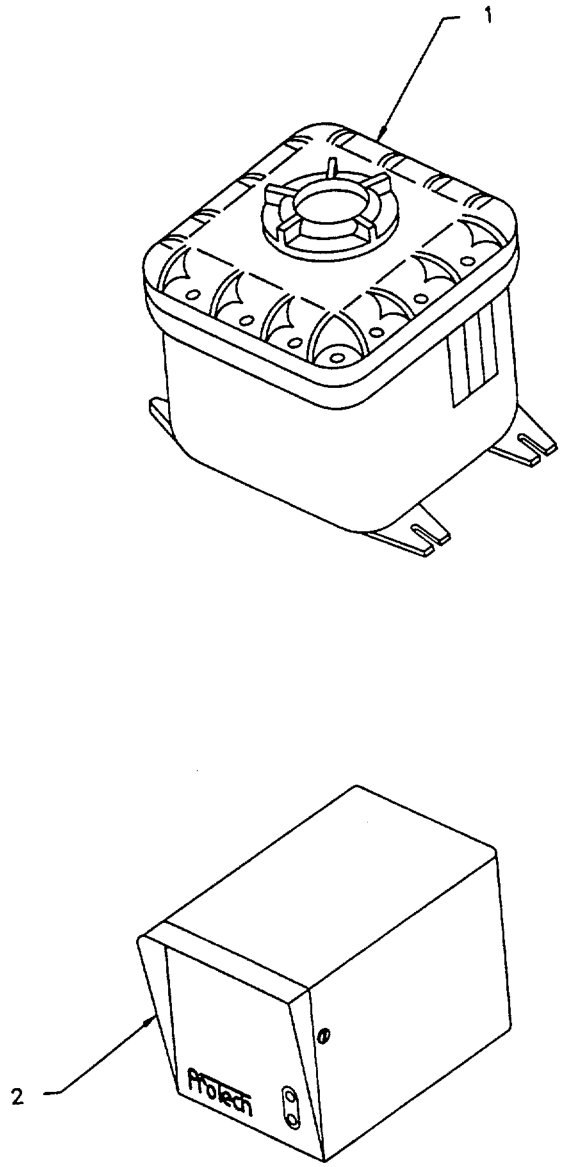


Figure C-36. Sensor, Microwave Motion

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-36	OCZ62	HT100EX/ ST-1	SENSOR, MICROWAVE MOTION, TYPE I .... SELF-TEST CAPABILITIES (SEE FIGURE C-37)	1
1	C-36	OCZ62	HT100DC/ ST-1	SENSOR, MICROWAVE MOTION, TYPE 2 .... SELF-TEST CAPABILITIES (SEE FIGURE C-37)	1
2	C-36	oCZ62	HT100EX	SENSOR, MICROWAVE MOTION, TYPE 3 .... SEE FIGURE C-38	1
2	C-36	OCZ62	HT100DC	SENSOR, MICROWAVE MOTION, TYPE 4 .... SEE FIGURE C-38	1

END OF FIGURE C-36

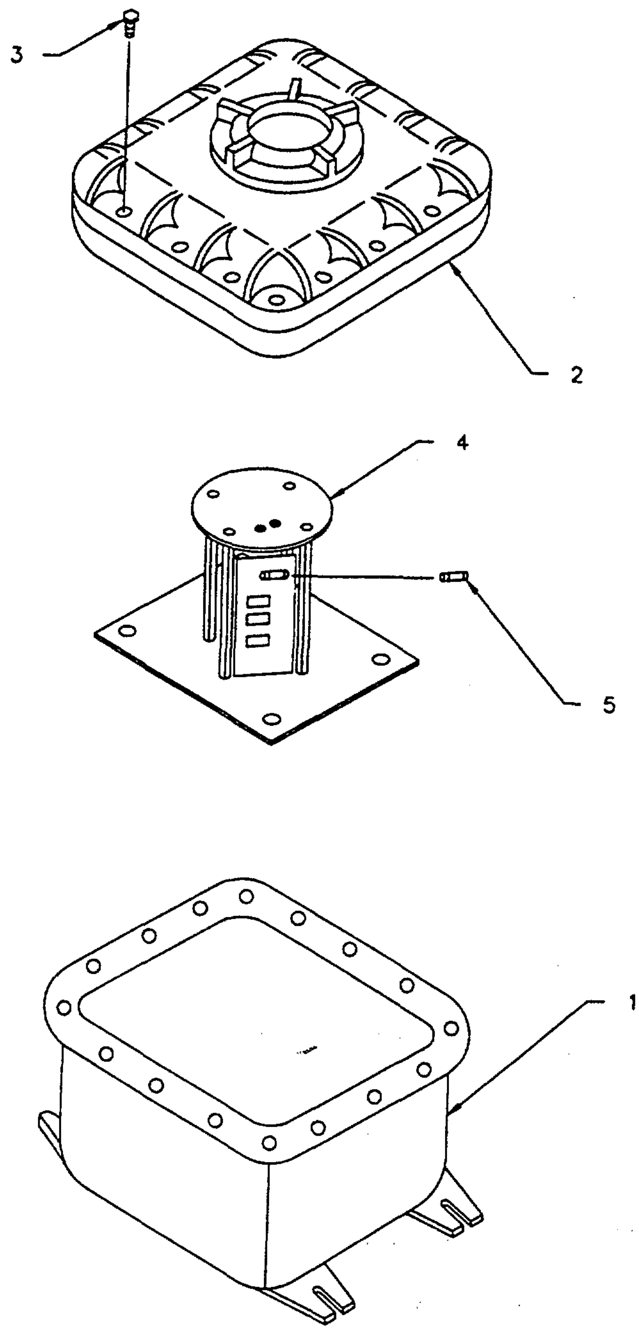


Figure C-37. Microwave Motion Sensor Types 1 and 2

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
			HT100EX/ ST-1	SENSOR, MICROWAVE MOTION, TYPE 1 .... (SEE FIGURE C-36, ITEM 1)	1
1	C-37	OCZ62	NONE	* BASE, EXPLOSION PROOF ENCLOSURE	1
2	C-37	OCZ62	NONE	* LID, EXPLOSION PROOF ENCLOSURE	1
3	C-37	OCZ62	NONE	** SCREWS, 9/16 HEX HEAD	20
4	C-37	OCZ62	NONE	ELECTRONIC ASSEMBLY, MICROWAVE MOTION SENSOR	1
5	C-37	OCZ62 250 VAC	BUSS 1A,	* FUSE, 1 AMP, 250 VAC	1

END OF FIGURE C-37

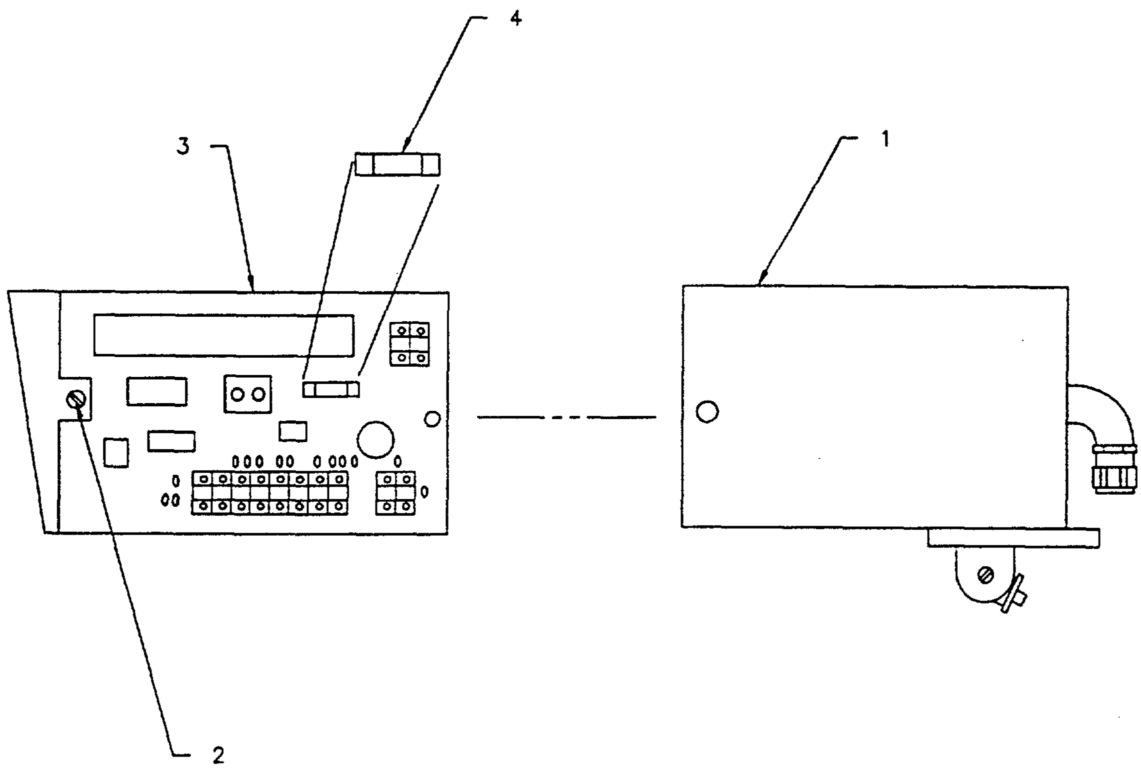


Figure C-38. Microwave Motion Sensors Types 3 and 4

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
			HT100DC/	MICROWAVE MOTION SENSOR, TYPE 3 .... (SEE FIGURE C-36, ITEM 2)	1
1	C-38	OCZ62	NONE	* ENCLOSURE, MICROWAVE MOTION SENSOR	1
2	C-38	OCZ62	NONE	*·..SCREW	2
3	C-38	OCZ62	NONE	PRINTED WIRING ASSEMBLY, MICROWAVE .... MOTION SENSOR	1
4	C-38	OCZ62	BUSS 1A, 250 VAC	* FUSE, 1 AMP, 250 VAC	1

END OF FIGURE C-38

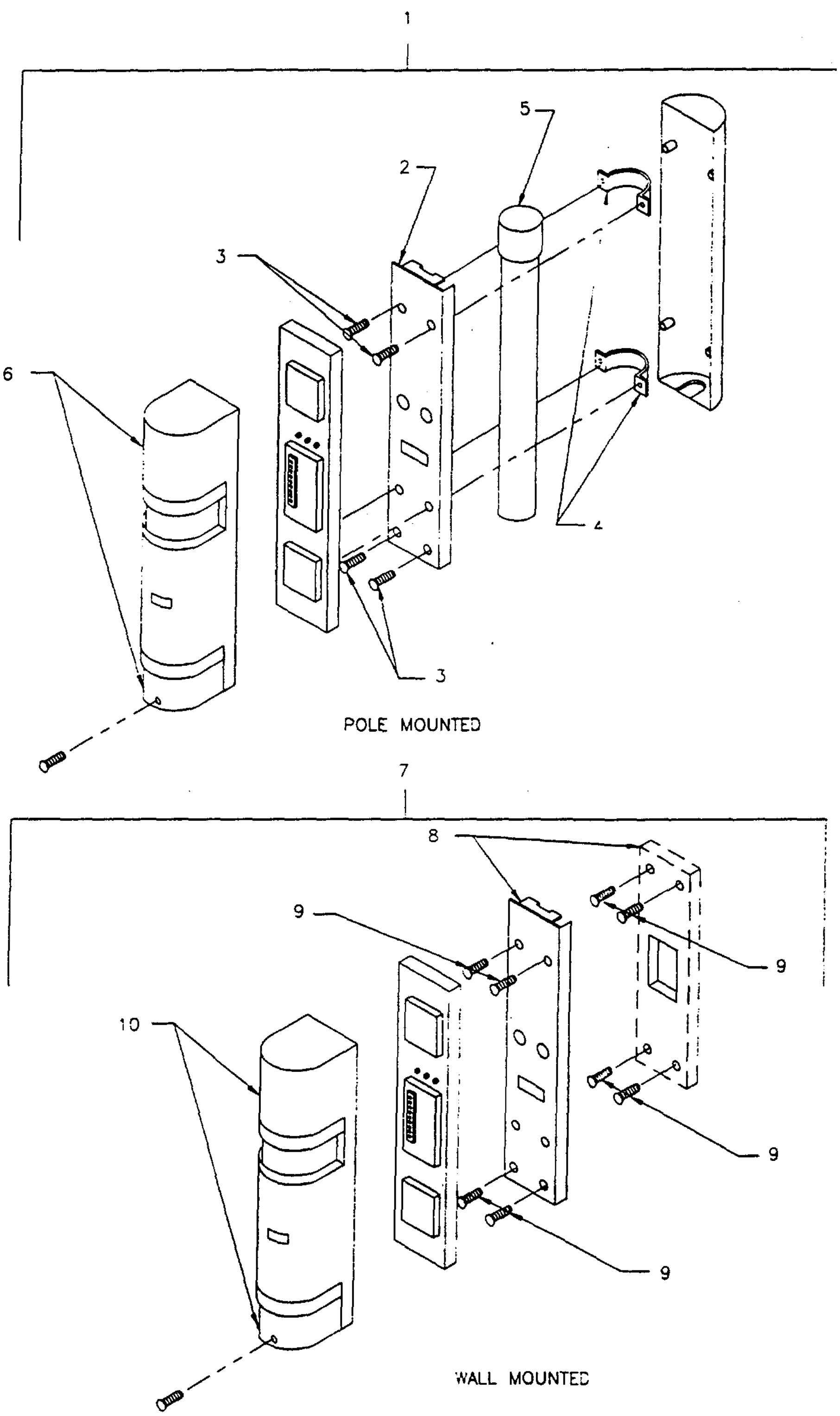


Figure C-39. Exterior Infrared Perimeter Sensor (EIPS)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-39	2J610	PB-IN100 /FL-TX	EXTERIOR INFRARED PERIMETER SENSOR .... (EIPS) (TRANSMITTER)	1
2	C-39	2J610		* MOUNTING PLATE	1(2)
3	C-39	2J610		** SCREWS	4
4	C-39	2J610		* MOUNTING BRACKETS	4
5	C-39	2J610		* COVER, POLE	1
6	C-39	2J610		* COVER, SENSOR	1
7	C-39	2J610	PB-IN100 /FL-RX	EXTERIOR INFRARED PERIMETER SENSOR .... (EIPS) (RECEIVER)	1
8	C-39	2J610		* MOUNTING PLATE	1(2)
9	C-39	2J610		** SCREWS	8
10	C-39	2J610		* COVER, SENSOR	1

END OF FIGURE C-39

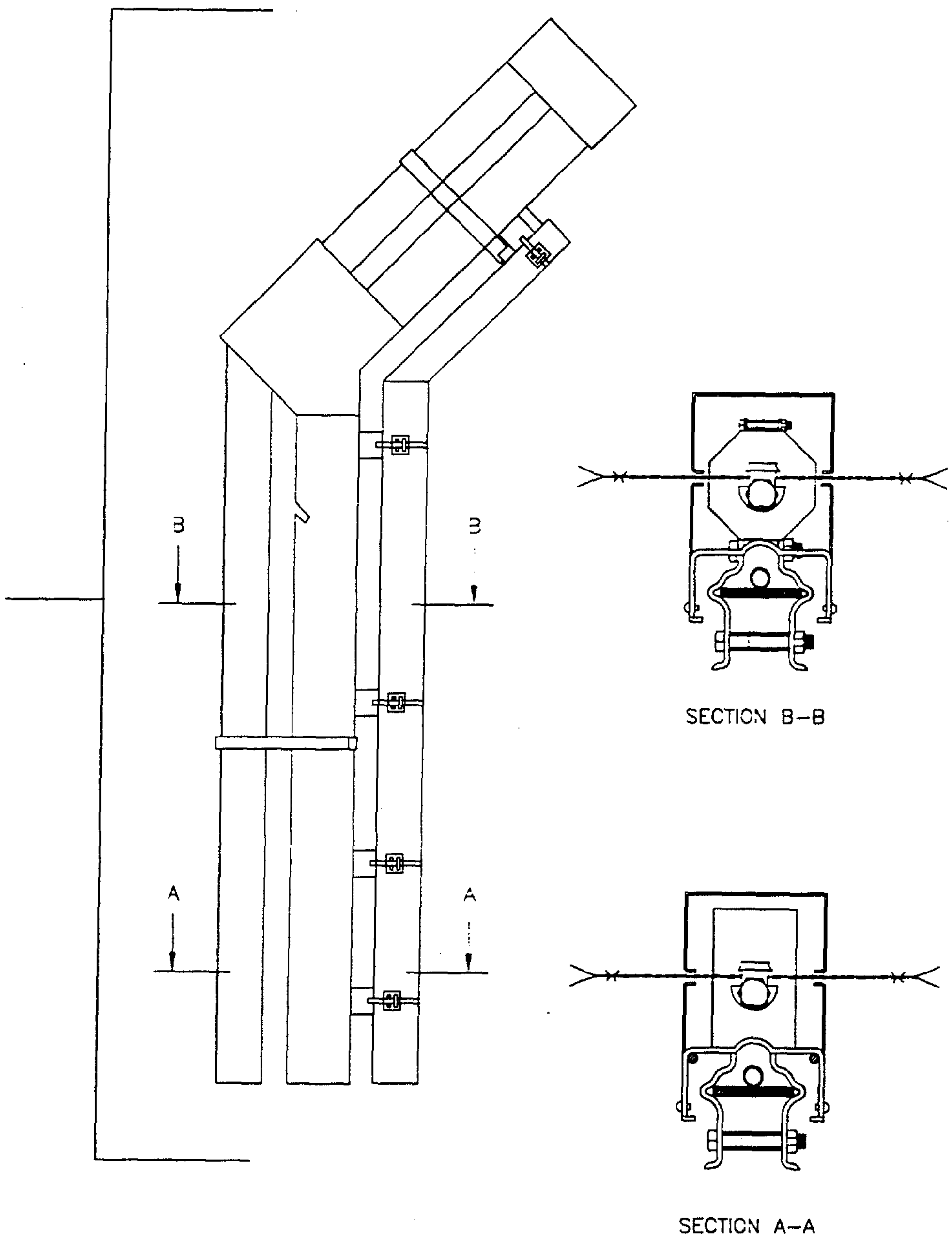


Figure C-40. (Detail) Taut Wire Fence Sensor Post (TWFS)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
1	C-40	7Y065	SP9-0420-06	TAUT WIRE FENCE SENSOR POST	1

END OF FIGURE C-40

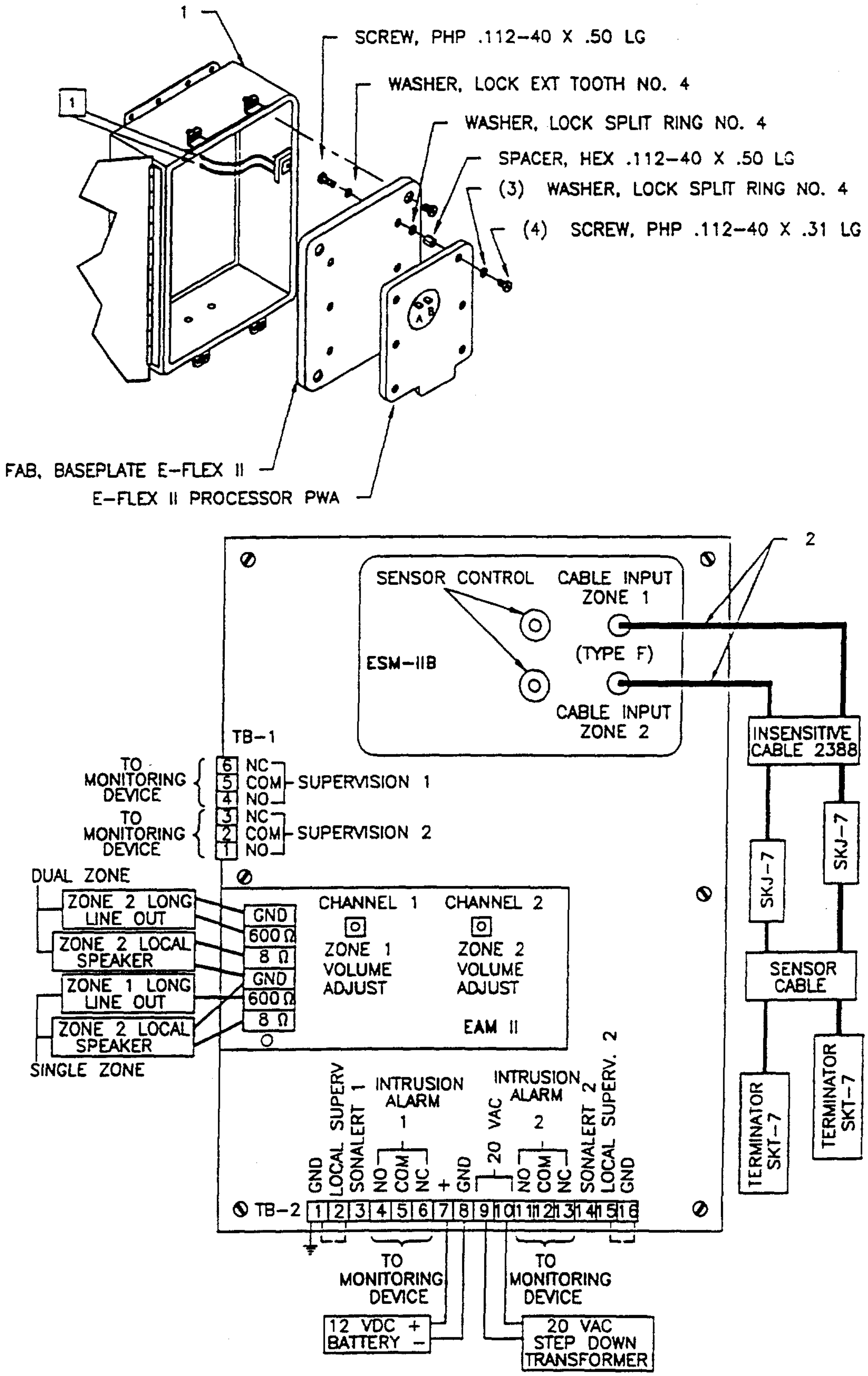


Figure C-41. Strain Sensitive Cable Fence Sensor (SSCFS) (Sheet 1 of 2)

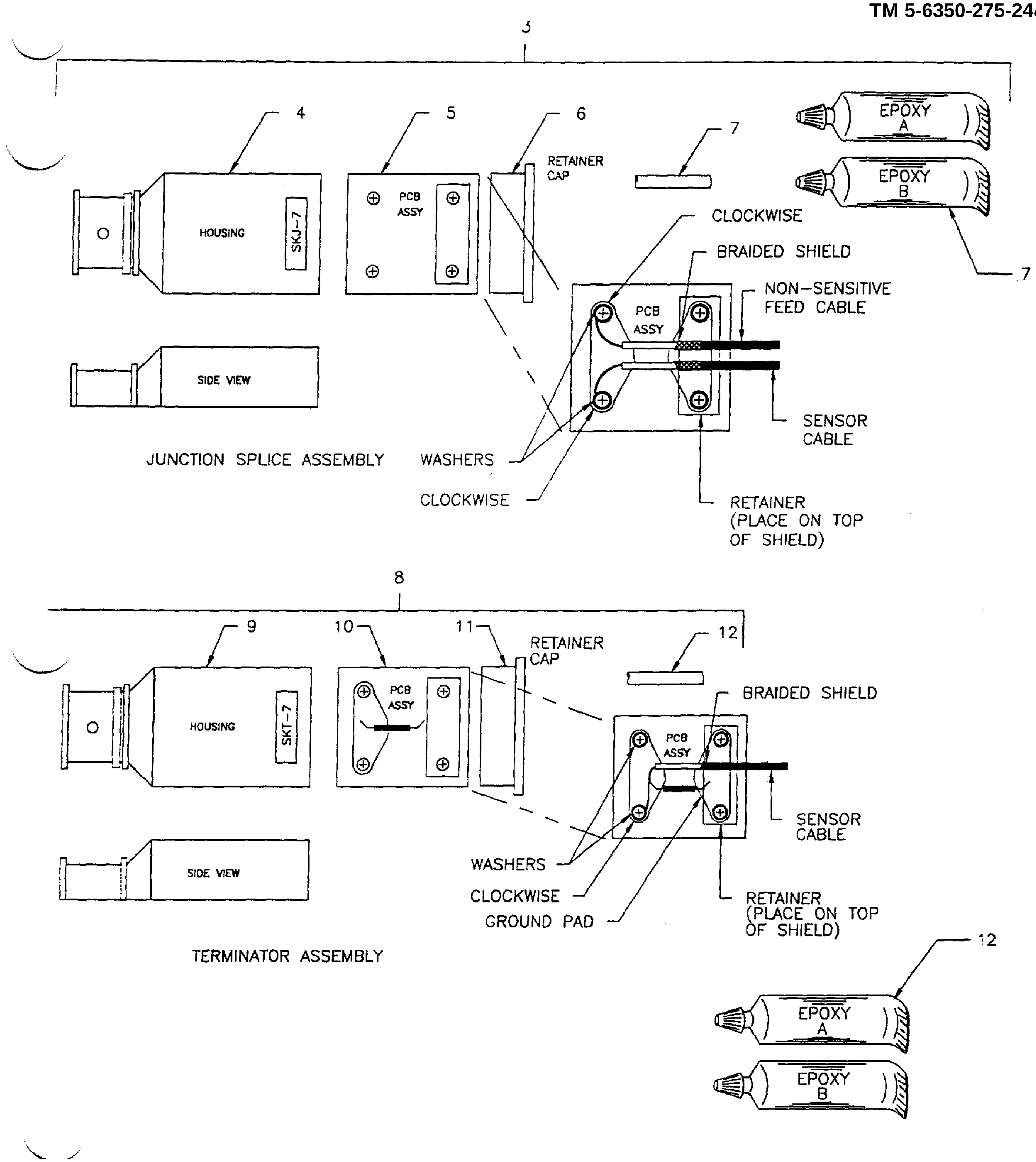


Figure C-41. Strain Sensitive Cable Fence Sensor (SSCFS) (Sheet 2 of 2)

(1) ITEM NO	(2) FIGURE NO.	(3) CAGEC	(4) PART NO.	(5) DESCRIPTION	(6) QTY
				STRAIN SENSITIVE CABLE FENCE SENSOR (SSCFS) E-FLEX II B PERIMETER PROTECTION SYSTEM (FIGURE C-41)	
1	C-41	7N003	E-FLEX IIB	E-FLEX IIB PROCESSOR CONTROL UNIT	1
2	C-41	7N003	2386	* RG-59 CABLE, COAXIAL	V
3	C-41	7N003	08340	* SKJ-7 JUNCTION SPLICE ASSEMBLY	1
4	C-41	7N003	NONE	** HOUSING SKJ-7	1
5	C-41	7N003	NONE	** PCB ASSY	1
6	C-41	7N003	NONE	** RETAINER CAP	1
7	C-41	7N003	NONE	** PACKAGE EPOXY COMPOUND	1
8	C-41	7N003	08336	* SKT-7 TERMINATION SPLICE ASSEMBLY	1
9	C-41	7N003	NONE	** HOUSING SKJ-7	1
10	C-41	7N003	NONE	** PCB ASSY	1
11	C-41	7N003	NONE	** RETAINER CAP	1
12	C-41	7N003	NONE	** PACKAGE EPOXY COMPOUND	1

END OF FIGURE C-41

APPENDIX D

EXPENDABLE/DURABLE ITEM LIST

D-1. SCOPE. This appendix lists expendable supplies and materials you will need to operate and maintain the ICIDS. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-790, Expendable/Durable Items (except medical, class V repair parts, and heraldic items) or CTA 8-100 Army Medical Department Expendable/Durable Items.

D-2. EXPLANATION OF COLUMNS.

a. **Column (1) - Item Number**. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the item (e.g. "Use cleaning compound, item 5. Appendix D".)

b. **Column (2) - Level**. This column identifies the lowest level of maintenance that requires the listed item.

C Operator/Crew
O Unit Maintenance
F Direct Support Maintenance
H General Support Maintenance

c. **Column (3) - National Stock Number.** This is the National Stock Number assigned to the item; use it to request or requisition the item.

d. **Column (4) - Description**. Indicates the Federal item name and if required, a description to identify the item. The last line for each item indicates the Commercial Government Entity Code (CAGEC) in parenthesis followed by the part number.

e. **Column (5) - Unit of Measure (U/M).** Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., EA, IN, PR). If the unit of measure differs from the unit of issue. requisition the lowest unit of issue that will satisfy your requirements.

D-3. EXPENDABLE AND DURABLE ITEMS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, CAGEC, Part Number Description	(5) U/M
1	O	7045-01-154-1315	Cleaning Kit, Microdisc Drive (08241) 75-0726 or (54254) SCOTCH7440	EA
1-A			Refill kit: 20 pads, 1 bottle cleaning solution. (75-1837-907)	EA
2	O		Cleaning Kit, Tape Drive Head (25705) 75-1800-905	EA

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, CAGEC, Part Number Description	(5) U/M
3	O		Data Cassette, 1/4" x 600 feet (25705) (77-4000-871)	BX
4	O		Floppy Diskette, 5-1/4" High Density, 80 Tracks Per Side/Soft Sectored (08241) 75-1006-842	BX
5	O	7920-00-165-7195	Cloth, Lintless (51200) MIRACLEWIPE1003	EA
6	F		Grease, Non Conductive	OZ
7	O	6810-00-071-4685	Alcohol, Denatured (81348) (OE760)	GL
8	O	9150-00-273-2389	Lubricating Oil, General Purpose	OZ
9	O	8305-00-273-1800	Waste, Matted Yarns, Wiping	LB
10	F	Tie Wraps, Plastic	PKG	
11	F	5920-01-154-1039	Strap, Wrist Static (5K923) 5057-04-L	EA
12	F	4240-01-153-7615	Strap, Wrist Static (20999) 2231	EA

APPENDIX E

CIRCUIT BOARD LAYOUTS WITH CONFIGURATION SETTINGS

INDEX

Enroller DES

Board Type:	12043
Part Number:	4678-ACB-2
Firmware Information:	
Firmware Location:	U-13
Firmware Classification:	"Enroller (Revision #)"
Firmware Location:	U-2
Firmware Classification:	"4733-1 (Revision #)"
Firmware Location:	U-28
Firmware Classification:	"MDES2B (Revision #)"
Unpopulated Locations:	U14

Configuration Settings:

Switch Block:	JP-1	Function	
SW-1	OFF	Poller Address Bit 1	(Required Address Shown = 2)
SW-2	ON	Poller Address Bit 2	
SW-3	OFF	Poller Address Bit 4	
SW-4	OFF	Poller Address Bit 8	
SW-5	OFF	Undefined Function	
SW-6	OFF	Undefined Function	
SW-7	OFF	Undefined Function	
SW-8	OFF	Undefined Function	

Switch Block:	JP-2	Function
SW-1	OFF	Undefined Function
SW-2	OFF	Undefined Function
SW-3	OFF	Undefined Function
SW-4	OFF	Undefined Function
SW-5	OFF	Undefined Function
SW-6	OFF	Undefined Function
SW-7	OFF	Undefined Function
SW-8	OFF	Undefined Function

Switch Block:	JP-3	Function	
SW-1	ON	Poller Mux Baud Rate	(Baud Rate Shown = 9600)
SW-2	OFF	Poller Mux Baud Rate	(See Table Below)
SW-3	ON	Poller Mux Baud Rate	
SW-4	ON	Poller Mux Parity	(Parity Required, Shown = Odd)
SW-5	ON	Poller Mux RTS Delay Bit 1	
SW-6	ON	Poller Mux RTS Delay Bit 2	Delay Shown = 20 ms =
SW-7	OFF	Poller Mux RTS Delay Bit 4	2 + [6 x (bit value)]
SW-8	OFF	Poller Mux RTS Delay Bit 8	

Enroller DES (Cont.)

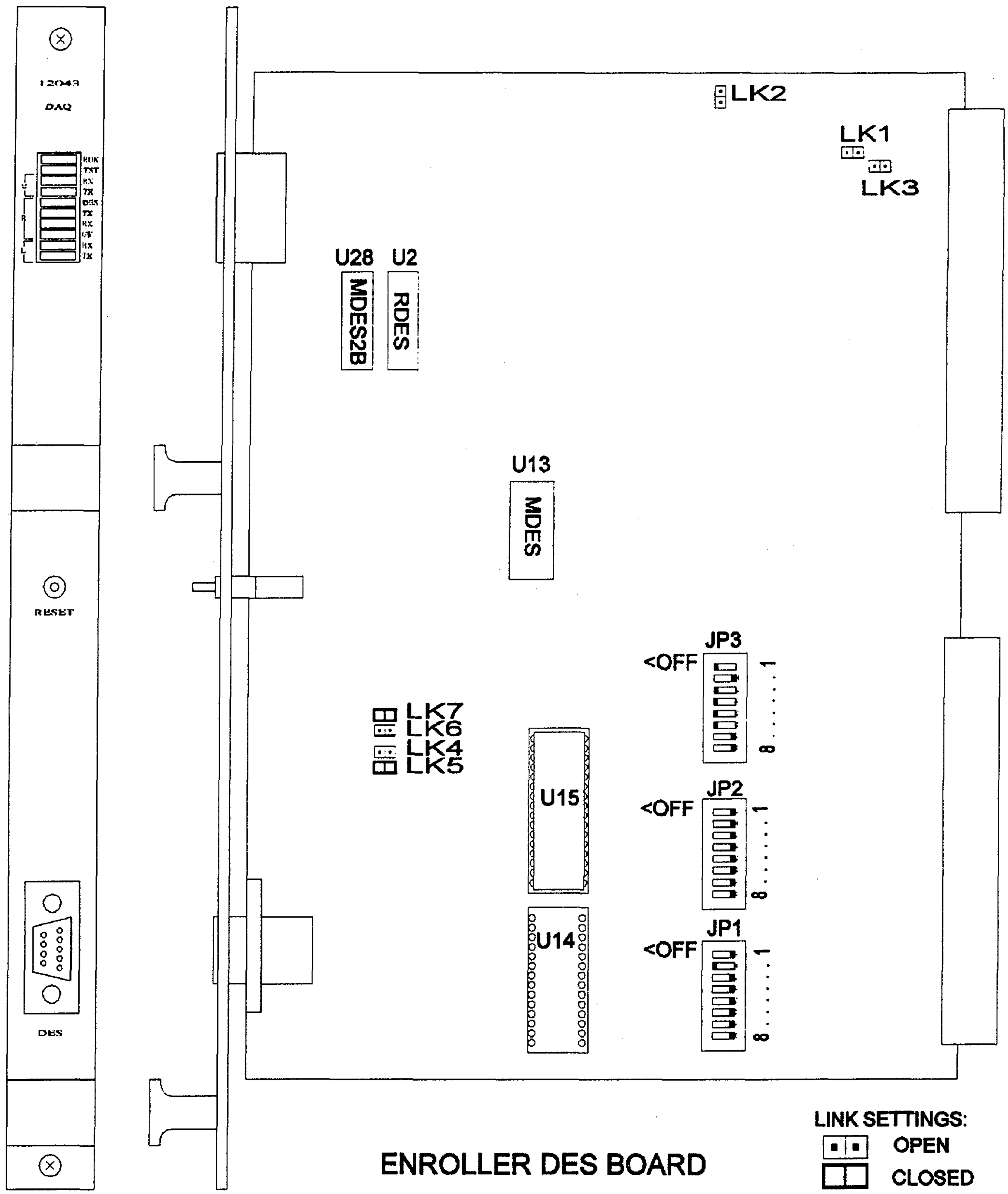
POLLER BAUD RATE	JP-3, SW-1	JP-3, SW-2	JP-3, SW-3
300	OFF	OFF	OFF
600	ON	OFF	OFF
1200	OFF	ON	OFF
2400	ON	ON	OFF
4800	OFF	OFF	ON
9600	**ON**	**OFF**	**ON**
19200	OFF	ON	ON
34800	ON	ON	ON

Link Configurations:		Function
LK1	ON	120Q RS-485 Termination, Connect (ON), Disconnect (OFF)
LK2	ON	1 Ka Between 5VDC and A-Side of RS-485 Driver Enable
LK3	ON	1 KD Ground and B-Side of RS-485 Driver Enable
LK4	OFF	MPO BIT 1 MicroProcessor Option (Factory Set)
LK5	ON	MPO BIT 0 MicroProcessor Option (Factory Set)
LK6	OFF	MP1 BIT 1 MicroProcessor Option (Factory Set)
LK7	ON	MP1 BIT 0 MicroProcessor Option (Factory Set)

Note: LK1, LK2, LK3 should always have link installed.

