EDACS SINGLE CHANNEL AUTONOMOUS TRUNKING (SCAT) GETC & DOWNLINK GETC CONFIGURATION MANUAL

TABLE OF CONTENTS

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SCOPE

This manual provides instructions for configuring the Ericsson **GE T**runking **C**ard (**GETC**) for use in a **S**ingle **C**hannel **A**utonomous **T**runking (**SCAT**) station. The information presented in this manual is applicable to EDACS SCAT stations using the MASTR II, IIe or MASTR III repeaters. The manual provides instructions for installing the SCAT GETC hardware, firmware, and software. It also provides instructions for setting up the GETCs and for performing a functional checkout of the GETC's.

INTRODUCTION

SCAT is a unique application of a GETC shelf that is configured as an option to an EDACS Repeater. The SCAT option allows a <u>single</u> repeater to alternately perform the Control Channel or Working Channel functions. This extends the trunked operation into difficult areas such as ravines, tunnels, etc. and extremely low traffic density areas such as shopping malls.

SCAT systems are available for all EDACS wideband configurations: VHF, UHF, and 800 MHz.

The SCAT channel may be configured as stand-alone system or as part of a multisite trunking network.

STAND-ALONE SCAT

The stand-alone SCAT consists of a standard EDACS Station with the GETC reconfigured for SCAT operation (SCAT firmware installed in the GETC) as shown in Figure 1. In this configuration, the repeater transmits control chan-

nel information until a radio requests a channel. The SCAT repeater then assigns itself as the working channel and begins routing audio. When the call is complete, the SCAT channel resumes operating as the control channel.
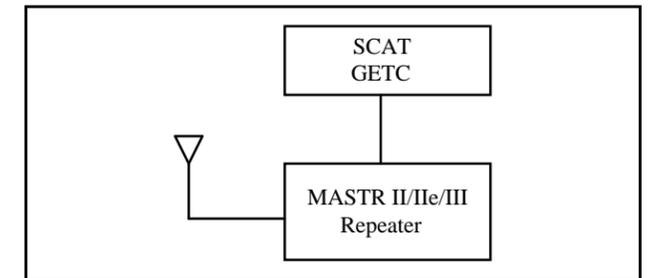
Figure 1 - Stand-alone SCAT

NETWORK SCAT

The second configuration is a Network SCAT channel used as part of an EDACS Multisite system.

Each Network SCAT channel requires a standard EDACS station with the SCAT station option (XXCP3Y). This option adds a SCAT Downlink GETC, SCAT firmware for both the station GETC and the SCAT Downlink GETC, and a SCAT GETC interconnect cable to the EDACS station. In this configuration, the SCAT station is connected to the Console Electronics Controller or Integrated Multisite and Console Controller (CEC/IMC) as shown in Figure 2. Each SCAT channel has its own Downlink and audio/data interface into the CEC/IMC.
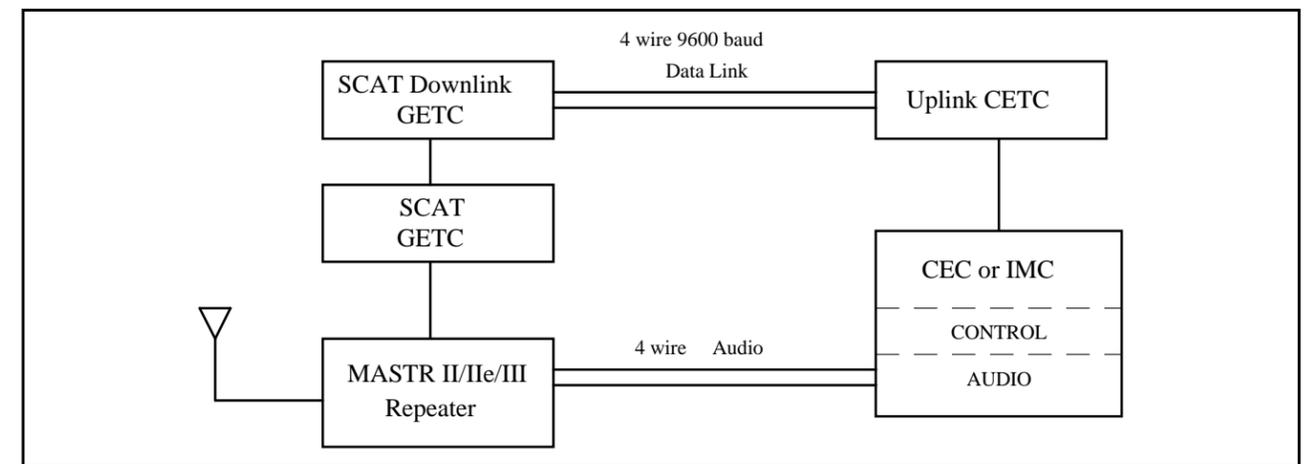
Figure 2 - Network SCAT Station

The CEC/IMC controls and routes SCAT calls, allowing the user to enjoy trunking features and the same trunked user interface. The CEC/IMC must be configured with a site interface (MSZM3R) for the SCAT system.

NOTE

In MASTR III systems, a cable (19D903880P10) is added to allow easy access to the MIII Tx and Rx Audio (J101). This cable is routed from from the MIII Interface Board J101 to the Downlink GETC TB10 pins 1, 2, 3, and 4.

OPERATION

As a result of the SCAT station using only one channel, only one conversation can occur at any one time through the SCAT site. While the SCAT site is busy, every call request (mobile request or console request) is queued. The mobile radio generates the Call Hold Off queue tone and automatically places a call request upon completion of the first call. Only console request for the active group will be processed immediately.

SCAT operation can only be performed by radios equipped to use a SCAT channel. SCAT only supports late entry for group calls.

The following radios are currently SCAT compatable:

Radio Type	Software Version
Alpha FMD	344A3892G4
MDR	344A4271G1
MDX	344A4649G1
MPA	19D149863, 344A(3705, 3703, 4415, 4421, 4419, 4614) All Group 12
PCS	344A4272G1
RANGR	19A149268G21

The SCAT channel and SCAT radios are designed to minimize the overloading of the inbound SCAT channel by prioritizing all calls. This allows the system to respond to emergency calls immediately upon availability of the channel.

Except for interconnect calls, all group and individual calls appear as transmission trunked calls to the radio and the CEC/IMC. This assures the mobile's quick return to the Control Channel. Local interconnect is unavailable on SCAT sites. However, use of the Centralized Telephone Interconnect System (CTIS or Jessica) is available in the multisite configuration.

SCAT and Downlink

SCAT provides the control functions to implement EDACS access to the SCAT service area. The Downlink is essentially a message conduit providing a data communication path between the SCAT and the CEC/IMC.

The Downlink's modem data is synchronous at 9600 baud using the full duplex operating mode. Data flows simultaneously in both directions as illustrated in Figure 3.
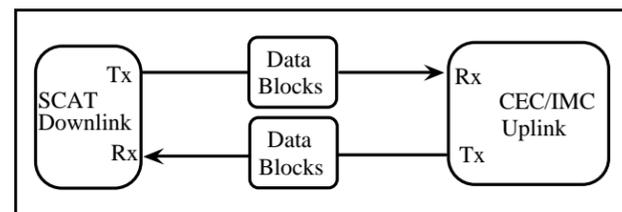

Figure 3 - Downlink to CEC/IMC Communication

The SCAT to Downlink format is asynchronous at 19.2K baud using the half duplex operating mode. Data flows in one direction at a time as shown in Figure 4.
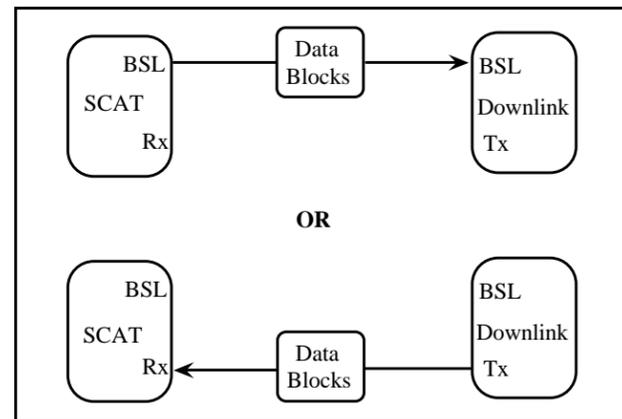

Figure 4 - SCAT to Downlink Communication

Since these two protocols are different, the Downlink converts from one format to the other. In addition, both the SCAT and Downlink perform data error detection and correction, general control of timer and IO functions (DIP switch, LED's, UART's, etc.), receive and transmit buffer management, message scheduling, and Turbo interfacing.

Wide Area Digital Option

The Wide Area Digital option (SXSF7A) enables the SCAT station to support Digital Voice communications. A hardware option (SXMD1D) provides an additional Rockwell Modem for the SCAT GETC. This enables the SCAT GETC to send and receive 9600 baud digital voice to the CEC/IMC using the four wire audio line.

NOTE

The SCAT software (344A3835) must be Group 2 or later to support Digital Voice communications.

RELATED PUBLICATIONS

It may be necessary to consult one or more of the following documents during the installation process. These manuals will also provide additional guidance if you encounter technical difficulties during the configuration process.

LBI-38822 - Turbo Board (GETC-1e) Maintenance Manual

LBI-38894 - GETC Trunking Card Maintenance Manual

LBI-38896 - EDACS Site Downlink and CEC/IMC Uplink Configuration Manual

LBI-38984 - EDACS System Manager User's Guide

LBI-38988 - EDACS Station GETC Configuration Manual

LBI-39024 - CEC/IMC Manager (MOM), Version 3.xx Operations Guide.

SRN-1009 - Software Release Notes for GETC SCAT Software

SRN-1010 - Software Release Notes for Turbo Board Software

TQ-3357 - GETC Shelf Programming Manual

EQUIPMENT REQUIRED

The following equipment and software may be required to configure the GETC:

- IBM compatible PC with at least 640K memory, monitor, and keyboard.
- Hard disk is recommended; but, not required.
- Serial Port configured as either COM1 or COM2.
- TQ-3360 programming cable.
- Male DB-25 to female DB-9 adapter.
- Software distribution diskette 344A4414.
- Oscilloscope.

