SPERRY UNIVAC

UNISCOPE 100
DISPLAY TERMINAL
TYPE 8536-06 SERVICING

HB 2303

VOLUME 1

MR6001

UNIVAC TERMINAL MULTIPLEXER TYPE 8538

SERVICING GUIDE

MARCH, 1973
CUSTOMER SERVICES

SPERRY UNIVAC
COMPUTER SYSTEMS

BB 2303

UNISCOPE 100

DISPLAY TERMINAL TYPE 3536-06

SERVICING

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Rd 6001	UNIVAC Terminal Multiplexer Type 8530 Servicing Guide
Rd 6002	UNIVAC Terminal Multiplexer Type 8530 Illustrated Parts Breakdown
RH 6014	UNISCOPE 100 Display Terminal Type 3536-06 Installation Procedures
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Rd 6032	UNIVAC UNISCOPE 100 Display Terminal Type 3536-06 Illustrated Parts Breakdown

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HANDBOOK CHANGE BULLETIN

BOOK: MR6001, UNIVAC TERMINAL MULTIPLEXER, TYPE 8538, SERVICING GUIDE

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Contained in the following handbooks: HCB 1

HB1891 UNIVAC UNISCOPE 100 Display Terminal Type 3536 and Terminal Multiplexer Type 8538, Servicing

HB1598 UNIVAC Data Communications Terminal Type 8539-00, -01 and Terminal Multiplexer Type 8538, Servicing

DESCRIPTION OF CHANGES

Table 3-2. Interface Strapping Selections
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9-10-11-12-13-14
is changed to 1-3-4-5-6-7-8
9-10-11-12-14
Data supplied originally is in error.

INSTRUCTIONS

All revised pages are labeled "REVISION: HCB-1".

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SECTION 1

INTRODUCTION

1-1. GENERAL

This book contains servicing and maintenance information for the UNIVAC® Terminal Multiplexer Type 8538. Included are installation procedures, servicing information, and an illustrated parts breakdown (to be supplied).

This book is intended to provide comprehensive data to be used in a module replacement mode of servicing the Multiplexer. This book is not necessarily intended to provide a detailed operational analysis, nor to be a guide for more detailed troubleshooting than to the module level.

1-2. REFERENCE DOCUMENTATION

The following publications are applicable as aids in installing and servicing the Multiplexer:

SD	12001	Servicing Diagrams for Terminal Multiplexer, Type 8538
SP	2012	UNISCOPE® 100 Display Terminal Preinstallation Planning Guide
UP	7807	UNISCOPE 100 Display Terminal Programmers Reference
MH	2349	Guide for Planning the Installation of a UNIVAC DCT 1000 Data Communications Terminal
UP	7859	UNIVAC DCT 1000 Data Communications Terminal Programmers Reference

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SECTION 2

GENERAL DESCRIPTION

2-1. INTRODUCTION

This section provides a brief description of the UNIVAC Terminal Multiplexer Type 8538, and lists the interface features and equipment options available for use with the Multiplexer.

2-2. EQUIPMENT DESCRIPTION

The Multiplexer is a general-purpose device designed primarily for use in data communications systems that use the UNIVAC UNISCOPE 100 Display Terminal and the UNIVAC DCT 1000 Data Communications Terminal. The Multiplexer permits synchronous or asynchronous full-duplex communications through common carrier modems, or full-duplex synchronous operation directly with a central processor equipped with a suitable communications terminal adapter.

The basic Multiplexer provides line connections for 8 terminal channels, with an optional expansion feature providing capability for an additional four or eight terminals. A cascaded Multiplexer may be connected into any terminal channel, theoretically allowing a maximum of 256 channels to be connected into a system at one interface point. However, system performance considerations generally dictate that no more than 31 channels should be connected into a system at any one point.

2-3. CONFIGURATIONS, FEATURES, AND OPTIONS

The Multiplexer is available in two basic configurations: a 60-Hz model (Type 8538-99), and a 50-Hz model (Type 8538-98). Each configuration consists of the basic unit with power supply circuitry, provision for eight channels, and either of two communications interface features. Each configuration can also be expanded to include provision for either 12 or 16 channels by the addition of one or two channel expander boards, 2807734 (F1264-00).

Table 2-1 lists the unit features, together with all available options, and figure 2-1 provides a graphic representation of the selections available. Interface selection, unit strapping, and system cabling information are provided in Section 3, and a functional description of unit operation is given in Section 4.

Table 2-1. Features and Selections

Feature	Part Number	Description
Communications Channel Expander (F1264-00)	2807734	Increases capacity of Multiplexer in increments of four terminals; two channel expander features may be added to each Multiplexer.

Table 2-1. Features and Selection Options - Continued

Feature	Part Number	Description
Communications/ Multiplexer Interface Adapter (F1266-00)	2807758	Provides a synchronous or asynchronous interface to a communications modem or another Multiplexer, according to the selection option. Mode and interface compatibility selections can be changed at the operating site by Customer Engineering personnel. Interface selections: C1463-00 EIA RS-232-C/CCITT V.24 synchronous C1463-01 EIA RS-232-C/CCITT V.24 asynchronous C1463-02 Terminal Multiplexer synchronous C1463-03 Terminal Multiplexer asynchronous C1463-04 MIL-STD-188B/C synchronous C1463-05 MIL-STD-188B/C asynchronous
Direct Connection, Synchronous with Clock (F1266-02)	2807736	Provides a synchronous interface to a central processor equipped with a compatible communications terminal adapter such as the UNIVAC Communications Terminal Module Controller (CTMC), UNIVAC Data Communications Subsystem (DCS) (or equivalent). Operating speed selection can be changed at the operating site by Customer Engineering personnel. Interface selections: C1464-00 2400 bps C1464-01 4800 bps C1464-02 9600 bps

SECTION 3

INSTALLATION

3-1. INTRODUCTION

This section contains the information required for unpacking and installing the UNIVAC Terminal Multiplexer Type 8538. It also contains a description of cabling requirements, and information on repacking.

3-2. UNPACKING

Because of the simplicity of design of the Multiplexer, detailed unpacking instructions are unnecessary. One set of packing materials should be saved, however, should the unit require shipment to a new location.

Before installing the Multiplexer, the inspection procedures listed in table 3-1 should be performed. In the event that damage is discovered, notify the branch office immediately.

Table 3-1. Inspection Procedures

Step	Procedure
1	Inspect the cover, sides, and connector panels for visible damage and/or missing parts such as connector fastener nuts, rubber feet, or panel screws.
2	Disassemble the unit as shown in figure 3-1 and inspect for mechanical damage.
3	Remove all component boards and check the unit for cracked or broken cable connectors, loose or broken wires and solder connections, bent or shorted wire-wrap pins, and loose or unconnected terminal lugs or wire connectors.
4	Inspect for metal chips, wire cuttings, solder drippings, and other loose particles or foreign material.
5	If control board 2807758 or 2807736, A01, is already strapped for a particular interface option and timeout delay, verify that the strapping is correct as described in this section and as defined by the user system configurations. If the control board is not strapped, follow the procedures described in paragraph 3-4.
6	Replace the component boards; ensure that each component board is firmly seated in the connector.

3-3. CONFIGURATION DESCRIPTION RECORD

Complete the three Configuration Description Record forms that accompanied the Multiplexer from the factory. Ensure that all information requested on the form is provided. File one copy at the operating site, and return the remaining two copies to the local Customer Services office.

3-4. STRAPPING

Strapping options for the Multiplexer are used to select the desired interface and the duration of the timeout delay.

3-5. INTERFACE STRAPPING

Multiplexer interface options are selected by installing the appropriate strapping connector into control board 2807758 or 2807736 (A01). Strapping connectors are formed by bending up unused pins from connectors 2805281-17 or 2805281-18, as listed in table 3-2, for the particular interface option desired. Figure 3-2 illustrates the connector socket location on the control board.

Synchronous strapping described for noninverted clock signal as specified in MIL-STD-188C. Either a noninverted or an inverted clock signal was permitted under MIL-STD-188B, and modems contain provisions which allow either configuration. The Multiplexer should be strapped for MIL-STD-188C, as listed in table 3-2, and the modem modified (if necessary) to conform to the noninverted clock signal.

Strapping connectors 2805281-03 or 2805281-13 (six-lead) may be available at the site rather than 14-lead connectors 2805281-07 or 2805281-17. The six-lead connectors may be used in strapping control board 2807736 (F1266-02, Direct Connection). However, exercise care when installing the connector to ensure strapping equivalent to that specified in table 3-2. Note that early Multiplexers shipped from the factory may be supplied with connectors 2805281-07 or 2805281-08 rather than with connectors 2805281-17 or 2805281-18.

NOTE

Strapping connectors 2805281-03, 2805281-07, and 2805281-18 should have approximately 1/16-inch clipped from all leads before use.

Table 3-2. Interface Strapping Selections

System Operation	Primary Multiplexer		Cascaded Multiplexer	
	Connector	Bend Pins	Connector	Bend Pins
RS-232C, Synchronous	Z19	None	Z19	None
	Z29	None	Z38	1-2-3-4-5-8
	Z38	4-5-8	Z39	4-5-6-7-8
RS-232C, Asynchronous	Z19	None	Z19	None
	Z29	None	Z39	4-5-8
	Z38	4-5-6-7-8		
	Z39	1-2-3-4-5-7-8		
MIL-STD-188C, Synchronous	Z18	6-7	Z19	None
	Z19	1-2-3-4-5-8	Z38	1-2-3-4-5-8
	Z38	4-5-8	Z39	4-5-6-7-8
MIL-STD-188C, Asynchronous	Z18	None	Z19	None
	Z38	4-5-6-7-8	Z39	4-5-8
	Z39	1-2-3-4-5-7-8		
Direct Connection 2400 bps	Z71	1-3-4-5-6-7-8 9-10-11-12-14		
Direct Connection 4800 bps	Z71	1-2-3-4-5-7-8 10-11-12-13-14		
Direct Connection 9600 bps	Z71	1-2-3-5-6-7-8-9 10-12-13-14		

3-6. TIMEOUT STRAPPING

The timeout circuitry in the Multiplexer prevents an attached terminal from holding an entire line unuseable by not releasing control of the line. If the timeout delay value is too long, system performance in high speed operations can be degraded.

Considerations in selecting a strapping option include both the software and the hardware of the system. From the software standpoint, only one terminal at a time can transmit to the processor from any given Multiplexer. When a terminal is transmitting, the timeout clock is running and the scanner in the Multiplexer is functionally locked on that terminal channel. Responses by any other terminals on the Multiplexer to polls from the processor are not possible since other channels are not accessed by the scanner during the timeout period. For this reason, the software must ensure that the amount of time provided for "N" poll retries for error recovery exceeds the nominal timeout value plus the 20 percent tolerance. If this is not done, the software will unnecessarily "down" the line because of the lack of responses during error recovery.

From the hardware standpoint, the nominal timeout value minus the 20 percent tolerance must exceed the maximum time required for a terminal to send the longest possible message at the given bit rate. If this is not so, the time could elapse before a valid transmission from the terminal is completed.

The nominal maximum time required for a transmission can be calculated by dividing the nominal bit transmission rate into the number of bits in each character, and multiplying the resulting figure by the maximum number of characters in a message.

Table 3-3 provides a listing of timeout values, in seconds, for a UNISCOPE 100 Display Terminal and a DCT 1000 Data Communications Terminal.

Note that bit transmission rates are nominal values, each having a tolerance based on the modems (or modem replacement devices) used in the system. While the information in the tabulation should suffice for most modem applications, special modems or modem replacements such as the UNIVAC Type 8538 Direct Connection Module (DCM), may have clock tolerances as high as plus or minus 10 percent. These tolerances must be considered when determining appropriate timeout strapping.

Table 3-3. Timeout Values

Nominal Bit Rate	Transmission Mode	Display Terminal Timeout	DCT 1000 Timeout
9600	Synchronous	0.882	0.145
4800	Synchronous	1.764	0.29
2400	Synchronous	3.528	0.58
2000	Synchronous	4.236	0.696
2400	Asynchronous	4.41	0.725
1200	Asynchronous	8.82	1.45
600	Asynchronous	17.64	2.9
300	Asynchronous	35.28	5.8

Timeout delay options are selected or changed by means of jumpers installed on the control board (A01). Strapping information is provided in table 3-4. Figure 3-2 is the locating view for the strapping points.

Table 3-4. Timeout Strapping Selections

Control Board Part Number	Timeout Delay (Seconds)	Strapping
2807758-00 to 2807758-02	8 to 12	E1 - E2, E3 - E4
2807736-00 to 2807736-02	30 to 40	E3 - E4
	45 to 55	E1 - E2
	80 (approx)	None
2807758-03 to 2807758-05	4.6 ± 0.92	E1 - E2, E3 - E4
2807736-03 to 2807736-04	6.5 ± 1.30	E1 - E2
	13 ± 2.60	E3 - E4
	70 ± 14	None

3-7. CABLING REQUIREMENTS

The Multiplexer, designed for tabletop or shelf installations, may be installed in any location compatible with operational requirements and specifications and the cabling limitations described in table 3-7. When installing the Multiplexer, ensure that there is adequate space behind the connector panel for cable access and that conditions provide effective cooling of the equipment.

Site cabling and modems or modem replacements are normally installed before Multiplexers and their associated terminals arrive at the operating site from the factory. At new equipment locations, the Customer Engineering representative normally needs only to make the necessary cable connections between equipment items. However, the expansion or modification of existing site configurations may require his involvement in planning new Multiplexer cabling configurations.

Information required either to integrate the Multiplexer into a communications system or to support the planning of new Multiplexer cabling configurations is provided in this section.

3-8. CABLE CONNECTIONS

The Multiplexer connector panel, shown in figure 3-3, provides 17 signal connectors identified solely by reference designations. Connectors J1 through J16 are branch connectors; that is, connectors which provide the signal interfaces to the associated terminals or cascaded Multiplexers. Connector J17 is a trunk connector which provides a signal interface from a cascaded Multiplexer to a primary Multiplexer, or from a primary Multiplexer to either a modem or a modem replacement device such as the DCM.

The Multiplexer is shipped from the factory equipped with from two to four F1264-00 communications channel expander features (component board 2807734). These component boards are installed in slots A02 through A05 of card module A06, and are related to the signal connectors as listed in table 3-5.