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



Enroller DES Diagram

Master DES

Board Type:	12043
Part Number:	4678-ACB-1

Firmware Information:

Firmware Location:	U-13
Firmware Classification:	"MDES (Revision #)"
Firmware Location:	U-2
Firmware Classification:	"MDES 4733 (Revision Level)"
Firmware Location:	U-28
Firmware Classification:	"MDES2B (Revision #)"

Unpopulated Locations: U-15

Configuration Settings:

Switch Block:	JP-1	Function	
SW-1	ON	Enroller DES Address Bit 1	(Address Shown = 5)
SW-2	OFF	Enroller DES Address Bit 2	
SW-3	ON	Enroller DES Address Bit 4	
SW-4	OFF	Enroller DES Address Bit 8	
SW-5	OFF	Undefined Function	
SW-6	OFF	Undefined Function	
SW-7	OFF	Undefined Function	
SW-8	OFF	Undefined Function	

Switch Block:	JP-2	Function	
SW-1	ON	Poller Mux Group Address Bit 1	(Address Shown = 11)
SW-2	ON	Poller Mux Group Address Bit 2	
SW-3	OFF	Poller Mux Group Address Bit 4	
SW-4	ON	Poller Mux Group Address Bit 8	
SW-5	OFF	Poller Mux Group Address Bit 16	
SW-6	OFF	Poller Mux Group Address Bit 32	
SW-7	OFF	Poller Mux Group Address Bit 64	
SW-8	OFF	Poller Mux Group Address Bit 128	

Switch Block:	JP-3	Function	
SW-1	OFF	Output Baud Rate	(Output Baud Rate Shown = 1200)
SW-2	ON	Output Baud Rate	(See Table Below)
SW-3	OFF	Output Baud Rate	
SW-4	ON	Output Parity	(Parity Required, Shown = Odd)
SW-5	ON	Output RTS Delay Bit 1	
SW-6	OFF	Output RTS Delay Bit 2	Delay Shown = 20 ms =
SW-7	ON	Output RTS Delay Bit 4	2 + [6 x (bit value)]
SW-8	OFF	Output RTS Delay Bit 8	

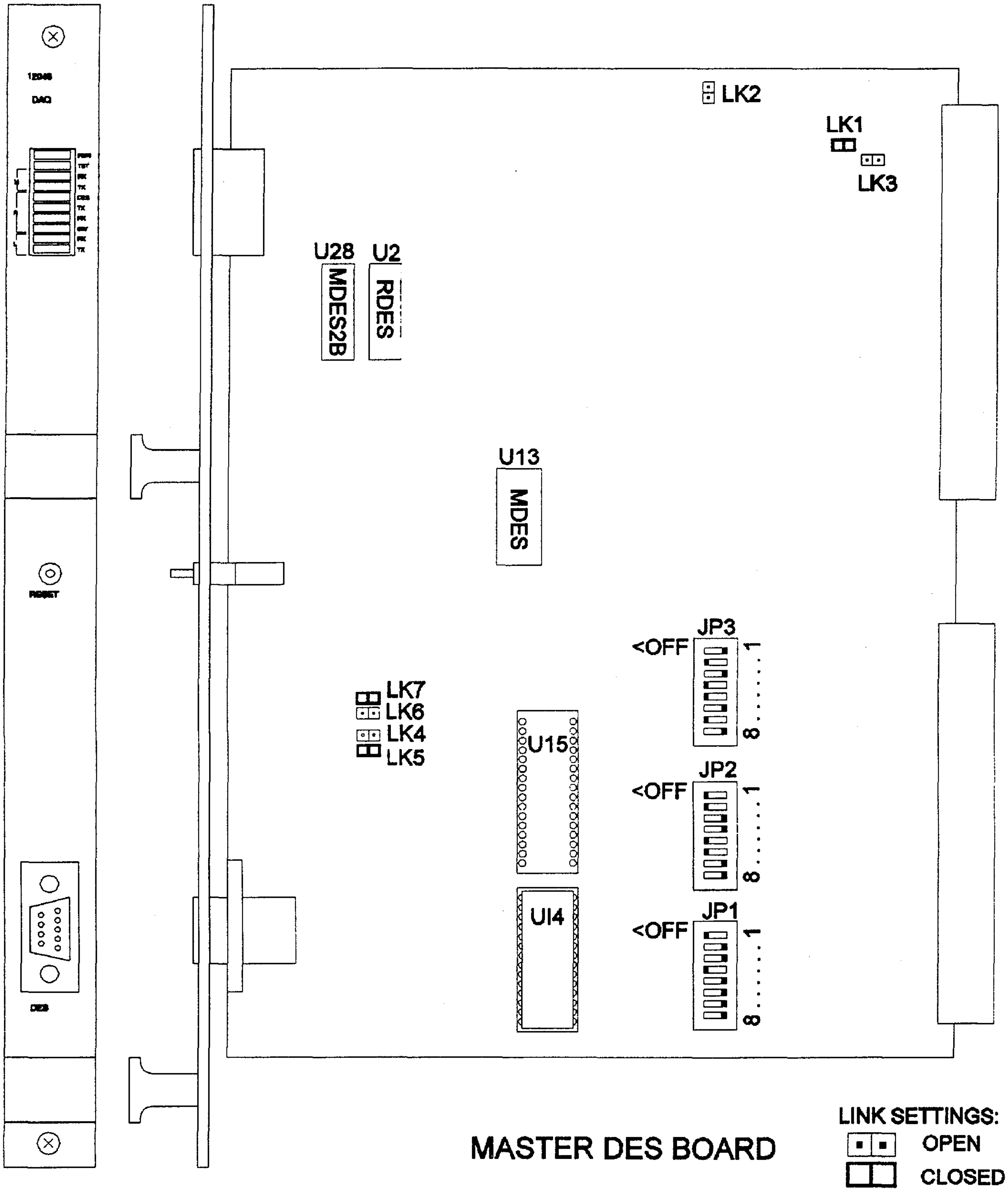
Master DES (Cont.)

POLLER BAUD RATE	JP-3, SW-1	JP-3, SW-2	JP-3, SW-3
300	OFF	OFF	OFF
600	ON	OFF	OFF
1200	**OFF**	**ON**	**OFF**
2400	ON	ON	OFF
4800	OFF	OFF	ON
9600	ON	OFF	ON
19200	OFF	ON	ON
34800	ON	ON	ON

Link Configurations:		Function
LK1	OFF	1209Q RS-485 Termination. Connect (ON), Disconnect (OFF)
LK2	OFF	1KU Between 5VDC and A-Side of RS-485 Driver Enable
LK3	OFF	1KQ Ground and B-Side of RS-485 Driver Enable
LK4	OFF	MPO BIT 1 MicroProcessor Option (Factory Set)
LK5	ON	MPO BIT 0 MicroProcessor Option (Factory Set)
LK6	OFF	MP1 BIT 1 MicroProcessor Option (Factory Set)
LK7	ON	MP1 BIT 0 MicroProcessor Option (Factory Set)

Note: LK1, 2, 3 should be ON only if the MDES is the last Type 12043 card in the PMC.

NOTE
Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



Master DES Diagram

PMC DES

Board Type:	12043
Part Number:	4678-ACB-3

Firmware Information:

Firmware Location:	U-13
Firmware Classification:	"PMCDES (Revision #)"
Firmware Location:	U-2
Firmware Classification:	"MDES 4733 (Revision #)"
Firmware Location:	U-28
Firmware Classification:	"MDES2B (Revision #)
Unpopulated Locations:	U-15

Configuration Settings:

Switch Block:	JP-1	Function	
SW-1	ON	Input Address Bit 1	(Shown Address = 9)
SW-2	OFF	Input Address Bit 2	
SW-3	OFF	Input Address Bit 4	
SW-4	ON	Input Address Bit 8	
SW-5	OFF	Undefined Function	
SW-6	OFF	Undefined Function	
SW-7	OFF	Undefined Function	
SW-8	OFF	Undefined Function	

Switch Block:	JP-2	Function	
SW-1	ON	Poller Mux Group Address	(Address Shown, Required = 45)
SW-2	OFF	Poller Mux Group Address	
SW-3	ON	Poller Mux Group Address	
SW-4	ON	Poller Mux Group Address	
SW-5	OFF	Poller Mux Group Address	
SW-6	ON	Poller Mux Group Address	
SW-7	OFF	Poller Mux Group Address	
SW-8	OFF	Poller Mux Group Address	

Switch Block:	JP-3	Function	
SW-1	OFF	Output Baud Rate	(Output Baud Rate Shown = 1200)
SW-2	ON	Output Baud Rate	(See Table Below)
SW-3	OFF	Output Baud Rate	
SW-4	ON	Output Parity	(Parity Required, Shown = Odd)
SW-5	OFF	Output RTS Delay Bit 1	
SW-6	OFF	Output RTS Delay Bit 2	Delay Shown = 2 ms =
SW-7	OFF	Output RTS Delay Bit 4	2 + [6 x (bit value)]
SW-8	OFF	Output RTS Delay Bit 8	

PMC DES (Cont.)

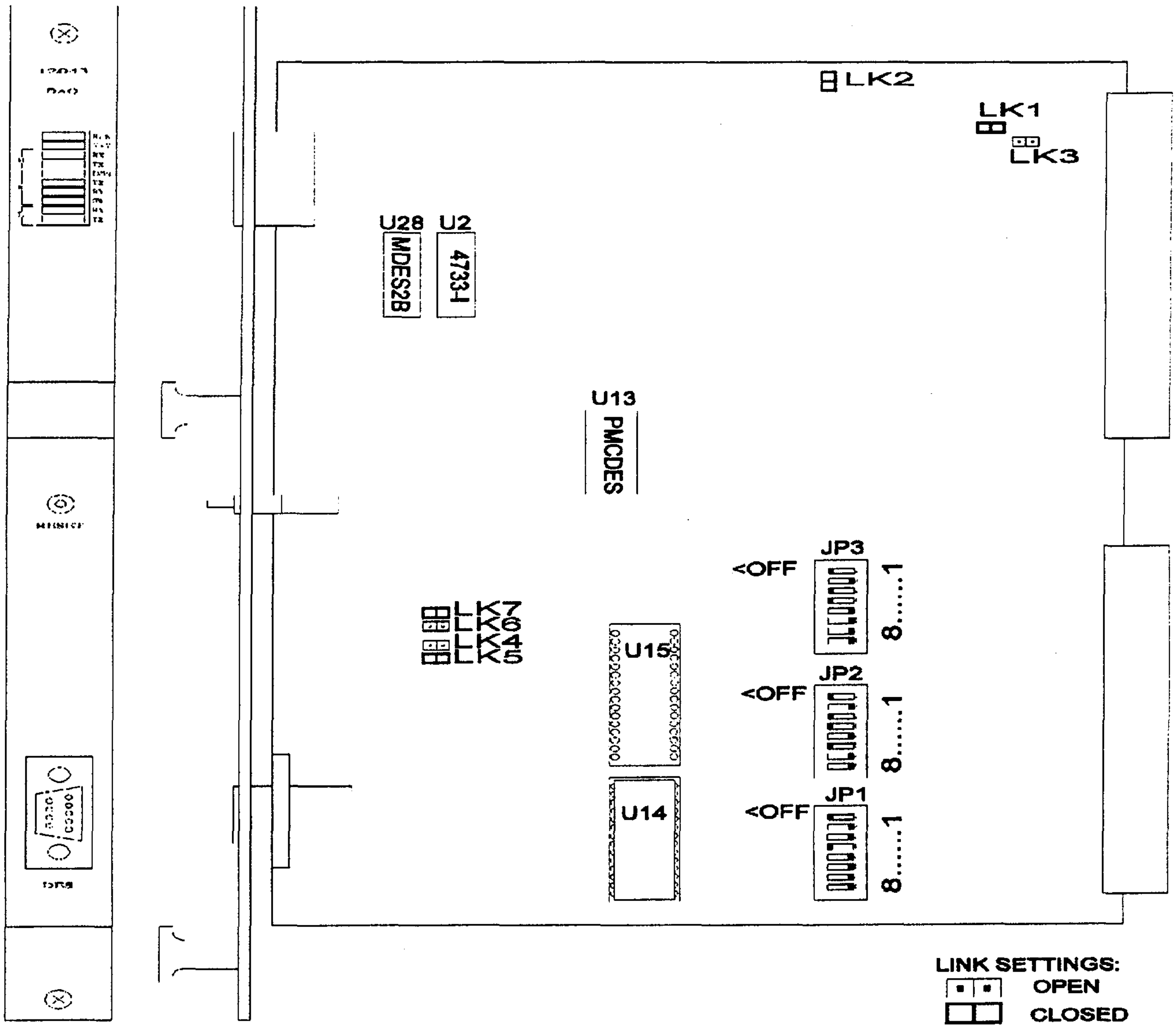
OUTPUT BAUD RATE	JP-3, SW-1	JP-3, SW-2	JP-3, SW-3
300	OFF	OFF	OFF
600	ON	OFF	OFF
1200	**OFF**	**ON**	**OFF**
2400	ON	ON	OFF
4800	OFF	OFF	ON
9600	ON	OFF	ON
19200	OFF	ON	ON
34800	ON	ON	ON

Link Configurations:		Function
LK1	ON	120Q RS-485 Termination, Enable (ON), Disable (OFF)
LK2	ON	1 KQ Between 5VDC and A-Side of RS-485 Driver Enable
LK3	ON	1 KQ Ground and B-Side of RS-485 Driver Enable
LK4	OFF	MPO BIT 1 MicroProcessor Option (Factory Set)
LK5	ON	MPO BIT 0 MicroProcessor Option (Factory Set)
LK6	OFF	MP1 BIT 1 MicroProcessor Option (Factory Set)
LK7	ON	MP1 BIT 0 MicroProcessor Option (Factory Set)

Note: LK-1, 2, 3 should be ON only if the PMCDES is the last Type 12043 card in the PMC.

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



PMC DES Diagram

Ganymede- B

Board Type:	12085	
Part Number:	4978-ACB-1	J-SIIDS Interface
	4978-ACB-2	xPMC Interface

Firmware Information:

Firmware Location:	U-9
Firmware Classification:	"GANYMEDE-B (Revision #)"
Unpopulated Locations:	U-16, K-5

Configuration Settings:

Link Configurations:	Function:	
LK1-1 OFF	Input Address Bit 1	(Input Address Always = 8)
LK1-2 OFF	Input Address Bit 2	
LK1 -3 OFF	Input Address Bit 4	
LK1-4 ON	Input Address Bit 8	
LK1-5 OFF	Input Address Bit 16	
LK1-6 OFF	Input Address Bit 32	
LK1-7 OFF	Undefined Function	
LK1-8 OFF	Undefined Function	
LK2-1 OFF	Undefined Function	
LK2-2 OFF	Undefined Function	
LK2-3 ON	Input Baud Rate	(Input Baud Rate Shown = 9600)
LK2-4 OFF	Input Baud Rate	(See Table Below)
LK2-5 ON	Input Baud Rate	
LK2-6 ON	Input RTS Delay	(Input RTS Delay Shown = 50 ms)
LK2-7 OFF	Input RTS Delay	(See Table Below)
LK2-8 ON	Input RTS Delay	

INPUT BAUD RATE	LK2-3	LK2-4	LK2-5
300	OFF	OFF	OFF
600	ON	OFF	OFF
1200	OFF	ON	OFF
2400	ON	ON	OFF
4800	OFF	OFF	ON
9600	**ON**	**OFF**	**ON**
19200	OFF	ON	ON
34800	ON	ON	ON

Ganymede- B (Cont.)

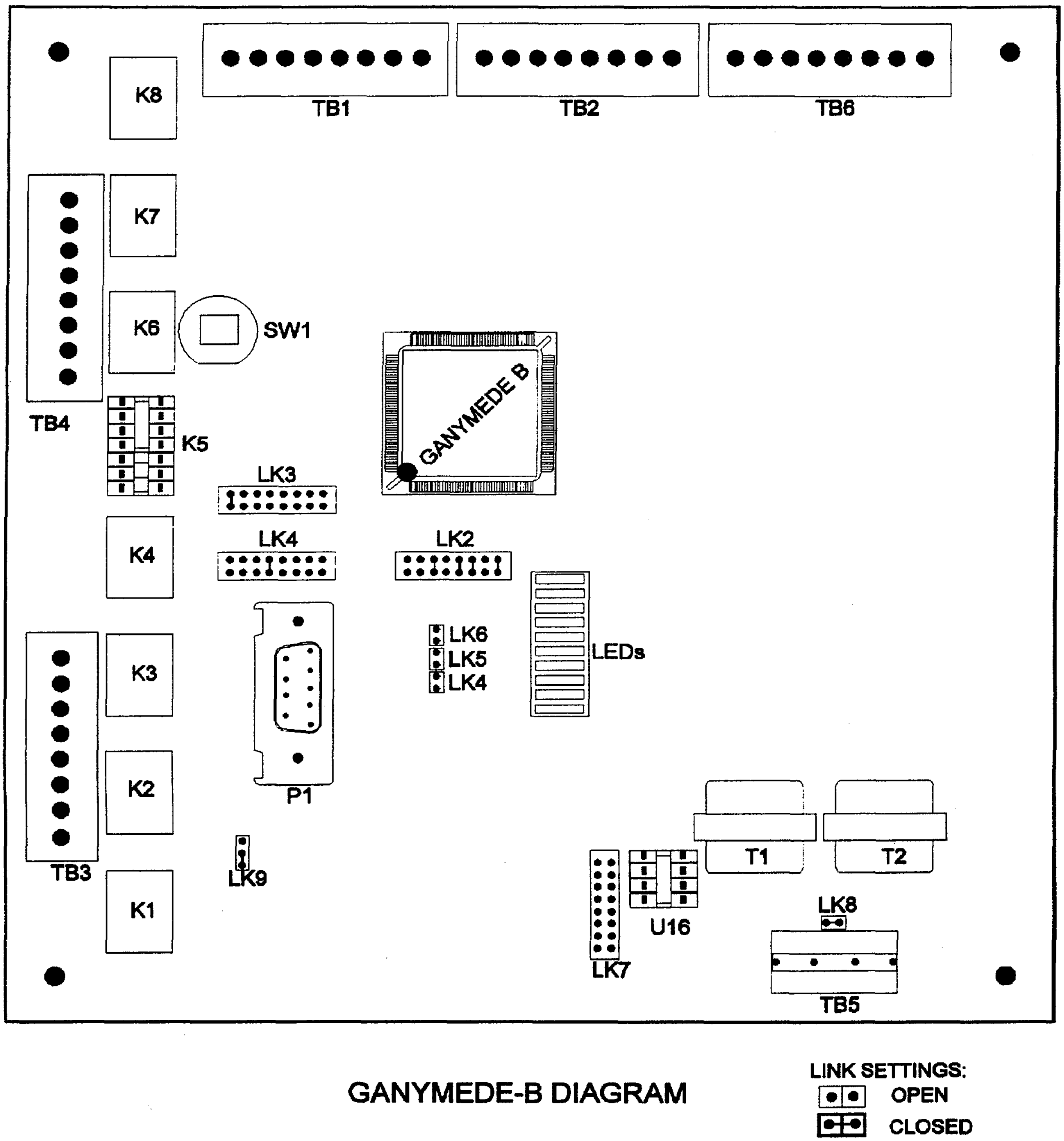
INPUT RTS DELAY	LK2-6	LK2-7	LK2-8
0mS	OFF	OFF	OFF
10mS	ON	OFF	OFF
20mS	OFF	ON	OFF
30mS	ON	ON	OFF
40mS	OFF	OFF	ON
50mS	**ON**	**OFF**	**ON**
60mS	OFF	ON	ON
70mS	ON	ON	ON

LK3-1	ON	Parity	(Odd Parity Shown, Required)
LK3-2	OFF	Class B Line Supervision Enabled (ON), Disabled (OFF)	
LKI3-3	OFF	Undefined Function	
LK3-4	OFF	Undefined Function	
LK3-5	OFF	Undefined Function	
LK3-6	OFF	Undefined Function	
LK3-7	OFF	Undefined Function	
LK3-8	OFF	Undefined Function	
LK4	OFF	Receive Data, RXD - Audio (ON), RS232 (OFF)	
LK5	OFF	Transmit Data, TXD - Audio (ON), RS232 (OFF)	
LK6	OFF	Request To Send, RTS - Audio (ON), RS232 (OFF)	
LK7-1	OFF	Undefined Function	
LK7-2	OFF	Undefined Function	
LK7-3	OFF	Undefined Function	
LK7-4	OFF	Bell 202/w Equalization, Enable (ON), Disable (OFF)	
LK7-5	OFF	Bell 202, Enable(ON), Undefined (OFF)	
LK7-6. OFF		Bell 202 Enable (OFF), Undefined (ON)	
LK7-7. OFF		Bell 202 Enable (OFF), Undefined (ON)	
LK7-8. OFF		Bell 202 Enable (OFF), Undefined (ON)	
LK8	ON	Operating Mode Setting, Audio (ON), RS485 (OFF)	
LK9. 1-2	OFF(1)	4 Wire System Usage	
LK9. 2-3	OFF	2 Wire System Usage	

Notes: (1) Mutually Exclusive Option Selections

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



GANYMEDE-B DIAGRAM

Audio Poller Mux

Board Type:	12048		
Part Number:	4704-ACB-2 8 Channel	4704-ACB-1	16 Channel

Firmware Information:

Firmware Location:	U-9
Firmware Classification:	"PMUX (Revision #)"

Unpopulated Locations: U-11, 12, 13, 14/ R-9, 11, 13, 15, 17, 19, 21

Special Notes: Jumper Between Pins 11 and 13 on U-24 Socket Insert

Configuration Settings:

Link Configurations:			Function
LK1	1-2[1]	OFF	Software Input to the PTT (For Radio Communication)
LK1	2-3	OFF	Standard RTS for the PTT (For Radio Communication)
LK2-1		OFF	Undefined Function
LK2-2		OFF	Undefined Function
LK2-3		OFF	Undefined Function
LK2-4		OFF	Undefined Function

LK3	ON	MEMORY SELECTOR, 32K (ON), 8K (OFF)	
LK4	OFF	RTU/RADC-Interrupt 0	
LK5	OFF	RTU/RADC-Interrupt 1	
LK6	OFF	Driver dB Level Display	(ICIDS configuration shown)

Switch Block: DS-1 (Switch Block Closest to the Connector Edge, Unmarked)
(Input- Poller Mux to the Front End Processor)

SW-1	OFF	Input Baud Rate	(Input Baud Rate Shown = 1200)
SW-2	ON	Input Baud Rate	(See Table Below)
SW-3	OFF	Input Baud Rate	
SW-4	OFF	Input Baud Rate	
SW-5	OFF	Input RTS Delay	(Input RTS Delay Shown = 100 ms)
SW-6	OFF	Input RTS Delay	(See Table Below)
SW-7	OFF	Input RTS Delay	
SW-8	ON	Input RTS Delay	

Notes: (1) Mutually Exclusive Option Selections

Audio Poller Mux (Cont.)

INPUT BAUD RATE	DS-1, SW-1	DS-1, SW-2	DS-1, SW-3	DS-1, SW-4
300	OFF	OFF	OFF	OFF
600	ON	OFF	OFF	OFF
1200	**OFF**	**ON**	**OFF**	**OFF**
2400	ON	ON	OFF	OFF
4800	OFF	OFF	ON	OFF
9600	ON	OFF	ON	OFF
19200	OFF	ON	ON	OFF
19200	ON	ON	ON	OFF
19200	N/A	N/A	N/A	ON

INPUT RTS DELAY	DS-1, SW-5	DS-1, SW-6	DS-1, SW-7	DS-1, SW-8
0mS	OFF	OFF	OFF	OFF
10mS	ON	OFF	OFF	OFF
20mS	OFF	ON	OFF	OFF
30mS	ON	ON	OFF	OFF
40mS	OFF	OFF	ON	OFF
50mS	ON	OFF	ON	OFF
60mS	OFF	ON	ON	OFF
70mS	ON	ON	ON	OFF
100mS	**OFF**	**OFF**	**OFF**	**ON**
150mS	ON	OFF	OFF	ON
200mS	OFF	ON	OFF	ON
250mS	ON	ON	OFF	ON
300mS	OFF	OFF	ON	ON
350mS	ON	OFF	ON	ON
400mS	OFF	ON	ON	ON
450mS	ON	ON	ON	ON

Audio Poller Mux (Cont.)

Switch Block:	DS-2	(Output- Poller Mux to the RTU)		
	SW-1	OFF	Output Baud Rate	(Output Baud Rate Shown = 1200)
	SW-2	ON	Output Baud Rate	(See Table Below)
	SW-3	OFF	Output Baud Rate	
	SW-4	ON	Output Baud Rate	
	SW-5	OFF	Output RTS Delay	(Output RTS Delay Shown = 40 ms)
	SW-6	OFF	Output RTS Delay	(See Table Below)
	SW-7	ON	Output RTS Delay	
	SW-8	OFF	Output RTS Delay	

OUTPUT BAUD RATE	DS-2, SW-1	DS-2, SW-2	DS-2,SW-3	DS-2, SW-4
300	OFF	OFF	OFF	OFF
600	ON	OFF	OFF	OFF
1200	**OFF**	**ON**	**OFF**	**OFF**
2400	ON	ON	OFF	OFF
4800	OFF	OFF	ON	OFF
9600	ON	OFF	ON	OFF
19200	OFF	ON	ON	OFF
19200	ON	ON	ON	OFF
19200	N/A	N/A	N/A	ON

(Continued On Next Page Please)

Audio Poller Mux (Cont.)

OUTPUT RTS DELAY	DS-2, SW-5	DS-2, SW-6	DS-2, SW-7	DS-2, SW-8
0mS	OFF	OFF	OFF	OFF
10mS	ON	OFF	OFF	OFF
20mS	OFF	ON	OFF	OFF
30mS	ON	ON	OFF	OFF
40mS	OFF	OFF	ON	OFF
50mS	ON	OFF	ON	OFF
60mS	OFF	ON	ON	OFF
70mS	ON	ON	ON	OFF
100mS	OFF	OFF	OFF	ON
150mS	ON	OFF	OFF	ON
200mS	OFF	ON	OFF	ON
250mS	ON	ON	OFF	ON
300mS	OFF	OFF	ON	ON
350mS	ON	OFF	ON	ON
400mS	OFF	ON	ON	ON
450mS	ON	ON	ON	ON

Switch Block:	DS-3	Miscellaneous Poller Setup
SW-1	OFF	Undefined Function
SW-2	OFF	Undefined Function
SW-3	OFF	Undefined Function
SW-4	OFF	Undefined Function
SW-5	OFF	Undefined Function
SW-6	OFF	On if MDES is Attached
SW-7	ON	Off if 16 Stations are Polled
SW-8	OFF	On if Class-B Line Supervision is Used

(Continued On Next Page Please)

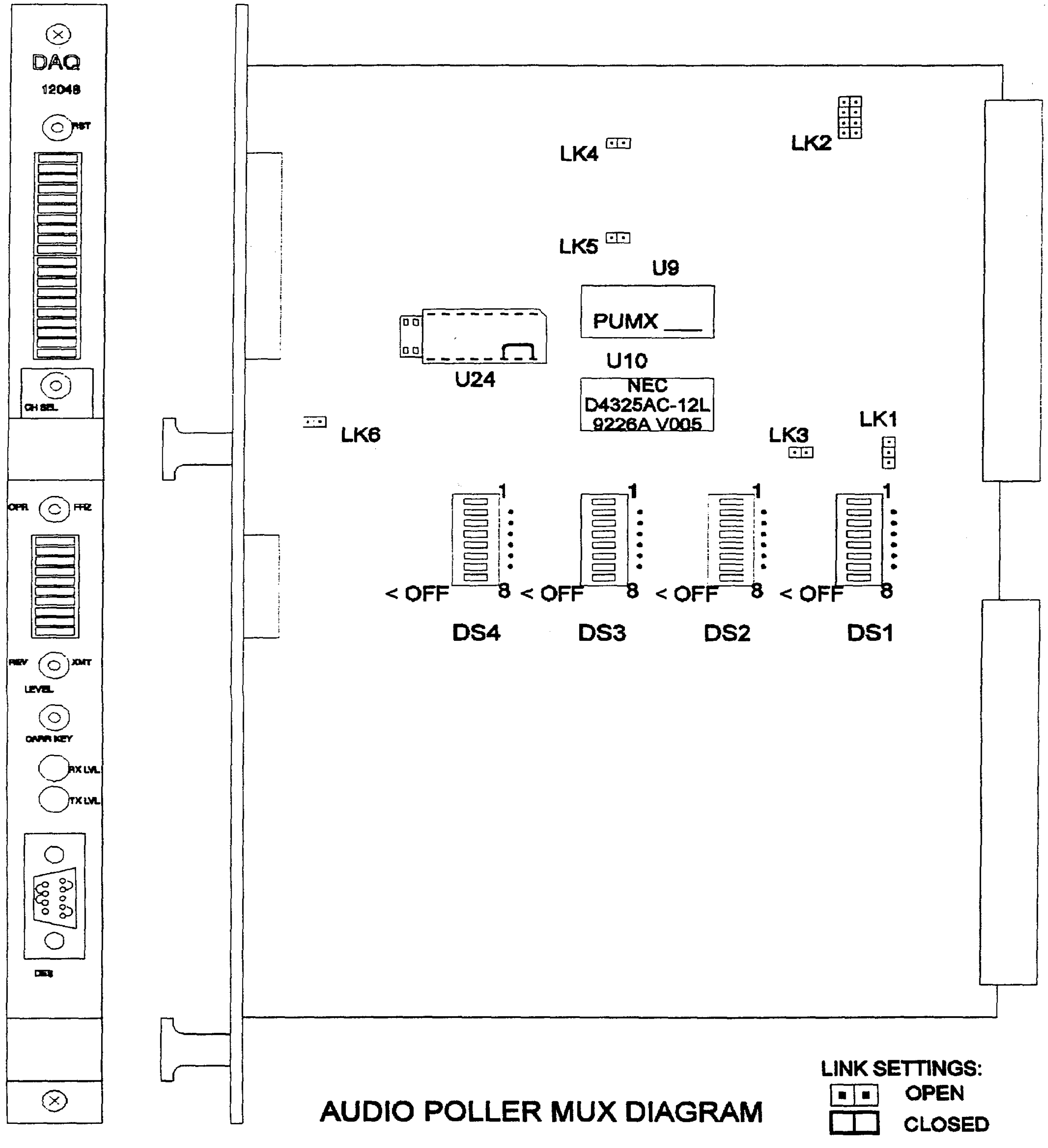
Audio Poller Mux (Cont.)

Switch Block:	DS-4	Mux Card Physical Sequence #	
SW-1	ON	Poller Mux Sequence Number Bit 1	(See Note Below)
SW-2	OFF	Poller Mux Sequence Number Bit 2	(Address Shown = 5)
SW-3	ON	Poller Mux Sequence Number Bit 4	
SW-4	OFF	Poller Mux Sequence Number Bit 8	
SW-5	OFF	Poller Mux Sequence Number Bit 16	
SW-6	OFF	Poller Mux Sequence Number Bit 32	
SW-7	OFF	Software Poller Group, Odd (ON), Even (OFF)	
SW-8	OFF	Undefined Function	

NOTE: Proper address setting is determined by the physical.slot position in the card frame. Excluding all but Audio and Digital Poller MUX boards, count boards installed from left-to-right, top-to-bottom, until intended configuration is completed.

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with test. Illustrations are representative ONLY



Audio Poller Mux Diagram

Digital/Intelligent Poller Mux

Board Type:	12005
Part Number:	4641-ACB-4 8 Channel RS-232 (Note 1) 4704-ACB-2 16 Channel RS-232 4641-ACB-3 8 Channel RS-485 (Note 2) 4704-ACB-1 16 Channel RS-485

Application Note:	(Note 1)	Used **Only** in Position I-21 (in SPMC or LPMC) for Polling Ganymede Board.
	Note 2)	Used for direct interface to RADC (no modem)

Firmware Information:

Firmware Location:	U-9
Firmware Classification:	"PMUX (Revision #)"

Unpopulated Locations:	U-8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 31, 32, 33, 34, 37, 38 C-14, 15, 16, 17, 18, 19, 20, 21 R-18, 19.20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33

Configuration Settings:

Link Configurations:		Function	
LK1		Does Not Exist	
LK2	ON	MEMORY SELECTOR 32K (ON), 8K (OFF)	
LK3-1	OFF	Undefined Function	
LK3-2	OFF	Undefined Function	
LK3-3	OFF	Undefined Function	
LK3-4	OFF	Undefined Function	
LK4	OFF	RTU/RADC Interrupt 0	(ICIDS Configuration Shown)
LK5	OFF	RTU/RADC Interrupt 1	(ICIDS Configuration Shown)

Switch Block: DS-1 (Switch Block Closest to the Connector Edge, Unmarked)
(Input- Poller Mux to the Front End Processor)

SW-1	ON	Input Baud Rate	(Input Baud Rate Shown = 9600)
SW-2	OFF	Input Baud Rate	(See Table Below)
SW-3	ON	Input Baud Rate	
SW-4	OFF	Input Baud Rate	
SW-5	ON	Input RTS Delay	(Input RTS Delay Shown = 30 ms)
SW-6	ON	Input RTS Delay	(See Table Below)
SW-7	OFF	Input RTS Delay	
SW-8	OFF	Input RTS Delay	

Digital/Intelligent Poller Mux (Cont.)

INPUT BAUD RATE	DS-1, SW-1	DS-1, SW-2	DS-1, SW-3	DS-1, SW-4
300	OFF	OFF	OFF	OFF
600	ON	OFF	OFF	OFF
1200	OFF	ON	OFF	OFF
2400	ON	ON	OFF	OFF
4800	OFF	OFF	ON	OFF
9600	**ON**	**OFF**	**ON**	**OFF**
19200	OFF	ON	ON	OFF
19200	ON	ON	ON	OFF
19200	N/A	N/A	N/A	ON

INPUT RTS DELAY	DS-1, SW-5	DS-1, SW-6	DS-1, SW-7	DS-1, SW-8
0mS	OFF	OFF	OFF	OFF
10mS	ON	OFF	OFF	OFF
20mS	OFF	ON	OFF	OFF
30mS	**ON**	**ON**	**OFF**	**OFF**
40mS	OFF	OFF	ON	OFF
50mS	ON	OFF	ON	OFF
60mS	OFF	ON	ON	OFF
70mS	ON	ON	ON	OFF
100mS	OFF	OFF	OFF	ON
150mS	ON	OFF	OFF	ON
200mS	OFF	ON	OFF	ON
250mS	ON	ON	OFF	ON
300mS	OFF	OFF	ON	ON
350mS	ON	OFF	ON	ON
400mS	OFF	ON	ON	ON
450mS	ON	ON	ON	ON

Digital/Intelligent Poller Mux (Cont.)

Switch Block:	DS-2	(Output- Poller Mux to the RTU/RADC)	
SW-1	ON	Output Baud Rate	(Output Baud Rate Shown = 9600)
SW-2	OFF	Output Baud Rate	(See Table Below)
SW-3	ON	Output Baud Rate	
SW-4	OFF	Output Baud Rate	
SW-5	ON	Output RTS Delay	(Output RTS Delay Shown = 30 ms)
SW-6	ON	Output RTS Delay	(See Table Below)
SW-7	OFF	Output RTS Delay	
SW-8	OFF	Output RTS Delay	

OUTPUT BAUD RATE	SW-1	SW-2	SW-3	SW-4
300	OFF	OFF	OFF	OFF
600	ON	OFF	OFF	OFF
1200	OFF	ON	OFF	OFF
2400	ON	ON	OFF	OFF
4800	OFF	OFF	ON	OFF
9600	**ON**	**OFF**	**ON**	**OFF**
19200	OFF	ON	ON	OFF
19200	ON	ON	ON	OFF
19200	N/A	N/A	N/A	ON

Digital/Intelligent Poller Mux (Cont.)

OUTPUT RTS DELAY	SW-5	SW-6	SW-7	SW-8
0mS	OFF	OFF	OFF	OFF
10mS	ON	OFF	OFF	OFF
20mS	OFF	ON	OFF	OFF
30mS	**ON**	**ON**	**OFF**	**OFF**
40mS	OFF	OFF	ON	OFF
50mS	ON	OFF	ON	OFF
60mS	OFF	ON	ON	OFF
70mS	ON	ON	ON	OFF
100mS	OFF	OFF	OFF	ON
150mS	ON	OFF	OFF	ON
200mS	OFF	ON	OFF	ON
250mS	ON	ON	OFF	ON
300mS	OFF	OFF	ON	ON
350mS	ON	OFF	ON	ON
400mS	OFF	ON	ON	ON
450mS	ON	ON	ON	ON

Switch Block:	DS-3	(Miscellaneous Poller Setup)	
SW-1	OFF	Undefined Function	
SW-2	OFF	Undefined Function	
SW-3	OFF	Undefined Function	
SW-4	OFF	Undefined Function	
SW-5	OFF	Undefined Function	
SW-6	OFF	Master DES Setting, Used (ON), Unused (OFF)	
SW-7	ON	Stations Polled, 8 (ON), 16 (OFF)	(ICIDS Setting Shown)
SW-8	OFF	Class-B Line Supervision, Used (ON), Unused (OFF)	

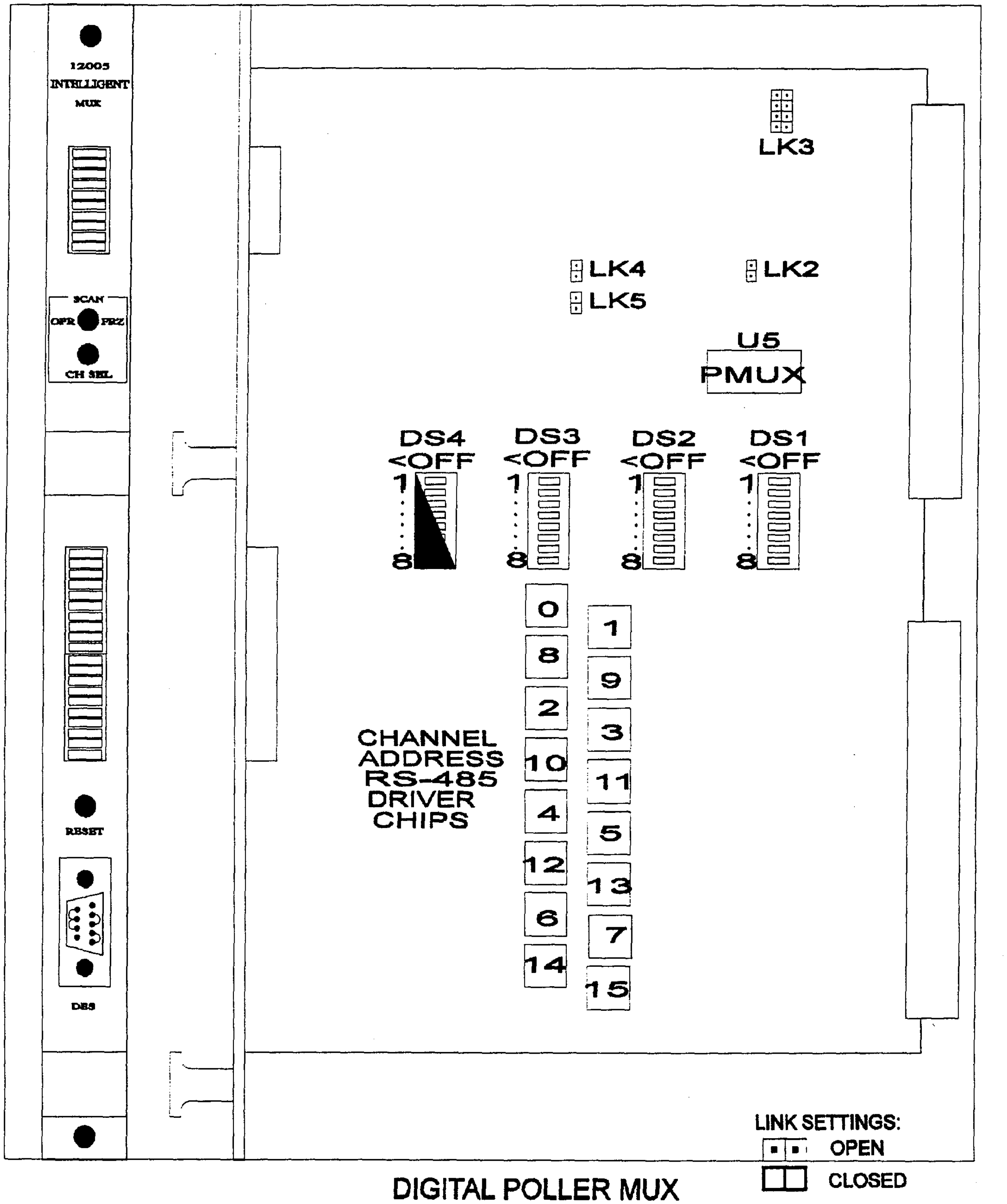
Digital/Intelligent Poller Mux (Cont.)