CONFIGURATION

The configuration process involves the following steps and should be completed in the order presented:

1. Hardware Installation - The Hardware Installation step verifies proper installation of GETC hardware and provides instructions for installing the configuration jumpers.

2. Firmware Installation - This step provides instructions for installing the GETC operating firmware.

3. Software Installation - This step provides instructions for installing the Turbo Board software.

4. Personality Programming - This step provides instructions for programming and storing system configuration data in the GETC.

5. Operational Checkout - This step provides instructions for setting the dip switches S1 through S3 and for verifying GETC operation when the configuration is complete.

HARDWARE INSTALLATION

Each SCAT channel requires a standard EDACS Station with a SCAT station option. The Stand-alone SCAT requires a single station GETC setup for SCAT operation. The Network SCAT requires a station GETC and downlink GETC. Both GETCs must be setup for SCAT operation. This section includes hardware installation instructions for both the Stand-alone and Network SCAT GETCs.

Stand-alone SCAT GETC

Typically, a Stand-alone SCAT GETC is installed in the station cabinet just above the station's radio assembly. The GETC is mounted within a slide out shelf measuring 1.75 inches high (one rack unit) by 19 inches wide.

Installation or removal of the shelf sub-assemblies involves sliding the GETC shelf out of the cabinet and into the service position. This position allows access to the shelf's sub-assemblies. Install all components with the appropriate screws, nuts, and washer hardware. Refer to the MASTR II, IIe, or MASTR III Application Assembly Diagrams for detailed information on installing the GETC Shelf.

Observe basic safety precautions to prevent injury or equipment damage.

Network SCAT GETC

The Network SCAT option consists of a SCAT GETC, a Downlink GETC, a GETC interconnect cable and SCAT firmware for both GETCs. The interconnect cable provides the connection from the SCAT GETC to the Downlink GETC using their Backup Serial Ports. Both the SCAT and Downlink GETCs are configured with a Turbo Board for additional memory and processing capability.

Data communication between the SCAT Downlink GETC and the CEC/IMC Uplink GETC is carried on a four-wire, data grade, type 3002 audio circuit. As shown in Figure 2, the SCAT Site is configured as a dedicated site connected to the CEC/IMC through the Uplink GETC. Therefore, the maximum number of SCAT channels on a multisite network is equal to the maximum number of sites allowed on the CEC/IMC.

GETC Logic Board Installation

This manual assumes that the Logic Boards in both GETCs are previously installed, setup for the default configuration (800 MHz EDACS), and fully operational. If for any reason a GETC Logic board is suspect, refer to Maintenance manual LBI-38894 for detailed instructions on removing, replacing, and testing the GETC Logic Board or the Regulator Board.

Turbo Board Installation

This manual assumes that both GETCs have the Turbo Board installed at the factory and they are fully functional. If the Turbo Board is not installed or you encounter problems while installing the Turbo Board software, refer to LBI-38822 and SRN-1010 for detailed instructions on removing, replacing, and testing the Turbo Board.

Rockwell Modem Installation

A Rockwell Modem is always required in the Downlink GETC. Use the following procedure to install the modem if it is not already installed:

NOTE

If the SCAT station is setup to use the Wide Area Digital option, a Rockwell Modem must also be installed in the SCAT GETC. This allows the station to send and receive digital information to the CEC/IMC through the audio path.

---

1. Remove GETC power.

2. Remove the Turbo Board, refer to LBI-38822.

3. Plug the Rockwell Modem into J3 on the GETC Logic Board.

4. Install four insulators (A4035306P25) underneath the modem board and four insulators above the modem board at each screw hole.

5. Remove and discard the two nylon washers previously used as spacers.

6. Reinstall the Turbo Board.

7. Install jumpers on P11-pins 1&2 and on P12-pins 1&2.

8. Apply power to the GETC.

9. Adjust the audio line levels as follows (refer to Figure 5):

   a. Monitor U18 pin 1 and adjust the receive level potentiometer R1 (located on the GETC Logic Board) for 400 mVpp as measured with an oscilloscope (85 mVrms if using an RMS Voltmeter).

   b. Verify the presence of demodulated signal data at TP107.

   c. Adjust the transmit level potentiometer R2 for the maximum output level allowed by the phone line, microwave link, or equivalent communication line. For telephone lines, adjust R2 for .77 Vrms (0 dBm) across J6-8 and J6-9. For microwave links, adjust R2 for -10 dBm across J6-8 and J6-9.

Jumper Installation

There are a few jumpers on the GETC Logic Board which must be re-configured depending on the GETC application. To properly configure the GETC jumpers, refer to Table 1 and install or remove jumpers according to the intended GETC application. The location of the jumpers may be found using the board layout diagram in Figure 6 or by referring to the full scale GETC Diagrams at the end of the manual.
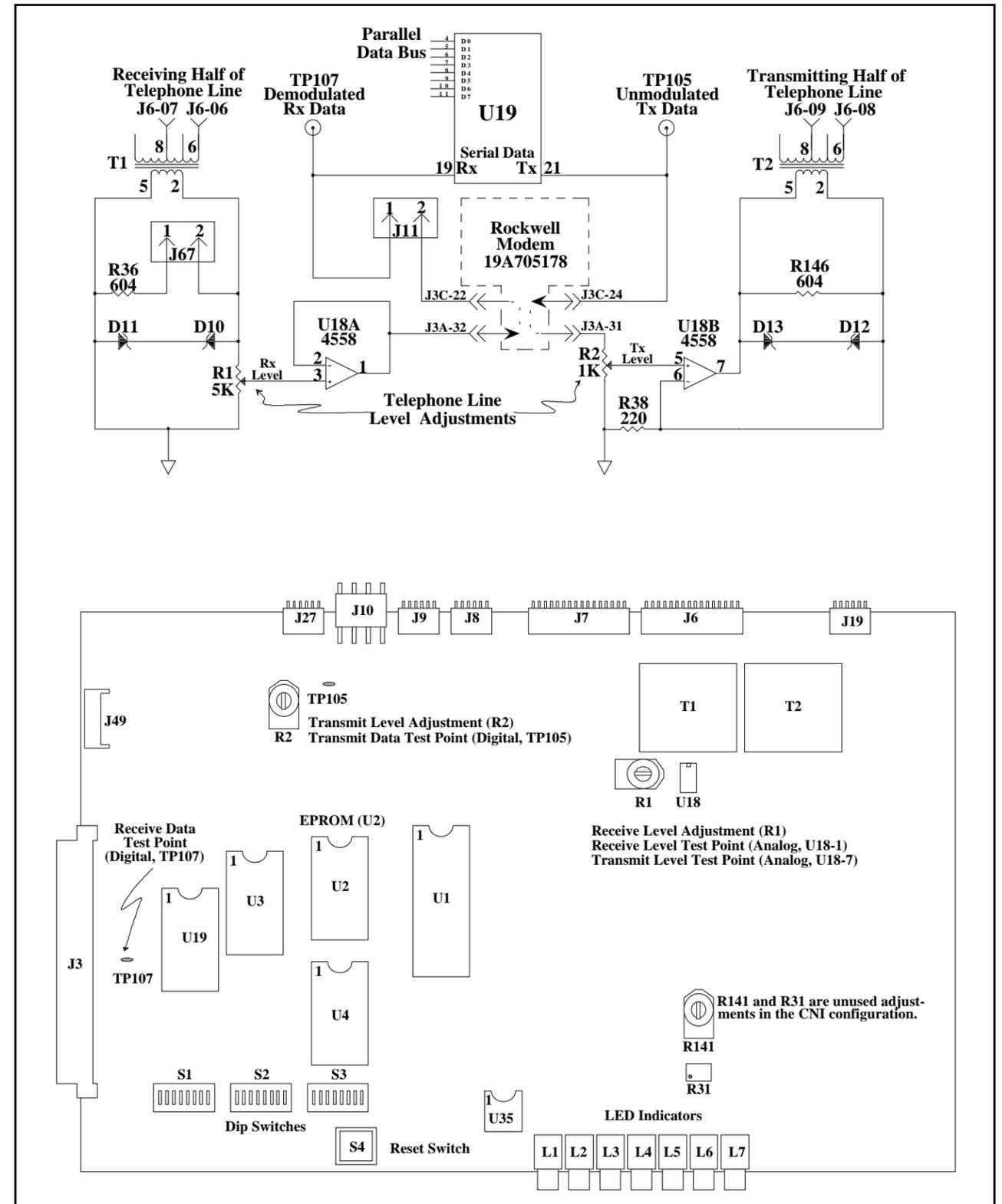

Figure 5 - GETC Phone Line Level Adjustments

FIRMWARE INSTALLATION

The firmware installation procedure involves installing the latest version of the SCAT EPROM (344A3835) into both the SCAT GETC and the SCAT Downlink GETC.

NOTE

This software is subject to change resulting from improvements or enhancements. When upgrading the software, the procedures provided in the accompanying software release notes takes precedence over this manual.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING

ELECTROSTATIC SENSITIVE DEVICES

EPROM Installation

Perform the following steps to install the SCAT GETC firmware. Repeat the process to install the SCAT firmware into the SCAT Downlink GETC:

1. Remove power from the GETCs and place the GETC shelves in the service position. This will allow access to the EPROM.

2. Remove the Station GETC EPROM U2.

3. Install the SCAT GETC EPROM into the XU2 socket (ensure the EPROM's pin 1 is properly aligned with pin 1 on the socket).

4. Restore power to the GETC.

5. When both GETCs have the SCAT firmware installed, proceed to the Software Installation procedure.

SOFTWARE INSTALLATION

This step provides instructions for programming the Turbo Boards installed in the SCAT and SCAT Downlink GETC. The installation process uses the software diskette 344A4414, an IBM compatible personal computer (PC), and an interconnecting cable (TQ-3360).

The PC reads data from the files on the 344A4414 diskette transfers the data to the Turbo Board microprocessor through connectors J103 and J104 at the rear of the GETC Shelf.

Running the "**load1e.exe**" executable program serially moves data from the "**1etop.hex**" and "**1ebot.hex**" files to the code segment of the Turbo Board's memory.

