

00458/00459

TEST SETS

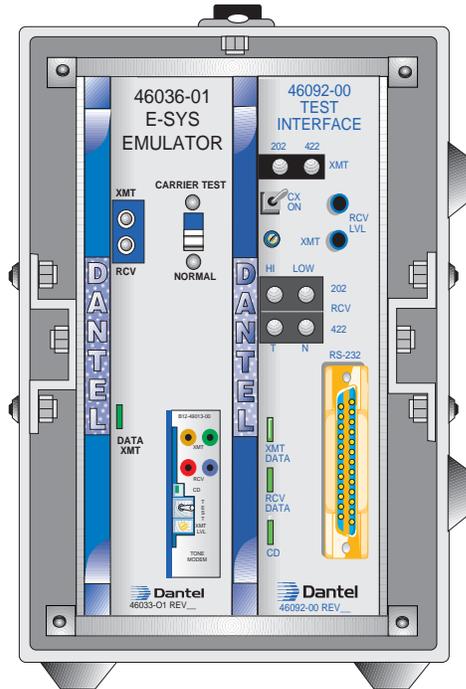


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About this Practice:

This practice has been reissued to:

- Meet ISO 9001 requirements.

Reissued Practices: Updated and new content can be identified by a banner in the right margin.

Issue date: February 1998

UPDATED

CAUTION

- Install or remove modules from the shelf only when the power is off. If you install a module in the shelf with the power on, the internal circuitry may suffer damage and the product warranty will be void.
- Remove and install circuit boards only in a static-safe environment (use antistatic wrist straps, smocks, footwear, etc.).
- Keep circuit boards in their antistatic bags when they are not in use.
- Do not ship or store circuit boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.
- For more complete information on electrostatic discharge safety precautions, refer to Bellcore™ Technical Reference # TR-NWT-000870.

ORDERING INFORMATION

NOTE: This section lists the different options available for this product. To order any of the available options, contact Dantel Inside Sales through our toll-free number, **1-800-432-6835**.

OPTION NUMBER	FEATURES
A15-00458-02	Test Set
B15-00459-02	E-System Test Set

GENERAL DESCRIPTION

The Dantel 00458 and 00459 Test Sets test alarm and control equipment by emulating E-telemetry, TABS or TBOS equipment.

Test Sets come in two configurations. Specify the Dantel part number when you order Test Sets or replacement parts.

00458 TEST SET

The 00458 Test Set is equipped with the listed parts:

- ◆ 1 Test Set housing.
- ◆ 1 46092 Test Interface Module.
- ◆ 1 six-foot RS-232 female-to-female sheathed cable with two DB25 connectors (Dantel part number 929-00022-00). Refer to Fig. 1 for the cable schematic.
- ◆ 2 five-foot patch cords (Dantel part number 929-00013-00).

NOTE: You can purchase one pair of patch cords with a mini phone plug on one end and two alligator clips on the other end. To order one pair of the optional cords, order part number 999-00380-00.

Required TBOS Software

You must purchase Dantel's 46081 TBOS Test Set Software to operate the 00458 Test Set. This software can be installed on an IBM™-compatible computer equipped with the following:

- ◆ Windows 3.1, Windows 95 or Windows NT 3.51

CONTINUED . . .

GENERAL DESCRIPTION

- ◆ 8M of memory (16M for Windows NT)
- ◆ VGA/high resolution color (recommended), monochrome, or LCD monitor
- ◆ One serial port
- ◆ One 3.5" diskette drive
- ◆ One hard disk drive

00459 TEST SET

The 00459 Test Set is equipped with the listed parts:

- ◆ 1 Test Set housing.
- ◆ 1 46092 Test Interface Module.
- ◆ 1 46036 E-System Emulator module equipped with a 49013 202 Tone Modem Subassembly.
- ◆ 1 five-foot male-to-female ribbon cable with 2 DB25 connectors (Dantel part number 929-00021-00).
- ◆ 2 five-foot patch cords (Dantel part number 929-00013-00).
- ◆ 1 six-foot RS-232 female-to-female sheathed cable with two DB25 connectors (Dantel part number 929-00022-00). Refer to Fig. 1 for the cable schematic.
- ◆ 1 25-pin looping connector (Dantel part number A80-00299-00).

NOTE: *You can purchase one pair of patch cords with a mini phone plug on one end and two alligator clips on the other end. To order one pair of the optional cords, order part number 999-00380-00.*

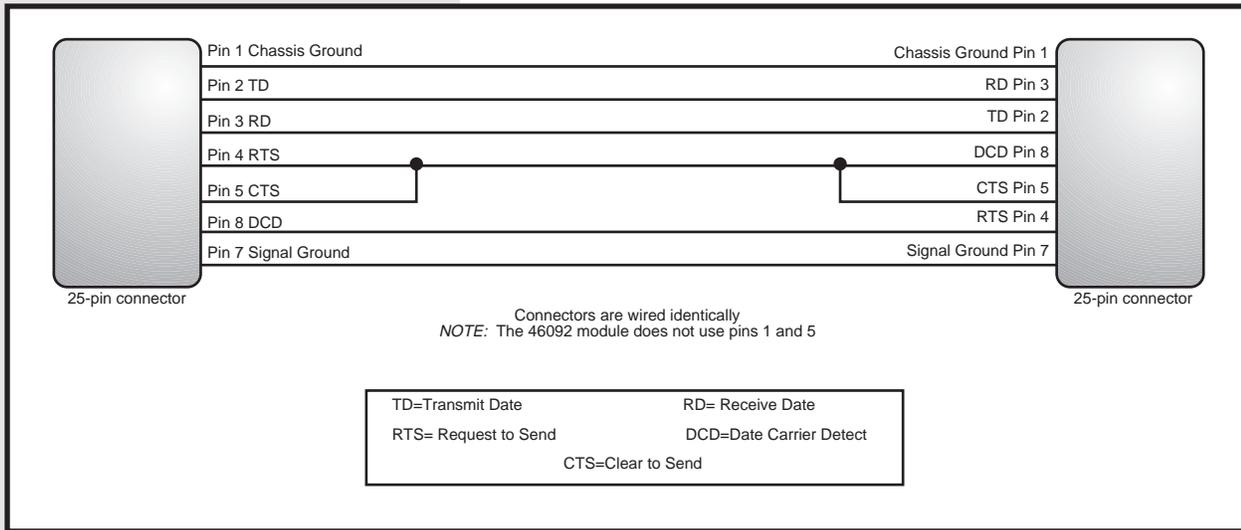
Required TBOS or E2A Software

You must purchase Dantel's 46081 TBOS Test Set Software or 46082 E2A Test Set software to operate the 00459 Test Set. The 46081 and 46082 software can be installed on an IBM™-compatible computer equipped with the following:

- ◆ Windows 3.1, Windows 95 or Windows NT 3.51
- ◆ 8M of memory (16M for Windows NT)
- ◆ VGA/high resolution color (recommended), monochrome, or LCD monitor
- ◆ One serial port
- ◆ One 3.5" diskette drive
- ◆ One hard disk drive

GENERAL DESCRIPTION

FIG. 1 - SIX FOOT SHEATHED CABLE WIRING SCHEMATIC



CIRCUIT DESCRIPTION

Fig. 2 shows the functional schematics for the 00458 and 00459 Test Sets. The 00458 Test Set does not contain the 46036-01 E-System Emulator module. The 00459 Test Set contains the 46036-01 E-System Emulator (ESE) and 46092 Test Interface (TI) modules.