Switch Block: DS-4		Mux Card Address/Sequence #	
SW-1	ON	Poller Mux Sequence Number Bit 1	(See Note Below)
SW-2	OFF	Poller Mux Sequence Number Bit 2	(Address Shown = 9)
SW-3	OFF	Poller Mux Sequence Number Bit 4	
SW-4	ON	Poller Mux Sequence Number Bit 8	
SW-5	OFF	Poller Mux Sequence Number Bit 16	
SW-6	OFF	Poller Mux Sequence Number Bit 32	
SW-7	OFF	Software Poller Group, Odd (ON), Even (OFF)	
SW-8	OFF	Undefined Function	

NOTE: Proper address setting is determined by the physical slot position in the card frame. Excluding all but Audio and Digital Poller MUX boards, count boards installed from left-to-right, top-to-bottom, until intended configuration is completed.

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



Digital/Intelligent Poller Mux Diagram

Intelligent Switch

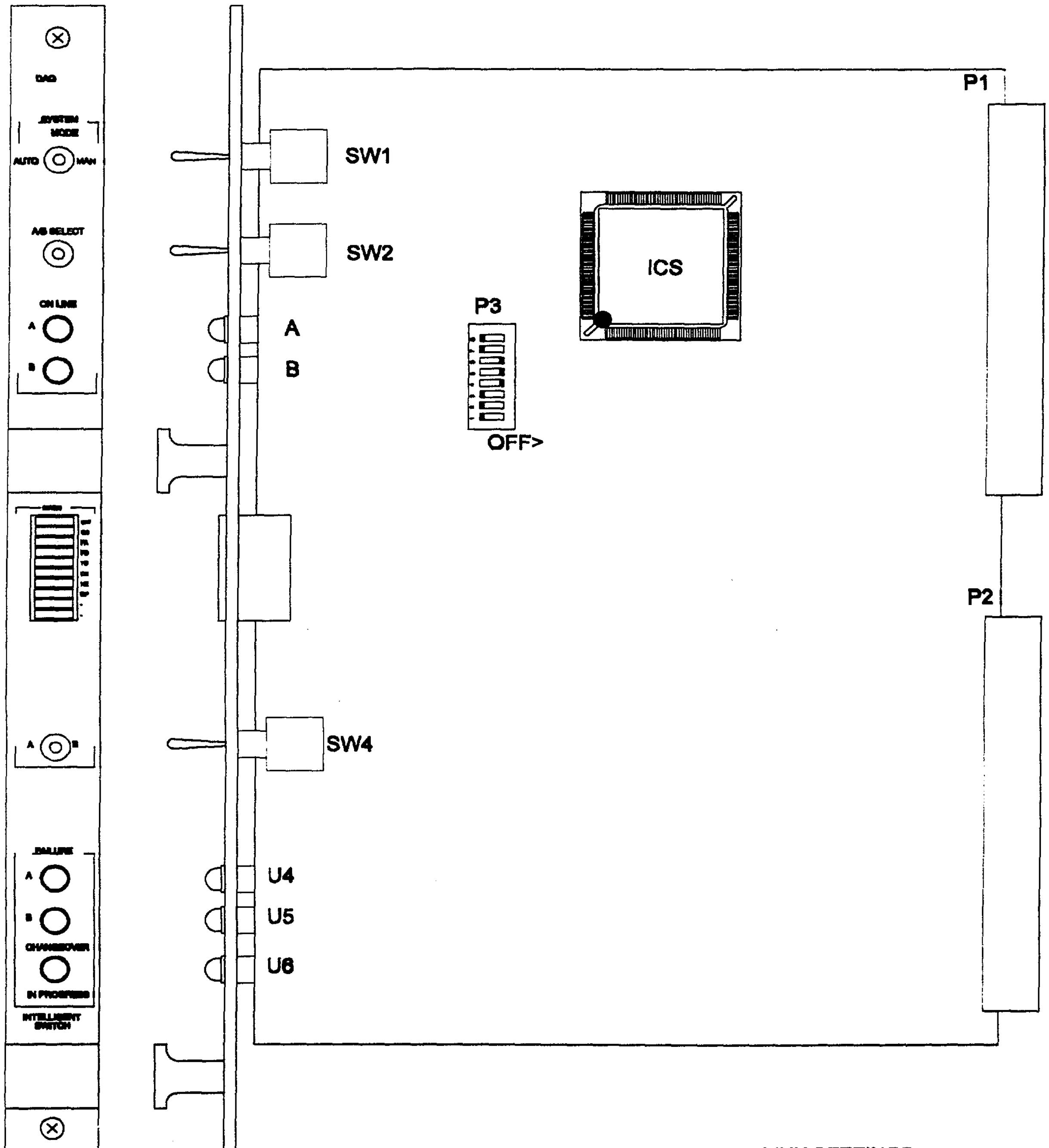
Board Type:	4241
Part Number:	4248 ACB
Firmware Information:	
Firmware Location:	U-2
Firmware Classification:	"ICS (Revision #)"
Unpopulated Locations:	None

Configuration Settings:

Switch Blocks:	(Only One Present)	
SW-1	OFF	Undefined Function
SW-2	OFF	Undefined Function
SW-3	OFF	Undefined Function
SW-4	ON	Single Mode
SW-5	ON	Invert Outputs
SW-6	ON	1200 Baud (ON), Not 1200 Baud (OFF)
SW-7	OFF	Undefined Function
SW-8	OFF	Undefined Function

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Intelligent switch representative ONLY.



INTELLIGENT SWITCH

LINK SETTINGS:
OPEN
CLOSED

Quad Switch

Board Type:	4221
Part Number:	4229 ACB
Firmware Information:	
Firmware Location:	None
Firmware Classification:	None
Unpopulated Locations:	U-2, 3

Configuration Settings:

Jumper Block: J1		Function
J1-1	OFF	(ICIDS Configuration Shown)
J1-2	OFF	(ICIDS Configuration Shown)
J1-3	ON	(ICIDS Configuration Shown)
J1-4	ON	(ICIDS Configuration Shown)
J1-5	ON	(ICIDS Configuration Shown)
J1-6	ON	(ICIDS Configuration Shown)
J1-7	ON	(ICIDS Configuration Shown)
J1-8	ON	(ICIDS Configuration Shown)

Jumper Block: J2		Function
J2-1	OFF	(ICIDS Configuration Shown)
J2-2	OFF	(ICIDS Configuration Shown)
J2-3	ON	(ICIDS Configuration Shown)
J2-4	ON	(ICIDS Configuration Shown)
J2-5	ON	(ICIDS Configuration Shown)
J2-6	ON	(ICIDS Configuration Shown)
J2-7	ON	(ICIDS Configuration Shown)
J2-8	ON	(ICIDS Configuration Shown)

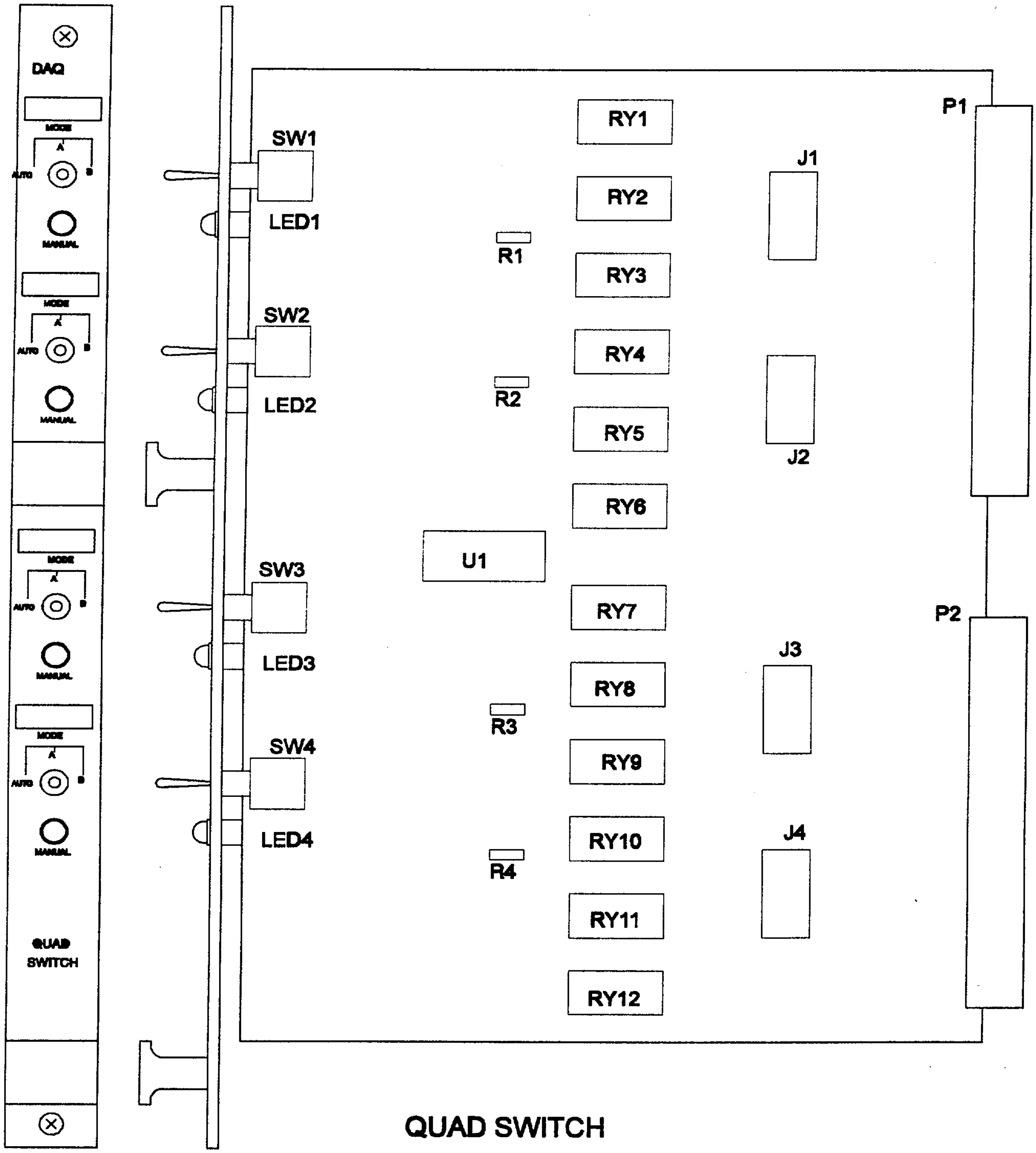
Jumper Block: J3		Function
J3-1	OFF	(ICIDS Configuration Shown)
J3-2	OFF	(ICIDS Configuration Shown)
J3-3	ON	(ICIDS Configuration Shown)
J3-4	ON	(ICIDS Configuration Shown)
J3-5	ON	(ICIDS Configuration Shown)
J3-6	ON	(ICIDS Configuration Shown)
J3-7	ON	(ICIDS Configuration Shown)
J3-8	ON	(ICIDS Configuration Shown)

Quad Switch (Cont.)

Jumper Block: J4		Function
J4-1	OFF	(ICIDS Configuration Shown)
J4-2	OFF	(ICIDS Configuration Shown)
J4-3	ON	(ICIDS Configuration Shown)
J4-4	ON	(ICIDS Configuration Shown)
J4-5	ON	(ICIDS Configuration Shown)
J4-6	ON	(ICIDS Configuration Shown)
J4-7	ON	(ICIDS Configuration Shown)
J4-8	ON	(ICIDS Configuration Shown)

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



Quad Switch Diagram

Stargate 1000/5000

Board Type:	12037
Issue:	C
Part Number:	Stargate 1000 4981-ACB-1 Stargate 5000 4981-ACB-2

Firmware Information:

Firmware Location:	U9
Firmware Classification:	"REMS (Revision #)"
Firmware Location:	U2
Firmware Classification:	"EURO (Revision #)"
Firmware Location:	U1
Firmware Classification:	"EURO (Revision #)"
Firmware Location:	U40
Firmware Classification:	"X7013 (Revision #)"
Firmware Location:	U4
Firmware Classification:	"X7014 (Revision #)
Firmware Location:	U28
Firmware Classification:	"X7015 (Revision #)"
Firmware Location:	U20
Firmware Classification:	"D (Revision #)"

Unpopulated Locations: None

Configuration Settings:

Link Configurations:		Function	
LK1-1	ON	Normal Input Setting, 1KKQ (ON), 2KQ (OFF)	
LK1-2	OFF	Normal Input Setting, 2KQ (ON), 1KU (OFF)	
LK1-3	OFF	LED Tamper Input Indication, Enable (ON), Disable (OFF)	
LK1-4	OFF	LED Alarm Input Indication, Enable (ON), Disable (OFF)	
LK2 1-2	OFF(1)	U21 RAM Selection	(ICIDS Configuration Shown)
LK2 2-3	ON	U21 RAM Selection	(ICIDS Configuration Shown)
LK3 1-2	OFF(1)	U21 RAM Selection	(ICIDS Configuration Shown)
LK3 2-3	ON	U21 RAM Selection	(ICIDS Configuration Shown)
LK4 1-2	ON(1)	U21 RAM Selection	(ICIDS Configuration Shown)
LK4 2-3	OFF	U21 RAM Selection	(ICIDS Configuration Shown)

Notes: (1) Mutually Exclusive Option Selections

Stargate 5000 (Cont.)

LK5-1	ON	Stargate Input Address Bit 1	(Address Shown = 5)
LK5-2	OFF	Stargate Input Address Bit 2	
LK5-3	ON	Stargate Input Address Bit 4	
LK5-4	OFF	Stargate Input Address Bit 8	
LK5-5	OFF	Stargate Input Address Bit 16, Not Used for ICIDS	
LK5-6	OFF	Stargate Input Address Bit 32, Not Used for ICIDS	
LK5-7	OFF	Stargate Input Address Bit 64, Not Used for ICIDS	
LK5-8	ON	Always ON	
LK6-1	ON	Stargate Type and Revision Field	
LK6-2	OFF	TBD	
LK6-3	OFF	TBD	
LK6-4	OFF	TBD	
LK6-5	OFF	TBD	
LK6-6	OFF	TBD	
LK6-7	OFF	TBD	
LK6-8	OFF	TBD	
LK7	ON	Lithium Battery Memory Backup Circuit Link	
LK8	OFF	Host Communications, RS-485 (ON), RS-232 (OFF)	
LK9 1-2	OFF(1)	U21 RAM Selection	(ICIDS Configuration Shown)
LK9 2-3	ON	U29 RAM Selection	(ICIDS Configuration Shown)
LK10 1-2	OFF(1)	U21 RAM Selection	(ICIDS Configuration Shown)
LK10 2-3	ON	U29 RAM Selection	(ICIDS Configuration Shown)
LK11	OFF	Stargate Reset Link	(Temporary Connect to Reset)
LK12 1-2	ON(1)	U29 RAM Selection	(ICIDS Configuration Shown)
LK12 2-3	OFF	U21 RAM Selection	(ICIDS Configuration Shown)
LK13 1-2	OFF(1)	U21 RAM Selection	(ICIDS Configuration Shown)
LK13 2-3	ON	U34 RAM Selection	(ICIDS Configuration Shown)
LK14 1-2	OFF(1)	U21 RAM Selection	(ICIDS Configuration Shown)
LK14 2-3	ON	U34 RAM Selection	(ICIDS Configuration Shown)
LK15 1-2	ON(1)	U34 RAM Selection	(ICIDS Configuration Shown)
LK15 2-3	OFF	U21 RAM Selection	(ICIDS Configuration Shown)
LK16	OFF	Host Communications, RS-485 (ON), RS-232 (OFF)	

Notes: (1) Mutually Exclusive Option Selections

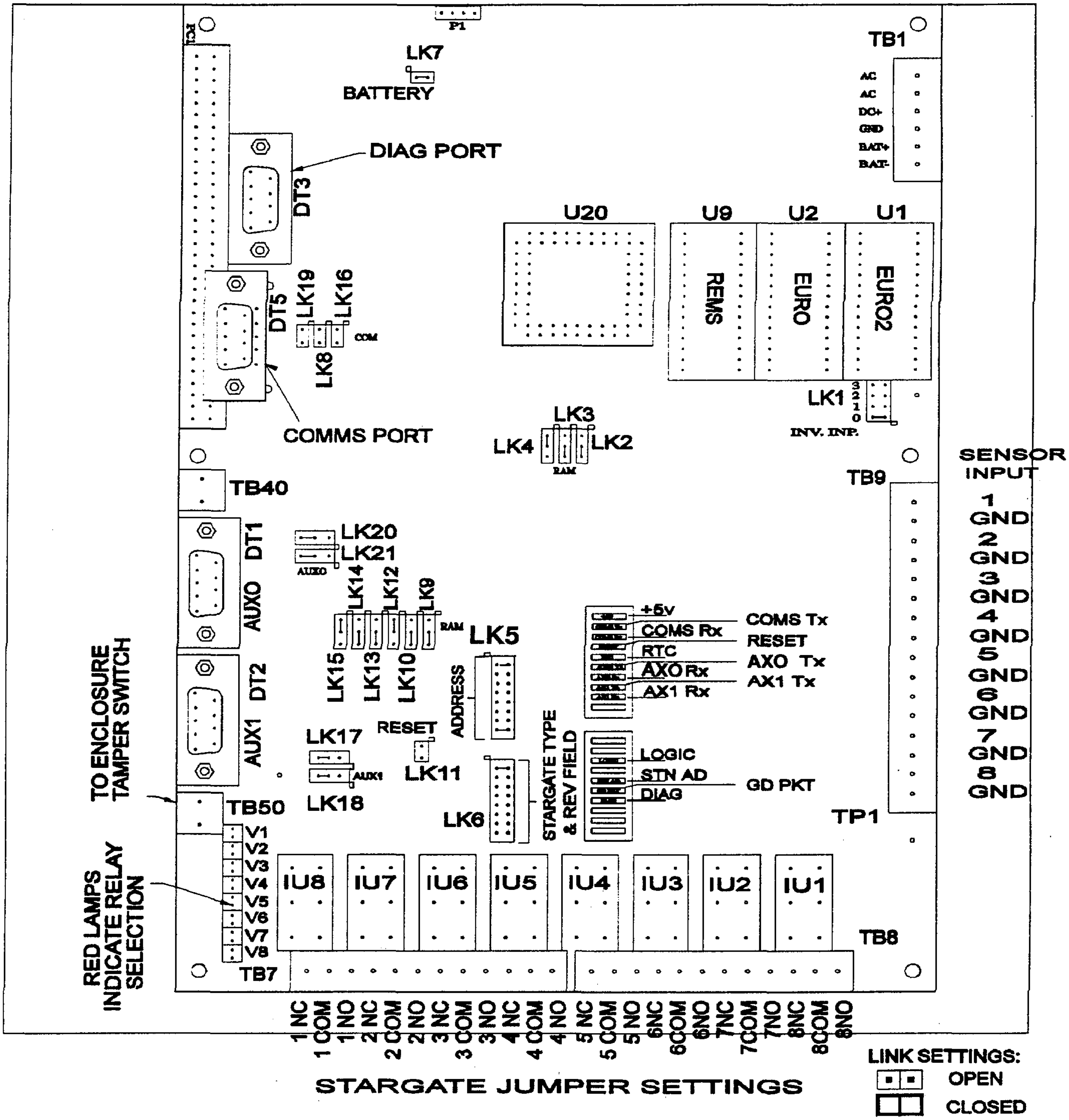
Stargate 5000 (Cont.)

LK17 1-2	OFF(1)	AUX1 RS-232, Enable (ON), Disable (OFF)
LK17 2-3	ON	AUX1 RS-485, Enable (ON), Disable (OFF)
LK18 1-2	OFF(1)	AUX1 RS-232, Enable (ON), Disable (OFF)
LK18 2-3	ON	AUX1 RS-485, Enable (ON), Disable (OFF)
LK19	OFF	Host Communications, RS-485 (ON), RS-232 (OFF)
LK20 1-2	OFF(1)	AUXO RS-232, Enable (ON), Disable (OFF)
LK20 2-3	ON	AUXO RS-485, Enable (ON), Disable (OFF)
LK21 1-2	OFF(1)	AUXO RS-232, Enable (ON), Disable (OFF)
LK21 2-3	ON	AUXO RS-485, Enable (ON), Disable (OFF)

Notes: (1) Mutually Exclusive Option Selections

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



Stargate 5000 Diagram

IAC Intelligent Access Controller

Board Type:	12034
Issue:	C
Part Number:	4690-ACB

Firmware Information:

Firmware Location:	U8
Firmware Classification:	"IAC-2 (Revision #)"
Firmware Location:	U15
Firmware Classification:	"X7011 (Revision #)"
Firmware Location:	U17
Firmware Classification:	"X7010C (Revision #)"

Unpopulated Locations: None

Configuration Settings:

Link Configurations:		Function	
LK1 1-2	OFF(1)	Stargate Communication RS-232, Enable (ON), Disable (OFF)	
LK1 2-3	ON	Stargate Communication RS-485, Enable (ON), Disable (OFF)	
LK2 1-2	OFF(1)	RS-232 RTS Watchdog, Enable (ON), Disable (OFF)	
LK2 2-3	ON	RS-485 RTS Watchdog, Enable (ON), Disable (OFF)	
LK3 1-2	OFF(1)	Hardware Triggered Watchdog, Enable (ON), Disable (OFF)	
LK3 2-3	ON	Software Triggered Watchdog, Enable (ON), Disable (OFF)	
LK4 1-2	OFF	Reset (Temporary Connect To Reset)	
LK5 1-2	ON(1)	Memory & RTC Battery Backed, Enable (ON), Disable (OFF)	
LK5 2-3	OFF	Battery Disconnected	
LK6-1	OFF	Operation Format Bit 1 0=Single Door, 1=Turnstile	
LK6-2	OFF	Operation Format Bit 2 2=Dual Door, 3=Motorized Portal	
LK6-3	ON	Fallback Code, Enable (ON), Disabled (OFF) (Fail Soft Shown, Recommended)	
LK6-4	OFF	Host Type Bit 1	0=RTU (Stargate) 1=PC
LK6-5	OFF	Host Type Bit 0	2=Printer 3=Unused
LK6-6	ON	Comm Debugging Bit 0	0=On Host 1=On Entry IAU
LK6-7	ON	Comm Debugging Bit 1	2=On Exit IAU 3=None
LK6-8	OFF	Request-To-Exit Operation, Pulsed (ON), Latched (OFF)	

Notes: (1) Mutually Exclusive Option Selections

IAC Intelligent Access Controller (Cont.)

LK7-1	ON	IAC Input Address Bit 1	(IAC Input Address Shown = 13)
LK7-2	OFF	IAC Input Address Bit 2	
LK7-3	ON	IAC Input Address Bit 4	
LK7-4	ON	IAC Input Address Bit 8	
LK7-5	OFF	IAC Input Address Bit 16	
LK7-6	ON	Request-To-Exit Line Supervision, Enable (ON), Disable (Off)	
LK7-7	ON	Door Contact Line Supervision, Enable (ON), Disable (Off)	
LK7-8	ON	Alarm Inputs 1, 2, 3, 4 Line Supervision, Enable (ON), Disable (Off)	

LK8-1	OFF	Dual Door Format Bit 1	(See Table Below)
LK8-2	OFF	Dual Door Format Bit 0	
LK8-3	OFF	Unused	
LK8-4	OFF	Unused	
LK8-5	OFF	Unused	
LK8-6	OFF	Multiple Site Type and Codes, Enable (ON), Disable (OFF)	
LK8-7	OFF	Fall Back all Weigand Cards Selection, 32 Bit (ON), 24 Bit (OFF)	
LK8-8	OFF	Multiple Card Swipes, Permitted (ON), Ignored (OFF) Removed)	

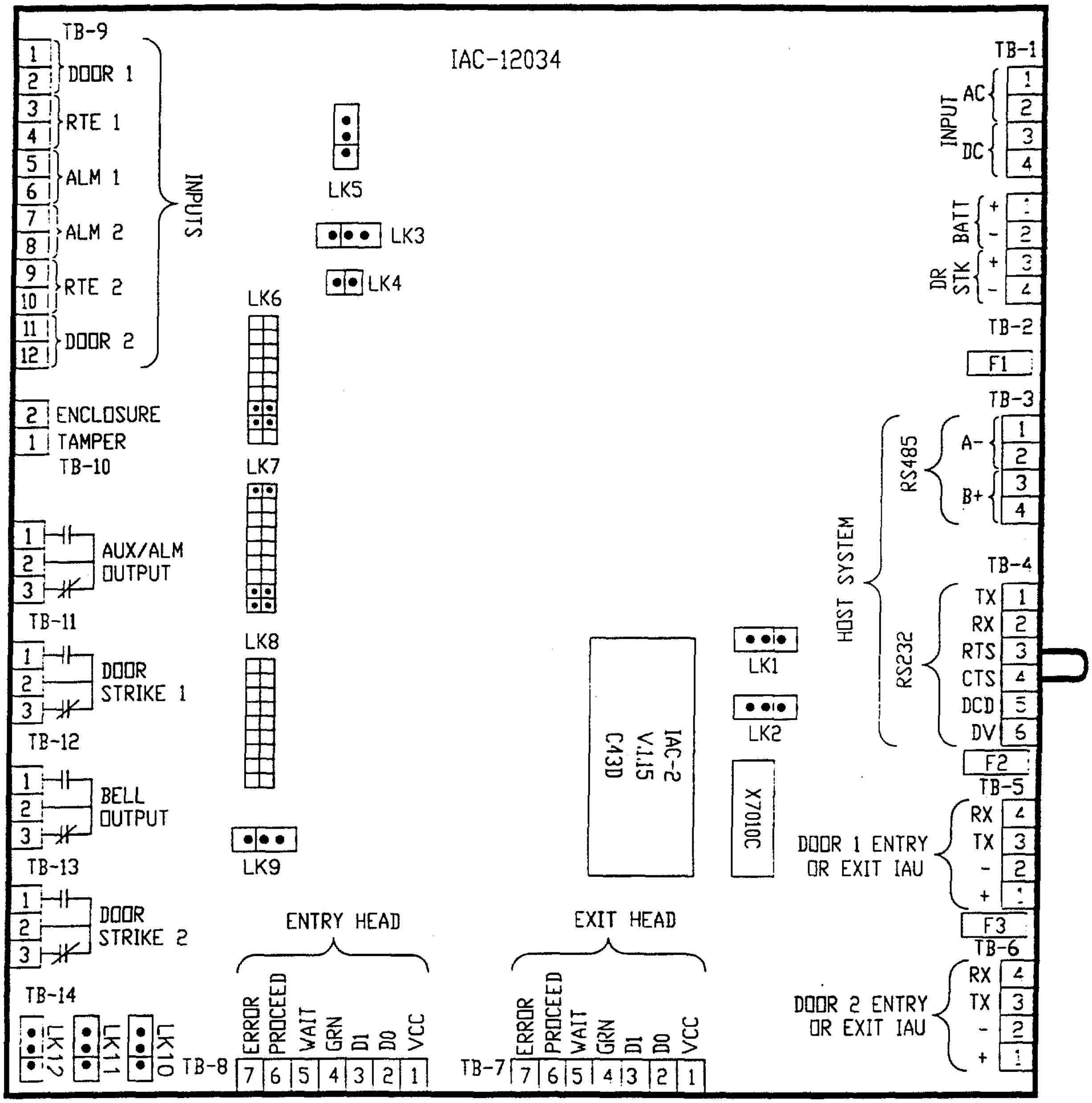
Dual Door Chart Binary Number	Door 1 Entry Configuration	Door 1 Exit Configuration	Door 2 Entry Configuration	Door 2 Exit Configuration
0	IAU (TB5)	HEAD (TB8)	IAU (TB6)	HEAD (TB7)
1	IAU (TB5)	HEAD (TB8)	HEAD (TB7)	IAU (TB6)
2	HEAD (TB8)	IAU (TB5)	HEAD (TB7)	IAU (TB6)
3	IAU (TB5)	IAU (TB6)	HEAD (TB8)	HEAD (TB7)

LK9 1-2	ON(1)	Magstripe Reader, Enable (ON), Disable (OFF)
LK9 2-3	OFF	Weigand Reader, Enable (ON), Disable (OFF)
LK10 1-2	OFF(1)	Door 2Strike Relay (RL5, TB14) Normally Energized
LK10 2-3	ON	Door 2Strike Relay (RL5, TB14) Normally De-Energized
LK11 1-2	OFF(1)	Door 1Strike (RL3, TB12) Normally Energized (Fail Safe Mode)
LK11 2-3	ON	Door 1Strike (RL3, TB12) Normally De-Energized (Fail Secure)
LK12 1-2	OFF(1)	Aux/Alarm Relay (RL2, TB11) Normally Energized
LK12 2-3	ON	Aux/Alarm Relay (RL2, TB11) Normally De-Energized

Notes: (1) Mutually Exclusive Option Settings

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



Intelligent Access Controller Diagram

IAU Intelligent Access Unit (Combination Keypad/Card Reader)

Board Type:	12086
Part Number:	4887-ACU
Secondary Board:	SHARP HCN-24V LM16X21A
Replaceable Read Head:	FNC-368//YECYE-34VN Matsushita (Inv. Data)
Field Replaceable Fuse:	250mA DAQ PN# 4923H (Metric Fuse)

Firmware Information:

Firmware Location:	U4
Firmware Classification:	"IAU (Revision #)"

Unpopulated Locations: U2, U13, PL3, PL5, PL6, V1, V2, V3, V4, Q1, Q2, Q4, Q5
R1, R4, R7, R8, R9, R10, R13, R14, R15

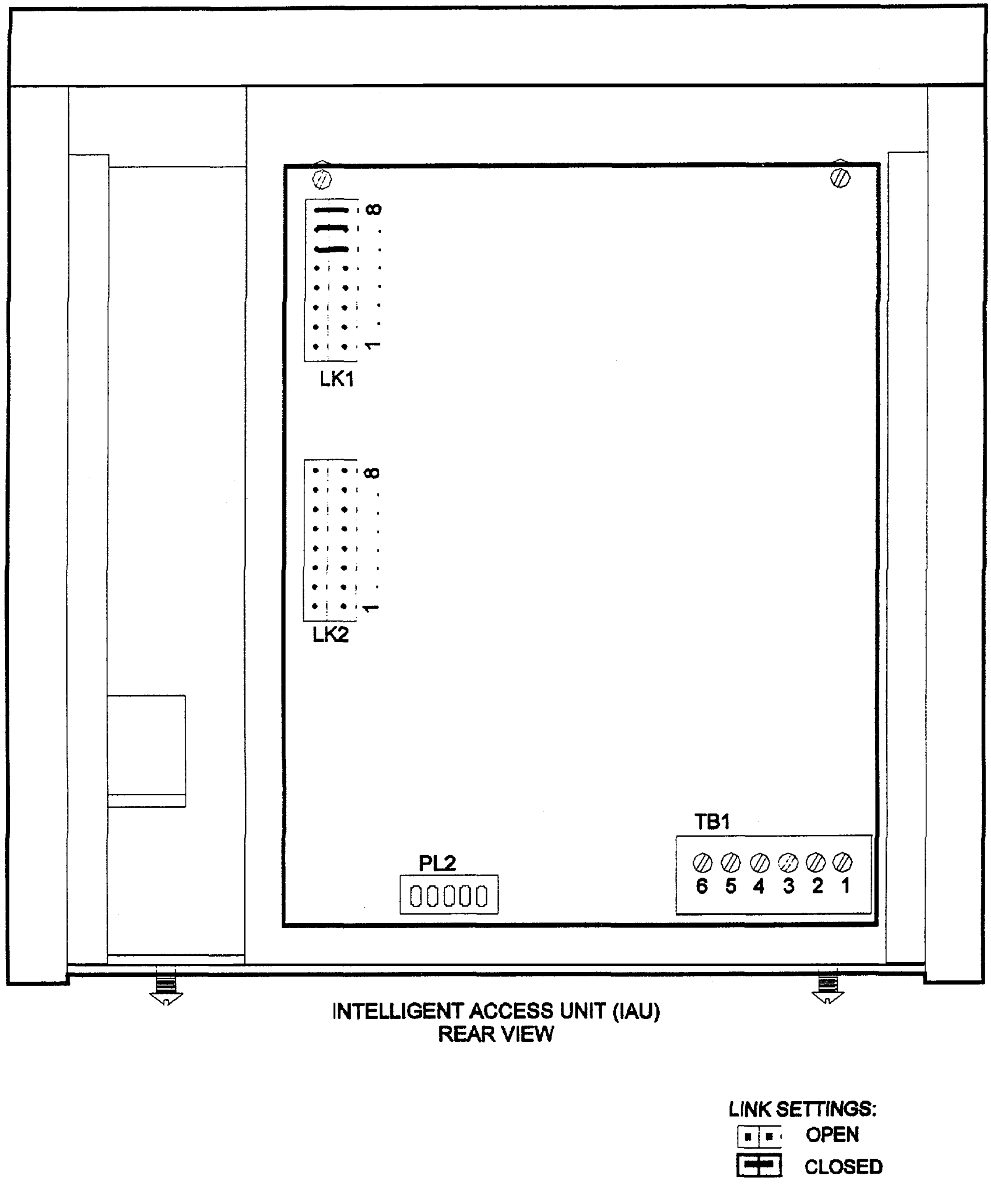
Configuration Settings:

Link Configurations:		Function	
LK1-1	OFF	Reader Head Code	(ICIDS Configuration Shown)
LK1-2	ON	Reader Head Code	(ICIDS Configuration Shown)
LK1-3	OFF	Reader Head Code	(ICIDS Configuration Shown)
LK1-4	OFF	No Function	
LK1-5	ON	4X4 Keypad Installed, Enable (ON), Disable (OFF)	
LK1-6	OFF	Cipher Operation Permitted, Enable (ON), Disable (OFF)	
LK1-7	ON	PIN Entry Required, Enable (ON), Disable (OFF)	
LK1-8	ON	LCD In Use, Enable (ON), Disable (OFF)	
LK2-1	ON	IAU Portal Number Bit 1	(IAU Portal Number Shown = 13)
LK2-2	OFF	IAU Portal Number Bit 2	
LK2-3	ON	IAU Portal Number Bit 4	
LK2-4	ON	IAU Portal Number Bit 8	
LK2-5	OFF	IAU Portal Number Bit 16	
LK2-6	OFF	IAU Portal Number Bit 32	
LK2-7	OFF	No Function	
LK2-8	OFF	No Function	

Application Note: Door 1 Portal Number MUST Match the IAC Address.