Table 3-5. Channel Expander Location Versus Signal Connections

Card Slot	Branch Connector
A02	J1 thru J4
A03	J5 thru J8
A04	J9 thru 12
A05	J13 thru J16

The Multiplexer is designed to sequentially select channels 1 through 16 (J1-J16), thereby providing a built-in priority system. Although not electronically necessary, it is recommended that terminals be connected to the Multiplexer in ascending RID and SID order. For example, with a group of terminals having a RID of 42 and SID's of 142 through 157, SID 142 should be connected to J1, 143 to J2, and so on. This procedure reduces system transmission times and greatly simplifies servicing.

Similarly, if only 8 channels are to be utilized on a given Multiplexer, card slots A02 and A03 should be used.

A complete description of message formats, including RID and SID considerations, is provided in UP-7807, UNISCOPE 100 Display Terminal Programmers Reference.

3-9. CABLING CONFIGURATIONS

Recommended Multiplexer cabling configurations are illustrated in Figures 3-4 through 3-9. Figure 3-10 is a detail drawing of the wiring of the junction box used in joining two segments of cable together. Table 3-6 provides part numbers and descriptions of the cables and cable components identified in the figures by index numbers.

Factors that must be considered in a Multiplexer cabling configuration include system operating speed, the cable length required, cable routing, ambient noise environment, and the possible use of non-Univac cables.

With UNIVAC systems, operating speed is only a factor in system configurations which include a CTMC. All other configurations will operate satisfactorily at 9600 bps to the maximum cable lengths shown in the figures. Cable length restrictions versus system operating speeds for configurations with the CTMC are provided in table 3-7.

Table 3-6. Multiplexer Cable Descriptions

Item	Part Number	Description
1	2805096	Cable Assembly: Unshielded cable with male and female connectors. Available cable lengths: 3 feet 5 to 100 feet in 5-foot increments 110 to 210 feet in 10-foot increments 220 to 300 feet in 20-foot increments Function: Connects terminal or Multiplexer to DCM or modem (50 feet maximum), terminal or cascaded Multiplexer to Multiplexer, or cascaded terminal to cascaded Multiplexer.
2	2807723	Cable semi-assembly: Unshielded cable with one end open and one female connector Available cable lengths: 3 feet 5 to 100 feet in 5-foot increments 110 to 210 feet in 10-foot increments 220 to 300 feet in 20-foot increments Function: Component for on-site cable fabrication. Connects terminal or Multiplexer to junction box (Item 3).

Table 3-6. Multiplexer Cable Descriptions - Continued

Item	Part Number	Description
3	2807819	Component assembly: Cable-splicing junction box. Function: Component for on-site cable fabrication. Connects (splices) any two of Multiplexer cable assemblies or semi-assemblies (Items 2, 4, 5, 6, 8, and 12).
4	2807724	Cable semi-assembly: Unshielded cable with one end open and one male connector. Available cable lengths: 3 feet 5 to 100 feet in 5-foot increments 110 to 210 feet in 10-increments 220 to 300 feet in 20-foot increments Function: Component for on-site fabrication. Connects junction box (Item 3) to DCM, modem, Multiplexer, or cascaded Multiplexer.
5	2807725	Component assembly: Shielded cable with both ends open. Available cable lengths: 300 to 3000 feet in 50-foot increments Function: Component for on-site cable fabrication. Designed for aerial or duct installation; cable runs between junction boxes (Item 3).
6	2807765	Component assembly: Shielded cable with both ends open. Available cable lengths: 300 to 5000 feet in 50-foot increments. Function: Component for on-site cable fabrication. Designed for underground (direct burial) installation; cable runs between junction boxes (Item 3). (Junction boxes are not buried.)
7	2807748	Cable assembly: Unshielded cable with male and female connectors. Available cable lengths: 3 feet 5 to 100 feet in 5-foot increments 110 to 210 feet in 10-foot increments 220 to 300 feet in 20-foot increments Function: Connects terminal or Multiplexer directly to CTMC.

Table 3-6. Multiplexer Cable Descriptions - Continued

Item	Part Number	Description
8	2807754	Cable semi-assembly: Unshielded cable with one end open and one male connector. Available cable lengths: 3 feet 5 to 100 feet in 5-foot increments 110 to 210 feet in 10-foot increments. 220 to 300 feet in 20-foot increments. Function: Component for on-site cable splicing. Connects junction box (Item 3) to CTMC.
9	2807867	Cable assembly: Unshielded cable with male and female connectors. Available cable lengths: 5 to 50 feet in 5-foot increments Function: Connects terminal or Multiplexer directly to DCS.
10	2807868	Cable semi-assembly: Unshielded cable with one end open and one male connector. Available cable lengths: 5 to 50 feet in 5-foot increments. Function: Component for on-site cable fabrication. Connects junction box (Item 3) to DCS.

Cable length is the plug-to-plug distance between items of equipment. When required cable lengths are being determined for a particular installation, consideration must be given to routing requirements (bends, drops, stress relief, and so on), in addition to excess length to accommodate equipment positioning.

Table 3-7. Cable Length Versus System Operating Speed

Operating Speed (bps)	CTMC to Terminal	CTMC to Terminal Via 1 Multiplexer	CTMC to Terminal Via 2 Multiplexers
0 to 2400	5500 ft	10,000 ft	15,000 ft
2400 to 4800	5000 ft	10,000 ft	15,000 ft
4800 to 9600	2500 ft	7,500 ft	12,500 ft

Cable routing is normally wholly contained within the user's premises. When cable must be routed outside the premises, consult the common carrier or local utility company for applicable regulations.

Ambient electrical noise (interference) produced by equipment such as motor generators, electromechanical devices, radiation equipment or existing wiring and cabling, can cause errors in data transmissions. If such conditions are suspected, shielded cable must be considered for the installation.

The user may desire to use existing non-Univac cabling with the Multiplexer and terminals. Before this can be permitted, the cables must be certified as acceptable for use with Univac equipment.

NOTE

Ownership of non-Univac cabling must be determined before such certification is made. The use of leased cables on other than equipment for which designed may be circumscribed by the policy of the particular equipment manufacturer.

3-10. POWER-ON

Power application for the Multiplexer consists of connecting the power cable to a suitable line power source (paragraph 2-3) and setting the front panel ON-OFF circuit breaker to position ON.

NOTE

50-Hz units are shipped from the factory equipped with a 5-foot line power cord but without a connector. A connector matching the operating site receptacle must be installed on the cord before use.

3-11. REPACKING

One complete set of Multiplexer packing materials (figure 3-11) should be retained at the operating site from unpacking.

(1) Verify that carton (1) is not damaged and sturdy enough for reshipping the Multiplexer.

(2) Place foam padding (2) and die-cut cardboard (3) in carton.

(3) Line carton with four pieces of foam padding (4).

(4) Place Multiplexer (5) and power cord in plastic bag.

(5) Place Multiplexer in carton. Match legs and line power cable with holes in die-cut cardboard.

(6) Place foam padding (6) and top die-cut cardboard (7) in carton.

(7) Close carton and seal by binding or stapling lid.

SECTION 4

FUNCTIONAL DESCRIPTION

4-1. GENERAL

The UNIVAC Terminal Multiplexer Type 8538 is designed to allow multiple terminal devices to be connected to a single processor input channel, and to resolve contention among these terminals in the event that more than one transmission request is presented to the Multiplexer simultaneously. The Multiplexer is transparent to (does not sense) any messages transmitted from the processor and senses only status indication from any attached terminals through the use of a logical priority system designed into the Multiplexer logic circuitry.

All terminals on the first Multiplexer and on each cascaded Multiplexer will sense either a general poll, a specific poll, or text (received data) at approximately the same time. Cable propagation time between Multiplexers and terminals makes a slight difference in reception time.

The primary purpose of the Multiplexer is to select, one at a time, those terminals and cascaded Multiplexers having a valid request-to-transmit to the processor. Multiplexer logic can detect the following status indications from a terminal:

(1) Busy

(2) Acknowledge (to a previously sent processor message)

(3) Traffic to send

(4) No traffic

(5) Null

Any duplication of status contention from terminals attached to the Multiplexer is resolved by means of the previously mentioned priority system.

4-2. TERMINAL ADDRESSING

Addressing is the method whereby the processor selects the terminal which is to receive a message. The Multiplexer, as mentioned in paragraph 4-1, is transparent to all transmission except status indications from an attached terminal. Therefore, address sensing is performed by the terminal through a strapping or hard-wired provision in the logic circuitry of each unit. The address positions of a message are determined by system software requirements.

4-3. CONTENTION RESOLVING

All polls from the central processor contain RID and SID address codes as part of the standard message format. Terminals with corresponding RID and SID address codes will respond to these polls. Responses are in the form of signals on the request-to-send lines of the terminal. If there is a response from multiple terminals, one terminal is selected for transmission and a not-selected signal is sent to the remaining terminals; the request-to-send signals are then removed from the request-to-send lines of the terminals that have not been selected. These terminals are serviced in sequence during subsequent polls. Terminal selection is performed in a priority sequence. The terminal that last transmitted, that is, the terminal having a potential reply request, is initially selected to transmit. If this terminal does not have a traffic condition, the remaining terminals are selected in sequence until a traffic condition is detected or until it has been determined that no terminal has a traffic condition, in which case the last terminal

which responded is selected. That terminal transmits a no-traffic-without-acknowledge response. Not-selected signals are transmitted to the remaining terminals.

As each terminal is selected, a check is made to determine whether there is an outstanding acknowledge or busy response at that terminal. If either of these conditions is detected, the appropriate control signals are transmitted to the terminal which is selected to transmit so that the outstanding acknowledge or busy response is included with the traffic from that terminal.

4-4. LOGICAL MULTIPLEXING

Logical multiplexing, which is the assignment of different remote identifier addresses to terminals operating through one Multiplexer, is possible because address recognition is performed by the terminal. Logical multiplexing has two advantages: (1) it allows multiple use of the same SID address through the one Multiplexer and, (2) it allows the establishment of terminal priorities for use by the processor during polling.

4-5. MODEM SHARING

Use of the Multiplexer is not restricted to UNIVAC terminals. Other terminals can use the Multiplexer as a modem-sharing device if the interface complies with EIA RS-232-C, which includes the request-to-send, clear-to-send, transmit-data, transmit-clock, receive-data, and receive-clock signals. If these terminals are unable to pass the acknowledge and busy responses to other terminals for transmission, each terminal must have a unique address and be polled specifically.

4-6. UNIVAC CONTROL PHILOSOPHY

The Multiplexer is designed to function with terminals operating in accordance with the Univac control philosophy of three-level addressing. All three characters are detected by the terminal, even though the first character, RID, defines a unique remote configuration which may be either a single station terminal or a combination of terminals on a Multiplexer. In systems using more than one primary Multiplexer on the same line, the RID should always be specific; otherwise, more than one terminal might respond to a general RID with indeterminate results.

It is possible to assign the same RID to all terminals on one Multiplexer. A general poll in such a configuration would then consist of the specific RID or a general RID (if the line is single drop), a general station identifier (SID), and a general device identifier (DID).

Terminals may be assigned different RID's and still use a common Multiplexer. A general poll in this type of configuration solicits traffic only from that subset of terminals assigned the RID used for that poll. All other terminals do not respond. Thus, one Multiplexer may be divided into two or more logical Multiplexers and retain all of the features of the general poll. This has two advantages: (1) it allows more than 31 terminals to be used with cascaded Multiplexers, thereby avoiding the address limit of 31 specific SID codes and, (2) it allows the programmer to assign priorities to terminals serviced by a common Multiplexer.

4-7. RESPONSE TO POLLS

If a poll is specific, the terminal that has the specific RID-SID of the poll is the only terminal that issues a request-to-send signal, and this terminal is selected to transmit. The terminal can be on either a primary or a cascaded Multiplexer.

Terminals can present a no-traffic, traffic, ACK, or WABT response to both general and specific polls. Terminal status is indicated on three lines (Request-to-Send A, Request-to-Send B, and Send-Data). The logic levels present on these lines define terminal status as listed in table 4-1. The X's in table 4-1 indicate that the line is not sensed by the Multiplexer in the particular condition.

Table 4-1. Terminal-to-Multiplexer Status Indications

Request-to-Send A Line	Request-to-Send B Line	Send-Data Line	Meaning
0	0	X	Null
0	1	X	No Traffic
1	0	X	Traffic
1	1	0	ACK
1	1	1	WABT

Table 4-2 lists the Multiplexer selection codes presented to attached terminals. These codes are present on three lines (Clear-to-Send A, Clear-to-Send B, and Send-Clock) as listed in the table. The X's in table 4-2 indicate that the line is not sensed by the terminal in that particular condition.

Table 4-2. Multiplexer to Terminal Status Indications

Clear-to-Send A Line	Clear-to-Send B Line	Send-Clock Line	Meaning
0	0	X	Null
0	1	X	Not selected
1	0	X	Selected for traffic
1	1	0	Selected and send ACK
1	1	1	Selected and send WABT

4-8. CASCADED MULTIPLEXERS

Cascaded Multiplexers can be connected to any or all of the 16 branch connectors on a primary Multiplexer. (Connecting Multiplexers to cascaded Multiplexers is not permissible.) In cascaded configurations (see figure 3-6), the cascaded Multiplexer is treated essentially as a terminal. What is actually presented to the primary Multiplexer on a given branch is the priority composite of up to 16 terminals on the cascaded Multiplexer, which selects terminals for transmission using the same priority sequence as the primary Multiplexer. The branch with the cascaded Multiplexer is selected by the primary Multiplexer in the same priority sequence as is used for terminal selection. If a terminal on the cascaded Multiplexer has a traffic condition, the terminal is selected (by the cascaded Multiplexer) in accordance with the priority sequence previously described. Various conditions can be pending on the primary and cascaded Multiplexers which could dictate selection of a given terminal. These conditions, with the resultant selections, are as follows:

(1) If there is a traffic condition on one of the terminals connected to the cascaded Multiplexer (with no outstanding ACK or WABT present on the cascaded Multiplexer) and the primary Multiplexer has selected the cascaded branch, the traffic condition will hold the primary selection on the cascaded branch.

(2) If any of the terminals on the cascaded Multiplexer responds with an ACK or WABT in response to output text from the processor, and a terminal, or terminals, on the primary Multiplexer responds with traffic, the primary Multiplexer deselects the branch with the cascaded Multiplexer and selects for transmit the first terminal with traffic in ascending order on the primary Multiplexer. The ACK or WABT from the cascaded Multiplexer is passed to the selected terminal on the primary Multiplexer for transmission with its traffic.

