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TECHNICAL MANUAL

OPERATION AND MAINTENANCE
WITH ASSEMBLY PARTS LIST

DISPLAY-MONITORING GROUP OD-109/G

(REMOTE STATION OUTPUT MONITOR)

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FOREWORD

PURPOSE OF MANUAL.

This technical manual contains the procedures, diagrams, technical data, and descriptive material required to aid responsible personnel in the operation and maintenance of Display-Monitoring Group OD-109/G (Remote Station Output Monitor). The Remote Station Output Monitor (RSOM) is an integral part of Display-Monitoring Group OD-88(V)/G (AUTOVON Centralized Alarm System). It consists of display and monitoring equipment which is located at each Remote Station facility of the AUTOVON Centralized Alarm System. This equipment provides a local status display of traffic and equipment conditions in the associated AUTOVON Switch. In addition, the RSOM monitors the performance of the Remote Station Equipment (RSE). The information presented in this manual is intended to familiarize operation and maintenance personnel with the equipment and to facilitate rapid assessment of trouble conditions and rectification by simple replacement of a faulty module or printed circuit board. This information is to be used in conjunction with information contained in the technical manuals for the AUTOVON Centralized Alarm System.

SCOPE OF MANUAL.

The manual is divided into six chapters. A brief description of the contents of each chapter is as follows:

a. Chapter 1, General Description, contains general information to aid operation and maintenance personnel in understanding the RSOM and its relationship to the ACAS Remote Station. This information includes a system description, general description of the RSOM equipment, and pertinent technical characteristics.

b. Chapter 2, Operation, describes the various operating components used for manual operation of the RSOM.

c. Chapter 3, Theory of Operation, presents a general functional description of the RSOM and provides detailed descriptions of unique RSOM circuits.

d. Chapter 4, Maintenance, provides troubleshooting, testing, and adjustment data and other maintenance aids necessary for corrective maintenance of the RSOM to the module/printed circuit board level.

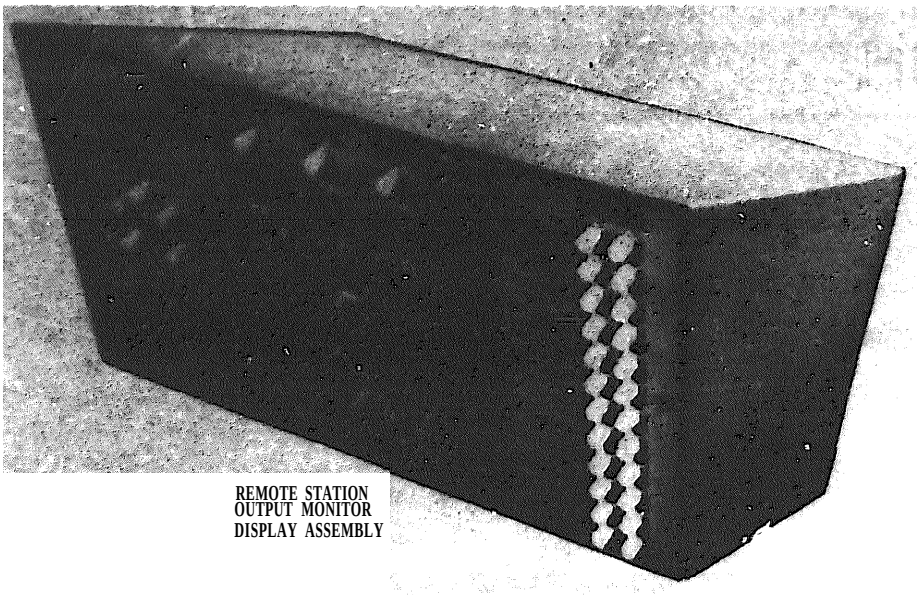
e. Chapter 5, Assembly Parts List, provides illustrated breakdowns and identification of the replaceable elements comprising the RSOM.

f. Chapter 6, Circuit Diagrams, contains the functional block, schematic, and cabling diagrams and wire lists necessary to support RSOM personnel in the performance of their maintenance tasks.

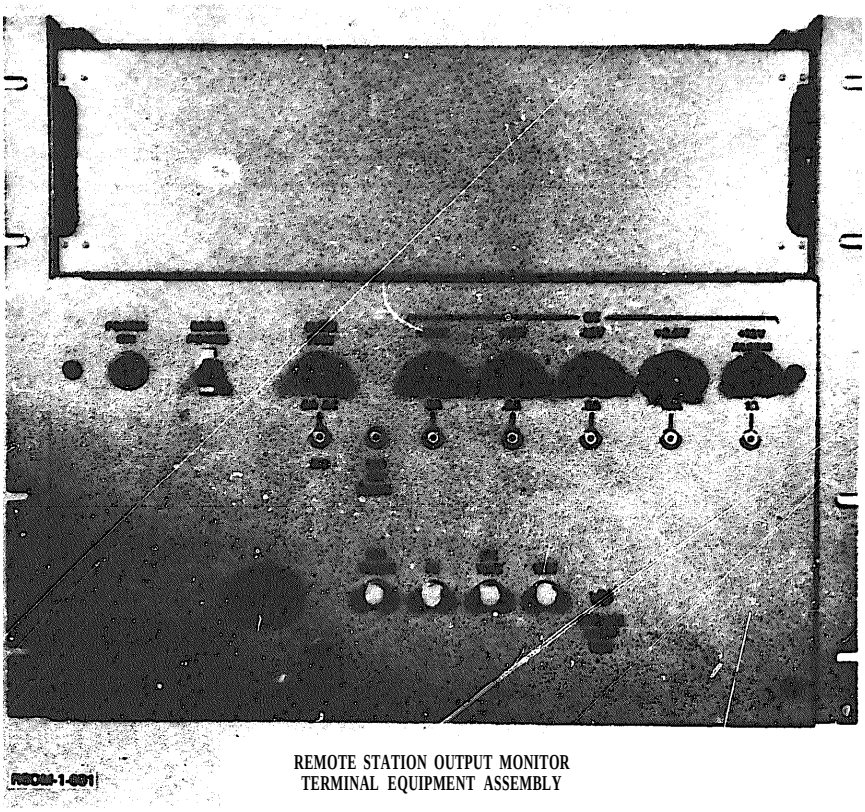
RELATED PUBLICATIONS.

The following technical manuals are used in conjunction with this operation and maintenance manual.

Technical Manual	Publication Number
Preventive Maintenance Work Cards, Display-Monitoring Group OD-109/G (Remote Station Output Monitor)	T.O. 31W2-2G-266WC-1 TM 11-5805-657-14-2 NAVELEX 0967-464-5020
Technical Manual, Operation and Maintenance with Assembly Parts List, Display-Monitoring Group OD-88(V)/G (AUTOVON Centralized Alarm System)	T.O. 31W2-2G-211 TM 11-5805-636-14-1 NAVELEX 0967-450-2010
Preventive Maintenance Work Cards, Display-Monitoring Group OD-88(V)/G (AUTOVON Centralized Alarm System)	T.O. 31W2-2G-216WC-1 TM 11-5805-636-14-2 NAVELEX 0967-450-2020



REMOTE STATION
OUTPUT MONITOR
DISPLAY ASSEMBLY



REMOTE STATION OUTPUT MONITOR
TERMINAL EQUIPMENT ASSEMBLY

Figure 1-1. Display-Monitoring Group OD-109/G

CHAPTER 1

GENERAL DESCRIPTION

1-1. INTRODUCTION.

1-2. This chapter presents a general description of Display-Monitoring Group OD-109/G to aid operation and maintenance personnel in understanding the purpose and use of this equipment as a display and monitoring device at the ACAS Remote Station. Figure 1-1 shows the major assemblies comprising Display-Monitoring Group OD-109/G. The Display-Monitoring Group is an integral part of Display-Monitoring Group OD-88(V)/G and serves as the Remote Station Output Monitor (RSOM).

1-3. PURPOSE OF RSOM.

1-4. The RSOM monitors the coded information presented by the ACAS Remote Station equipment (RSE) at the standard digital interface to the 76-baud data transmission circuits located in the Station Technical Control facility. (See figure 1-2.) Coded data outputs from the RSE represent traffic and equipment status indications for the AUTOVON Switch facility. The RSOM decodes the RSE outputs and provides a continuously updated visual display of AUTOVON Switch status. The RSOM display reflects the same status indications presented at the distant ACAS Master Station. Consequently, this local presentation of AUTOVON switch status can be used to expedite analysis and correction of traffic and equipment problems by AUTOVON facility-based personnel. ACAS Remote Station personnel, through proper interpretation of the display, are able to inform AUTOVON Switch personnel regarding traffic conditions through the Switch and possible AUTOVON equipment malfunctions. In addition, the RSOM display aids Remote Station personnel in detecting and isolating trouble conditions in the RSE.

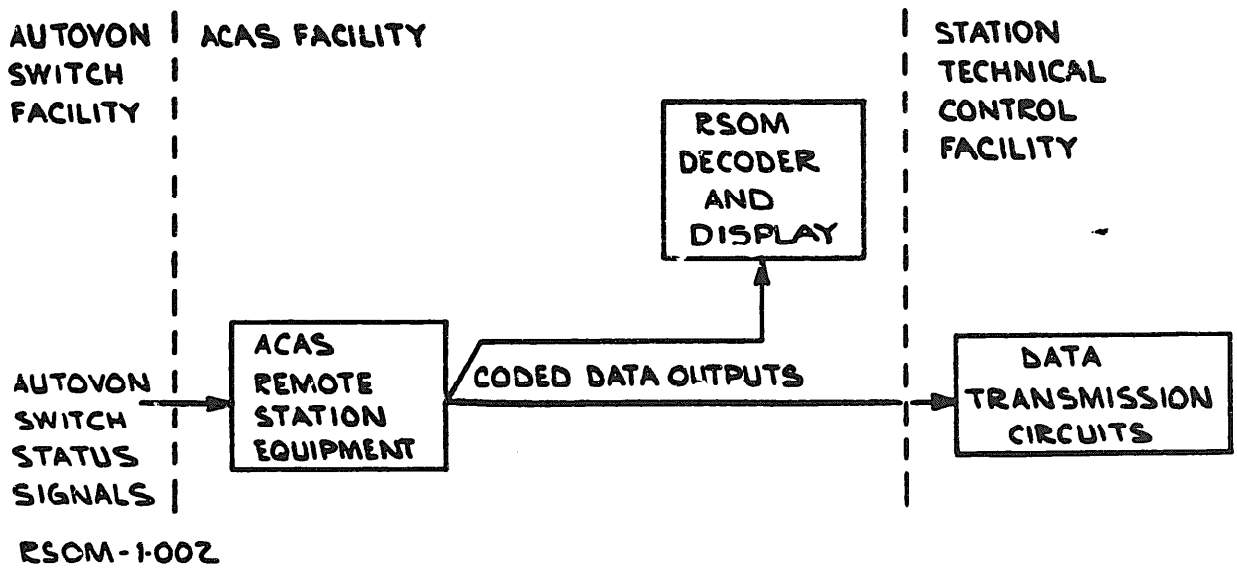


Figure 1-2. RSE/RSOM Block Diagram

1-5. DESCRIPTION OF RSOM EQUIPMENT.

1 - 6 . The RSOM is composed of two major assemblies: Remote Station Output Monitor Terminal Equipment (RSOMTE) assembly and Remote Station Output Monitor Display (RSOMD) assembly. The RSOMTE assembly is located in the Remote Station equipment rack below the RSE subassemblies. The RSOMD assembly is suspended from the cable ladder above the MD-01 console. Table 1-1 lists the major components comprising the RSOM.

1-7. REMOTE STATION OUTPUT MONITOR TERMINAL EQUIPMENT. The RSOMTE assembly (figures 1-3 and 1-4) monitors the coded message outputs from the RSE and decodes these messages into display signals that represent the AUTOVON Switch status input conditions sensed by the RSE. These display signals drive the RSOMD. The RSOMTE consists of a decoder subassembly, power supply subassembly, control panel, and connector panel. The power supply subassembly and connector panel are accessible from the rear of the equipment rack.

1-8. RSOMTE Decoder Subassembly. The RSOMTE decoder subassembly (figure 1-5) consists of a card file containing 22 printed circuit logic boards of six different types. All but one of these boards comprise the logic circuits which decode the data message from the RSE into parallel output signals capable of driving the RSOMD indicator lamps. The remaining board contains a local alarm circuit which monitors the RSOM input signals and operating voltages for alarm conditions, and provides drive signals for the alarm lamps and audible alarm on the RSOMTE control panel.

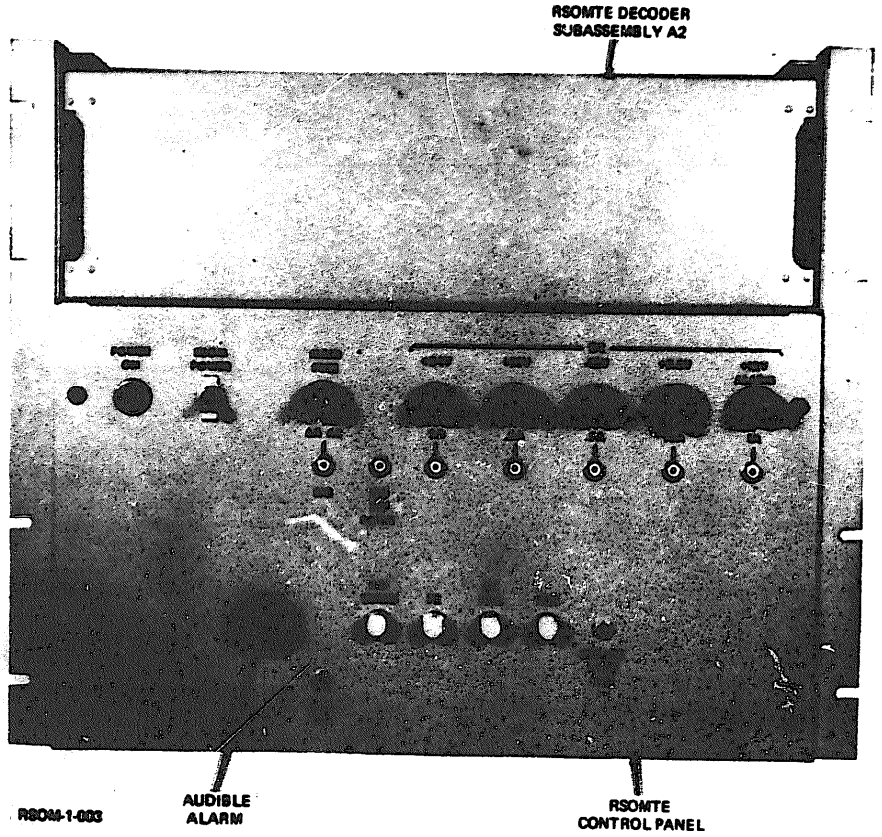


Figure 1-3. Remote Station Output Monitor Terminal Equipment (RSOMTE), Front View

Table 1-1. RSOM Equipment List

OFFICIAL NOMENCLATURE	COMMON NAME	QTY	REF DES
Terminal Equipment Assembly TFA-42075796	RSOMTE assembly	1	
Card File TP-DA-31419800	RSOMTE decoder subassembly	1	A2
Printed Circuit Board LA-296	RSOMTE local alarm circuit board	1	A2A1
Printed Circuit Board BA-201	Bit analyzer circuit board	1	A2A2
Printed Circuit Board SD-231	Shift detector circuit board	1	A2A3
Printed Circuit Board PB-320	Power buffer circuit board	1	A2A4
Printed Circuit Board EO-230	Eight-output circuit board	10	A2A5 thru A2A14
Printed Circuit Board DD-295	Display driver circuit board	8	A2A15 thru A2A22
Power Supply Assembly TSA-42074796	RSOMTE power supply sub-assembly	1	A1
Power Supply, 24 Volts at 3.6 Amps (LCS-C-24)	RSOM +24 volt dc power supply module	1	A1A1
Power Supply, 3.6 Volts at 11 Amps (LMCC-3-P-6-LM-OV-1)	RSOMTE +3.6 volt dc power supply module	1	A1A2
Power Supply, 12 Volts 1.9 Amps (LCS-A-12)	RSOMTE alarm power supply module	1	A1A3
Dual Power Supply, 12 Volts at 0.4 Amp (LXD-3-152)	RSOMTE ±12 volt dc power supply module	1	A1A4
Power Supply Front Panel T-42073796	RSOMTE control panel	1	
Rear Panel TDA-42072796	RSOMTE connector panel	1	
Display Assembly TFA-42068796	RSOMD assembly	1	

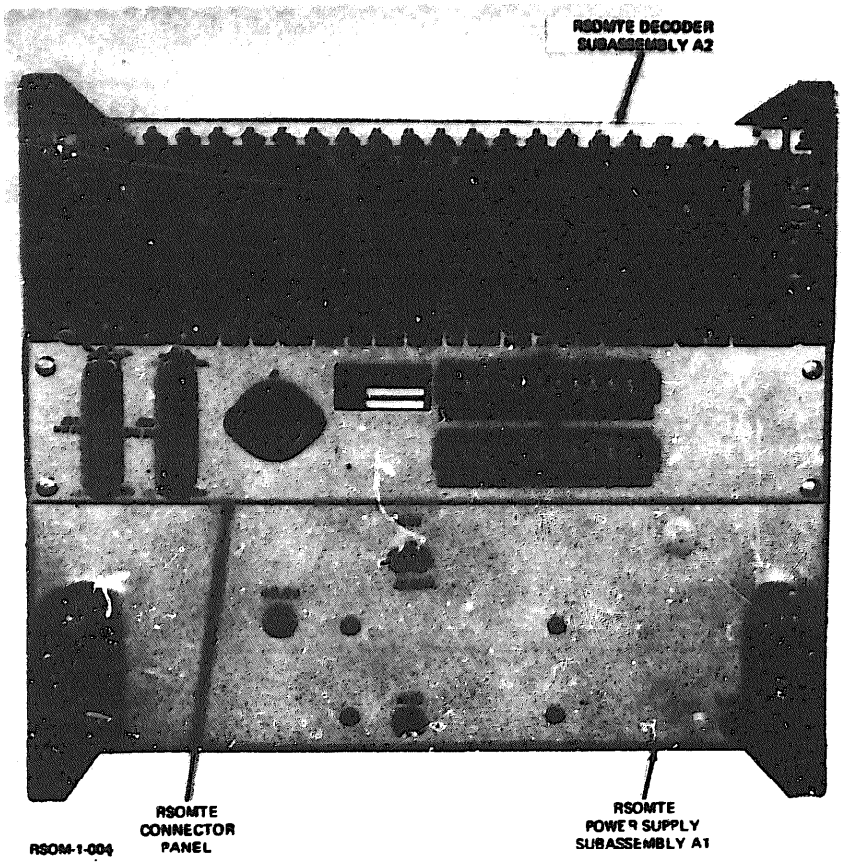


Figure 1-4. Remote Station Output Monitor Terminal Equipment (RSOMTE), Rear View

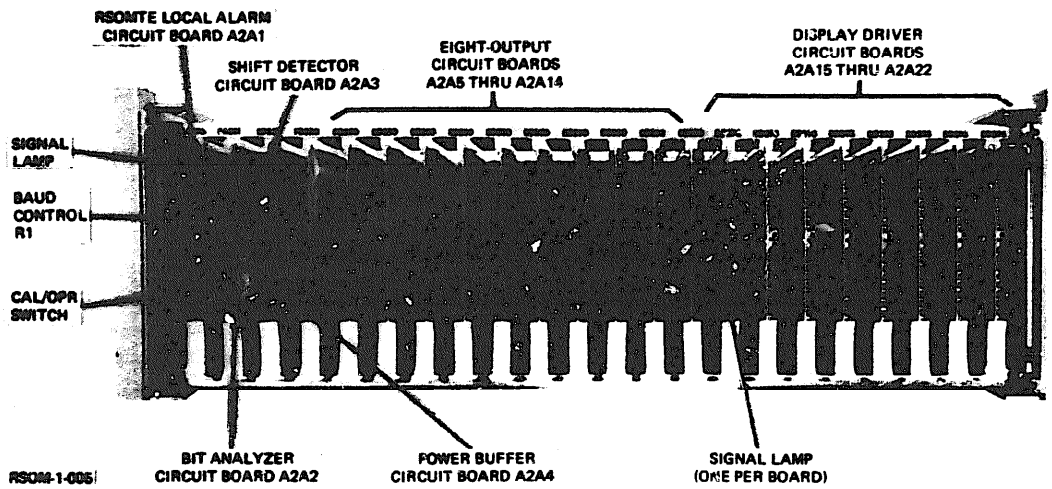


Figure 1-5. RSOMTE Decoder Subassembly, Front View (Cover Removed)

1-9. RSOMTE Power Supply Subassembly. The RSOMTE power supply subassembly (figure 1-6) consists of four power supply modules mounted in a component shelf. These modules provide the +3.6 volt, ±12 volt, +12 volt alarm, and +24 volt dc operating power required by the RSOM circuits. Each supply output voltage is independently fused and is adjustable without the use of special tools. Adjustment controls are accessible through holes in the component shelf panel. Both output voltages of the ±12 volt supply are adjusted by a single control, labeled +12 V on the component shelf panel.

1-10. RSOMTE Control Panel. The RSOMTE control panel (figure 1-3) contains the following components:

a. Alarm lamps to indicate abnormal conditions of signal inputs and operating voltages.

b. An audible alarm which responds to certain alarm signals.

c. Audible alarm release control.

d. Lamp test control.

e. Test points for monitoring signal input and power supply voltages.

f. Protective fuses for the ac and dc power distribution lines.

g. Input power control.

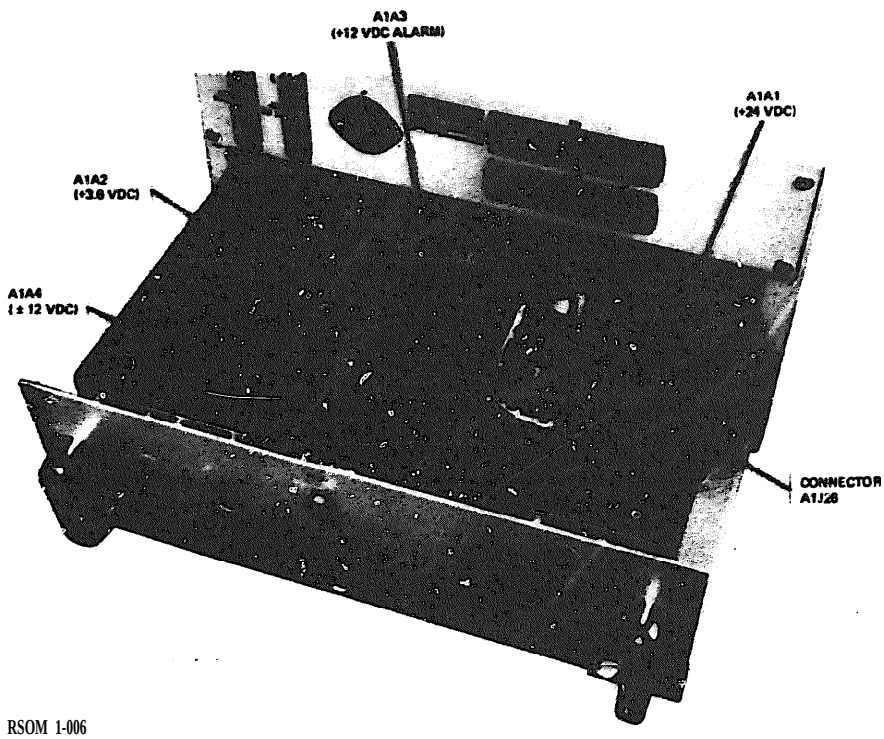


Figure 1-6. RSOMTE Power Supply Subassembly Component Shelf, Power Supply Modules

1-11. RSOMTE Connector Panel. The RSOMTE connector panel, located at the rear of the RSOMTE (figure 1-4), is equipped with plug-in connector and barrier strip terminals. All RSOMTE signal and power input and output connections are made at this panel.

1-12. REMOTE STATION OUTPUT MONITOR DISPLAY. The RSOMD (figure 1-7) has an arrangement of lamps which depict the status of AUTOVON Switch functions (reported by the RSE) and certain signal conditions of the RSE output. When an abnormal condition exists on a particular status reporting line, a drive signal from the RSOMTE decoder subassembly lights the corresponding lamp on the RSOMD panel. Signal connections are made through two 50-pin connectors mounted on the rear of the unit (figure 1-8). The RSOMD also has a lamp test control and a lamp flashing release control.

1-13. RSOM ELECTRICAL INTERFACES. The electrical interface between the RSOMTE and the RSE is such that the RSOMTE does not significantly load the RSE output, with connection being made through a single pair of signal leads. Electrical connections between the RSOMTE and the RSOMD are made through two 50-conductor cables. These cables are connected at the RSOMTE connector panel and at the rear of the RSOMD. An ac power cord, plugged in at the RSOMTE connector panel, interfaces with the primary ac power source.

1-14. TECHNICAL CHARACTERISTICS.

1-15. The pertinent technical characteristics of the RSOM are listed below.

a. Input signal levels . . . . . ±1.2 volts dc (polar), 0 and +3.6 volts dc (neutral)

b. Signaling rate . . . . . 75 ±10 baud

c. Total distortion . . . . . less than 1% (mark and space), 0% (transition)

d. Dimensions (height x width x depth) and weights:

RSOMTE assembly . . . . . 15-3/4 x 19 x 12 inches, 60 pounds

RSOMD assembly . . . . . 10 x 19 x 16-1/2 inches, 15 pounds

e. AC input power requirements . . 120 volts, 6 amps (max), single phase, 50/60 Hz

f. Dc power requirements . . +3.6 volts at 3 amps, +12 volts at 0.4 amp, ±12 volts at 0.4 amp (+12 volt), 0.25 amp (-12 volt) +24 volts at 2.1 amps

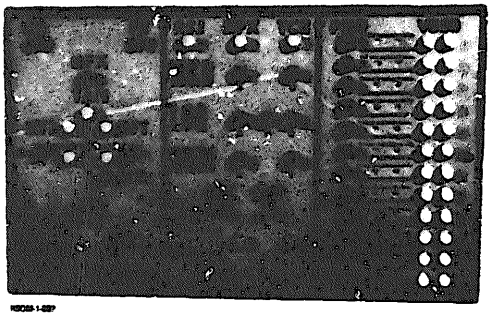


Figure 1-7. Remote Station Output Monitor Display (RSOMD), Front View

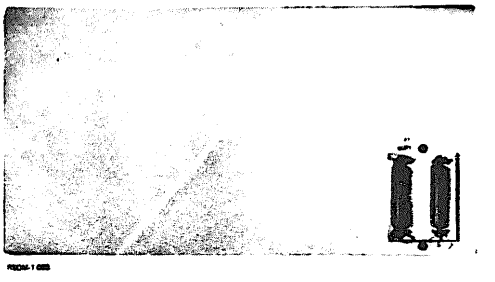


Figure 1-8. Remote Station Output Monitor Display (RSOMD), Rear View

CHAPTER 2

OPERATION

2-1. INTRODUCTION.

2-2. This chapter contains information pertinent to manual operation of the RSOM. This information consists of descriptions of panel-mounted components and their uses by operation and maintenance personnel. Most of these components perform maintenance functions; therefore, specific operating instructions are given in Chapter 4 of this manual. In addition, operating instructions such as equipment turn-on and shutdown procedures are also included in Chapter 4. The RSOM is a continuously operating system which is shut down only when it is necessary to perform off-line maintenance.

2-3. DESCRIPTION OF PANEL COMPONENTS.

2-4. RSOMD PANEL. The RSOMD panel contains two operating controls, which are described in table 2-1 and illustrated in figure 1-7. All indicator lamps (except UD and PE lamps) are part of the AUTOVON switch status display. The UD and PE lamps are alarm indicator lamps. Their functions are therefore covered in Chapter 4.

Table 2-1. RSOMD, Operating Controls

CONTROL	REF DES	FUNCTION
LAMP TEST pushbutton	S1	When depressed, all lamps on RSOMD light steadily.
FLASHING RELEASE pushbutton	S2	When depressed, all flashing lamps on RSOMD are transferred to steady illumination.

2-5. RSOMTE CONTROL PANEL. The RSOMTE control panel contains operating controls, fuses, test points, and alarm lamps. The functions of operating controls and fuses are described in tables 2-2 and 2-3, respectively. Alarm lamps and test points are covered in Chapter 4 of this manual. The RSOMTE control panel components are shown in figure 1-3.

2-6. OPERATING INSTRUCTIONS.

2-7. There are no operating instructions applicable to the RSOM. The RSOM panel components previously described in this chapter are used to perform maintenance functions. Refer to Chapter 4 for maintenance procedures.

Table 2-2. RSOMTE Control Panel, Operating Controls

CONTROL	REF DES	FUNCTION
RSOM POWER switch	S1	In up position, applies primary ac power to RSOM; in down position, removes power.
POWER ON lamp	DS1	Lights when primary ac power is applied to RSOM.
RSOMTE LAMP TEST pushbutton	S2	When depressed, all lamps on RSOMTE control panel light steadily.
AUD RLS pushbutton	S3	Silences audible alarm.

Table 2-3. RSMOTE Control Panel, Fuse Complement

FUSE	REF DES	FUNCTION
	NOTE All fuses are self-indicating type.	
MAIN FUSE, 6A AC	F1	Protects power supply modules.
DC fuses: +24V, 3A	F2	Protects output of +24 Vdc power supply A1A1.
+12V, .5A	F3	Protects positive output of ±12 Vdc power supply A1A4.
-12V, .5A	F4	Protects negative output of ±12 Vdc power supply A1A4.
+3.6V, 10A	F5	Protects output of +3.6 Vdc power supply A1A2.
+12V ALARM, 1A	F6	Protects output of +12 Vdc alarm power supply A1A3.

CHAPTER 3

THEORY OF OPERATION

3-1. INTRODUCTION.

3 - 2 . This chapter presents the theory of operation for the RSOM. This information consists of a general functional description of overall equipment operation and detailed functional descriptions of unique RSOM circuits.

3-3. RSOM FUNCTIONAL DESCRIPTION.

3 - 4 . The following paragraphs provide a functional description of the RSOM. Figure FO-1 is a simplified block diagram showing the interrelationship of RSOM circuits. If further information beyond the scope of this manual is desired, the descriptions of the Master Station equipment contained in the technical manual for Display-Monitoring Group OD-88(V)/G(T. O. 31W2-2G-211) can be used for reference.

3-5. DATA INPUTS. The RSOM monitors the output signal of the RSE by sampling the voltage across the 60-ohm sensing resistor within the RSE. Figure 3-1 gives a simplified schematic presentation of the interface circuit between the RSE and RSOM. The voltage across the RSE sensing resistor is ±1. 2 volts nominal when the RSE is operated in the polar mode, or 0 and +3. 6 volts nominal in the neutral mode.