Both Test Sets operate on 120 VAC input from the power line cord. The Test Sets convert the 120 VAC input into -24 VDC power for installed Test Set modules. A one ampere fuse protects the 120 VAC power input.

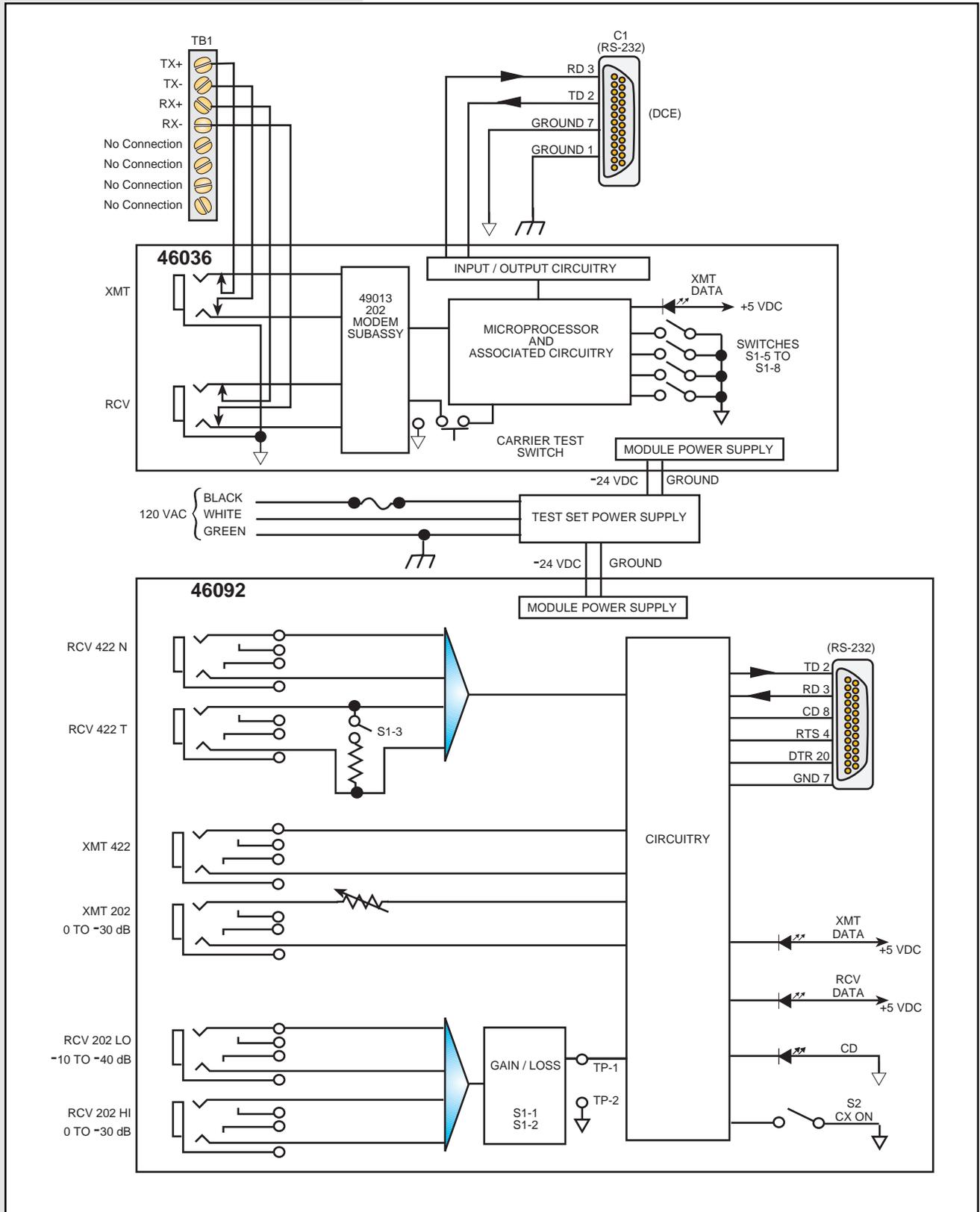
46092 TEST INTERFACE MODULE

The 46092 TI module is a signal converter. The TI module converts RS-232 data received at the front panel 25-pin connector to RS-422 signals or 202 tones. The RS-422 signals or 202 tones transmit out the front panel 25-pin connector. The TI module also converts RS-422 signals or 202 tones to RS-232 data.

The RS-422 has two receive ports. You can terminate the "T" port by closing switch S1-3. Both input signals tie together after traveling through amplifiers.

CIRCUIT DESCRIPTION

FIG. 2 - FUNCTIONAL SCHEMATIC, 00458/00459



CIRCUIT DESCRIPTION

The 202 has two receive ports. Both input signals tie together after traveling through amplifiers. You can monitor the receive signal at the bridging test points (TP-1 and TP-2). If the signal is not between -40 dB and 0 dB, switches S1-1 and S1-2 provide 15 dB of gain or 15 dB of loss which brings the signal within the range level.

A front panel potentiometer adjusts the level of the transmit 202 signal.

The front panel has three LEDs. LEDs labeled XMT DATA and RCV DATA indicate when the Test Set is sending or receiving RS-422 data or 202 tones. The LED labeled CD indicates when the module receives a carrier signal through one of the two RCV jacks.

The front panel switch labeled CX ON enables the 202 transmit carrier signal and the RS-422 transfer driver.

46036-01 E-SYSTEM EMULATOR

The 46036-01 ESE module transmits and receives E-telemetry data in the form of 202 tones. 202 tones travel through the front panel jacks or the terminal block on the rear panel of the Test Set. The ESE module converts E-telemetry data to a format used by a computer connected to the 25-pin connector (C1) on the rear panel of the Test Set.

You can test a 202 carrier signal by using a front panel switch labeled CARRIER TEST/NORMAL. The switch performs the same function as the 49013 Tone Modem Subassembly TEST switch. The front panel LED labeled DATA XMT indicates when the module transmits 202 data out the front panel jacks or terminal block. Front panel switches set baud rates, E2 or E2A transmit format for E-telemetry, and a delay before receiving E-telemetry messages.

49013 202 TONE MODEM SUBASSEMBLY

The 49013 Tone Modem Subassembly (TMS) interfaces 202 E-telemetry tones with the 46036-01 ESE module.

The 49013 TMS front panel features:

- ◆ Bridging transmit and receive level test points
- ◆ A potentiometer that sets the transmit level
- ◆ A green CD LED that indicates the TMS detects a receive carrier signal
- ◆ A TEST switch that turns on a transmit data carrier signal

The TEST switch performs the same function as the ESE module's TEST/NORMAL switch.

APPLICATION INFORMATION

You can use the 00458/00459 Test Sets in monitor, interrogator and responder modes with TBOS, TABS or E-telemetry equipment.

Fig. 3

Shows a monitor mode application using two 46020 Multiple Alarm Processors.