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



Intelligent Access Unit Diagram

Keypad (Starpin)

Board Type:	12086
Part Number:	4889-ACU
Secondary Board:	SHARP HCN-24V LM16X21A
Replaceable Read Head:	FNC-368//YECYE-34VN Matsushita (Inv. Data)
Field Replaceable Fuse:	250mA DAQ PN# 4923H
Unpopulated Locations:	PL2, PL5, PL6, V1, 2, 3, 4, Q1, Q2, Q4, Q5, C6, C9, 10, 11, 12 R1, R2, R4, R5, R7, R8, R9, R10, R13, R14, R15, U12

Firmware Information:

Firmware Location:	U4
Firmware Classification:	"SAP (Revision #)"

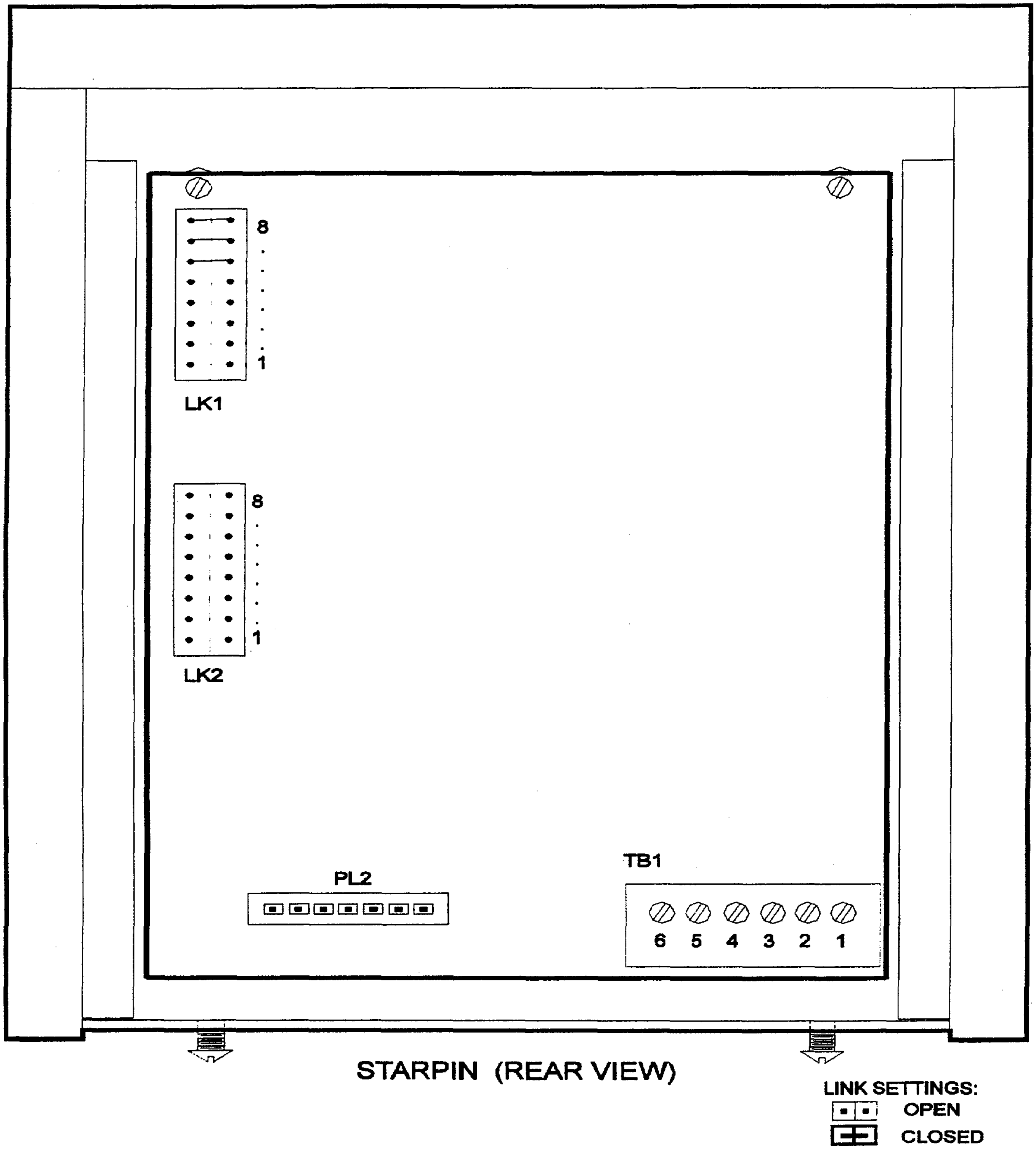
Configuration Settings:

Link Configurations:		Function	
LK1-1	OFF	Reader Head Code, Not Used On Starpin Board	
LK1-2	OFF	Reader Head Code, Not Used On Starpin Board	
LK1-3	OFF	Reader Head Code, Not Used On Starpin Board	
LK1-4	OFF	No Function	
LK1-5	OFF	4X4 Keypad Connector Reversal, Enable (ON), Disable (OFF)	
LK1-6	ON	Cipher Operation, Enable (ON), Disable (OFF), Not on Starpin	
LK1-7	ON	PIN Entry Required, Enable (ON), Disable (OFF)	
LK1-8	ON	LCD In Use, Enable (ON), Disable (OFF)	
LK2-1	OFF	Station Address Bit 1	(Station Address Shown = 26)
LK2-2	ON	Station Address Bit 2	
LK2-3	OFF	Station Address Bit 4	
LK2-4	ON	Station Address Bit 8	
LK2-5	ON	Station Address Bit 16	
LK2-6	OFF	Station Address Bit 32	
LK2-7	OFF	No Function	
LK2-8	OFF	No Function	

Note: Starpin Uses Same Printed Circuit Board as IAU Units.

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with test. Illustrations are representative ONLY



Starpin Diagram

Leda Flex Main Beard

Board Type:	12055
Issue:	A
Part Number:	5044-ACB-1

Firmware Information:

Firmware Location:	U4
Firmware Classification:	"LEDAFLEX (Revision #)"

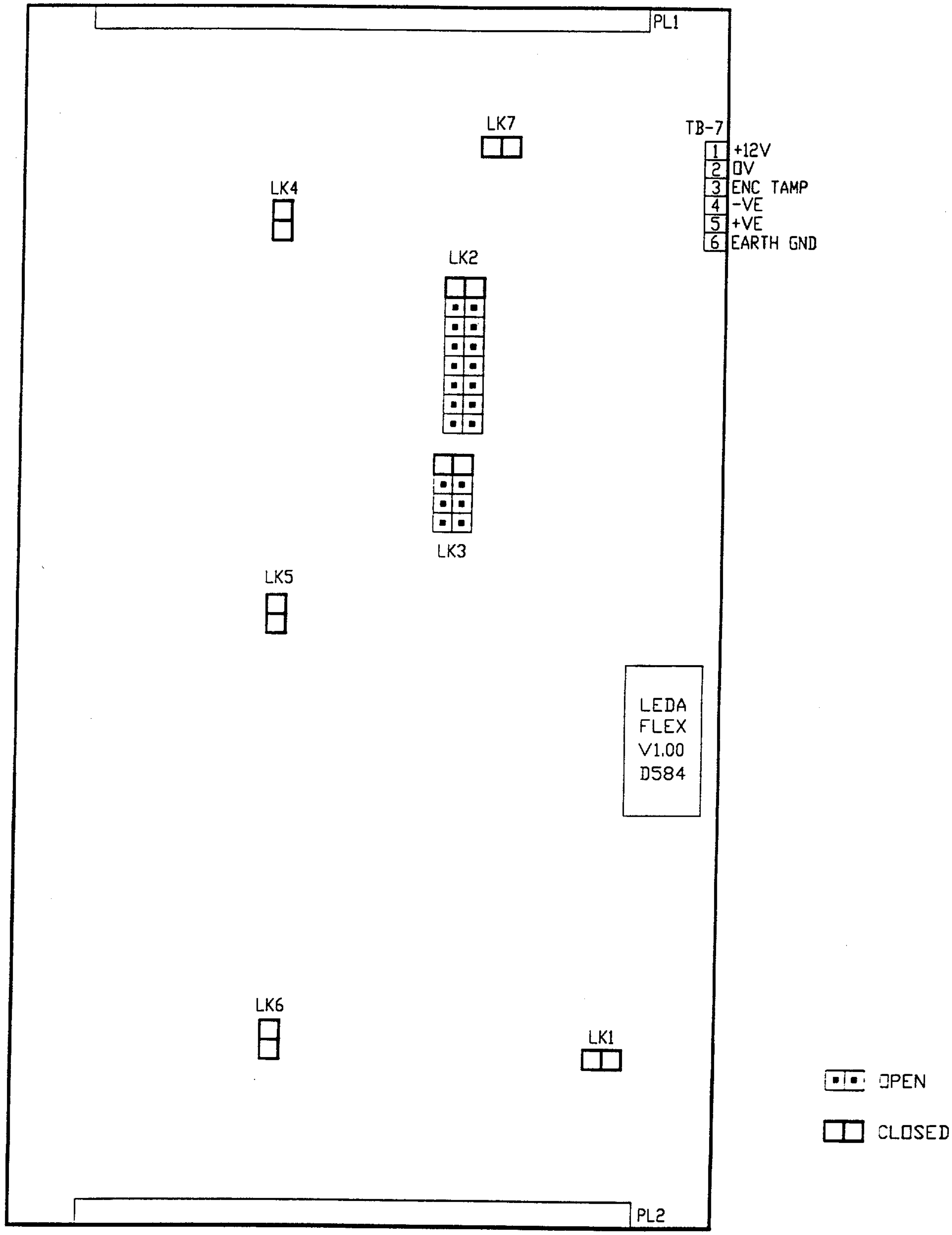
Unpopulated Locations:	P1, P2, P3, P4, P5, P6, TB1, TB2, TB3, TB4, TB5, TB6

Configuration Settings:

Link Configurations:		Function
LK1-1	ON	LED Display, Enable (ON), Disable (OFF)
LK2-1		Station Address Bit 1
LK2-2		Station Address Bit 2
LK2-3		Station Address Bit 4
LK2-4		Station Address Bit 8
LK2-5		Station Address Bit 16
LK2-6	OFF	Software Poller Group, Odd (ON), Even (OFF)
LK2-7	OFF	Normal Input Setting, 2KQ (ON), 1 K (OFF)
LK2-8	OFF	Spare
LK3-1	ON	RTS-CTS Delay
LK3-2	OFF	Spare
LK3-3	OFF	Spare
LK3-4	OFF	Spare
LK4	ON	LED for I/O Points 0-7, Enable (ON), Disable (OFF)
LK5	ON	LED for I/O Points 8-15, Enable (ON), Disable (OFF)
LK6	ON	LED for I/O Points 16-23, Enable (ON), Disable (OFF)
LK7	ON	Isolated RS485 Module, Enable (ON), Disable (OFF)

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



Leda Flex Main Board Diagram

Leda Flex Termination Board

Board Type:	12065
Part Number:	5024-ACB

Firmware Information:

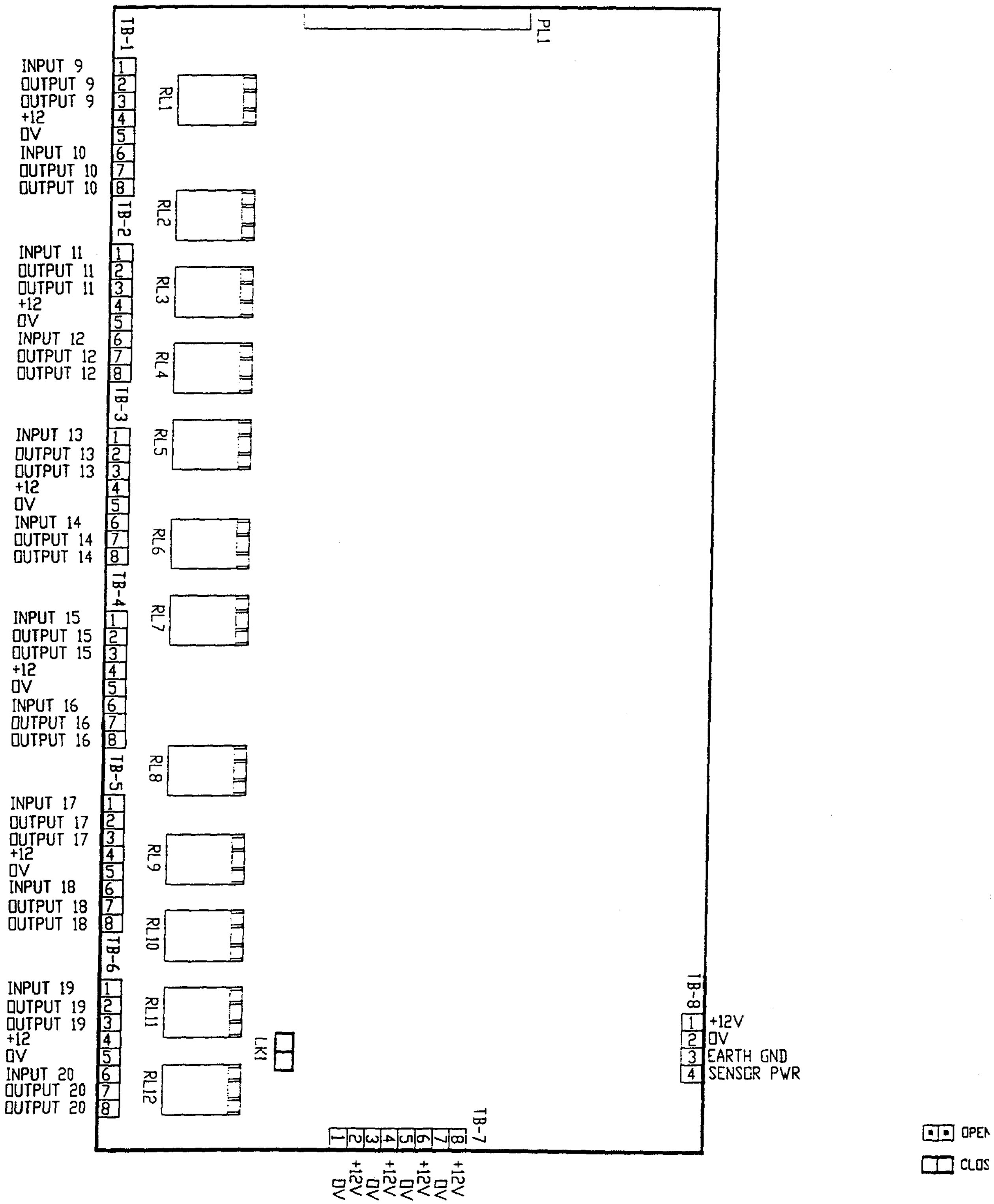
Firmware Classification:	NONE
Unpopulated Locations:	NONE

Configuration Settings:

Link Configurations:		Function
LK1	ON	Dual Color LEDs, Enable (ON), Disable (OFF)

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



Leda Flex Termination Board Diagram

Remote DES (BOTTOM)

Board Type: 12042
Part Number: 4647-ACB

Firmware Information:

Firmware Classification: NONE

Unpopulated Locations: U2

Configuration Settings:

Switch Settings:		Function	
LK1-1	OFF	Station Address Bit 1	(Station Address Shown = 20)
LK1-2	ON	Station Address Bit 2	
LK1-3	OFF	Station Address Bit 4	
LK1-4	ON	Station Address Bit 8	
LK1 -5	ON	Station Address Bit 16	
LK1-6	OFF	Station Address Bit 32	
LK1-7	OFF	Station Address Bit 64	
LK1-8	OFF	No Function	
LK2-1	OFF	Input Baud Rate	(See Table Below)
LK2-2	ON	Input Baud Rate	(Baud Rate Shown = 1200)
LK2-3	OFF	Input Baud Rate	
LK2-4	ON	Parity, Odd (ON), Even (OFF)	
LK2-5	OFF	Input RTS Delay	(See Table Below)
LK2-6	ON	Input RTS Delay	(RTS Delay Shown = 14 ms)
LK2-7	OFF	Input RTS Delay	
LK2-8	OFF	Input RTS Delay	

INPUT BAUD RATE	SW-1	SW-2	SW-3
300	OFF	OFF	OFF
600	ON	OFF	OFF
1200	**OFF**	**ON**	**OFF**
2400	ON	ON	OFF
4800	OFF	OFF	ON
9600	ON	OFF	ON
19200	OFF	ON	ON
38400	ON	ON	ON

Remote DES (BOTTOM)

INPUT RTS DELAY	SW-5	SW-6	SW-7	SW-8
2mS	OFF	OFF	OFF	OFF
8mS	ON	OFF	OFF	OFF
14mS	**OFF**	**ON**	**OFF**	**OFF**
20mS	ON	ON	OFF	OFF
26mS	OFF	OFF	ON	OFF
32mS	ON	OFF	ON	OFF
38mS	OFF	ON	ON	OFF
44mS	ON	ON	ON	OFF
50mS	OFF	OFF	OFF	ON
56mS	ON	OFF	OFF	ON
62mS	OFF	ON	OFF	ON
68mS	ON	ON	OFF	ON
74mS	OFF	OFF	ON	ON
80mS	ON	OFF	ON	ON
86mS	OFF	ON	ON	ON
92mS	ON	ON	ON	ON

Remote DES (TOP)

Board Type:	12040
Part Number:	4646-ACB

Firmware Information:

Firmware Location:	U1
Firmware Classification:	"RDES SP (Revision #)" for RTU/RADC applications "RSMA (Revision #)" for RSM applications
Firmware Location:	U13
Firmware Classification:	"4733-1 (Revision #)"

Unpopulated Locations: NONE

Configuration Settings:

Link Configurations:		Function
JP1	ON	Encryption Key Battery, Enable (ON), Disable (OFF)

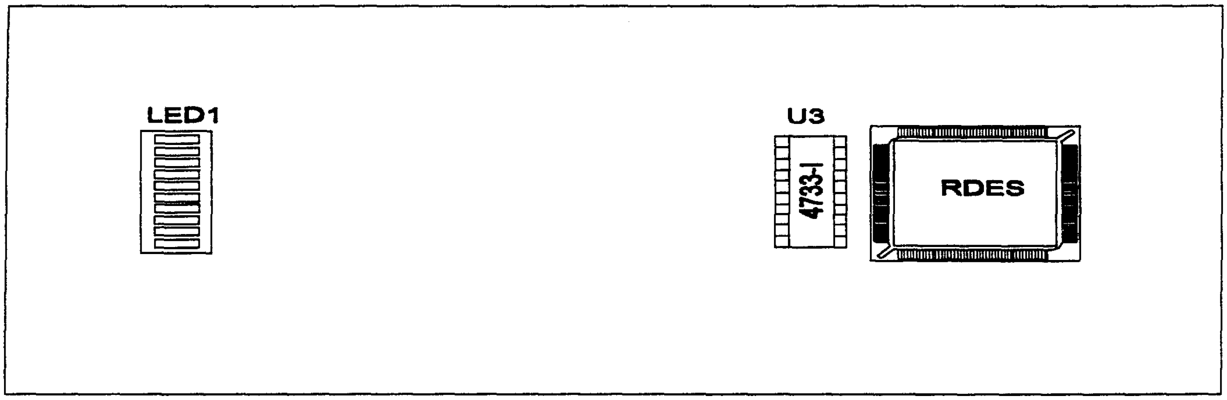
Application Note 1: The link must be pulled to activate the DES set.

Application Note 2: The firmware is not visible without disassembling the RDES top.

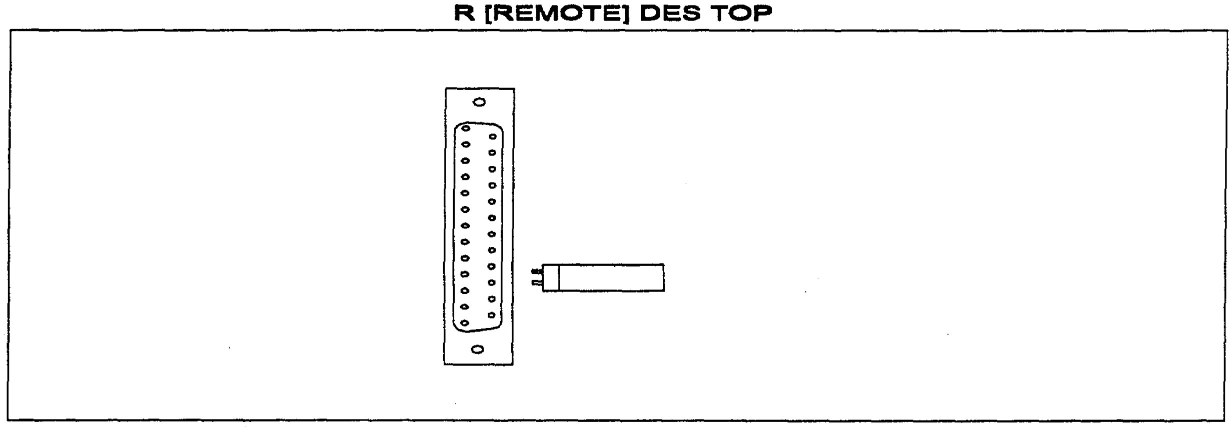
NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.

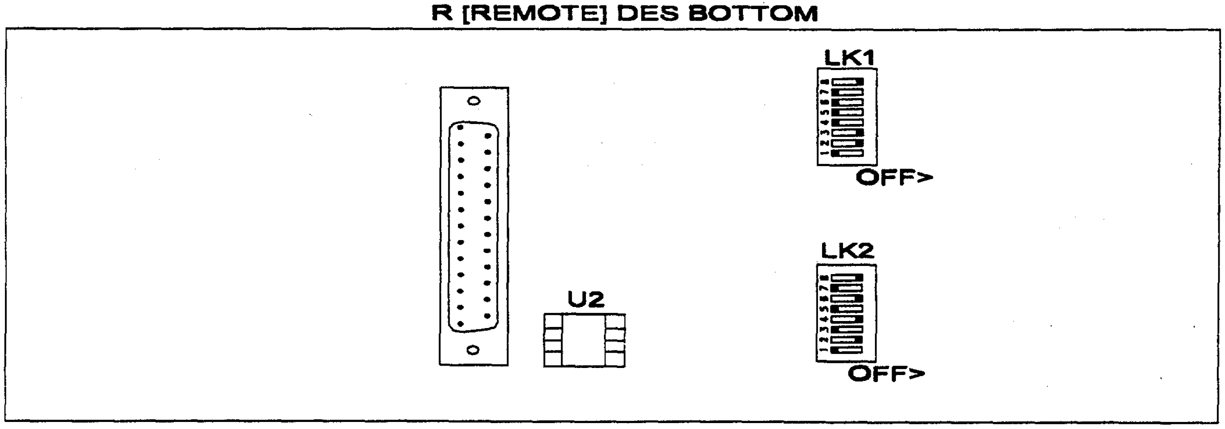
R [REMOTE] DES TOP (REVERSE VIEW)



R [REMOTE] DES TOP



R [REMOTE] DES BOTTOM



Remote DES Diagram

Mod II Modem

Board Type:	16085
Part Number:	3869-ACB

Firmware Information:

Firmware Classification: NONE

Unpopulated Locations: NONE

Configuration Settings:

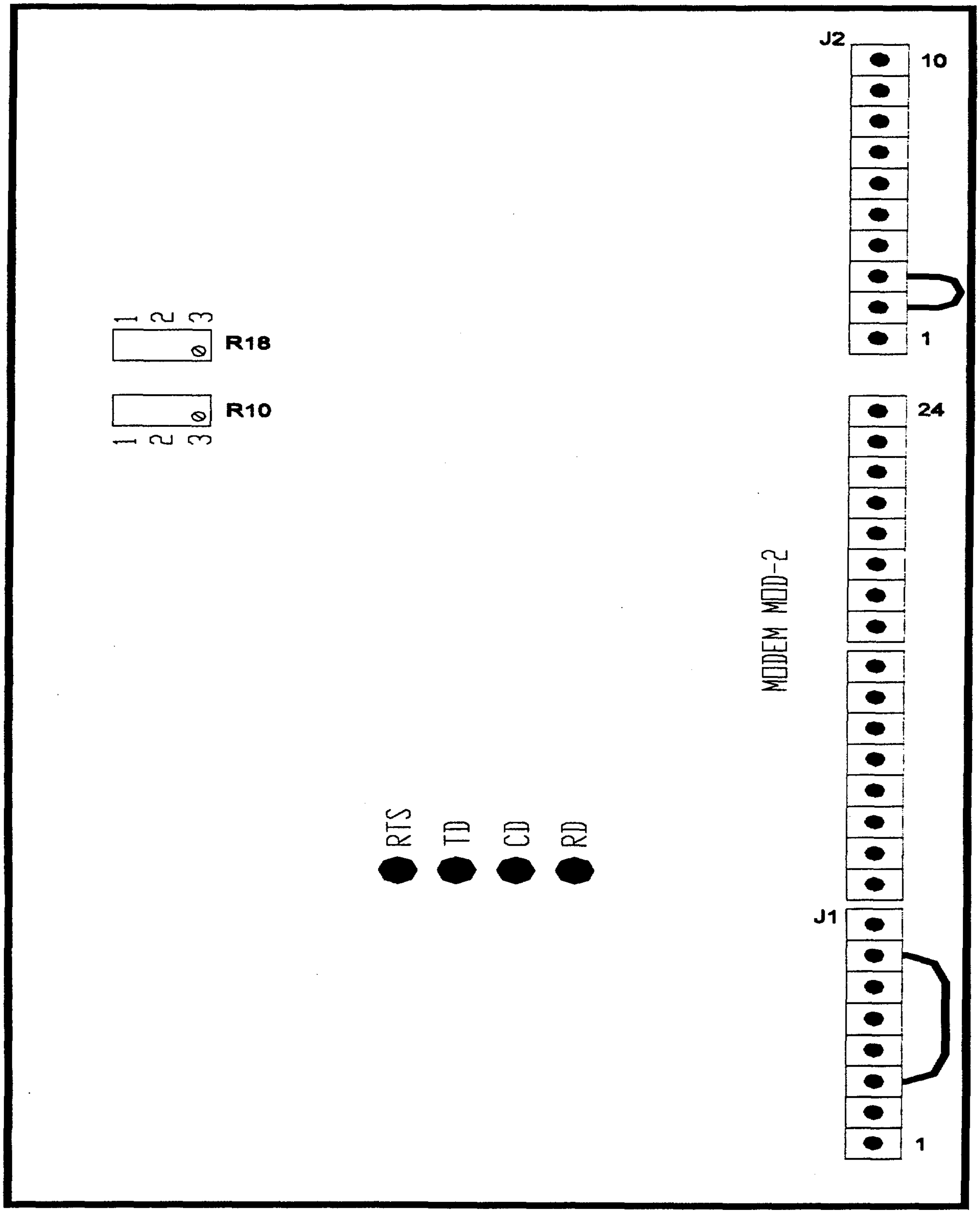
Jumpers:
J1-3 to J1-7 (Mode Control, Bell 202 1200 Baud, Half Duplex)
J1-7 to J1-8 (Phone Line Equalization as Required)
J2-2 to J2-3 (2 Wire Communications Points 6&7 = RX/TX No Polarity)
(J2-1 to J2-3 = 4 Wire Points 6&7 = TX pair, Points 9&10 RX pair)

NOTE: Level Adjustments are: R18 for TX, R10 for RX

The difference between the early and new art work on the Mod 2 Modem is on the early version J1 has 24 pins and J2 has 10 pins. On the new version the first 24 pins are broken into 3 blocks of 8; called:
J1 1-8
J2 1-8
J3 1-8
The last 10 pins are now called:
J4 1-10

NOTE

Switches settings, jumpers and links will vary from site to site and board placement in the PMC. Verify all settings with text. Illustrations are representative ONLY.



Mod II Modem Diagram

Event Printer Setup (Ref. SAIG)

When installing a new printer, or replacing a defective one, the internal printer configuration parameters must be properly set. (Refer to the SAIG printer manual in Appendix E) These internal parameters must match the [SYS]<CONVERSADAQ>PRINTERCONFIG. SYS file on the B39. A typical example of this file is shown below. If unsure of your site specific parameters contact the System Administrator for a print out of this data file. This file may only be viewed from the COMMAND LINE using the C C F (Create Configuration File) command for a S (Serial) device type.

[SYS]<CONVERSADAQ> PRINTERCONFIG.SYS (Typical)

[Data bits (5, 6, 7, or 8: default = 7)]	8
[Parity (none, even, odd, 0, or 1; default = 0)]	0
[Baud Rate (default = 9600)]	2400
[Stop bits (1 or 2; default = 1)]	1
[Transmit time out (number of seconds; default = wait forever)]	no time out
[New line mapping mode (binary, CR, or CR/LF; default = CR/LF)]	cr/lf
[Line control (none, XON/XOFF, CTS or both; default = XON/XOFF)]	Xon/Xoff
[Tab expansion (default = 8)]	8
[Number of characters per line (default = 132)]	132
[Translation file (default = none)]	
[End of transmission character (None, CR, CR/LF, or FF;Def = CR/LF)]	cr/lf

PRINTER SERIAL PARAMETERS (Typical)

Serial I F	Parity	None
Serial I F	Serial Data 7 8 Bits	8 Bits
Serial I F	Protocol	X-ON/X-OFF
Serial I F	Busy Line	DTR
Serial I F	Baud Rate	2400 BPS
Serial I F	DSR Signal	Invalid
Serial I F	DTR Signal	Ready on Power UP
Serial I F	Busy Time	200ms

Logging Printer Setup (Ref. SAIG)

When installing a new printer, or replacing a defective one, the internal printer configuration parameters must be properly set. (Refer to the SAIG printer manual in Appendix E) These internal parameters must match the [SYS]<CONVERSADAQ>SPOOLERCONFIG. SYS file on the B39. A typical example of this file is shown below. If unsure of your site specific parameters contact the System Administrator for a print out of this data file. This file may only be viewed from the COMMAND LINE using the C C F (Create Configuration File) command for a S (Serial) device type.

[SYS]<CONVERSADAQ>SPOOLERCONFIG.SYS (Typical)

[Data bits (5, 6, 7, or 8; default = 7)]	8
[Parity (none, even, odd, 0, or 1; default = 0)]	0
[Baud Rate (default = 9600)]	9600
[Stop bits (1 or 2; default = 1)]	1
[Transmit time out (number of seconds; default = wait forever)]	no time out
[New line mapping mode (binary, CR, or CR/LF; default = CR/LF)]	cr/lf
[Line control (none, XON/XOFF, CTS or both; default = XON/XOFF)]	Xon/Xoff
[Tab expansion (default = 8)]	8
[Number of characters per line (default = 132)]	132
[Translation file (default = none)]	
[End of transmission character (None, CR, CR/LF, or FF;Def = CR/LF)]	cr/lf

PRINTER SERIAL PARAMETERS (Typical)

Serial I/F	Parity	None
Serial I/F	Serial Data 7/8 Bits	8 Bits
Serial I/F	Protocol	X-ON/X-OFF
Serial I/F	Busy Line	DTR
Serial I/F	Baud Rate	9600 BPS
Serial I/F	DSR Signal	Invalid
Serial I/F	DTR Signal	Ready on Power UP
Serial I/F	Busy Time	200ms

9600 Baud Modem Setup (Ref. SAIG)

When installing/replacing a 9600 Baud Modem the following parameters must be set. Refer to the SAIG Appendix E for additional details.

MODEM SETTINGS

The following modem settings are based on using Motorola UDS V. 32E Modem. Supporting Document No. 6 209 5336 01 014, February 1993, -1993 UDS. There are two portions of the Modem set-up parameters. The first set of instructions are for the MODEM CONFIGURATION. The second set of instructions are for DTE CONFIGURATION.

MODEM CONFIGURATION

1. DCE = 9600 TRELLIS
2. PMC MODEM "FORCED ANSWER"
   RSM MODEM "NORMAL ORIGINATE"
3. FAST TRAIN "DISABLED"
4. AUTO RETRAIN "ENABLED"
5. INTERNAL CLOCK
6. LEASED LINE
7. 4 WIRE
8. TRANSMIT LEVEL = 0 dB
9. MANUAL DIAL BACKUP
10. LOOPBACK TIME = OFF
11. DIAL LINE JACK - RJ11
12. LINE CURRENT DIS = LONG
13. LONG SPACE DISC. = ENABLED
14. V.22 GUARD TONE = DISABLED

End of the Modem Configuration

DTE CONFIGURATION

1. ASYNC DATA
2. DTE RATE = 9600
3. 8 BIT CHARACTER SIZE
4. ODD PARITY
5. AT COMMAND SET = DISABLED
6. IGNORE DTR
7. DSR FORCED = HIGH
8. DCD FORCED = HIGH
9. CTS FORCED = HIGH
10. DTE FALLBACK = DISABLED
11. OPTIONS RETAINED AT DISC

End of DTE configuration

CCTV MATRIX SWITCH

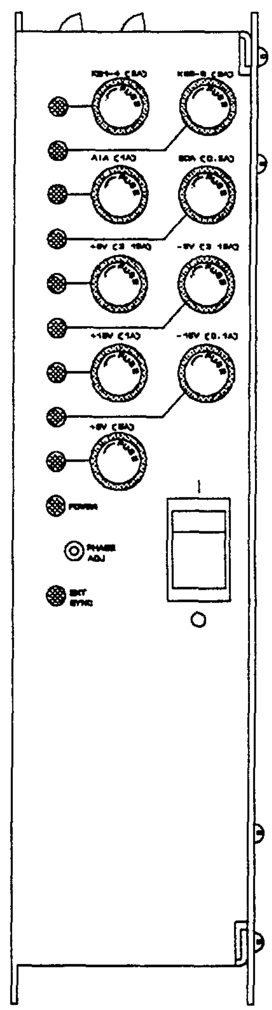
When servicing the CCTV Matrix Switch there are five (5) major components.

(1) The Matrix Switch Chassis
(2) The Power Supply
(3) The CPU Card
(4) The Video In Card
(5) The Video Out Card

There are adjustments, settings or repairs to be done on the Chassis or the Video Out Card.

CCTV Matrix Switch Power Supply

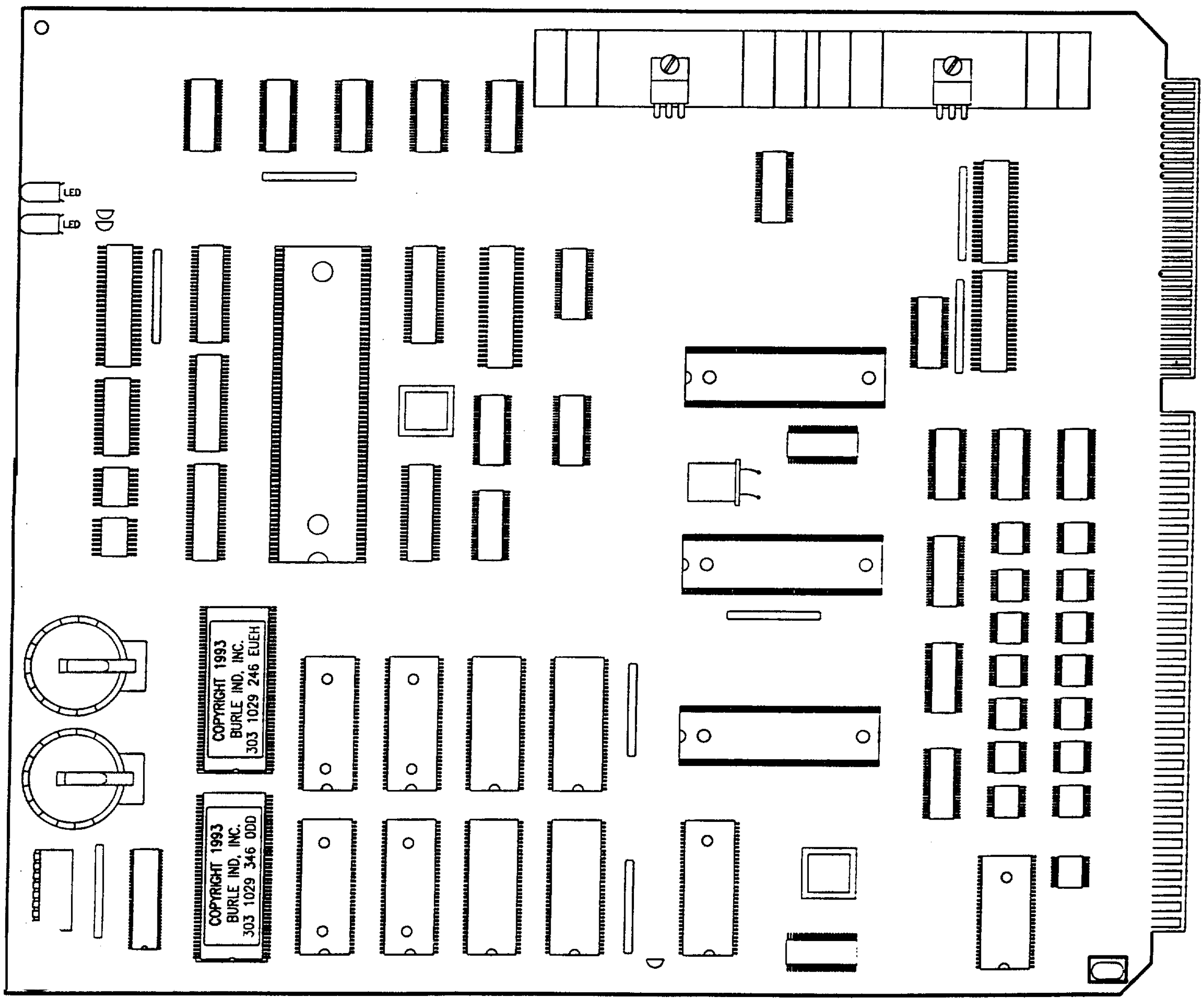
The Power Supply has only fuses that can be serviced. The integrity of these fuses can be visually verified by observing the LEDs located next to each fuse holder on the front of the Power Supply. If the LED associated with a fuse is not illuminated then the fuse needs replacing or the power supply is defective. If replacing the fuse does not correct the problem or the fuse continually blows then the power supply should be replaced. The Power Supply is of single piece construction and slides in to the Chassis (to the far right) like a circuit card, however it is secured from the back of the chassis by four (4) screws located around the AC Input receptacle.



CCTV Matrix Switch Power Supply

CCTV Matrix Switch CPU Card

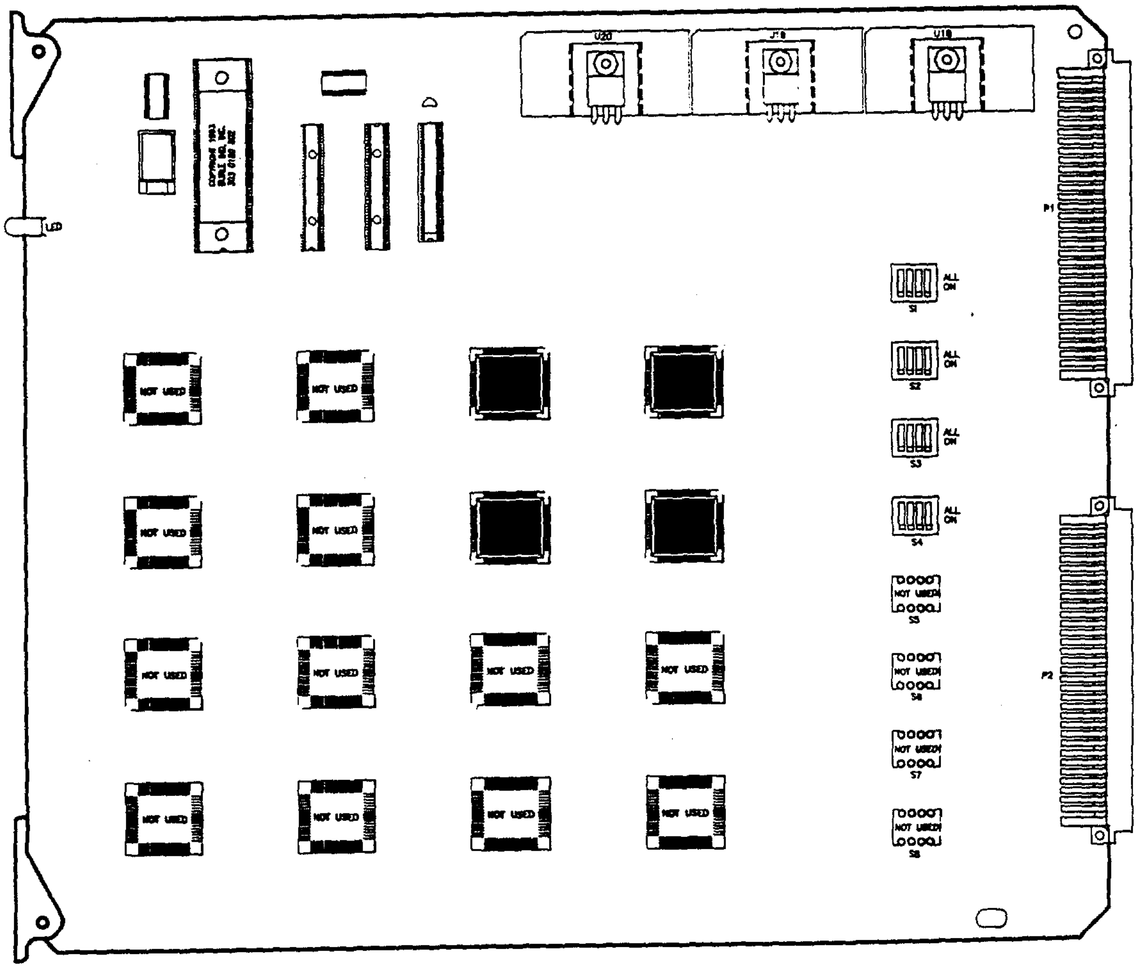
There is one (1) block of Dip Switches on this PWA. All switches should be OFF. The two (2) Lithium batteries on the PWA may be replaced as needed. (There is no specific life span for these batteries as it is dependent on quality of power supplied. As your ICIDS Security system is on a Uninterruptable Power Supply (UPS) these batteries should last for the life of the system.