The "**1ecrc.hex**" file provides Cyclical Redundancy Check (CRC) information for use in error checking and verification during the file transfer or "programming" process. Any errors encountered during this procedure generally indicates a defective communication link between the PC and Turbo Board.

NOTE

If an error occurs, check connectors and cables. Cycle S2 and S3 from the front position, to the rear position, and again to the front position. If the PC continues to indicate an error, refer to the Turbo Board Maintenance Manual LBI-38822.

SCAT GETC

Preparation

Prepare the PC for programming the SCAT GETC Turbo Board by performing the following steps:

1. Connect the TQ-3360 programming cable from the PC's serial port connector to the GETC Shelf connector J104 (see Figure 7). (A DB-25 to DB-9 adapter may be needed.)

2. Using standard DOS commands or a software file manager, create a directory named "**LOAD1E**" on the PC's hard drive.

3. Make "**LOAD1E**" the current default directory and copy the following files from the software diskette into the "**LOAD1E**" directory:

    - load1e.exe
    - 1etop.hex
    - 1ecrc.hex
    - 1ebot.hex

Figure 6 - Station GETC (19D904266) Jumper Locations

Figure 7 - Turbo Board Programming

Table 1 - Jumper Settings

Jumper Position	SCAT GETC	SCAT Downlink GETC	FUNCTION
Jumper settings for SCAT GETC and SCAT Downlink GETC (19D904266 ONLY).			
P11	2&3*	1&2	Receive data from 9600 baud modem board.
P12	2&3*	1&2	Clear to send from 9600 baud modem board.
P13	1&2	1&2	BSL Tx output to BSL Rx input.
P14	1&2	1&2	Master site controller path selection enable.
P15	1&2	1&2	Backup site controller path selection enable.
P16	1&2	1&2	BSL selection enable.
P17	1&2	1&2	LSD encode path enable.
P18	1&2	1&2	LSD decode path enable.
P20	OMIT	OMIT	
P21	1&2	1&2	Enable high-speed data acquisition rate control, HSACQ.
P24	1&2	1&2	BSL selection (Failsoft) enable.
P25	1&2	1&2	LSD encode path enable.
P26	1&2**	1&2	Lock-detect path enable.
P28	1&2	1&2	Sync line input path enable.
P29	1&2	1&2	Enable site controller RxD, J8-4.
P44	1&2	1&2	Use for 256K or 512K EPROM.
P46	1&2	1&2	INTO for voter concentrator.
P47	1&2	1&2	BSL select.
P48	1&2	1&2	BSL select.
P50	1&2	1&2	Enable tone control for voted system
P51	1&2	1&2	Morse code ID enable.
P52	2&3	2&3	TxD polarity select.
P53	1&2	1&2	RxD polarity select.
P54	ON	ON	Enable MODCNTL local control.
P55	OMIT	OMIT	
P60	ON	ON	Enables HSD path.
P61	2&3	2&3	Use for 512K EPROM.
P62	1&2	1&2	Selects 11 MHz clock Freq. for 9600 baud data.
P63	OMIT	OMIT	
P64	OMIT	OMIT	
P65	OMIT	OMIT	
P66	OMIT	OMIT	
P67	OMIT	1&2	Selects proper receive telephone line input impedance.
P68	1&2	1&2	Selects Local (on)/Remote (off) control of station PTT.
P69	1&2	1&2	Enables COMB PTT IN.
P71	1&2	1&2	Enables telephone modem RTS control.
P72	1&2	1&2	Selects internal oscillator.
P73	2&3	2&3	Enables NOR gate U22B for PST applications.
P74	2&3	2&3	Selects CAS input to microprocessor.

Legend:
LSD = Low Speed Data   BSL = Backup Serial Link   RxD = Receive Data
HSD = High Speed Data   MSL = Main Serial Link   TxD = Transmit Data

NOTES

* For Wide Area Digital Voice option (Rockwell Modem installed), move jumpers to 1 & 2.

** For UHF applications, OMIT P26.

4. Move the Turbo Board **run/load** switches S2 and S3 to the load position (toward the front of the GETC shelf). The front position of S2 and S3 places the processors U1 and U2 into the programming mode. If either switch is already toward the front, move the switch to the rear and then back to the front position.

5. The Turbo Board LEDs D1 and D2 should turn OFF indicating that the Turbo Board is in the programming mode.

Programming Mode

This procedure downloads the Turbo Board software to the microprocessors U1 and U2 on the Turbo board.

NOTE

Re-programming the GETC Turbo Board will not alter previously stored Personality Data. When Personality Data is present, "**load1e.exe**" clears and performs CRC functions over the code portion of memory only. The "**load1e.exe**" also stores CRC data in the DS-2250's memory for future data corruption checks.

---

1. Execute the "**load1e.exe**" program on the PC and follow the on screen instructions.

   The "**load1e.exe**" program loads the file "1etop.hex" into the Turbo Board's upper half of memory for use by the top processor U1.

2. Monitor the PC's on screen instructions and prompts.

3. When directed, move the TQ-3360 programming cable from the GETC Shelf J104 to J103.

4. The PC will indicate it is loading the "**1ebot.hex**" file into the Turbo Board's lower half of memory for use by the bottom processor U2.

Normal Mode

Upon successful completion of the programming mode, the PC displays a "FINISHED" message. It will also provide instructions to switch S2 and S3 to the rear position for normal operation.

1. Move switches S2 and S3 to the "run" position (toward the back of the GETC shelf).

2. Press S4 to reset the GETC.

3. The Turbo Board LEDs, D1 and D2, will light indicating the station code is executing.

4. Disconnect the TQ-3360 programming cable upon successful completion of the programming procedure.

For additional information on programming the Turbo Board, refer to the Turbo Board Maintenance Manual LBI-38822 and Software Release Note SRN-1062.

SCAT Downlink GETC

The procedure for programming the Downlink GETC Turbo board is exactly the same as the SCAT GETC.

1. Repeat the SCAT GETC Software Installation process for the SCAT Downlink GETC Turbo board.

When both GETCs have been programmed, proceed to the Personality Programming procedure.

PERSONALITY PROGRAMMING

Personality refers to the system configuration data stored in the GETC's memory. The GETC's Personality includes system configuration information such as channel frequencies, call parameters, operating modes, and identification information.

The Personality Programming process stores the Personality data in EEPROM U35 on the GETC Logic Board (SCAT GETC's with EPROM 344A3835G1 or G2). This process involves using the TQ-3357 (Version 3.00 or later) GETC Shelf PC programming Guide which includes the programming software.

NOTE

This software is subject to change resulting from improvements or enhancements. The instructions contained in this manual are for guidance only. When programming the personality, the detailed instructions contained in TQ-3357 and the accompanying software takes precedence over this manual.
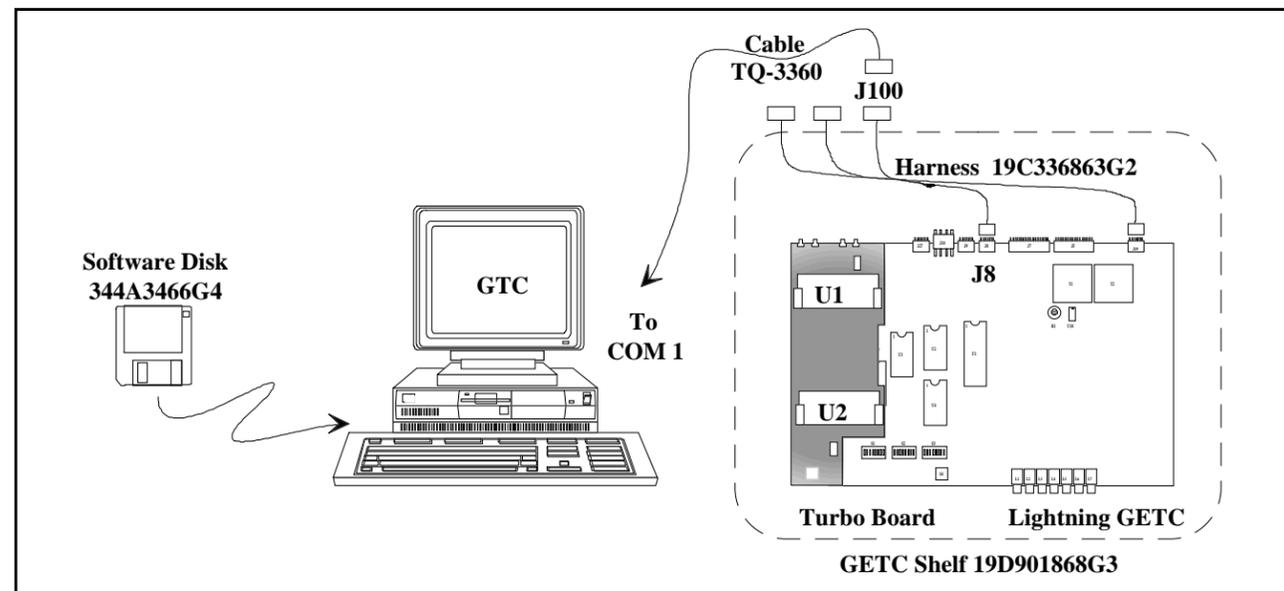

Figure 8 - Personality Programming

Preparation

Prepare the PC for Personality Programming by performing the following steps:

1. Connect the TQ-3360 programming cable from the PC's serial port connector (COM1/COM2) to the SCAT GETC Shelf connector J100 (see Figure 8). (A DB-25 to DB-9 adapter may be needed.)

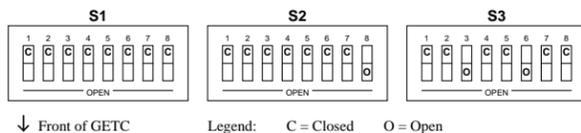2. Set the GETC dip switches S1, S2, and S3 for the programming mode as shown in Figure 9.

Figure 9 - Switch Settings for Personality Programming Mode

Programming the Personality

Program the personality into the SCAT GETC or the SCAT Downlink GETC using the following procedures:

1. Reset the GETC by either cycling power or pressing the GETC RESET switch S4, located just below the dip switches. Resetting the GETC, in combination with the dip switch settings, places the GETC into the Personality Programming mode.