3-6. DECODING AND DISPLAY. The RSE output is a serial data message which contains AUTOVON Switch status information. This message is decoded in the RSOMTE decoder subassembly and converted into drive signals for the RSOMD lamps. The status indicator lamps on the RSOMD are lighted whenever the corresponding status input signal from the RSE turns on (abnormal condition), and are extinguished when the status signal turns off (normal condition). In addition, each display driver

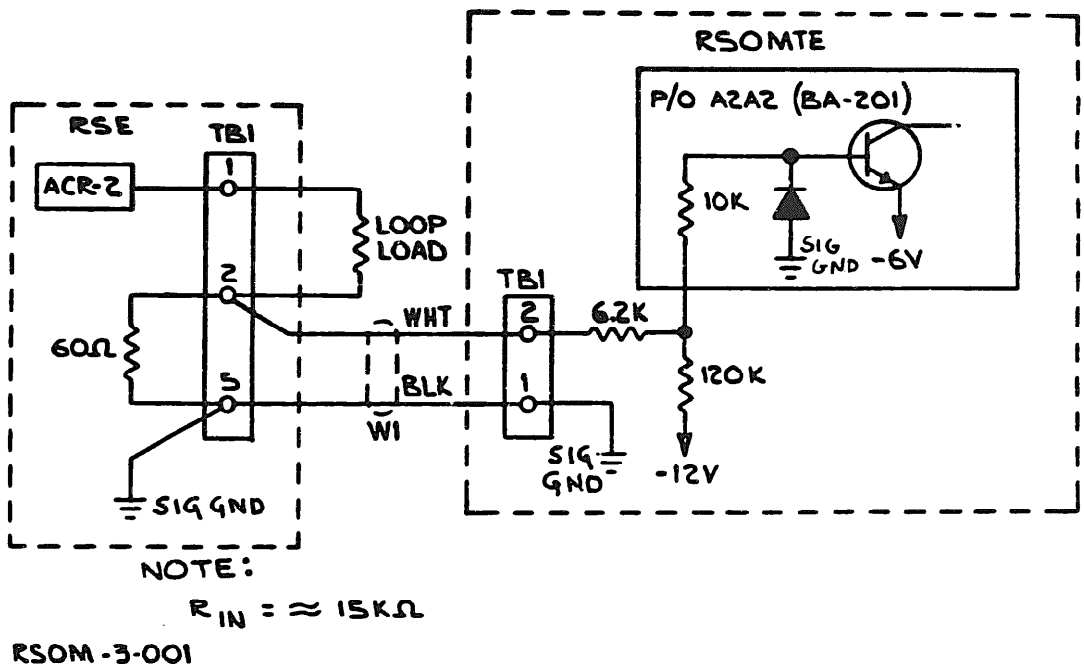


Figure 3-1. RSE/RSOM Interface Circuit, Simplified Schematic Diagram

output can be strapped in the flashing mode so that the corresponding display lamp flashes at a constant rate (approximately 30 times per minute) instead of lighting steadily. A flashing release control on the RSOMD permits manual transfer of all flashing lamps to steady illumination. All subsequent off-to-on transitions will produce a flashing display lamp if so strapped.

3-7. ALARMS. The RSOMTE also monitors the RSE output signal for conditions of no transition and parity errors. In addition, the RSOMTE monitors the dc voltages used within the RSOM and provides an alarm indication when any voltage fails. A local alarm circuit in the RSOMTE decoder subassembly generates the necessary drive signals for alarm lamps located on the RSOMTE control panel and the RSOMD. Alarm lamps on the control panel indicate no transition, parity error, dc fail, and test mode conditions. Unreliable data (UD) and parity error (PE) lamps are located on the RSOMD. An audible alarm is provided on the RSOMTE control panel.

3-8. The no transition and dc fail alarms can be strapped into a pulsing drive circuit in the RSOMTE control panel which is used to drive the audible alarm. This circuit produces a pulsating signal which enables the audible alarm to generate an interrupted tone (approximately 30 bursts per minute). The audible alarm is turned on when a strapped alarm is turned on and remains on as long as that alarm condition exists. The audible alarm turns off when either the alarm condition ceases or the audible alarm release switch on the RSOMTE control panel is depressed. In either event, it will sound again upon receipt of a new alarm signal strapped for audible operation. The pulsating operation of the audible alarm is not affected by the flashing release control on the RSOMD.

3-9. Other components mounted on the RSOMTE control panel include self-indicating output line fuses for each dc power supply voltage and access test points for measurement of each voltage. A self-indicating fuse is also provided for the primary ac input line. The control panel also contains test points for monitoring the input signal from the RSE, and an ac input power control switch and associated indicator lamp.

3-10. POWER. All dc power requirements for the RSOM are provided by four power supply modules (A1A1 through A1A4) in the RSOMTE power supply subassembly. The +3.6 volt dc power supply module (A1A2) provides dc operating voltages for the logic circuits in RSOMTE decoder subassembly. Overvoltage protection, set to 20 percent above the required voltage, is provided for this module. The ±12 volt module (A1A4) powers the stable oscillator in the decoder bit analyzer circuit. The +12 volt dc alarm module (A1A3) supplies power for the local alarm circuit and the first display driver circuit (A2A15) in the decoder subassembly, and the audible alarm on the RSOMTE control panel. To reduce the probability of losing alarm power, +12 volts dc is supplied in redundancy to the alarm circuits. This redundant power is obtained by utilizing the positive output of the ±12 volt dc module as a back-up supply in the event of alarm module failure. A sensing circuit produces the appropriate activation signals if either module should fail. The +24 volt dc power supply module (A1A1) provides operating voltage for all RSOMTE and RSOMD indicator lamps (except POWER ON lamp).

3-11. FUNCTIONAL DESCRIPTION OF RSOM CIRCUITS.

3-12. The following paragraphs provide detailed functional descriptions of the audible alarm pulsing drive circuit, the redundant +12 volt dc power supply and sensing circuit, and the RSOMD. For details on the RSOMTE decoder subassembly circuits, refer to the individual circuit schematic diagrams contained in Chapter 6.

3-13. AUDIBLE ALARM PULSING DRIVE CIRCUIT DESCRIPTION. This circuit permits audible alarm DS6 on the RSOMTE control panel, to emit a pulsating tone at a rate of 30 bursts per minute when an alarm condition exists. The pulsing drive circuit (figure 3-2) consists of transistor Ql and resistors R14 and R15 which are mounted on terminal strip TS1 in the RSOMTE power supply subassembly. Operating power for the audible alarm is supplied from redundant +12 volts dc at terminal TS1-4. When an alarm condition appears, local alarm circuit A2A1 in the RSOMTE decoder subassembly produces a path to ground through the audible alarm output at pin 4. As

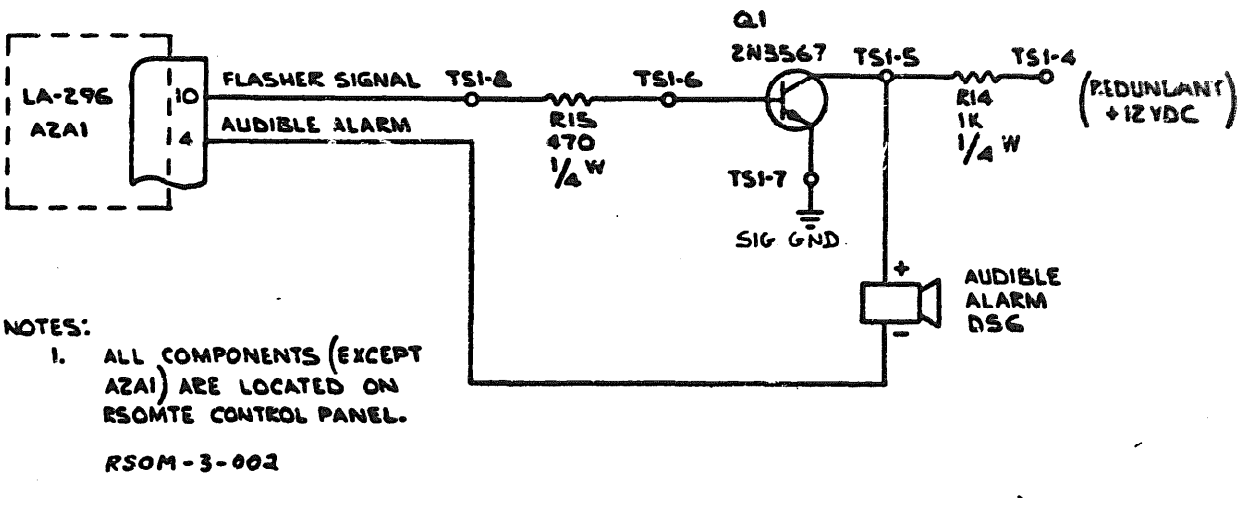


Figure 3-2. Audible Alarm Pulsing Drive Circuit, Simplified Schematic Diagram

a result, current flows through audible alarm DS6, causing the audible alarm to sound. The tone pulsations result from the action of the pulsing drive circuit controlled by the flasher signal output from A2A1 at pin 10. This signal is applied to the base of Q1 via R15, causing Q1 to turn alternately on and off at the flasher rate of 30 times per minute. Each time that Q1 turns on, its collector goes to ground (TS1-5), removing +12 volts dc from DS6. This silences the audible alarm during the conduction period of Q1. Resistor R14 limits the current through Q1 during the conduction period.

3-14. REDUNDANT +12 VOLT DC POWER SUPPLY AND SENSING CIRCUIT DESCRIPTION. This circuit combines the +12 volt dc outputs of power supplies A1A3 and A1A4 to provide redundant +12 volt dc power for the local alarm circuit and audible alarm. In addition, the circuit senses the failure of either power supply and produces the appropriate alarm signals. The redundant +12 volt dc power supply and sensing circuit (figure 3-3) consists of diodes CR1 through CR4 and resistors R12 and R13, which are mounted on terminal strip TS1 in the RSOMTE power supply subassembly. Redundant +12 volts dc is applied at terminal TS1-4 from the +12 volt outputs of power supplies A1A3 and A1A4 via isolation diodes CR4 and CR3, respectively. If +12 volt dc alarm power supply A1A3 fails or associated fuse F6 opens, alarm power is provided by power supply A1A4. In addition, diode CR2 conducts, completing a path to ground via resistor R16 on terminal strip TS2. Resistors R12 and R16 form a voltage divider which applies a sensing voltage (less than 2 volts) to pin L of local alarm circuit A2A1 in the RSOMTE decoder subassembly. The local alarm circuit then activates the appropriate alarms. Diode CR1 and the voltage divider consisting of R6 (on TS2) and R13 operate in the same way to sense a failure of power supply A1A4 or fuse F3. R16 and R6 provide loads for A1A3 and A1A4, respectively, to allow illumination of their dc fuseholders when a fuse opens.

3-15. RSOMD CIRCUIT DESCRIPTION. The RSOMD provides a visual display which reflects the status information contained in the monitored RSE output. Each lamp on the RSOMD (except UD and PE) is associated with a particular bit of status information. The lamp is lighted when the corresponding status input signal turns on, causing the appropriate drive output from the RSOMTE decoder subassembly to be grounded. When the status signal turns off, the drive output is opened and the lamp is extinguished. If the drive output is strapped in the flashing mode, the display lamp flashes on and off approximately 30 times per minute

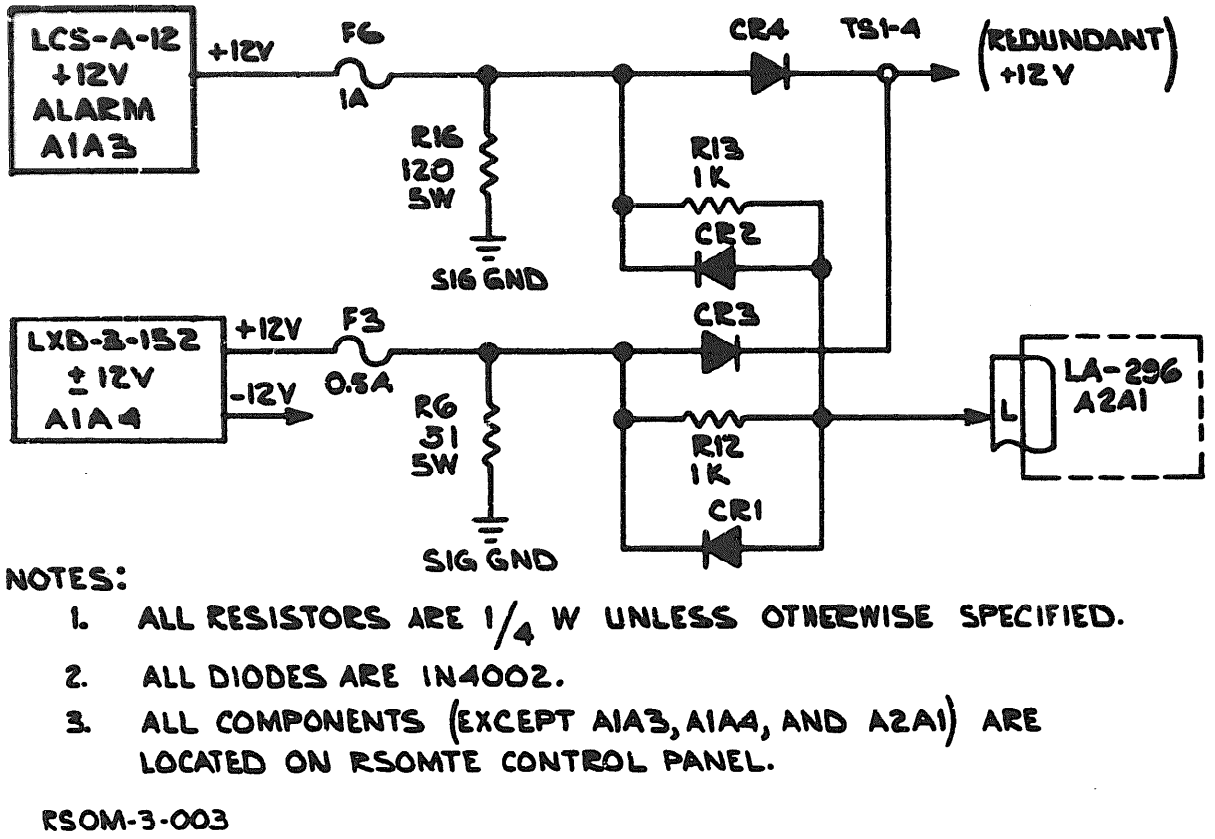


Figure 3-3. Redundant +12 Volt DC Power Supply and Sensing Circuit, Simplified Schematic Diagram

when the status signal turns on. The UD and PE lamps are used to indicate RSE alarm conditions of unreliable data and parity error, respectively. In addition, the UD lamp indicates local alarm conditions existing in the RSOM. All lamps operate from +24 volts dc supplied by module A1A1 in the RSOMTE power supply subassembly. LAMP TEST pushbutton S1, when depressed, applies ground simultaneously to all lamps causing them to light steadily. FLASHING RELEASE pushbutton S2, when depressed, removes the flashing condition from any lamps operating in the flashing mode, causing them to light steadily.

CHAPTER 4

MAINTENANCE

4-1. INTRODUCTION.

4 - 2 . This chapter contains the information necessary to perform corrective maintenance of the RSOM equipment. The approach to RSOM corrective maintenance is based upon the concept of rapid restoral of malfunctioning equipment to normal operation by simple replacement of a faulty module or circuit board. This objective is achieved by utilizing efficient performance assessment and fault isolation techniques in conjunction with the information presented in this chapter. This information includes testing and troubleshooting procedures for fault isolation, adjustment and replacement procedures for correcting the fault, and other supporting data such as equipment shutdown and restart procedures and strapping procedures.

4-3. MAINTENANCE TEST EQUIPMENT.

4 - 4 . Maintenance and testing of the RSOM equipment is accomplished with the use of standard test equipment. Table 4-1 lists the required test equipment, their model or part numbers, and pertinent operating characteristics. Substitute test equipment may be used only if the recommended equipment is not available and if the substitute equipment has approximately the same operating characteristics.

4-5. PERFORMANCE TEST.

4-6. One method of uncovering trouble symptoms when a malfunction is suspected is to perform a system-level performance test

Table 4-1. Maintenance Test Equipment

ITEM	MODEL OR PART NUMBER	OPERATING CHARACTERISTICS
Multimeter	Simpson Model 260, or equivalent	Voltage ranges: 0.5, 2.5, 10, 50, 250, 500, 1000 V dc and V ac Current ranges: 0.5, 2.5, 10, 50, 250, 500, 1000 ma Resistance ranges: 1K, 10K, 100K 1 meg, 10 meg Sensitivity: 1000 ohms/V dc, 1000 and 2000 ohms/V dc Accuracy: ±4 percent
Oscilloscope	Tektronix Model 535A, or equivalent	Frequency range: dc to 15MHz Sweep speed: 0.1 usec/cm min, 5 sec/cm max. (±3 percent), 12 sec/cm uncalibrated Rise time: 0.023 usec
Electronic Counter	Hewlett-Packard Model 523B, or equivalent	Frequency range: 0.001 Hz to 1.100 MHz Operating time intervals: 3 usec to 27.8 hours
Printed circuit board extender assembly	Atlantic Research Part No. TP-AD-40952472	
Watch with Sweep-second hand		

involving the RSOM and the RSE. Perform this test as follow

a. Starting from normal, set MODE switch on RSE, in succession, to ON TEST, OFF TEST, FACIL TEST, EQPT CAL, and LOOP ADJ positions. Return to NORMAL position after setting to each mode. At each switch position, observe lamp indications at RSE, RSOMTE, and RSOMD. Normal indications for each switch position are given in table 4-2. These indications are observed on the following panels:

(1) RSE power supply subassembly A2

(2) RSOMTE control panel (figure 1-3)

(3) RSOMD (figure 1-7)

b. In the event that any abnormal indications are observed, refer to paragraph 4-10 for the appropriate troubleshooting procedure.

4-7. TROUBLESHOOTING PROCEDURES.

4-8. The procedures for troubleshooting the RSOM equipment are based upon two types of fault indications: alarm lamp indications denoting power supply failures or open fuses, and data and display lamp indications of data message signal irregularities. Since the source of data message signal troubles could be in the RSE, the procedures for isolating these types of troubles are presented on a system level, including the RSE and RSOM. Paragraph 4-9 contains the procedures to be followed to isolate the cause of power supply failure indications. Troubleshooting procedures

Table 4-2. System Performance Test, Normal Indications

RSE MODE SWITCH SETTING	NORMAL INDICATIONS		
	RSE	RSOMTE	RSOMD
ON TEST	TEST lamp lights	TEST lamp lights	All lamps light, except PE lamp.
OFF TEST	Same as ON TEST	Same as ON TEST	All lamps extinguished, except UD lamp.
FACIL TEST	Same as ON TEST mode	Same as ON TEST mode	UD lamp lights (disregard other lamp indications).
EQPT CAL	Same as ON TEST mode	TEST and PE lamps light	UD and PE lamps light (disregard other lamp indications).
LOOP ADJ	TEST and NO TRNSN lamps light	NO TRNSN lamp lights	*UD lamp lights
NORMAL	All lamps extinguished, except ALARM POWER	All lamps extinguished, except POWER ON	Lamp display returns turns to normal (UD and PE lamps extinguished).

*In Loop Adj mode, the PE lamp on RSOMTE and the PE lamp, or other lamps, on the RSOMD may also light. Also, the audible alarm(s) will sound, if strapped for audible operation.

for data message signal failures utilizing the system performance test and other maintenance aids are presented in paragraph 4-10.

4-9. POWER SUPPLY FAILURES. Loss of power to RSOM equipment can be caused by an open fuse or failure of a dc power supply or the ac input power source. In the event of a power supply failure, the DC FAIL lamp on the RSOMTE control panel (figure 1-3) lights (except for failure of +24 volt power supply), and an audible alarm sounds (if strapped). Proceed as follows:

a. Depress AUD RLS pushbutton to silence audible alarm, if required.

b. Refer to table 4-3 for interpretation of the alarm indication.

c. Check fuses associated with the suspected faulty power supply (table 2-3). Replace any open fuse.

d. Using multimeter, measure output voltage of suspected power supply at test points listed in table 4-4.

e. If faulty power supply is indicated, loosen two screws securing RSOMTE power supply subassembly A1 at rear of RSOMTE assembly (figure 1-4).

f. Withdraw power supply component shelf to gain access to power supply modules (figure 1-6).

g. If voltage measured in step d is out of tolerance, adjust potentiometer on the faulty module to obtain proper output. Adjustments are made through access holes in the front of the shelf. If measured voltage is 0, check internal fuse and replace if open. If these procedures fail to correct the trouble, replace the faulty power supply module in accordance with paragraph 4-24.

4-10. DATA MESSAGE SIGNAL FAILURES. The procedures to be followed in troubleshooting the RSE and RSOM to isolate data message signal failures are given in the following paragraphs.

4-11. System Troubleshooting Chart. In the event of any data message signal failure, an

Table 4-3. RSOMTE Control Panel, Alarm Lamp Indications

ALARM LAMP	REF DES	PROBABLE CAUSE OF ALARM INDICATION
NO TRNSN	DS2	Input signal to decoder subassembly consists of a steady mark or a steady space for longer than 1.2 seconds (nominal). If DC FAIL lamp is also lighted, +3.6 v dc or -12 v dc power supply A1A2, or A1A4, respectively, has failed, or associated fuse has opened; otherwise, refer to table 4-5.
PE	DS3	Input signal to decoder subassembly contains even parity in one or more character intervals. If DC FAIL lamp is also lighted, +3.6 cr -12 v dc power supply has failed, or associated fuse has opened; otherwise, refer to table 4-5. Audible alarm is not used with this lamp.
DC FAIL	DS4	A dc power supply module has failed or associated fuse has opened.
TEST	DS4	Lights to indicate when RSE is in any test mode (not a failure indication). Audible alarm is not used with this lamp.

Table 4-4. RSOMTE Control Panel, Test Points

TEST POINT	REF DES	FUNCTION
SIG	TP1	Provides connection point for observing RSOM input waveform.
SIG REF POINT	TP2	Provides common ground connection for input waveform and power supply voltage measurements.
+24V	TP3	Provides connection point for measuring output voltage of +24V dc power supply A1A1 (+24 ±2.0 V dc).
+12V	TP4	Provides connection point for measuring positive output voltage of ±12 V dc power supply A1A4 (+12 ±1.0 V dc).
-12V	TP5	Provides connection point for measuring negative output voltage of ±12 V dc power supply A1A4 (-12 ±1.0 V dc).
+3.6V	TP6	Provides connection point for measuring output voltage of +3.6 V dc power supply A1A2 (4.0 ± 0.2 V dc).
+12V ALARM	TP7	Provides connection point for measuring output voltage of +12 V dc alarm power supply A1A3 (+12 ± 1.0 V dc).

abnormal indication will be observed on a data or display lamp at the RSOM. This may occur during normal operation, or during testing (paragraph 4-5). When an abnormal indication is obtained, locate the observed symptom in table 4-5 and follow the fault isolation procedures given in that table to locate the probable faulty circuit board(s). Additional troubleshooting aids to support these fault isolation procedures are given in the following paragraphs.

4-12. Lamp Tests. Whenever an unlighted data or display lamp is observed as an abnormal sympton indication, the possibility of a burned-out lamp must be considered. To check for possible lamp failures, proceed as follows:

a. For RSOMTE lamps, depress RSOMTE LAMP TEST pushbutton on RSOMTE control panel (figure 1-3). All lamps on the panel should light.

b. For RSOMD lamps, depress LAMP TEST pushbutton on RSOMD panel (figure 1-7). All lamps on RSOMD panel should light.

4-13. Circuit Board Fault Localization Aids. In many cases, table 4-5 lists several possible causes of an abnormal indication. The data message observed at the SIG jack (with an oscilloscope) on the RSOMTE control panel (figure 1-3) or at the SIG jack on the RSE power supply subassembly for the ON TEST and OFF TEST modes will enable the isolation of the malfunction to the RSE, RSOM, or the interconnecting cable between the RSE and RSOM. The test message waveforms observed at the RSE output and the RSOMTE input are shown in figure 4-1 and 4-2, respectively. If the data message observed at the RSOMTE is correct for each test mode, the trouble is in the RSOMTE circuit boards specified in table 4-5. If the data message observed at the RSOMTE is incorrect, but is proper at the RSE, the trouble is in the RSE/RSOM interconnecting cable. If,

Table 4-5. System Troubleshooting Chart (Data Message Signal Failures)

SYMPTOM	PROBABLE CAUSE	REMEDY
RSOMD lamp (figure 1-7) either stays lighted in OFF TEST mode or does not light in ON TEST mode.	RSE line usage, input switch, or non-locking input circuit board; RSOMTE eight-output or display driver circuit board.	a. Isolate trouble to either RSE or RSOMTE by observing data message at SIG jack, as described in paragraph 4-13. b. Refer to table 4-6 to localize fault to particular RSE or RSOMTE circuit boards associated with RSOMD lamp showing abnormal symptom. c. Remove front panel from RSE or RSOMTE encoder or decoder, as applicable. Observe circuit board lamps on boards associated with symptom as determined in b above. d. Compare lamp indications on those boards to the normal indications described in table 4-7. If abnormal indication is observed, replace circuit board indicated as cause of trouble in table 4-7. e. If abnormal indication is not observed, replace the possible faulty circuit boards determined in step b above, as a possible cause of trouble, one at a time, until original symptom no longer appears.
NO TRNSN lamp at RSOMTE control panel (figure 1-3) lights in NORMAL, ON TEST, or OFF TEST modes.	RSOMTE bit analyzer or RSE bit generator circuit board or automatic current regulator circuit board.	a. If NO TRNSN lamp on associated RSE power supply subassembly also lights, replace bit generator circuit board, coupling repeater or automatic current regulator circuit board in RSE. b. If NO TRNSN lamp at RSE does not light, replace bit analyzer circuit board.

Table 4-5. System Troubleshooting Chart (Data Message Signal Failures) (Continued)

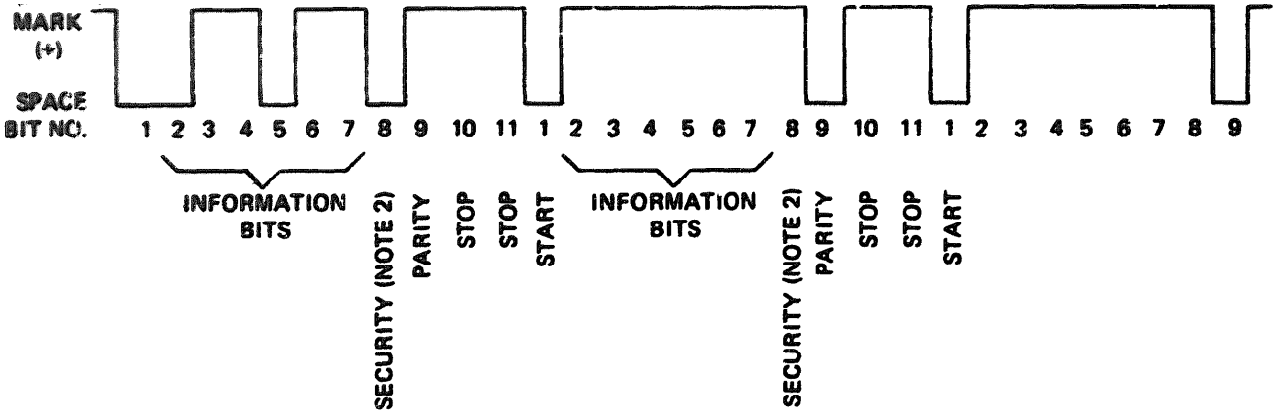
SYMPTOM	PROBABLE CAUSE	REMEDY
NO LOOP lamp on RSE, UD lamp on RSOMD, and NO TRSNS lamp at RSOMTE control panel light in NORMAL, ON TEST, or OFF TEST modes.	Automatic current regulator, neutral coupling repeater, or polar coupling repeater circuit board in RSE.	a. If RSE is in polar transmission mode, replace polar coupling repeater and automatic current regulator circuit boards one at a time until symptom no longer exists. b. If RSE is in neutral transmission mode, replace neutral coupling repeater and automatic current regulator circuit boards one at a time until symptom no longer exists.
NO TRNSN lamp at RSOMTE control panel does not light when RSE is in LOOP ADJ mode and NO TRNSN lamp at RSE is lighted.	RSOMTE local alarm circuit board.	Replace RSOMTE local alarm circuit board (figure 1-5).
PE lamps at RSOMTE and RSOMD remain lighted in NORMAL, ON TEST or OFF TEST modes.	Parity error in RSE output signal, faulty RSE bit generator circuit board, RSOMTE bit analyzer, local alarm circuit board, or display driver circuit board.	a. Replace RSE bit generator circuit board. b. If PE lamps are still lighted, replace RSOMTE bit analyzer or local alarm circuit board. c. If PE lamp on RSOMD is lighted but not on RSOMTE replace display driver circuit board No. 1 (A2A15).
Lamps on RSOMTE eight-output circuit boards not sequencing properly in NORMAL, ON TEST, or OFF TEST modes. More than one lamp sequencing at one time with no other indication of malfunction.	Short message in RSE output, not detected by RSOMTE local alarm circuit board; faulty RSE non-locking input citcuit board; RSOMTE local alarm or display driver circuit board.	a. Check RSE for proper output message length. Replace non-locking input circuit board(s). b. If RSE output is proper, replace RSOMTE local alarm or display driver No. 1 (A2A15) circuit board.
Lamps on RSOMTE eight-output circuit boards not sequencing in NORMAL, ON TEST, or TEST modes, with no other indication of malfunction.	RSE output SOM incorrect; RSOMTE shift detector or power buffer circuit board.	a. Check RSE output SOM. If incorrect, replace RSE non-locking input circuit board No. 2 (A1A4), or RSE power buffer circuit board.

Table 4-5. System Troubleshooting Chart (Data Message Signal Failures) (Continued)

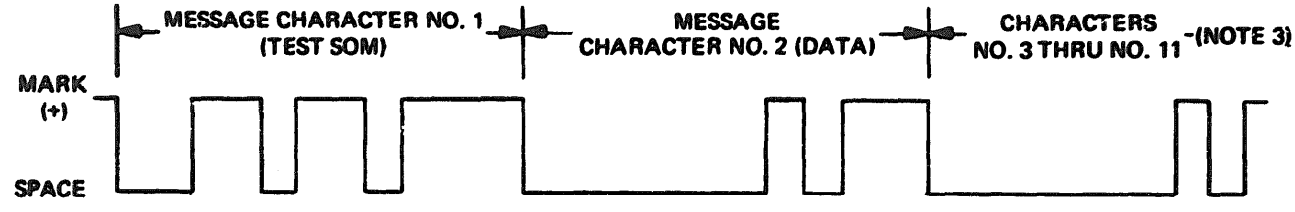
SYMPTOM	PROBABLE CAUSE	REMEDY
		b. If SOM is correct, replace RSOMTE shift detector or power buffer circuit board.
TEST lamp does not light at RSOMTE when RSE is in any test mode.	RSOMTE shift detector circuit board or RSE non-locking input circuit board A1A4.	Replace shift detector circuit board (figure 1-5). If symptom persists, replace non-locking input circuit board at RSE.
Every sixth lamp in a series on RSOMD does not light in ON TEST mode.	RSOMTE power buffer circuit board.	Replace power buffer circuit board (figure 1-5).
A series of RSOMD lamps (6) do not light in ON TEST mode.	RSOMTE eight-output circuit board.	Replace eight-output circuit board associated with RSOMD lamps showing symptom. (Refer to table 4-6.)
In flashing configuration, RSOMD lamp lights, but does not flash in ON TEST mode.	RSOMTE display driver circuit board or local alarm circuit board.	Replace display driver circuit board (figure 1-5) associated with RSOMD lamp showing symptoms (Refer to table 4-6). If all lamps do not flash, replace local alarm circuit board.
RSOMD lamp flashes, but does not stop flashing when FLASHING RELEASE pushbutton on RSOMD panel (figure 1-7) is depressed.	RSOMTE display driver circuit board.	Replace display driver circuit board associated with RSOMD lamp showing symptom. (Refer to table 4-6.)

however, the data message signal leaving the RSE is incorrect, the trouble is in the specified RSE circuit boards. Table 4-6 lists those circuit boards in both the RSE and RSOMTE associated with each RSOMD lamp. Utilization of table 4-6 and the observed signal waveforms will, in most cases, enable isolation to a defective circuit board. Where repair cannot be effected by module replacement in accordance with table 4-5, refer to system diagrams, FO-2 and FO-3, and system wire lists, figures 6-1 and 6-2, for aides in troubleshooting.