CCTV Matrix Switch CPU Card

CCTV Matrix Switch Video In Card

There are four (4) blocks of Dip Switches on this PWA. All switches on all blocks should be ON. These switches are for the 75Q2 termination of the video signal.



CCTV Matrix Switch Video In Card

GLOSSARY	
TERM	**EXPLANATION**
Access	The method by which the reconfiguration program is entered, that is, by pressing function keys whose effects are displayed on a menu on your terminal screen.
Access Control	The subsystem which allows locations to be protected, by prohibiting all entry into them except by authorized personnel carrying access cards.
Access Inhibited .	A condition which can be applied to a security zone. While the condition applies, no access is permitted into the zone
Access Level	A record containing one or more zones into which access is permitted, with the times at which they may be entered. Access levels are then assigned to holder records, thus permitting different groups of personnel to be given access to different zones at different times
Accountability	The ability of the access control subsystem to keep track of access card holders as they enter and leave security zones. Three levels of accountability are available: full, which can track holders as they enter and leave zones, partial, which tracks holders only as they enter zones, and none, which does not track holders. Accountability can also be used to detect passback violations. The level of accountability is defined when the system is configured. Accountability is also known as "Tracking".
Alarm	A warning in the form of an audible tone and written phrase, appearing on an operator's screen. The phrase describes a system event which requires the operator's immediate attention.
Alarm Call-up Time	The length of time that a display from a CCTV camera is "locked" to appear on a monitor after it has been triggered by the generation of an alarm
Alarm Frame	The area on an operator's VDU in which up to four "top of queue" alarms can be displayed
Alarm Queue	An area within the system in which alarms are held in order of their priority and the time at which they were generated. Up to sixteen alarm queues can be maintained by the system
Alphanumeric Character	Any character that can be entered using the keyboard, that is, letters of the alphabet, numeric digits, and special symbols such as the hash (#).
Analog	Any measurable quantity.
Analog Point	A point which is used to hold a value which has been measured, rather than being set to one of two or four states. The analog point is generally used to monitor plant performance rather than in specific security applications; for example, where the rate at which water is flowing through a pipeline needs to be recorded. In such a case, a transducer can be used to measure the flow rate and convert it to an electrical current. The current is then recorded, as a number, by the remote station and sent to the master station. It is then converted into the required engineering value and stored in an analog point record.
Archive Rate	The rate at which timed archived data is transferred to disk.

GLOSSARY	
TERM	**EXPLANATION**
Archive Type	A value from an analog point which has been calculated and stored on disk. Up to three values can be taken from each point: minimum, maximum, and average.
Archived Data	Data which has been acquired from the remote station network and placed on disk. Two different kinds of archived data can be produced by the system: "Timed Archived Data" and "Event Archived Data".
Asynchronous Transmission	The transmission of data such that each character is preceded by a start signal and followed by a stop signal.
Attributes	Parameters associated with a station or point which indicate its operational condition (for example disabled, alarm inhibited, etc.) or the style in which text appears in displays, for example, bold, blinking, highlighted, etc.
Audible Alarm	The tone emitted by a workstation signaling the arrival of an alarm or indicating that the operator has entered an invalid command which the system is unable to act on.
Audible Alarm Mask	The configurable ability to prevent acknowledged alarms from generating an alarm tone when they reach the top of queue position.
Auto-Poll	A poller used in a multiple DAU configuration to enable a DAU program to recognize, whenever appropriate, that it is controlling data acquisition.
Automatic Preset	A scene which is displayed and/or recorded automatically when an alarm relating to the scene appears in the alarm frame.
Available Mimic	A mimic held at the cluster master which can be displayed by an operator at a workstation.
Baud	The rate of data transmission, defined as a number of signal elements per second.
Bearer	The medium used to transfer data between the master station and a remote station. For example, cables or telephone wire.
Binary Point	A status point which can return only two conditions, for example on/off (see also Ternary Point).
BNC Connector	A connector which allows coaxial cable to be attached for video presentation.
BTOS	The operating system supplied by Unisys.
Buffer	A part of the internal memory used as a temporary storage area.
Camera	In ICIDS, a camera attached to a CCTV subsystem.
Card	The plastic card is the most frequently used type of card in the access control subsystem.
Card Number	A unique number, up to 6 digits in length, given to a card when it is first manufactured. When each holder record is created, the card issued to that holder is swiped through the card reader, which reads its number and assigns it to the holder record.

GLOSSARY	
TERM	**EXPLANATION**
CCTV	Closed-circuit television. A system of cameras which relay views to a control center.
Channel	A communications path through which a workstation can transmit and/or receive data.
Class	The term used to define a point by how its condition is measured. The system supports three classes of point: status, analog, and pulse accumulation.
Cluster	A local resource sharing network consisting of a master workstation and up to 22 cluster members which are interconnected by high speed data link.
Cluster Master	The central control computer within a master station which maintains the entire range of ConversaDAQ III software together with various application programs (such as spreadsheets, word processing, etc.) most of which are made available to other workstations on the cluster. The cluster master is also used to run the DAU software, which controls the acquisition of data from remote stations. The acquired data is placed in RAM based engineering tables where it can be viewed by any operator who is logged into the system. Because the cluster master is the only device at the master station that communicates directly with the remote stations, it is sometimes referred to as the Front End Processor or FEP.
Cluster Member	A workstation on a cluster which is connected to the cluster master and, therefore, has access to certain system services, including the operator utilities, reconfiguration programs, and other application programs.
Command	An instruction to the system entered by a workstation keyboard.
Command Input Frame	The bottom two lines of the display in operator mode. The first line is used to prompt for operator input and display each character typed, while the second line displays available soft-key options.
Communication Alarms	Alarms which relate to the condition of a remote station or its bearers, rather than to points.
Control Point	An element of remote station hardware connected to an item of equipment that can be operated. There are various means of controlling points: these include set point and jogging (or "inching") and controls sent directly to the point.
ConversaDAQ III	A suite of software held at the cluster master which provides the entire range of SCADA facilities.
Clear to Send	Clear to send is the signal sent by a modem to a (CTS) processor, indicating that the communications path has been prepared and that data can be transmitted.
Data Category	A means of defining a point by the type of data with which it deals. A record representing a data category is created and then assigned to a point record using reconfiguration. A maximum of 16 data category records may be held on the system, of which data category 16 is preset to indicate a connection with the security system.

GLOSSARY	
TERM	**EXPLANATION**
Data Poll	A request from a master station to a remote station, to return the values/states of all monitored points.
Data Acquisition Unit	The program within the (DAU) cluster master which is responsible for acquiring data from remote stations.
Data Carrier Detect	The signal which is returned (DCD) by a receiving modem to inform the transmitting modem that the carrier has been raised.
Device Data	Additional information relating to an item of hardware which may be recorded against a point which has a device type assigned to it.
Device Type	A means of defining a point by the type of hardware it represents. A record representing a device type is created and then assigned to a point record using reconfiguration. Device type 252 is preset to indicate monitors, 253 to indicate zone alarm points, and 254 to indicate portals.
Direct Printing	The process of transferring a file directly from a workstation to the nominated printer rather than having the file placed in a queue. The printer can be connected to either the workstation at which the request was made or the cluster master.
Directory	A collection of related files on a disk.
Disk Drive	A hardware device used to record and retrieve data using hard or floppy disks. The unit is equipped with read/write heads and rotates the disks at high speed.
Display	An arrangement of data, shown on a VDU.
Duplex	A method of transmitting data within the system.
Duress	An attempt to violate the security system by forcing an authorized holder to enter a zone against his or her will. The holder can secretly alert the system that a duress violation is occurring by entering a special duress code instead of the usual PIN.
Engineering Table Records	System records that define the operational parameters of each station and point on the system. Engineering table records consist of group, station, and point records, timed archive records, and pseudo point processing records.
Engineering Tables	A collection of data, held as a table, giving operational information about each station and point on the system. The engineering tables are maintained in RAM at the cluster master and are updated by the DAU software.
Event	A significant change, usually relating to an item of equipment, which needs to be recorded and processed.
Event Archived Data	Data which has been transferred onto disk in order to provide a record of system events.
FEP Front End Processor	(See Cluster Master)
Fixed Position Camera	A CCTV camera which cannot be controlled by the operator and therefore displays only one fixed view.

GLOSSARY	
TERM	**EXPLANATION**
Floppy Disk	A storage medium for programs and records, so called because it is constructed of flexible plastic.
Field	An area on a form, used to enter a data element which defines a system parameter.
File	A set of related records held on disk and treated as a unit.
File Name	The name given to a file so that it can be uniquely identified.
Form	A display containing a number of pre-defined fields into which data entries are made.
Frame	A rectangular area within a display, in which system data is shown.
Group	A collection of up to 64 remote stations which are logically or geographically related.
Hard Disk	A storage medium for programs and records, so called because it is metal coated and rigid.
Hardware	Any item of physical computer equipment.
Holder Record	A record held for every person permitted to enter security zones. The holder record gives details of (at least) the holder's name, card number, PIN (if any), and the access levels assigned to him or her. It may hold other details as required.
Hydra Asynchronous	A protocol used between a master station and a Telemetry Communications remote station to transmit data asynchronously.
Hydra Synchronous	A protocol used between a master station and a Telemetry Communications remote station to transmit data synchronously.
Infrared Reader	A reader type used with certain access cards.
Intelligent Access Unit	A device located adjacent to a portal, controlling entry or exit for that portal.
Initialize	The automatic setting of indicators and processes before a program is run. The term is also used to describe the operation performed on hard or floppy disks before they are used for storing data.
Jogging Control Point	A control point used to operate an item of plant by a pre-defined amount.
Land Line	The general term used to describe a dedicated communications bearer, such as a private wire or optical fiber.
Limit Band	A range of values used to define scales for analog points. Up to five limit bands can be applied to a point: HiHi, Hi, Mid, Lo. and LoLo.
Line	A term used to reference the board within the remote station which supports a number of points. Also used as an alternative term for "Channel".
Link	A single display within a chain.
Load	The process of transferring disk-held data to local memory (RAM).

GLOSSARY	
TERM	**EXPLANATION**
Lock	To tie the pictures received from a camera so that they are displayed on one monitor only. Cameras may be locked by any logged-in operator.
Logging Off	The concluding procedure undertaken at a workstation to return to the BTOS SignOn form.
Logging On	Completing the BTOS SignOn form to gain entry to the operator or reconfiguration environment.
Magnetic Stripe	An access card type, holding a 6 digit code, which is assigned by the system, and a card number of up to 6 digits.
Marginal	The condition where a remote station has been polled (see Polling) a number of times, but has not always responded. The marginal condition is considered to exist when the ratio of unsuccessful to successful attempts by the master station to acquire a remote station's data exceeds a designated limit.
Master Copy	The copy of the engineering table records which maintains the "last saved" version of the working copy.
Master Station	A combination of hardware and software installed within a control center to provide the necessary SCADA facilities.
Menu	A list of command options from which a selection can be made.
Mimic	A display containing a mixture of graphics and text showing items of plant in diagrammatic form and/or timed archived data on a line graph or bar chart.
Mnemonic	A brief "memory jogging" description of a point, consisting of up to three parts: a prefix, numeric, and suffix.
Monitor	In the CCTV subsystem, indicates a screen on which views from cameras are shown to operators.
Monitor Sequence	A succession of views from a camera, each held for a specified period, displayed on a specified monitor. The sequence can be run as a continuous cycle, halted at the operator's command.
Mount	The operation of inserting a floppy disk into a disk drive.
Multi-line Poller	Describes the configuration where a poller communicates with stations by up to ten channels. The channels are divided into pairs, one of which is connected to the primary bearer, the other to the secondary bearer.
Network	The interconnection of a number of computers or computer terminals.
Non-Acquired Data	Data archived by a remote station and returned to the master station independently of current data states and/or values.
NRZI Encoding	Non-Return to Zero Inverted. Indicates a type of data encoding which can be used where synchronous transmission of data is employed.
Numeric	The second part of a point mnemonic which identifies a point by a number in the range 1-9999.

GLOSSARY	
TERM	**EXPLANATION**
Object	A complete or partial drawing, consisting of one or more elements, such as text, lines, rectangles, circles. or triangles, which can be configured to move or change color to indicate the value and/or state of an item of monitored equipment. Once created, an object can be copied as often as required into any number of system mimics. It can, therefore, represent different points in the same mimic, or different points in different mimics.
Off Normal	The condition where a point is not considered to be in its normal state.
Old Version Record	The master copy of the engineering table records which maintains the "last saved" version of the working copy and can be reloaded to restore the database to its original state, if changes have been introduced which produced unforeseen effects.
Operating Aperture	The time that elapses between the system issuing a control to an item of equipment and the expected status change being detected. If the specified time elapses, the item of equipment is considered to have failed.
Operator Mode	The mode of operation a workstation is said to be in when an operator has logged in.
Operator Profile Record	A record within the reconfiguration program used to tailor the system to suit the needs of an individual operator.
Operator Utilities	The program downloaded to the workstation when an operator logs in,
Program	providing facilities for the monitoring and control of remote equipment.
Operator Environment	The mode of operation in which a workstation is said to be when an operator has logged in to the ICIDS system.
Operator Workstation	A workstation which is being used to run the operator utilities program.
Optical Fiber	A medium for the transmission of data using light signals.
Overband	The condition where the value of an analog point exceeds its normal maximum value, indicating that a fault has occurred in the telemetry system. The fault is usually connected with a transducer.
Overflow	An alternative term for "Overband".
Parity Check	The technique where the number of set (that is, "1 ") bits in a character code is used to determine the validity of data. There are two parity check methods: odd parity and even parity. In odd parity each character code is represented by an odd number of "1" bits and any code found to contain an even number is considered invalid. In even parity the number of "1" bits must be even and codes containing an odd number are rejected. Whenever it is necessary, it is possible for additional bits to be added to the code by the transmitting device to ensure the number of "1" bits conforms to the type of parity check chosen.

GLOSSARY	
TERM	**EXPLANATION**
Passback Violation	The attempted misuse of the access control subsystem by "passing back" a card from an authorized holder, so that it can be used to gain access by an unauthorized person. The system maintains a check against passback violation by ensuring that cards are not presented at the same reader within a very short time and/or that the record of zones entered by holders does not contain inconsistencies.
Password	A word or sequence of characters entered into the Password field of the SignOn form which is not displayed for security reasons. The password ensures that only authorized personnel are able to access a particular program.
PIN	Personal Identification Number. If a PIN is included on the holder record, it must be keyed in whenever the holder presents an access card to a reader unit, thus providing additional protection against system violation.
Plant	An item of equipment being controlled and/or monitored by a remote station.
Point	A general term describing an element in the system for which a value or state is to be calculated or acquired. There are two point types (pseudo and real) which can be used to store one of three data classes: status, analog, or pulse accumulation.
Point Failure	The condition where a remote station has failed (or is unable) to return readings from one or more points in response to a poll. A point failure usually implies that a board in the remote station, used to interface the equipment being monitored and/or controlled, has failed.
Point Summary	A display containing a list of points and their current value and/or status.
Poke	The operation of moving the cursor into the display frame in order to select or identify information from a current display.
Pokeable Display	A primary display into which the cursor can be placed in order to identify a station or point, or simply create a further (related) display.
Poll	A request by a master station for a remote station to return data relating to the equipment being monitored. There are two poll types: upset poll and data poll.
Poll for Data	A request by a poller asking a remote station to return data relating to all of its associated points. When the data is received, it is put in the system database. The poll is designed to ensure that the database always gives a true reflection of the equipment being monitored. It is of particular importance when a remote station has been powered down for maintenance purposes. It also serves to test the communications bearer(s), since the remote station concerned is expected to reply. Due to the amount of data that can be returned by a remote station, this poll takes longer to complete than a poll for upsets.

GLOSSARY	
TERM	**EXPLANATION**
Poll for Upsets	A request by a poller asking a remote station to return details of those points whose values and/or states have changed since it was last polled. Details which are returned by the remote station include the current values and/or states of points concerned, and are entered into the system database. The poll usually occurs more frequently than a data poll and takes less time to complete. It is designed to enable changes in plant status to be reported quickly to the master station, and serves as a test of the remote station's bearer(s). The remote station is expected to reply to the poll.
Poller	An item of software in the cluster master responsible for polling a designated range of remote stations. Up to ten can be employed at each master station.
Portal	Any kind of entry (for example, door, turnstile, etc.) into a security zone. Portals are the only usual means of access into security zones and can be used only by authorized card holders.
Prefix	The first part of a point mnemonic, consisting of up to four alphanumeric characters.
Preset	A pre-defined scene which can be selected for display on a monitor using the CCTV command.
Primary Access Level	The default access level used when secondary and temporary access levels are not in force.
Primary Bearer	The bearer which is normally used by a master station to receive data from a remote station.
Primary Display	A display which when created becomes a link in a chain. Primary displays include: off-normal, alarm queue summary, and picture displays, reports, procedures, and records.
Private Wire	A circuit used for data transmission, hired by subscribers for their exclusive and permanent use.
Protocol	A set of conventions to ensure the compatibility of data exchange between two computers.
Pseudo Control	A field on the status point record indicating that the point is a pseudo-point used exclusively for control purposes.
Pseudo Data	A field on a point record indicating that the point is a pseudo-point.
Pseudo Point	A point whose state and/or value is evaluated by computing the values and/or states of other points (either other pseudo points or real points), rather than being acquired.
Pseudo Point Process	The process used to evaluate a pseudo point's state and/or value.
Pseudo Station	A station used for "Housekeeping Purposes"; its point states and/or values are derived from pseudo processes, rather than being acquired from the remote station network.

GLOSSARY	
TERM	**EXPLANATION**
Pulse Accumulation Point	A point used to maintain a count of events relating to an item of monitored equipment. One example of a simple application for this point type is to register the number of people entering a premises through a turnstile; each time the stile turns, the count is increased by one. If a pseudo process is applied to the point to reset the accumulator (for example daily), the average number of personnel entering through the turnstile each day can be calculated. Other measurements that can be calculated using pulse accumulation points include revolutions per minute (RPM) and cycles per second (CPS).
Queue	A place in the system's memory in which alarms are maintained.
QWERTY Keyboard	A typewriter term used to reference a keyboard that has the standard English language layout, where the top row of alphabetic keys starts with the letters QWERTY.
Radio	A medium for the transmission of data using radio signals.
RAM	Random Access Memory. Memory which can be read and written to at high speed, but retains no data when the power supply is switched off.
Real Point	A point which physically exists and whose value is therefore acquired, rather than calculated.
Real Station	A remote station that physically exists.
Reconfiguration	The process of creating and subsequently updating the ICIDS database or the mode of operation that facilitates this process.
Remote Station or Remote Area Data Collector	A remote intelligent computer which can control and monitor connected equipment. Also known as a remote terminal unit (RTU) or a Remote Area Data Collector (RADC).
Resident Mimic	A mimic held locally, at an operator's workstation, rather than at the cluster master.
Restore	The process of transferring data from one disk to another, overwriting any existing data.
RTS	Ready To Send. The signal sent by a processor to a modem requesting it to prepare the communications path for a data transmission.
RTU	Remote Terminal Unit. An alternative term for remote station.
Sample Rate	Indicates the frequency at which the system reads the acquired value for an analog point and records it in RAM so that minimum, average, and/or maximum values can be calculated and archived.
SCADA	Security (or Supervisory) Control and Data Acquisition. A term used to describe a system which provides for the monitoring and control of remote equipment by one or more control centers, principally for security purposes.
Secondary Access Level	An access level which comes into force on certain user defined days (for example public holidays) when a different pattern of access is required.

GLOSSARY	
TERM	**EXPLANATION**
Secondary Bearer	An alternative communications path to a remote station, used by the master station when unable to acquire data by the remote station's primary bearer.
Security Zone	A zone with points set to data category 16, indicating a security connection. Security zones are a required feature of the access control subsystem, and indicate a protected area with restricted access.
Segmented Data	Point data archived by a remote station, rather than the master station.
Sensors	Devices used to detect unauthorized access into a secure area or zone.
Sequence	A series of pictures from one or more cameras which each appear on a monitor for a predetermined time period and are displayed repeatedly in a predetermined order.
Set Point Control	Describes the operation of an item of equipment by an amount entered by the operator.
Simple Mimic	A display showing current data using objects that change shape or color to reflect changes occurring at the plant. Simple mimics can also include timed archived data for predetermined points on a line graph or bar chart.
Single-line Poller	Describes a configuration in which a poller communicates with a selected range of remote stations by a single bearer.
Soft-Keys	Keys whose functions vary according to the software presently being run at the terminal.
Spooled Printing	This term describes the printing of data using a spooler, rather than having the output sent directly to a printer.
Spooler	An item of software at the master station which controls and manages the data that is output to a peripheral device, such as a printer.
Standalone Unit	A card reader unit which is not connected to the master station/remote station network.
Station	An alternative term for Remote Area Data Collector.
Station Failure	The condition in which the master station is unable to communicate successfully with a remote station over the available bearer(s), after a predetermined number of attempts.
Station Summary	A display containing a list of stations and details of their operational condition.
Status Frame	The top line of the display in the operator environment, which contains the operator's identity, the workstation's operating mode, and the time and date.
Status Phrase	A short phrase describing one of a point's valid states.
Status Point	A point whose condition is represented as a state (for example, on/off, open/closed, etc.) rather than as a quantity. There are two types of status point: binary and ternary

GLOSSARY	
TERM	**EXPLANATION**
Step	A view from a specified camera, held for a specified period, forming one stage of a monitor Sequence. Sequences may consist of up to 64 steps. An "auto-hold" step is one held by the system until an operator indicates that the sequence is to proceed.
Suffix	The third part of a point mnemonic, consisting of up to four alphanumeric characters.
Swipe	To insert an access card into a reader unit, passing it against the reader head, so that it may be scanned by the card reader.
Switched-line Poller	Describes a configuration in which a poller is connected to a group of remote stations by a switching unit, and uses one channel to operate the unit and another to communicate with the connected remote station.
Synchronous Transmission	A method of data transmission in which each data element is transmitted according to a given time sequence.
System Administrator	A person responsible for the administration of the entire system.
System Code	A 6 digit number assigned to some access card types when they are manufactured. It ensures that only cards which have been made for your system are acceptable to it.
System Database	The structured grouping of data which holds details of groups, stations, points, and other significant system records.
Telemetry	The recording of readings from instruments, undertaken from a distance.
Temporary Access Level	An access level used to make temporary amendments to the access rights of a card holder.
Ternary Point	A class of status point which can have three valid states (for example open/moving/closed). Ternary points consist of a pair of status points whose states are combined. The four possible combined states of these points are: (1) Off; Off indicating that the ternary point is Off; (2) On, Off indicating that the ternary point is On, (3) Off, On indicating that the point is in its third state (for example moving) and (4) On, On which is an invalid state and indicates the presence of a fault.
Timed Archived Data	Point data transferred to disk at predetermined time intervals. In the case of an analog point, the data will be in the form of minimum, average and/or maximum values which are calculated from a list of sample readings (see Sample Rate) recorded since the point was last timed archived. In the case of a status or pulse accumulation point, the current state and/or value of the point is recorded on disk.
Top of Queue	The oldest, highest priority alarm in an alarm queue is said to occupy the top of queue position.
Transmission Mode	Indicates the means by which data is transmitted within the system.
Underband	The condition where the value of an analog point has fallen below the minimum allowed value; therefore a fault has occurred within the telemetry system. The fault is usually connected with a transducer.

GLOSSARY	
TERM	**EXPLANATION**
Underflow	An alternative term for "Underband".
Video Display Template	A record defining how summary and alarm queue data Record is to be displayed on the operator's screen.
Video Input	In the CCTV subsystem, any device which sends a video display to the system (for example, a camera).
Video Output	In the CCTV subsystem, any device to receive a video display from the system (for example, a monitor or VTR).
Video Switching Control	An item of hardware attached to the CCTV Unit subsystem. It receives video displays from cameras and determines the output (monitor displays, tapes, etc.) to which each should be routed. It is connected to the master station, through which it receives operator instructions.
Volume	The BTOS term applied to a hard or floppy disk.
VTR	Video Tape Recorder. May be connected to the CCTV subsystem, to record views from specified cameras at the operator's command or whenever a specified alarm arises.
Watermarked Magnetic	A type of card used by the access control subsystem. It is similar to the
Unit	magnetic stripe card, but contains also a 12 digit fixed "Watermark" which is checked whenever the card is read.
Wiegand	A type of card used by the access control subsystem which is given preset block and card numbers. The term also refers to a reader head used to read Wiegand cards.
Zone	A means of classifying points by location.
Zone Alarm Inhibit	A pseudo process used to disable a zone's alarms when the state of a given point changes. Usually, this process is used to suppress the generation of certain automatic alarms when an authorized person enters the zone legally.
Zone Alarm Point	A pseudo point associated with a zone, used to display the zone's current condition.

INDEX

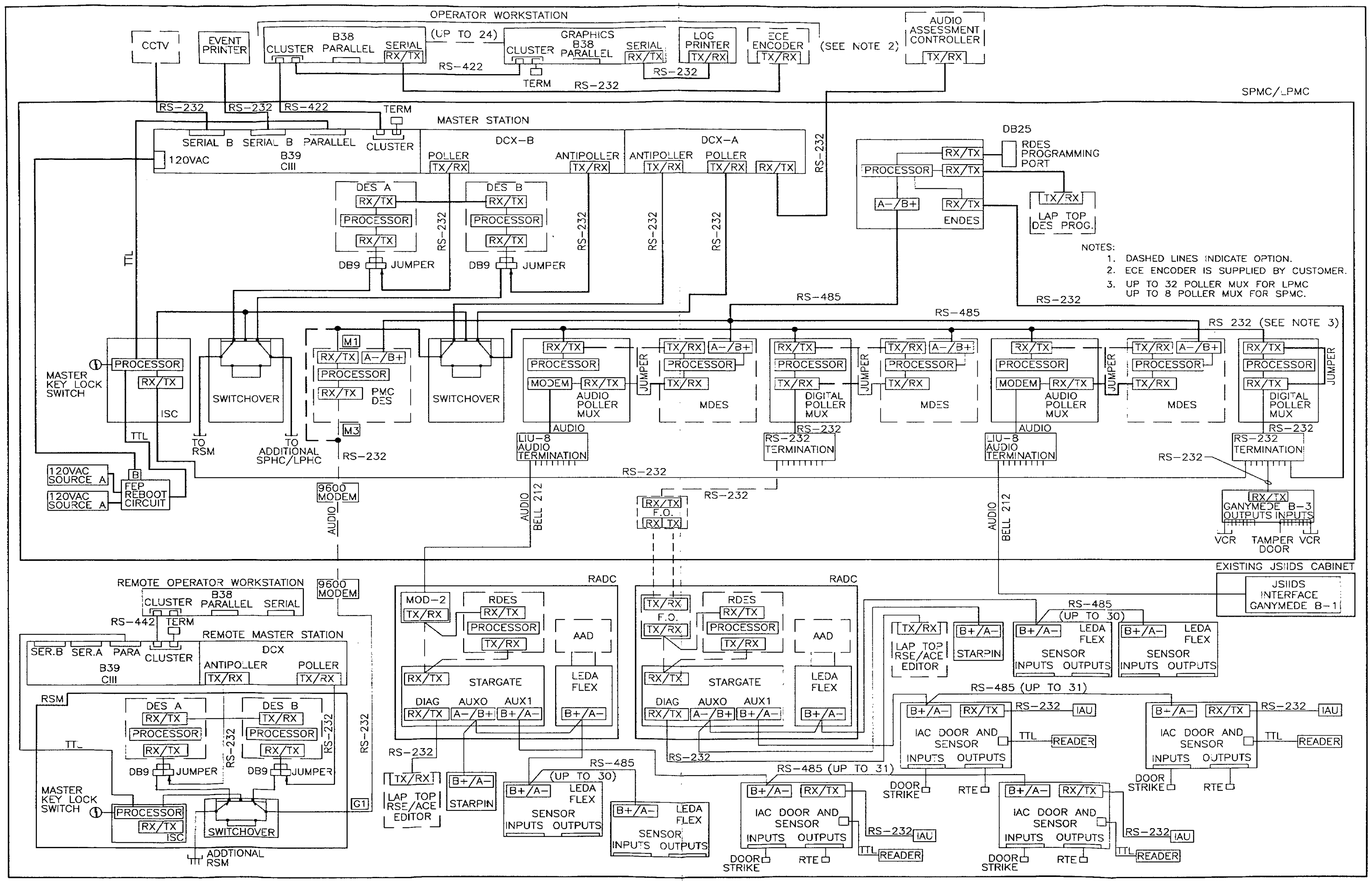
INDEX

Subject | **Paragraph, Table, Appendix Number**

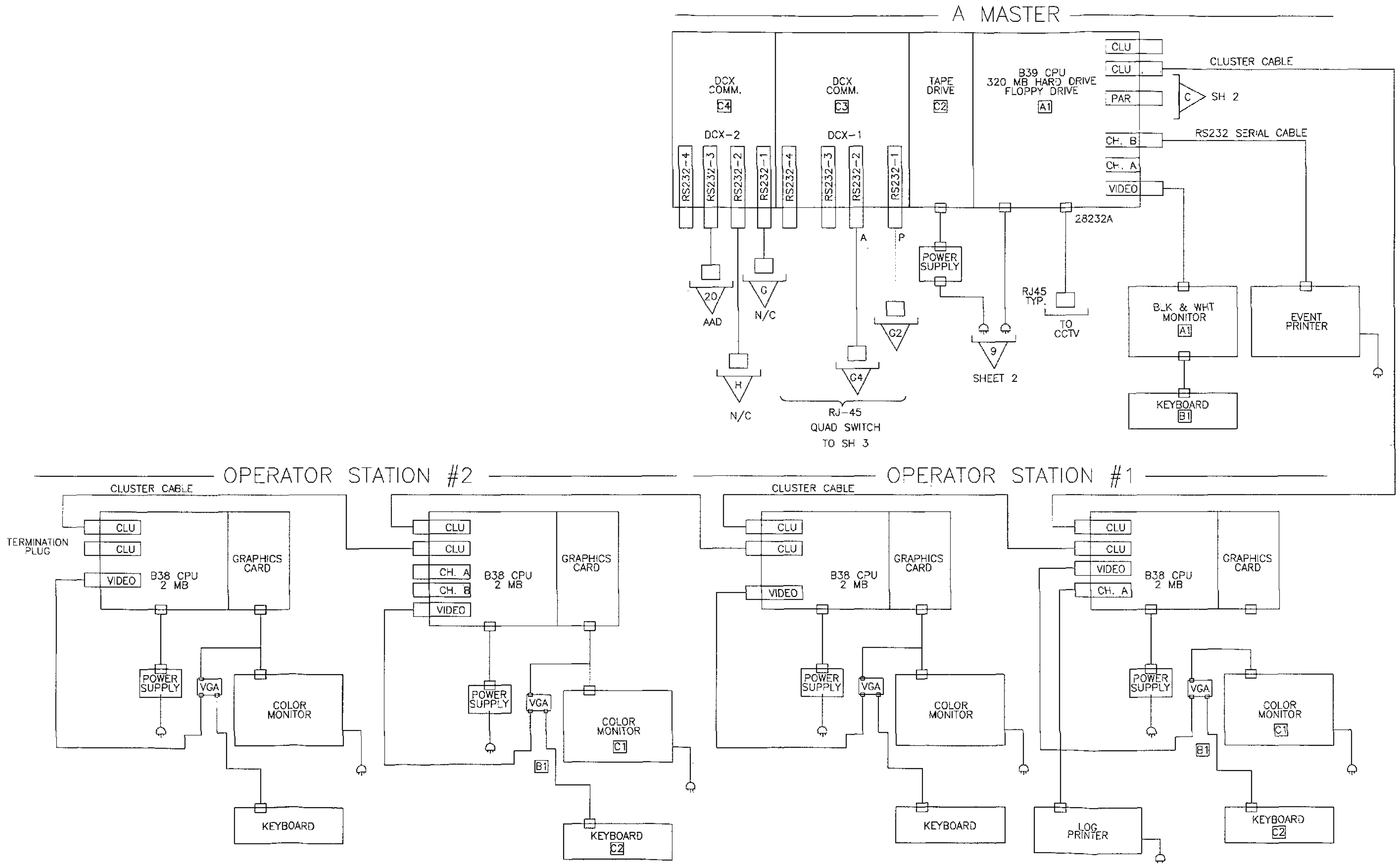
INDEX

Subject — **Paragraph, Table, Appendix Number**

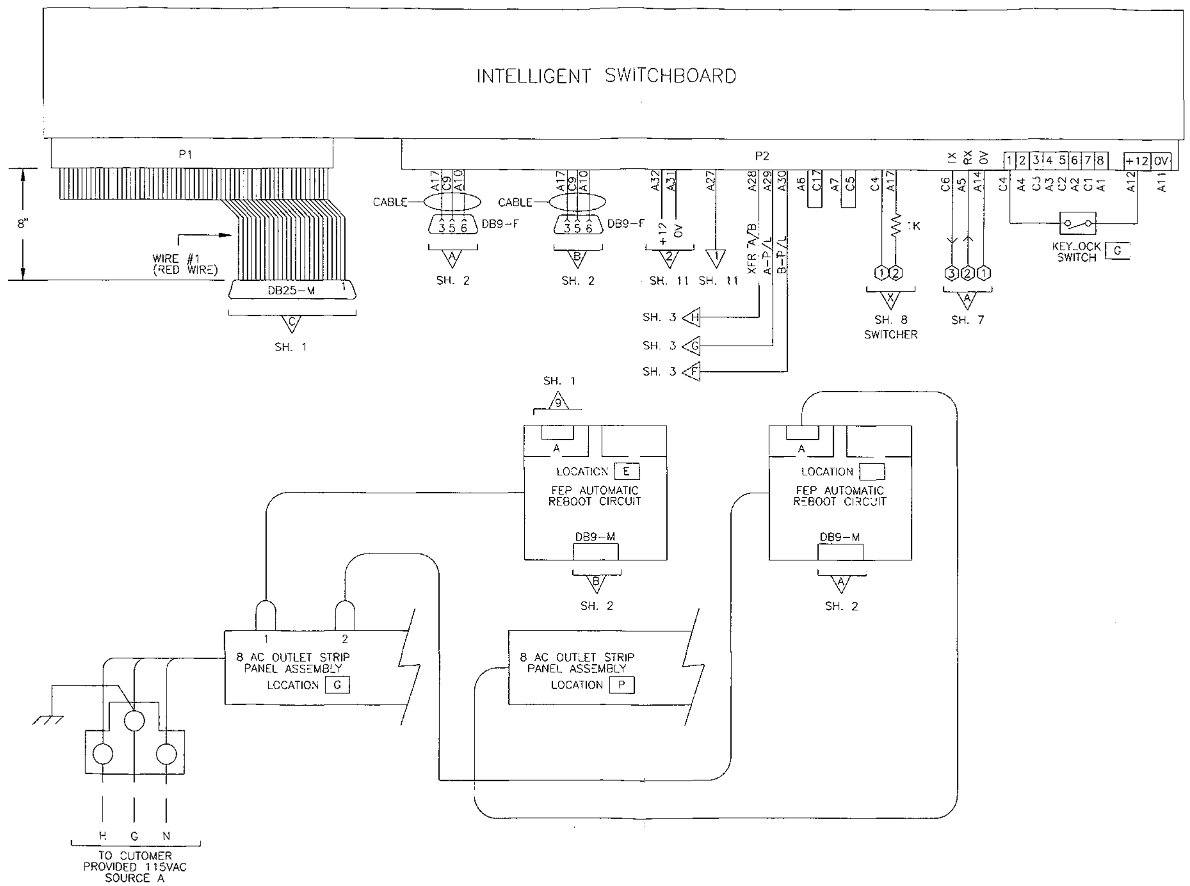
INDEX



FO-1. ICIDS PRIMARY MONITOR CONSOLE SYSTEM BLOCK DIAGRAM



FO-2. PMC Functional Wiring Block Diagram (Sheet 1 of 11)