(3) If any of the terminals on the cascaded Multiplexer responds with an ACK or WABT in response to output text from the central processor, and if another terminal, or terminals, on the cascaded Multiplexer responds with traffic, the first terminal in the ascending priority sequence with traffic on the cascaded Multiplexer is selected to transmit. The outstanding ACK or WABT is transmitted with the traffic from the selected terminal.

4-8. CASCADED MULTIPLEXERS - Continued

The key to cascaded Multiplexer operation is the ACK or WABT signal from a cascaded terminal in response to reception of a processor message. When this happens in any one of the cascaded terminals and a traffic response is present on a primary terminal, the primary Multiplexer deselects the cascaded branch. It can be seen that a certain priority structure can be established by software in that by sending text to a cascaded terminal, deselection of that branch occurs if there is traffic response on a primary branch. Conversely, if the cascaded terminals provided input only, the cascaded terminals could dominate the Multiplexer select priority.

4-9. POLLING CONSIDERATIONS

It should be noted that if a specific poll is used, the priority scanning sequence can be overridden. The Multiplexer selection can be directed to any terminal on any branch of either the primary or cascaded Multiplexer that has the address of the specific poll. When using the specific polling technique, care must be taken in the software to satisfy potential reply-request conditions.

SECTION 5

SERVICING PROCEDURES

5-1. INTRODUCTION

Servicing of the UNIVAC Type 8538 Terminal Multiplexer in the field, based on module level replacement, is minimal. This section contains the information required to service the equipment to this level.

5-2. GENERAL PRECAUTIONS

The Multiplexer, consisting of relatively simple circuitry, presents no more electrical hazard to servicing personnel than does any device operating on 120/240 VAC line power. The observance of care in taking voltage measurements with the interlock switch of the unit manually activated is cautioned.

5-3. SPECIAL TOOLS

The only special tool required to service the Multiplexer to the authorized level of field repair is card extractor 2807722 or 2808033.

5-4. DISASSEMBLY

The Multiplexer cover is secured by two hinges at the upper rear edge of the cabinet and two magnetic catches at the bottom of the front panel. The cover is removed by lifting the bottom of the front panel and swinging the cover upward. The connector panel is hinged at the bottom and held by two machine screws. The panel is removed by removing the two machine screws and swinging the panel back. Logic cards are removed from the card module connectors by means of card lever (puller) 2807722 or 2808033.

5-5. MODULE IDENTIFICATION

Figure 3-1 provides a locating view of the cards and modules of the Multiplexer. Descriptions of each feature shown on the figure are provided in paragraph 2-3.

5-6. SERVICING

Field repair of Multiplexer component boards is not recommended. Servicing board failures consists of replacing the failed boards. Figure 5-1 shows the location of the voltage busses on the wire-wrap side of the backboard assembly and provides the voltage level of each bus. These voltages are not adjustable. Use the information provided on this figure and in SD 12001-00 in servicing the power supply of the Multiplexer.

NOTE

The plunger of interlock switch S01 (figure 3-1) must be pulled out past the detent to apply power to the Multiplexer with the cover raised.

SECTION 6

ILLUSTRATED PARTS BREAKDOWN

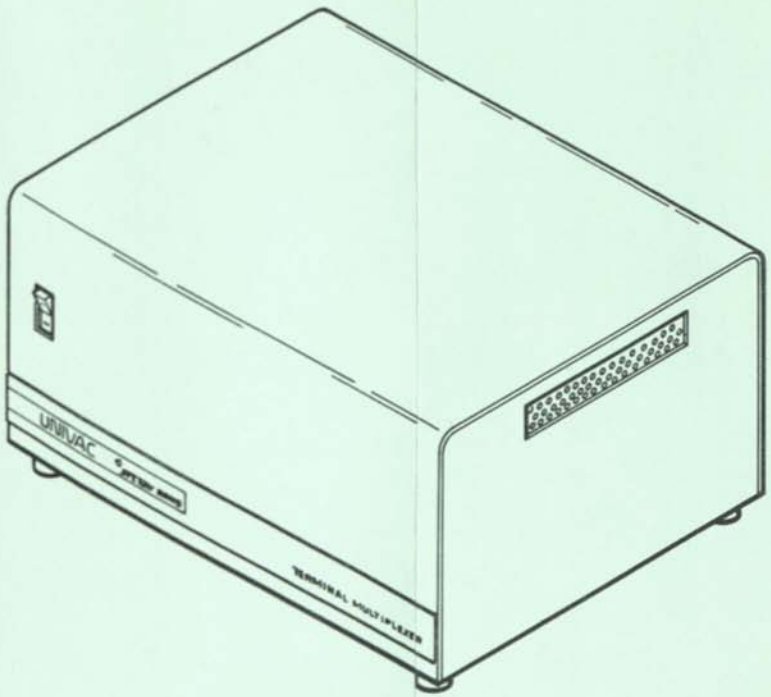
(To be Supplied)

SECTION 7

ILLUSTRATIONS

7-1. GENERAL

This section contains all of the illustrations for this book. The figures are numbered according to section and sequence of their first reference. A complete list of illustrations is given in the table of contents of this book.