2. Verify that front panel LEDs L3, L4, and L5 are ON, this indicates the GETC is ready for programming.

LED Indicators	L1	L2	L3	L4	L5	L6	L7
Programming Mode	○	○	●	●	●	○	○

Legend: ○ = OFF   ● = ON   ✳ = FLASHING

3. Following the instructions in TQ-3357, select the "**GE**" directory and execute the "**GTC**" command. After a brief introductory screen, the Current Personalities Screen appears.

The programming software offers menu selections and function keys for comprehensive GETC Personality management including:

- Creating a new Personality
- Reading a GETC's current Personality
- Retrieving a Personality from disk storage
- Saving a Personality to the disk
- Editing an existing Personality
- Transferring a Personality to the GETC's memory

4. Read the existing personality from the SCAT GETC to the PC. If the personality does not exist, retrieve the sample SCAT Personality (shown in Figure 10) from the PC. Change the personality parameters as required.

> **NOTE**
>
> The personality data for SCAT Downlink GETC must be the same as the SCAT GETC.

5. After entering the personality parameters, select the "Program Card" function to program the personality into the GETC.

6. Verify that the GETC has properly stored the personality data by selecting the "Read Unit Into File" function while in the Current Personalities Screen.

7. After completing the programming, save the revised personality to disk.

8. Reset the DIP switches and press S4 to reset the GETC.

9. Disconnect the TQ-3360 cable and verify GETC operation.

CEC/IMC Personality Configuration

At the System Manager, configure the SCAT groups as TRACKED to maximize the availability of the SCAT channel. As a TRACKED group, the SCAT channel only receives requests from the CEC/IMC for groups that are logged into the SCAT system. The CEC/IMC bypasses the SCAT system with other multisite calls making the SCAT channel available for users within the SCAT system coverage area. Refer to LBI-38984 for System Manager programming.

Confirmed Calls

The CEC/IMC may experience excessive delays waiting for a confirmation response from a SCAT system. To prevent unnecessary delays, we recommend SCAT systems be excluded from Confirmed Calls. At the CEC/IMC Manager, set the Confirmed Call Parameter to "Y - Ignore Site for Call Confirmation." Refer to the EDACS CEC/IMC Manager (MOM PC) Operation's Manual, LBI-39024, section 3.2.9.

Wide Area Digital Option

The Wide Area Digital option is activated at the factory using a unique code for each repeater. This code is stored with the GETC Personality.

Thus changes to the personality should be made by reading the existing personality, modifying the data, and writing the modified data back to the GETC. Figure 11 is an example of the SCAT Wide Area Digital Personality.

OPERATIONAL CHECKOUT

Verify that the GETC is operating correctly by performing the following steps:

DIP SWITCH SETTINGS

The GETC DIP Switch settings depend on the GETC's usage (SCAT GETC or SCAT Downlink GETC), channel, and frequency (Mastr II and IIe only). Set the GETC dip switches using the following procedures:

> **NOTE**
>
> Be sure the dip switch settings correspond to the Personality data created.

SCAT GETC

Set the three GETC DIP switches (S1 - S3) for SCAT operation, as shown in Figure 12.

1. Set S1-1 thru S1-7 and S2-1 thru S2-4 to the repeater's operating frequency. Refer to Station GETC manual LBI-38988 frequency dip switch settings.

> **NOTE**
>
> In MASTR III Stations the operating frequency is programmed directly into the MASTR III's personality. Set S1-1 thru S1-7 and S2-1 thru S2-4 to the Closed position.

2. Set S1-8 to the Open position.

3. Set S2-5, 6 and 8 to Closed and S2-7 to the Open position.

Personality: C:\GE\GTC\RADIO\SCAT_PER.GTC

Radio Text
These are SCAT Site and SCAT Down-
link Personalities.
Centralized Telephone Interconnect
System (CTIS) is enabled.

Channel Allocations	1 - 10	11 - 20	21 - 30	31 - 32
Channel Number	1234567890	1234567890	1234567890	12
Control Channel	Y•••••••••	••••••••••	••••••••••	••
Clear Voice	Y•••••••••	••••••••••	••••••••••	••
Digital Voice	••••••••••	••••••••••	••••••••••	••
Data	••••••••••	••••••••••	••••••••••	••
Pager	••••••••••	••••••••••	••••••••••	••
Interconnect	Y•••••••••	••••••••••	••••••••••	••
Downlink	••••••••••	••••••••••	••••••••••	••
Multisite Downlink	••••••••••	••••••••••	••••••Y•••	••
External CIU	••••••••••	••••••••••	••••••••••	••

Channel Data
System Type: WIDE BAND

Ch#	Freq (MHz)	Ch#	Freq (MHz)	Ch#	Freq (MHz)	Ch#	Freq (MHz)
1	857.0125	11	0.0000	21	0.0000	31	0.0000
2	0.0000	12	0.0000	22	0.0000	32	0.0000
3	0.0000	13	0.0000	23	0.0000		
4	0.0000	14	0.0000	24	0.0000		
5	0.0000	15	0.0000	25	0.0000		
6	0.0000	16	0.0000	26	0.0000		
7	0.0000	17	0.0000	27	0.0000		
8	0.0000	18	0.0000	28	0.0000		
9	0.0000	19	0.0000	29	0.0000		
10	0.0000	20	0.0000	30	0.0000		

Site Data
Site Name :   SCATSITE1
Date   :   08/21/93

SITE ID :   9
Morse ID :

Channel Assignment	:	Descending	Individual Call Hangup	:	5
Rotating Assignment	:	No	Group Call Hang	:	5
Site Ch/Frq Notification	:	No	Special Call Hang	:	30
Individual Call Update	:	One Slot	Voice Guard Hang	:	0
Logical IDs above 8192	:	Yes	Emergency Call Hang	:	5
SCAT	:	Yes	System All Call Hang	:	5
Multisite System	:	Yes	Transmission Trunked Timer	:	120
Simulcast System	:	No	Message Trunked Timer	:	300
Voter System	:	No	Morse Interval Timer	:	0
CTIS	:	Yes	Test Call Timer	:	0
			Max Interconnect Calls	:	1

Figure 10 - Sample SCAT Personality

Personality: C:\GE\GTC\RADIO\SCATDIG.GTC

Radio Text
These are SCAT Site and SCAT Down-
link Personalities.
Centralized Telephone Interconnect
System (CTIS) is enabled.

Channel Allocations	1 - 10	11 - 20	21 - 30	31 - 32
Channel Number	1234567890	1234567890	1234567890	12
Control Channel	Y•••••••••	••••••••••	••••••••••	••
Clear Voice	Y•••••••••	••••••••••	••••••••••	••
Digital Voice	••••••••••	••••••••••	••••••••••	••
Data	••••••••••	••••••••••	••••••••••	••
Pager	••••••••••	••••••••••	••••••••••	••
Interconnect	Y•••••••••	••••••••••	••••••••••	••
Downlink	••••••••••	••••••••••	••••••••••	••
Multisite Downlink	••••••••••	••••••••••	••••••Y•••	••
External CIU	••••••••••	••••••••••	••••••••••	••

Channel Data
System Type: WIDE BAND

Ch#	Freq (MHz)	Ch#	Freq (MHz)	Ch#	Freq (MHz)	Ch#	Freq (MHz)
1	857.0125	11	0.0000	21	0.0000	31	0.0000
2	0.0000	12	0.0000	22	0.0000	32	0.0000
3	0.0000	13	0.0000	23	0.0000		
4	0.0000	14	0.0000	24	0.0000		
5	0.0000	15	0.0000	25	0.0000		
6	0.0000	16	0.0000	26	0.0000		
7	0.0000	17	0.0000	27	0.0000		
8	0.0000	18	0.0000	28	0.0000		
9	0.0000	19	0.0000	29	0.0000		
10	0.0000	20	0.0000	30	0.0000		

Site Data
Site Name :   SCATSITE1
Date   :   08/21/93

SITE ID :   9
Morse ID :

Channel Assignment	:	Descending	Individual Call Hangup	:	5
Rotating Assignment	:	No	Group Call Hang	:	5
Site Ch/Frq Notification	:	No	Special Call Hang	:	30
Individual Call Update	:	One Slot	Voice Guard Hang	:	0
Logical IDs above 8192	:	Yes	Emergency Call Hang	:	5
SCAT	:	Yes	System All Call Hang	:	5
Multisite System	:	Yes	Transmission Trunked Timer	:	120
Simulcast System	:	No	Message Trunked Timer	:	300
Voter System	:	No	Morse Interval Timer	:	0
CTIS	:	Yes	Test Call Timer	:	0
			Max Interconnect Calls	:	1

Figure 11 - Sample SCAT Wide Area Digital Personality (optional)

4. Set S3-1 to Open and S3-2 thru S3-5 to Closed. This sets the SCAT GETC for operation on channel number 1.

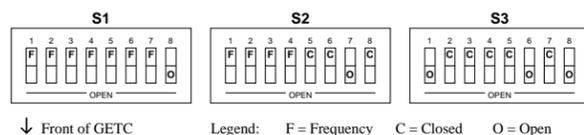5. Set S3-6 and S3-8 to Open and S3-7 to Closed.

Figure 12 - SCAT GETC Switch Settings

SCAT Downlink GETC

Set the three GETC DIP switches (S1 - S3), shown in Figure 13, for SCAT Downlink operation.

- Set S1-1 through S1-8 and S2-1 through S2-8 to the Closed position.

- Set S3-1, 2, 4, and 5 to the Open position and S3-3 to the Closed position. This sets the SCAT Downlink GETC for operation on channel number 27.
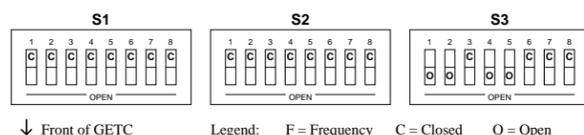
- Set S3-6 through S3-8 to the Closed position.