FO-2. PMC Functional Wiring Block Diagram (Sheet 2 of 11)
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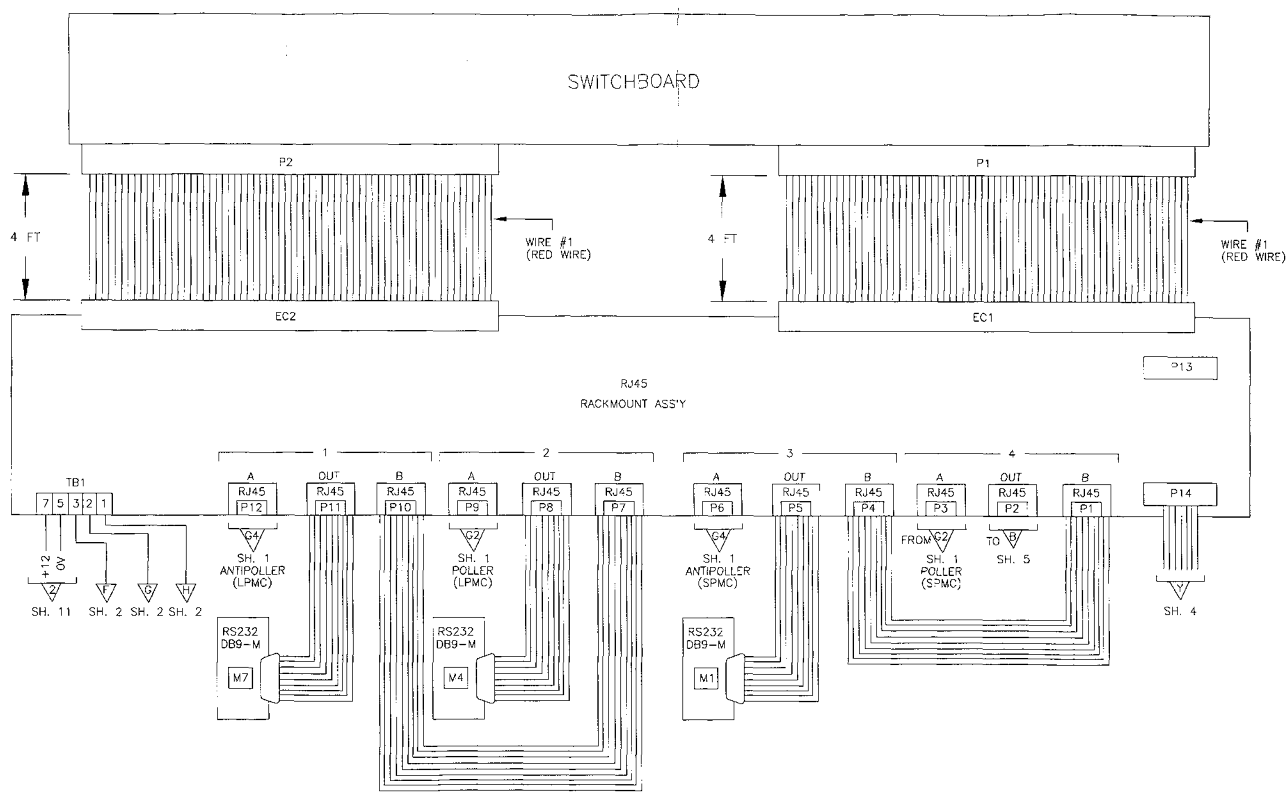

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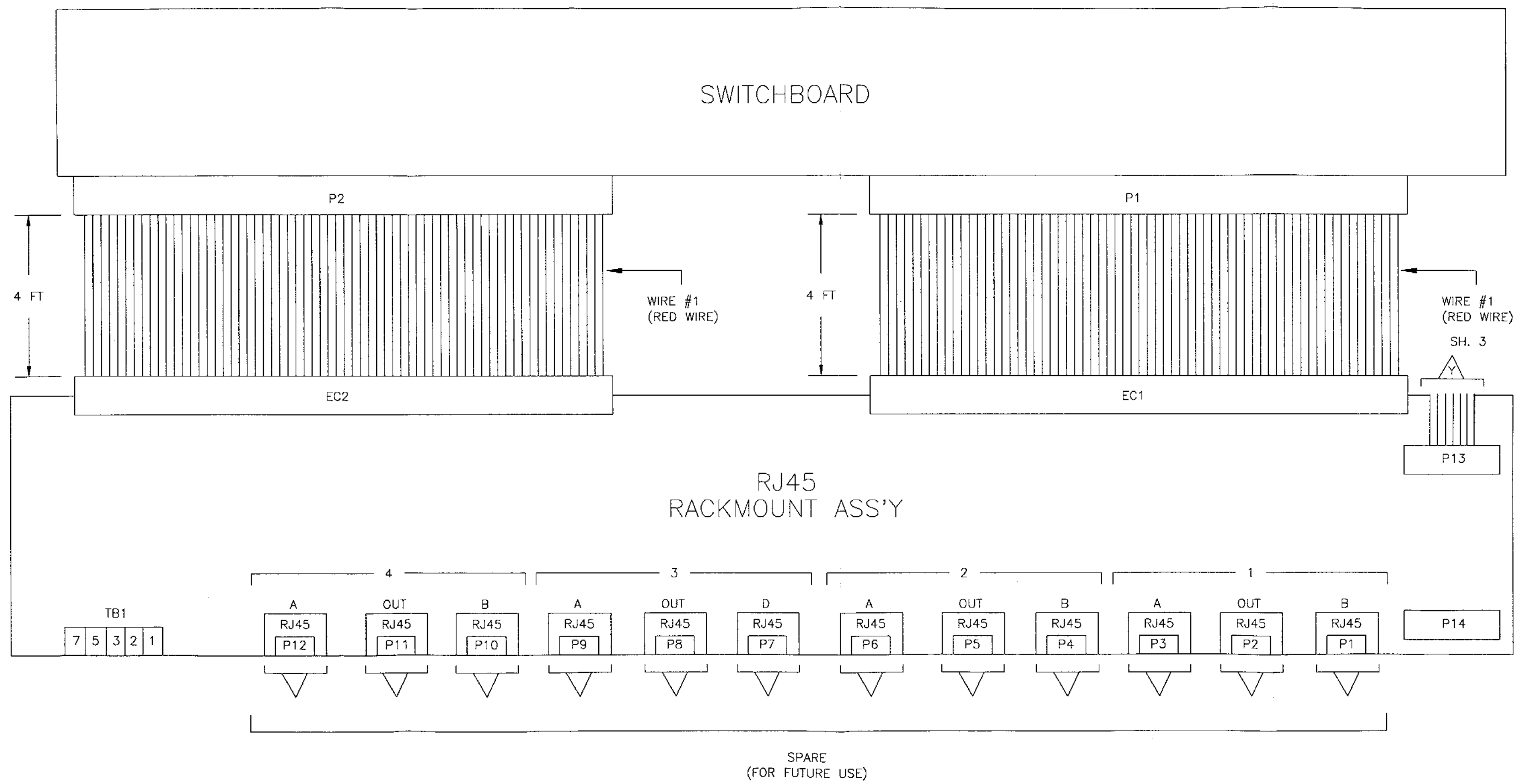
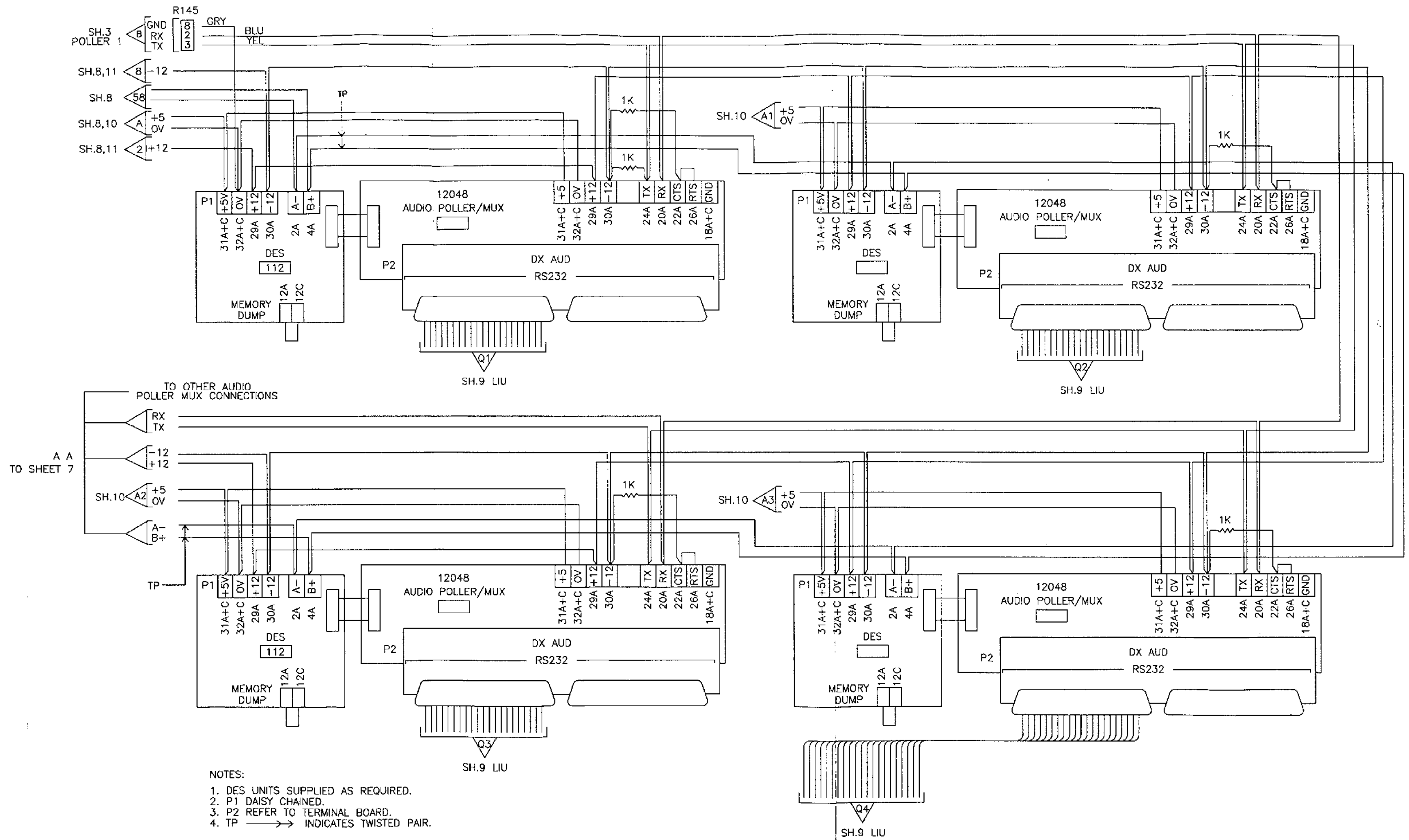
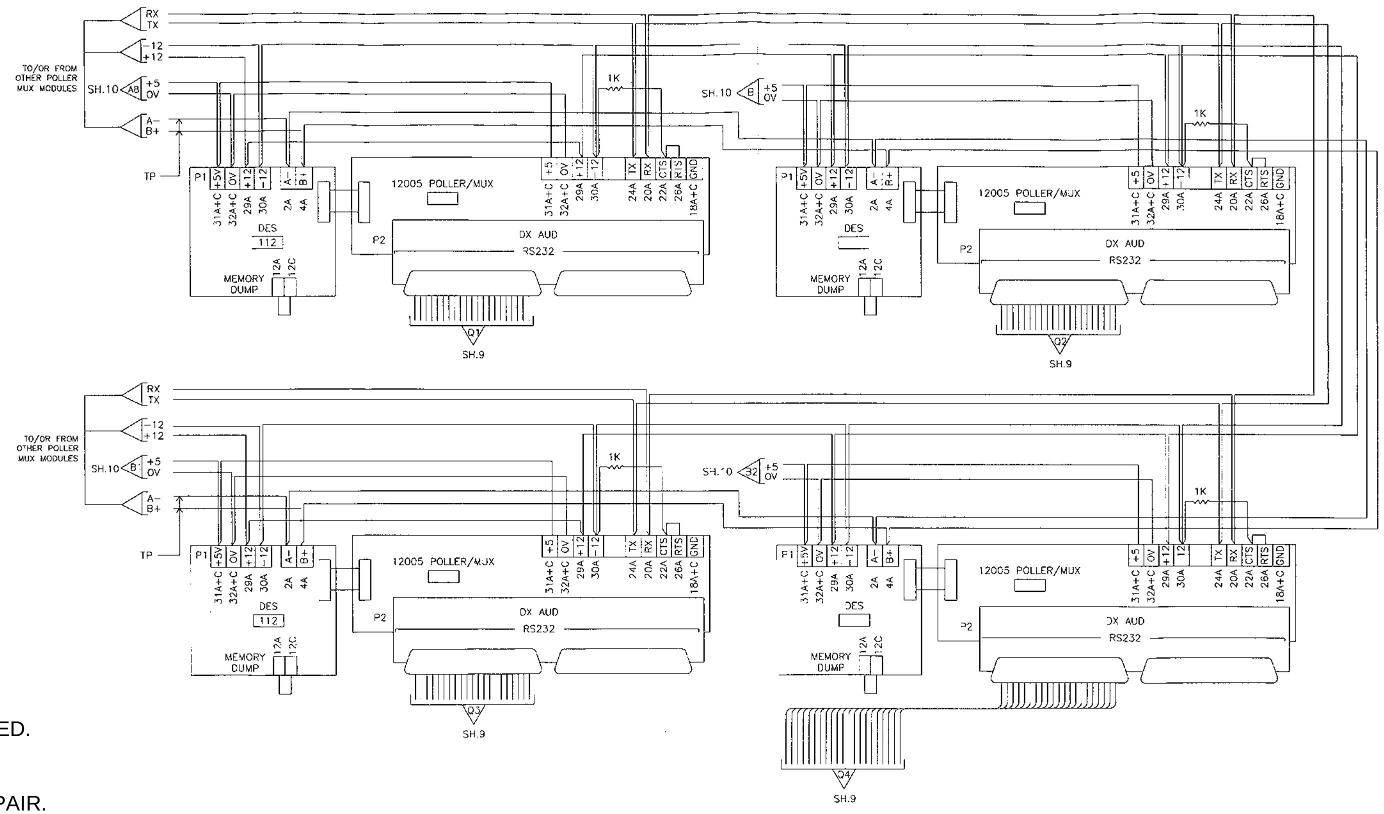


FO-2. PMC Functional Wiring Block Diagram (Sheet 4 of 11)

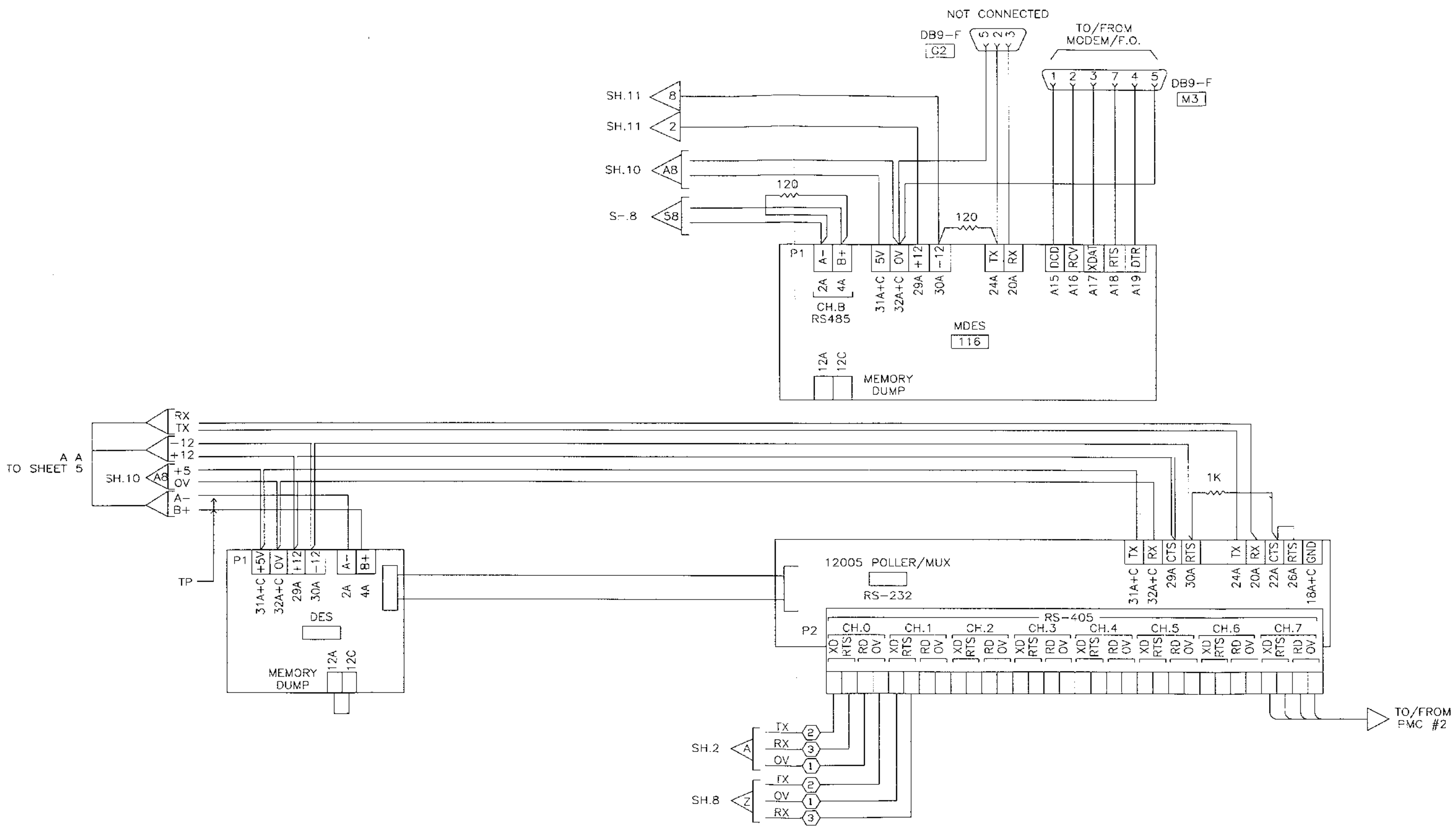


FO-2. PMC Functional Wiring Block Diagram (Sheet 5 of 11)



Notes:
1. DES UNITS SUPPLIED AS REQUIRED.
2. P1 DAISY PREFERRED.
3. P2 REFER TO TERMINAL.
4. TP ⟶ INDICATES TWISTED PAIR.

FO-2. PMC Functional Wiring Block Diagram (Sheet 6 of 11)
FP-13/(FP-14 blank)



FO-2. PMC Functional Wiring Block Diagram (Sheet 7 of 11) FP-15/(FP-16 Blank)

FO-2. PMC Functional Wiring Block Diagram (Sheet 7 of 11)
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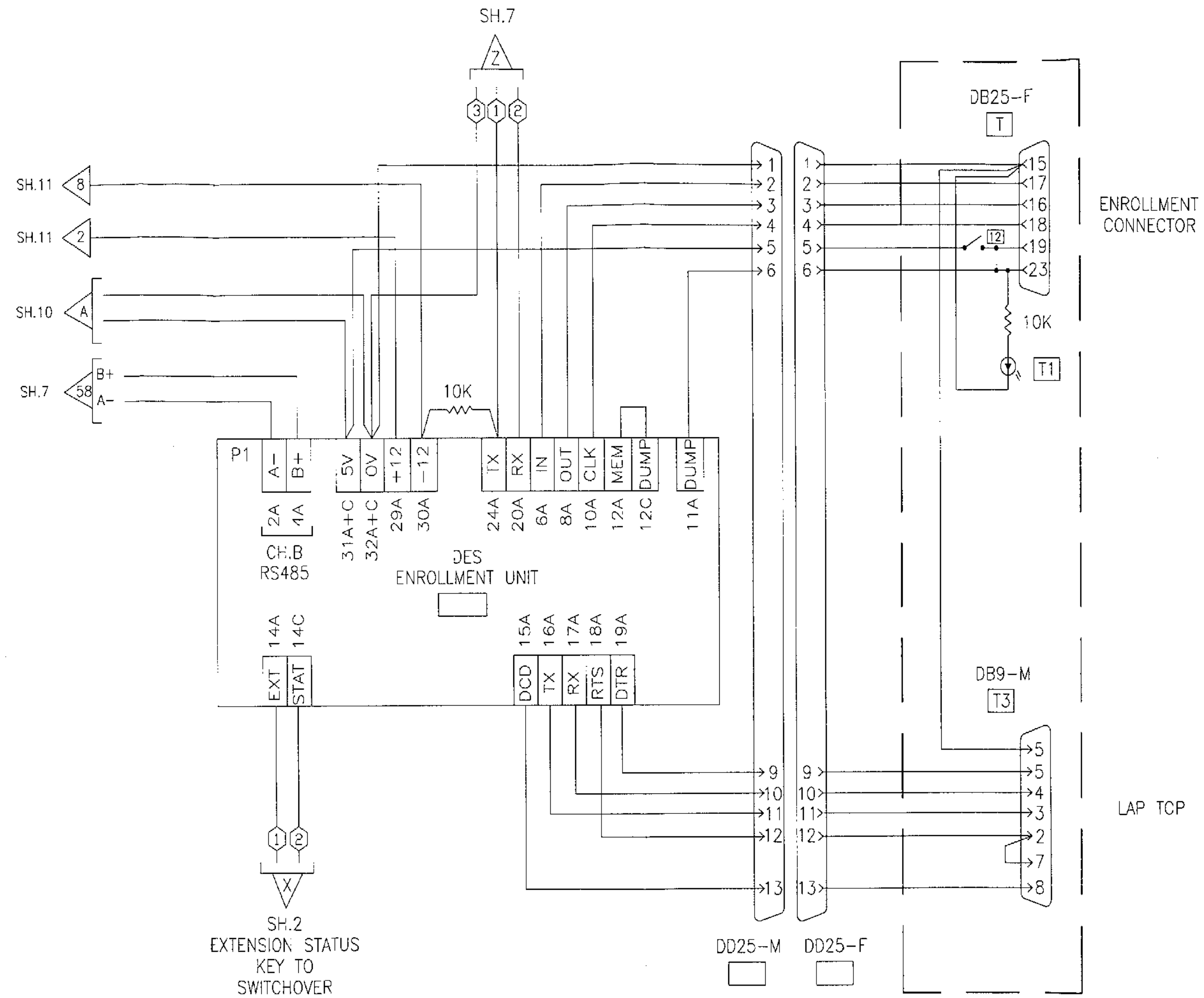

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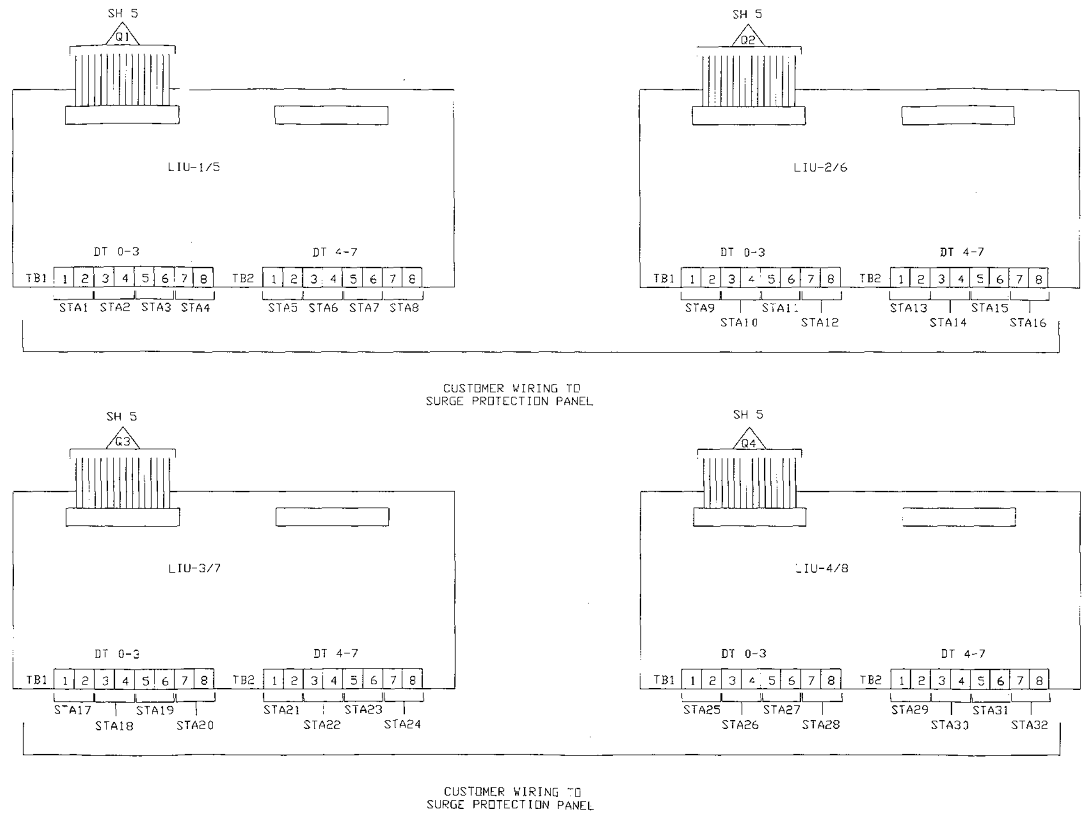

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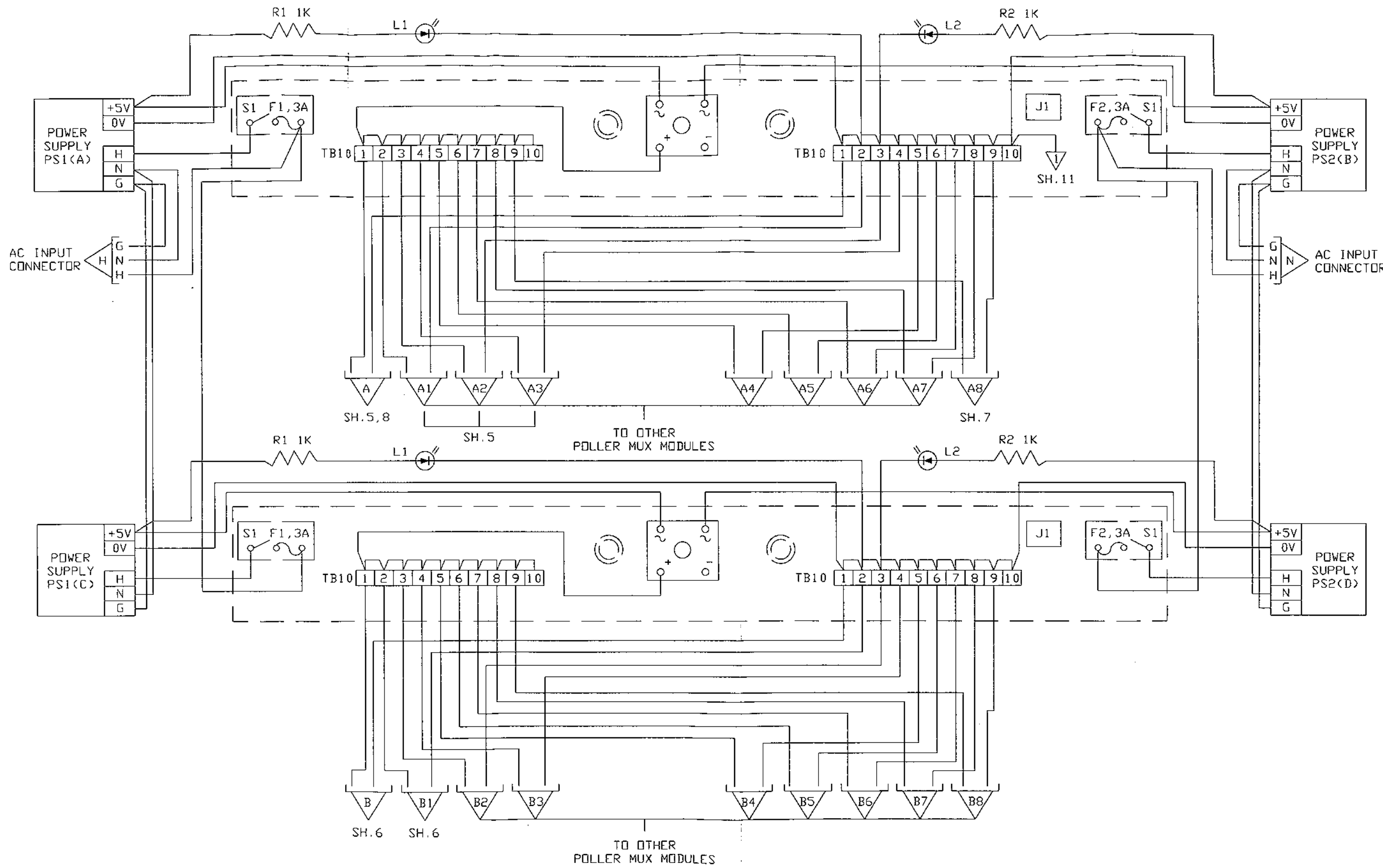

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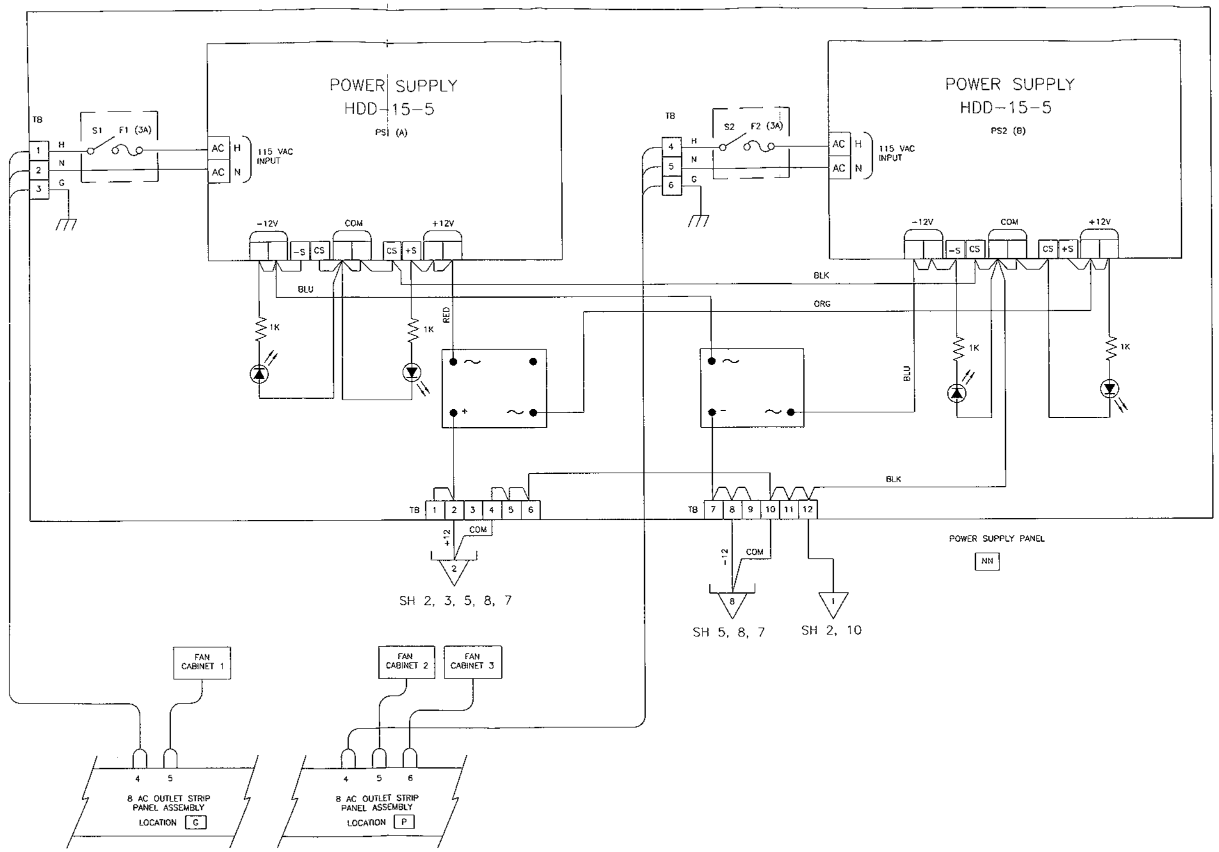
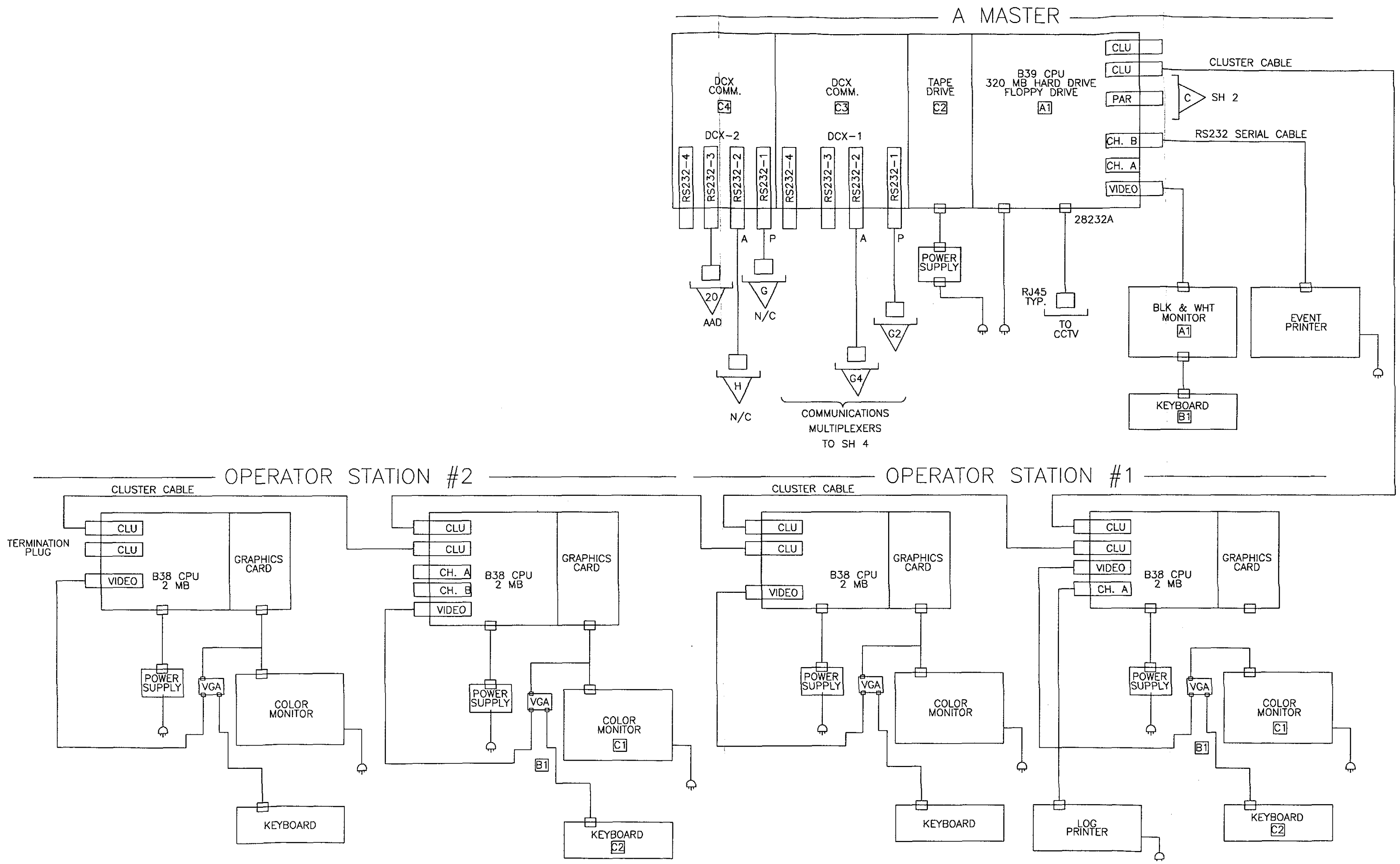
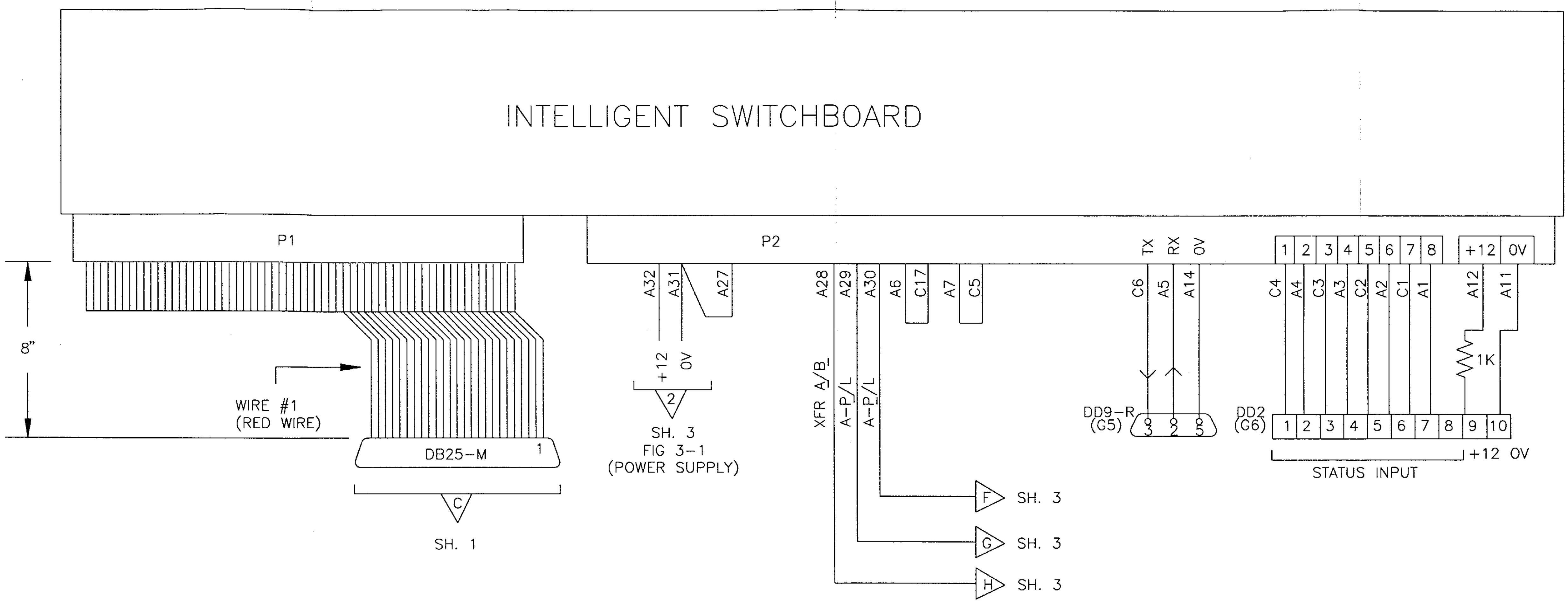