UI02

Figure 1-1. Terminal Multiplexer

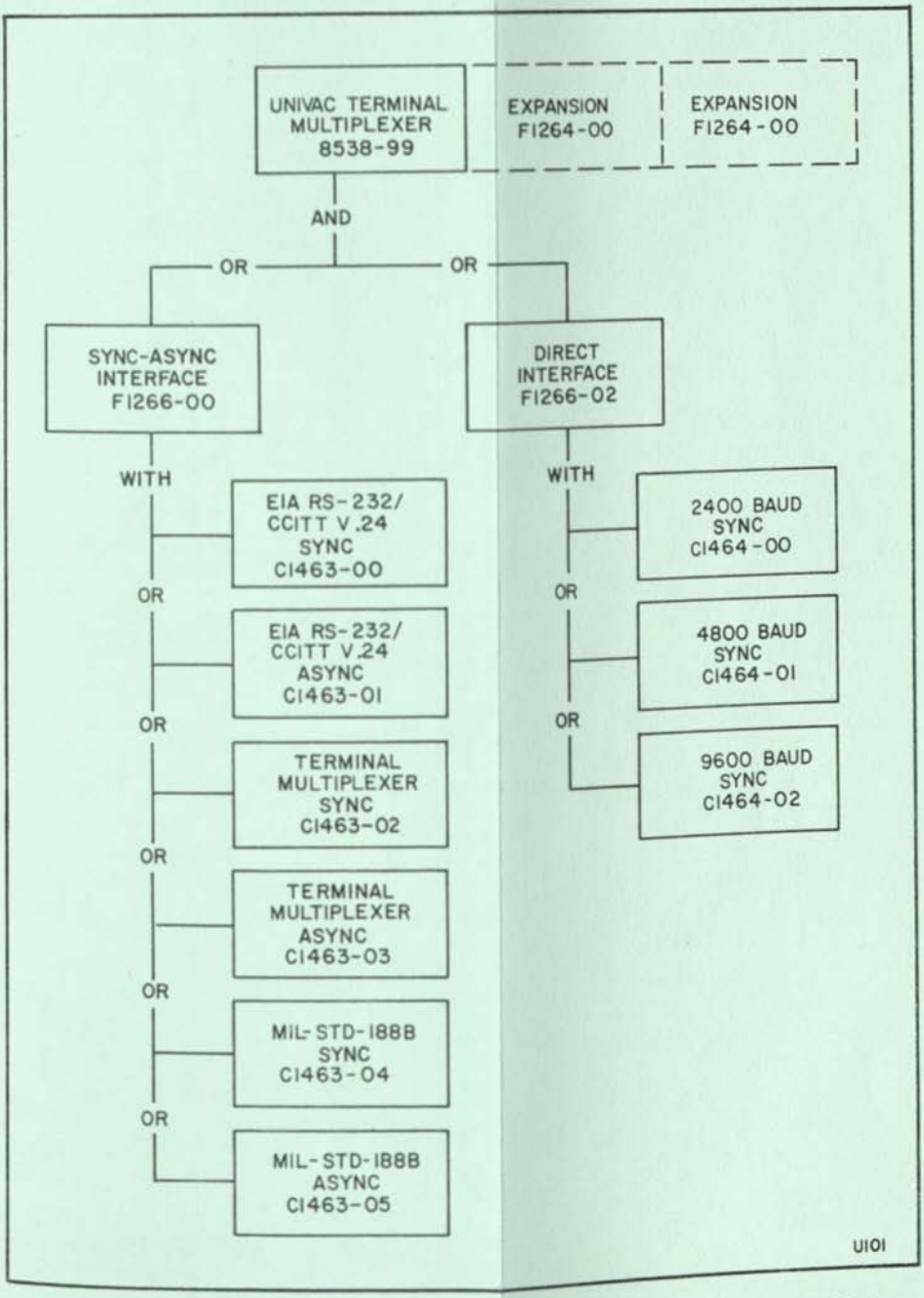


Figure 2-1. Terminal Multiplexer Configurations

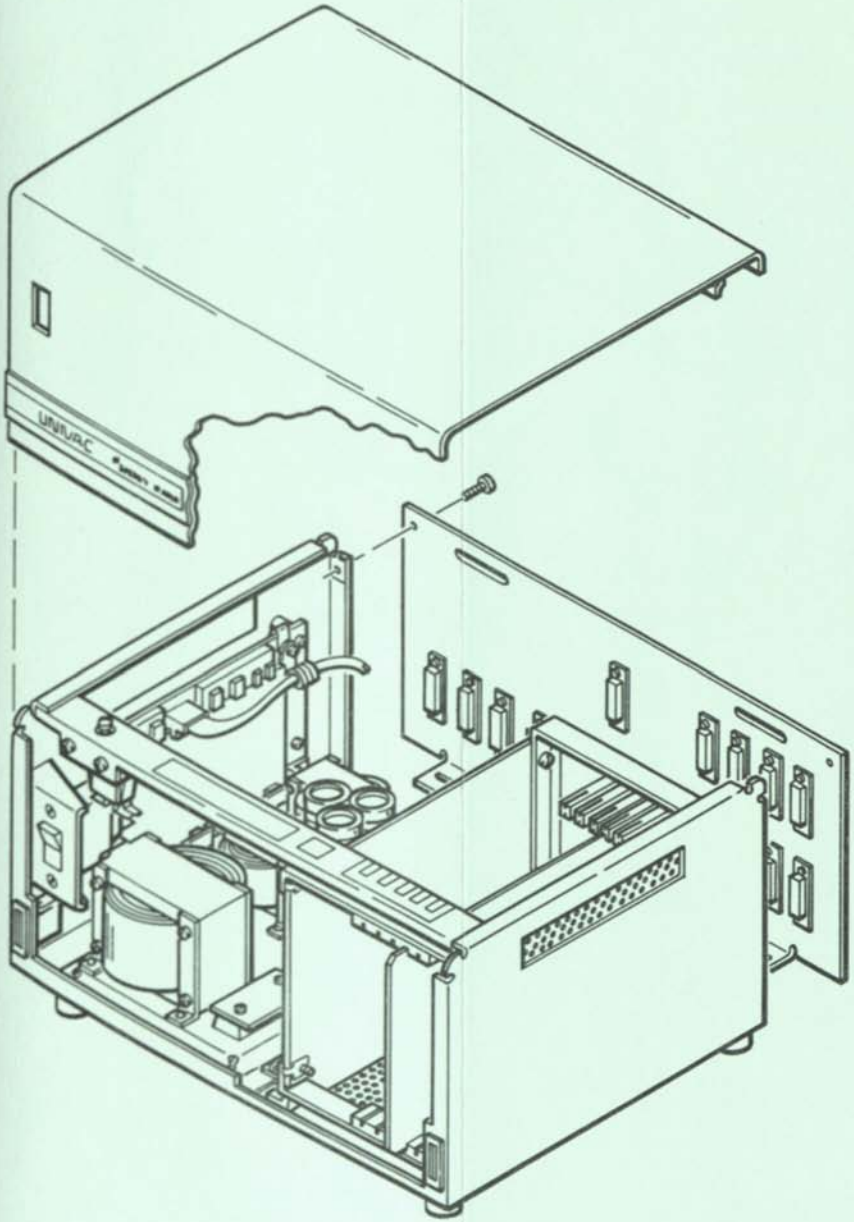


Figure 3-1. Terminal Multiplexer Disassembly

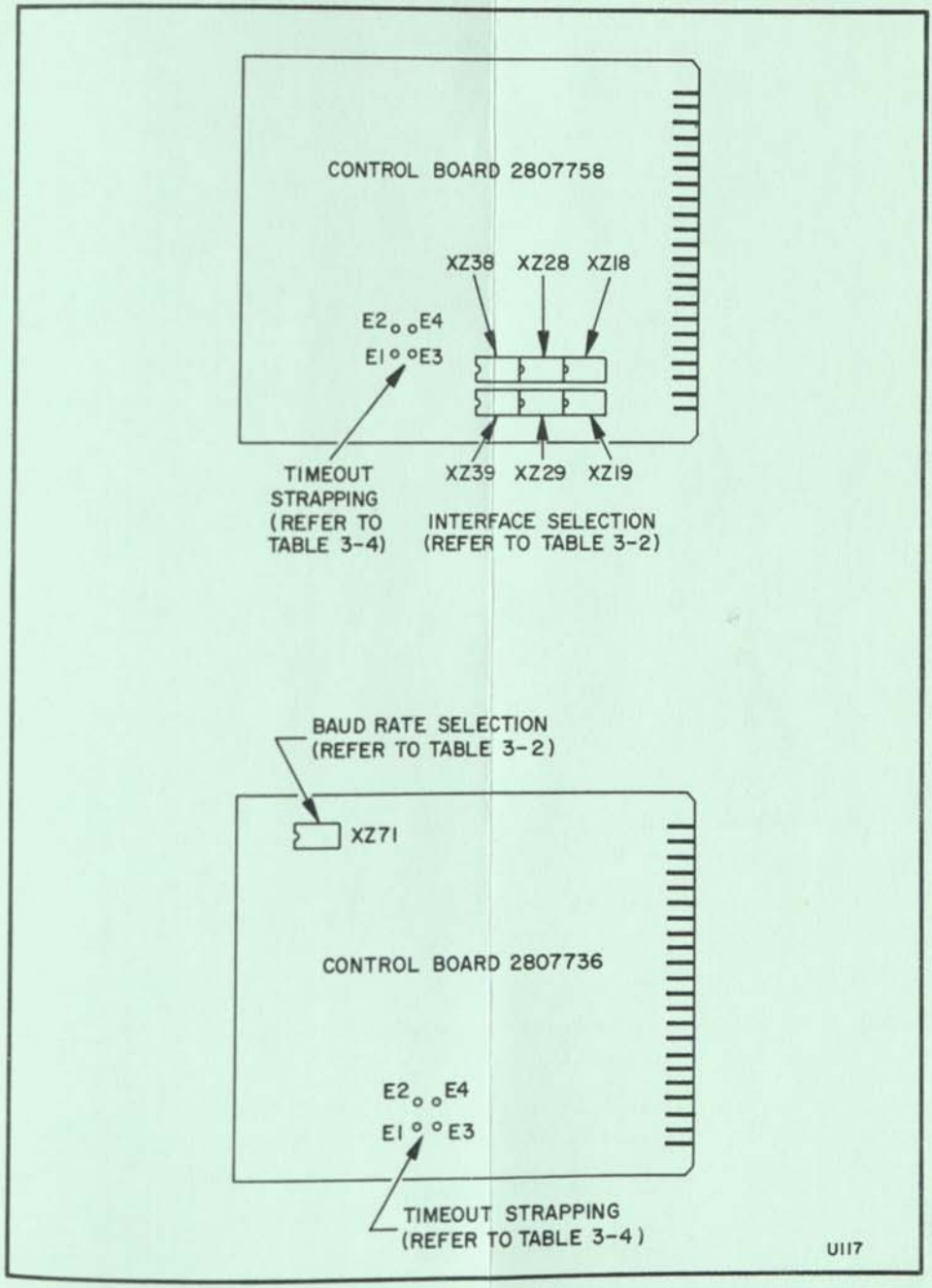


Figure 3-2. Terminal Multiplexer Strapping

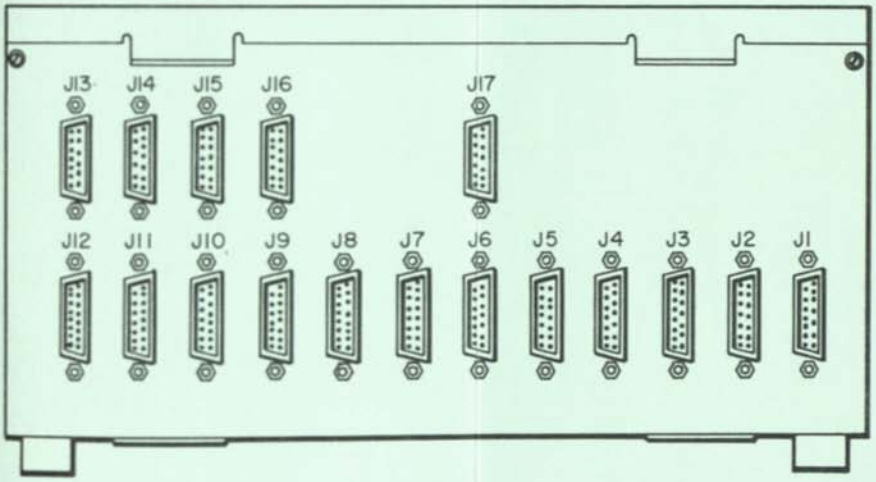


Figure 3-3. Rear Panel Connectors

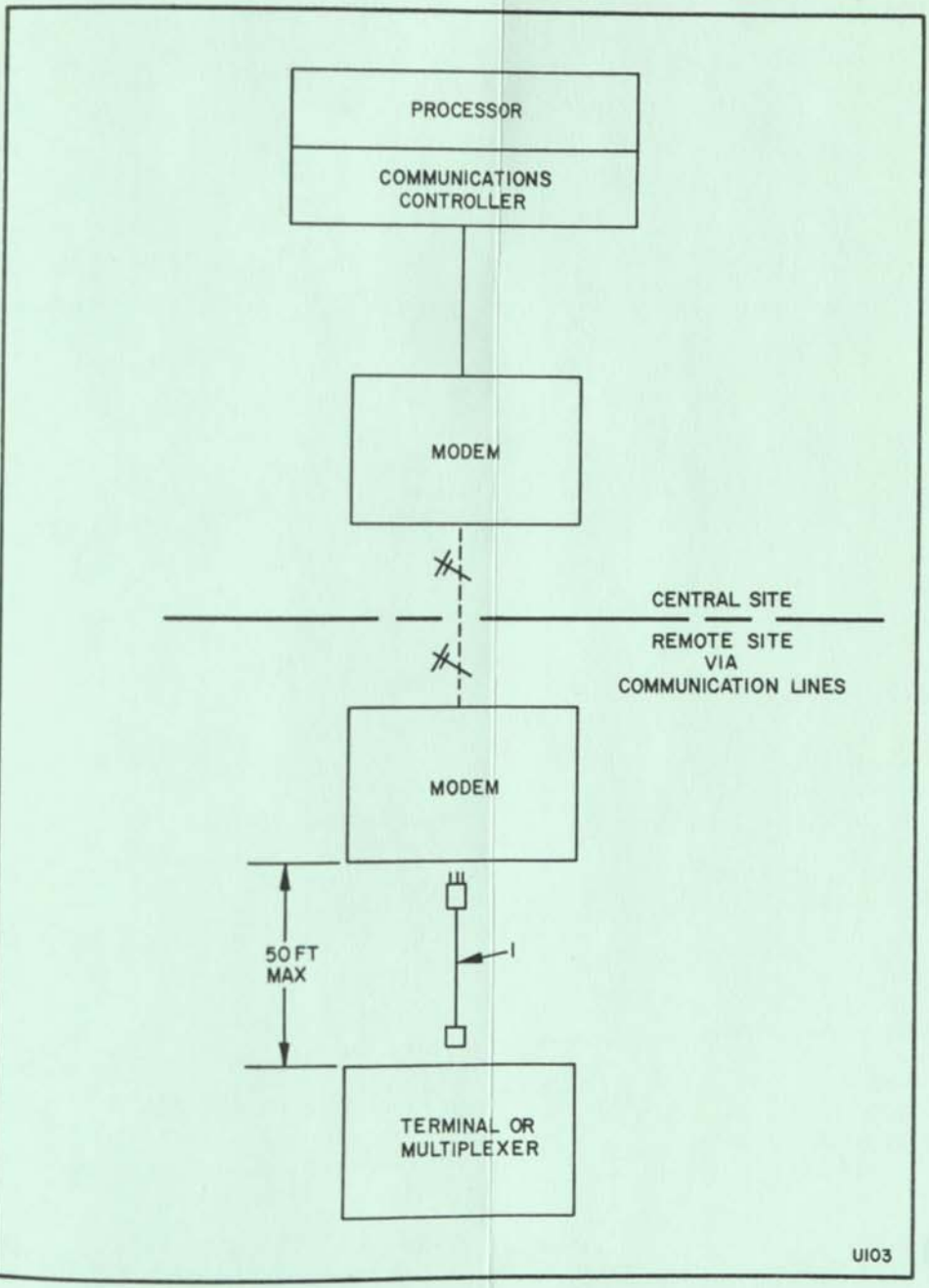


Figure 3-4. Single-Station Cabling Configuration

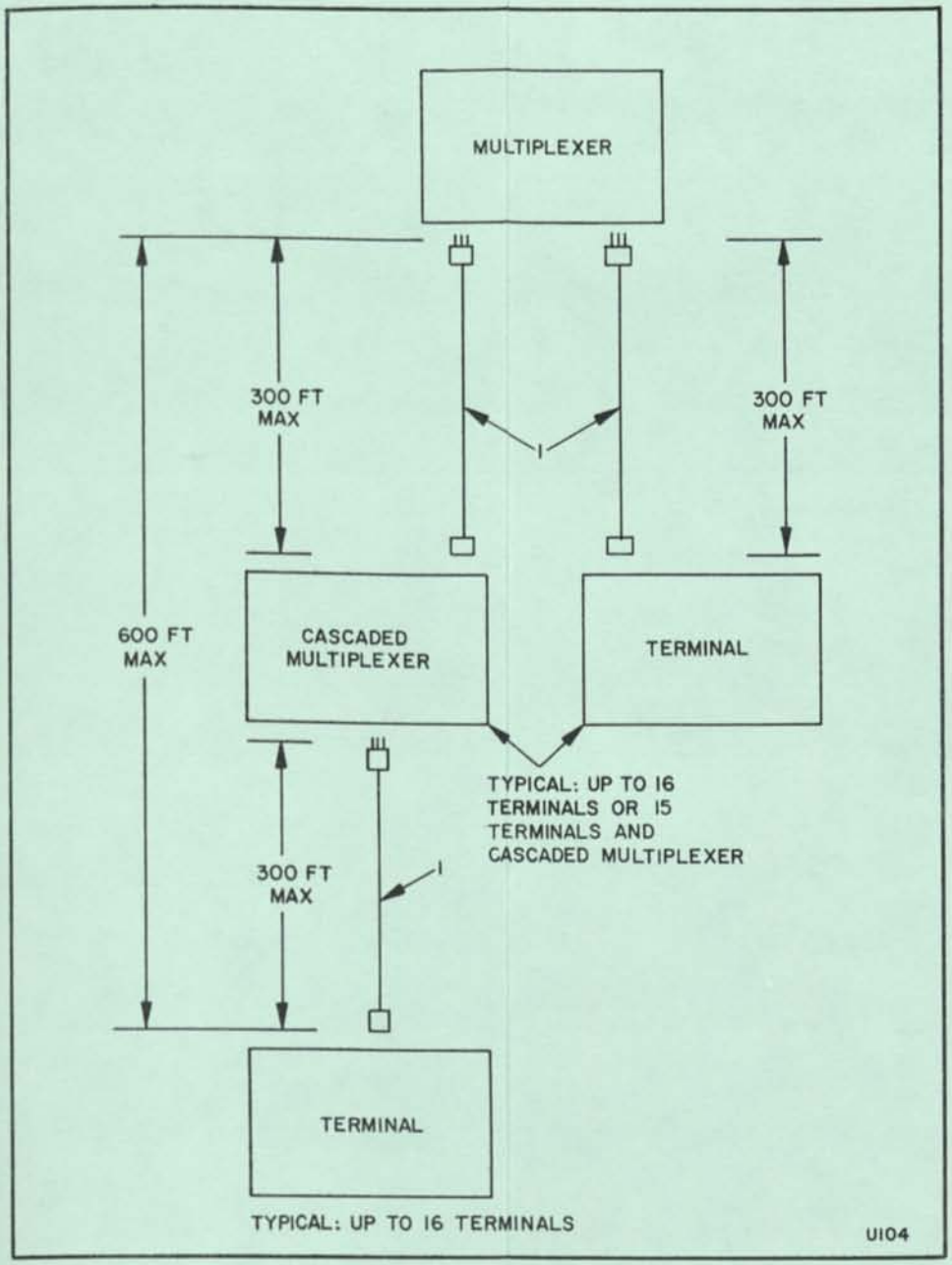