4-14. Another aid to faulty circuit board localization is the built-in lamps on many of the circuit boards. These are listed in table 4-7. To observe these lamps, remove the front cover from the RSE encoder or RSOMTE decoder subassemblies.



ON TEST MODE
(NOTE 1)



OFF TEST MODE
(NOTE 1)

NOTES:

1. OSCILLOSCOPE VERTICAL INPUT CONNECTED TO SIG JACK AND OSCILLOSCOPE GND CONNECTED TO GND JACK ON SUBASSEMBLY A2, TIME BASE SET TO 50 MS/DIV, AND EXTERNAL TRIGGER CONNECTED TO TEST POINT TP4 (YELLOW) OF CIRCUIT BOARD A1A4 (ACCESSIBLE FROM FRONT OF ENCODER SUBASSEMBLY A1, COVER REMOVED).

2. SECURITY BIT (NO. 8) IS ALWAYS A SPACE FOR ON TEST AND OFF TEST SOM CHARACTERS AND ALWAYS A MARK FOR DATA CHARACTERS.

3. CHARACTERS NO. 2 THRU NO. 11 HAVE IDENTICAL FORMATS. EACH CHARACTER (INCLUDING SOM CHARACTER NO. 1) MAY BE OBSERVED INDIVIDUALLY BY TRIGGERING OSCILLOSCOPE FROM CIRCUIT BOARD TEST POINTS LISTED BELOW AND SETTING TIME BASE TO 20 MS/DIV. ON ALL BOARDS, TP3 IS ORANGE, TP4 IS YELLOW

CHARACTER NO.	BOARD	TEST POINT
1 (SOM)	A1A4	TP4
2	A1A5	TP3
3	A1A5	TP4
4	A1A6	TP3
5	A1A6	TP4
6	A1A7	TP3
7	A1A7	TP4
8	A1A8	TP3
9	A1A8	TP4
10	A1A9	TP3
11	A1A9	TP4

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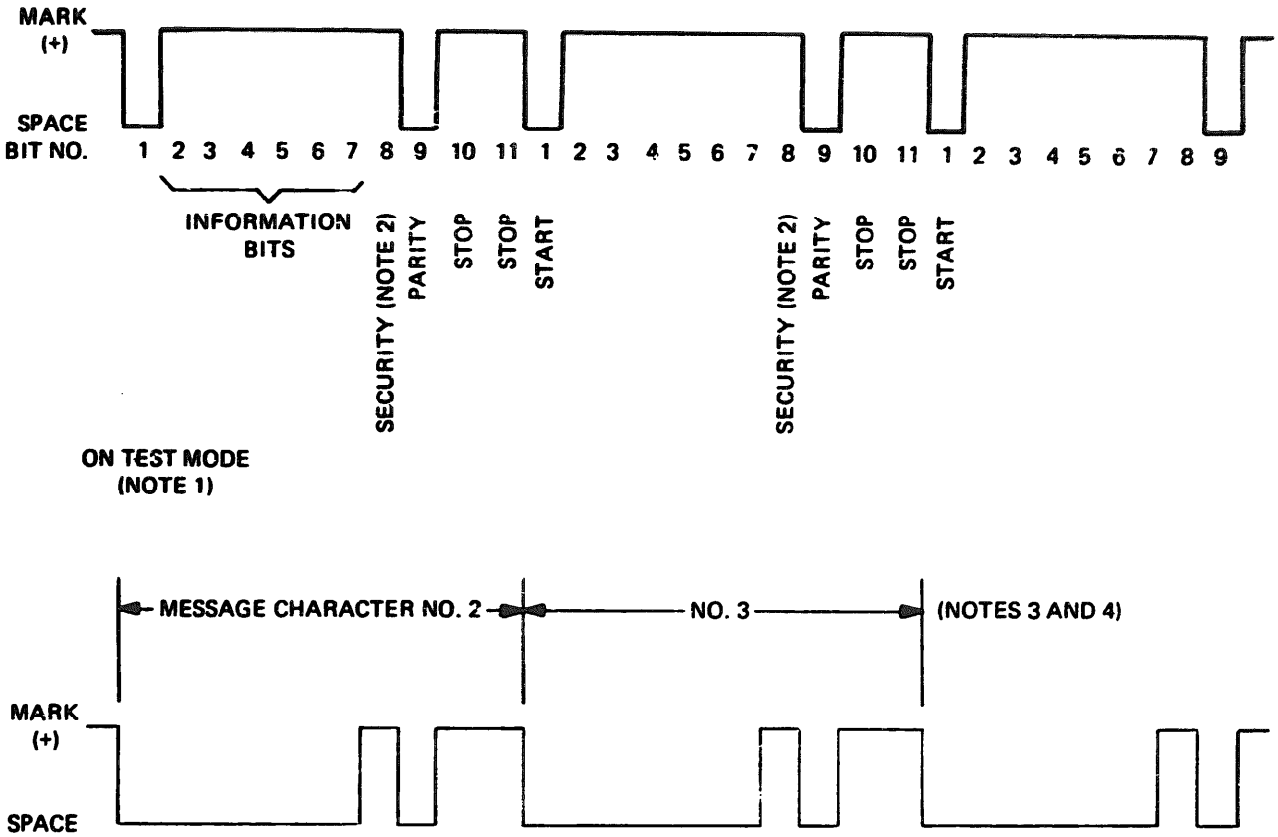
Figure 4-1. Test Message Waveforms (RSE Output)



NOTES:

1. OSCILLOSCOPE VERTICAL INPUT CONNECTED TO SIG JACK AND OSCILLOSCOPE GND CONNECTED TO SIG REF POINT ON RSOMTE CONTROL PANEL, TIME BASE SET TO 50 MS/DIV, AND EXTERNAL TRIGGER CONNECTED TO TEST POINT TP1 OF CIRCUIT BOARD A5 (ACCESSIBLE FROM FRONT OF DECODER SUBASSEMBLY, COVER REMOVED).

2. SECURITY BIT (NO. 8) IS ALWAYS A SPACE FOR ON TEST AND OFF TEST SOM CHARACTERS AND ALWAYS A MARK FOR DATA CHARACTERS.

3. SOM CHARACTER NOT OBSERVED IN THIS PROCEDURE.

4. DATA CHARACTERS NO. 1 THRU NO. 10 (MESSAGE CHARACTERS NO. 2 THRU NO. 11) HAVE IDENTICAL FORMATS. EACH CHARACTER MAY BE OBSERVED INDIVIDUALLY BY TRIGGERING OSCILLOSCOPE FROM TEST POINT TP1 OF BOARD A5 THRU A14, RESPECTIVELY, AND SETTING TIME BASE TO 20 MS/DIV.

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Figure 4-2. Test Message Waveforms (RSOMTE Input)

Table 4-6. RSOMD Lamps and Associated RSE and RSOMTE Circuit Boards

RSOMD LAMP	RSE ENCODER CIRCUIT BOARDS		RSOMTE DECODER CIRCUIT BOARD	
	LINE USAGE OR INPUT SWITCH	NON-LOCKING INPUT CIRCUIT	EIGHT-OUTPUT CIRCUIT	DISPLAY DRIVER
MFX-Red	A1A14	A1A5	A2A5	A2A15
TAN	A1A15	A1A5	A2A5	A2A15
MFR	A1A16	A1A5	A2A5	A2A15
MFT	A1A17	A1A5	A2A5	A2A15
DPT	A1A18	A1A5	A2A5	A2A15
DPR	A1A19	A1A5	A2A5	A2A15
TCR-Red	A1A20	A1A5	A2A6	A2A16
RSJ-Red	A1A21	A1A5	A2A6	A2A16
ATOP	A1A10	A1A5	A2A6	A2A16
LLC-A	A1A10	A1A5	A2A6	A2A16
LLC-B	A1A10	A1A5	A2A6	A2A16
LLC-C	A1A10	A1A5	A2A6	A2A16
RSJ-Amber	A1A10	A1A6	A2A7	A2A16
MFX-Amber	A1A10	A1A6	A2A7	A2A16
TCR-Amber	A1A10	A1A6	A2A7	A2A17
MKR-A	A1A10	A1A6	A2A7	A2A17
MKR-B	A1A10	A1A6	A2A7	A2A17
LOG-A	A1A10	A1A6	A2A7	A2A17
LOG-B	A1A10	A1A6	A2A8	A2A17
LOG-C	A1A10	A1A6	A2A8	A2A17
MEM-X	A1A10	A1A6	A2A8	A2A17
MEM-Y	A1A10	A1A6	A2A8	A2A17
CLK	A1A10	A1A6	A2A8	A2A18
CMP	A1A10	A1A6	A2A8	A2A18

Table 4-6. RSOMD Lamps and Associated RSE and RSOMTE Circuit Boards (Continued)

RSOMD LAMP	RSE ENCODER CIRCUIT BOARDS		RSOMTE DECODER CIRCUIT BOARD	
	LINE USAGE OR INPUT SWITCH	NON-LOCKING INPUT CIRCUIT	EIGHT-OUTPUT CIRCUIT	DISPLAY DRIVER
PMB-1	A1A11	A1A7	A2A9	A2A18
VG-1	A1A11	A1A7	A2A9	A2A18
SG-1	A1A11	A1A7	A2A9	A2A18
PMB-2	A1A11	A1A7	A2A9	A2A18
VG-2	A1A11	A1A7	A2A9	A2A18
SG-2	A1A11	A1A7	A2A9	A2A18
PMB-3	A1A11	A1A7	A2A10	A2A19
VG-3	A1A11	A1A7	A2A10	A2A19
SG-3	A1A11	A1A7	A2A10	A2A19
PMB-4	A1A11	A1A7	A2A10	A2A19
VG-4	A1A11	A1A7	A2A10	A2A19
SG-4	A1A11	A1A7	A2A10	A2A19
PMB-5	A1A12	A1A8	A2A11	A2A19
VG-5	A1A12	A1A8	A2A11	A2A19
SG-5	A1A12	A1A8	A2A11	A2A20
PMB-6	A1A12	A1A8	A2A11	A2A20
VG-6	A1A12	A1A8	A2A11	A2A20
SG-6	A1A12	A1A8	A2A11	A2A20
PMB-7	A1A12	A1A8	A2A12	A2A20
VG-7	A1A12	A1A8	A2A12	A2A20
SG-7	A1A12	A1A8	A2A12	A2A20
PMB-8	A1A12	A1A8	A2A12	A2A20
VG-8	A1A12	A1A8	A2A12	A2A21
SG-8	A1A12	A1A8	A2A12	A2A21

Table 4-6. RSOMD Lamps and Associated RSE and RSOMTE Circuit Boards (Continued)

RSOMD LAMP	RSE ENCODER CIRCUIT BOARDS		RSOMTE DECODER CIRCUIT BOARD	
	LINE USAGE OR INPUT SWITCH	NON-LOCKING INPUT CIRCUIT	EIGHT-OUTPUT CIRCUIT	DISPLAY DRIVER
PMB-9	A1A13	A1A9	A2A13	A2A21
VG-9	A1A13	A1A9	A2A13	A2A21
SG-9	A1A13	A1A9	A2A13	A2A21
PMB-10	A1A13	A1A9	A2A13	A2A21
VG-10	A1A13	A1A9	A2A13	A2A21
SG-10	A1A13	A1A9	A2A13	A2A21
PMB-11	A1A13	A1A9	A2A14	A2A22
VG-11	A1A13	A1A9	A2A14	A2A22
SG-11	A1A13	A1A9	A2A14	A2A22
PMB-12	A1A13	A1A9	A2A14	A2A22
VG-12	A1A13	A1A9	A2A14	A2A22
SG-12	A1A13	A1A9	A2A14	A2A22

Table 4-7. Interpretation of Circuit Board Lamp Indications (RSE Encoder and RSOMTE Decoder)

CIRCUIT BOARD	NORMAL INDICATION		PROBABLE CAUSE OF ABNORMAL INDICATION
	ON TEST MODE	OFF TEST MODE	
RSE bit generator	Lamp flashing	Lamp flashing	Circuit board A1A1 defective.
RSE non-locking input circuit A1A4	Bottom lamp lights in sequence	Same as ON TEST mode	Circuit board A1A4 defective.
RSE non-locking input circuits A1A5 through A1A9	Lamps sequence from top to bottom and left to right	Same as ON TEST mode	If last sequencing lamp is top lamp, that circuit board is defective; if last sequencing lamp is bottom lamp, the following circuit board is defective.

Table 4-7. Interpretation of Circuit Board Lamp Indications (RSE Encoder and RSOMTE Decoder) (Continued)

CIRCUIT BOARD	NORMAL INDICATION		PROBABLE CAUSE OF ABNORMAL INDICATION
	ON TEST MODE	OFF TEST MODE	
RSOMTE bit analyzer A2A2 (figure 1-5)	Lamp flashing	Lamp flashing	Circuit board A2A2 defective.
RSOMTE eight-output circuits A2A5 through A2A14 (figure 1-5)	All lamps sequencing from left to right	Same as ON TEST	Circuit board on which lamp does not light is defective.

4-15. DATA SPEED ADJUSTMENT PROCEDURES.

4-16. The only adjustment procedure to be performed on the RSOM equipment is the data speed adjustment. This procedure synchronizes the baud rate of the RSOMTE bit analyzer circuit with the external RSE bit generator circuit at 75 baud. Adjust the baud rate as follows:

a. At RSE, remove front cover of encoder subassembly to gain access to bit generator circuit board.

b. Remove front cover of RSOMTE decoder subassembly to gain access to bit analyzer circuit board A2A2 (figure 1-5).

c. Set MODE switch on RSE encoder subassembly to EQPT CAL position. Check for the following indications:

(1) TEST lamp on RSE power supply subassembly lights.

(2) TEST lamp on RSOMTE control panel lights (figure 1-3).

(3) UD and PE lamps on RSOMD panel light (figure 1-7).

d. Set CAL/OPR slide switch on bit analyzer circuit board to CAL position.

e. At RSE power supply subassembly front panel, connect electronic counter at SIG and GND test points.

f. At RSE, adjust baud control potentiometer R1 on board A1A1 for a period measurement of 26.67 ±0.27 milliseconds on electronic counter.

g. At RSOMTE, adjust baud potentiometer R1 on board A2A2 until lamp on board A2A2 goes from full brilliance to minimum brilliance and back to full brilliance in 10 seconds or more, (use a watch with a sweep-second hand for timing.)

h. Return CAL/OPR slide switch to OPR position.

i. Replace front covers on RSE encoder and RSOMTE decoder subassemblies.

j. At RSE, set MODE switch to NORMAL position.

k. Disconnect electronic counter from test points.

4-17. SHUTDOWN PROCEDURES.

4-18. The RSOM is a continuously operating system which is shut down only when it is necessary to perform off-line maintenance, such as certain replacement and repair

procedures and changing of strapping options. To shut down the RSOM, proceed as follows:

a. Set RSOM POWER switch on RSOMTE control panel (figure 1-3) to off (down) position. POWER ON indicator lamp should extinguish.

b. Remove power plug from ac source.

4-19. RESTART PROCEDURES.

4-20. To restart the RSOM following a shutdown for off-line maintenance, proceed as follows:

a. Reinsert power plug into ac source.

b. Set RSOM POWER switch on RSOMTE control panel (figure 1-3) to on (up) position. POWER ON indicator lamp should light.

4-21. REPLACEMENT PROCEDURES.

4-22. After a fault has been localized to a defective unit, that unit must be removed, and a known-good unit substituted for it. Care should be taken that the unit to be inserted is identical to the unit removed.

4-23. PRINTED CIRCUIT BOARD REPLACEMENT. When replacing one of the printed circuit boards in the RSOMTE decoder subassembly, first remove the dust cover, pull down card ejector, and gently pull the circuit board from its card file slot position. Carefully insert the replacement circuit board into the connector, making sure that all pins are properly aligned, and firmly push the board into the frame until seated. Replace dust cover.

4-24. POWER SUPPLY MODULE REPLACEMENT. When replacing a power supply module, proceed as follows:

WARNING

To avoid dangerous electrical shocks, make sure that power is removed before performing this procedure.

a. Perform RSOM shutdown procedure described in paragraph 4-17.

b. Slide out power supply component shelf (figure 1-6) part way, and disconnect from connector A1J26. Remove shelf.

c. Tag all wires to module to insure their replacement on corresponding terminals of replacement module. Disconnect wires from module.

d. Remove module and install replacement module, using same hardware that secured the removed module.

e. Connect tagged wires to the appropriate terminals, and remove tags.

f. Secure power supply component shelf.

g. Restart RSOM as described in paragraph 4-19.

4-25. ASSEMBLY REPLACEMENT. When replacing the entire RSOMTE assembly or RSOMD assembly, proceed as follows:

WARNING

To avoid dangerous electrical shocks, make sure that power is removed before performing this procedure.

a. Perform RSOM shutdown procedure described in paragraph 4-17.

b. Disconnect external cables. (See cabling diagram in Chapter 6.)

c. Remove hardware securing the assembly to vertical mounting angles of equipment rack.

d. Place new assembly in position in equipment rack.

e. Secure new assembly with same hardware used with replaced assembly.

f. Connect external cables.

g. Restart RSOM as described in paragraph 4-19.

4-26. STRAPPING PROCEDURES.

4-27. There are several strapping options available to RSOM operating personnel. These options are listed in table 4-8. To change a strap position, remove the printed circuit board (figure 1-5) as described in paragraph 5-23, and locate the desired link. (See applicable circuit board schematic diagram in Chapter 6.) Shift the strap as required, and replace the printed circuit board.

Table 4-8. RSOM Strapping Options

CIRCUIT BOARDS	STRAP OPTION	RSOM SELECTION
Bit analyzer A2A2	Level - 5, 7, 8	8
	Clock - Int, Ext	Int
	Input Polarity - Mark Pos, Mark Neg	Mark pos
	Idle Sense - Space, Mark No trans	No trans
	Voltage - ±12V, -24V	±12V
Shift detector A2A3	Character Recognizer	See figure FO-5
Display driver A2A15-A2A22	Indicator Status (8 each module F(Flashing), N(Normal)	Optional
Local alarm A2A1	Audible Alarm [A(in), G(out)]:	Optional
	Strap 1 - No Transition	Optional
	Strap 2 - DC Failure	Optional
	Strap 3 - AC Failure	Not applicable
	Strap 4 - Open Loop	Not applicable

Note: Strap is Malco Mfg. Co. Inc. (91886) Jumper Clip, P/N 3610346

CHAPTER 5

ASSEMBLY PARTS LIST

5-1. INTRODUCTION.

5-2. The assembly parts list presented in this chapter lists and illustrates detail parts for the RSOM equipment manufactured by Atlantic Research Corporation, Alexandria, Virginia 22314. An explanation of the assembly parts list and the type of information it contains is given in the following paragraphs.

5-3. ASSEMBLY PARTS LIST.

5-4. The assembly parts list is separated into figures by main groups or assemblies and keyed to associated illustrations by figure and index numbers. The groups are systematically broken down into assemblies and detail parts, which fall into the following categories: Those which have been procured as spares, and those which are subject to frequent removal and replacement. The relation of each part to its next higher assembly (NHA) or main group is shown either by indention or by figure cross-reference notes.

5-5. INDENTION. Parts listed in the group assembly parts list are indented to indicate item relationship or NHA. The nomenclature of each assembly is followed in the list (except for attaching parts) by the nomenclature of its component indented one column to the right. This indention indicates the relationship of the component to the assembly. To determine the next higher assembly of a part or assembly, note the column in which the first word of the nomenclature appears. The first item directly above, which appears one column to the left (except for attaching parts), is the NHA.

5-6. CROSS-REFERENCES. The notation "(See figure_____ for detail breakdown)" following the description of a part number indicates that further breakdown of the part will be shown on the figure noted.

5-7. The notation "(See figure____ for NHA)" following the description of a part number indicates that the correct assembly relationship of the part will be shown on the figure and index number noted.

5-8. UNITS PER ASSEMBLY. The quantity shown in this column represents the units required for one next higher assembly, sub-assembly, or sub-subassembly. The abbreviation "REF" (reference) indicates that this item has been previously listed under its next higher assembly. The "SEE FIGURE" notation in the description of the item will indicate the figure and index number at which the units per assembly can be determined.

5-9. MANUFACTURER'S CODE. Part numbers other than those of the prime contractor are designated by manufacturer's code symbols in parentheses following the description of the part. These codes are in accordance with the Federal Supply Code for Manufacturer's Cataloging Handbook H4-1 or H4-2 and amendments thereto. The complete manufacturer's name and address is written in the description column of the Group Assembly Parts List when no manufacturer's code is listed in H4-1 or H4-2. See Manufacturer's Code List paragraph 5-28, to determine manufacturer's name and address.

5-10. NUMERICAL INDEX.

5-11. The numerical index consists of a complete listing, in numerical sequence, of all part numbers. The figure and index numbers are given for the first occurrence only of Government Standard parts. For nonstandard parts, all figures and index numbers are listed.

5-12. SOURCE CODE DEFINITIONS.

5-13. "P" Series - Parts Procured and Under Inventory Stock Control. The source codes in the "P" series are described below.

a. Code "P" identifies parts which may be requisitioned and installed by any level of maintenance consistent with the activity's authorized scope of maintenance. Code "P" is applied to parts on which usage is anticipated or known. Restricted (emergency) service manufacture of code "P" items is considered practical but may be accomplished only after confirmation of nonavailability from supply sources.

b. Code "PD" identifies parts which may be requisitioned and installed by AF activities authorized depot-level maintenance only. Code "PD" is applied to parts on which usage is anticipated or known. Restricted (emergency) service manufacture of code "PD" parts is considered practical but may be accomplished only after confirmation of nonavailability from supply sources.

c. Code "P1" identifies parts which may be requisitioned and installed by any maintenance level consistent with the activity's authorized scope of maintenance. Code "P1" is applied to parts on which usage is anticipated or known, and which service manufacture is considered impractical.

d. Code "P1D" identifies parts which may be requisitioned and installed by AF activities authorized depot-level maintenance only. Code "P1D" is applied to parts on which usage is anticipated or known, and which service manufacture is considered impractical.

e. Code "P2" identifies insurance-type spare parts which can be installed by an AF activity consistent with the activity's authorized scope of maintenance. This code is applied to such parts as are basically structural items of very limited usage, require special tools, templates, and/or jigs, and are very difficult, impractical, or uneconomical to manufacture by AF activities. These items are not subject to periodic replacement or wearout but may require infrequent replacement as a result of accidents or other unexpected occurrences. Delayed procurement items are included under this code.

f. Code "P2D" identifies insurance-type parts which may be installed by AF activities which are authorized depot-level maintenance only. This code is applied to parts as described under code "P2" and to delayed procurement items.

5-14. "M" Series - Manufacture, Parts Not Procured. The source codes in the "M" series are described below.

a. Code "M" identifies parts, the manufacture and installation of which are within the capabilities of field maintenance activities and to which all of the following conditions apply:

1. Procurement is not justified because of low usage or peculiar storage and installation factors. Needs are to be met by local manufacture only as required.

2. Their manufacture does not require tools, equipment, or skills not normally authorized at field maintenance level.

3. Does not require test equipment not normally authorized at field maintenance level.

4. Does not require material not normally available in AF inventory.

b. Code "M1" identifies parts which can be manufactured at activities authorized depot-level maintenance facilities and to which all of the following conditions apply:

1. Procurement is not justified because of low usage or peculiar storage and installation factors. The needs of base activities are to be met by requisitioning from the geographical AMA, SSM AMA, or IM AMA.

2. Their manufacture is beyond capabilities of field maintenance activities as outlined above.

3. Their manufacture does not require tools or equipment not normally authorized at all AMA's.

5-15. "A" Series - Assemble, Assembly Not Procured. The source codes in the "A" series are described below.

a. Code "A" identifies items capable of being assembled at any level of maintenance and is applied to assemblies of two or more parts, the majority of which are purchased and/or service manufactured.

b. Code "A1" identifies assemblies which can be assembled at AF activities authorized depot-level maintenance only and is applied to assemblies described under "A" code.

5-16. "X" Series - Parts Considered Impractical for Service Manufacture. The source codes in the "X" series are described below.

a. Code "X" is applied to main structural members or similar parts, which, if required, would suggest extensive repair. The need for

a part or parts coded "X" (Wing spars, center section structure, etc.) should normally result in a recommendation to retire the article from service.

b. Code "X1" identifies parts applicable at any level of maintenance consistent with the activity's authorized scope of maintenance and for which it is more feasible to obtain the next higher assembly; for example, an integral detail part such as a welded segment inseparable from its assembly; a part machined in a matched set or a part of any assembly which, if required, would suggest extensive reconditioning of such assembly. In some cases, code "X1" may be used to indicate an integral detail part of an assembly which has no anticipated usage and as an assembly was source-coded "M" or "M1".

c. Code "X1D" identifies parts which are described under the "X1" code but which are applicable to AF activities authorized depot-level maintenance only.

d. Code "X2" identifies parts which are applicable to any level of maintenance consistent with the activity's authorized scope of maintenance, for which there is no anticipated usage, and which are impractical for service manufacture. This type of item will not be stocked. Such parts shall be obtained from reclamation or, if not available from this source, requisitioned through normal supply channels together with supporting justification for one-time procurement and immediate use. Repeated requests shall justify a change to a code "P1" or "P2", as applicable, if considered economical to procure and store such parts.

e. Code "X2D" identifies parts which are described under the "X2" code but which are applicable to AF activities authorized depot-level maintenance only. Repeated requests for such parts shall justify a change to a "P1D" or "P2D" code, as applicable, if considered economical and feasible to procure and stock such parts.

5-17. Code "U" - Parts Not Procured, Manufactured, or Stocked. Code "U" is applied to installation drawings, diagrams, instruction sheets, field-service drawing numbers, and parts not otherwise of supply significance, including obsolete parts, which cannot be procured or service manufactured.

5-18. Codes For Parts Kits. Codes for parts kits are described below.

a. Code "C" - Cure-Dated Parts Kit. Code "C" is applied to kits containing parts that have a specific period of time (cure-date) to remain in storage without affecting their serviceability and are subject to deterioration due to aging or exposure. The cure-date for the kit is established on the shortest life item within the kit. C-Kit contains parts required for maintenance and overhaul and will be used in conjunction with Overhaul (Code "D") Repair Kits and/or Minor or Field (Code "F") Repair Kits, as applicable.

1. Code "KC" - Component of C-Kit. Code "KC" is applied ot items which are components of a C-Kit.

b. Code "F" - Minor or Field Parts Kit. Code "F" is applied to kits which are available to all maintenance activities authorized to perform base level repair of the end item, including overhaul activities in support of field activities. These kits do not contain cure-dated parts.

1. Code "KF" - Component of F-Kit. Code "KF" is applied to items which are components of an F-Kit.

c. Code "D" - Major Overhaul Parts Kit. Code "D" is applied to kits which are available only to those activities authorized to perform depot level repair. These kits do not contain cure-dated parts.

1. Code "KD" - Component of D-Kit. Code "KD" is applied to items which are components of a D-Kit.

2. Code "KB" - Component of both F-Kit and D-Kit. Code "KB" is applied to items which are components of both an F-Kit and a D-Kit.

d. Items which are source-coded "KC," "KD," "KF," or "KB," and for which the application of such items is peculiar to repair kits, will not be stocked separately and will not be assigned any additional source codes.

e. Items which are source-coded "KC," "KD," "KF," or "KB," and for which the application of such items is common to repair kits and to other repair or overhaul applications,

will be stocked separately in the appropriate commodity class if followed by the letter "P". However, Military and Industry Standard Items and Bulk Materials which have multi-purpose application (repair kits as well as other repair and overhaul purposes) will be stocked separately but will not be assigned source codes.

5-19. MAINTENANCE REPAIR LEVEL CODES. Maintenance repair level codes used in this Illustrated Parts Breakdown are shown in the Numerical Index in the column entitled "REPAIR CODE". Maintenance repair level codes identify the reparable or nonreparable character of the equipment and parts and identify the depth of repair and the level of maintenance at which repair will be accomplished.

5-20. Code 'S" - No Repair. Code "S" identifies items which are nonreparable and have no reclamation value. When these items fail, they will be disposed of at user level as condemned material.

5-21. Code "B" - No Repair; Recondition. Code "B" identifies assemblies or parts that will be reconditioned at the user level by adjusting, cleaning, soldering broken connection, etc. If these items cannot be returned to serviceable condition by such means, they will be disposed of at user level as condemned material. No repair parts or tools are specially procured for maintenance of these items.

5-22. Code "F" - Repair at Field Level. Code "F" identifies items which will be repaired by the field level maintenance activities. Normal servicing will be done by organizational level maintenance. Selected parts, tools, and technical order data are procured and provided to applicable field level maintenance activities for repair of these items. No SRA is established for these items. If the condition of these items is such that they cannot be returned to serviceable condition by the field level maintenance activity with authorized parts and tools, they will be disposed of as condemned material. If repair of "F" coded items cannot be accomplished due to unavailability of authorized parts, tools, or other capability, the applicable SSM/IM will be so advised with request for disposition instructions. "F" coded Hi-Valu or Critical Items, regardless of condition, will be turned in to supply for disposition instructions from the applicable SSM/IM.

5-23. Code "D" - Limited Field Repair, Depot Overhaul. Code "D" identifies items on which a limited degree of repair can be accomplished by field level maintenance activities. Normal servicing will be done at organizational level. SRA is established for overhaul of these items. A range of repair parts, tools, and technical order data consistent with the capability of repair is procured and provided to applicable field maintenance activities. Because of the design characteristics and complexity of repair, the degree of repair which is authorized on these items at field maintenance level is necessarily determined by the degree of technical skills required and the cost of special tools, special test equipment, spare parts, and the predicted frequency of failure generation. If these items cannot be returned to serviceable condition with authorized parts and tools, they will be returned to supply for shipment to the designated SRA.

5-24. Code "DM" - Limited Field Repair; Mobile Depot Overhaul. Code "DM" identifies items to which all the conditions of code "D" apply, except that repair beyond field capability will be done by the mobile depot activity (MDA). If the MDA cannot repair these items, they will determine whether these items should be condemned or sent to the SRA.