Figure 13- SCAT Downlink Switch Settings

CLEAR VOICE CHECKOUT

The following tests allow you to confirm the SCAT GETC operation when the GETC operates as a Control Channel GETC and when making Clear Voice (CV) calls

Locally Initiated Call

This procedure assumes that the test radios being used have their personalities programmed to enable SCAT, set to the SCAT group frequency, and operating in Clear Voice mode.

1. Apply power to the station (or reset the GETCs). The station should default to the Control Channel mode.

2. Verify the SCAT and SCAT Downlink GETC LEDs when the station is in the Control Channel mode (see Table 2).

  - SCAT GETC - L1, L6, and L7 turn ON.

  - SCAT DL GETC - L1 and L2 are ON.

Table 2 - LED Indications, No Activity

LED Indicators	L1	L2	L3	L4	L5	L6	L7
SCAT GETC Control Channel	●	○	○	○	○	●	●
SCAT Downlink GETC Downlink to CEC/IMC Uplink	●	●	○	○	○	○	○

Legend: ○ = OFF ● = ON ✳ = FLASHING

3. Set test radios 1 and 2 to group 1.

4. Initiate a call from radio 1 to radio 2.

5. Verify that the SCAT GETC switches from the Control Channel mode to the Working Channel mode as shown in Table 3 (LED L7 goes OFF).

Table 3 - LED Indications, Clear Voice Local Call

LED Indicators	L1	L2	L3	L4	L5	L6	L7
CV Working Channel (Locally initiated call.)	●	●	○	○	○	○	○

Legend: ○ = OFF ● = ON ✳ = FLASHING

6. Verify that voice can be heard on both radios and that the ID of the transmitting radio is displayed on the receive radio.

7. Unkey the radio and verify that the station returns to the Control Channel mode.

Multisite Initiated Call

1. Initiate a multisite call or a console call to a radio assigned to the SCAT station.

2. When the call is received, verify that SCAT GETC LED L7 turns OFF and L2 turns ON as shown in Table 4.

Table 4 - LED Indications, Clear Voice Multisite Call

LED Indicators	L1	L2	L3	L4	L5	L6	L7
CV Working Channel (Multisite initiated call.)	●	●	○	○	○	●	○

Legend: ○ = OFF ● = ON ✳ = FLASHING

3. When the call is finished, verify that the LEDs change state indicating the station has returned to the Control Channel mode.

DIGITAL VOICE CHECKOUT

The following tests allow you to confirm the SCAT GETC operation when making Digital Voice (DV) calls

Locally Initiated Call

1. Setup the radios for Digital Voice operation.

> **NOTE**
>
> The SCAT GETC must have the Wide Area Digital option enabled to perform this test. Contact your EGE Sales Representative and ask for option SXSF7A. If your SCAT GETC does not have a Rockwell Modem, also order option SXMD1D.

2. Initiate a call from radio 1 to radio 2 using the Digital Voice mode.

3. When the call is received, verify that SCAT GETC LEDs L1, L6, and L7 turn ON (see Table 5).

Table 5 - LED Indications, Digital Voice Local Call

LED Indicators	L1	L2	L3	L4	L5	L6	L7
DV Working Channel (Locally initiated call.)	●	○	○	○	○	●	●

Legend: ○ = OFF ● = ON ✳ = FLASHING

4. When the call is finished, verify that the LEDs change state indicating the station has returned to the Control Channel mode.

Multisite Initiated Call

1. Initiate a multisite or console DV call to a radio assigned to the SCAT station.

2. When the call is received, verify that SCAT GETC LED's L1, L2, L6, and L7 turn ON as shown in Table 6.

Table 6 - LED Indications, Digital Voice Multisite Call

LED Indicators	L1	L2	L3	L4	L5	L6	L7
DV Working Channel (Multisite initiated call.)	●	●	○	○	○	●	●

3. When the call is finished, verify that the LEDs change state indicating the station has returned to the Control Channel mode.

LED INDICATORS

Table 7 is a summary of the operating modes and the associated LED indications.

Table 7 - LED Indications, Summary

LED Indicators	L1	L2	L3	L4	L5	L6	L7
SCAT GETC Control Channel	●	○	○	○	○	●	●
CV Working Channel. Locally initiated call.	●	○	○	○	○	●	○
CV Working Channel. Multisite initiated call.	●	●	○	○	○	●	○
DV Working Channel. Locally initiated call.	●	○	○	○	○	●	●
DV Working Channel, Multisite initiated call.	●	●	○	○	○	●	●
SCAT Downlink GETC Downlink.	●	●	○	○	○	○	○

Legend: ○ = OFF ● = ON ✳ = FLASHING
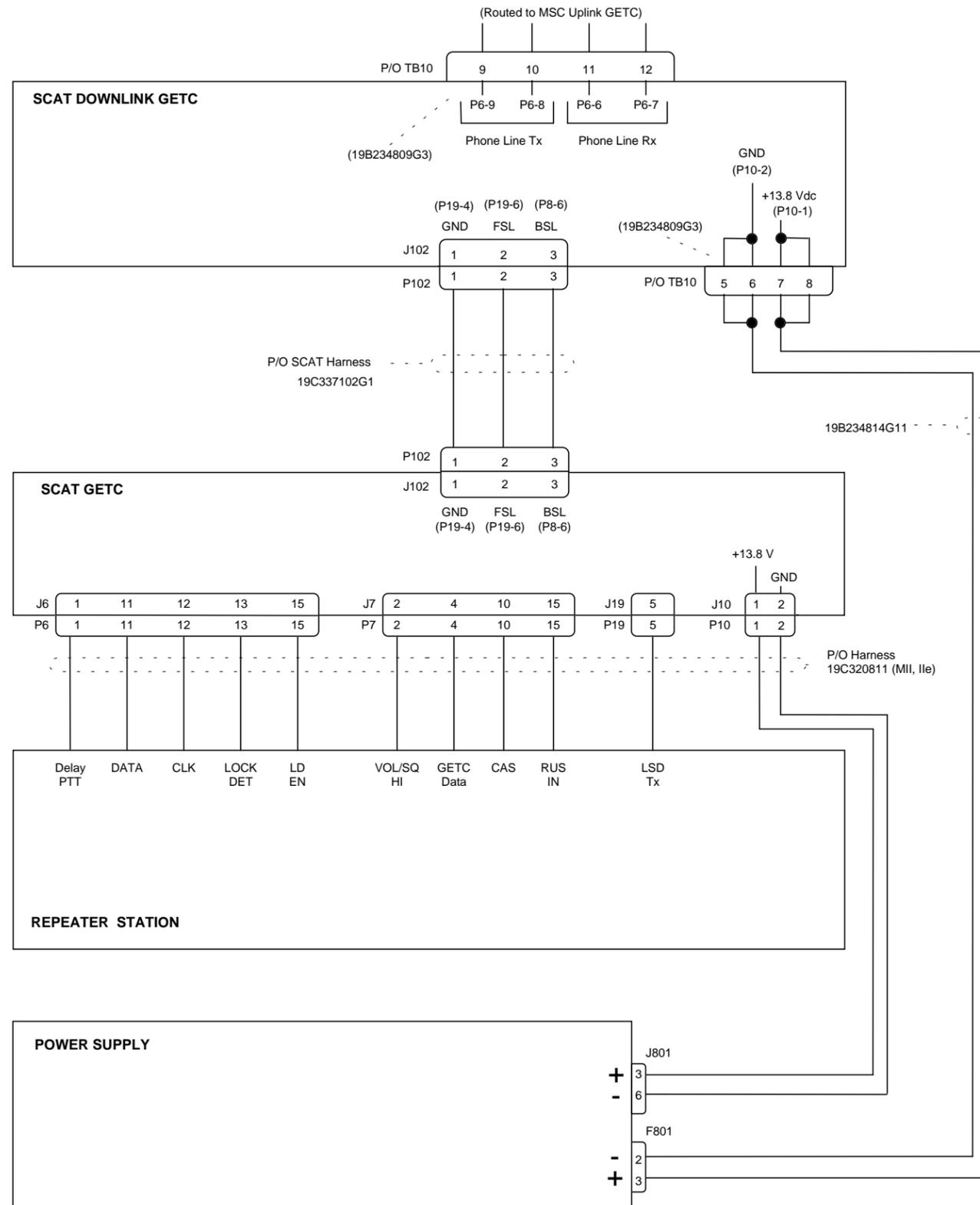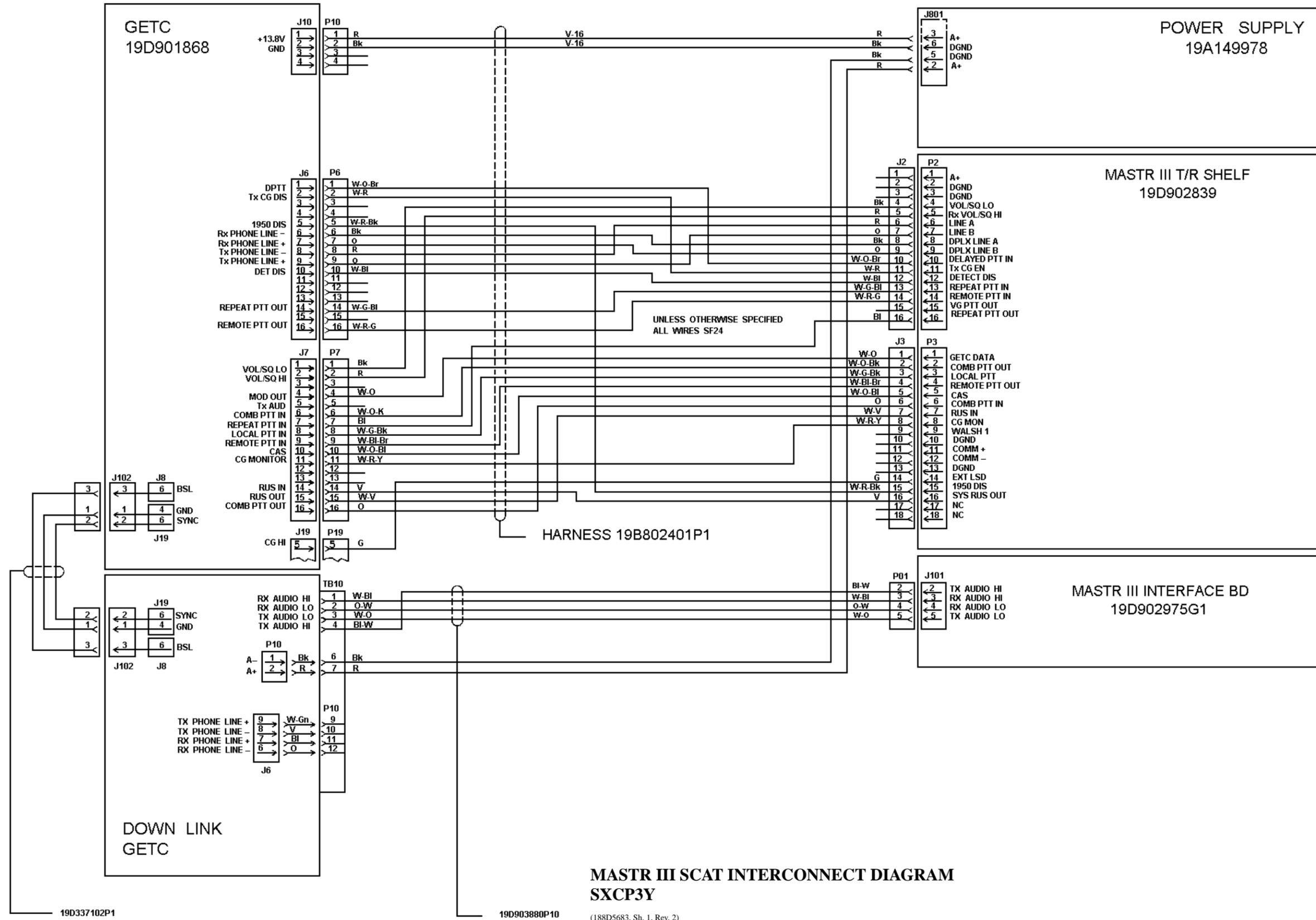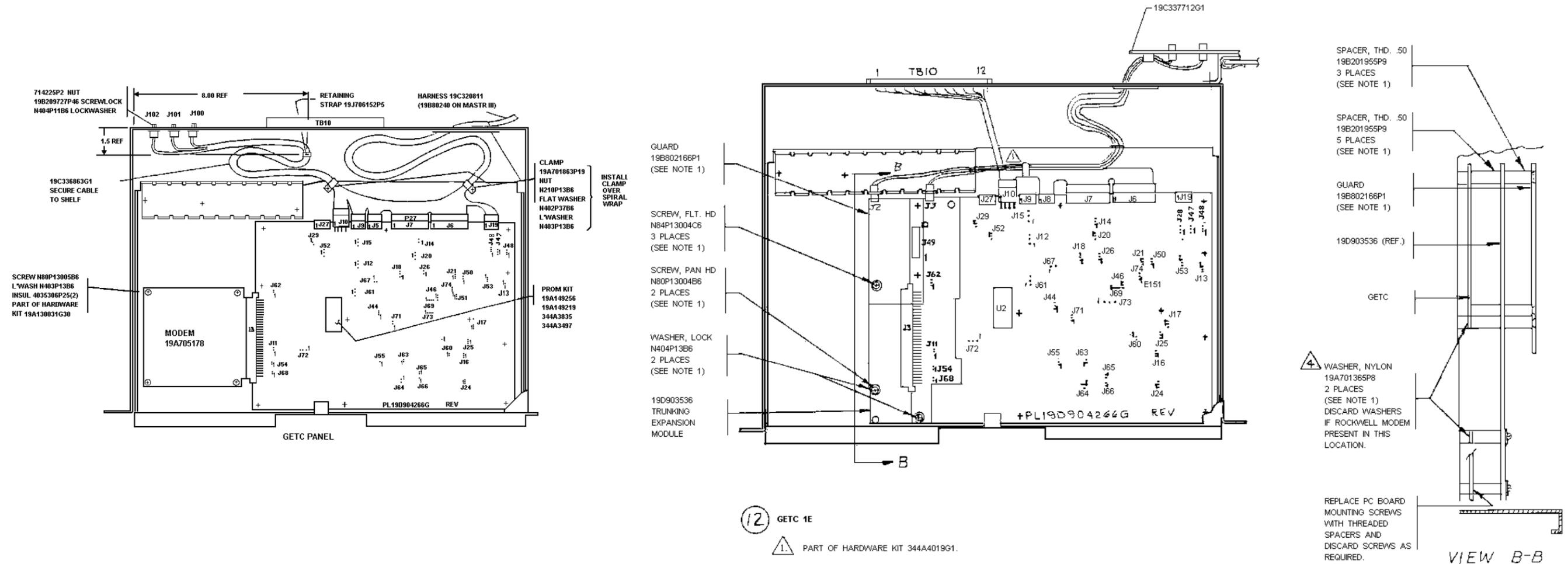
Figure 14 - MASTR II (IIe) EDACS Network SCAT Interconnection Diagram