Figure 3-5. Multiple-Station Cabling Configuration

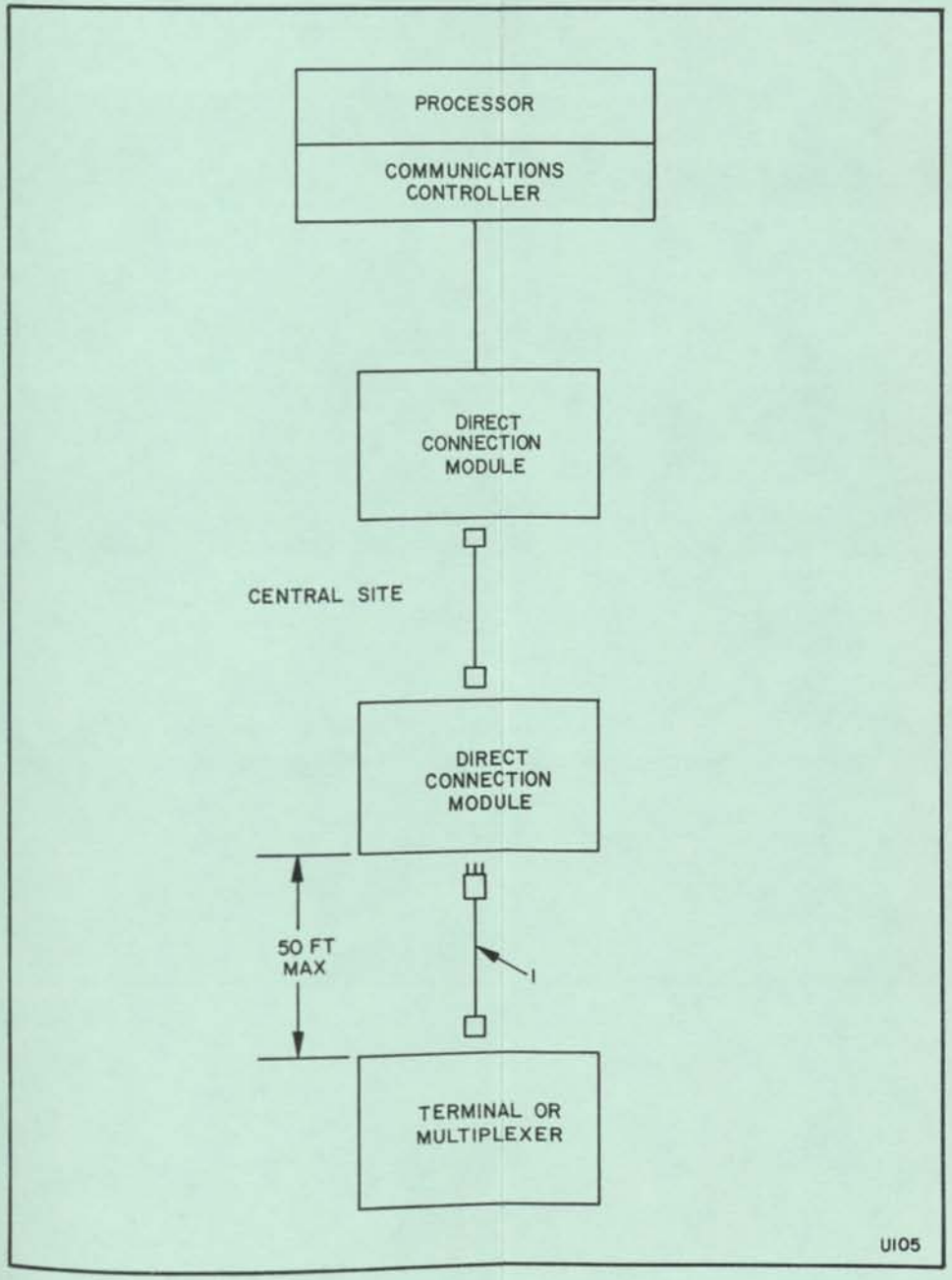


Figure 3-6. Single-Station Cabling - DCM

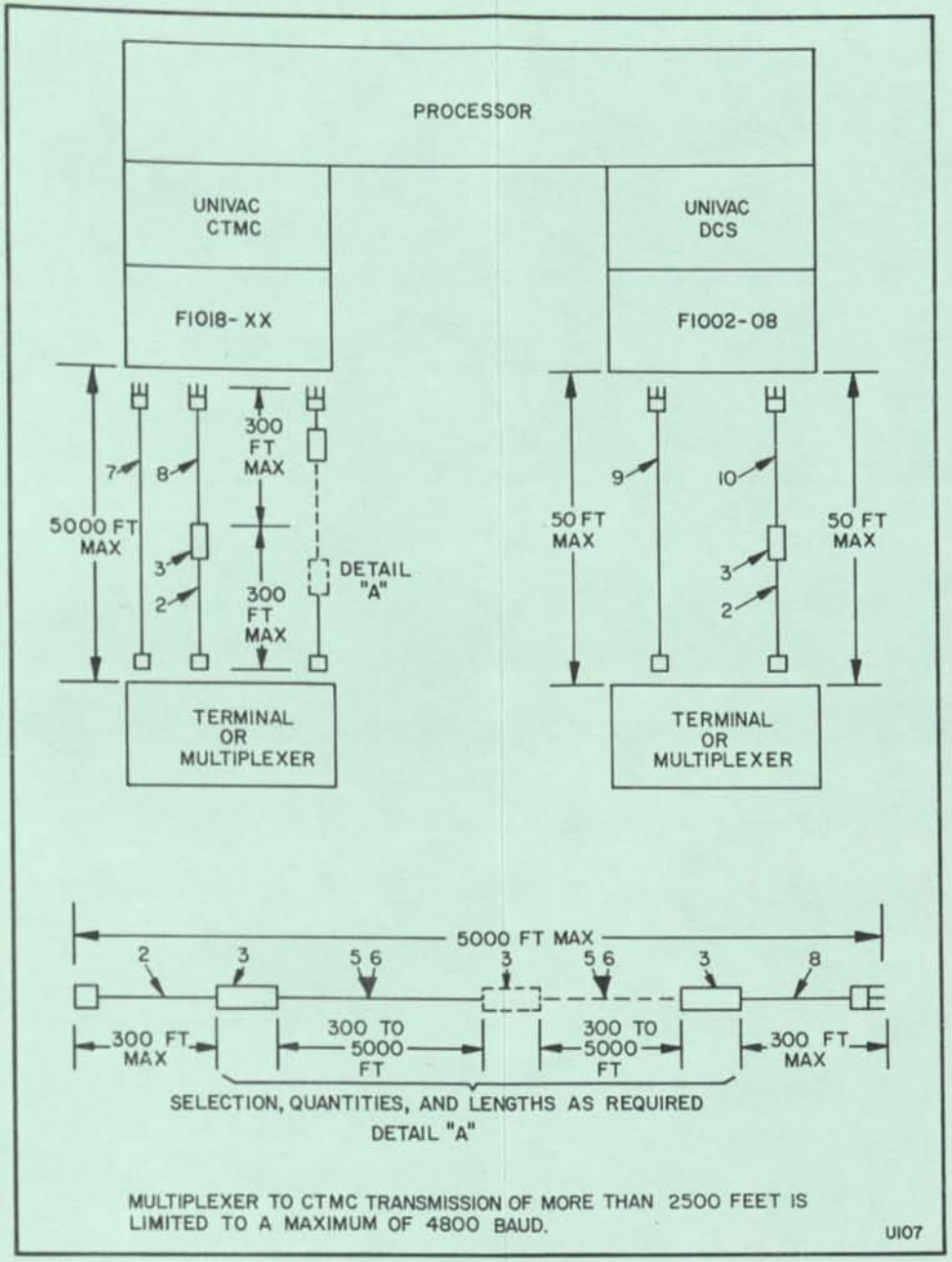


Figure 3-7. Single-Station Cabling - CTMC or DCS

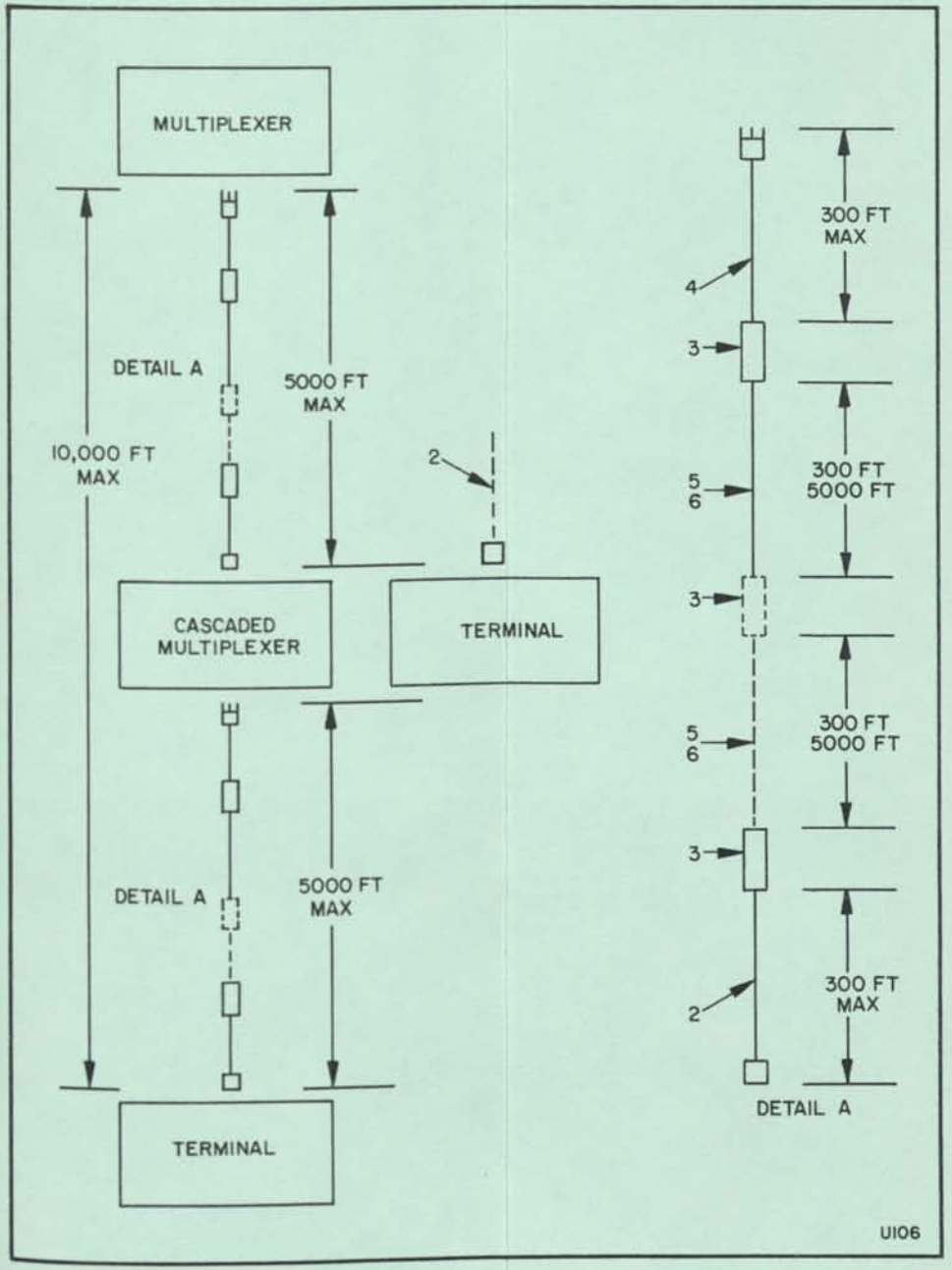


Figure 3-8. Special Build Cables - Multiple-Station

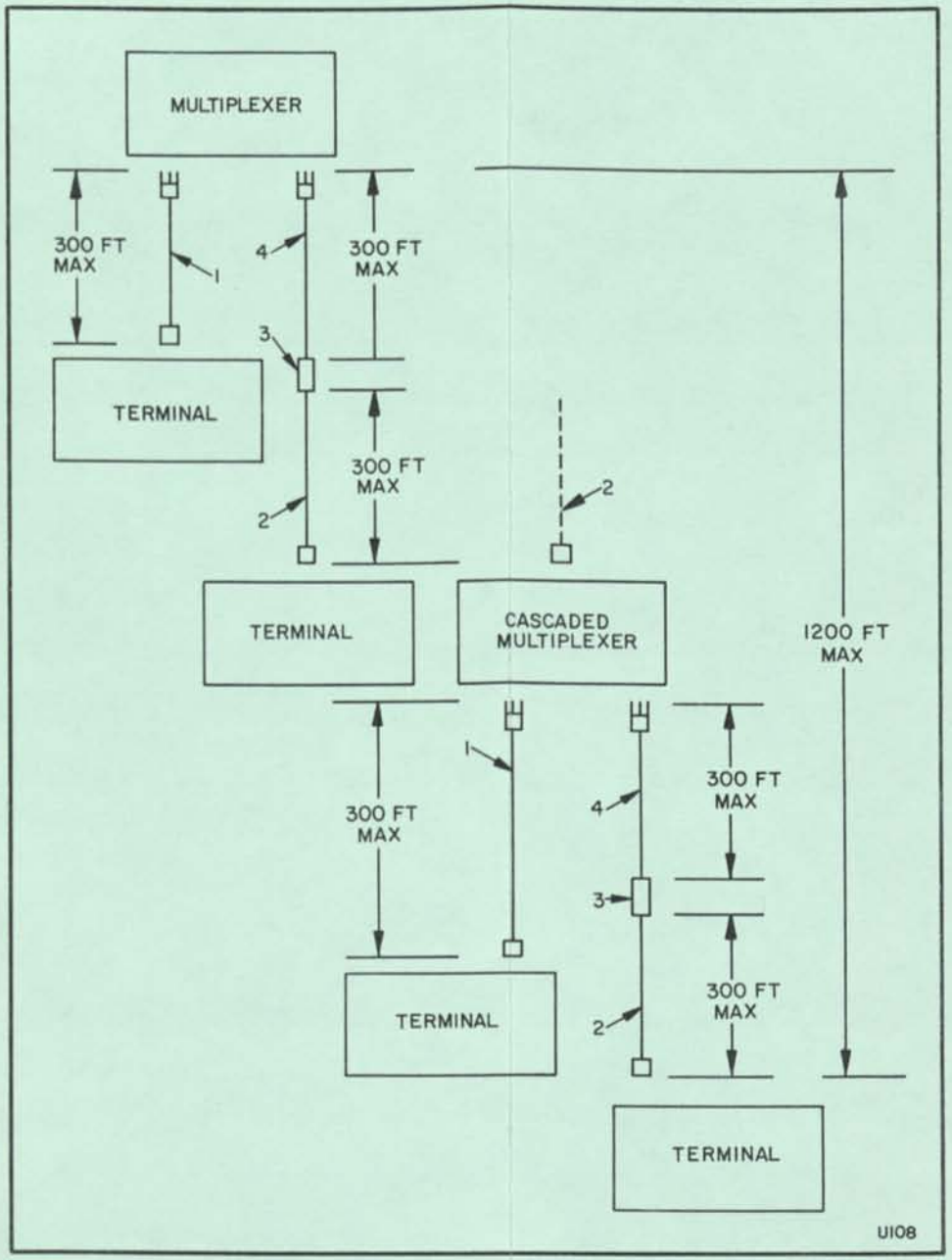
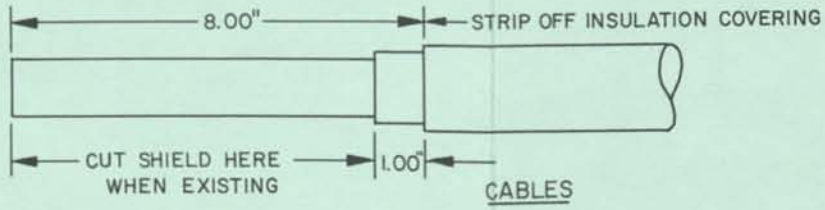
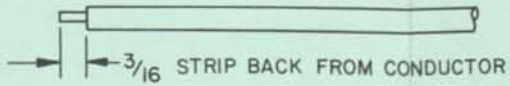
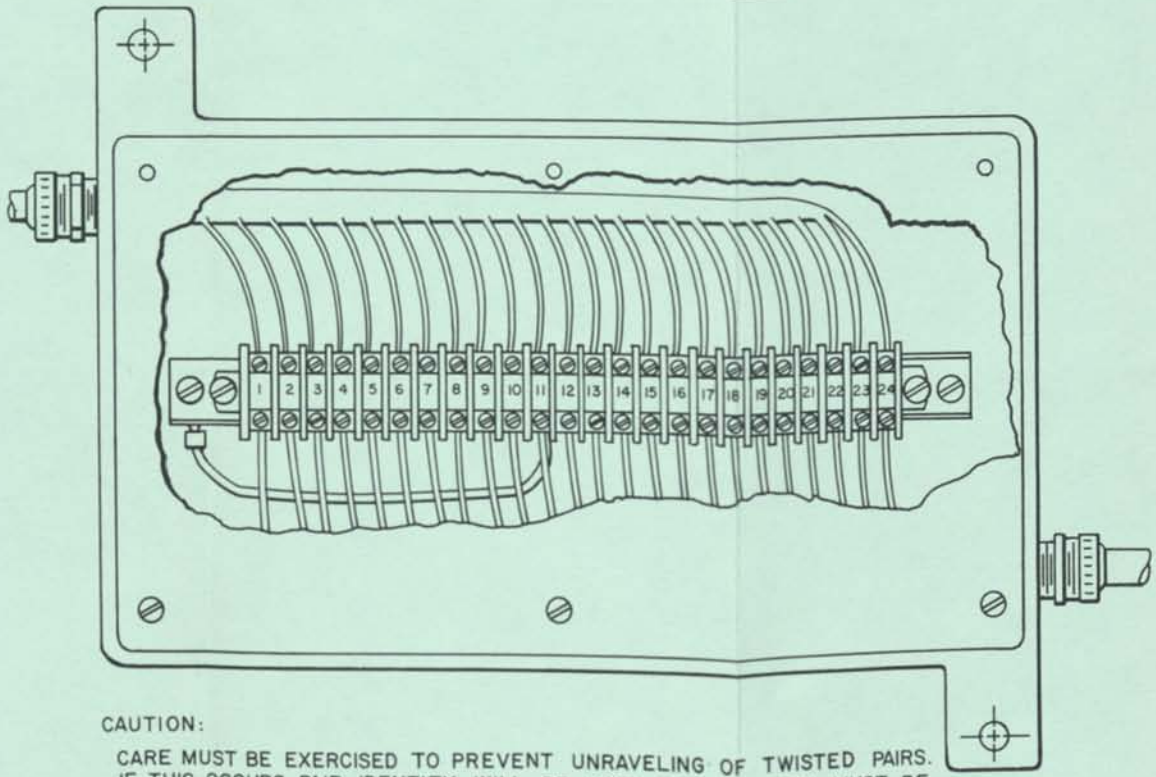