5-25. Code "L" - Depot Level Maintenance Only. Code "L" identifies items that will be repaired only at designated SRA. Repair parts and tools for repair are procured and provided only to these authorized activities. Required functional checkout and bench check equipment may be provided to applicable organizational and field level maintenance activities for accomplishing external adjustment or calibration and for verifying serviceability of these items. If they are found unserviceable, they will be turned in to supply for shipment to the SRA.

5-26. Code "LM" - Depot Level Maintenance Only; Mobile Depot Activity. Code "LM" identifies items to which all conditions of code "L" apply except that repair will be accomplished by MDA. If MDA cannot repair these items, they will determine whether these items should be condemned or sent to the SRA.

5-27. MANUFACTURER'S CODE LIST.

5-28. The manufacturer's code is used as an element identification to designate manufacturer or distributor.

CODE	MANUFACTURER
02660	Amphenol Corp. 2801 So. 25th Ave. Broadview, Ill. 60153
06383	Panduit Corp. 17301 Ridgeland St. Tinley Park, Ill. 60477
17117	Electronic Molding Corp. 40 Church Street Pawtucket, R.I.
31356	J-B-T Instruments, Inc. 424 Chapel St. P.O. Box 1818 New Haven, Conn. 06508
37942	PR Mallory and Company, Inc. 3029 East Washington St. Indianapolis, Ind. 46206
44655	Ohmite Mfg. Corp. 3601 W. Howard St. Skokie, Ill. 60076
71279	Cambridge Thermionic Corp. 445 Concord Ave. Cambridge, Mass. 02138
71400	Bussmann Mfg. Division of McGraw - Edison Co. 2536 W. University St. St. Louis, Mo. 63017
71785	Cinch Mfg. Co., Howard B. Jones Division 1026 S. Homan Ave. Chicago, Ill. 60624
72619	Dialight Corp. 60 Stewart Ave. Brooklyn, N. Y. 11237
74545	Harvey Hubbell, Inc. State St. & Bostwick Ave. Bridgeport, Conn. 06602
78553	Tinnerman Products, Inc. 8700 Brook Park Rd. Cleveland, Ohio 44129
80103	Lambda Electronics Corp. 515 Broad Hollow Road Huntington, N. Y. 11749
81073	Grayhill, Inc. 561 Hillgrove Ave. La Grange, Ill. 60525
83330	Herman H. Smith, Inc. 812 Snediker Ave. Brooklyn, N.Y. 11207
91886	Malco Mfg. Co., Inc. 5150 W. Roosevelt Rd. Chicago, Ill. 60650
94222	South Chester Corp. Chester, Pa.
99515	Marshall Industries Capacitor Division 1960 Walker Ave. Monrovia, Calif. 91016

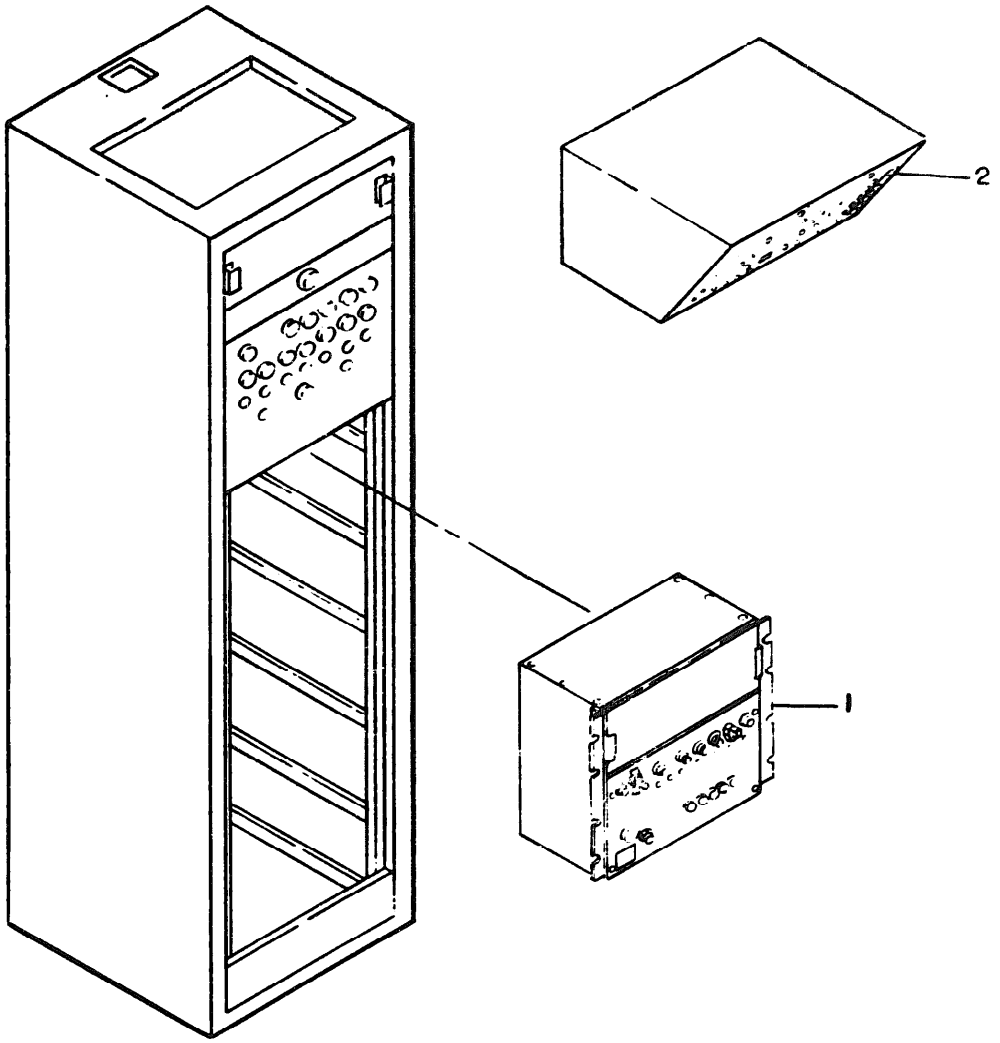


Figure 5-1. ACAS Remote Station Output Monitor

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
5 - 1 -	TFD-42067796	ACAS REMOTE STATION . . . . . OUTPUT MONITOR		
- 1	TFA-42075796	. TERMINAL EQUIPMENT . . . . . ASSEMBLY (SEE FIGURE 5-2 FOR DETAIL BREAKDOWN)	1	
- 2	TFA-42068796	. DISPLAY ASSEMBLY (SEE . . . . FIGURE 5-3 FOR DETAIL BREAKDOWN)	1	

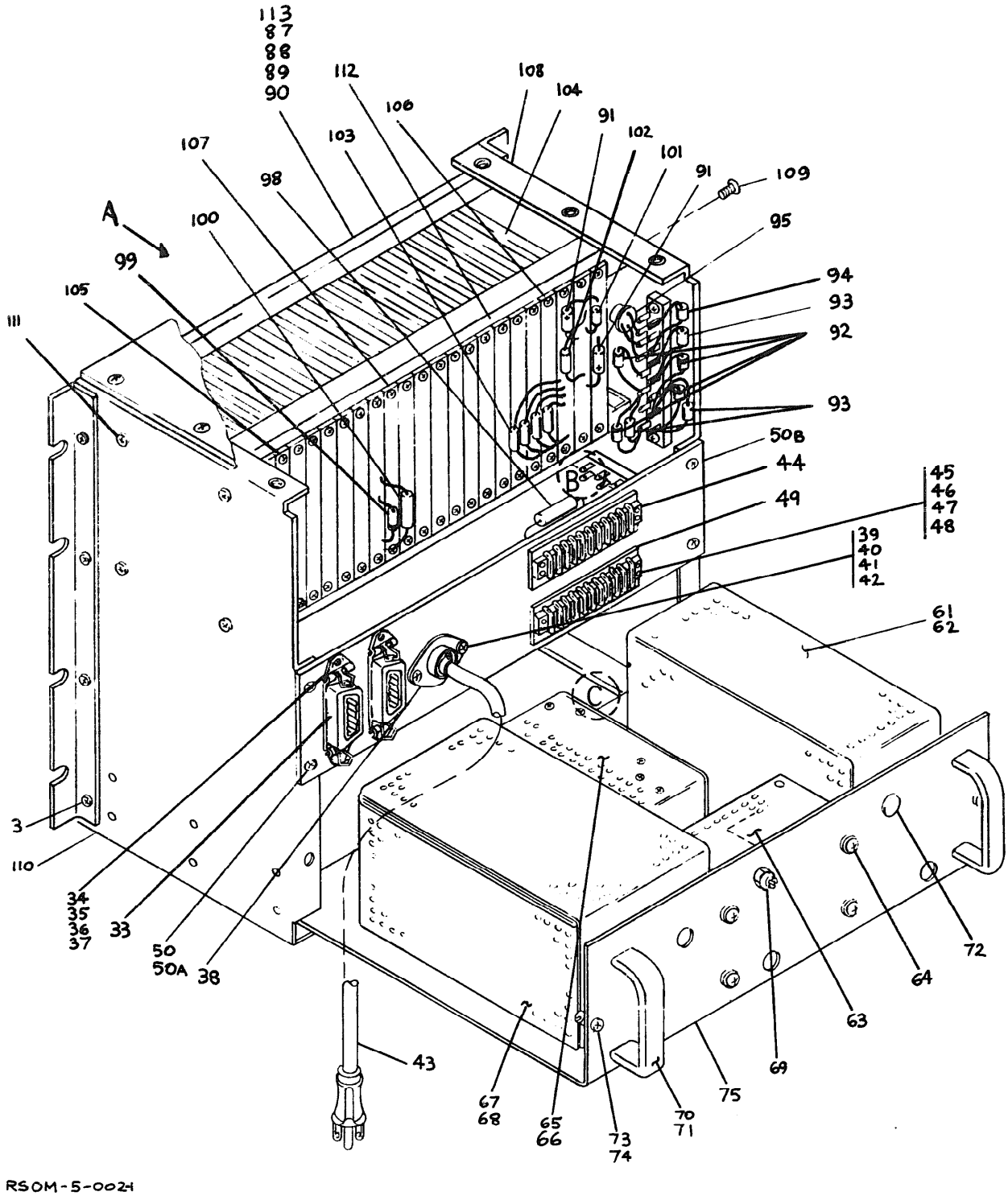


Figure 5-2. Terminal Equipment Assembly (Sheet 1 of 2)

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
5-2-	TFA-42075796	TERMINAL EQUIPMENT ..... ASSEMBLY (SEE FIGURE 5-1-2 FOR NHA)	REF	
-1	T-31451796	. PLATE, IDENTIFICATION	1	
-2	T-31453796	. ANGLE, SUPPORT, CHASSIS ... (ATTACHING PARTS)	2	
-3	COML	. SCREW, MACH, PNH, ... NO. 8-32 UNC-2A X 0.44L, CRES ----*----	4	
	TDA-42034730	. PANEL, FRONT	1	
-4	5678-09	. . CLIP, FUSE (71400) ..... (ATTACHING PARTS)	4	
-5	COML	. . RIVET, SOLID, UNIV HD, ... 0.093 DIA X 0.l6L, AA1100	2	
-6	COML	. . WASHER, FLAT, ... 0.093 ID, CRES ----*----	2	
-7	TDA-42034730-2	. . PANEL	1	
-8	TDA-42035735	. COVER ..... (ATTACHING PARTS)	2	
-9	COML	. SCREW, MACH, PNH, ... NO. 6-32 X 0.25L, CRES ----*----	6	
-10	NE-51H	. LAMP, NEON, T-3-3/4 ..... (72619)	1	
-11	52-0408-0991-341	. HOLDER, LAMP, RED LENS ... (72619)	1	
-12	ST50K	. SWITCH, T0GGLE, DPST, ... 20A (31356)	1	
-13	508	. NAMEPLATE, ON-OFF ..... (83330)	1	
-14	AGC6, 6A	. FUSE, GLASS CASE, 6A ..... (71400)	1	
-15	HKL	. FUSEHOLDER, INDICATING .... (71400)	1	
-16	AGC-3	. FUSE, GLASS CASE, 3A ..... (71400)	1	
-17	HKR	. FUSEHOLDER, INDICATING .... (71400)	1	
-18	AGC 1/2	. FUSE, GLASS CASE, 0.5A ..... (71400)	2	
-19	HKT	. FUSEHOLDER, INDICATING .... (71400)	3	
-20	AGC, 10A	. FUSE, GLASS CASE, 10A ..... (71400)	1	
-21	HKU	. FUSEHOLDER, INDICATING .... (71400)	1	
-22	AGC-1	. FUSE, GLASS CASE, 1A ..... (71400)	1	

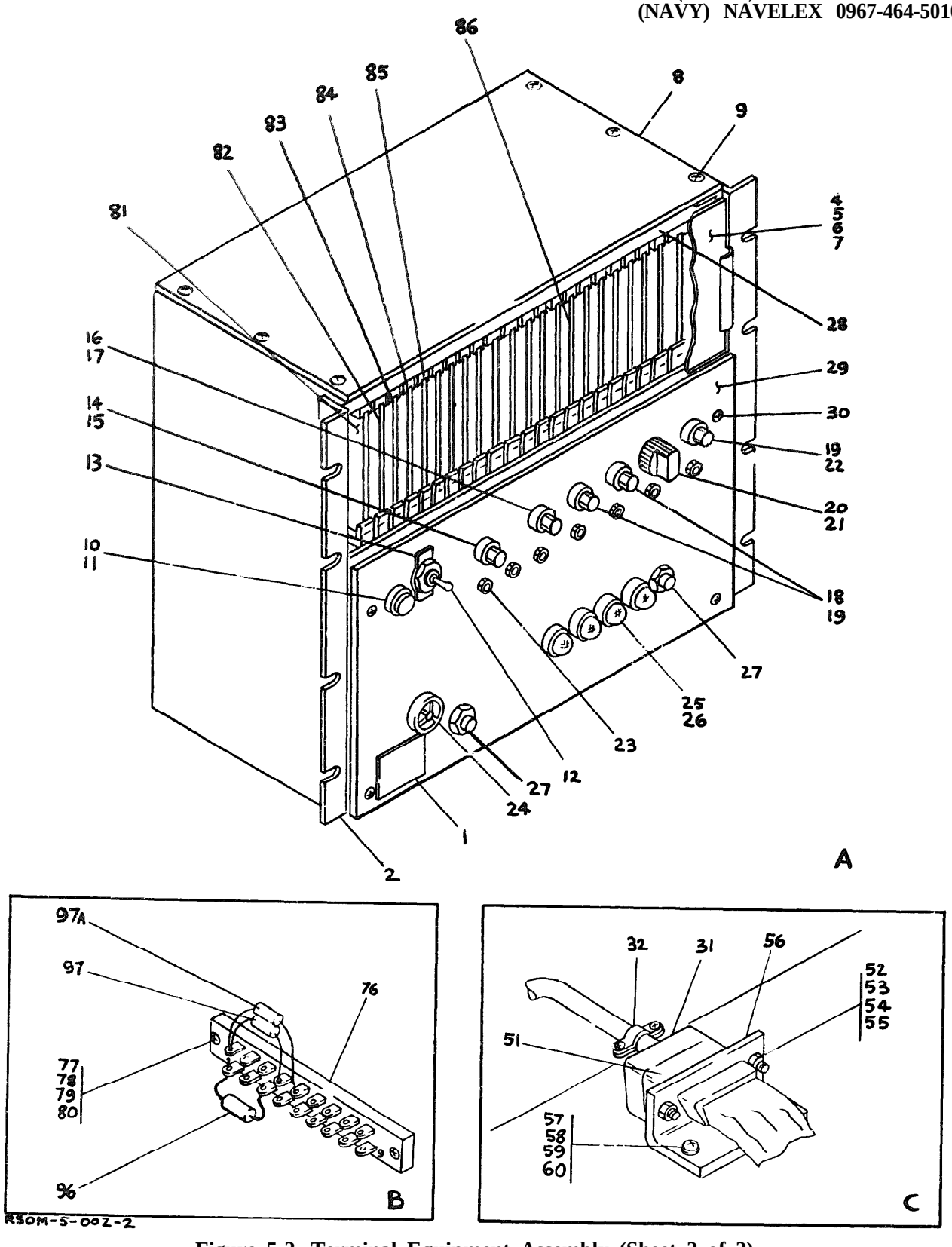


Figure 5-2. Terminal Equipment Assembly (Sheet 2 of 2)

FIGURE AND INDEX NUMBER	PART NUMBER	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
5-2-23	4242-127-9	JACK, TIP, LOWVOLTAGE, . . . WHITE (17117)	7	
-24	SC-628	AUDIBLE SIGNAL DEVICE . . . . . (37942)	1	
-25	387	LAMP, INCANDESCENT, ... T-1-3/4 (72619)	4	
-26	183-9830-1473-604	HOLDER, LAMP, AMBER . . . . . LENS (72619)	4	
-27	30-1	SWITCH, PUSHBUTTON . . . . . (81073)	2	
-28	T-31456796-1	PLATE, INFORMATION	1	
-29	T-42073796	PANEL, FRONT, POWER . . . . . SUPPLY (ATTACHINGPARTS)	1	
-30	COML	SCREW, MACH, PNH, ... NO. 8-32 X 0.62L	4	
		----*----		
-31	57-30240	CONNECTOR, ELECTRICAL,... RECEPTACLE (02660)	1	
-32	SST-2	STRAP, CABLE, ... ADJUSTABLE (06383)	AR	
-33	57-40500	CONNECTOR, ELECTRICAL,... RECEPTACLE (02660) (ATTACHING PARTS)	2	
-34	COML	SCREW, MACH, PNH, ... NO. 2-56 UNC-2A X 0.38L, CRES	4	
-35	COML	WASHER, LOCK-SPRING, ... NO. 2, CRES	4	
-36	COML	WASHER, FLAT, NO. 2, CRES . .	4	
-37	COML	NUT, PLAIN, HEX, NO. 2-56 . . . UNC-2B, CRES	4	
		----*----		
-38	7486-G	CONNECTOR, CHASSIS, ... MOUNTING PLUG (74545) (ATTACHINGPARTS)	1	
-39	COML	SCREW, MACH, PNH, ... NO. 6-32 X 0.44L	2	
-40	COML	WASHER LOCK-SPRING, ... NO. 6, CRES	2	
-41	COML	WASHER, FLAT, NO. 6, CRES . .	2	
-42	COML	NUT, PLAIN, HEX, NO. 6, ... CRES	2	
		----*----		
-43	TDA-31430730	POWERCORD	1	
-44	10-140-Y	TERMINAL BOARD (71785) . . . . (ATTACHING PARTS)	2	
-45	COML	SCREW, MACH, PNH, ... NO. 6-32 X 0.81L, CRES	4	
-46	COML	WASHER, LOCK-SPRING, ... NO. 6, CRES	4	

FIGURE AND INDEX NUMBER	PART NUMBER	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
5-2-47	COML	. WASHER, FLAT, NO. 6, CRES . .	4	
-48	COML	. NUT, PLAIN, HEX, ... NO. 6, CRES	4	
		----*----		
-49	MS-10-140	. MARKER STRIP, TERMINAL . . . . BOARD (71785)	2	
	TDA-42072796	. PANEL ASSEMBLY, REAR	1	
-50	82-19-220-16	. FASTENER, 1/4 TURN . . . . . (94222)	4	
-50A	82-32-101-17	. RETAINER (94222)	4	
-50B	TDA-42072796-2	. PANEL, REAR	1	
	TSA-42074796	. POWER SUPPLY ASSEMBLY . . .	1	
-51	57-40240	. . CONNECTOR, ELECTRICAL . . RECTANGULAR (02660) (ATTACHING PARTS)	1	
-52	COML	. . SCREW, MACH, PNH, ... NO. 2-56 UNC-2A X 0.38L, CRES	2	
-53	COML	. . WASHER, LOCK-SPRING, . . . NO. 2, CRES	2	
-54	COML	. . WASHER, FLAT, NO. 2, ... CRES	2	
-55	COML	. . NUT, PLAIN, HEX, ... NO. 2-56 UNC-2B, CRES	2	
		----*----		
-56	T-21817735	. . BRACKET, MOUNTING, ... CONNECTOR (ATTACHING PARTS)	1	
-57	COML	. . SCREW, MACH, PNH, ... NO. 6-32 UNC-2A X 0.50L, CRES	2	
-58	COML	. . WASHER, LOCK-SPRING . . . . NO. 6, CRES	2	
-59	COML	. . WASHER, FLAT, NO. 6, ... CRES	2	
-60	COML	. . NUT, PLAIN, HEX, ... NO. 6-32 UNC-2B, CRES	2	
		----*----		
-61	LCS-C-24	. . POWER SUPPLY, 24V . . . . . (80103) (ATTACHING PARTS)	1	
-62	COML	. . SCREW, MACH, PNH, ... NO. 8-32 UNC-2A X 0.50L, CRES	4	

FIGURE AND INDEX NUMBER	PART NUMBER	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
5-2-63	LXD-3-152	. . POWER SUPPLY, 12V . . . . . (80103)	1	
		(ATTACHING PARTS)		
-64	COML	. . SCREW, MACH, PNH, ... NO. 6-32 UNC-2A X 0.31L, CRES	4	
		----*----		
-65	LCS-A-12	. . POWER SUPPLY, 12V, ... ALARM (80103)	1	
		(ATTACHING PARTS)		
-66	COML	. . SCREW, MACH, PNH, ... NO. 8-32 UNC-2A X 0.50L, CRES	4	
		----*----		
-67	LMCC-3-P-6-LM-OV-1	. . POWER SUPPLY, 3.6V . . . . AT 10A (80103)	1	
		(ATTACHING PARTS)		
-68	COML	. . SCREW, MACH, PNH, ... NO. 8-32 UNC-2A X 0.50L, CRES	1	
		----*----		
-69	CLU1021	. . POTENTIOMETER, 1K . . . . (44655)	1	
-70	2111-I-02	. . HANDLE, OVAL (71279)	2	
		(ATTACHING PARTS)		
-71	COML	. . SCREW, MACH, PNH, ... NO. 10-32 X 0.56L, CRES	4	
		----*----		
-72	654	. . HOLE PLUG 0.63 (83330) . .	1	
	TDA-42077796	. . SHELF ASSEMBLY, ... COMPONENT	1	
-73	82-19-220-16	. . . FASTENER, 1/4 TURN . . (94222)	2	
-74	82-32-101-17	. . . RETAINER (94222).	2	
-75	TDA-42077796-2	. . . SHELF	1	
-76	9-170	. TERMINAL BLOCK (71785) . . .	2	
		(ATTACHING PARTS)		
-77	COML	. SCREW, MACH, PNH, ... NO. 4-40 UNC-2A X 0.56L, CRES	6	
-78	COML	. WASHER, LOCK-SPRING, ... NO. 4, CRES	6	
-79	COML	. WASHER, FLAT, NO. 4, ... CRES	6	
-80	COML	. NUT, PLAIN, HEX, ... NO. 4-40, CRES	6	
		----*----		
-81	TP-AD-41972712	. PRINTED CIRCUIT BOARD . . . ASSEMBLY, LA-296	1	

FIGURE AND INDEX NUMBER	PART NUMBER	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
5-2-82	TP-AD-4150605	. PRINTED CIRCUIT BOARD .... ASSEMBLY, BA-201	1	
-83	TP-AD-41468604	. PRINTED CIRCUIT BOARD .... ASSEMBLY, SD-231	1	
-84	TP-AD-41465591	. PRINTED CIRCUIT BOARD .... ASSEMBLY, PB-320	1	
-85	TP-AD-41502606	. PRINTED CIRCUIT BOARD .... ASSEMBLY, EO-230	10	
-86	TP-AD-41975713	. PRINTED CIRCUIT BOARD .... ASSEMBLY, DD-295 (ATTACHING PARTS)	8	
-87	COML	. SCREW, MACH, PNH, ... NO. 4-40 UNC-2A X 0.56L, CRES	4	
-88	COML	. WASHER, LOCK-SPRING, ... NO. 4, CRES	4	
-89	COML	. WASHER, FLAT, NO. 4, ... CRES	4	
-90	COML	. NUT, PLAIN, HEX, NO. 4-40.. UNC-2B, CRES	4	
		----*----		
-91	M1-205E	. CAPACITOR, 2UF, 100V ..... (99515), Cl, C2	2	
-92	1N4002	. DIODE, 1N4002, CR1- CR4 ...	4	
-93	RC07GF1O2K	. RESISTOR, 1K OHMS, ... ±10%, 1/4W, R12 - R14	3	
-94	RC07GF471J	. RESISTOR, 470 OHMS, ... ±5%, 1/4W, R15	1	
-95	2N3567	. TRANSISTOR, 2N3567, Q1	1	
-96	TYPE 200, 5865	. RESISTOR, 120 OHMS, ... ±5%, 5W (44655), R16	1	
-97	TYPE 200, 2866	. RESISTOR, 68 OHMS, ... ±5%, 5W (44655), R5	1	
-97A	TYPE 200, 5860A	. RESISTOR, 51 OHMS, ... ±5%, 5W (44655),	1	
-98	TYPE 200, 1719	. RESISTOR, 75 OHMS, ... 12W (44655), R4	1	
-99	1N5227A	. DIODE, ZENER, 3.6V, ... ±5%, CR5	1	
-100	1513	. RESISTOR, 40 OHMS, 8W .... (44655), R11	1	
-101	RC07GF124K	. RESISTOR, 120K OHMS, ... ±10%, 1/4W, R1	1	
-102	RC20GF622J	. RESISTOR, 6.2K OHMS, ... ±5%, 1/2W, R2	1	
-103	RC20GF621J	. RESISTOR, 620 OHMS, ... ±5%, 1/2W, R7 - R10	4	
-104	C52693-017-24	. FASTENER, SPEED CLIP .... (78553)	44	

FIGURE AND INDEX NUMBER	PART NUMBER	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
5-2-105	TP-AD-41285544-5	. CONNECTOR, PRINTED . . . . . CIRCUIT	11	
-106	TP-AD-41285544-17	. CONNECTOR, PRINTED. . . . . CIRCUIT	1	
-107	TP-AD-41285544-18	. CONNECTOR, PRINTED. . . . . CIRCUIT	10	
-108	TDA-42071796-2	. PLATE, SIDE, LH . . . . . (ATTACHING PARTS)	1	
-109	COML	. SCREW, MACH, PNH, ... NO. 8-32 UNC-2A X 0.62L, CRES ----*----	4	
-110	TDA-42071796-1	. PLATE, SIDE, RH	1	
-111	COML	. SCREW, MACH, PNH, ... NO. 8-32 UNC-2A X 0.62L, CRES ----*----	4	
-112	T-31456796-2	. PLATE, INFORMATION	1	
-113	TP-DA-31419000	. CARD FILE	1	

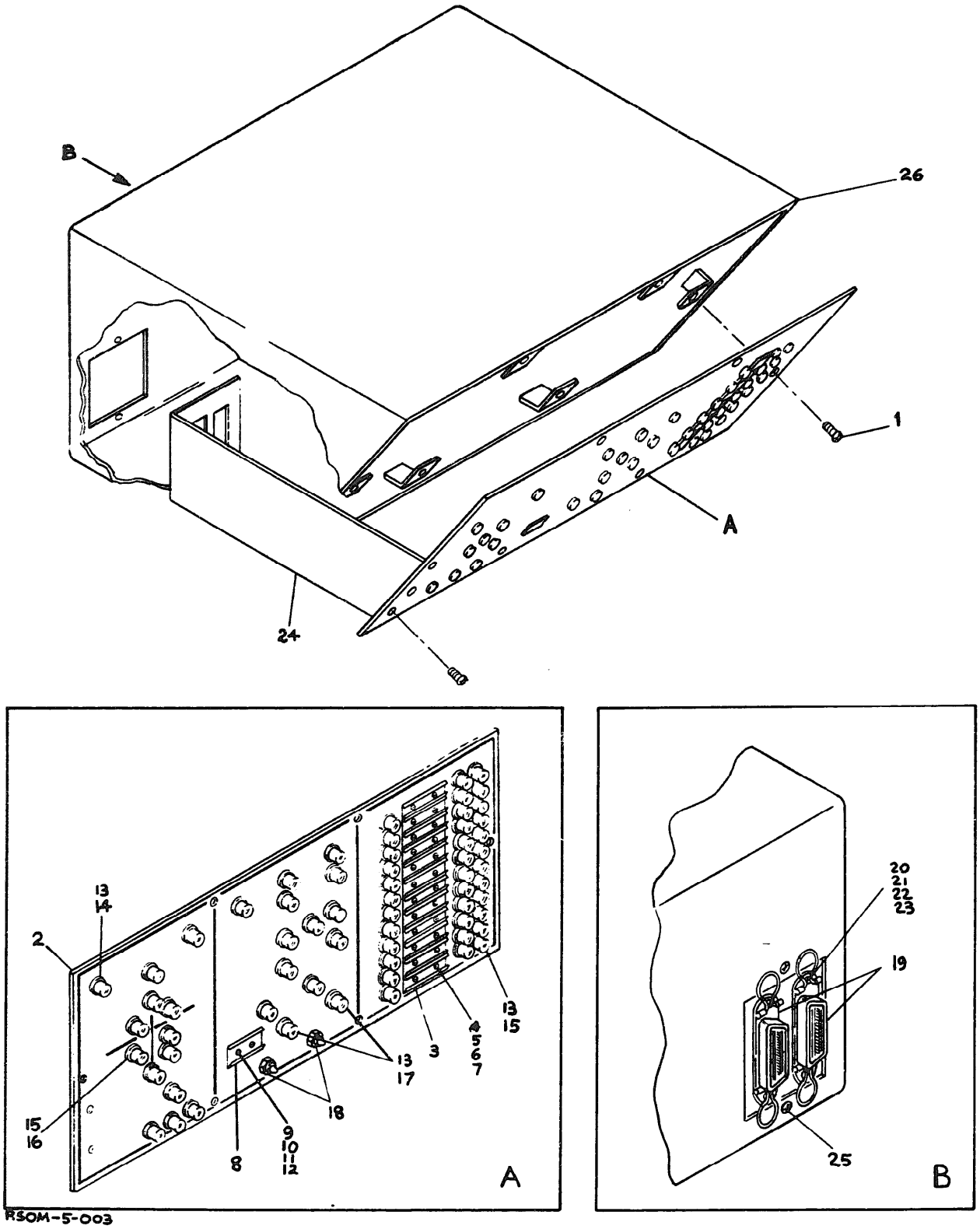


Figure 5-3. Display Assembly

FIGURE AND INDEX NUMBER	PART NUMBER	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
5-3-	TFA-42068796	DISPLAY ASSEMBLY (SEE FIGURE 5-1-1 FOR NHA)	REF	
	TSA-42069796-1	. PANEL ASSEMBLY ..... (ATTACHING PARTS)	1	
-1	COML	. SCREW, MACH, PNH, ... NO. 6-32 UNC-2A X 0.31L, CRES ----*----	8	
-2	T-42070796	. . PANEL, FRONT	1	
-3	T-31455796-1	. . . STRIP, DESIGNATION .... (ATTACHINGPARTS)	12	
-4	COML	. . . SCREW, MACH, FLH, ... 82° CSK, NO. 2-56 UNC-2A X 0.31L, CRES	24	
-5	COML	. . . WASHER, LOCK-SPRING, .. NO. 2, CRES	24	
-6	COML	. . . WASHER, FLAT, NO. 2, .. CRES	24	
-7	COML	. . . NUT, PLAIN, HEX, NO. 2-56 UNC-2B, CRES ----*----	24	
-8	T-31455796-2	. . . STRIP, DESIGNATION .... (ATTACHINGPARTS)	1	
-9	COML	. . . SCREW, MACH, FLH, ... 82° CSK, NO. 2-56 UNC-PA X 0.31L, CRES	2	
-10	COML	. . . WASHER, LOCK-SPRING,.. NO. 2, CRES	2	
-11	COML	. . . WASHER, FLAT, NO. 2, .. CRES	2	
-12	COML	. . . NUT, PLAIN, HEX, NO. 2-56 UNC-2B, CRES ----*----	2	
-13	387	. . . LAMP, INCANDESCENT, .. T-1-3/4 (72619)	64	
-14	183-9830-1471-604	. . . HOLDER, LAMP, ... RED LENS	30	
-15	183-9830-1475-604	. . . HOLDER, LAMP, ... WHITE LENS (72619)	24	
-16	183-9830-1473-604	. . . HOLDER, LAMP, ... AMBER LENS	8	
-17	T-21823796	. . . HOLDER, LAMP, ... BLANK LENS (72619)	2	
-18	30-1	. . . SWITCH, PUSHBUTTON .. (81073)	2	