MASTR III SCAT INTERCONNECT DIAGRAM
SXCP3Y

(188D5683, Sh. 1, Rev. 2)

—19C337712G1

714225P2 NUT
19B209727P46 SCREWLOCK
N404P11B6 LOCKWASHER

8.00 REF

RETAINING
STRAP 19J706152P5

HARNESS 19C320811
(19B80240 ON MASTR III)

J102 J101 J100

TB10

1.5 REF

CLAMP
19A701863P19
NUT
N210P13B6
FLAT WASHER
N402P37B6
L'WASHER
N403P13B6

INSTALL
CLAMP
OVER
SPIRAL
WRAP

19C336863G1
SECURE CABLE
TO SHELF

SCREW N80P13005B6
L'WASH N403P13B6
INSUL 4035306P25(2)
PART OF HARDWARE
KIT 19A130031G30

MODEM
19A705178

PROM KIT
19A149256
19A149219
344A3835
344A3497

PL19D904266G   REV

GETC PANEL

GUARD
19B802166P1
(SEE NOTE 1)

SCREW, FLT. HD
N84P13004C6
3 PLACES
(SEE NOTE 1)

SCREW, PAN HD
N80P13004B6
2 PLACES
(SEE NOTE 1)

WASHER, LOCK
N404P13B6
2 PLACES
(SEE NOTE 1)

19D903536
TRUNKING
EXPANSION
MODULE

TB10   12

U2

E151

+PL19D904266G   REV

→ B

SPACER, THD. .50
19B201955P9
3 PLACES
(SEE NOTE 1)

SPACER, THD. .50
19B201955P9
5 PLACES
(SEE NOTE 1)

GUARD
19B802166P1
(SEE NOTE 1)

19D903536 (REF.)

GETC

⚠4 WASHER, NYLON
19A701365P8
2 PLACES
(SEE NOTE 1)
DISCARD WASHERS
IF ROCKWELL MODEM
PRESENT IN THIS
LOCATION.

REPLACE PC BOARD
MOUNTING SCREWS
WITH THREADED
SPACERS AND
DISCARD SCREWS AS
REQUIRED.

VIEW B-B

12 GETC 1E

⚠1 PART OF HARDWARE KIT 344A4019G1.

2. REMOVE U3 FROM GETC BOARD AND PLUG 19D903536 BOARD INTO XU3.
    U3 TO BE HANDLED AS STATIC SENSITIVE DEVICE AND RETURNED
    TO STOCK IN STATIC-FREE TUBE.

3. BEND OVER ELECROLYTIC CAPACITORS ON GETC BOARD TO
    AVOID INTERFERENCE WITH 1e MODULE.

⚠4 IF MODULE IS LOCATED IN THIS LOCATION, REMOVE LOCKWASHERS
    AND SCREWS FROM THIS END OF MODULE AND INSTALL THREADED
    INSERTS. LEAVE LOCKWASHERS ON FAR END OF MODULE.

5. TIE CABLE TO EXISTING HARNESS WITH 19J706152P5.

6. IN SIMULCAST SYSTEM, MOUNT 19C337712G1 1 RU BELOW
    GETC AFTER MOVING ANTENNA MOUNT DOWN 1 RU.
    USE 7160861P33 SPRING NUTS AND 19A134011P1 SCREWS
    PROVIDED.

SCAT DOWNLINK SHELF
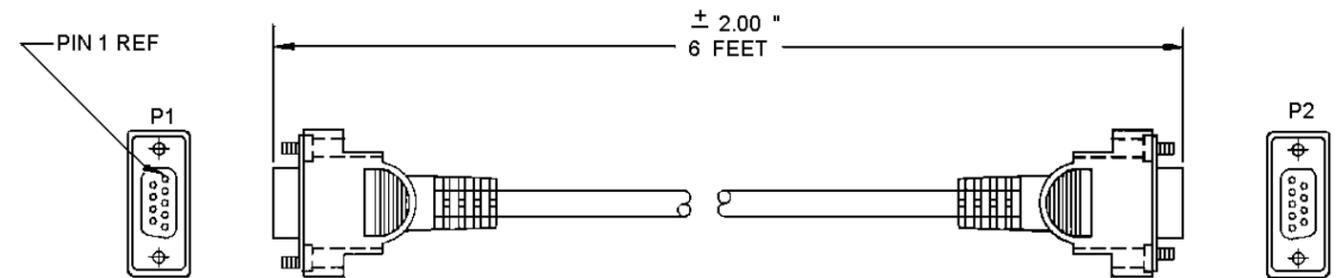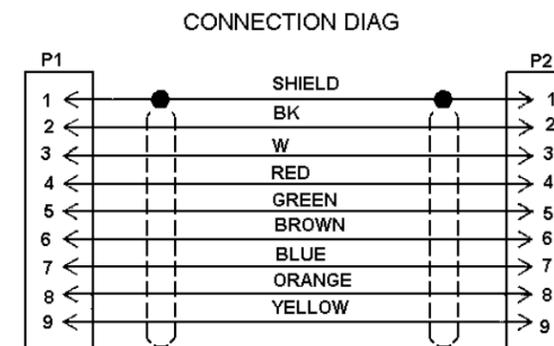**19D901868G3**