Figure 3-9. Special Build Cables - Multiple-Station

SIGNAL	COLOR	PAIR	PIN
RECEIVE DATA (REF)	WHITE	1	1
RECEIVE DATA	BLUE	1	2
SIGNAL GROUND	WHITE	2	3
CLEAR TO SEND	ORANGE	2	4
XMT CLOCK (REF)	WHITE	3	5
XMT CLOCK	GREEN	3	6
RECEIVE CLOCK (REF)	WHITE	4	7
RECEIVE CLOCK	BROWN	4	8
CLR TO SEND (B) REF	WHITE	5	9
CLR TO SEND (B)	SLATE	5	10
FRAME GROUND	RED	6	11+12
RING IND	BLUE	6	12
XMT DATA (REF)	RED	7	13
XMT DATA	ORANGE	7	14
REQ TO SEND (REF)	RED	8	15
REQ TO SEND	GREEN	8	16
DATA TERM READY	RED	9	17
DATA SET READY	BROWN	9	18
REQ TO SEND (B) REF	RED	10	19
REQ TO SEND (B)	SLATE	10	20
SPARE	BLACK	11	21
SPARE	BLUE	11	22
SPARE	BLACK	12	23
SPARE	ORANGE	12	24







CAUTION:

CARE MUST BE EXERCISED TO PREVENT UNRAVELING OF TWISTED PAIRS. IF THIS OCCURS PAIR IDENTITY WILL BE LOST. PAIR IDENTITY MUST BE MAINTAINED.

UIII

Figure 3-10. Junction Box Wiring

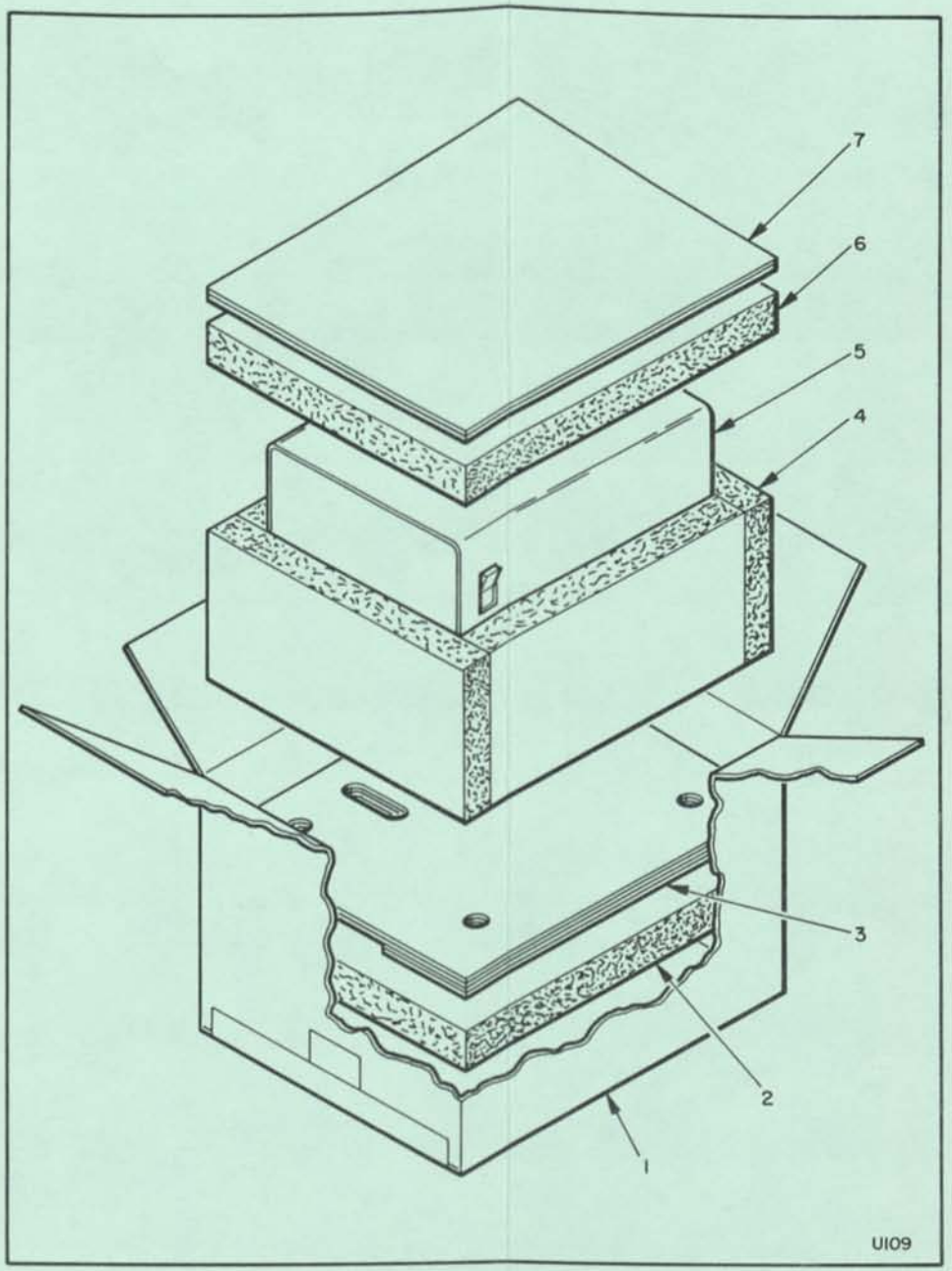


Figure 3-11. Terminal Multiplexer Repacking

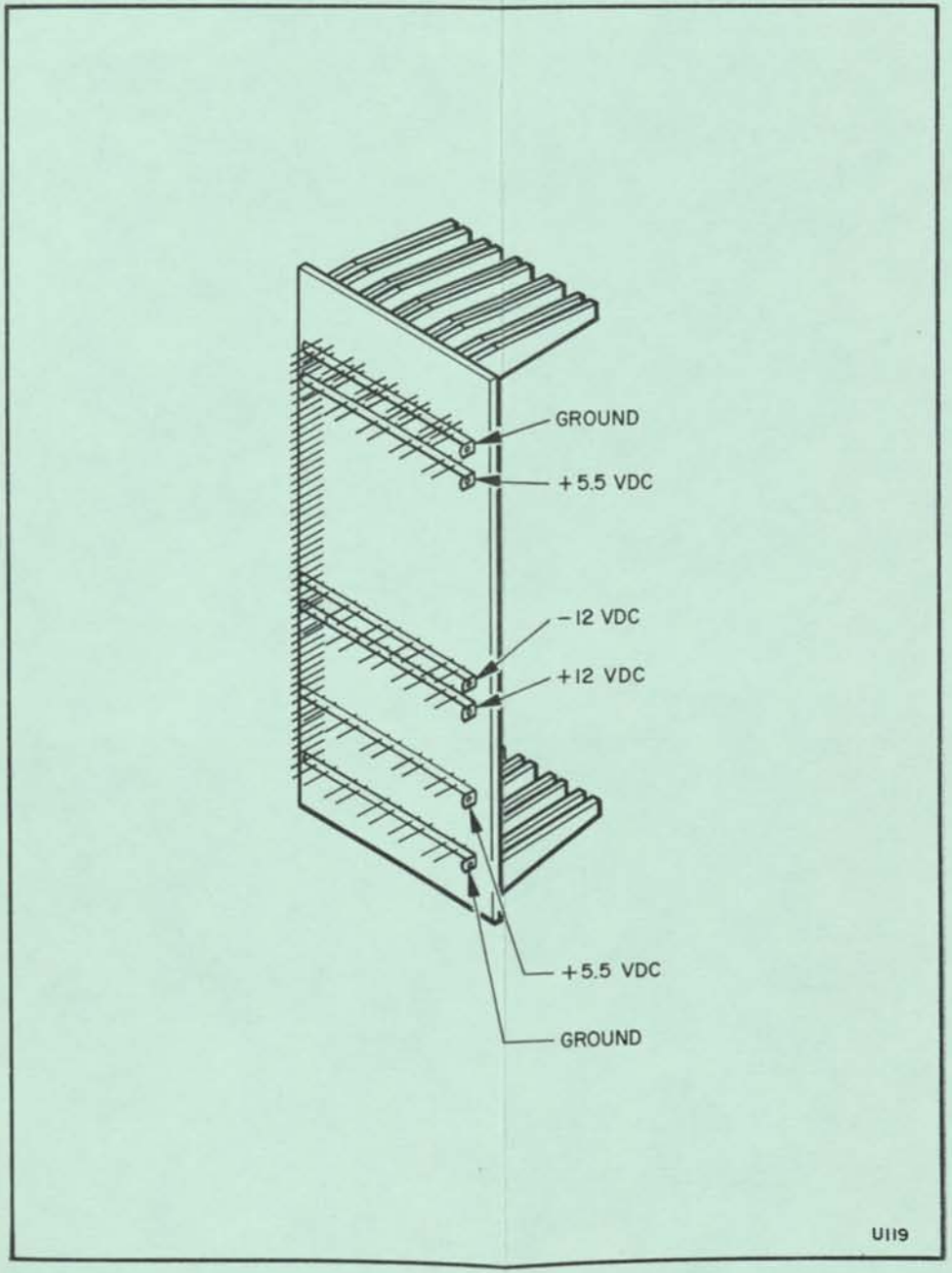


Figure 5-1. Voltage Bus Locations

MR6002

UNIVAC TERMINAL MULTIPLEXER TYPE 8538

ILLUSTATED PARTS BREAKDOWN

SEPTEMBER, 1973

SPERRY UNIVAC

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SECTION 1

INTRODUCTION

1-1. GENERAL

This Illustrated Parts Breakdown lists and illustrates the field-replaceable parts for the UNIVAC® Terminal Multiplexer Type 8538. This breakdown is divided into four sections as described in the following paragraphs. The information contained in these sections is used for requisitioning, storing, issuing, and identifying parts.

1-2. GROUP ASSEMBLY PARTS LIST, SECTION 2

1-3. GENERAL

The Group Assembly Parts List consists of a breakdown of the Terminal Multiplexer into assemblies, subassemblies, and detail parts as shown on the related illustrations. The lowest order of disassembly is dictated by current field practices, and field personnel should not replace or disassemble parts below the order that is presented. Each assembly is followed immediately by a list of its component parts, properly indented below it to show their relationship to the assembly. Attaching parts are listed immediately following the parts which they attach. Items which are made from raw stock, such as cut lengths of wire and insulating materials, are not included in the Group Assembly Parts List.

1-4. FIGURE AND INDEX NUMBER COLUMN

Index numbers on the illustrations correspond to the index numbers in the Group Assembly Parts List. A circled index number indicates an assembly whose component parts are indexed. Assemblies or subassemblies whose component parts are shown exploded are indexed in disassembly sequence.

Some illustrations are contained on foldout sheets. When the sheets are unfolded, illustrations are fully visible and can be used concurrently with the parts list.

The digits preceeding the hyphen refer to the figure in which a part or assembly is illustrated. The digits following the hyphen are the index numbers of procurable and nonprocurable parts and assemblies illustrated on the figure.

1-5. PART NUMBER COLUMN

This column contains the Univac part number for the field-replaceable parts of the unit. "No Number" indicates a group of parts for which no overall assembly number has been assigned.

1-6. REFERENCE DESIGNATION COLUMN

This column lists the reference designation of each part as it appears on the schematic diagrams for this particular unit. Mechanical parts are not identified in this type of listing.

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1-7. DESCRIPTION COLUMN

This column contains the names and descriptions of the replaceable assemblies, subassemblies, and detail parts of the unit. The indention system used in presenting the descriptions shows the relationship between assemblies, subassemblies, and detail parts. For example, an item listed under indention 3 is a component of the assembly or subassembly listed in the preceding second indention.

Parts which attach other parts of assemblies are preceded and followed by an asterisk (*), and are listed immediately after the parts or assemblies they attach.

1-8. UNITS PER ASSEMBLY COLUMN

The quantities shown in this column for indexed items are the quantities used at the indicated location(s) or similar locations on the assembly. The quantities shown for items listed between asterisks are the quantities required to mount the specified number of assemblies, subassemblies, or parts which they attach.

The letters AR denote "as required" and are used to indicate parts of which an indeterminate number may be required. The letters REF indicate that an assembly is shown completely assembled in a preceding illustration, and is now shown exploded in the illustration where the reference appears. In this case the description has a notation that refers to the illustration in which the assembly is shown completely assembled and indexed. The entry NP indicates that the part or assembly is non-procurable.

1-9. USED ON CODE COLUMN

Part variations within the Multiplexer are indicated by numeric symbols in this column. In cases where the used On Code column has been left blank, parts listed apply to all Multiplexer configurations covered in this book.

Used On Code	Description
0	60 Hz (8538-00)
1	50 Hz (8538-01)

1-10. REFERENCE DESIGNATION INDEX, SECTION 3

The Reference Designation Index is a list of parts for which a reference designation is given in the Group Assembly Parts List. The parts are listed in alphanumeric order by reference designation; figure and index numbers are given to aid in location of the part in the Group Assembly Parts List.

1-11. NUMERICAL INDEX, SECTION 4

The Numerical Index provides a parts list in numerical order by part number. The figure and index number are given for each part to aid in location of the part in the Group Assembly Parts List.

1-12. HOW TO USE THE ILLUSTRATED PARTS BREAKDOWN

1-13. WHEN THE PART LOCATION IS KNOWN

To obtain information about a part when its location is known, the following steps should be taken:

(a) Refer to the applicable illustration.

(b) Compare the part with the illustration until the part is located.

(c) Note the index number for the part.