Fig. 4

Shows how different points within a system monitor the entire system.

Fig. 5

Shows how a Test Set and computer emulate an E-systems operations center or central office. This emulated center interrogates parts of a system for testing or troubleshooting.

Fig. 6

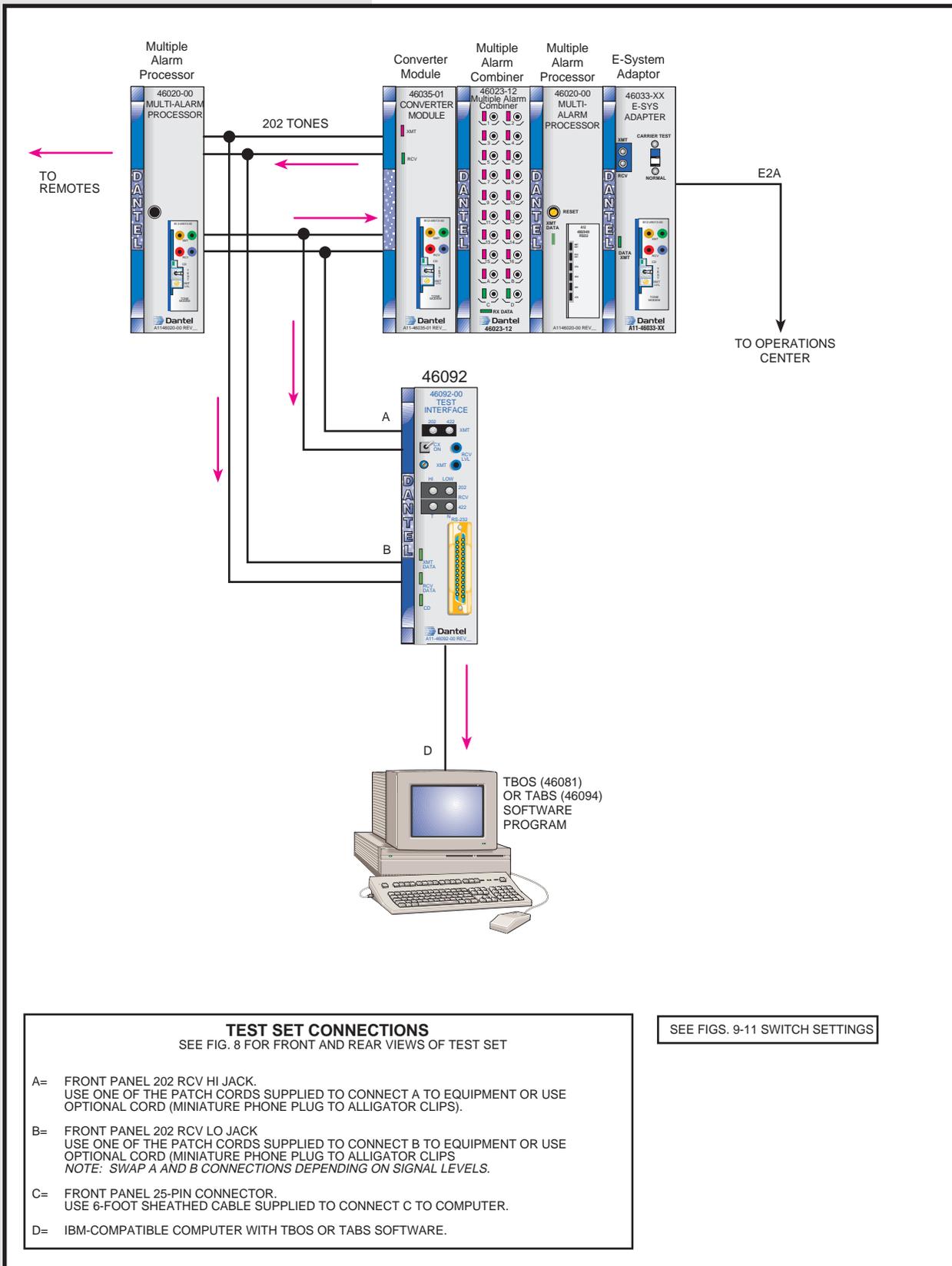
Shows a Test Set interrogating a Western Electric remote.

Fig. 7

Shows how a Test Set and computer acts as a responder. The responder tests and troubleshoots polling from the E-systems operations center or central office.

APPLICATION INFORMATION

FIG. 3 - MONITOR MODE APPLICATION USING 46020 MULTIPLE ALARM PROCESSOR



TEST SET CONNECTIONS

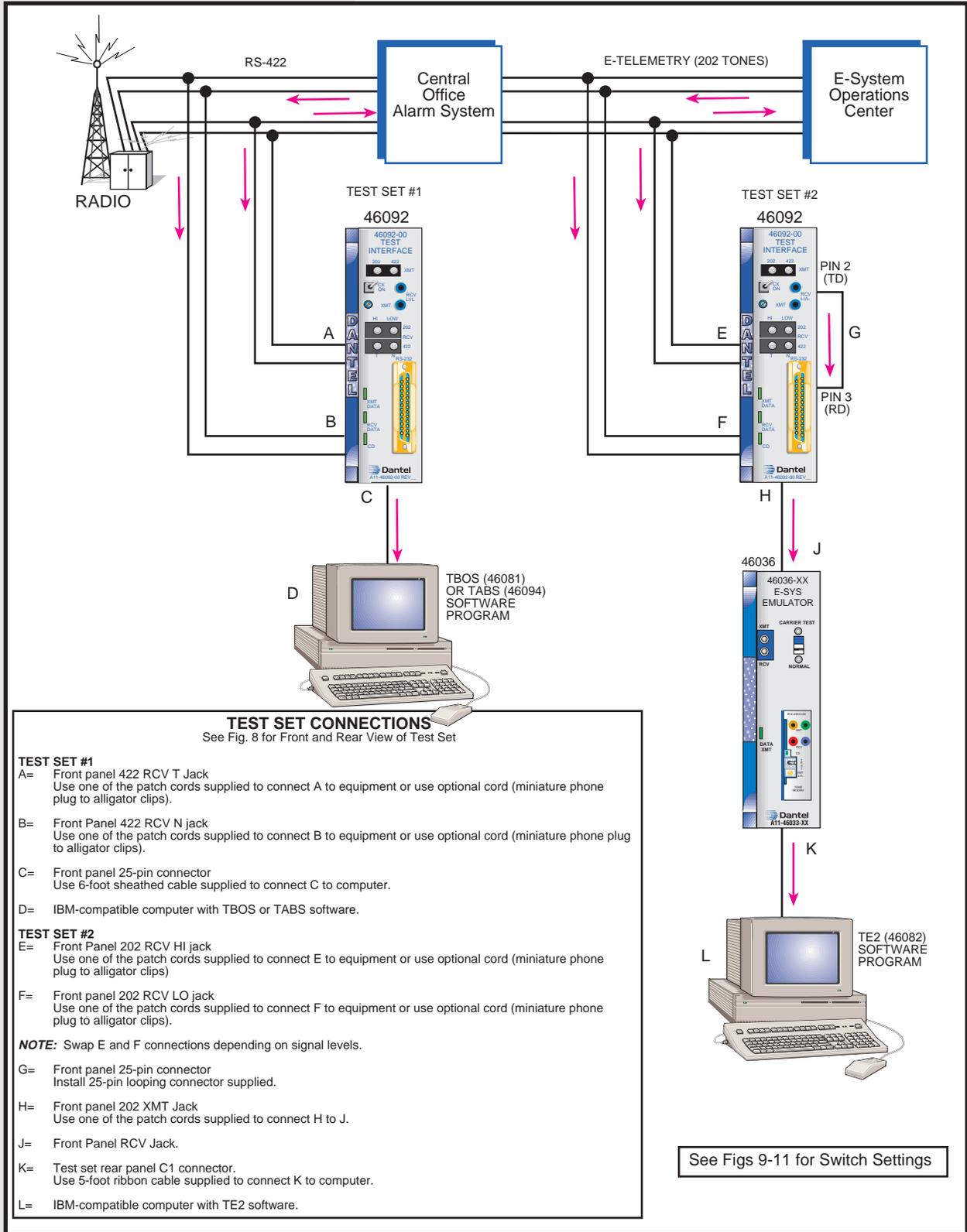
SEE FIG. 8 FOR FRONT AND REAR VIEWS OF TEST SET