(19D417483, Sh. 12, Rev. 27/19D438125, Sh. 3, Rev. 7)
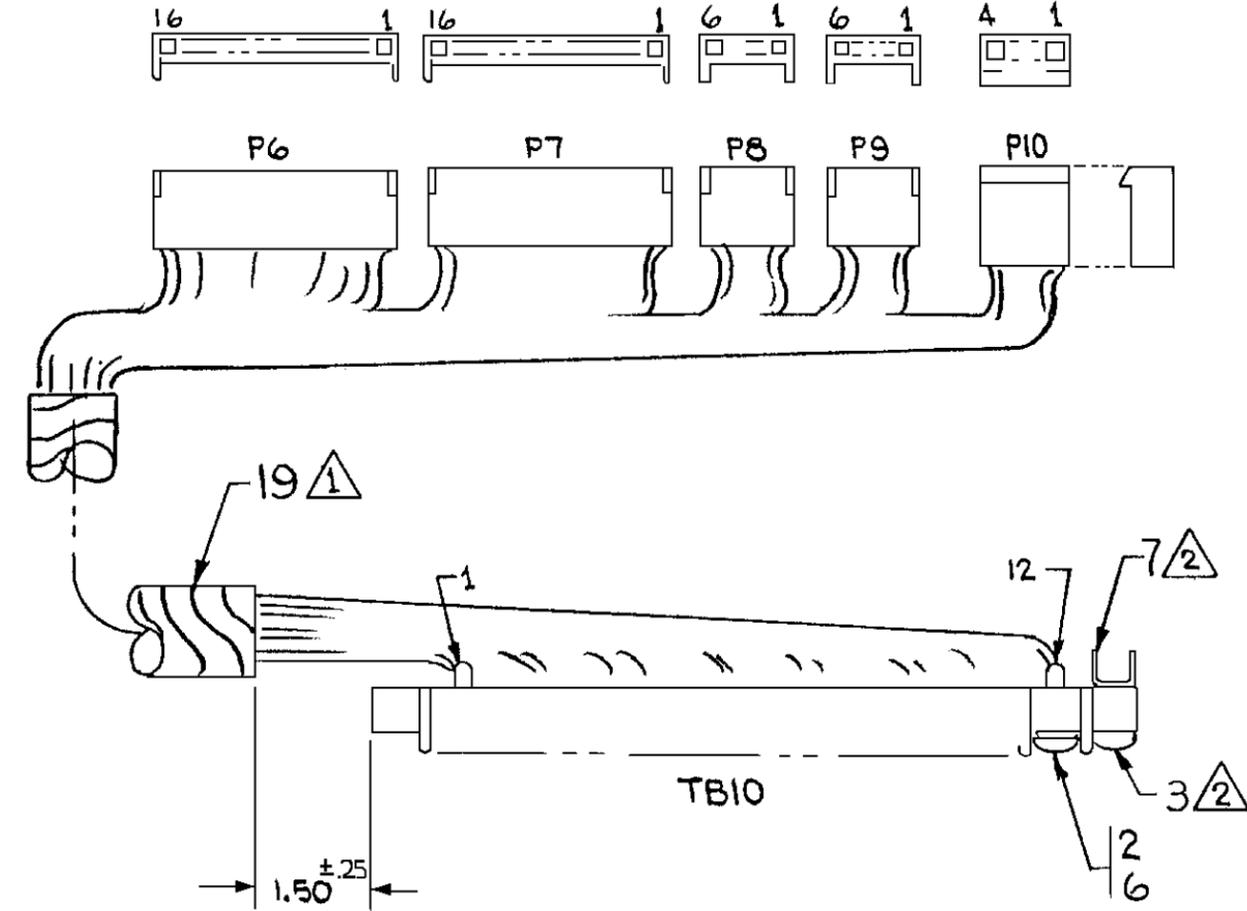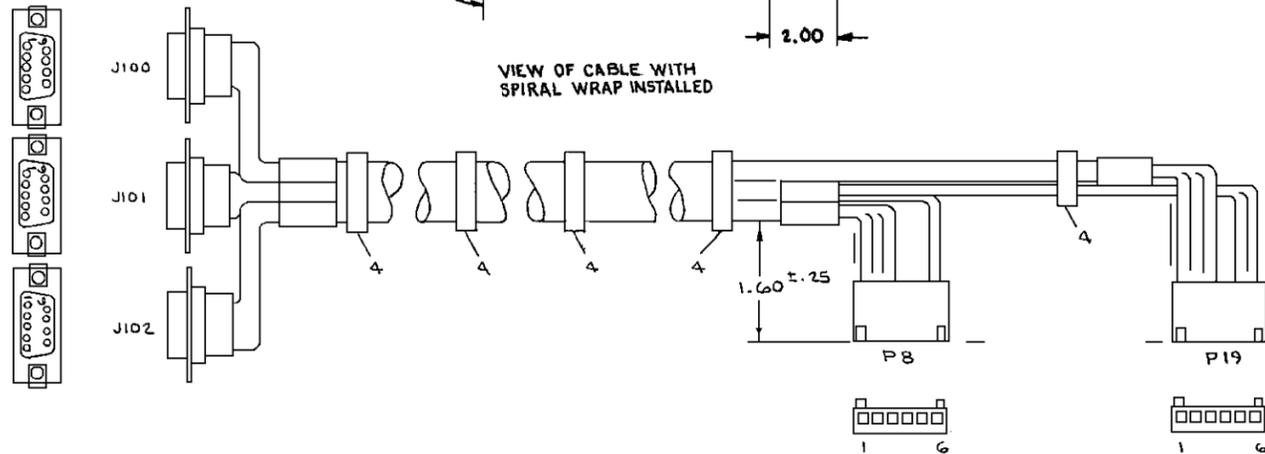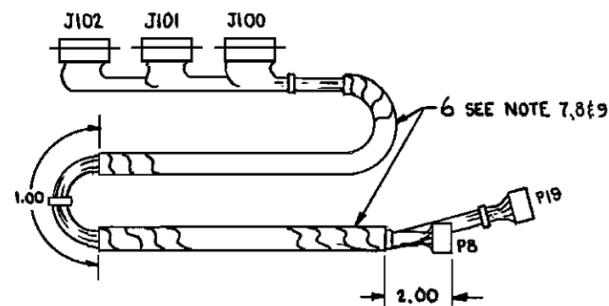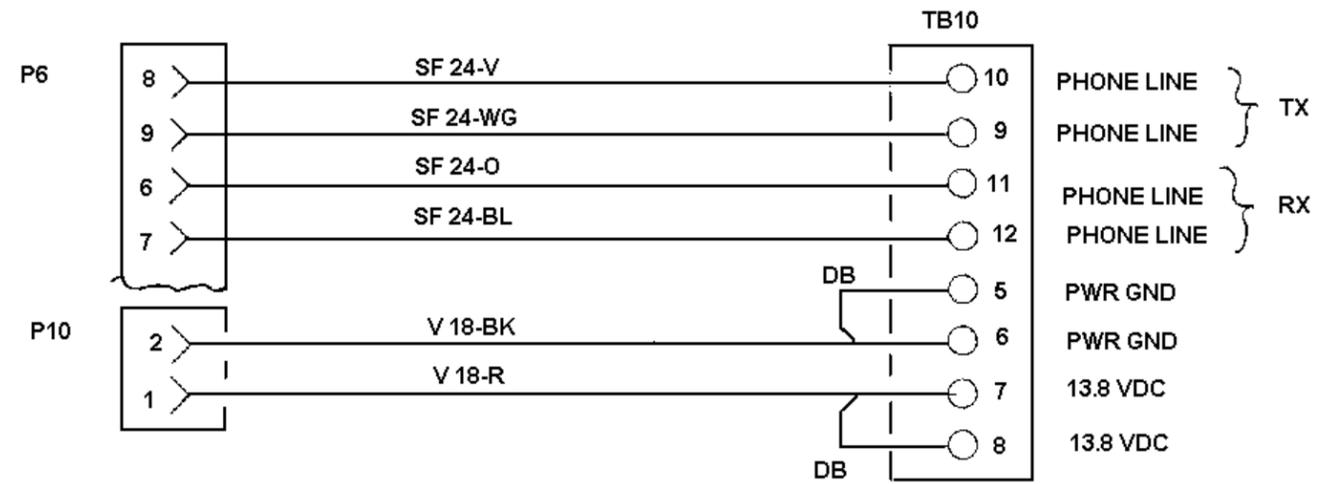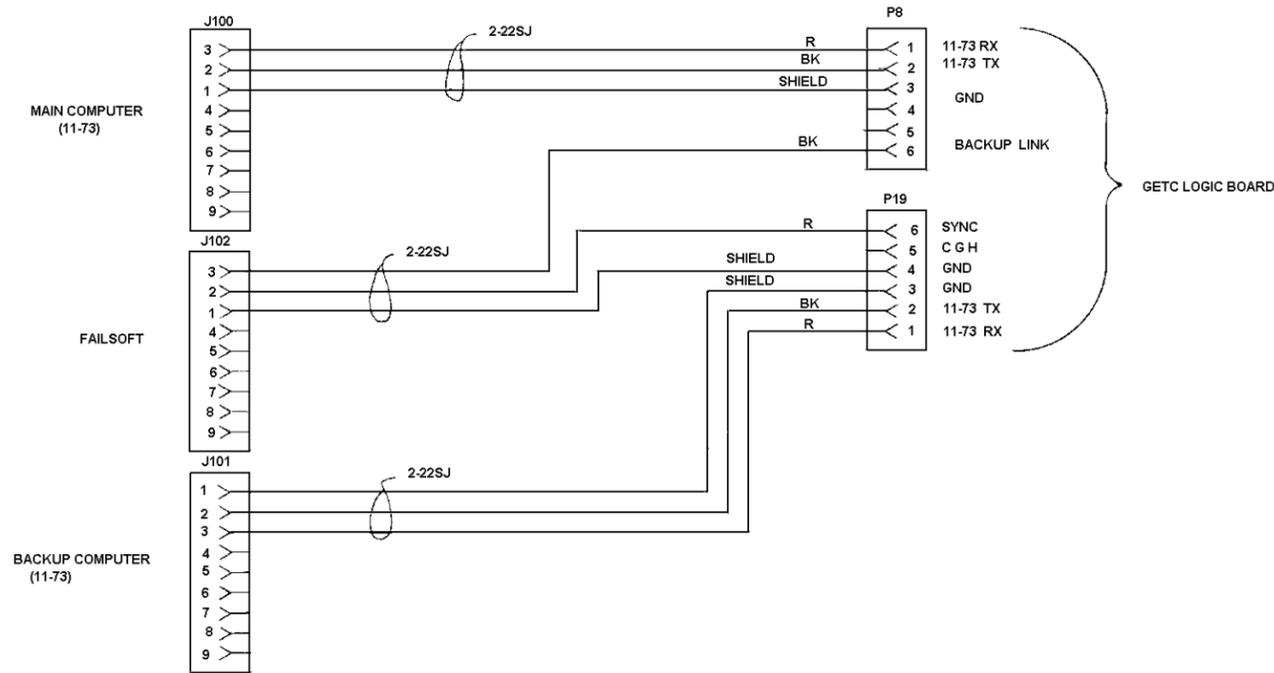
SCAT & SCAT DOWNLINK GETC CABLE
19C336863G1