(d) Locate the index number in the corresponding Group Assembly Parts List.

(e) Find the part number, reference designation (where applicable) and description opposite the index number.

1-14. WHEN THE REFERENCE DESIGNATION IS KNOWN

To locate a part when the reference designation is known, the following steps should be taken:

(a) Locate the reference designation in the Reference Designation Index (Section 3).

(b) Note the figure and index number shown opposite the reference designation.

(c) Locate the figure and index number in the Group Assembly Parts List (Section 2).

1-15. WHEN THE PART NUMBER IS KNOWN

To locate a part when the part number is known, the following steps should be taken:

(a) Locate the part number in the numerical index (Section 4).

(b) Note the figure and index number shown opposite the part number.

(c) Locate the figure and index number in the Group Assembly Parts List (Section 2).

SECTION 2

GROUP ASSEMBLY PARTS LIST

TERMINAL MULTIPLEXER
TYPE 8538

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7. DESCRIPTION	NO. PER ASSY	USED ON CODE
1-	NO NUMBER		TERMINAL MULTIPLEXER, TYPE 8538	NP	
-1	2806250 00		. CABINET ASSY, WIRED, 60 HZ (SEE FIG 2 FOR DETAIL BREAKDOWN)	1	0
-1	2806255 00		. CABINET ASSY, WIRED, 50 HZ (SEE FIG 2 FOR DETAIL BREAKDOWN)	1	1
-2	2806291 00		. PANEL, COVER, TOP	1	
-3	2806268 00	A09, A06	. CONNECTOR PANEL AND BACKBOARD ASSY, WIRED (SEE FIG 3 FOR DETAIL BREAKDOWN)	1	
-4	9912529 02		. SCREW, MACH, PAN HD, NO.6-32, 0.375 LG	2	
-5	905818 03		. NUT, SHEET SPRING, U-TYPE, NO.6 SCREW	2	
-6	2807734 02	A02	. EXPANSION, MULTIPLEXER (PROVISION FOR FOUR)	2	
-7	2807758	A01	. INTERFACE ADAPTER	1	
-8	2807736	A01	. DIRECT CONNECTION (OPTION)	1	

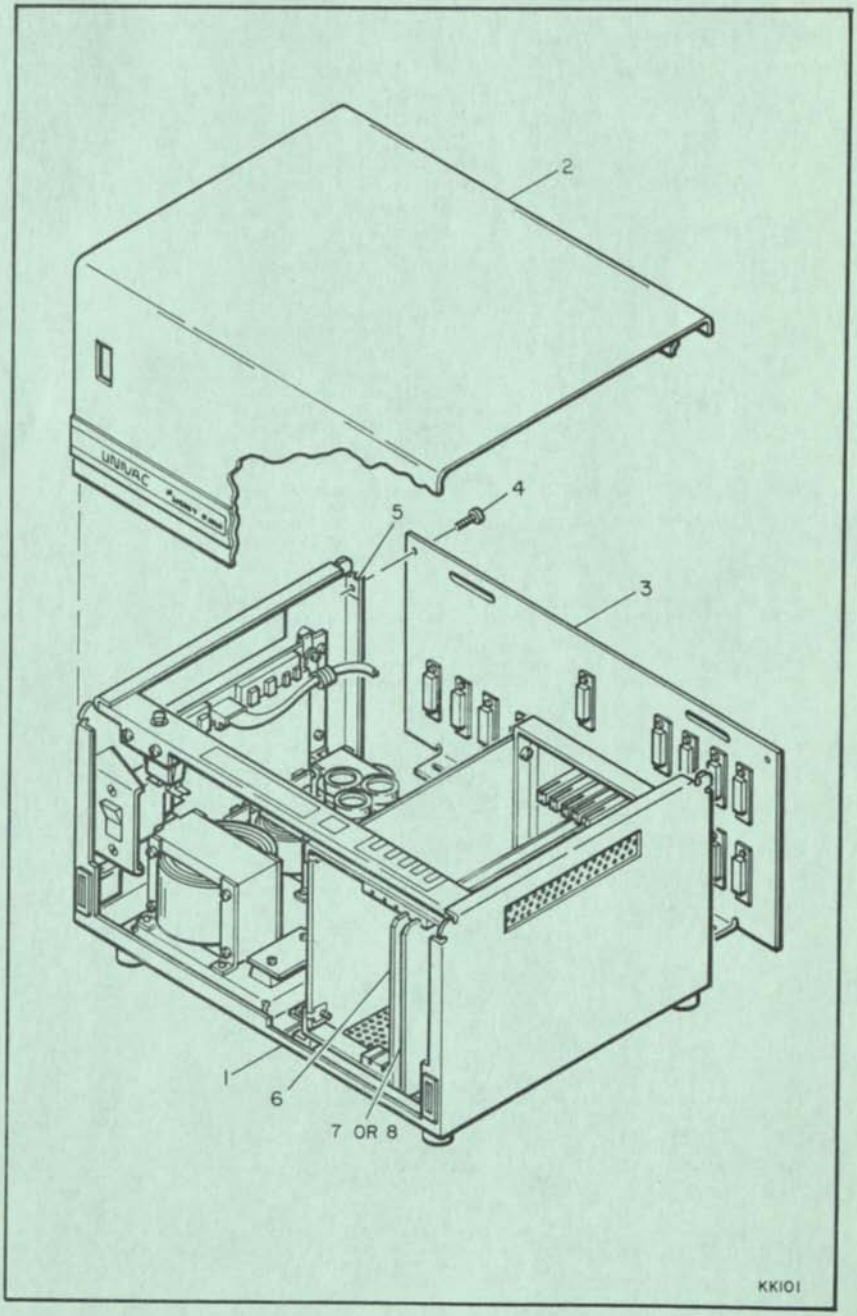

FIGURE 1. TERMINAL MULTIPLEXER, TYPE 8538

FIG & INDEX NO.	PART NUMBER 9876543210AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
2-	2806250 00		CABINET ASSY, WIRED, 60 HZ (SEE FIG 1 FOR NEXT HIGHER ASSY)	REF	0
2-	2806255 00		CABINET ASSY, WIRED, 50 HZ (SEE FIG 1 FOR NEXT HIGHER ASSY)	REF	1
-1	2806290 00		. FRAME, CABINET, FINISHED	1	
-2	2899235 00		. CATCH, MAGNETIC, SNAP-IN MOUNTED	2	
-3	2806238 00	C801	. CIRCUIT BREAKER ASSY, 60 HZ	1	0
-3	2806238 01	C801	. CIRCUIT BREAKER ASSY, 50 HZ	1	1
-4	4912548 01		. WASHER, FLAT, ROUND, NO.6	2	
-5	4912550 01		. LOCKWASHER, SPRING, HELICAL, NO.6	7	
-6	4912540 01		. NUT, MACH, HEX, NO.6-32	7	
-7	2899182 00	S01	. SWITCH, INTERLOCK, SPDT, WITH CIRCUIT HOLD FEATURE	1	
-8	2806288 01		. BRACKET, MOUNTING, INTERLOCK SWITCH	1	
-9	4912548 00		. WASHER, FLAT, ROUND, NO.4	4	
-10	4912550 00		. LOCKWASHER, SPRING, HELICAL, NO.4	4	
-11	905822 02		. SCREW, TAPPING, THD FMG, PAN HD, NO.4-40NC-2A	4	
-12	2806279 00	A08	. POWER SUPPLY ASSY, 60 HZ (SEE FIG 4 FOR DETAIL BREAKDOWN)	1	0
-12	2806259 00	A08	. POWER SUPPLY ASSY, 50 HZ (SEE FIG 4 FOR DETAIL BREAKDOWN)	1	1
-13	2899380 01		. NUT, SHEET SPRING, STEEL, NO.8-32	6	
-14	4912551 02		. LOCKWASHER, EXT TOOTH, BRONZE, NO.8	1	
-15	4912525 02		. SCREW, MACH, PAN HD, NO.8-32, 0.375 LG	6	
-16	2806305 00	A07	. VOLTAGE REGULATOR ASSY (SEE FIG 5 FOR DETAIL BREAKDOWN)	1	
-17	4915125 02		. SPACER, SLEEVE, 0.250 LG, 0.199 ID, 0.391 OD	4	
-18	4912550 03		. LOCKWASHER, SPRING, HELICAL, NO.10	4	
-19	4912540 03		. NUT, MACH, HEX, NO.10-24	4	
-20	2806323 00		. CABLE ASSY, VOLTAGE REGULATOR AND BACKBOARD	1	
-21	2016785 00		. CLAMP, CABLE	1	
-22	4912525 03		. SCREW, MACH, PAN HD, NO.8-32, 0.438 LG	1	
-23	2806292 00		. BACKBOARD FRAME ASSY (SEE FIG 6 FOR DETAIL BREAKDOWN)	1	
-24	4912524 02		. SCREW, MACH, PAN HD, NO.6-32, 0.375 LG	8	
-5	4912550 01		. LOCKWASHER, SPRING, HELICAL, NO.6	REF	
-6	4912540 01		. NUT, MACH, HEX, NO.6-32	REF	
-13	2899380 01		. NUT, SHEET SPRING, STEEL, NO.8-32	REF	
-15	4912525 02		. SCREW, MACH, PAN HD, NO.8-32, 0.375 LG	REF	
-25	4912524 01		. SCREW, MACH, PAN HD, NO.6-32, 0.312 LG	8	
-26	2899380 03		. NUT, SHEET SPRING, STEEL, NO.10-32	4	
-27	2899377 01		. BUMPER, RUBBER, SCREW-ON, 3/4 INCH	4	
-28	4912527 04		. SCREW, MACH, PAN HD, NO.10-32UNF-2A, 0.750 LG	4	

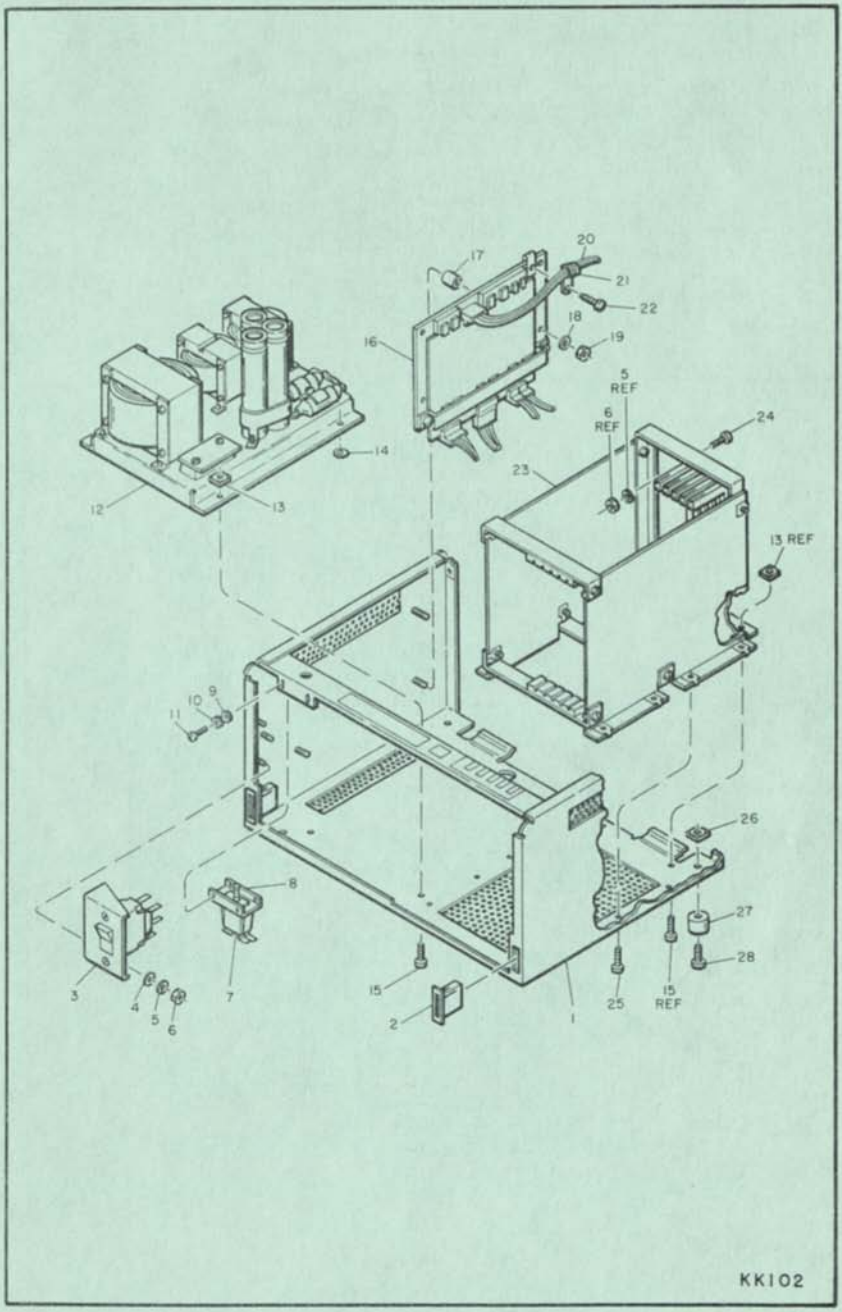

FIGURE 2. CABINET ASSY, WIRED, 50/60 HZ

TERMINAL MULTIPLEXER
TYPE 8538

FIG & INDEX NO.	PART NUMBER		REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
3-	2806268	00		CONNECTOR PANEL AND BACKBOARD ASSEMBLIES, WIRED (SEE FIG 1 FOR NEXT HIGHER ASSY)	REF	
-1	2806266	00	A06	. BACKBOARD, WIRED	1	
-2	2806269	00		. CONNECTOR PANEL, BACK *	1	
-3	9915135	00	J01 THRU J16	. CONNECTOR, RECEPTACLE, ELECT, 25 CONTACT, FEMALE	16	
-4	2899513	00		. CONTACT, ELECT, CONNECTOR, FEMALE	208	
-5	9915136	00	J17	. CONNECTOR, RECEPTACLE, ELECT, 25 CONTACT, MALE	1	
-6	2899514	00		. CONTACT, ELECT, CONNECTOR, MALE	16	
-7	3011815	00		. SCREW ASSY, CONNECTOR CPLG, NO.4-40 *	34	