- A= FRONT PANEL 202 RCV HI JACK.
USE ONE OF THE PATCH CORDS SUPPLIED TO CONNECT A TO EQUIPMENT OR USE OPTIONAL CORD (MINIATURE PHONE PLUG TO ALLIGATOR CLIPS).
- B= FRONT PANEL 202 RCV LO JACK
USE ONE OF THE PATCH CORDS SUPPLIED TO CONNECT B TO EQUIPMENT OR USE OPTIONAL CORD (MINIATURE PHONE PLUG TO ALLIGATOR CLIPS)
NOTE: SWAP A AND B CONNECTIONS DEPENDING ON SIGNAL LEVELS.
- C= FRONT PANEL 25-PIN CONNECTOR.
USE 6-FOOT SHEATHED CABLE SUPPLIED TO CONNECT C TO COMPUTER.
- D= IBM-COMPATIBLE COMPUTER WITH TBOS OR TABS SOFTWARE.

SEE FIGS. 9-11 SWITCH SETTINGS

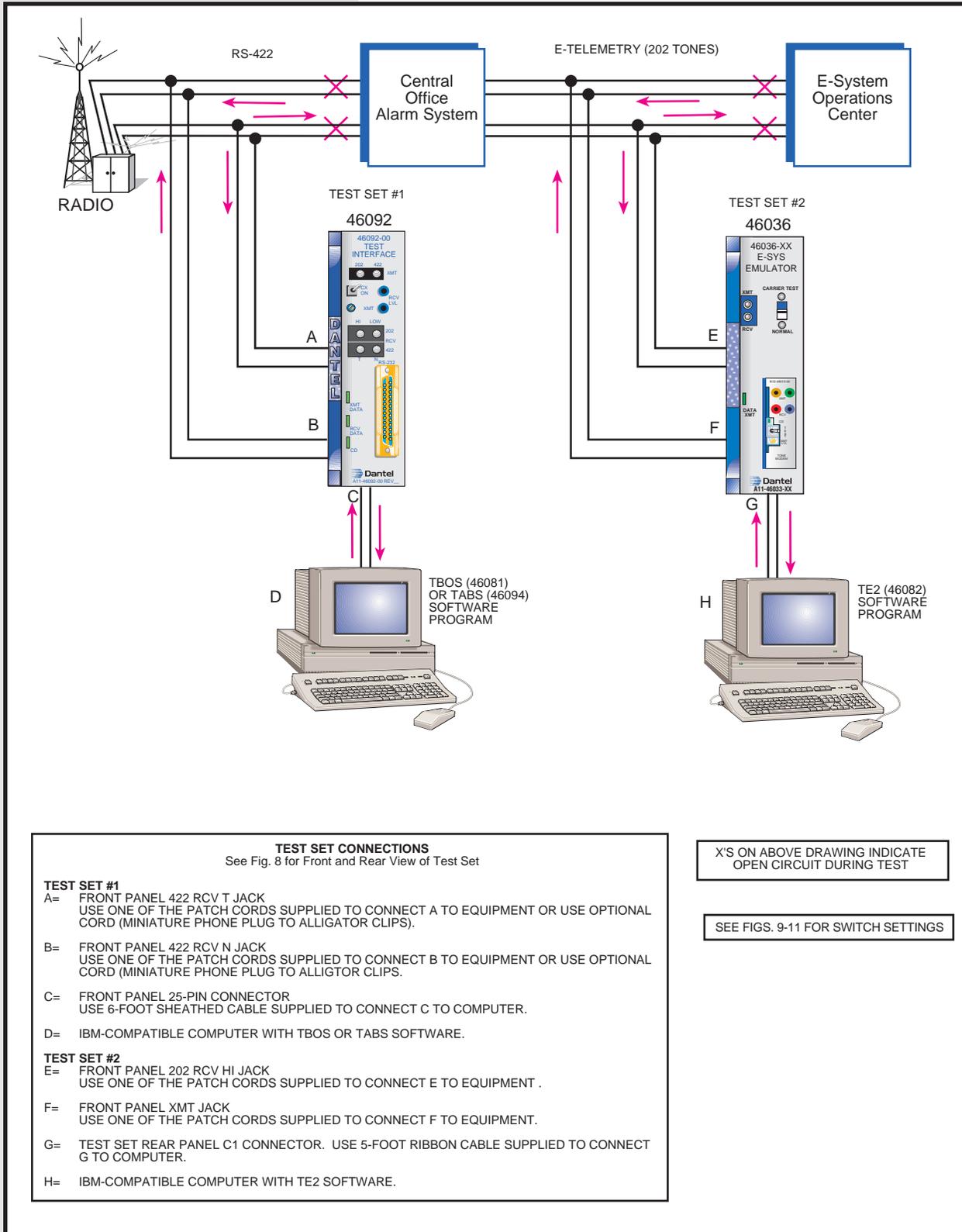
APPLICATION INFORMATION

FIG. 4 - MONITOR MODE APPLICATION USING DIFFERENT POINTS



APPLICATION INFORMATION

FIG. 5 - INTERROGATOR MODE APPLICATION



TEST SET CONNECTIONS

See Fig. 8 for Front and Rear View of Test Set

TEST SET #1

A= FRONT PANEL 422 RCV T JACK
USE ONE OF THE PATCH CORDS SUPPLIED TO CONNECT A TO EQUIPMENT OR USE OPTIONAL CORD (MINIATURE PHONE PLUG TO ALLIGATOR CLIPS).

B= FRONT PANEL 422 RCV N JACK
USE ONE OF THE PATCH CORDS SUPPLIED TO CONNECT B TO EQUIPMENT OR USE OPTIONAL CORD (MINIATURE PHONE PLUG TO ALLIGTOR CLIPS).

C= FRONT PANEL 25-PIN CONNECTOR
USE 6-FOOT SHEATHED CABLE SUPPLIED TO CONNECT C TO COMPUTER.

D= IBM-COMPATIBLE COMPUTER WITH TBOS OR TABS SOFTWARE.