FIGURE AND INDEX NUMBER	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
5-3-19	57-40500	CONNECTOR (02660)	2	
		(ATTACHING PARTS)		
-20	COML	SCREW, MACH, PNH, ...	4	
		NO. 2-56 X 0.31L, CRES		
-21	COML	WASHER, LOCK-SPRING, ...	4	
		NO. 2, CRES		
-22	COML	WASHER, FLAT, NO.2, ...	4	
		CRES		
-23	COML	NUT, PLAIN, HEX, ...	4	
		NO. 2-56, CRES		
		----*----		
-24	TDA-42076796-1	SUPPORT, MOUNTING, ...	1	
		CONNECTOR		
		(ATTACHING PARTS)		
-25	COML	SCREW, MACH, PNH, ...	2	
		NO. 6-32 UNC-2A		
		X 0.31L, CRES		
		----*----		
-26	TDA-50126796	CHASSIS, DISPLAY	1	

NUMERICAL INDEX

PART NUMBER	FIGURE & INDEX NUMBER	SOURCE CODE	REPAIR CODE
AGC-1	5-2-22		
AGC, 10A	5-Z-20		
AGC 1/2	5-2-18		
AGC-3	5-2-16		
AGC6, 6A	5-2-14		
CLU1021	5-2-69		
C52693-017-24	5-2-104		
HKL	5-2-15		
HKR	5-2-17	P1	S
HKT	5-2-19		
HKU	5-2-21		
LCS-A-12	5-2-65		
LCS-C-24	5-2-61		
LMCC-3-P-6-LM-OV-1	5-2-67		
LXD-3-152	5-2-63		
MS-10-140	5-2-49		
M1-205E	5-2-91		
NE-51H	5-2-10		
NUT NO. 2-56	5-2-37	P1	s
	5-2-55		
	5-3-7		
	5-3-12		
	5-3-23		
NUT NO. 4-40	5-2-80	P1	s
	5-2-90		
NUT NO. 6	5-2-42	P1	s
	5-2-48		
NUT NO. 6-32	5-2-60	P1	s
RC07GF102K	5-2-93		
RC07GF471J	5-2-94		
RC07GF124K	5-2-101		
RC20GF621J	5-2-103		
RC20GF622J	5-2-102		
RIVET 0.093 X 0.16L	5-2-5	P1	s
SCREW NO. 10-32 X 0.56L	5-2-71	P1	s
SCREW NO. 2-56 X 0.31L	5-3-4	P1	s
	5-3-9		
	5-3-20		
SCREW NO. 2-56 X 0.38L	5-2-34	P1	s
	5-2-52		
SCREW NO. 4-40 X 0.56L	5-2-77		
	5-2-87		
SCREW NO. 6-32 X 0.25L	5-2-9	P1	s
SCREW NO. 6-32 X 0.31L	5-2-64		
	5-3-P		
	5-3-25		
SCREW NO. 6-32 X 0.44L	5-2-39	P1	s
SCREW NO. 6-32 X 0.50L	5-2-57	P1	s
SCREW NO. 6-32 X 0.81L	5-2-45	P1	s
SCREW NO. 8-32 X 0.62L	5-2-30		
SCREW NO. 8-32 X 0.44L	5-2-3	P1	s
SCREW NO. 8-32 X 0.50L	5-2-62	P1	s
	5-2-66		
	5-2-68		
SCREW NO. 8-32 X 0.62L	5-2-109	P1	S
	5-2-111		
SC-628	5-2-24		
SST-2	5-2-32	X2	S
ST50K	5-2-12	P1	s
TDA-31430730	5-2-43		
TDA-42034730	5-2-3	X2	S
TDA-42034730-2	5-2-7	X2	S
TDA-42035735	5-2-8	X2	S
TDA-42071796-1	5-2-110		
TDA-42071796-2	5-2-108		
TDA-42072796	5-2-49		
TDA-42072796-2	5-2-50B		
TDA-42076796-1	5-3-24		
TDA-42077796	5-2-72		
TDA-42077796-2	5-2-75		
TDA-50126796	5-3-26		
TFA-42068796	5-1-2		
	5-3-		
TFA-42075796	5-1-1		
	5-2-		
TFD-42067796	5-1-		
TP-AD-41285544-17	5-2-106		
TP-AD-41285544-18	5-2-107	P1	S
TP-AD-41285544-5	5-2-105		
TP-AD-41465591	5-2-84	P1	B
TP-AD-41468604	5-2-83	P1	B
TP-AD-41501605	5-2-82	P1	B
TP-AD-41502606	5-2-85	P1	B
TP-AD-41972712	5-2-81	P1	B
TP-AD-41975713	5-2-86	P1	B
TP-DA-31419000	5-2-113		
TSA-42069796-1	5-3-		
TSA-42074796	5-2-50B		
TYPE 200, 1719	5-2-98	X2	S
TYPE 200, 2866	5-2-97		
TYPE 200, 5865	5-2-96		
T-21817735	5-2-56	X2	S
T-21823796	5-3-17		
T-31451796	5-2-l		
T-3 1453796	5-2-2		
T-31455796-1	5-3-3		

NUMERICAL INDEX (Continued)

PART NUMBER	FIGURE & INDEX NUMBER	SOURCE CODE	REPAIR CODE
T-31455796-2	5-3-8		
T-31456796-1	5-2-28		
T-31456796-2	5-2-112		
T-42070796	5-3-2		
T-42073796	5-2-29		
WASHER FL 0.093	5-2-6		
WASHER FL NO. 2	5-2-36	P1	S
	5-2-54		
	5-3-6		
	5-3-11		
	5-3-22		
WASHER FL NO. 4	5-2-79	P1	S
	5-Z-89		
WASHER FL NO. 6	5-2-41	P1	S
	5-2-47		
	5-2-59		
WASHER LOCK NO. 2	5-2-35	P1	S
WASHER LOCK-SPRING NO. 2	5-2-53	P1	s
	5-3-10		
	5-3-21		
	5-3-5		
WASHER LOCK-SPRING NO. 4	5-2-78	P1	S
WASHER LOCK-SPRING NO. 6	5-2-40	P1	S
	5-2-46		
	5-2-58		
1N4002	5-2-92		
IN5227A	5-2-99	P1	S
10-140-Y	5-2-44		
1513	5-2-100	X2	S
183-9830-1471-604	5-3-14	P1	S
183-9830-1473-604	5-2-26		
	5-3-16		
183-9830-1475-604	5-3-15	P1	S
2N3567	5-2-95		
2111-1-02	5-2-70	P1	S
30-I	5-2-27		
	5-3-18		
387	5-2-25		
	5-3-13		
4242-127-9	5-2-23		
508	5-2-13	P1	S
52-0408-0991-341	5-2-11		
5678-09	5-2-4	P1	S
57-30240	5-2-31	P1	S
57-40240	5-2-51		
57-40500	5-2-33		
	5-3-19		
7486-G	5-2-38		
82-19-220-16	5-2-50	P1	S
	5-2-73		
82-32-101-17	5-2-50A	P1	S
	5-2-74		
9-170	5-2-76		

CHAPTER 6

CIRCUIT DIAGRAMS

6-1. INTRODUCTION.

6-2. This chapter contains the circuit diagrams required to support RSOM maintenance personnel in the performance of troubleshooting, testing, and maintenance procedures. The types of diagrams provided are wire and cable lists, functional block diagrams, schematic diagrams, and cabling diagrams. The order of presentation of the diagrams, their relationship to each other, and their contents are described in the following paragraphs.

6-3. ARRANGEMENT OF DIAGRAMS

6-4. The circuit diagrams are arranged in the following order:

a. RSOMTE wire list

b. RSOMD wire list

c. RSOMTE/RSOMD cable list

d. ACAS overall block diagram

e. RSOM simplified block diagram

f. RSOM functional block diagram

g. RSOMTE power and signal distribution schematic diagram

h. Printed circuit board schematic diagrams

i. RSOM cabling diagram

6-5. WIRE LISTS. The wire lists show point-to-point wiring connections between printed circuit boards, power supply modules, and panel-mounted components within a major assembly. These lists give the location of origin and destination points for the internal assembly wiring and identify components such as resistors, capacitors, and diodes which may be connected in the signal path. The function of the signal carried by each wire is also identified.

6-6. CABLE LIST.. The cable list shows point-to-point wiring connections through the RSOMTE/RSOMD interconnecting cable. This list specifies origin and destination points of individual wires and identifies signals carried by each wire. The cable list is provided in support of the cabling diagram presented at the rear of this manual.

6-7. FUNCTIONAL BLOCK DIAGRAM. The functional block diagram shows the interconnection of circuits with respect to major signal flow. The functional block diagram is followed by schematic diagrams for the individual circuits.

6-8. SCHEMATIC DIAGRAMS. A schematic diagram showing main power and signal flow through the RSOMTE is provided. In addition, a schematic diagram is provided for each printed circuit board used in the RSOMTE decoder subassembly. These diagrams are arranged in the order of functional signal flow and illustrate the circuit details shown on the associated functional block diagram. Circuit details are shown either in logic or electrical schematic form. The schematic diagrams also identify the origin of all input signals, the destination of output signals, and the function of each signal. Specific point-to-point connections of input and output signals are given in the assembly wire lists previously described.

6-9. CABLING DIAGRAM. The cabling diagram illustrates the RSOM cables and shows the physical location of their connection points. Specific point-to-point connections of individual wires are given in the associated cable list previously described.

6-10. ABBREVIATIONS.

6-11. All abbreviations used on the circuit diagram are standard abbreviations.

6-12. SPECIAL SYMBOLS.

6-13. Special symbols are defined on the particular circuit diagrams on which they appear.

FROM			TO		
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION
		COMPONENT SHELF WIRING (POWER SUPPLY MODULES)			
A1J26	17		CHASSIS GND LUG		
A1J26	22		A1A2	2	120 VAC - NEUT
A1A2	2		A1A1	2	120 VAC - NEUT
A1A1	2		A1A3	2	120 VAC - NEUT
A1A3	2		A1A4	2	120 VAC - NEUT
A1J26	20		A1A2	1	120 VAC
A1A2	1		A1A1	1	120 VAC
A1A1	1		A1A3	1	120 VAC
A1A3	1		A1A4	1	120 VAC
A1J26	1		A1A2	4	DC GND
	2			4	DC GND
	13			4	DC GND
	4			6	+3.6V
	15			6	+3.6V
	16			6	+3.6V
	6		A1A4	5	-12v
	8		A1A4	7	+12v
	10		A1A3	6	+12V ALARM
	12		A1A1	6	+24V
	24			6	+24V
A1A2	4			4	DC GND
A1A1	4		A1A3	4	DC GND
A1A3	4		A1A4	6	DC GND
LM-OV	BLK		A1A2	4	OVERVOLT. PROT.
LM-OV	RED		A1A2	6	OVERVOLT. PROT.
		DECODER POWER BUSSING			
A2J16	22		A2J16	Z	+12V ALARM
A2J2	A/1		A2J3-J23	A/1	GND
A2J2	22		A2J2	Z	+12V ALARM
A2J3	Z/22		A2J4-J15, A2J17-J23	Z/22	+3.6V
		DECODER SIGNAL BUSSING			
A2J6	B/2		A2J7-J15	B/2	UPDATE INHIBIT
	C/3			C/3	END OF SCAN
	D			4	SHIFT OUT
	E/5			E/5	SHIFT CLOCK
A2J5	R		A2J6-J15	R/14	BIT 1
	S			S/15	BIT 2
	T			T/16	BIT 3
	U			U/17	BIT 4

Figure 6-1. RSOMTE Wire List (Sheet 1 of 8)

FROM			TO		
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION
		DECODER SIGNAL BUSSING (Cont)			
A2J5	V			V/18	BIT 5
	W			W/19	BIT6
A2J16	H		A2J17-J23	H	FLASHING SIG
	11			11	RSOMD LAMP TEST
	9			9	FLASH RELEASE
A2J6	M		A2J7-J15	M	DISPLAY INHIBIT
		DECODER INTERCONNECT WIRING			
A2J4	10	(VIA 620 Ohms, 1/2W RES R7)	A2J4	22	+3.6V
	11	(VIA 621 Ohms, 1/2W RES R8)		22	+3.6V
	12	(VIA 620 Ohms, 1/2W RES R9)		22	+3.6V
	13	(VIA 620 Ohms, 1/2W RES R10)		22	+3.6V
A2J2	D			10	NORMAL SOM
	E			11	TEST SOM NO. 1
	11			12	TEST SOM NO. 2
	9			13	TEST SOM NO. 3
	10		A2J16	H	FLASHING SIG
	F		A2J5	K	UPDATE INHIBIT
	H		A2J3	P	PARITY
	J		A2J6	3	END OF SCAN
	M		A2J16	N	PARITY ERR ALARM
	N		A2J2	22/Z	+12V REDUNDANT
	P		A2J16	K	UNREL DATA ALARM
	V		A2J3	20	NO TRANSITION
	C			22	+3.6V
	Y			C	-12v
	K		A2J5	2	SCAN START
A2J3	D		A2J4	5	SIGS
	18			7	BIT CLOCK
	Y			R	STROBE
	H		A2J5	J	END OF CHAR
A2J4	10			5	NORMAL SOM
	11			6	TEST SOM NO. 1
	12			4	TEST SOM NO. 2
	14			14	BIT 1
	15			15	BIT 2
	16			16	BIT 3
	17			17	BIT 4
	V			18	BIT 5
	W			19	BIT 6

Figure 6-1. RSOMTE Wire List (Sheet 2 of 8)

FROM			TO		
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION
DECODER INTERCONNECT WIRING (Cont)					
A2J5				L	SCAN START
	9		A2J6	5	SHIFT CLOCK
	10			2	UPDATE INHIBIT
	11			4	SCAN START
	D		A2J5	3	SCAN START
A2J6	M		A2J6	A	DISPLAY INHIB GND
A2J3	2	(VIA 120K, 1/4W RES R1)	A2J3	C	-12V TIE POINT
	2	(VIA 6.2K, 1/2W RES R2)		M	-12V TIE POINT
A2J3	12	(VIA 2UF CAP. C1)	A2J3	1	FILTER (POS at 12)
	C	VIA 2UF CAP. C2)	A2J3	1	FILTER (POS at 1)
A2J4	8		A2J4	1	GND

					CHAR.	BIT	NAME
A2J6	13		A2J16	L	1	1	MFX
	12			J	1	2	TAN
	11			P	1	3	MFR
	10			S	1	4	MFT
	9			R	1	5	DPT
	8			M	1	6	DPR
A2J7	13		A2J17	K	2	1	TCR
	12			N	2	2	RSJ
	11			L	2	3	ATOP
	10			J	2	4	LLC-A
	9			P	2	5	LLC-B
	8			S	2	6	LLC-C
A2J8	13			R	3	1	RSJ
	12			M	3	2	MFX
	11		A2J18	K	3	3	TCR
	10			N	3	4	MKR-A
	9			L	3	5	MKR-B
	8			J	3	6	LOG-A
A2J9	13			P	4	1	LOG-B
	12			S	4	2	LOG-C
	11			R	4	3	MEM-X
	10			M	4	4	MEM-Y
	9		A2J19	K	4	5	CLK
	8			N	4	6	CMP
A2J10	13			L	5	1	PMB-1
	12			J	5	2	VG-1
	11			P	5	3	SG-1
	10			S	5	4	PMB-2
	9			R	5	5	VG-2

Figure 6-1. RSOMTE Wire List (Sheet 3 of 8)

FROM			TO			
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION	

DECODER INTERCONNECT WIRING (Cont)

					CHAR.	BIT	NAME
A2J10	8		A2J19	M	5	6	SG-2
A2J11	13		A2J20	K	6		PMB-3
	12			N	6	2	VG-3
	11			L	6	3	SG-3
	10			J	6	4	PMB-4
	9			P	6	5	VG-4
	8			S	6	6	SG-4
A2J12	13			R	7	1	PMB-5
	12			M	7	2	VG-5
	11		A2J21	K	7	3	SG-5
	10			N	7	4	PMB-6
	9			L	7	5	VG-6
	8			J	7	6	SG-6
i2J13	13			P	8	1	PMB-7
	12			S	8	2	VG-7
	11			R	8	3	SG-7
	10			M	8	4	PMB-8
	9		A2J22	K	8	5	VG-8
	8			N	8	6	SG-8
A2J14	13		A2J22	L	9	1	PMB-9
	12			J	9	2	VG-9
	11			P	9	3	SG-9
	10			S	9	4	PMB-10
	9			R	9	5	VG-10
	8			M	9	6	SG-10
A2J15	13		A2J23	K	10	1	PMB-11
	12			N	10	2	VG-11
	11			L	10	3	SG-11
	10			J	10	4	PMB-12
	9			P	10	5	VG-12
	8			S	10	6	SG-12
A2J16	1		A2J16	14	GND		
	14	(VIA 1N5227A DIODE CR5)		22	(ANODE CONNECTED AT A2J16-14)		
	12	(VIA 40 Ohms, 8W RES R11)		22			

TERMINAL STRIP WIRING

TS1	1	(VIA 1N4002 DIODE CR1)	TS1	2	(ANODE CONNECTED AT TS1-1) +12V
	1	(VIA 1K, 1/4W, RES R12)		2	+12V

Figure 6-1. RSOMTE Wire List (Sheet 4 of 8)

FROM		CABLE/WIRES	TO		FUNCTION
LOCATION	TERMINAL		LOCATION	TERMINAL	
		TERMINAL STRIP WIRING (Cont)			
TS1	1	(VIA 1N4002 DIODE CR2)	TS1	3	(ANODE CONNECTED AT TS1-1)
	1	(VIA 1K, 1/4W, RES R13)		3	
	3	(VIA 1N4002 DIODE CR4)		4	(ANODE CONNECTED AT TS1-3) +12V
	2	(VIA 1N4002 DIODE CR3)		4	(ANODE CONNECTED AT TS1-2) +12V
	4	(VIA 1K, 1/4w, RES R14)		5	
	5		Q1	C	
	7			E	
	6			B	
	6	(VIA 470 Ohms, 1/4W, RES R15)	TS1	8	
TS2	1	(VIA 68 Ohms, 5W RES R5)	TS2	4	
	1	(VIA 51 Ohms, 5W RES R6)		5	
	1	(VIA 120 Ohms, 5W RES R16)		3	
		PANEL WIRING			
TS1	1		A2J2	L	+12V SENSE
	4			22/Z	+12V REDUND
	5		A2J23	16	PULSER
	7			1	GND
	3		A2J16	12	+12V ALARM
TP1			TB1	2	SIGNAL INPUT
TP2			TB1	1	GND (SIG REF POINT)
TP3			F2	SLEEVE	+24V
TP4			F3	SLEEVE	+12V
TP5			F4	SLEEVE	-12V
TP6			F5	SLEEVE	+3.6V
TP7			F6	SLEEVE	ALARM +12V
F2	SLEEVE		DS2	TIP	LAMPS +24V
DS2	TIP		DS3	TIP	LAMPS +24V
DS3	TIP		DS4	TIP	LAMPS +24V
DS4	TIP		DS5	TIP	LAMPS +24V
S2	1		A2J2	2	RSOMTE LAMP TEST
S2	2		TB1	10	GND
S2	2		S3	2	GND
TS1	8		A2J2	10	FLASHER
S3	1			S	AUDIO RELEASE
DS6	NEG			4	AUDIO DRIVE
DS6	POS		TB1	9	+12V (PULSING)

Figure 6-1. RSOMTE Wire List (Sheet 5 of 8)

FROM			TO		
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION
		PANEL WIRING (Cont)			
J1	WIDE		S1A	1	NEUT. 120VAC
J1	NARROW		S1B	1	I20VAC
S1B	2		F1	TIP	120VAC
F1	SLEEVE		DS1	TIP	POWER ON 120VAC
DS1	SLEEVE		S1A	2	NEUT. 120VAC
TS2	1		TB1	10	GND
TS2	4		F4	SLEEVE	-12v LOAD
TS2	5		F3	SLEEVE	+12V LOAD
TB1	1		TB1	10	GND
	2		A2J3	M	SIGNAL INPUT
	8		F2	SLEEVE	REMOTING +24V
	9		TS1	5	PULSING ALM. +12V
	8	(VIA 755 Ohms, 12w RES R4)	TB1	10	+24V
	7		A2J16	5	PE LAMP (RSOMD)
TB2	1		A2J2	7	PE LAMP (RSOMTE)
	2			5	DC FAIL LAMP
	3			8	TEST LAMP
	4		A2J16	4	UD LAMP
	5		A2J2	3	NO TRNSN. LAMP
	6			2	RSOMTE LAMP TEST
	7			S	AUDIO RELEASE
	8			4	AUDIO DRIVE
	9		A2J16	11	RSOMD LAMP TEST
	10			9	FLASHER RELEASE
DS2	SLEEVE		A2J2	3	NO TRNSN LAMP
DS3	SLEEVE			7	PARITY ERROR LAMP
DS4	SLEEVE			5	DC FAIL LAMP
DS5	SLEEVE			8	TEST LAMP
TS2	3		F6	SLEEVE	+12V ALARM LOAD
		POWER DISTRIBUTION WIRING			
A2J2	A/1		TB1	10	G N D
TS1	3		F6	SLEEVE	+12V ALARM
A2J3	Z/22		F5	SLEEVE	+3.6V
TS1	2		F3	SLEEVE	+12v
A2J3	C		F4	SLEEVE	-12v
A2J2	20		F2	SLEEVE	+24V
A2J3	12		F3	SLEEVE	+12v
A1A3	4		R3	3	+12V ALARM ADJ.
A1A3	3		R3	1	+12V ALARM ADJ.
R3	1		R3	2	+12V ALARM ADJ.

Figure 6-1. RSOMTE Wire List (Sheet 6 of 8)

FROM			TO		
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION
		CONNECTOR WIRING			
		NOTE WIRE COLORS FOR THE RSOMTE INTERNAL WIRING HARNESSES ARE GIVEN IN THIS COLUMN.			
J24	1	BLU/WHT	J16	4	UD
	2	ORN/WHT		5	PE
	3	GRN/WHT		6	MFX
	4	BRN/WHT		7	TAN
	5	SLT/WHT		18	MFR
	6	BLU/RED		19	MFT
	7	ORN/RED		15	DPT
	8	GRN/RED		16	DPR
	9	BRN/RED	J17	4	TCR
	10	SLT/RED		5	RSJ
	11	BLU/BLK		6	ATOP
	12	ORN/BLK		7	LLC-A
	13	GRN/BLK		18	LLC-B
	14	BRN/BLK		19	LLC-C
	15	SLT/BLK		15	RSJ
	16	BLU/YEL		16	MFX
	17	ORN/YEL	J18	4	TCR
	18	GRN/YEL		5	MKR-A
	19	BRN/YEL		6	MKR-B
	20	SLT/YEL		7	LOG-A
	21	BLU/VIO		18	LOG-B
	22	ORN/VIO		19	LOG-C
	23	GRN/VIO		15	MEM-X
	24	BRN/VIO		16	MEM-Y
	25	SLT/VIO	J19	4	CLK
	26	WHT/BLU		5	CMP
	27	WHT/ORN		6	PMB-1
	28	WHT/GRN		7	VG-1
	29	WHT/BRN		18	SG-1
	30	WHT/SLT		19	PMB-2
	31	RED/BLU		15	VG-2
	32	RED/ORN		16	SG-2
	33	RED/GRN	J20	4	PMB-3
	34	RED/BRN		5	VG-3
	35	RED/SLT		6	SG-3
	36	BLK/BLU		7	PMB-4
	37	BLK/ORN		18	VG-4
	38	BLK/GRN		19	SG-4
	39	BLK/BRN		15	PMB-5
	40	BLK/SLT		16	VG-5

Figure 6-1. RSOMTE Wire List (Sheet 7 of 8)

FROM			TO		
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION
J25	1	BLU/WHT	J21	4	SG-5
	2	ORN/WHT		5	PMB-6
	3	GRN/WHT		6	VG-6
	4	BRN/WHT		7	SG-6
	5	SLT/WHT		18	PMB-7
	6	BLU/RED		19	V G 7
	7	ORN/RED		15	SG-7
	8	GRN/RED		16	PMB-8
	9	BRN/RED	J22	4	V G 8
	10	SET/RED		5	SG-8
	11	BLU/BLK		6	PMB-9
	12	ORN/BLK		7	V G 9
	13	GRN/BLK		18	SG-9
	14	BRN/BLK		19	PMB-10
	15	SLT/BLK		15	VG-10
	16	BLU/YEL		16	SG-10
	17	ORN/YEL	J23	4	PMB-11
	10	GRN/YEL		5	VG-11
	19	BRN/YEL		6	SG-11
	20	SLT/YEL		7	PMB-12
	21	BLU/VIO		18	VG-12
	22	ORN/VIO		19	SG-12
	41	YEL/BLU	J16	11	RSOMD LAMP TEST
	42	YEL/ORN		9	FLASHER RELEASE
	44	YEL/BRN	F2	SLEEVE	RSOMD +24V
	45	YEL/SLT		SLEEVE	RSOMD +24V
	25	SLT/VIO	A2J23	A/1	RSOMD GND
J24	41-50				SPARES
J25	23-24				SPARES
J25	26-50				SPARES
P26	17	GRN	CHASSIS GND LUG		
	1	BLU/WHT	TB1	10	GND
	2	ORN/WHT		10	GND
	13	GRN/BLK		10	GND
	12	BRN/WHT	F2	TIP	+24V
	24	SLT/WHT	F2	TIP	+24V
	10	BLU/BLK	F6	TIP	+12V ALARM
	8	GRN/BLK	F3	TIP	+12V
	6	SLT/BLK	F4	TIP	-12V
	4	ORN/RED	F5	TIP	+3.6V
	15	GRN/RED		TIP	+3.6V
	16	BRN/RED		TIP	+3.6V
	20	RED	F1	SLEEVE	120VAC
	22	WHT	SIA	2	120VAC NEUT

Figure 6-l. RSOMTE Wire List (Sheet 8 of 8)

FROM			TO		
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION
		POWER BUSSING (+24 VDC)			
DS61	TIP		DS62	TIP	
DS62	TIP		DS1	TIP	
DS1	TIP		DS2	TIP	
DS2	TIP		DS4	TIP	
DS4	TIP		DS3	TIP	
DS3	TIP		DS5	TIP	
DS5	TIP		DS6	TIP	
DS6	TIP		DS7	TIP	
DS7	TIP		DS8	TIP	
DS8	TIP		DS9	TIP	
DS9	TIP		DS12	TIP	
DS12	TIP		DS11	TIP	
DS11	TIP		DS10	TIP	
DS62	TIP		DS13	TIP	
DS13	TIP		DS14	TIP	
DS14	TIP		DS15	TIP	
DS15	TIP		DS17	TIP	
DS17	TIP		DS16	TIP	
DS16	TIP		DS18	TIP	
DS18	TIP		DS19	TIP	
DS19	TIP		DS20	TIP	
DS20	TIP		DS22	TIP	
DS22	TIP		DS21	TIP	
DS21	TIP		DS23	TIP	
DS23	TIP		DS24	TIP	
DS24	TIP		DS63	TIP	
DS63	TIP		DS64	TIP	
DS27	TIP		DS30	TIP	
DS30	TIP		DS33	TIP	
DS33	TIP		DS36	TIP	
DS36	TIP		DS39	TIP	
DS39	TIP		DS42	TIP	
DS42	TIP		DS45	TIP	
DS45	TIP		DS48	TIP	
DS48	TIP		DS51	TIP	
DS51	TIP		DS54	TIP	
DS54	TIP		DS57	TIP	
DS57	TIP		DS60	TIP	
DS60	TIP		DS59	TIP	
DS59	TIP		DS56	TIP	
DS56	TIP		DS53	TIP	
DS53	TIP		DS50	TIP	
DS50	TIP		DS47	TIP	
DS47	TIP		DS44	TIP	
DS44	TIP		DS41	TIP	
DS41	TIP		DS38	TIP	
DS38	TIP		DS35	TIP	

Figure 6-2. RSOMD Wire List (Sheet 1 of 4)

FROM			TO		
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION
		POWER BUSSING (+24 VDC) (Cont)			
DS35	TIP		DS32	TIP	
DS32	TIP		DS29	TIP	
DS29	TIP		DS26	TIP	
DS26	TIP		DS25	TIP	
DS25	TIP		DS28	TIP	
DS28	TIP		DS31	TIP	
DS31	TIP		DS34	TIP	
DS34	TIP		DS37	TIP	
DS37	TIP		DS40	TIP	
DS40	TIP		DS43	TIP	
DS43	TIP		DS46	TIP	
DS46	TIP		DS49	TIP	
DS49	TIP		DS52	TIP	
DS52	TIP		DS55	TIP	
DS55	TIP		DS58	TIP	
		CONNECTOR WIRING			
		NOTE WIRE COLORS FOR THE RSOMD INTERNAL CONNECTOR WIRING ARE GIVEN IN THIS COLUMN.			
J2	3	GRN/WHT	DS1	SLEEVE	MFX
	4	BRN/WHT	DS2	SLEEVE	TAN
	5	SLT/WHT	DS3	SLEEVE	MFR
	6	BLU/RED	DS4	SLEEVE	MFT
	7	ORN/RED	DS5	SLEEVE	DPT
	8	GRN/RED	DS6	SLEEVE	DPR
	1	BLU/WHT	DS61	SLEEVE	UD
	2	ORN/WHT	DS62	SLEEVE	PE
	9	BRN/RED	DS7	SLEEVE	TCR
	10	SLT/RED	DS8	SLEEVE	RSJ
	11	BLU/BLK	DS9	SLEEVE	ATOP
	12	ORN/BLK	DS10	SLEEVE	LLC-A
	13	GRN/BLK	DS11	SLEEVE	LLC-B
	14	BRN/BLK	DS12	SLEEVE	LLC-C
	15	SLT/BLK	DS13	SLEEVE	RSJ
	16	BLU/YEL	DS14	SLEEVE	MFX
	17	ORN/YEL	DS15	SLEEVE	TCR
	18	GRN/YEL	DS16	SLEEVE	MKR-A
	19	BRN/YEL	DS17	SLEEVE	MKR-B
	20	SLT/YEL	DS18	SLEEVE	LOG-A
	21	BLU/VIO	DS19	SLEEVE	LOG-B
	22	ORN/VIO	DS20	SLEEVE	LOG-C
	23	GRN/VIO	DS21	SLEEVE	MEM-X