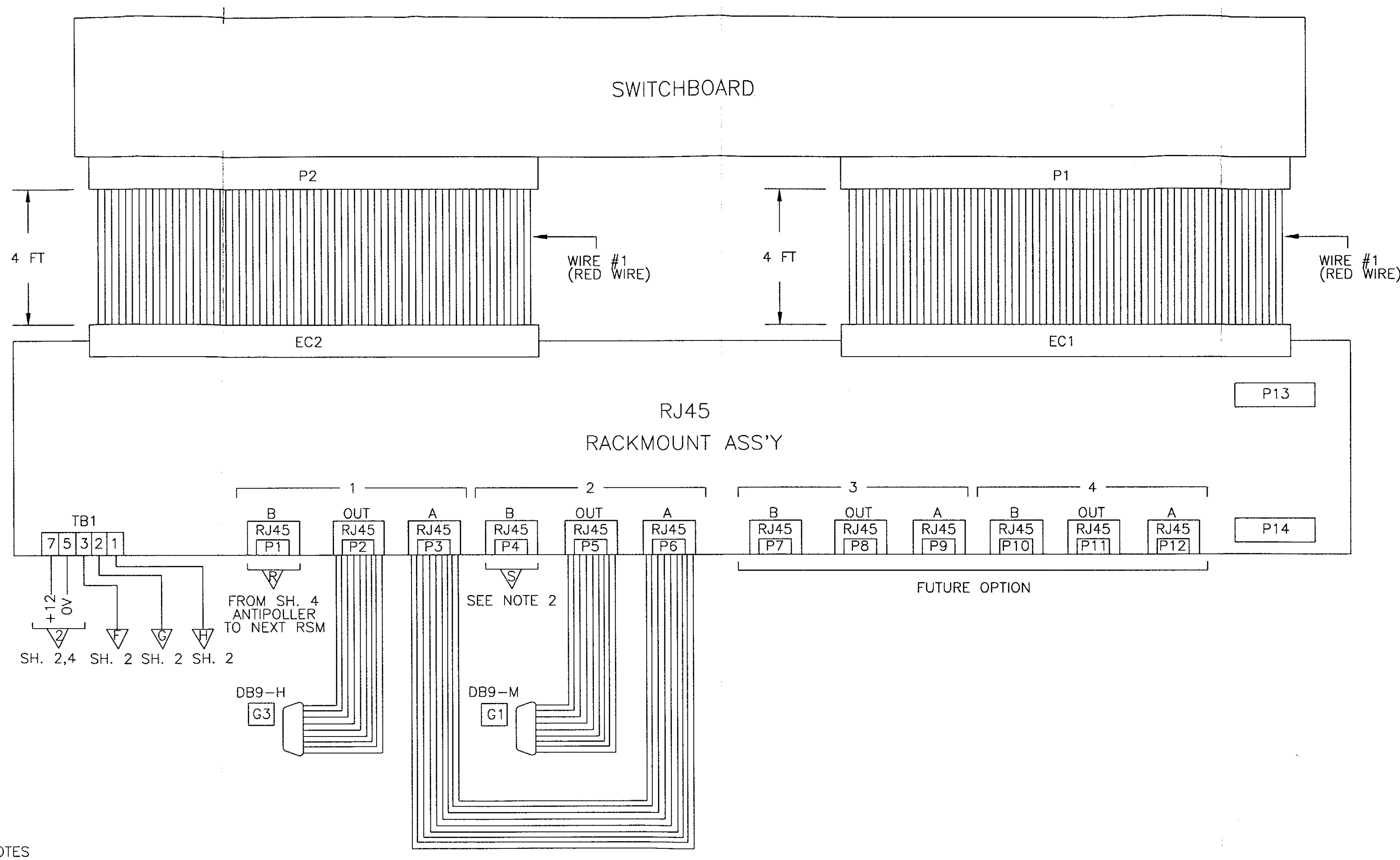
FO-2. PMC Functional Wiring Block Diagram (Sheet 11 of 11)



FO-3. RSM Functional Wiring Block Diagram (Sheet 1 of 4)



FO-3. RSM Functional Wiring Block Diagram (Sheet 2 of 4)

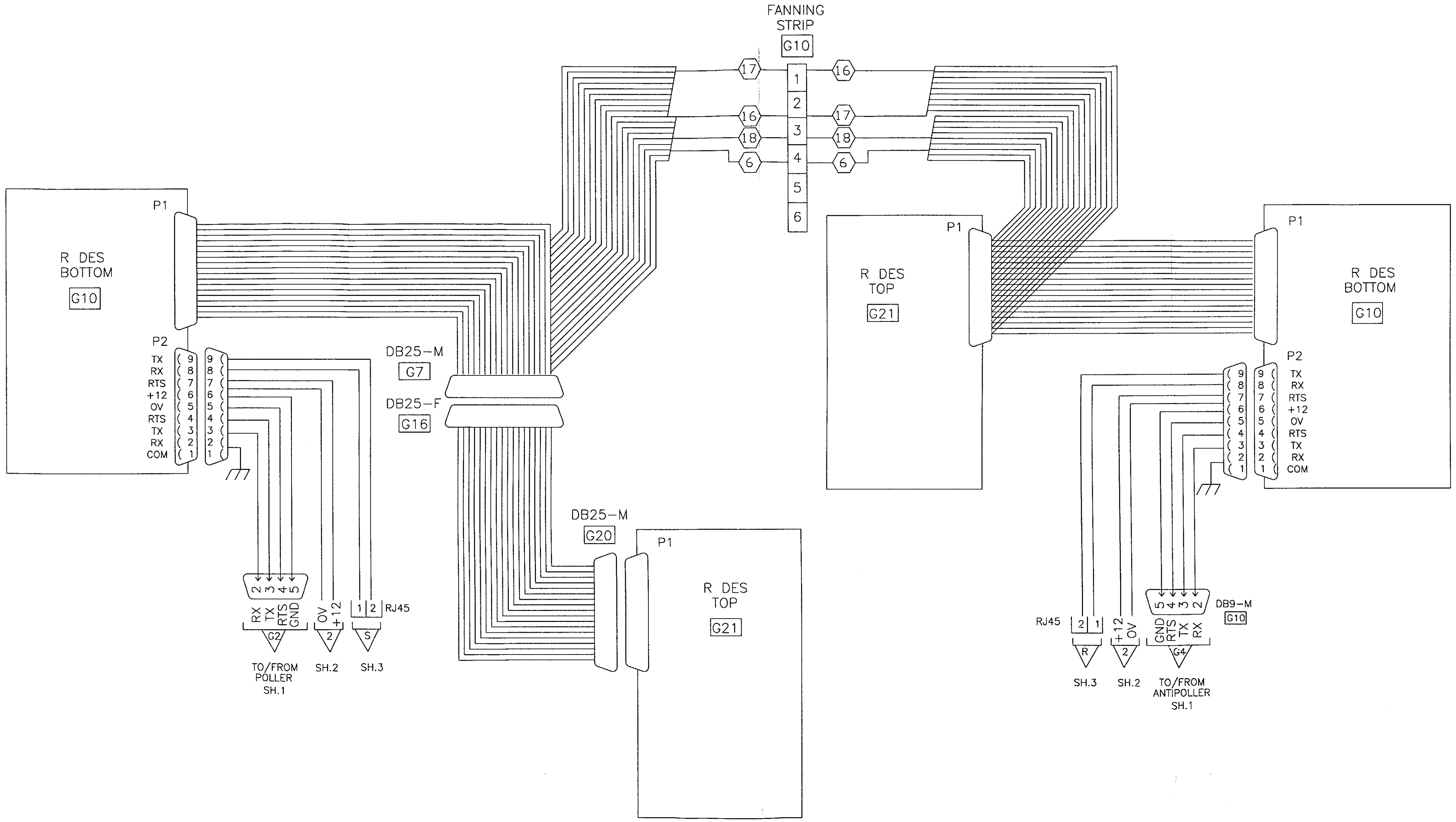


NOTES

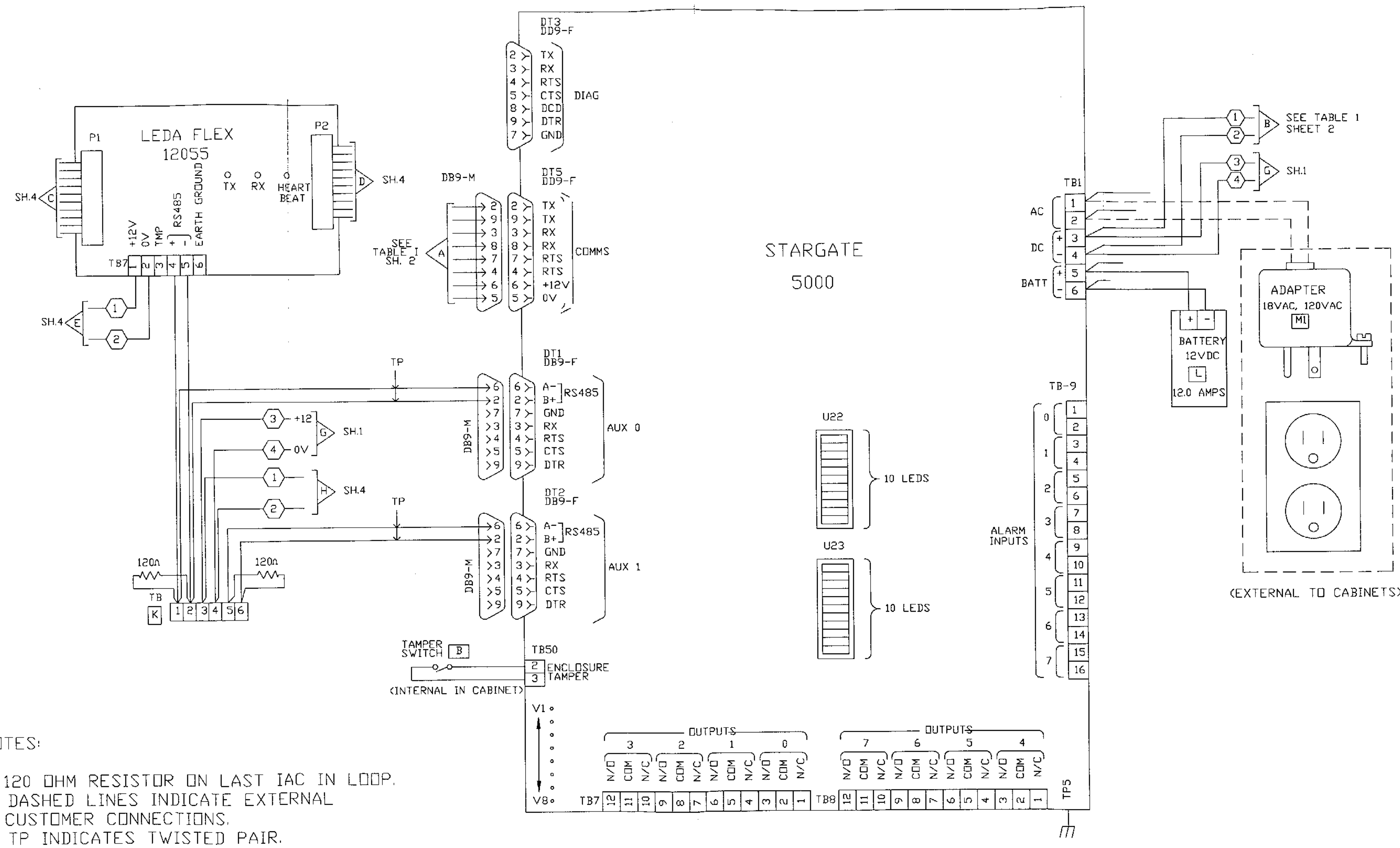
1. DB9 CONNECTIONS:
   3-XMT
   2-RCV
   5-GND
   7-RTN

2. TO SHEET 4. POLLER FROM PREVIOUS ANTIPOLLER G1 AND G3 DES ENABLE/DISABLE.

FO-3. RSM Functional Wiring Block Diagram (Sheet 3 of 4)



FO-3. RSM Functional Wiring Block Diagram (Sheet 4 of 4)



NOTES:

1. 120 OHM RESISTOR ON LAST IAC IN LOOP.
2. DASHED LINES INDICATE EXTERNAL CUSTOMER CONNECTIONS.
3. TP INDICATES TWISTED PAIR.
   COMMUNICATION CONNECTIONS ARE VIA SOLDER TYPE DB-9 CONNECTORS.

FO-4. Interior RADC, +12 vdc Functional Wiring Block Diagram (Sheet 1 of 4)

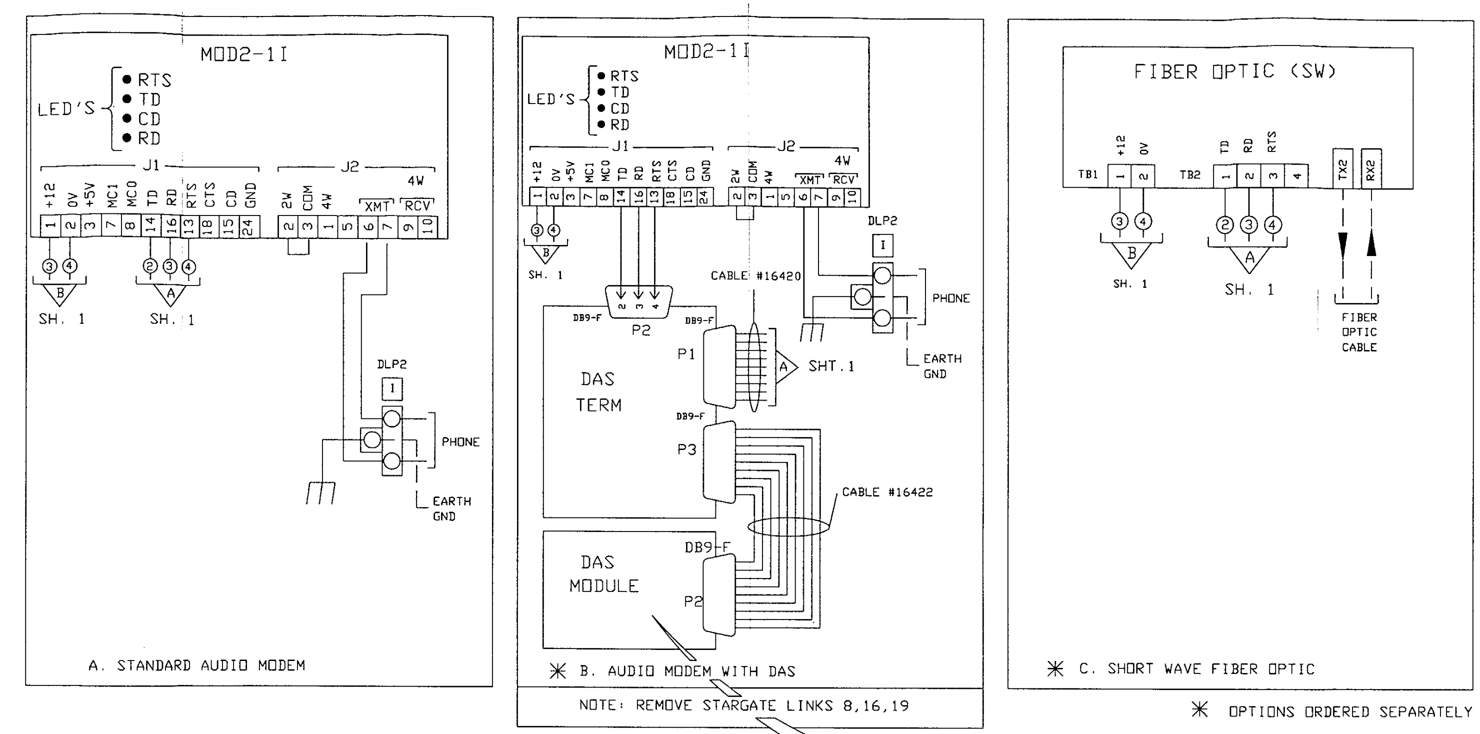
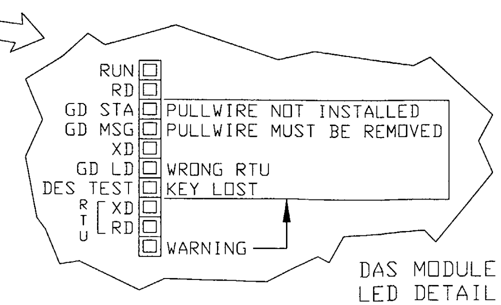
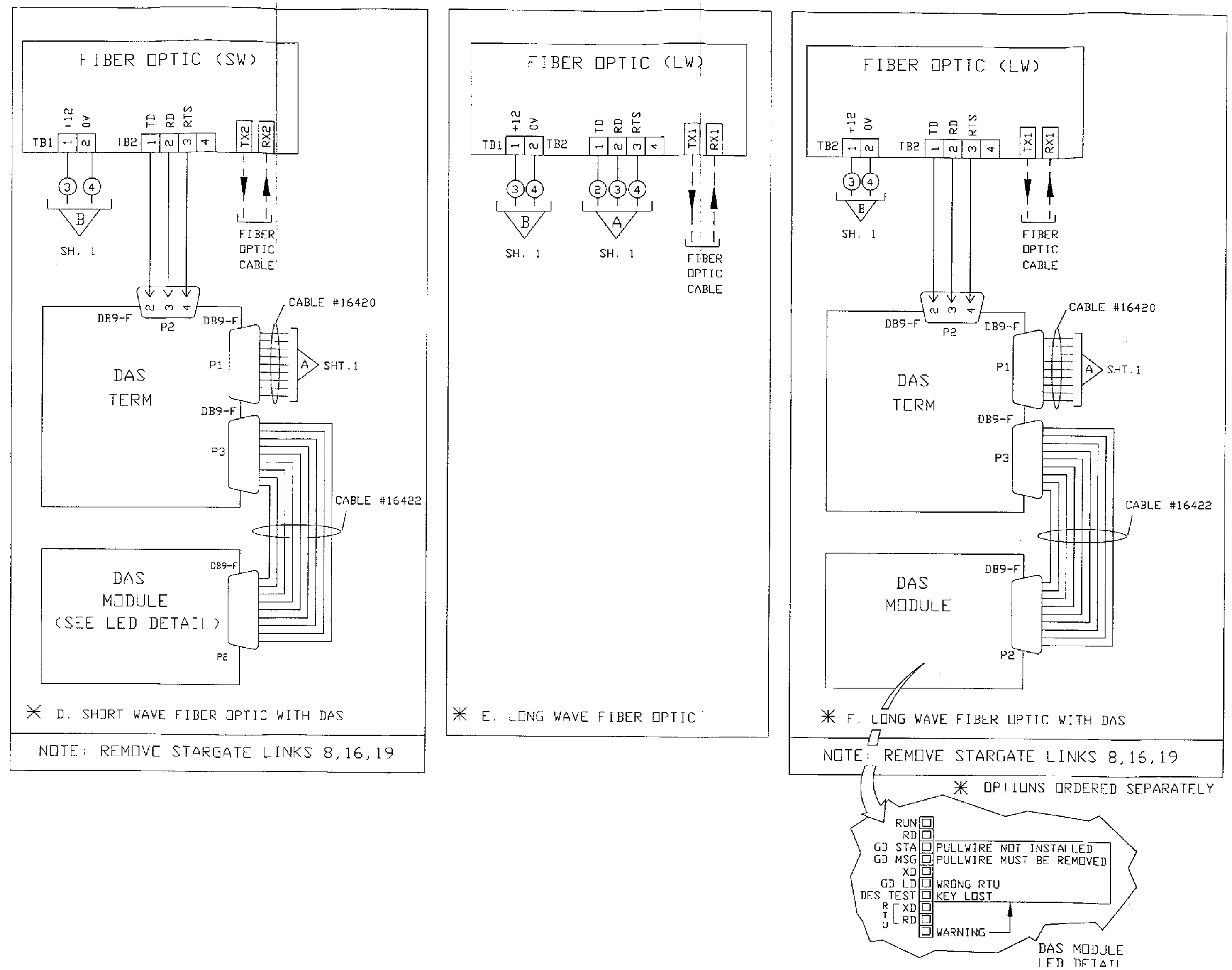


TABLE 1
COMMUNICATION WIRING

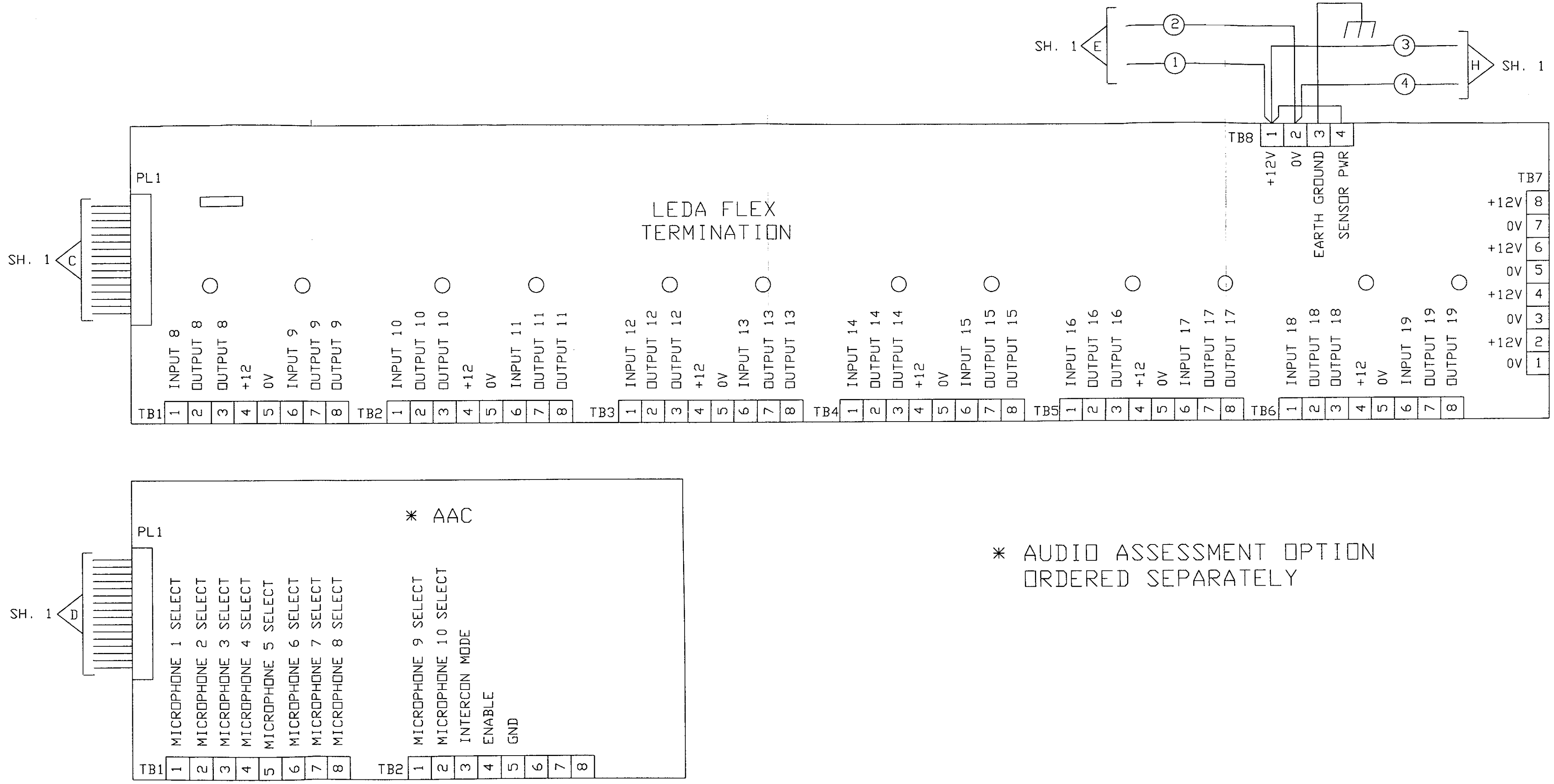
FOR OPTION	SEE DIAGRAM
MODEM (NO OPTIONS)	A
MODEM & DAS	B
F.O. SHORT WAVE	C
F.O.SHORT WAVE & DAS	D
F.O. LONG WAVE	E
F.O. LONG WAVE & DAS	F



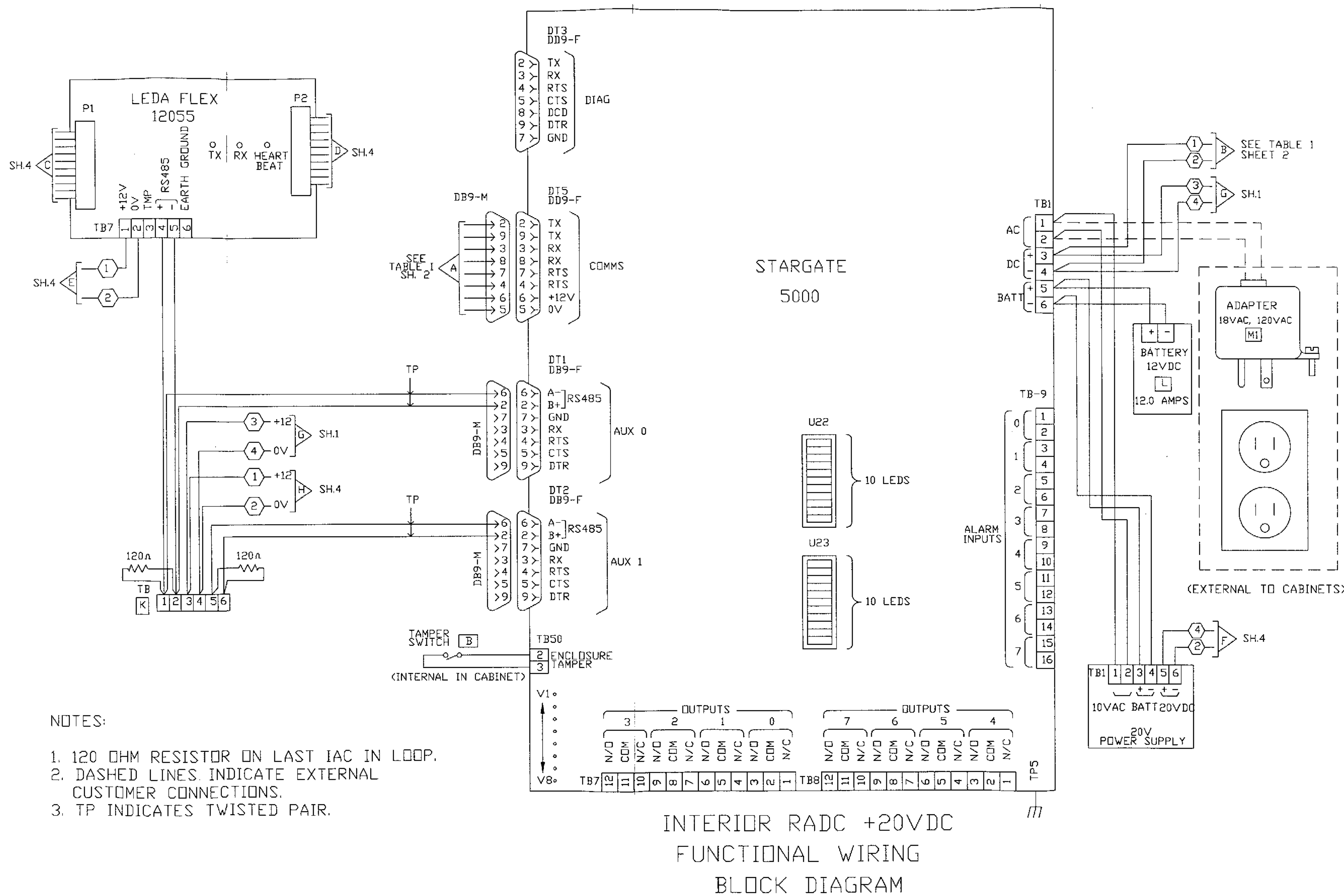
FO-4. Interior RADC, +12 vdc Functional Wiring Block Diagram (Sheet 2 of 4)



FO-4. Interior RADC, +12 vdc Functional Wiring Block Diagram (Sheet 3 of 4)



FO-4. Interior RADC, +12 vdc Functional Wiring Block Diagram (Sheet 4 of 4)



FO-5. Interior RADC, +20 vdc Functional Wiring Block Diagram (Sheet 1 of 4)

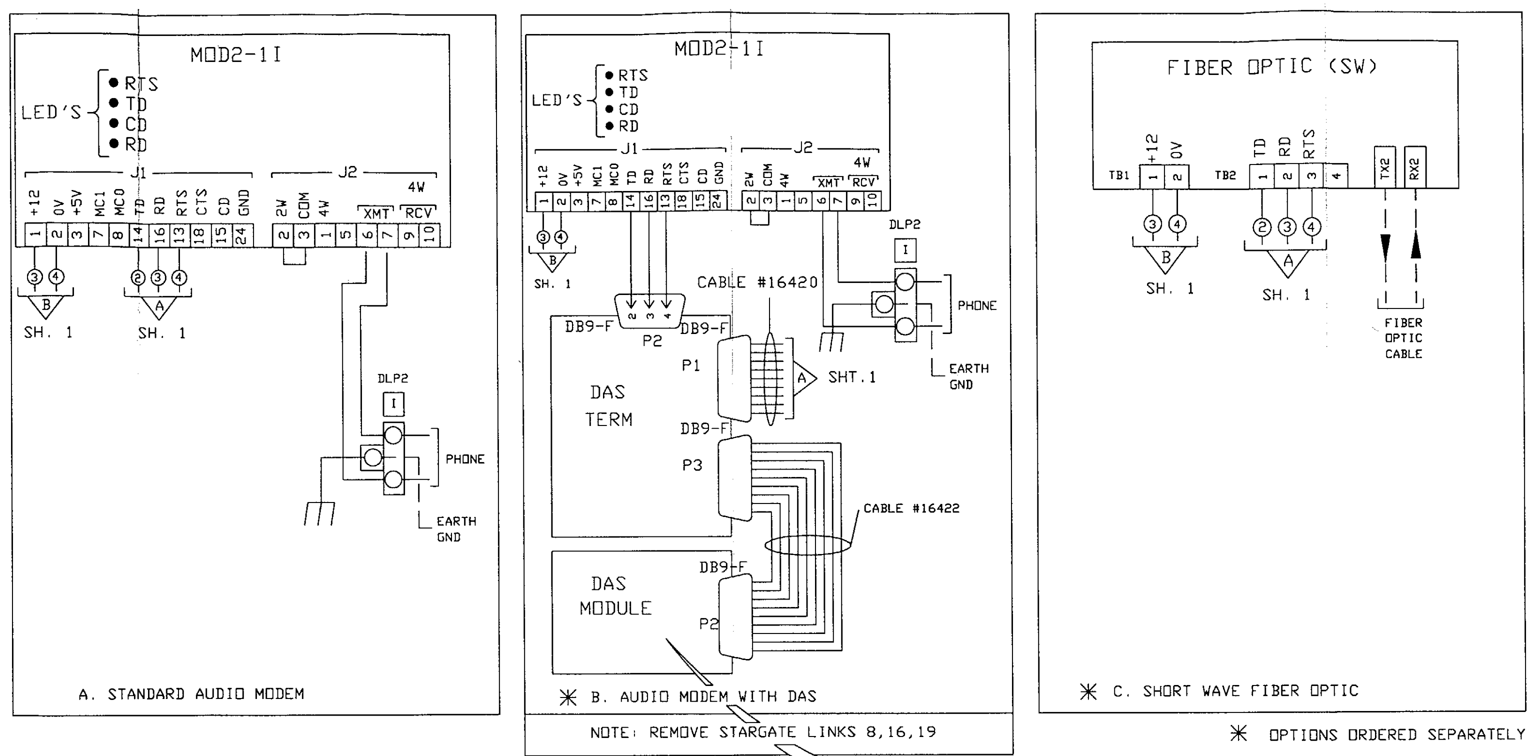


TABLE 1
COMMUNICATION WIRING

FOR OPTION	SEE DIAGRAM
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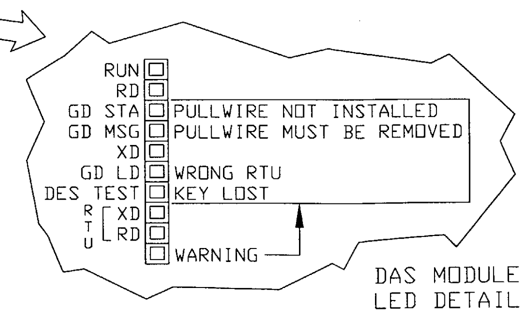
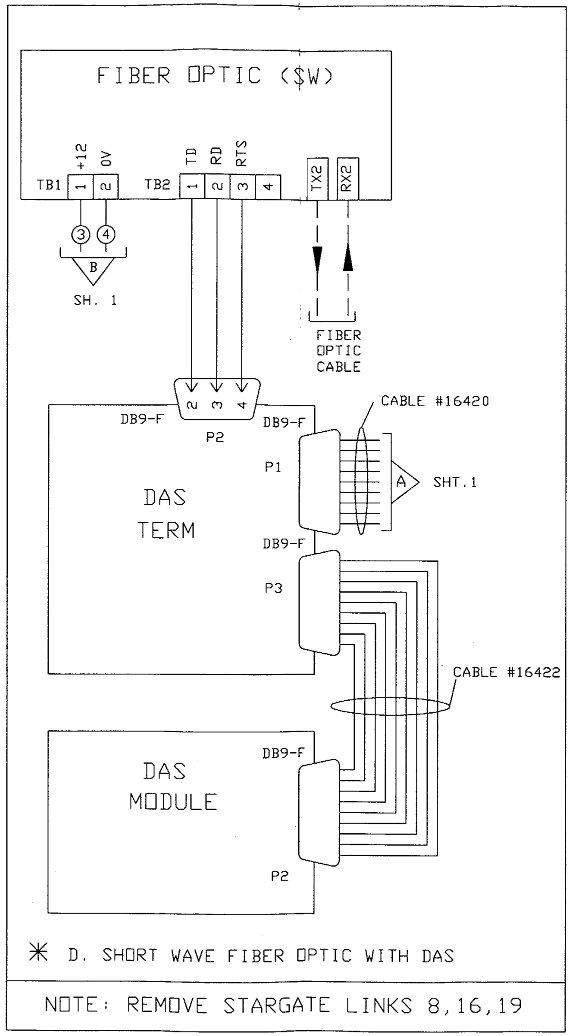
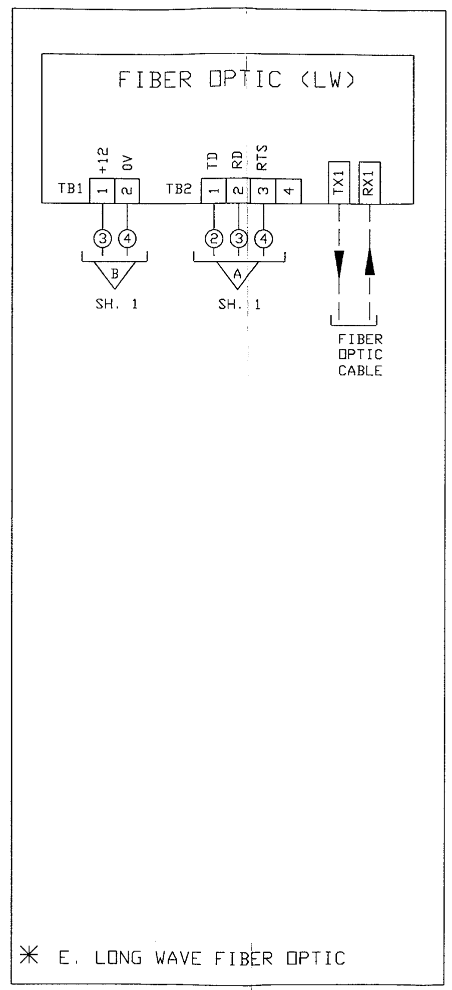
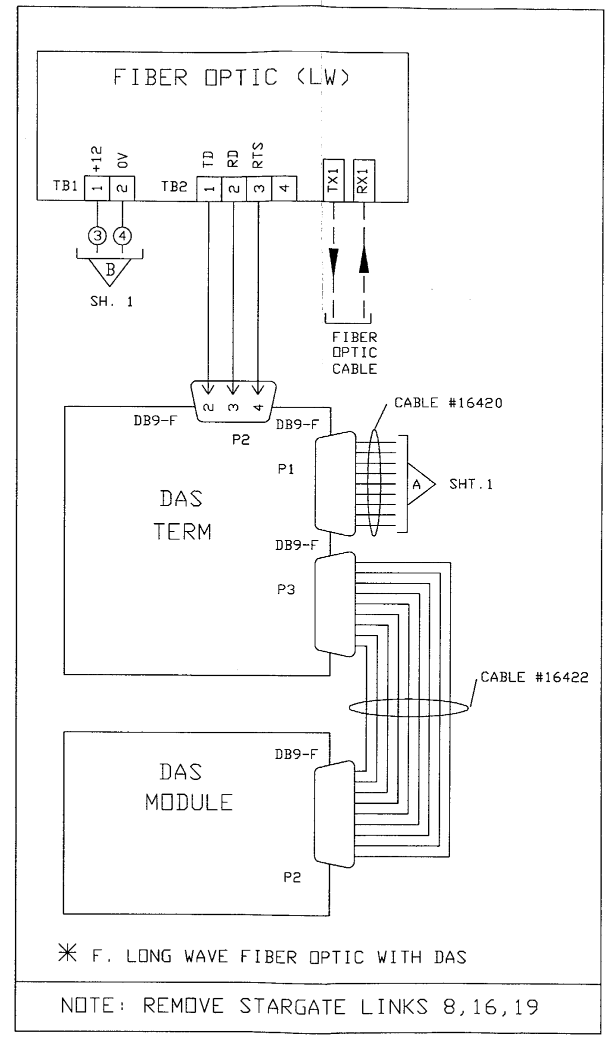
MODEM & DAS	B
F.O. SHORT WAVE	C
F.O.SHORT WAVE & DAS	D
F.O. LONG WAVE	E
F.O. LONG WAVE & DAS	F



FO-5. Interior RADC, +20 vdc Functional Wiring Block Diagram (Sheet 2 of 4)