TEST SET #2

E= FRONT PANEL 202 RCV HI JACK
USE ONE OF THE PATCH CORDS SUPPLIED TO CONNECT E TO EQUIPMENT .

F= FRONT PANEL XMT JACK
USE ONE OF THE PATCH CORDS SUPPLIED TO CONNECT F TO EQUIPMENT.

G= TEST SET REAR PANEL C1 CONNECTOR. USE 5-FOOT RIBBON CABLE SUPPLIED TO CONNECT G TO COMPUTER.

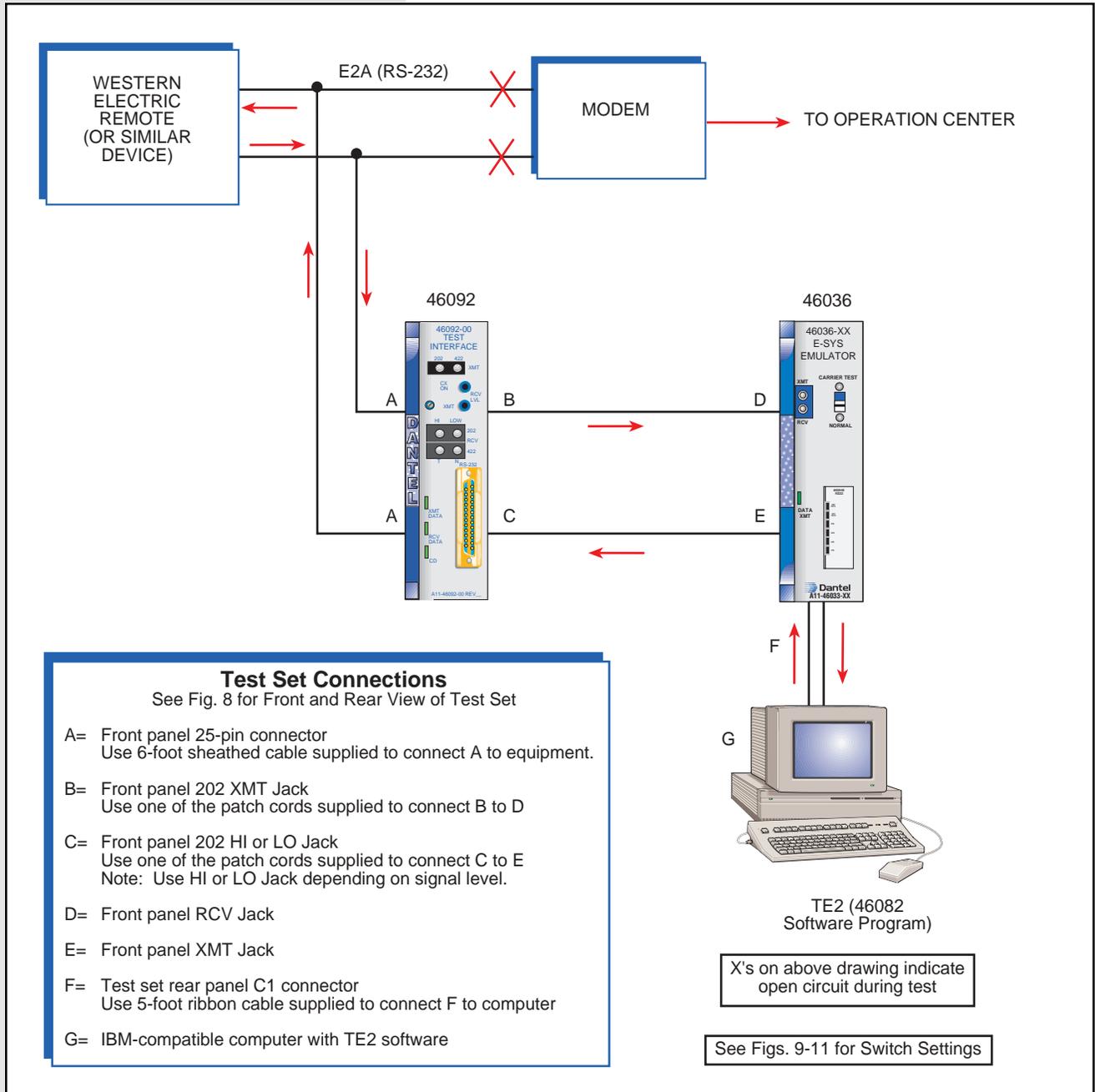
H= IBM-COMPATIBLE COMPUTER WITH TE2 SOFTWARE.