Figure 6-2. RSOMD Wire List (Sheet 2 of 4)

FROM			TO		
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION
		CONNECTOR WIRING (Cont)			
J2	24	BRN/VIO	DS22	SLEEVE	MEM-Y
	25	SLT/VIO	DS23	SLEEVE	CLK
	26	WHT/BLU	DS24	SLEEVE	CMP
	27	WHT/ORN	DS25	SLEEVE	PMB-1
	28	WHT/GRN	DS26	SLEEVE	VG-1
	29	WHT/BRN	DS27	SLEEVE	SG-1
	30	WHT/SLT	DS28	SLEEVE	PMB-2
	31	RED/BLU	DS29	SLEEVE	VG-2
	32	RED/ORN	DS30	SLEEVE	SG-2
	33	RED/GRN	DS31	SLEEVE	PMB-3
	34	RED/BRN	DS32	SLEEVE	VG-3
	35	RED/SLT	DS33	SLEEVE	SG-3
	36	BLK/BLU	DS34	SLEEVE	PMB-4
	37	BLK/ORN	DS35	SLEEVE	VG-4
	38	BLK/GRN	DS36	SLEEVE	SG-4
	39	BLK/BRN	DS37	SLEEVE	PMB-5
	40	BLK/SLT	DS38	SLEEVE	VG-5
	41-50				SPARES
J1	1	BLU/WHT	DS39	SLEEVE	SG-5
	2	ORN/WHT	DS40	SLEEVE	PMB-6
	3	GRN/WHT	DS41	SLEEVE	VG-6
	4	BRN/WHT	DS42	SLEEVE	SG-6
	5	SLT/WHT	DS43	SLEEVE	PMB-7
	6	BLU/RED	DS44	SLEEVE	VG-7
	7	ORN/RED	DS45	SLEEVE	SG-7
	8	GRN/RED	DS46	SLEEVE	PMB-8
	9	BRN/RED	DS47	SLEEVE	VG-8
	10	SLT/RED	DS48	SLEEVE	SG-8
	11	BLU/BLK	DS49	SLEEVE	PMB-9
	12	ORN/BLK	DS50	SLEEVE	VG-9
	13	GRN/BLK	DS51	SLEEVE	SG-9
	14	BRN/BLK	DS52	SLEEVE	PMB-10
	15	SLT/BLK	DS53	SLEEVE	VG-10
	16	BLU/YEL	DS54	SLEEVE	SG-10
J1	17	ORN/YEL	DS55	SLEEVE	PMB-11
	18	GRN/YEL	DS56	SLEEVE	VG-11
	19	BRN/YEL	DS57	SLEEVE	SG-11
	20	SLT/YEL	DS58	SLEEVE	PMB-12
	21	BLU/VIO	DS59	SLEEVE	VG-12
	22	ORN/VIO	DS60	SLEEVE	SG-12
	23	GRN/VIO	DS63	SLEEVE	SPARE
	24	BRN/VIO	DS64	SLEEVE	SPARE
	41	YEL/BLU	S1	1	RSOMD LAMP TEST
	42	YEL/ORN	S2	1	FLASHER RELEASE

Figure 6-2. RSOMD Wire List (Sheet 3 of 4)

FROM		CABLE/WIRES	TO		FUNCTION
LOCATION	TERMINAL		LOCATION	TERMINAL	
		CONNECTOR WIRING (Cont)			
J1	44	YEL/BRN	DS27	TIP	+24V
	45	YEL/SLT	DS64	TIP	+24V
	25	SLT/VIO	S1	2	GND
	26-40				SPARES
	43				SPARE
	46-50				SPARES
S1	2		S2	2	GND

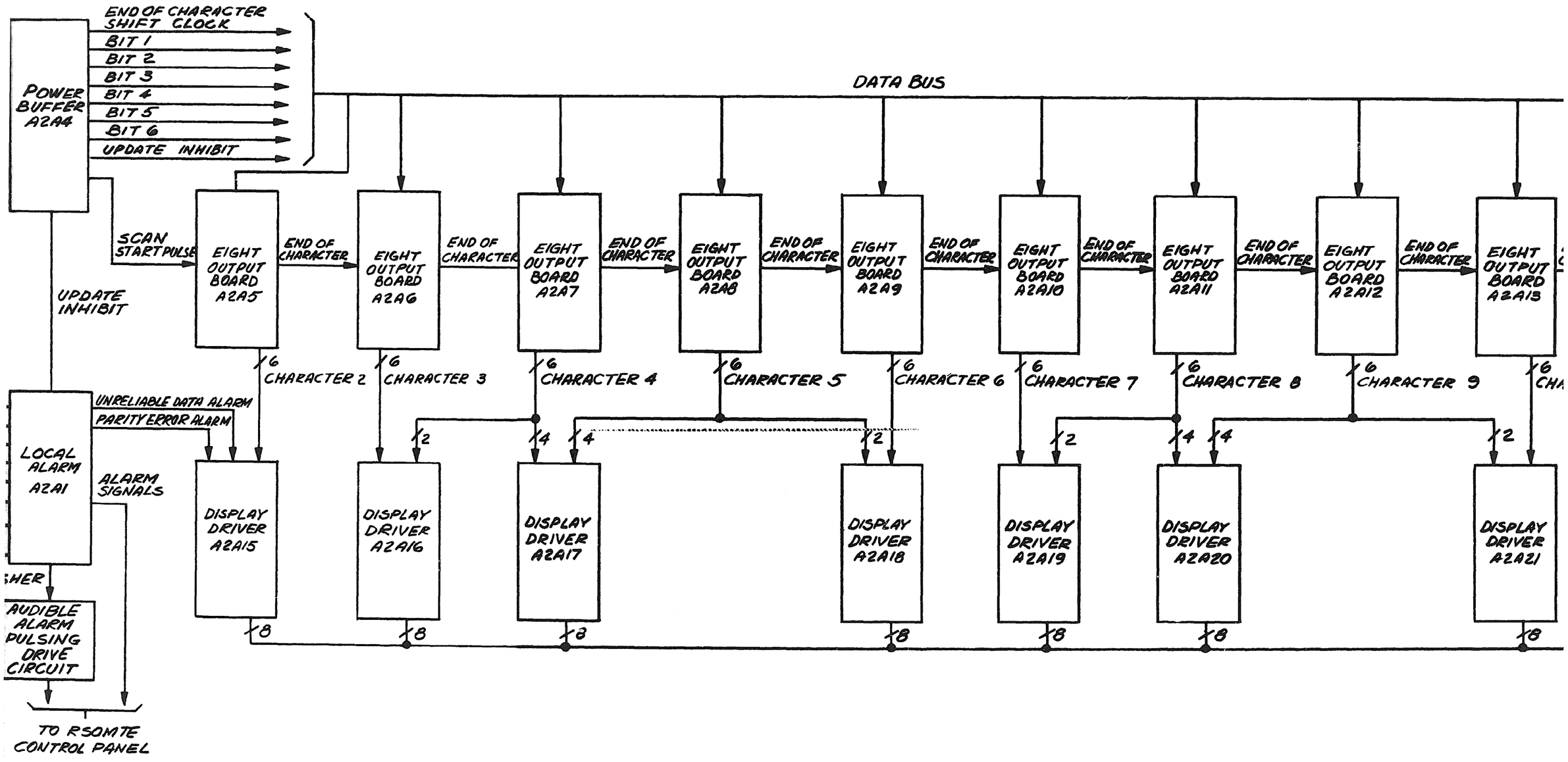
Figure 6-2. RSOMD Wire List (Sheet 4 of 4)

FROM			TO		
LOCATION	TERMINAL	CABLE/WIRES	LOCATION	TERMINAL	FUNCTION
			NOTE		
			PLUGS W2P3 AND W2P4 OF THE RSOMTE/ RSOMD INTERCONNECTING CABLE MATE WITH RSOMTE CONNECTORS J24 AND J25, RESPECTIVELY. PLUGS W2P1 AND W2P2 MATE WITH RSOMD CONNECTORS J1 AND J2, RESPECTIVELY. (SEE RSOM CABLING DIAGRAM.)		
W2P3	1	W2	W2P2	1	UD
	2			2	PE
	3			3	MFX
	4			4	TAN
	5			5	MFR
	6			6	MFT
	7			7	DPT
	8			8	DPR
	9			9	TCR
	10			10	RSJ
	11			11	ATOP
	12			12	LLC-A
	13			13	LLC-B
	14			14	LLC-C
	15			15	RSJ
	16			16	MFX
	17			17	TCR
	18			18	MKR-A
	19			19	MKR-B
	20			20	LOG-A
	21			21	LOG-B
	22			22	LOG-C
	23			23	MEM-X
	24			24	MEM-Y
	25			25	CLK
	26			26	CMP
	27			27	PMB-1
	28			28	VG-1
	29			29	SG-1
	30			30	PMB-2
	31			31	VG-2
	32			32	SG-2
	33			33	PMB-3
	34			34	VG-3
	35			35	SG-3
	36			36	PMB-4
	37			37	VG-4

Figure 6-3. RSOMTE/RSOMD Cable List (Sheet 1 of 2)

FROM		CABLE/WIRES	TO		FUNCTION
LOCATION	TERMINAL		LOCATION	TERMINAL	
W2P3	38	W2	W2P2	38	SG-4
	39			39	PMB-5
	40			40	VG-5
W2P4	1	W2	W2P1	1	SG-5
	2			2	PMB-6
	3			3	VG-6
	4			4	SG-6
	5			5	PMB-7
	6			6	VG-7
	7			7	SG-7
	8			8	PMB-8
	9			9	VG-8
	10			10	SG-8
	11			11	PMB-9
	12			12	VG-9
	13			13	SG-9
	14			14	PMB-10
	15			15	VG-10
	16			16	SG-10
	17			17	PMB-11
	18			18	VG-11
	19			19	SG-11
	20			20	PMB-12
	21			21	VG-12
	22			22	SG-12
	41			41	RSOMD LAMP TEST
	42			42	FLASHER RELEASE
	44			44	RSOMD +24V
	45			45	RSOMD +24V
	25			25	RSOMD GND
P3	41-50		P2	41-50	SPARES
P4	23-24		P1	23-24	SPARES
P4	26-40		P1	26-40	SPARES
P4	43		P1	43	SPARE
P4	46-50		P1	46-50	SPARES

Figure 6-3. RSOMTE/RSOMD Cable List (Sheet 2 of 2)


END OF CHARACTER
SHIFT CLOCK
BIT 1
BIT 2
BIT 3
BIT 4
BIT 5
BIT 6
UPDATE INHIBIT
POWER BUFFER A2A4
DATA BUS
SCAN START PULSE
UPDATE INHIBIT
EIGHT OUTPUT BOARD A2A5
EIGHT OUTPUT BOARD A2A6
EIGHT OUTPUT BOARD A2A7
EIGHT OUTPUT BOARD A2A8
EIGHT OUTPUT BOARD A2A9
EIGHT OUTPUT BOARD A2A10
EIGHT OUTPUT BOARD A2A11
EIGHT OUTPUT BOARD A2A12
EIGHT OUTPUT BOARD A2A13
END OF CHARACTER
6 CHARACTER 2
6 CHARACTER 3
6 CHARACTER 4
6 CHARACTER 5
6 CHARACTER 6
6 CHARACTER 7
6 CHARACTER 8
6 CHARACTER 9
UNRELIABLE DATA ALARM
PARITY ERROR ALARM
LOCAL ALARM A2A1
ALARM SIGNALS
AUDIBLE ALARM PULSING DRIVE CIRCUIT
TO RSOMTE CONTROL PANEL
DISPLAY DRIVER A2A15
DISPLAY DRIVER A2A16
DISPLAY DRIVER A2A17
DISPLAY DRIVER A2A18
DISPLAY DRIVER A2A19
DISPLAY DRIVER A2A20
DISPLAY DRIVER A2A21
2
4
4
2
2
4
4
2
8
8
8
8
8
8
8

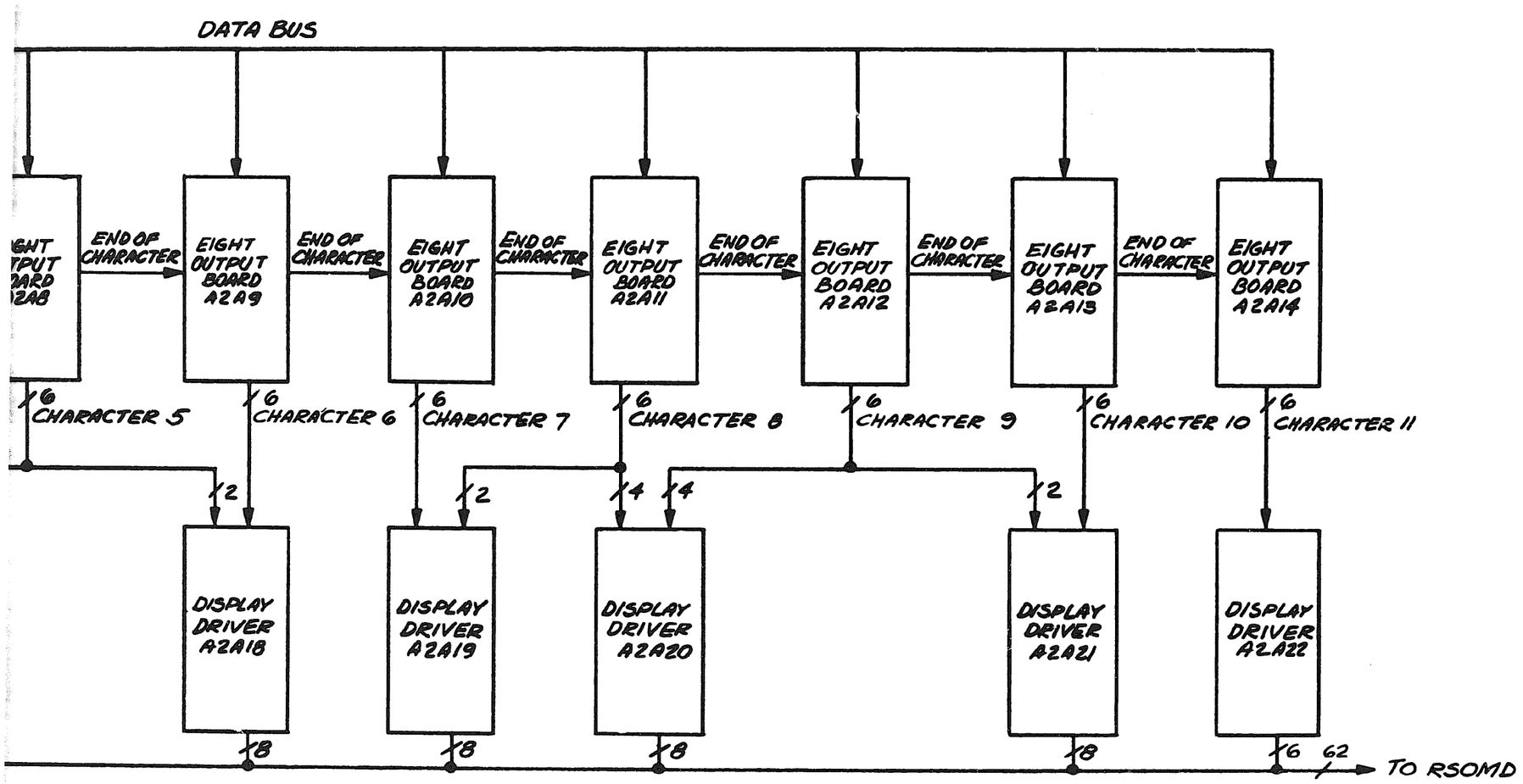
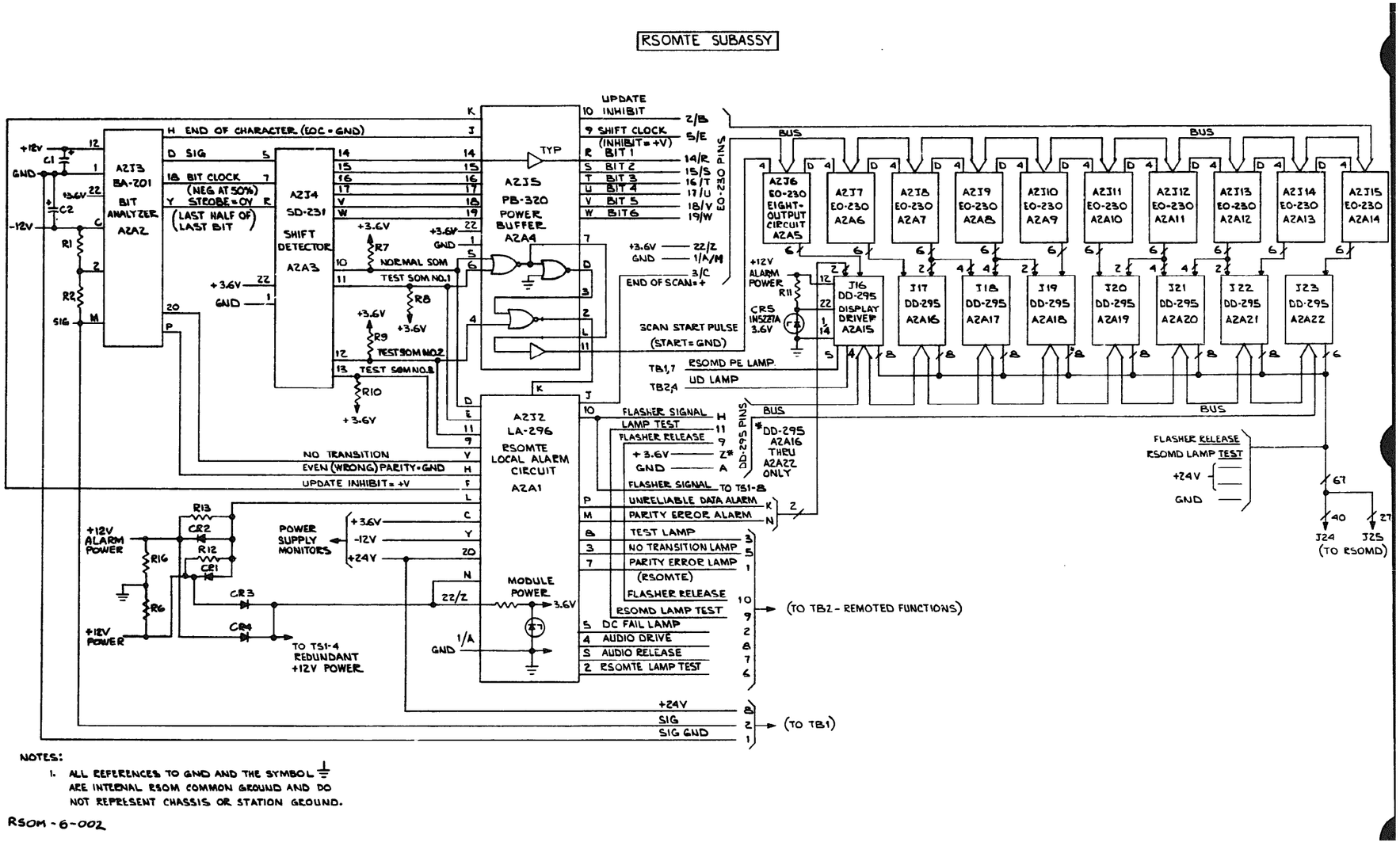


Figure FO-1. Remote Station Output Monitor, Simplified Block Diagram



NOTES:

1. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

RSOM-6-002

Figure FO-2. Remote Station Output Monitor, Functional Block Diagram

SERIAL DATA MESSAGE FROM RSE

BIT ANALYZER A2A2

END OF CHARACTER
BIT CLOCK
SOM STROBE
P/O SERIAL DATA MESSAGE
NO TRANSITION
EVEN PARITY

SHIFT DETECTOR A2A3

BIT 1
BIT 2
BIT 3
BIT 4
BIT 5
BIT 6
NORMAL SOM
TEST SOM NO. 1
TEST SOM NO. 2
TEST SOM NO. 3

POWER BUFFER A2A4

END OF CHARACTER SHIFT CLOCK
BIT 1
BIT 2
BIT 3
BIT 4
BIT 5
BIT 6
UPDATE INHIBIT

SCAN START PULSE

EIGHT OUTPUT BOARD A2A5

END OF CHARACTER

EIGHT OUTPUT BOARD A2A6

END OF CHARACTER

EIGHT OUTPUT BOARD A2A7

END OF CHARACTER

EIGHT OUTPUT BOARD A2A8

EN CHA

UPDATE INHIBIT

6 CHARACTER 2

6 CHARACTER 3

6 CHARACTER 4

6 CHARAC

POWER SUPPLIES A1A1 THRU A1A4

+24V
+3.6V
-12V

+12V SENSING CIRCUIT — REDUNDANT +12V

+12V ALARM

LOCAL ALARM A2A1

UNRELIABLE DATA ALARM
PARITY ERROR ALARM
ALARM SIGNALS

POWER SUPPLY VOLTAGES

FROM RSOMTE CONTROL PANEL — RSOMTE LAMP TEST

FLASHER

AUDIBLE ALARM PULSING DRIVE CIRCUIT

TO RSOMTE CONTROL PANEL

FROM RSOMD — FLASHER RELEASE, RSOMD LAMP TEST — TO DISPLAY DRIVERS A2A15-A2A22

2

4 4

DISPLAY DRIVER A2A15

DISPLAY DRIVER A2A16

DISPLAY DRIVER A2A17

8 8 8

RSOM-6-001

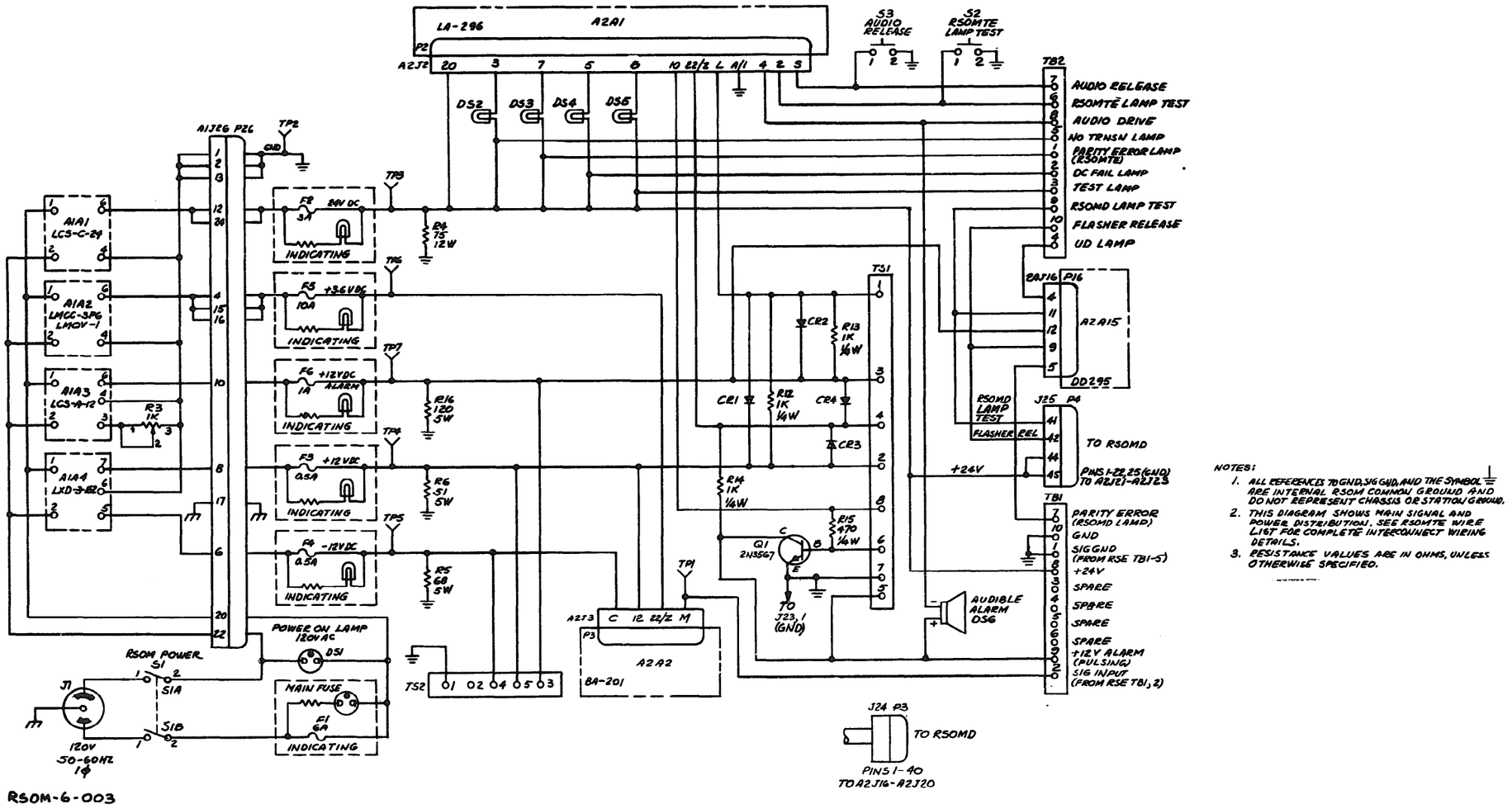
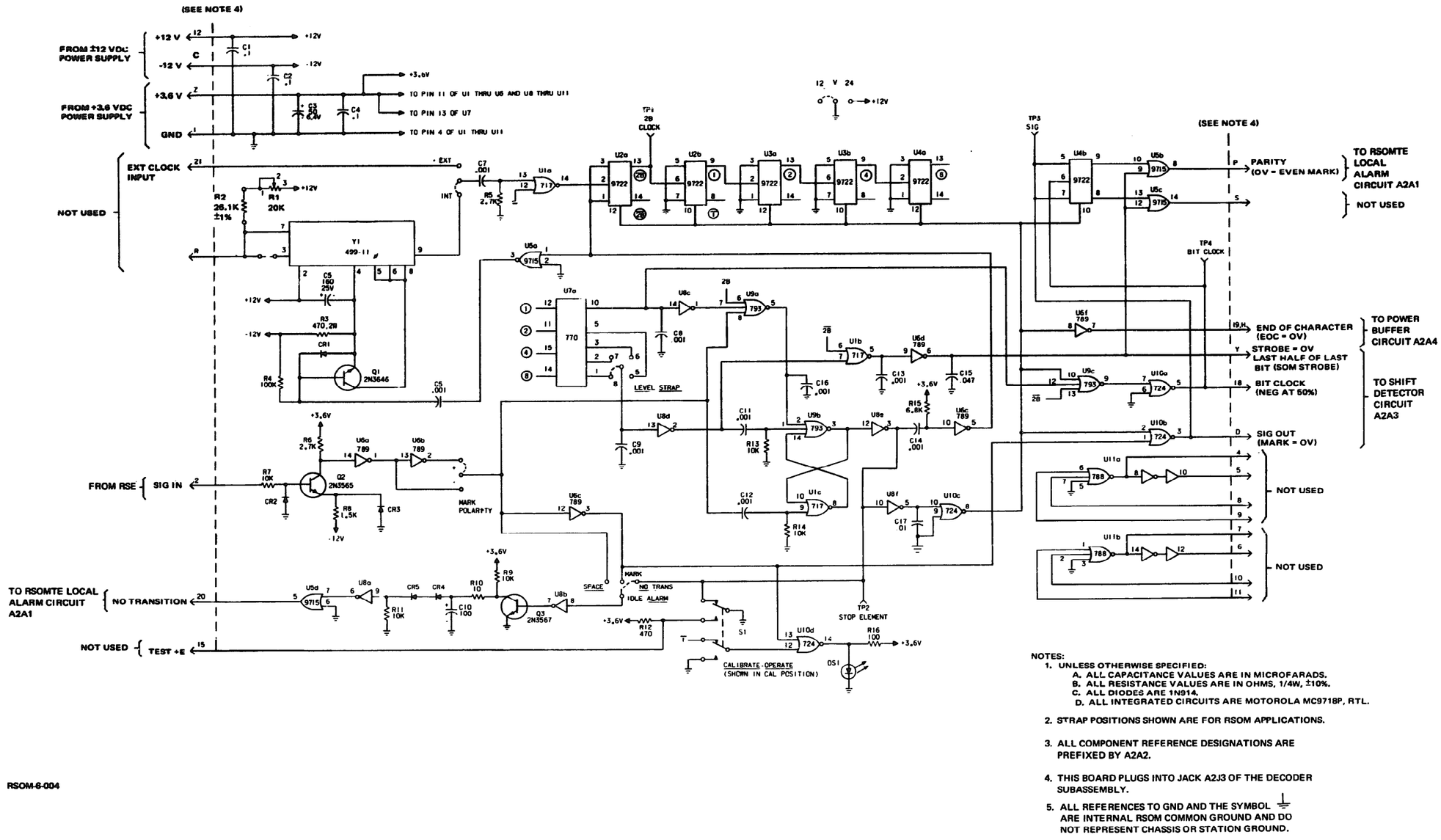


Figure FO-3. RSOMTE Power and Signal Distribution Schematic Diagram



RSOM-6-004

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   A. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
   B. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W, ±10%.
   C. ALL DIODES ARE 1N914.
   D. ALL INTEGRATED CIRCUITS ARE MOTOROLA MC9718P, RTL.
2. STRAP POSITIONS SHOWN ARE FOR RSOM APPLICATIONS.
3. ALL COMPONENT REFERENCE DESIGNATIONS ARE PREFIXED BY A2A2.
4. THIS BOARD PLUGS INTO JACK A2J3 OF THE DECODER SUBASSEMBLY.
5. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