(19C336863, Sh. 1, Rev. 4; 19C336866, Sh. 1, Rev. 0)

SCAT DOWNLINK HARNESS
19B234809G3

(19B234809, Sh. 1, Rev. 5; 19B234963, Sh.1, Rev. 0)

CONNECTION DIAG

P1		P2
1	SHIELD	1
2	BK	2
3	W	3
4	RED	4
5	GREEN	5
6	BROWN	6
7	BLUE	7
8	ORANGE	8
9	YELLOW	9

PIN 1 REF

P1

± 2.00 "
6 FEET

P2

SCAT INTERCONNECT CABLE
19C337102G1

(19C337102, Sh. 1, Rev. 0)

GETC JUMPER DIAGRAM

NOTES:

1. The symbol (>) denotes pin 1.

2. This diagram is drawn to scale, copy to the dimensions indicated when making a plastic jumper overlay.

7.75 INCHES

SCAT DOWNLINK JUMPERS
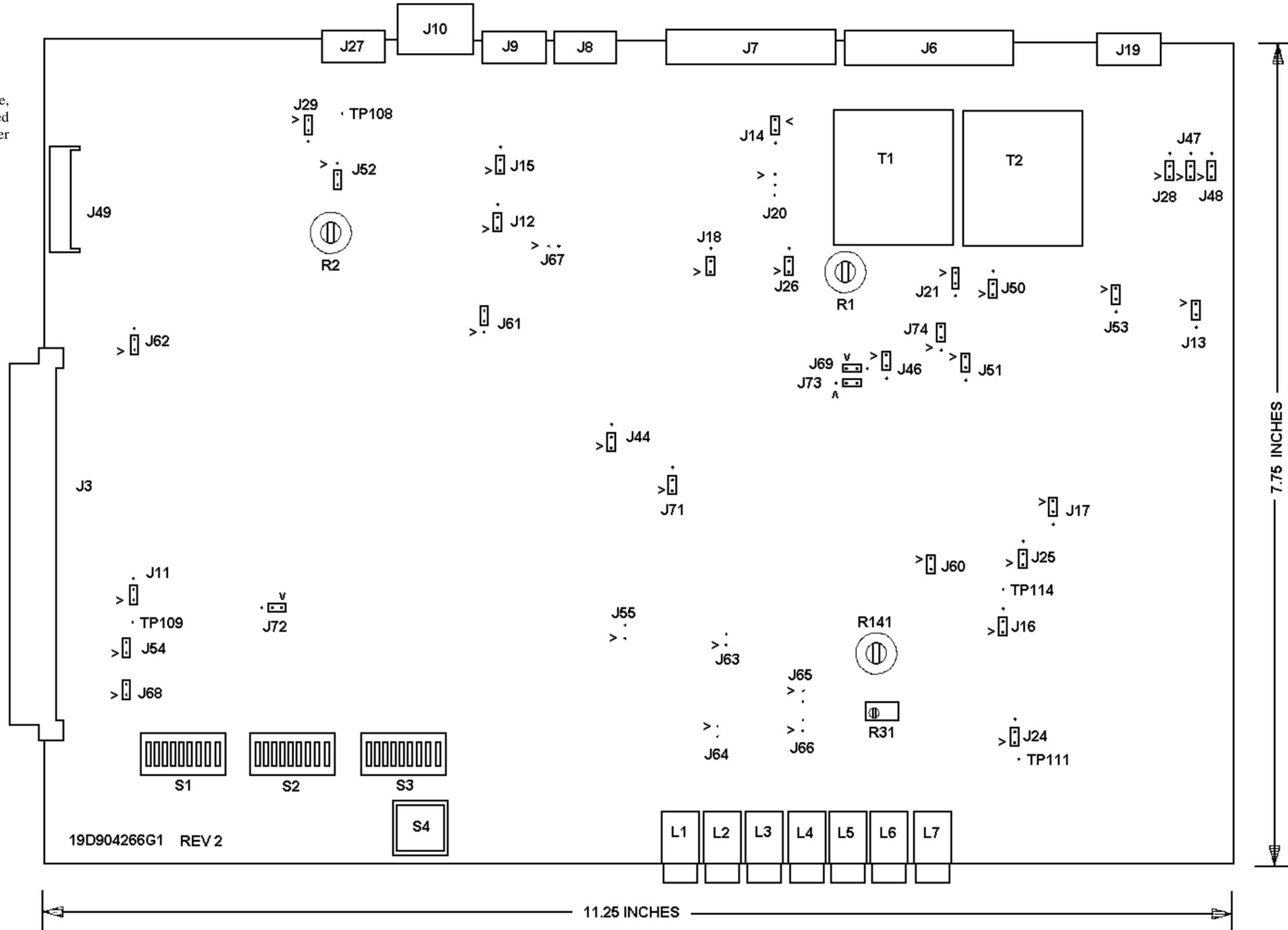
19D904266G1 REV 2

11.25 INCHES
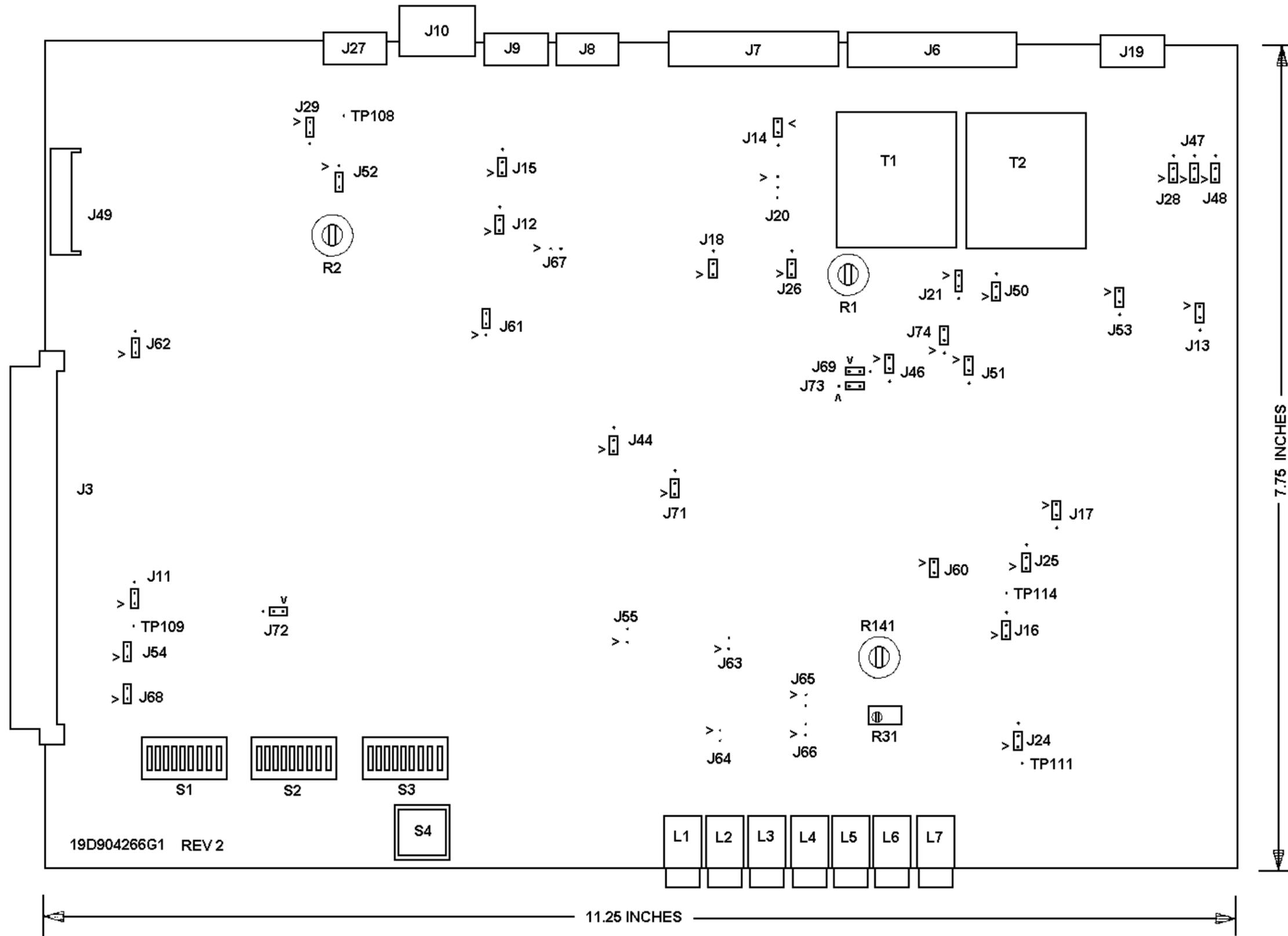
NOTES:

1. The symbol (>) denotes pin 1.

2. This diagram is drawn to scale, copy to the dimensions indicated when making a plastic jumper overlay.

7.75 INCHES

11.25 INCHES

19D904266G1   REV 2

SCAT GETC JUMPERS