X'S ON ABOVE DRAWING INDICATE OPEN CIRCUIT DURING TEST

SEE FIGS. 9-11 FOR SWITCH SETTINGS

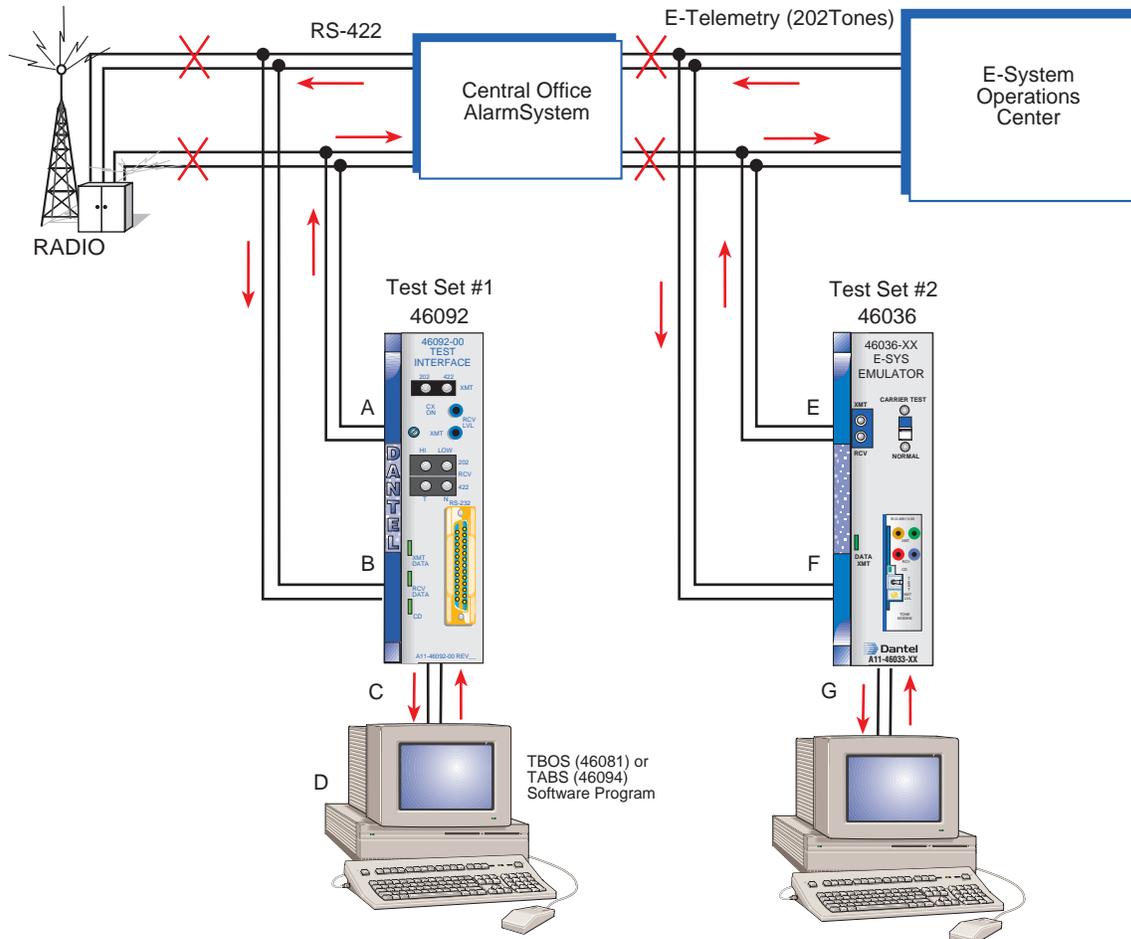
APPLICATION INFORMATION

FIG. 6 - WESTERN ELECTRIC REMOTE INTERROGATION



APPLICATION INFORMATION

FIG. 7 - RESPONDER MODE APPLICATION



Test Set Connections
See Fig. 8 for Front and Rear View of Test Set

Test Set #1

- A= Front Panel 422 XMT Jack
Use one of the patch cords supplied to connect A to equipment or use optional cord (miniature phone plug to alligator clips).
- B= Front panel 422 RCV T Jack
Use one of the patch cords supplied to connect B to equipment or use optional cord (miniature phone plug to alligator clips).
- C= Front panel 25-pin connector
Use 6-foot sheathed cable supplied to connect C to computer.
- D= IBM-compatible computer with TBOS or TABS software

Test Set #2

- E= Front panel XMT jack
Use one of the patch cords supplied to connect E to equipment
- F= Front panel RCV jack
Use one of the patch cords supplied to connect F to equipment
- G= Test set rear panel C1 connector
Use 5-foot ribbon cable supplied to connect G to computer
- H= IBM-compatible computer with TE2 software.

TE2 (46082
Software Program)

X's on above drawing indicate
open circuit during test

See Fig. 9-11 for Switch Settings

INSTALLATION

Installation consists of configuring the modules in the Test Set, connecting the Test Set to other equipment, installing the Test Set software onto your computer, and configuring the Test Set.

1. Configure the Test Set modules.

CAUTION: *Make sure the AC power cord is unplugged before removing modules from the Test Set housing.*

Remove the front plastic cover from the Test Set for access to the modules. Refer to the 46036-01 ESE and 46092 TI documentation for more information about configuring those modules.

2. Connect the Test Set to other equipment.

Connect the Test Set to other equipment (e.g., a computer) with the cables provided.

- ◆ Refer to Figs. 3-7, in the *Application Information* section, for Test Set connection options.
- ◆ Refer to Fig. 8 for front and rear views of the Test Set.
- ◆ Refer to Figs. 9-11 to set module switches and straps. Set the 46092 TI module straps S1-1 and S1-2 to the nominal range of operation.

3. Install the Test Set software onto your computer.

Refer to the 46081 TBOS Test Set or 46082 E2A Test Set software documentation for installation instructions.

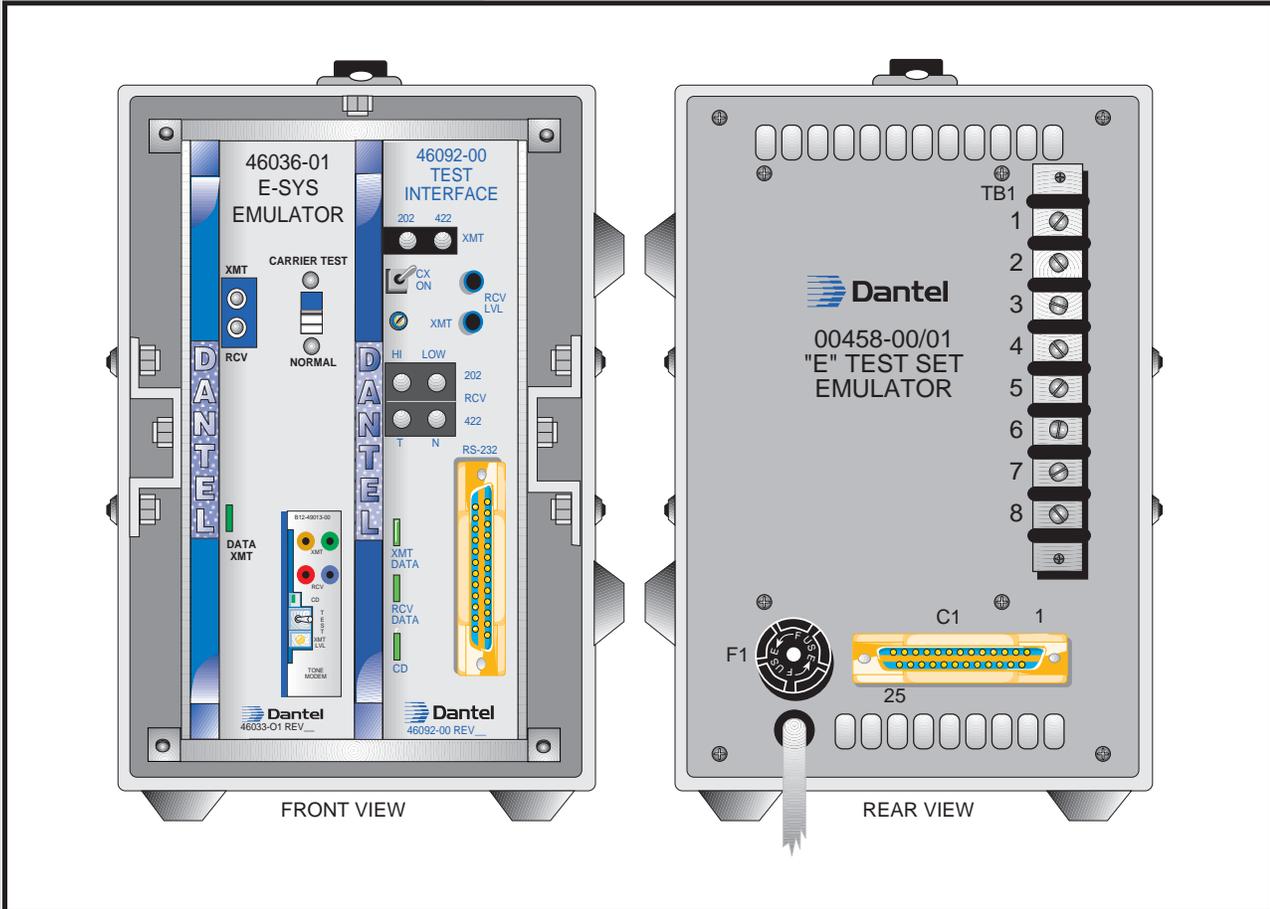
4. Configure the Test Set.

The Test Set begins operating when you plug in the AC power cord. Adjust the 202 tone levels using the front panel transmit and receive test points on the 49013 TMS and the front panel receive test points on the 46092 TI. You can transmit a carrier signal using the 46092 TI CX ON switch and the 49013 TMS CD TEST switch.