Figure FO-4. Bit Analyzer Circuit Board (A2A2), Schematic Diagram

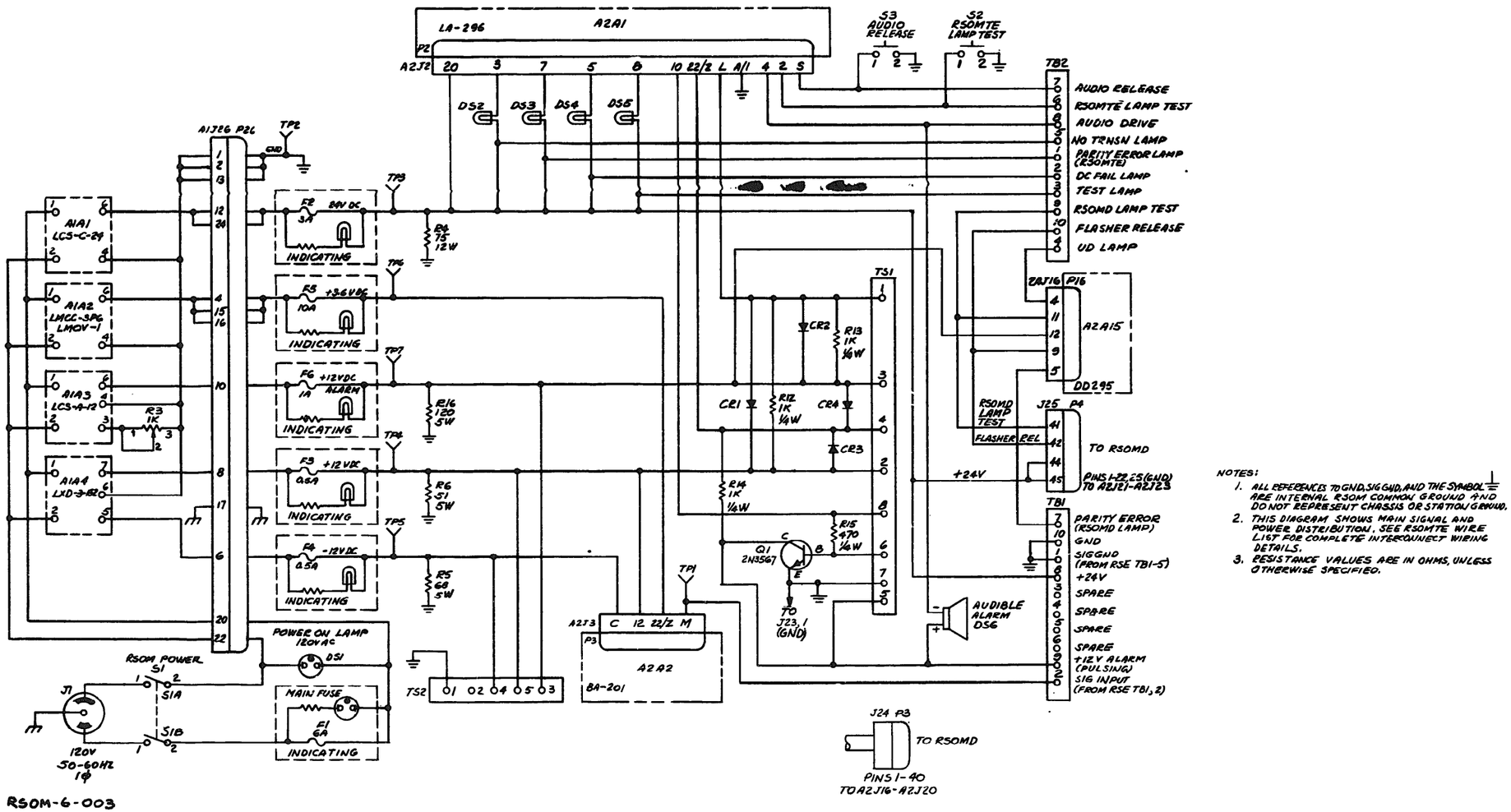
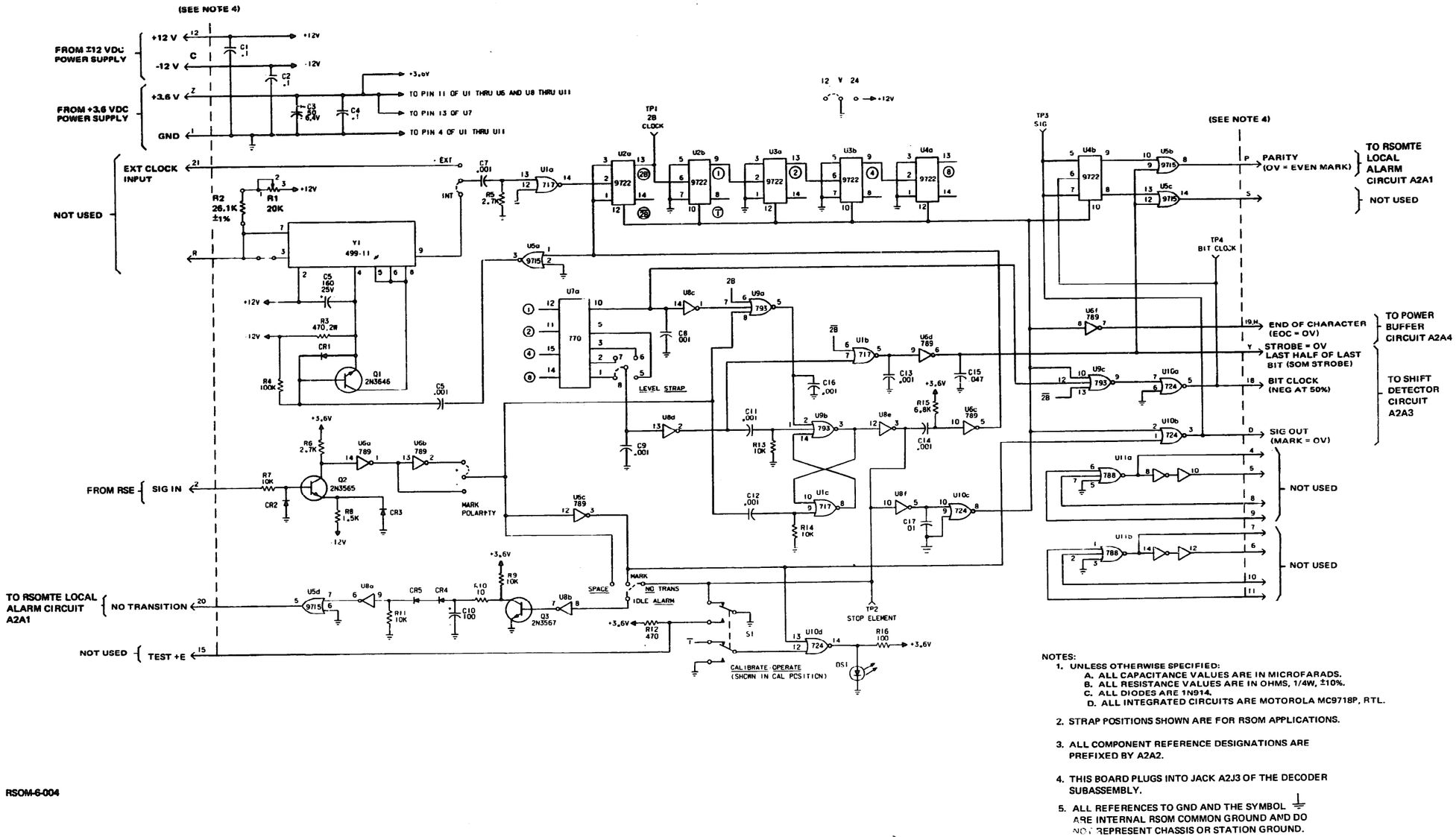


Figure FO-3. RSOMTE Power and Signal Distribution Schematic Diagram



RSOM-6-004

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   A. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
   B. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W, ±10%.
   C. ALL DIODES ARE 1N914.
   D. ALL INTEGRATED CIRCUITS ARE MOTOROLA MC9718P, RTL.
2. STRAP POSITIONS SHOWN ARE FOR RSOM APPLICATIONS.
3. ALL COMPONENT REFERENCE DESIGNATIONS ARE PREFIXED BY A2A2.
4. THIS BOARD PLUGS INTO JACK A2J3 OF THE DECODER SUBASSEMBLY.
5. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

Figure FO-4. Bit Analyzer Circuit Board
(A2A2), Schematic Diagram

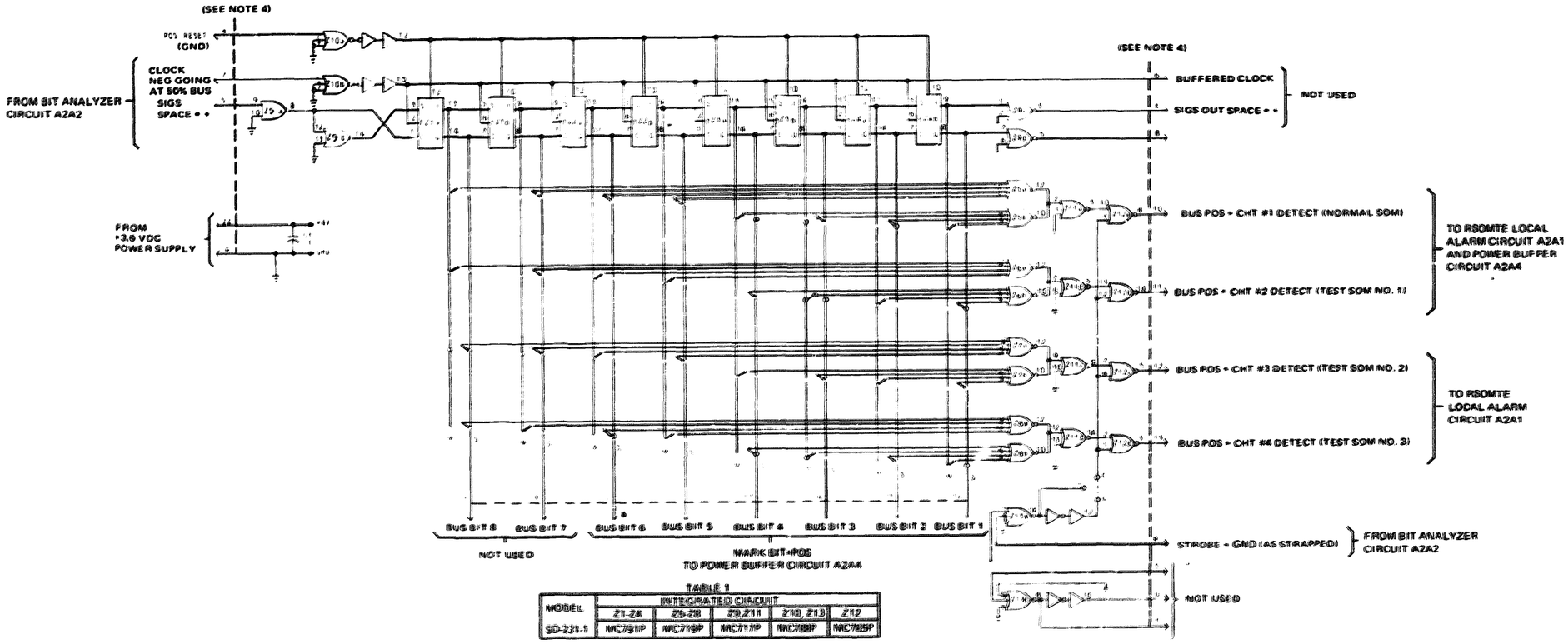


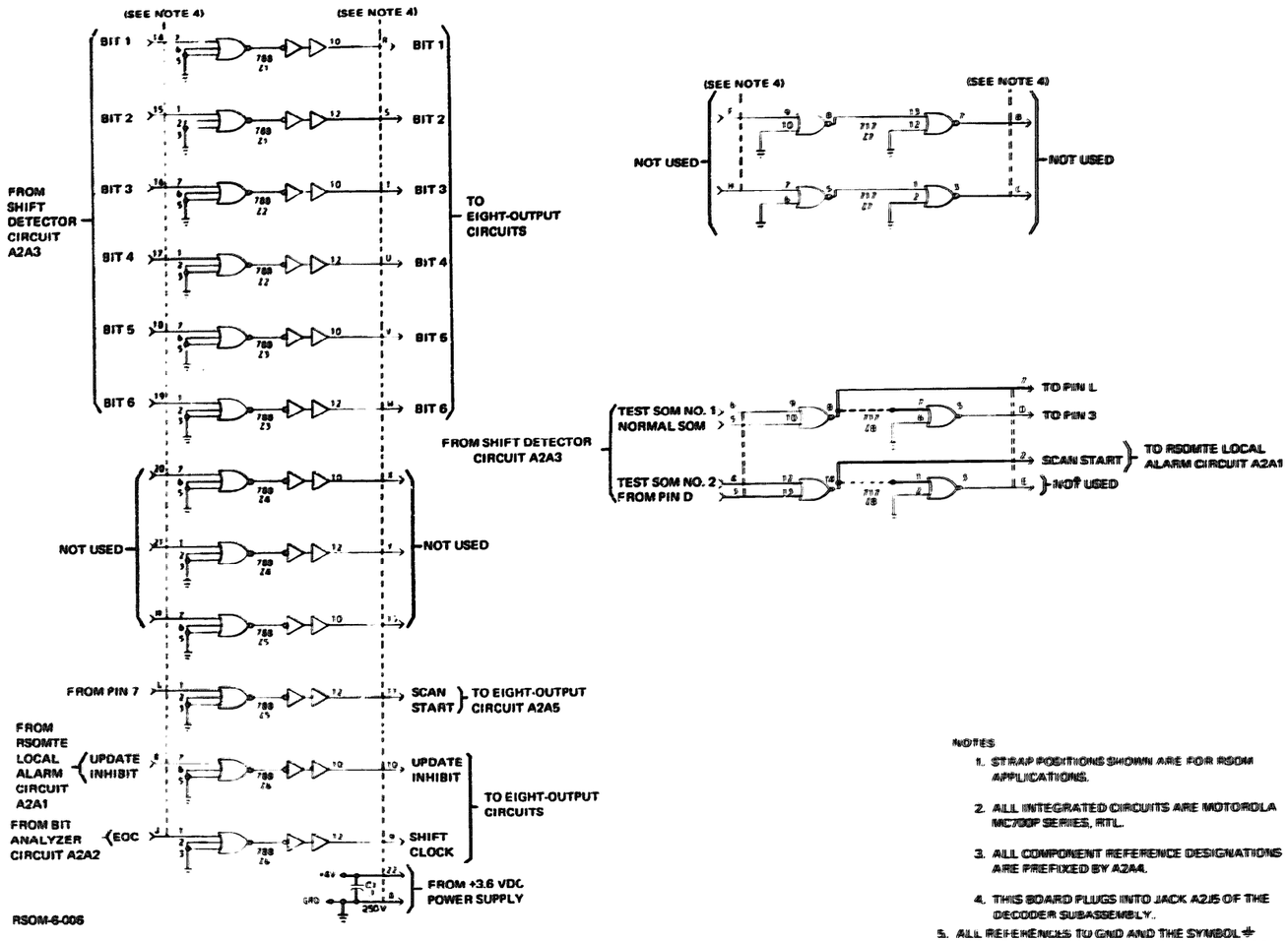
TABLE 1

MODEL	INTEGRATED CIRCUIT				
	Z1-Z4	Z5-Z8	Z9,Z11	Z10, Z13	Z12
SD-231-1	MC75IP	MC77IP	MC71IP	MC75IP	MC75IP

NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   A. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
   B. ALL DIODES ARE 1N456A OR ARC SPEC 1-1-2.
   C. ALL INTEGRATED CIRCUITS ARE MOTOROLA, SEE TABLE 1.
2. ONE 620 Ω RESISTOR REQUIRED PER BUS 10, 11, 12, AND 13 TO BE CONNECTED BETWEEN BUS AND +3.6 V.
3. ALL COMPONENT REFERENCE DESIGNATIONS ARE PREFIXED BY A2A3.
4. THIS BOARD PLUGS INTO JACK A2J4 OF THE DECODER SUBASSEMBLY
5. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

RSOM-6-005

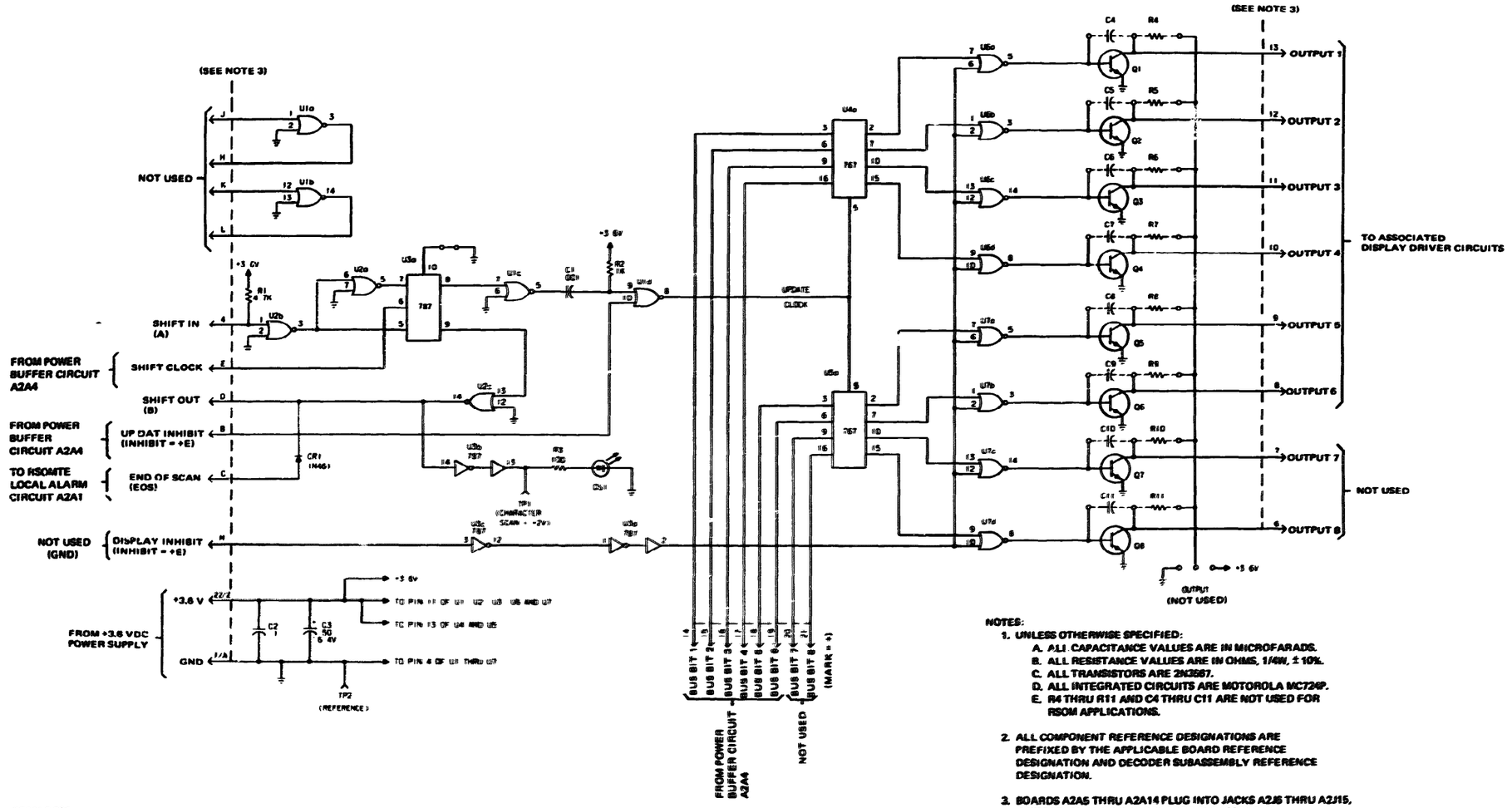
Figure FO-5. Shift Detector Circuit Board (A2A3), Schematic Diagram



NOTES

1. STRAP POSITIONS SHOWN ARE FOR RSOM APPLICATIONS.
2. ALL INTEGRATED CIRCUITS ARE MOTOROLA MC700P SERIES, RTL.
3. ALL COMPONENT REFERENCE DESIGNATIONS ARE PREFIXED BY A2A4.
4. THIS BOARD PLUGS INTO JACK A2J5 OF THE DECODER SUBASSEMBLY.
5. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

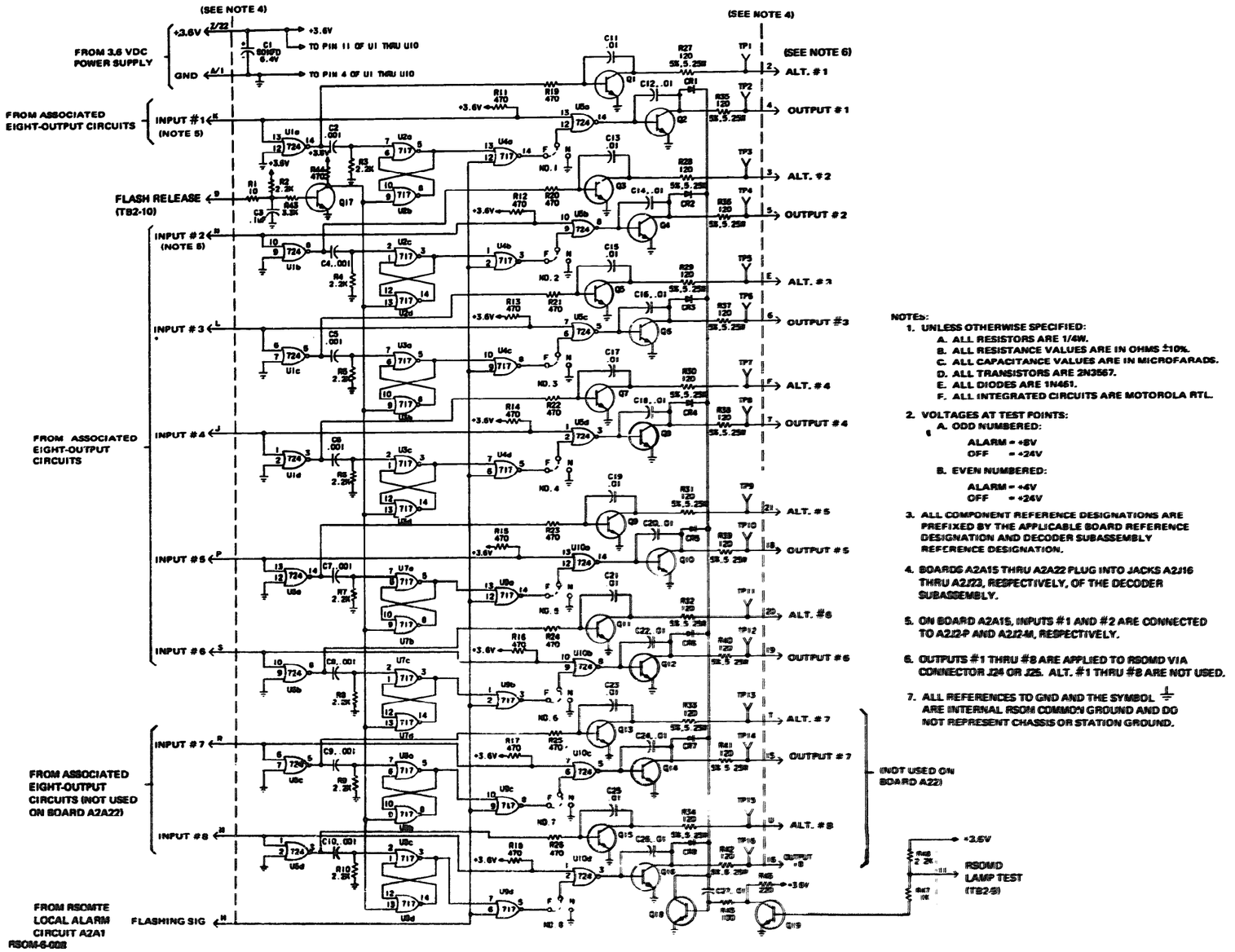
Figure FO-6. Power Buffer Circuit Board (A2A4), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   A. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
   B. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W, ± 10%.
   C. ALL TRANSISTORS ARE 2N3567.
   D. ALL INTEGRATED CIRCUITS ARE MOTOROLA MC724P.
   E. R4 THRU R11 AND C4 THRU C11 ARE NOT USED FOR RSOM APPLICATIONS.
2. ALL COMPONENT REFERENCE DESIGNATIONS ARE PREFIXED BY THE APPLICABLE BOARD REFERENCE DESIGNATION AND DECODER SUBASSEMBLY REFERENCE DESIGNATION.
3. BOARDS A2A5 THRU A2A14 PLUG INTO JACKS A2J5 THRU A2J15, RESPECTIVELY, OF THE DECODER SUBASSEMBLY.
4. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

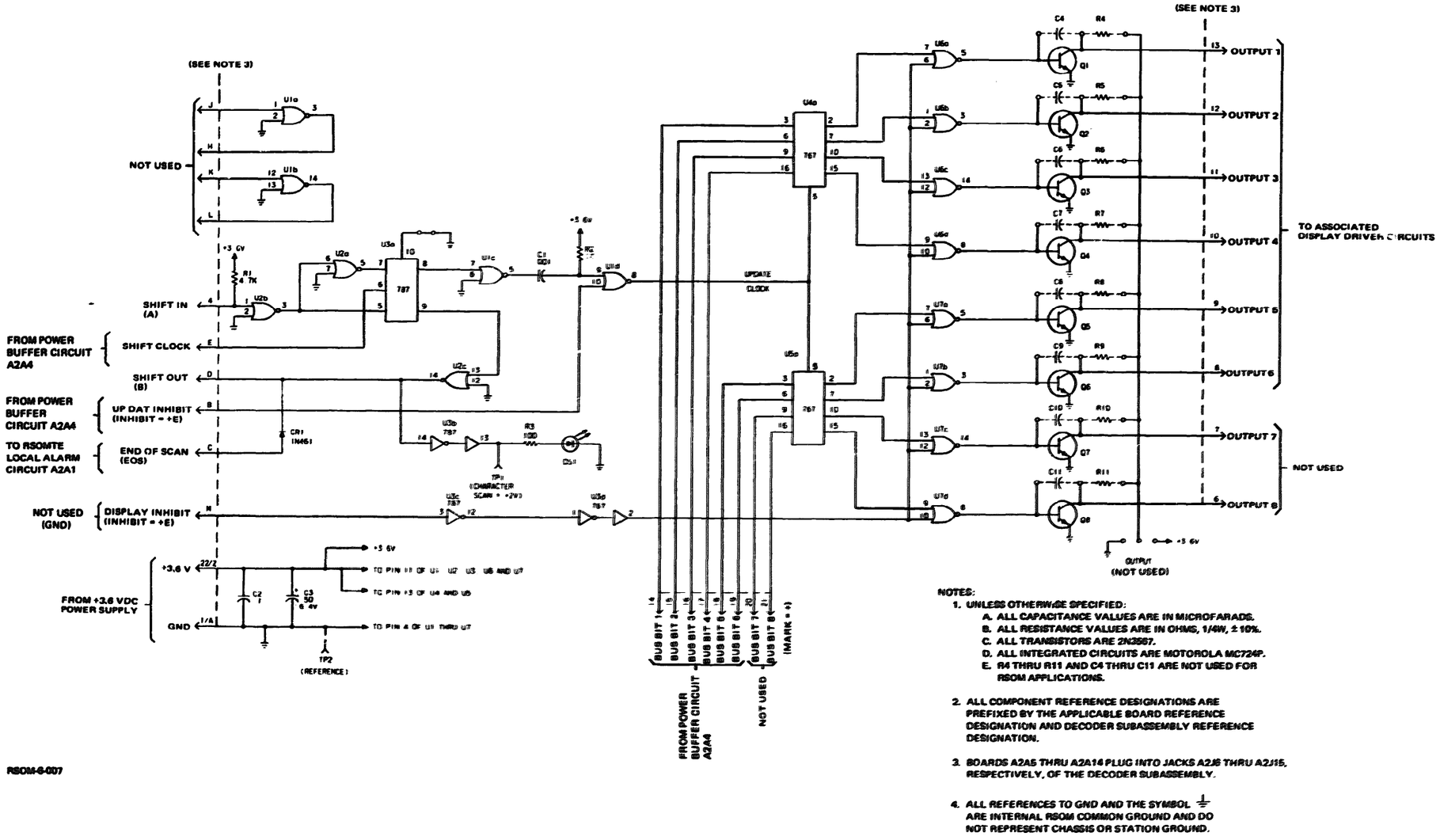
Figure FO-7. Eight-Output Circuit Board (A2A5 - A2A14), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   A. ALL RESISTORS ARE 1/4W.
   B. ALL RESISTANCE VALUES ARE IN OHMS ±10%.
   C. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
   D. ALL TRANSISTORS ARE 2N3567.
   E. ALL DIODES ARE 1N461.
   F. ALL INTEGRATED CIRCUITS ARE MOTOROLA RTL.
2. VOLTAGES AT TEST POINTS:
   A. ODD NUMBERED:
      ALARM = +8V
      OFF = +24V
   B. EVEN NUMBERED:
      ALARM = +4V
      OFF = +24V
3. ALL COMPONENT REFERENCE DESIGNATIONS ARE PREFIXED BY THE APPLICABLE BOARD REFERENCE DESIGNATION AND DECODER SUBASSEMBLY REFERENCE DESIGNATION.
4. BOARDS A2A15 THRU A2A22 PLUG INTO JACKS A2J16 THRU A2J23, RESPECTIVELY, OF THE DECODER SUBASSEMBLY.
5. ON BOARD A2A15, INPUTS #1 AND #2 ARE CONNECTED TO A2J2-P AND A2J2-M, RESPECTIVELY.
6. OUTPUTS #1 THRU #8 ARE APPLIED TO RSOMD VIA CONNECTOR J24 OR J25. ALT. #1 THRU #8 ARE NOT USED.
7. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

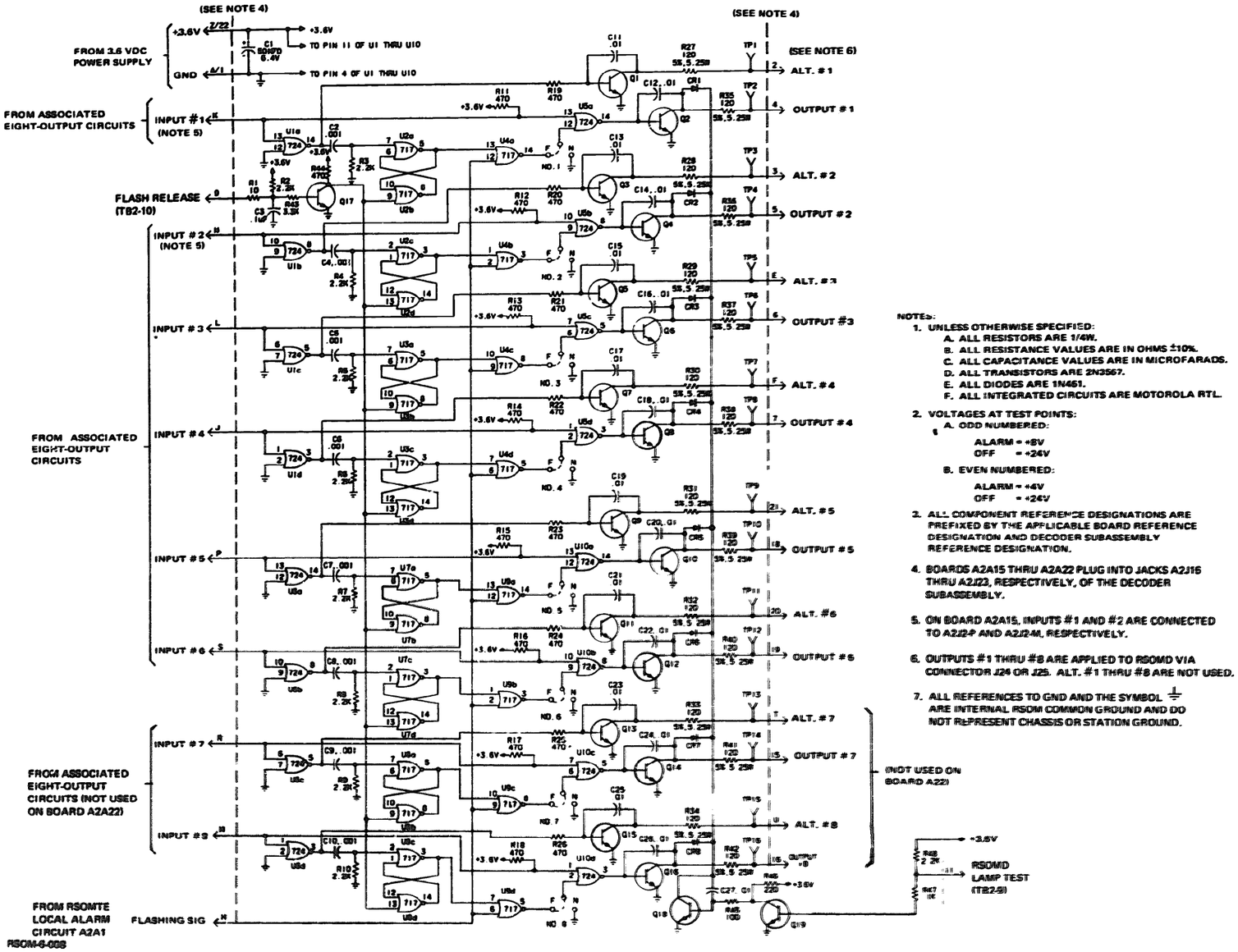
Figure FO-8. Display Driver Circuit Board (A2A15-A2A22), Schematic Diagram