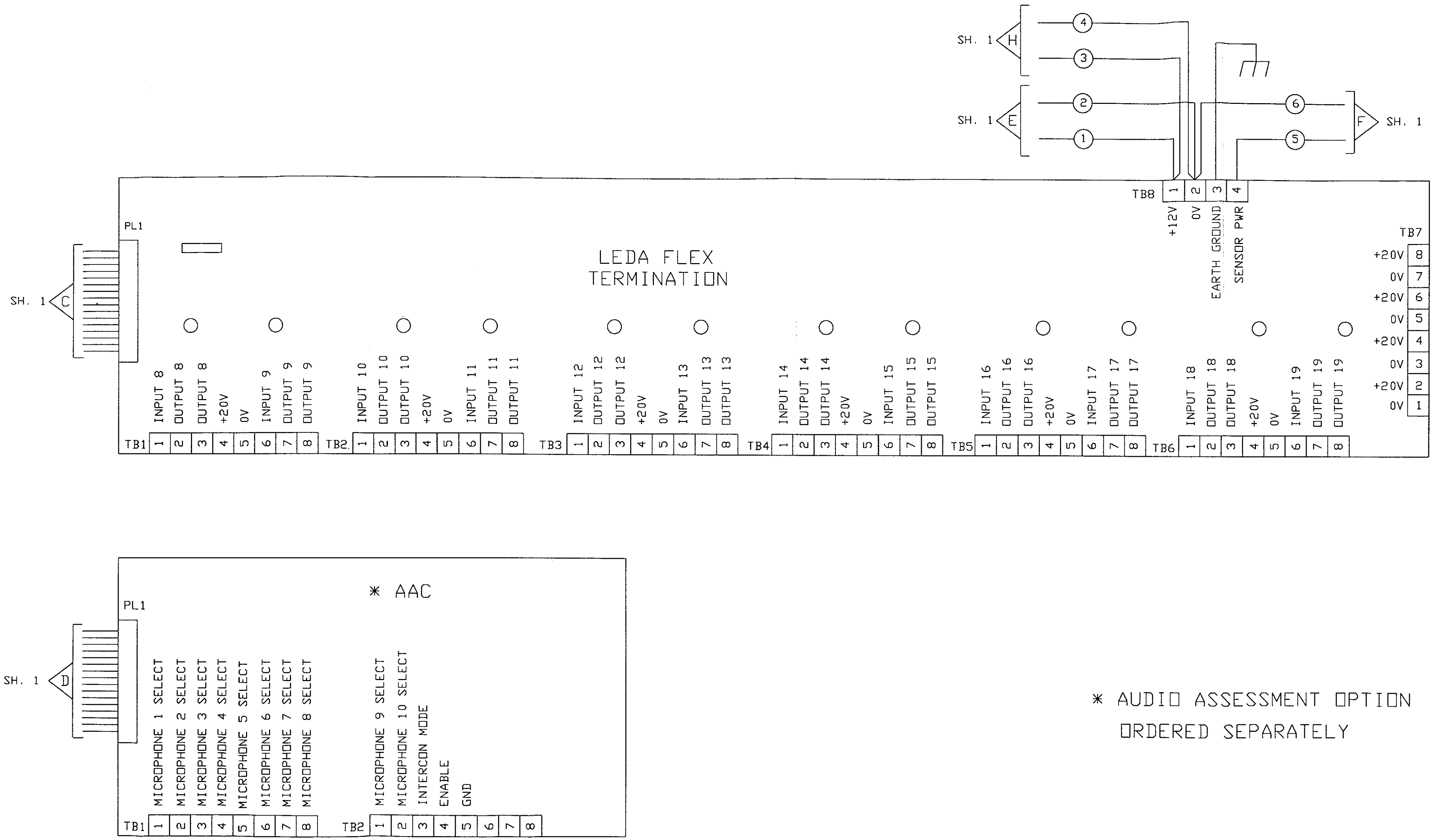




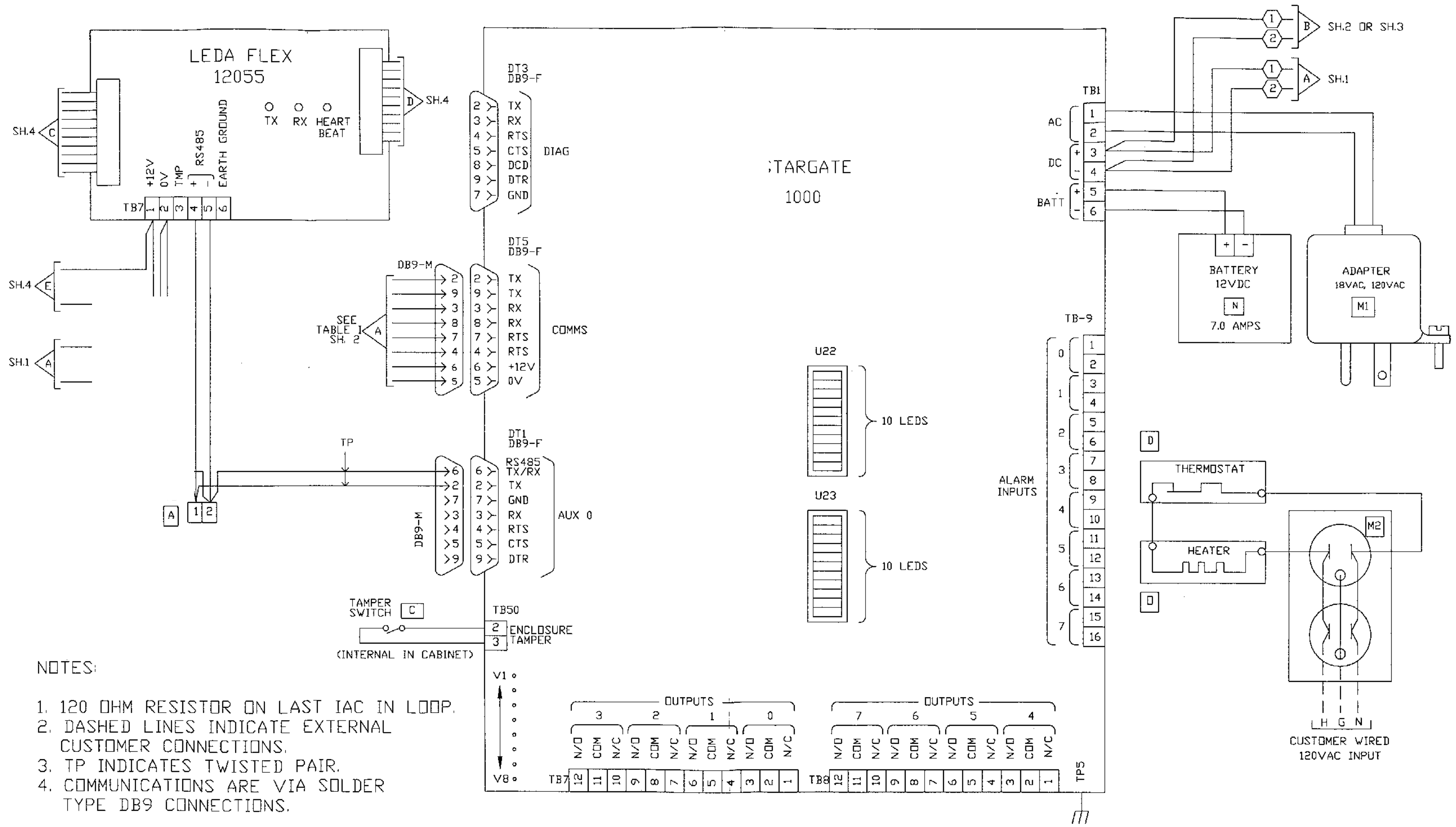


✳ OPTIONS ORDERED SEPARATELY

FO-5. Interior RADC, +12 vdc Functional Wiring Block Diagram (Sheet 3 of 4)



FO-5. Interior RADC, +20 vdc Functional Wiring Block Diagram (Sheet 4 of 4)



FO-6. Exterior RADC, +12 vdc Functional Wiring Block Diagram (Sheet 1 of 4)

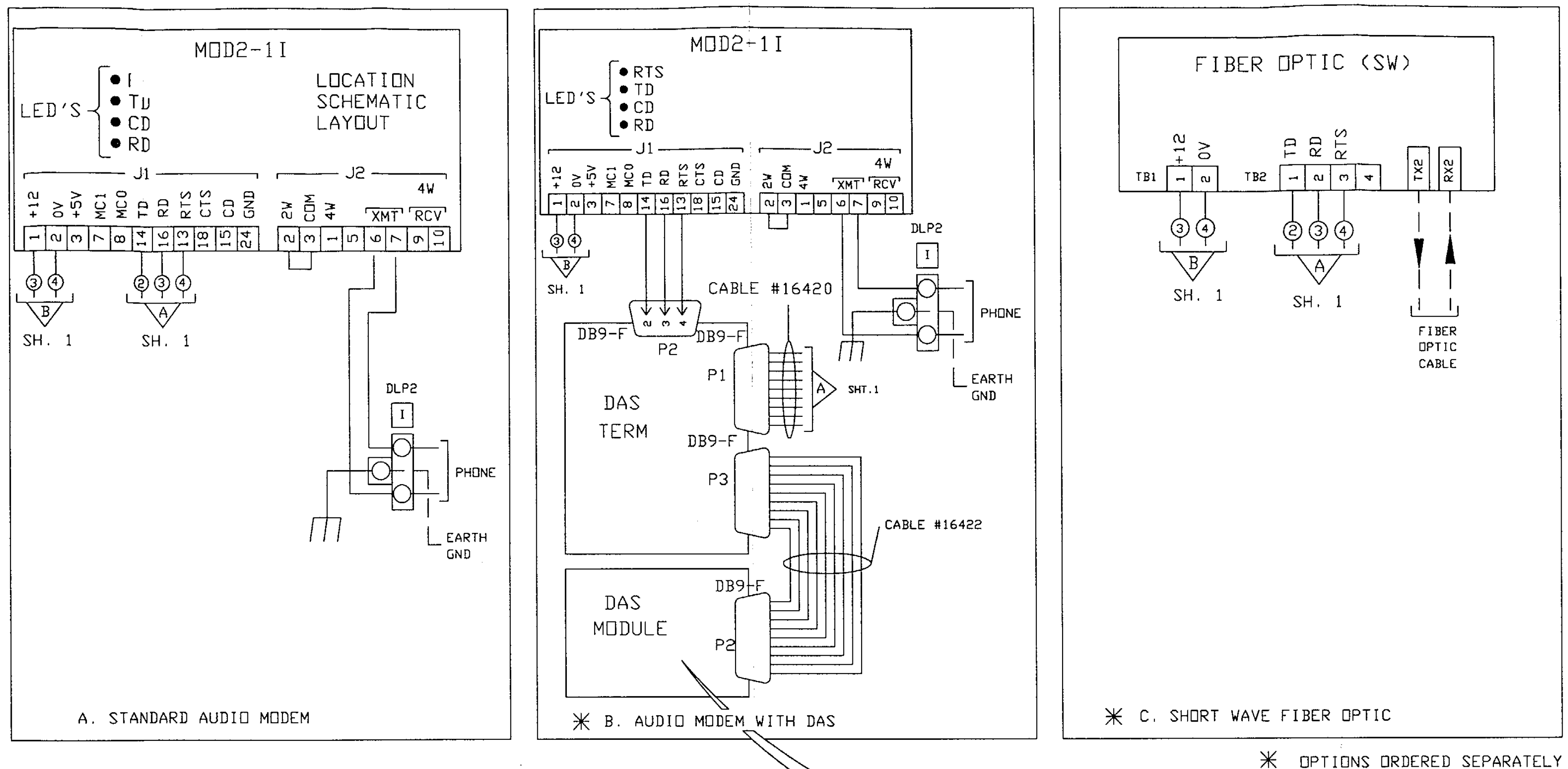


TABLE 1
COMMUNICATION WIRING

FOR OPTION	SEE DIAGRAM
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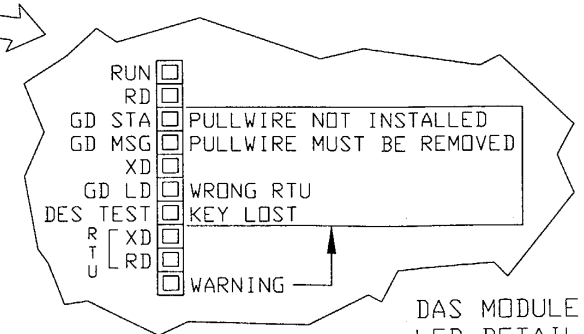
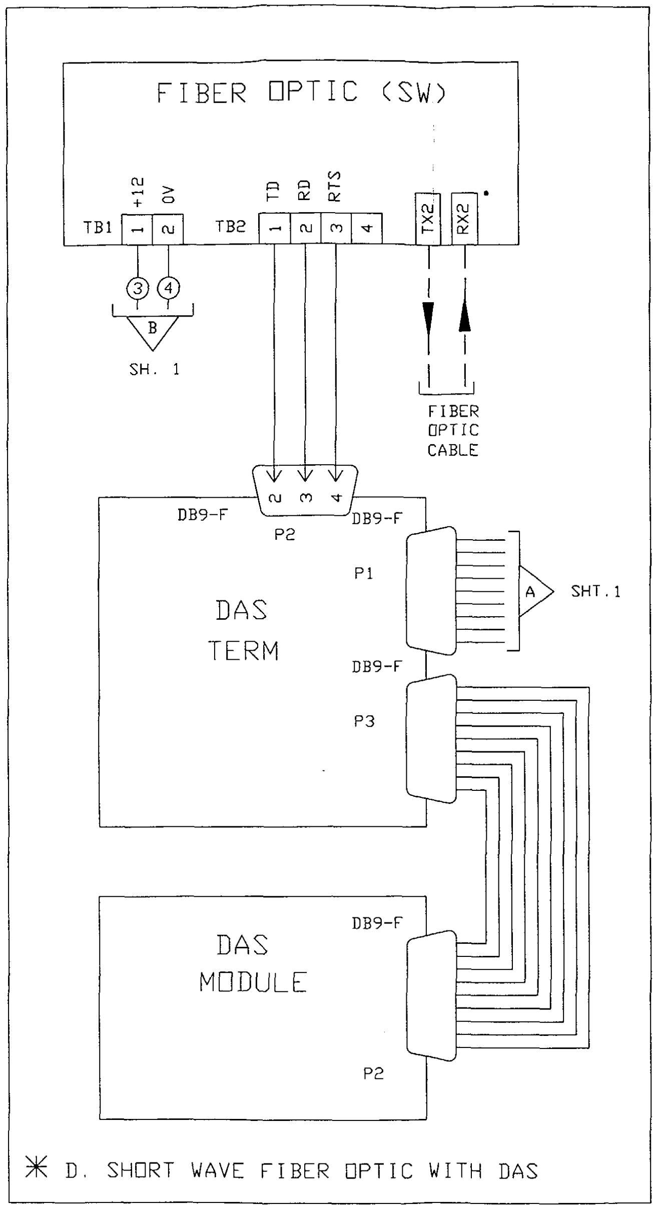
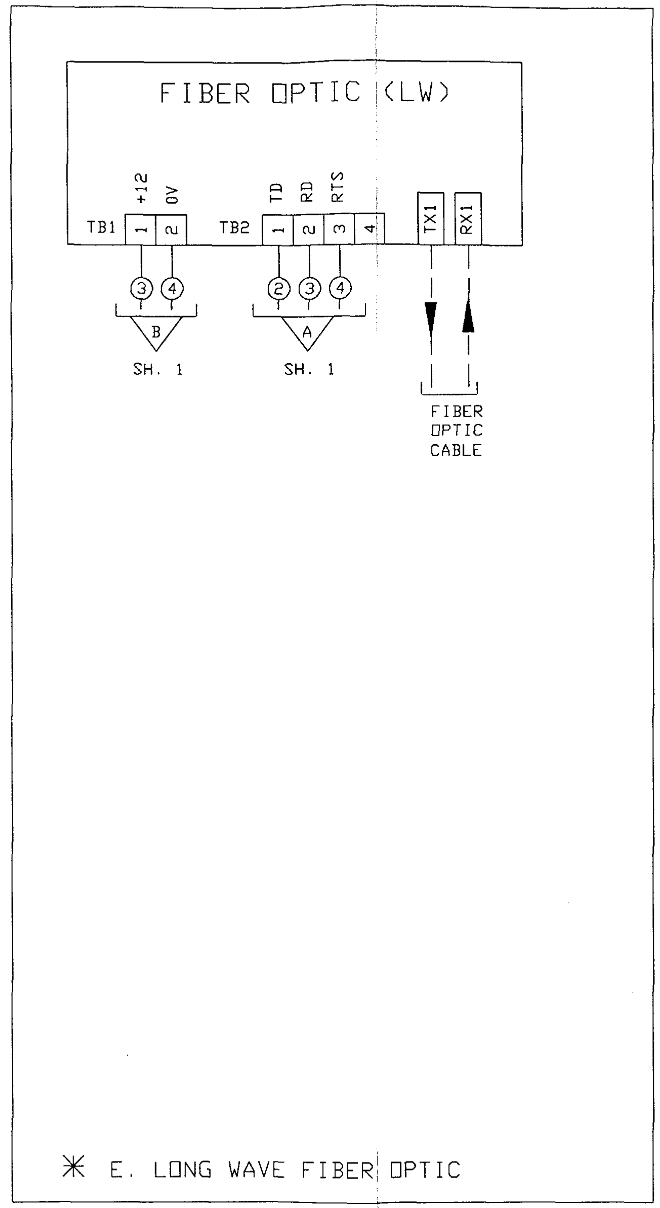
MODEM & DAS	B
F.O. SHORT WAVE	C
F.O.SHORT WAVE & DAS	D
F.O. LONG WAVE	E
F.O. LONG WAVE & DAS	F

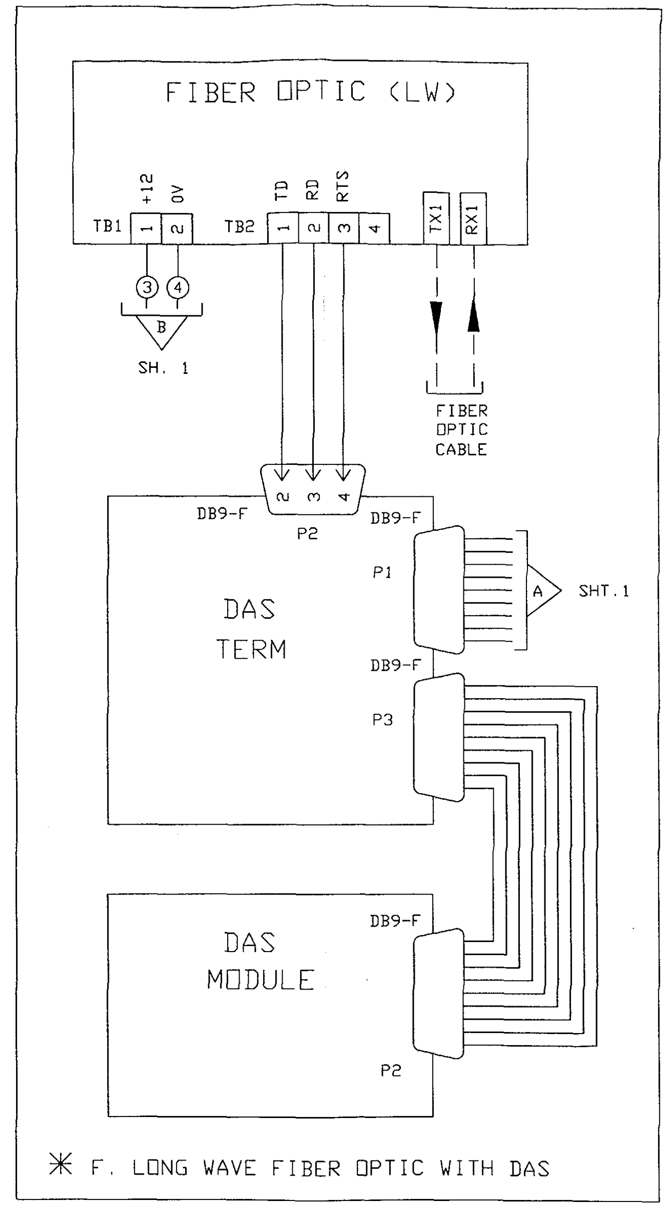


DAS MODULE
LED DETAIL

FO-6. Exterior RADC, +12 vdc Functional Wiring Block Diagram (Sheet 2 of 4)

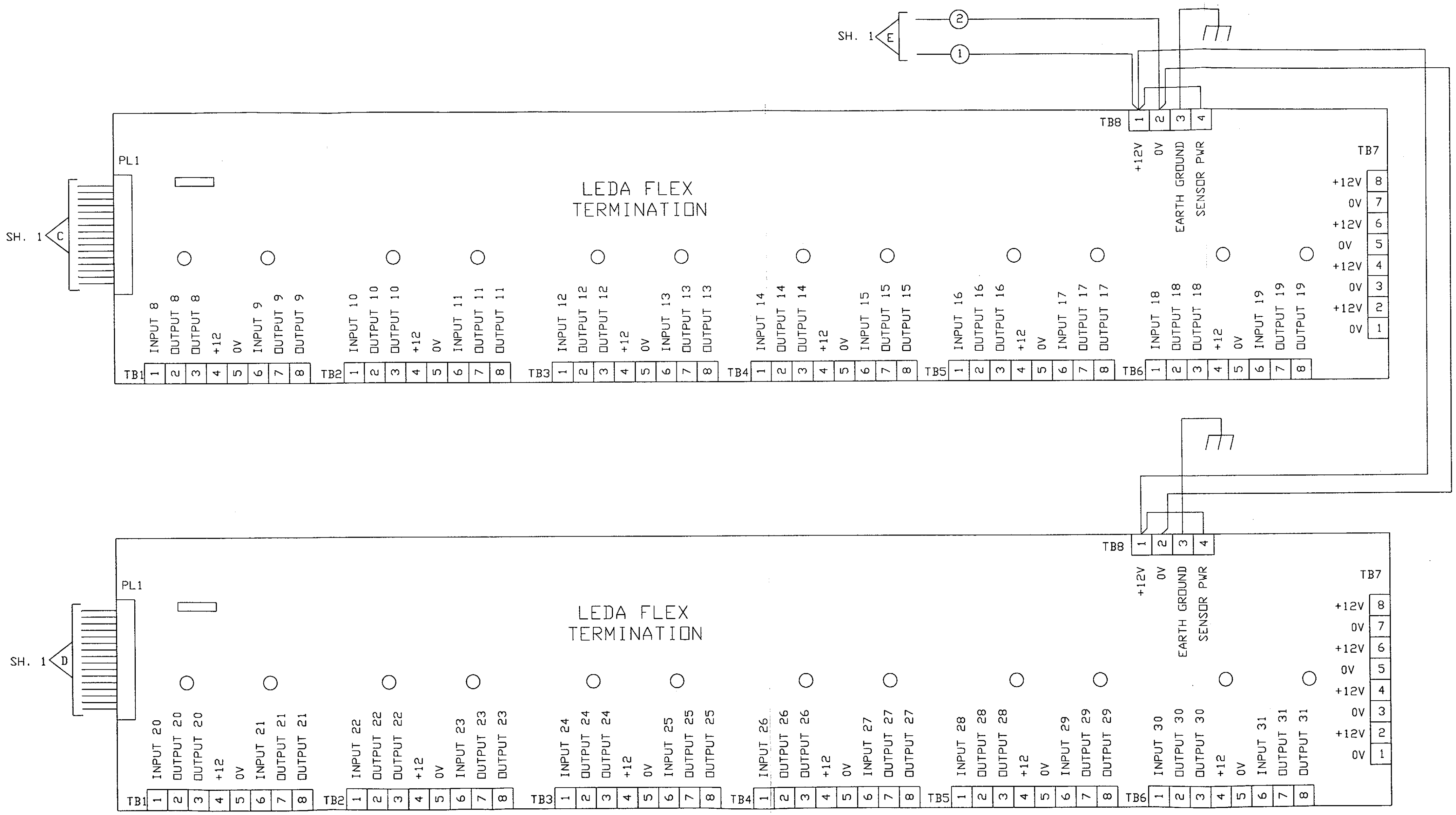




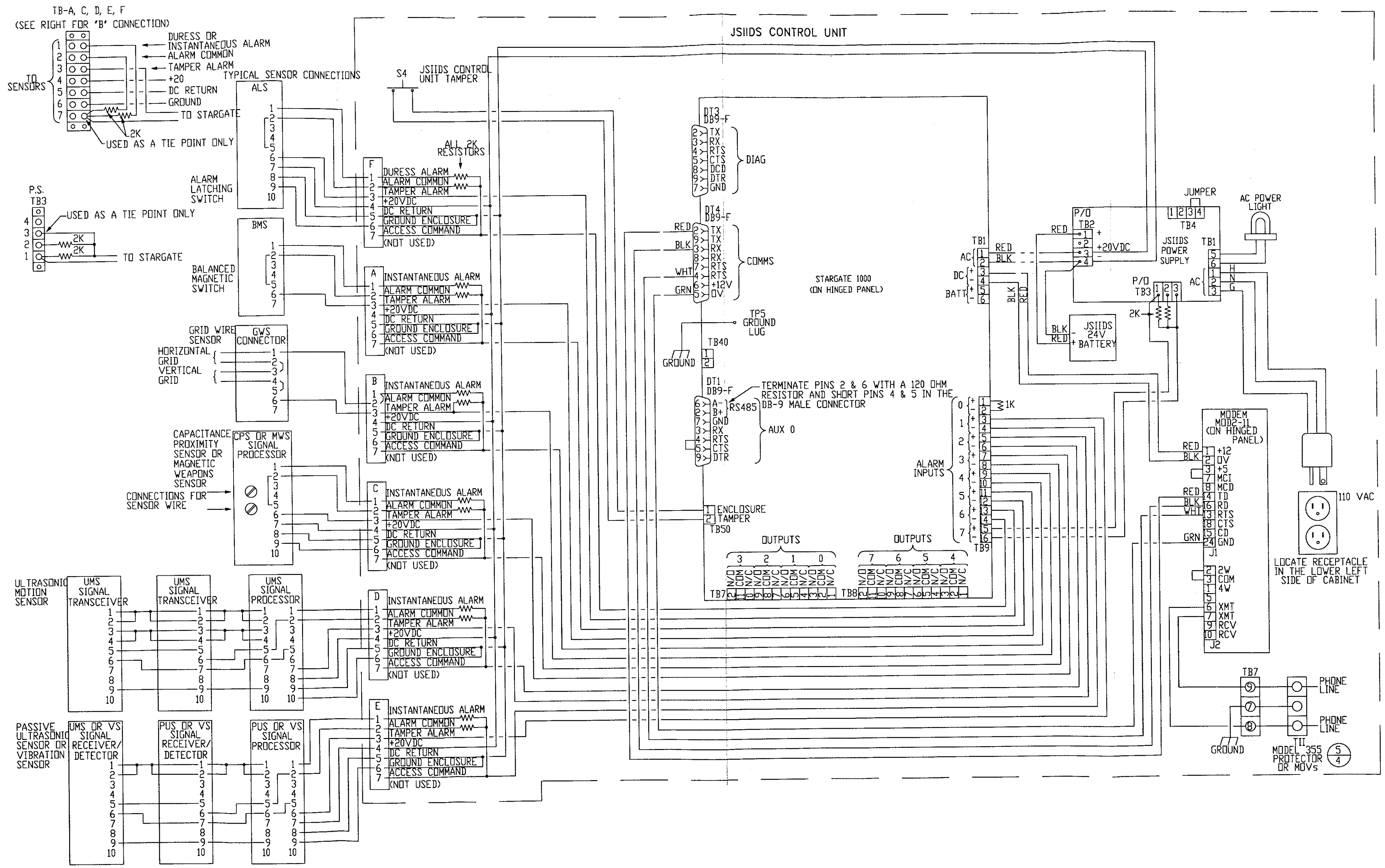


✳ OPTIONS ORDERED SEPARATELY

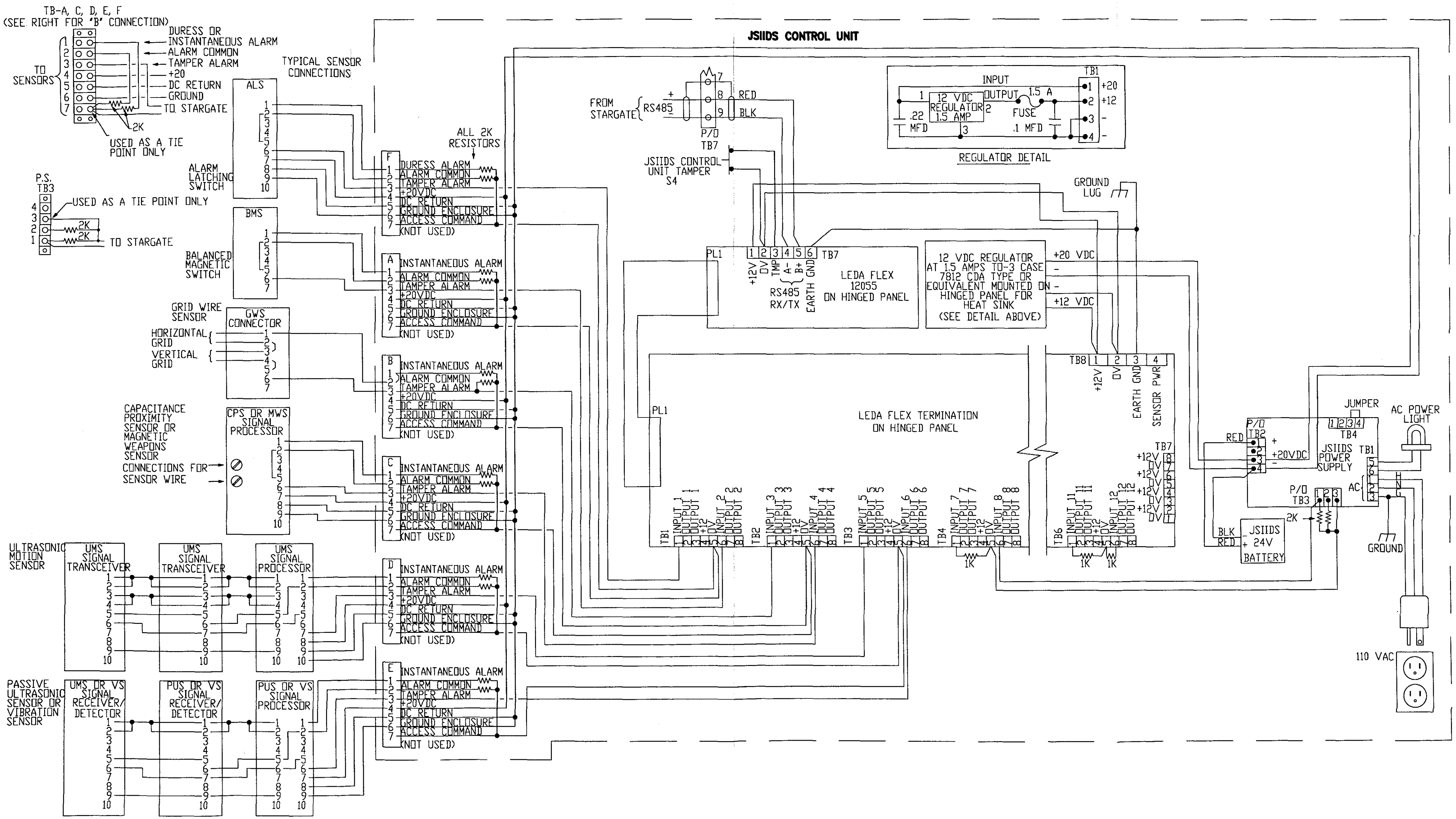
FO-6. Exterior RA D C, +12 vdc Functional Wiring Block Diagram (Sheet 3 of 4)



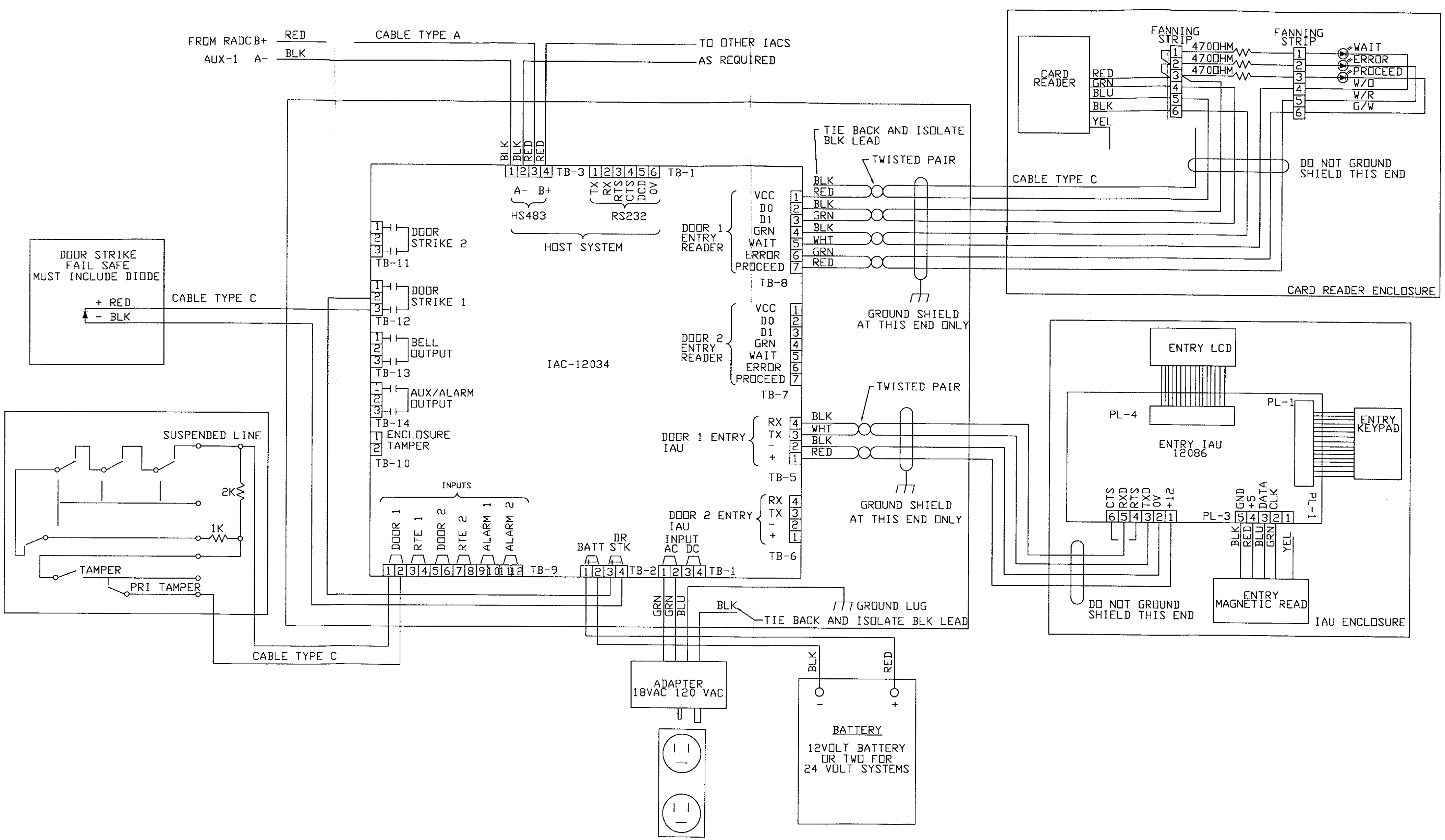
FO-3. Exterior RADC, +12 vdc Functional Wiring Block Diagram (Sheet 4 of 4)



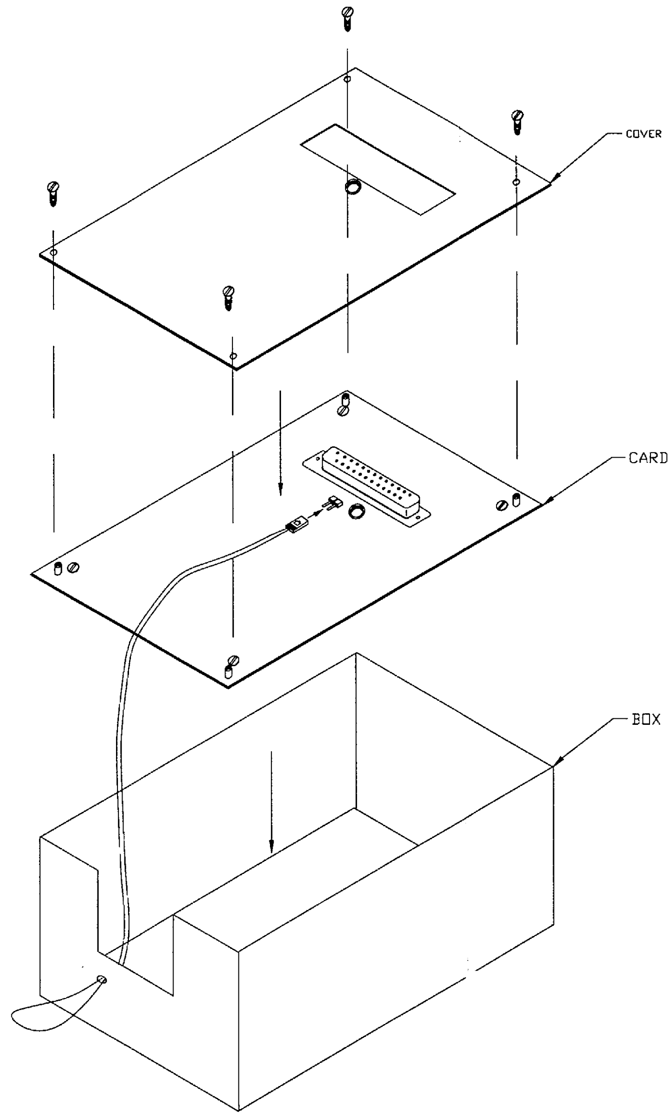
FO-7. J-SIIDS Stargate 1000 Functional Wiring Diagram



FO-8. J-SIIDS Leda Functional Wiring Diagram



FO-9. Intelligent Access Controller Functional Block Wiring Diagram



FO-10. DES “TOP” DETAIL

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

Milton H. Hamilton

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
08016

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P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 073586-000