NOTE: *The ESE CARRIER TEST/NORMAL switch does the same thing as the TMS CD TEST switch. You can set the transmit level from the TMS or TI front panel. You must adjust the receive level from the transmit end.*

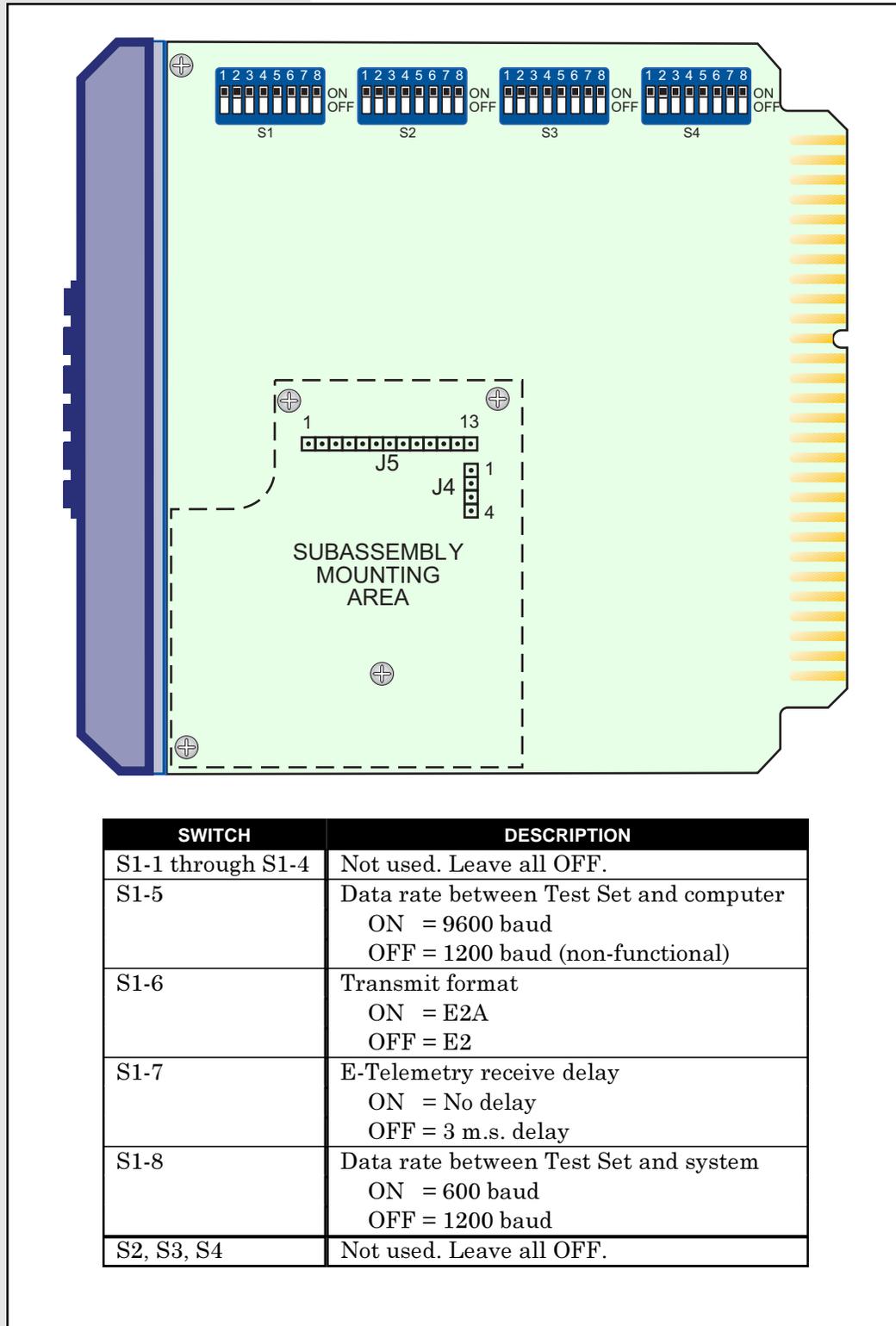
INSTALLATION

FIG. 8 - 00458/00459 FRONT AND REAR PANELS.



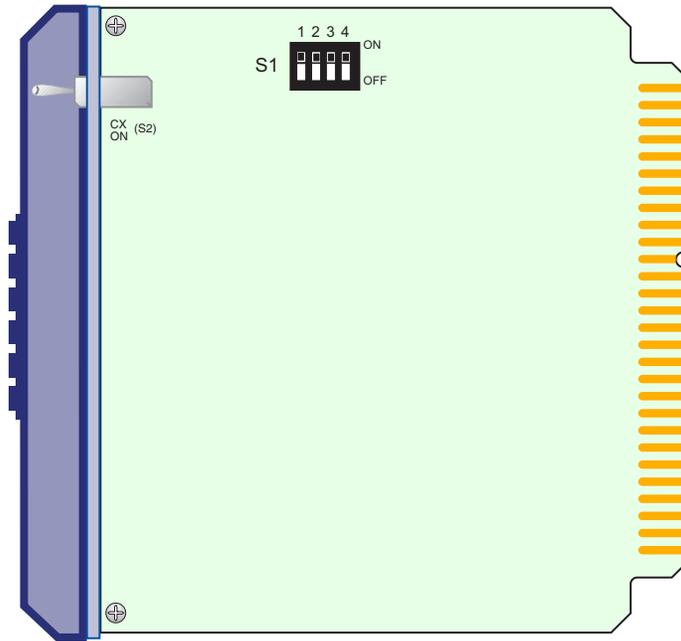
INSTALLATION

Fig. 9 - SWITCH AND STRAP LOCATIONS AND SETTINGS, 46036



INSTALLATION

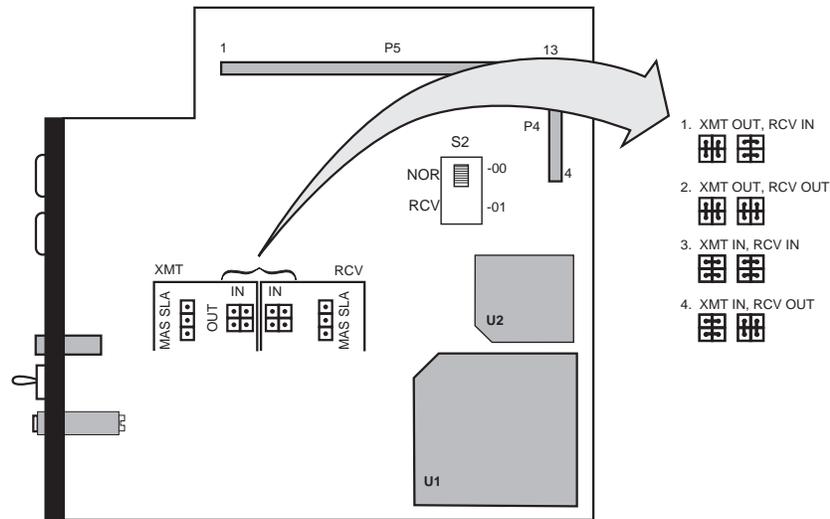
FIG. 10 - SWITCH AND STRAP LOCATIONS AND SETTINGS, 46092