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   A. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
   B. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W, ± 10%.
   C. ALL TRANSISTORS ARE 2N3567.
   D. ALL INTEGRATED CIRCUITS ARE MOTOROLA MC724P.
   E. R4 THRU R11 AND C4 THRU C11 ARE NOT USED FOR RSOM APPLICATIONS.
2. ALL COMPONENT REFERENCE DESIGNATIONS ARE PREFIXED BY THE APPLICABLE BOARD REFERENCE DESIGNATION AND DECODER SUBASSEMBLY REFERENCE DESIGNATION.
3. BOARDS A2A5 THRU A2A14 PLUG INTO JACKS A2J5 THRU A2J15, RESPECTIVELY, OF THE DECODER SUBASSEMBLY.
4. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

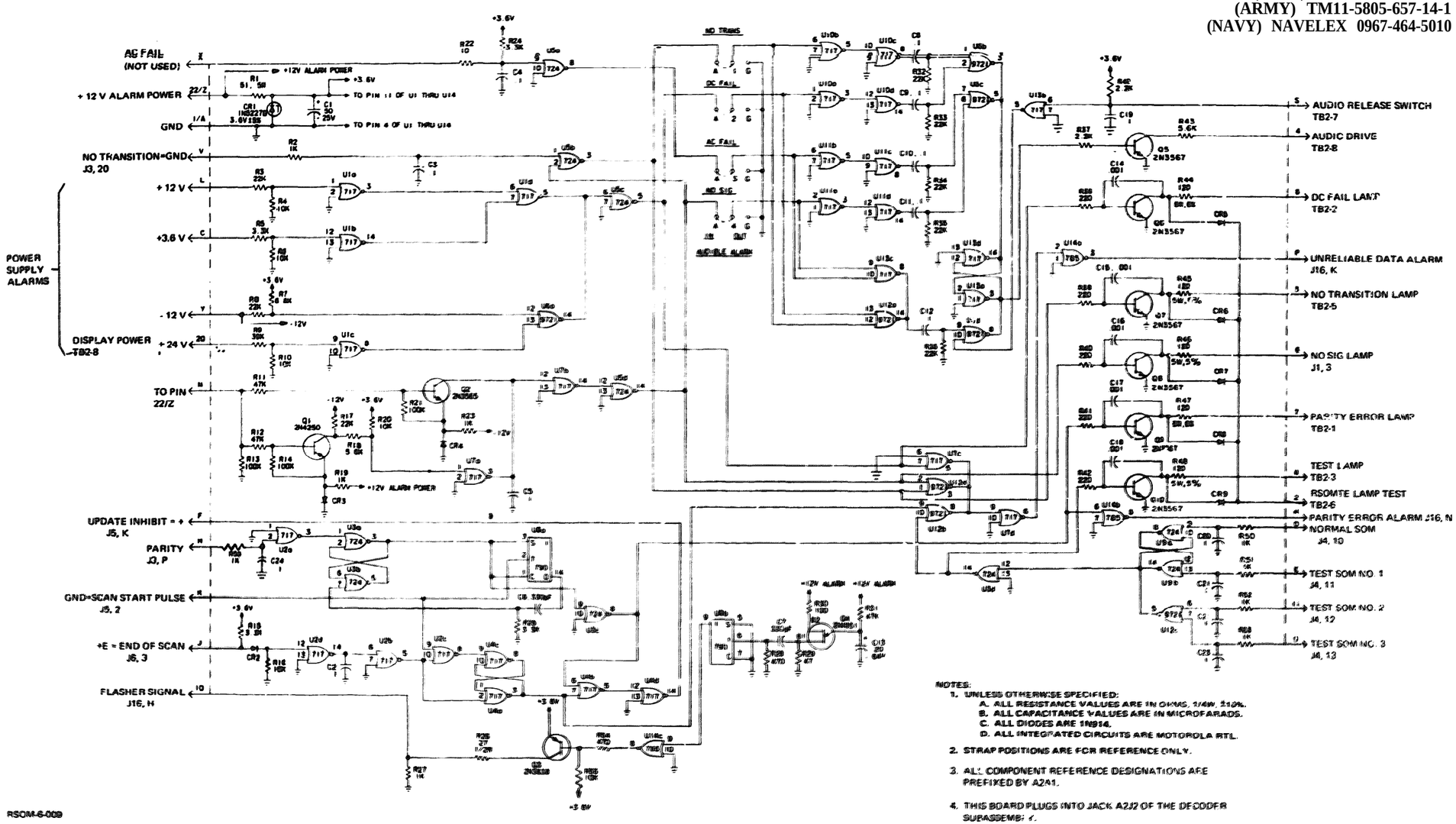
Figure FO-7. Eight-Output Circuit Board (A2A5-A2A14), Schematic Diagram



NOTES:

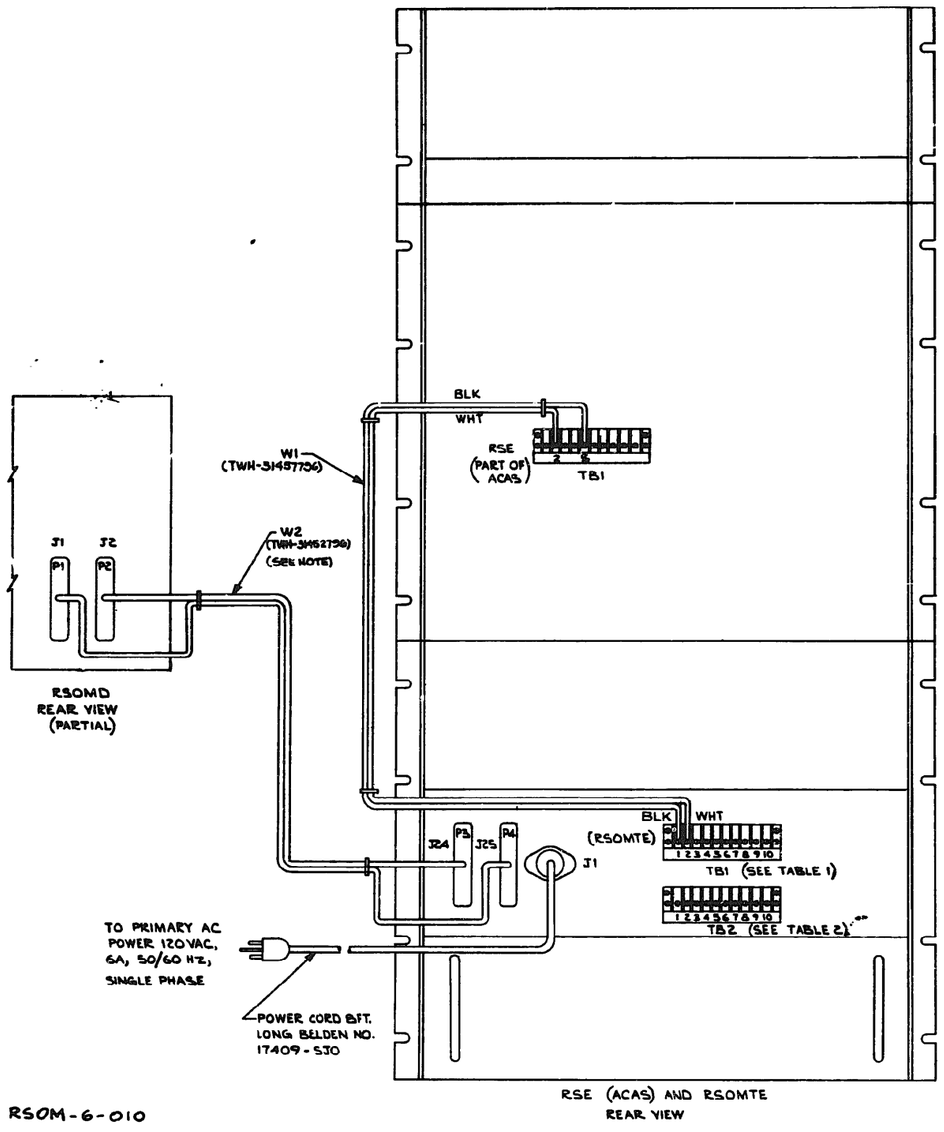
1. UNLESS OTHERWISE SPECIFIED:
   A. ALL RESISTORS ARE 1/4W.
   B. ALL RESISTANCE VALUES ARE IN OHMS ±10%.
   C. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
   D. ALL TRANSISTORS ARE 2N3567.
   E. ALL DIODES ARE 1N461.
   F. ALL INTEGRATED CIRCUITS ARE MOTOROLA RTL.
2. VOLTAGES AT TEST POINTS:
   A. ODD NUMBERED:
      ALARM = +8V
      OFF = +26V
   B. EVEN NUMBERED:
      ALARM = +6V
      OFF = +24V
2. ALL COMPONENT REFERENCE DESIGNATIONS ARE PREFIXED BY THE APPLICABLE BOARD REFERENCE DESIGNATION AND DECODER SUBASSEMBLY REFERENCE DESIGNATION.
4. BOARDS A2A15 THRU A2A22 PLUG INTO JACKS A2J16 THRU A2J23, RESPECTIVELY, OF THE DECODER SUBASSEMBLY.
5. ON BOARD A2A15, INPUTS #1 AND #2 ARE CONNECTED TO A2J24 AND A2J24M, RESPECTIVELY.
6. OUTPUTS #1 THRU #8 ARE APPLIED TO RSOMD VIA CONNECTOR J24 OR J25. ALT. #1 THRU #8 ARE NOT USED.
7. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

Figure FO-8. Display Driver Circuit Board (A2A15 - A2A22), Schematic Diagram

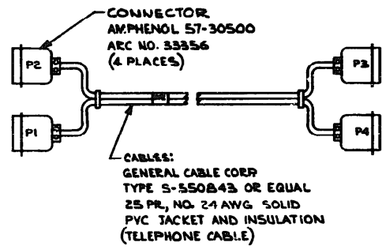


NOTES:
1. UNLESS OTHERWISE SPECIFIED:
   A. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W, ±10%.
   B. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
   C. ALL DIODES ARE 1N914.
   D. ALL INTEGRATED CIRCUITS ARE MOTOROLA RTL.
2. STRAP POSITIONS ARE FOR REFERENCE ONLY.
3. ALL COMPONENT REFERENCE DESIGNATIONS ARE PREFIXED BY A2A1.
4. THIS BOARD PLUGS INTO JACK A2J2 OF THE DECODER SUBASSEMBLY.
5. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

Figure FO-9. RSOMTE Local Alarm Circuit Board (A2A1), Schematic Diagram



RSOMTE/RSOMD INTERCONNECTING CABLE W2



RSOMTE - INPUT SIGNAL AND REMOTE FUNCTIONS

TABLE 1
TB1

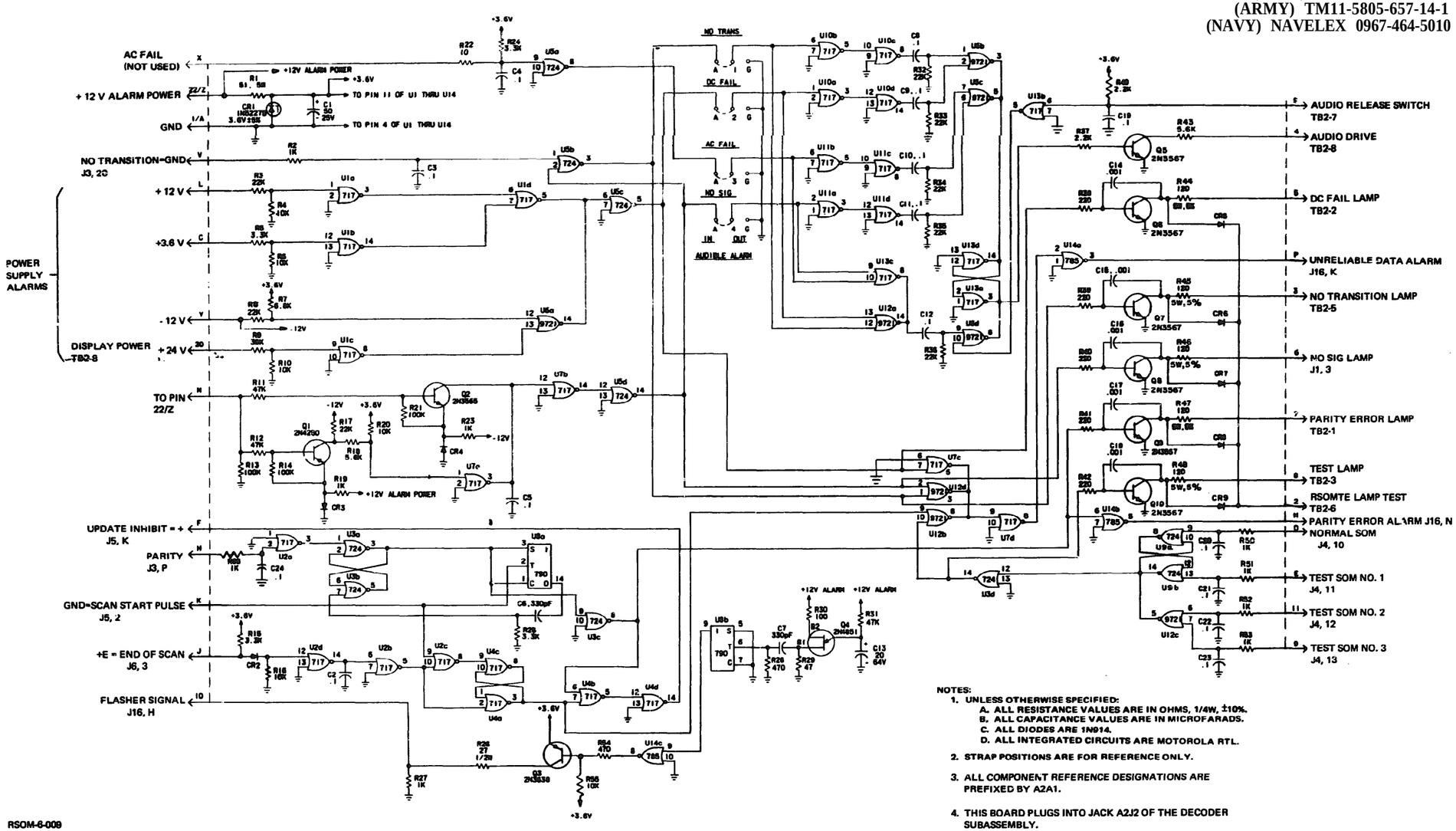
TERMINAL	FUNCTION
1	SIGNAL GND
2	SIGNAL INPUT
3	SPARE
4	SPARE
5	SPARE
6	SPARE
7	PARITY ERROR (RSOMD LAMP)
8	+24V
9	+12V ALARM (PULSING)
10	SIGNAL GND

TABLE 2
TB2

TERMINAL	FUNCTION
1	PARITY ERROR (RSOMTE LAMP)
2	DC FAIL LAMP
3	TEST LAMP
4	UD LAMP
5	NO TRNSN LAMP
6	RSOMTE LAMP TEST
7	AUDIO RELEASE
8	AUDIO DRIVE
9	RSOMD LAMP TEST
10	FLASHER RELEASE

NOTE:
CABLE W2 WIRING CONNECTIONS ARE PIN-TO-PIN CONNECTIONS (P1 TO P4, P2 TO P3). SIGNAL IDENTIFICATION FOR ALL WIRES IS SHOWN IN RSOMTE/RSOMD CABLE LIST.

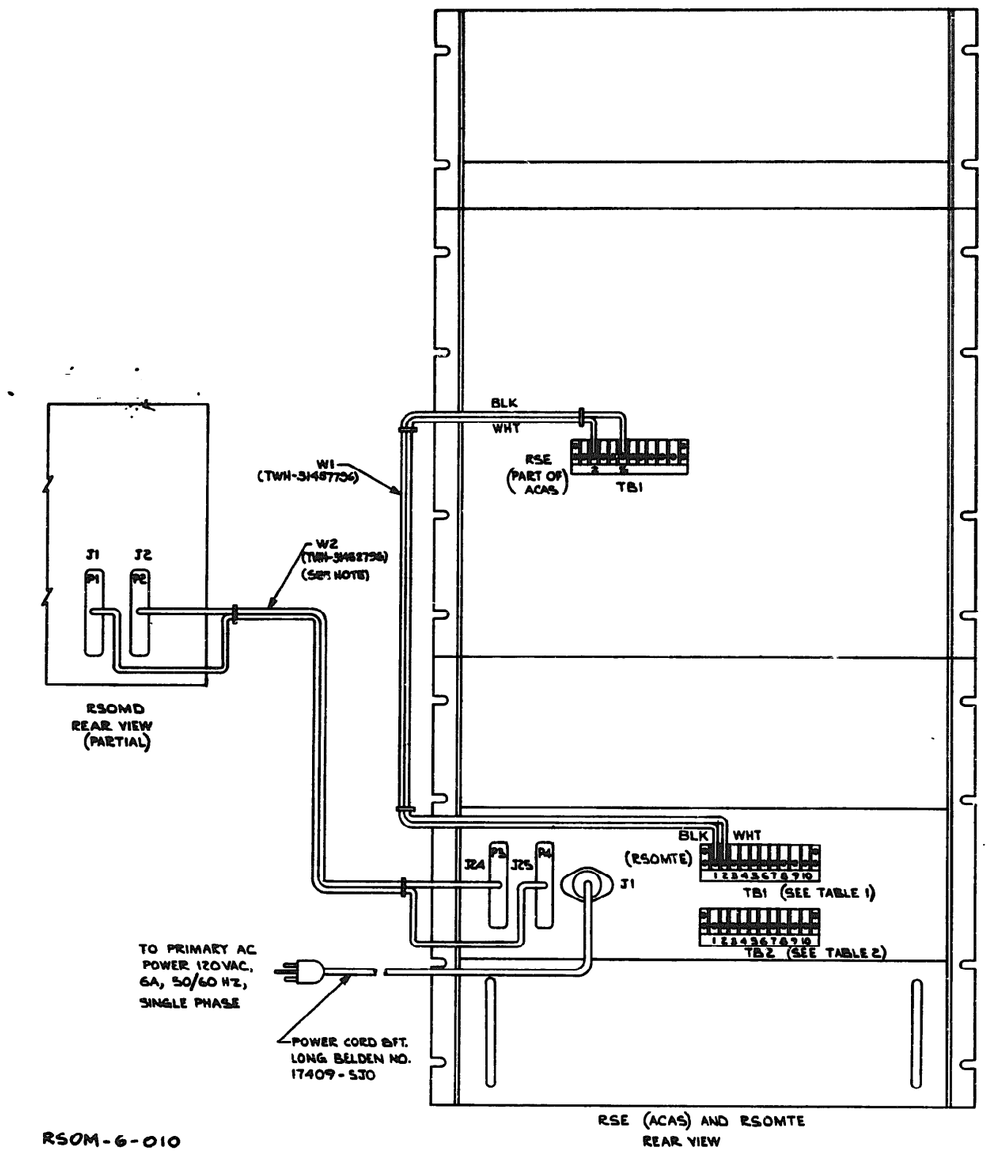
Figure FO-10. Remote Station Output
Monitor, Cabling Diagram



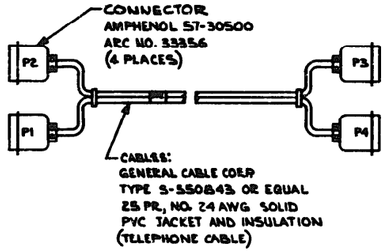
NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   A. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W, ±10%.
   B. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
   C. ALL DIODES ARE 1N914.
   D. ALL INTEGRATED CIRCUITS ARE MOTOROLA RTL.
2. STRAP POSITIONS ARE FOR REFERENCE ONLY.
3. ALL COMPONENT REFERENCE DESIGNATIONS ARE PREFIXED BY A2A1.
4. THIS BOARD PLUGS INTO JACK A2J2 OF THE DECODER SUBASSEMBLY.
5. ALL REFERENCES TO GND AND THE SYMBOL ⏚ ARE INTERNAL RSOM COMMON GROUND AND DO NOT REPRESENT CHASSIS OR STATION GROUND.

Figure FO-9. RSOMTE Local Alarm Circuit Board (A2A1), Schematic Diagram



RSOMTE/RSOMD INTERCONNECTING CABLE W2



RSOMTE - INPUT SIGNAL AND REMOTE FUNCTIONS

TABLE 1	
TB1	
TERMINAL	FUNCTION
1	SIGNAL GND
2	SIGNAL INPUT
3	SPARE
4	SPARE
5	SPARE
6	SPARE
7	PARITY ERROR (RSOMD LAMP)
8	+24V
9	+12V ALARM (PULSING)
10	SIGNAL GND

TABLE 2	
TB2	
TERMINAL	FUNCTION
1	PARITY ERROR (RSOMTE LAMP)
2	DC FAIL LAMP
3	TEST LAMP
4	UD LAMP
5	NO TRNSN LAMP
6	RSOMTE LAMP TEST
7	AUDIO RELEASE
8	AUDIO DRIVE
9	RSOMD LAMP TEST
10	FLASHER RELEASE

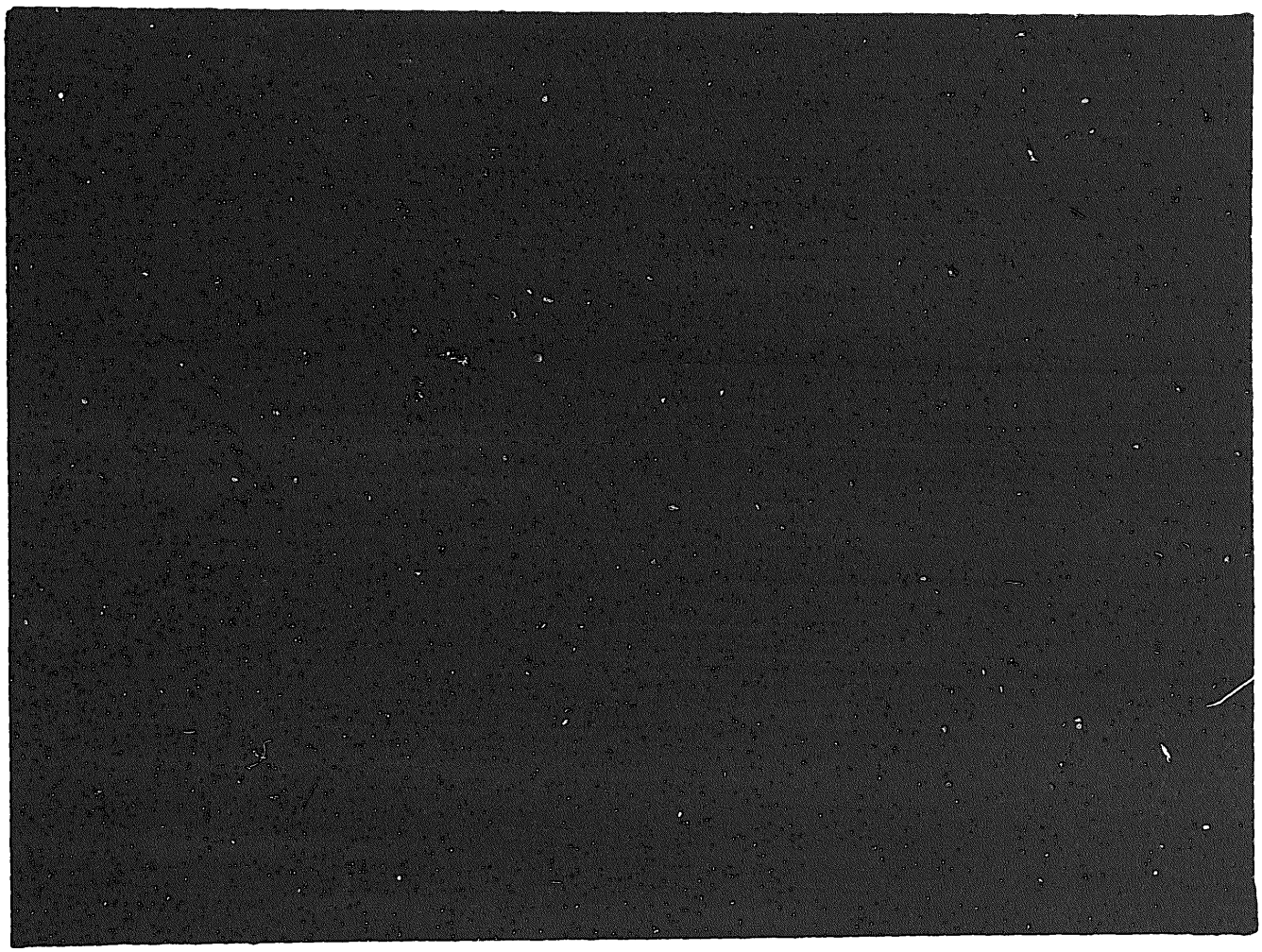
NOTE:
CABLE W2 WIRING CONNECTIONS ARE PIN-TO-PIN CONNECTIONS. (P1 TO P4, P2 TO P3). SIGNAL IDENTIFICATION FOR ALL WIRES IS SHOWN IN RSOMTE/RSOMD CABLE LIST.

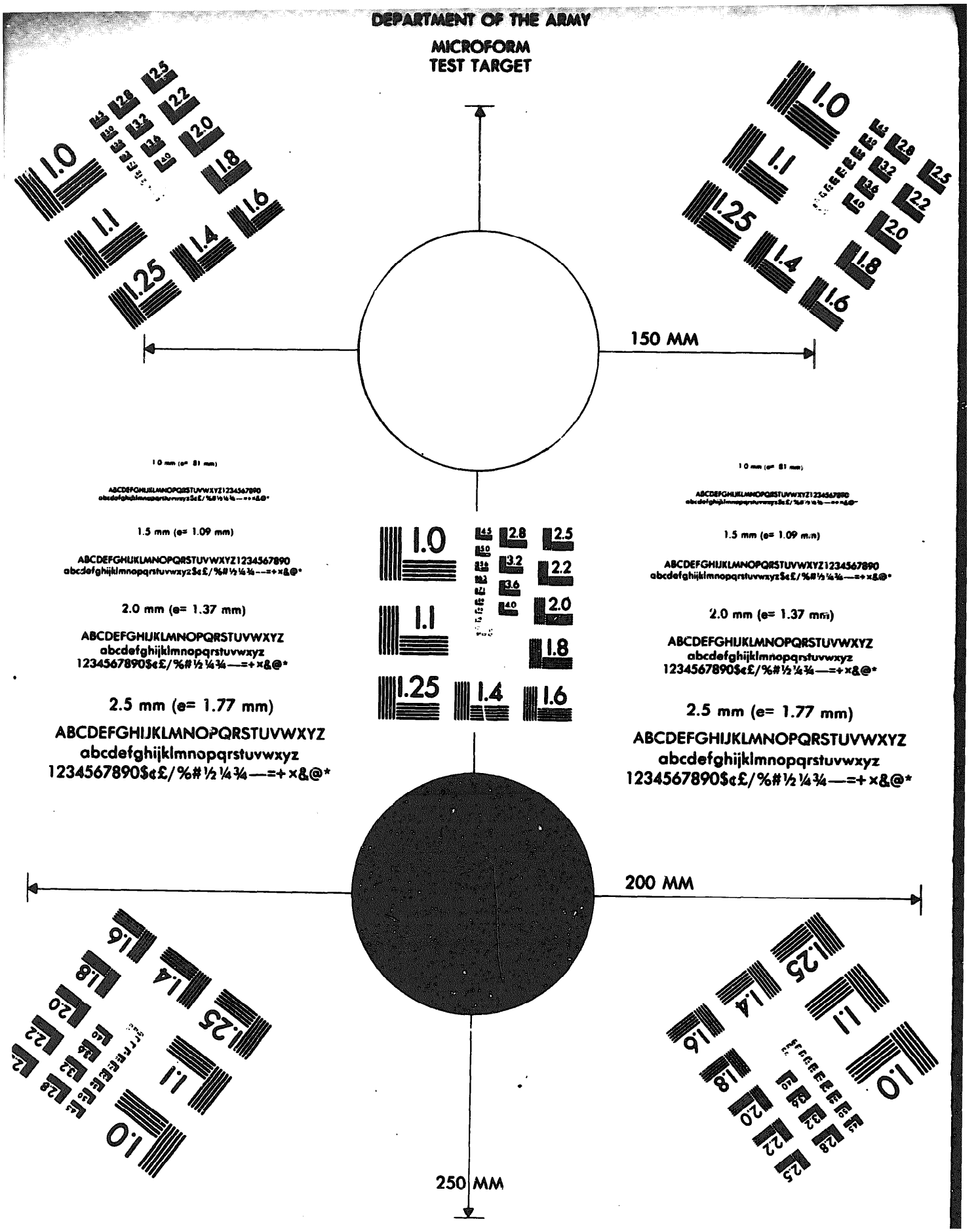
Figure FO-10. Remote Station Ouput Monitor, Cabling Diagram

END

12-01-82

DATE




DEPARTMENT OF THE ARMY
MICROFORM
TEST TARGET
150 MM
200 MM
250 MM
1.5 mm (e= 1.09 mm)
ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890
abcdefghijklmnopqrstuvwxyz$¢£/%#½¼¾—=+×&@*
2.0 mm (e= 1.37 mm)
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890$¢£/%#½¼¾—=+×&@*
2.5 mm (e= 1.77 mm)
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890$¢£/%#½¼¾—=+×&@*