1	Set S1-1 and S1-2 only if you are using the RCV 202 HI or LO front panel jacks. Use S1-1 and S1-2 to change the level measured (bridged) at TP-1 and TP-2. Level must be between -40 dB and 0 dB. Refer to Figs. 2, 3, 4, & 6.												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Range</th> <th style="text-align: center;">S1-1</th> <th style="text-align: center;">S1-2</th> </tr> </thead> <tbody> <tr> <td>Nominal Range</td> <td style="text-align: center;">ON</td> <td style="text-align: center;">OFF</td> </tr> <tr> <td>15 dB gain</td> <td style="text-align: center;">OFF</td> <td style="text-align: center;">OFF</td> </tr> <tr> <td>15 dB loss</td> <td style="text-align: center;">OFF</td> <td style="text-align: center;">ON</td> </tr> </tbody> </table>	Range	S1-1	S1-2	Nominal Range	ON	OFF	15 dB gain	OFF	OFF	15 dB loss	OFF	ON
Range	S1-1	S1-2											
Nominal Range	ON	OFF											
15 dB gain	OFF	OFF											
15 dB loss	OFF	ON											
2	Set S1-3 only if you are using the 422 RCV T jack. OFF = Not Terminated. (Refer to Fig. 4.) ON = Terminated. (Refer to Figs. 5 & 7.)												
3	S1-4 is not used and should be left OFF. S2 turns on the 202 carrier tone and also enables the RS-422 transmit driver. S2 must be ON in all applications shown in the <i>Application Information</i> section except Fig. 3 and Test Set #1 in Fig. 4.												

INSTALLATION

FIG. 11 - SWITCH AND STRAP LOCATIONS AND SETTINGS, 49013



OPTION	INSTALL STRAP
MODE	
Master Modem in Master/Slave system	XMT MAS and RCV MAS
Slave Modem in Master/Slave system	XMT SLA and RCV SLA
Single Modem (no Master/Slave) Store straps in non-operative position or remove.	XMT and RCV open (no straps)
RCV PAD	
RCV Pad IN (input level between 0 and -20 dBm)	Jumpers parallel to P5 (See Fig. 2)
RCV Pad OUT (input level between -20 and -40 dBm)	Jumpers perpendicular to P5 (See Fig. 2)
XMT PAD	
XMT Pad IN (output adjustable from -20 to -40 dBm)	Jumpers parallel to P5 (See Fig. 2)
XMT Pad OUT (output adjustable from -1 to -20 dBm)	Jumpers perpendicular to P5 (See Fig. 2)

Note: Switch S2 reverses the TXD, RXD, DCD, and RTS leads. Refer to Fig. 3.

OPERATION

Operation of the 00458/00459 Test Sets consists of operating the Test Set software, 46092 Test Interface Module, 46036-01 E-System Emulator module, and the 49013 202 Tone Modem Subassembly.

Test Set Software

Refer to the 46081 TBOS Test Set or 46082 E2A Test Set software manuals for operating instructions.

46092 Test Interface Module

The front panel has three LEDs. LEDs labeled XMT DATA and RCV DATA indicate when the Test Set is sending or receiving RS-422 data or 202 tones. The LED labeled CD indicates when the module receives a carrier signal through one of the two RCV jacks.

The front panel switch labeled CX ON enables the 202 transmit carrier signal and the RS-422 transfer driver.

Switches S1-1 and S1-2 adjust the 202 receive port input level at TP-1 and TP-2 if the level is not within the required range (refer to Figs. 2 and 4). A front panel potentiometer adjusts the 202 transmit port output level.

46036-01 E-System Emulator Module

The front panel CARRIER TEST/NORMAL switch turns on a 202 tone data carrier signal for testing. Leave the switch in the NORMAL position until you send a test carrier signal.

The CARRIER TEST/NORMAL switch performs the same function as the 49013 Tone Modem Subassembly TEST switch.

A front panel LED labeled DATA XMT indicates 202 data transmission out the front panel jacks or terminal block.

49013 202 Tone Modem Subassembly

The front panel TEST switch turns on a transmit data carrier signal. The TEST switch performs the same function as the 46036-01 E-System Emulator Module CARRIER TEST/NORMAL switch.

A front panel LED indicates the subassembly detects a receive carrier signal. A front panel potentiometer adjusts the output level as required. Front panel test points monitor the 202 tone levels.

TECHNICAL SPECIFICATIONS

DESCRIPTION	DESCRIPTION
Input Voltage (from AC line)	120 VAC
Output Voltage (to modules)	-24 VDC
Input Current (from AC line)	100 mA max.
Output Current (to modules)	250 mA max.
Heat Dissipation	41 Btu/Hr max. @ 120 VAC
Weight	4.7 lbs.
Physical Dimensions	4.0" x 6.3" x 9.5"
Operating Temperature Range	0° to 55° C.

WARRANTY

LIMITED WARRANTY

The Seller warrants that the standard hardware products sold will be free from defects in material and workmanship and perform to the Seller's applicable published specifications for a period of 18 months for hardware, and 3 months for software, from the date of the original invoice. The liability of the Seller hereunder shall be limited to replacing or repairing, at its option, any defective products which are returned F.O.B. to the Seller's plant, (or, at the Seller's option, refunding the purchase price of such products). In no case are products to be returned without first obtaining permission and a customer return authorization number from the Seller. In no event shall the Seller be liable for any consequential or incidental damages.

Equipment or parts which have been subject to abuse, misuse, accident, alteration, neglect, unauthorized repair or installation are not covered by warranty. The Seller shall make the final determination as to the existence and cause of any alleged defect. No warranty is made with respect to custom equipment or products produced to the Buyer's specifications except as specifically stated in writing by the Seller in the contract for such custom equipment.

This warranty is the only warranty made by the Seller with respect to the goods delivered hereunder, and may be modified or amended only by a written instrument signed by a duly authorized officer of the Seller and accepted by the Buyer.

Warranty and remedies on products not manufactured by the Seller are in accordance with warranty of the respective manufacturer. **THE SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED; AND ALL IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE AFORESAID OBLIGATIONS IS HEREBY DISCLAIMED BY THE SELLER.**

IN CASE OF DIFFICULTY

If you experience difficulty with this equipment, check the following, as appropriate:

- 1. Switch settings**
- 2. Signal levels**
- 3. Software configuration**
- 4. Connections between Dantel's equipment and your equipment.**

If there is still a problem, substitute equipment that is known to be good. For additional assistance, call Dantel's Technical Field Service Department weekdays, 6 A.M. to 5 P.M. pacific time:

1-800-4DANTEL (1-800-432-6835).

If a thorough checkout shows a piece of equipment has malfunctioned, you may return it to the factory. For repairs and emergency replacements, obtain a Return Material Authorization (RMA) number from the Customer Service Representative at **1-800-4DANTEL (1-800-432-6835)**.

To ensure expedient processing of your order, provide a purchase order number and shipping and billing information when requesting an RMA number. Also, when the units are returned to Dantel, include a description of the failure symptoms for each unit returned. Send defective equipment to:

Dantel, Inc. • 2991 North Argyle Avenue • Fresno, California 93727-1388