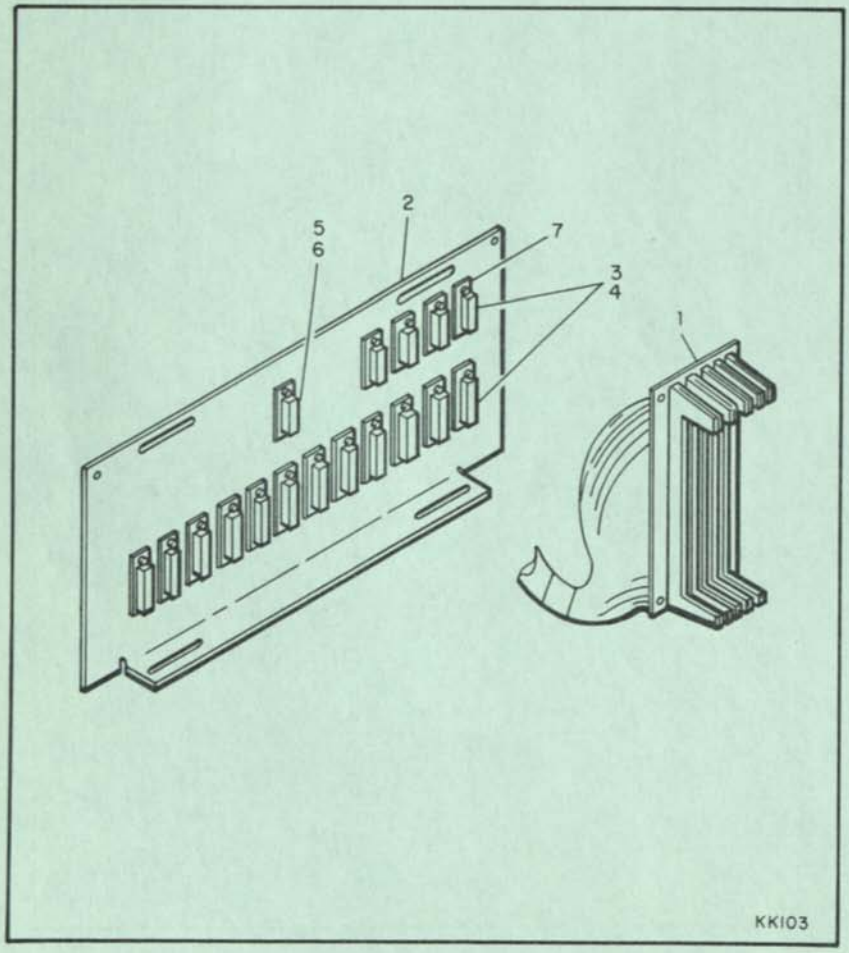

FIGURE 3. CONNECTOR PANEL AND BACKBOARD

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TERMINAL MULTIPLEXER
TYPE 8538

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
4-	2806279 00	A02	POWER SUPPLY ASSY, 60 HZ (SEE FIG 2 FOR NEXT HIGHER ASSY)	REF	0
4-	2806259 00	A02	POWER SUPPLY ASSY, 50 HZ (SEE FIG 2 FOR NEXT HIGHER ASSY)	REF	1
-1	2806278 00		. BASE, POWER SUPPLY	1	
-2	4913516 00	FL01,FL02	. CAPACITOR, FIXED, PAPER, 100K PF, 600 VDC, +20,-10 %	2	
-3	3155737 00		. LINK, TERMINAL CONNECTOR, BRASS, BOARD CURRENT RATING 15 AMPS	2	
-4	4912525 04		. SCREW, MACH, PAN HD, NO.8-32, 0.500 LG	1	
-5	4912551 02		. LOCKWASHER, EXT TOOTH, BRONZE, NO.8	1	
-6	4912550 02		. LOCKWASHER, SPRING, HELICAL, NO.8	1	
-7	4912540 02		. NUT, MACH, HEX, NO.8-32	1	
-8	4912552 03		. LOCKWASHER, INT TOOTH, BRONZE, NO.10	4	
-9	908634 01		. SCREW, MACH, PAN HD, BRASS, NO.10-32UNF-2A	4	
-10	2899095 01		. TERMINAL, QUICK-DISCONNECT, DOUBLE-MALE, .187 SERIES	2	
-11	2806312 00		. CABLE ASSY, CAPACITOR	1	
	2899068 00		. TERMINAL, QUICK-DISCONNECT, FEMALE, .187 SERIES	1	
	4914901 00		. TERMINAL LUG, CRIMPING, 6 SPD, SLOTTED, 22 - 18 AWG	1	
-12	2806270 00		. CAPACITOR ASSY	1	
-13	2899067 02	C01, C02, C03	. . CAPACITOR, ELECT, 8200 UF, 25 VDC, +75 -10 %	3	
-14	2806237 00		. . RETAINER, CAPACITOR	1	
-15	911651 02		. . NUT, SHEET SPRING, U-TYPE, NO.6 SCREW	4	
-16	4912529 09		. . SCREW, MACH, PAN HD, NO.6-32, 0.875 LG	1	
-17	4912529 02		. SCREW, MACH, PAN HD, NO.6-32, 0.375 LG	3	
-18	3155736 34	T801	. TERMINAL BOARD, BARRIER, 4 TERMINALS, 2.156 LG	1	
-19	4912529 08		. SCREW, MACH, PAN HD, NO.6-32, 0.562 LG	2	
-20	4912550 01		. LOCKWASHER, SPRING, HELICAL, NO.6	2	
-21	4912540 01		. NUT, MACH, HEX, NO.6-32	2	
-22	2806280 00		. COVER, TERMINAL BOARD	1	
-23	4912529 09		. SCREW, MACH, PAN HD, NO.6-32, 0.875 LG	2	
-24	4912550 01		. LOCKWASHER, SPRING, HELICAL, NO.6	2	
-25	4915127 02		. SPACER, SLEEVE, 5/16 ROUND, PHENOLIC, 0.171 ID	2	
-26	2806316 00	T01	. TRANSFORMER	1	
-27	2899172 00		. WASHER, FLAT, STEEL, ROUGH-CUT, 0.250 ID, 0.562 OD	12	
-28	2899050 02		. PIN, RETAINING, PLASTIC	12	

FIG & INDEX NO.	PART NUMBER	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
4-29	2806315 00	L03	. CHOKE SUB-ASSY	1	
			*		
-30	4915360 04		. WASHER, FLAT, ROUND	2	
-31	2899050 01		. PIN, RETAINING, PLASTIC	2	
			*		
-32	2806261 00	L02	. CHOKE SUB-ASSY	1	
			*		
-27	2899172 00		. WASHER, FLAT, STEEL, ROUGH-CUT, 0.250 ID, 0.562 OD	REF	
-28	2899050 02		. PIN, RETAINING, PLASTIC	REF	
			*		
-33	2806261 01	L01	. CHOKE SUB-ASSY	1	
			*		
-27	2899172 00		. WASHER, FLAT, STEEL, ROUGH-CUT, 0.250 ID, 0.562 OD	REF	
-28	2899050 02		. PIN, RETAINING, PLASTIC	REF	
			*		
-34	2806310 00		. POWER CORD, A.C., 60 HZ	1	0
-34	2806245 00		. POWER CORD, A.C., 50 HZ	1	1
-35	2899100 01		. BUSHING, STRAIN RELIEF, RIGHT-ANGLE		

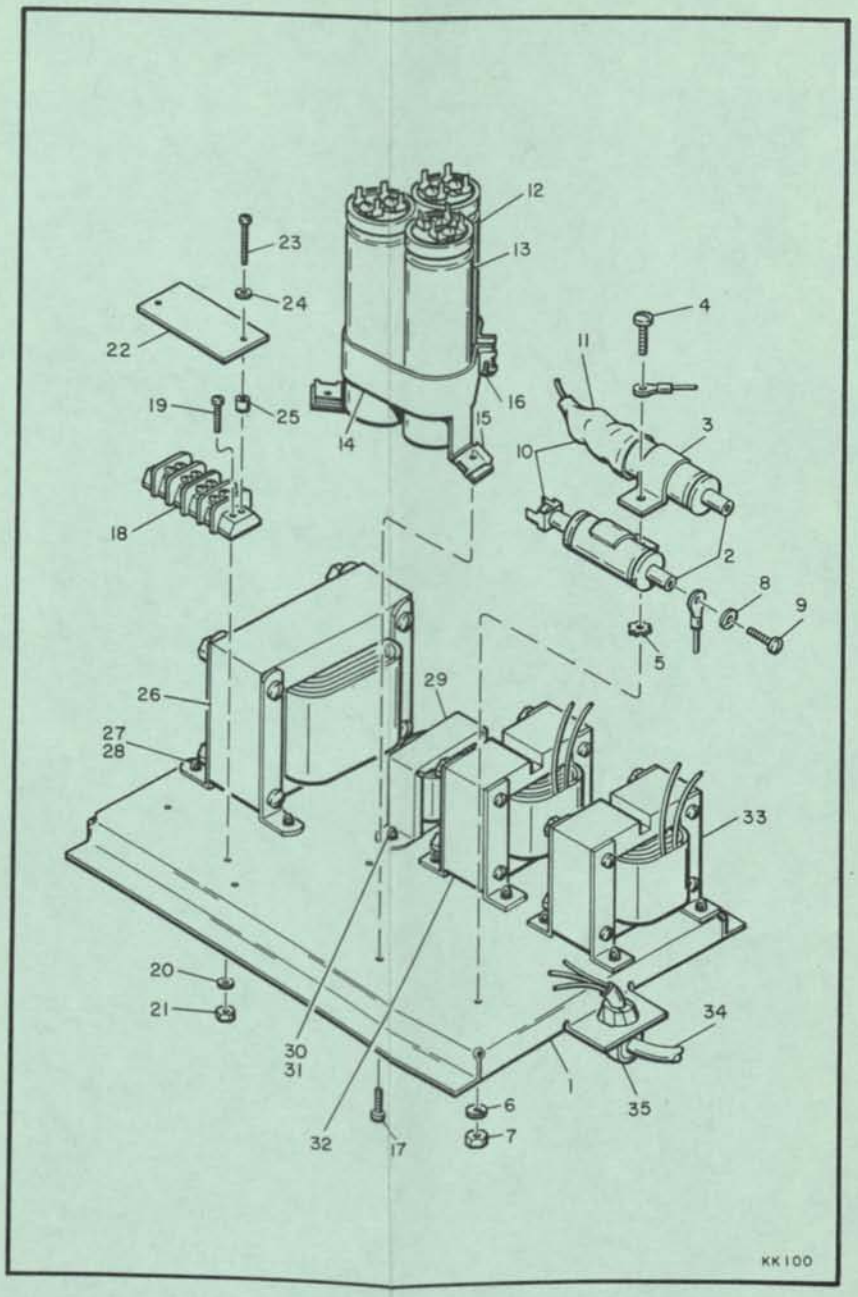

FIGURE 4. POWER SUPPLY ASSY, 50/60 HZ

FIG & INDEX NO.	PART NUMBER 9876543210AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. USED PER ASSY	ON CODE
5-	2806305 00	A07	VOLTAGE REGULATOR ASSY (SEE FIG 2 FOR NEXT HIGHER ASSY)	REF	
-1	2806301 00		. HEAT SINK	1	
-2	2805444 00		. LOW VOLTAGE REGULATOR ASSY	1	
-3	2806302 00		. BRACKET, HEAT SINK	1	
-4	2806296 00		. SPACER, LONG, HEAT SINK	1	
-5	2806298 00		. SPACER, SHORT, HEAT SINK	1	
			*		
-6	9912523 05		. SCREW, MACH, PAN HD, NO.4-40, 0.438 LG	6	
-7	9912529 00		. SCREW, MACH, PAN HD, NO.6-32, 0.250 LG	2	
-8	9912523 06		. SCREW, MACH, PAN HD, NO.4-40, 0.500 LG	3	
-9	9916072 05		. WASHER, PHENOLIC, 0.031 THK, 0.120 ID, 0.250 OD	3	
			*		

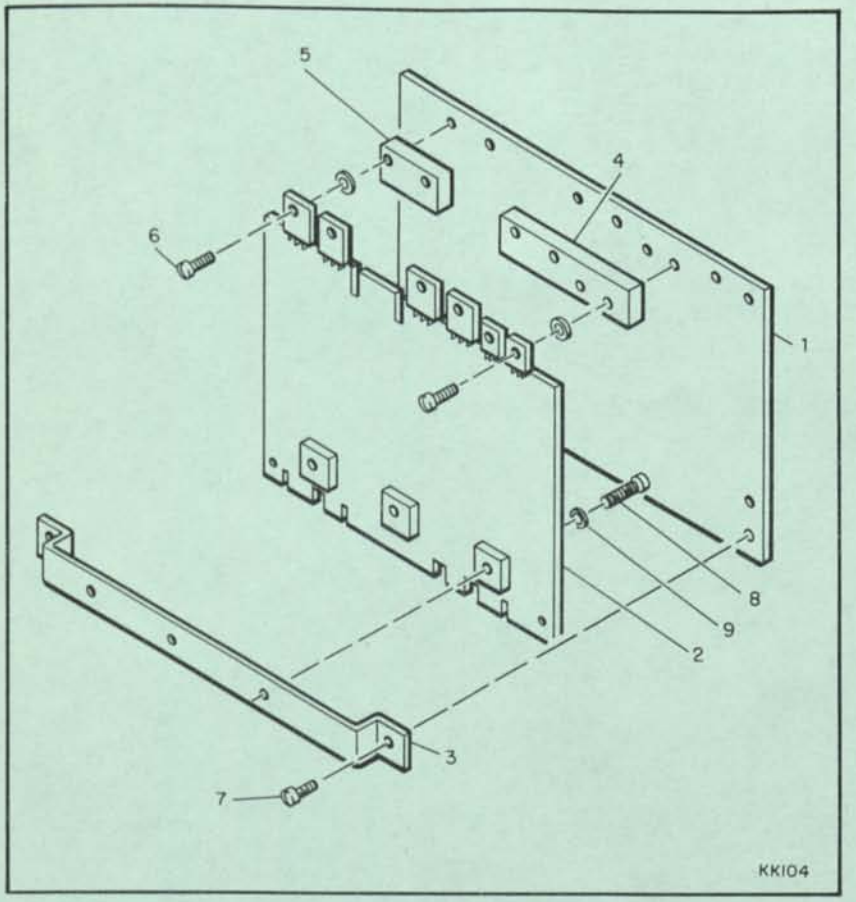

FIGURE 5. VOLTAGE REGULATOR ASSEMBLY

FIG & INDEX NO.	PART NUMBER 9876543210AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. USED PER ASSY	USED ON CODE
6-	2806292 00		BACKBOARD FRAME ASSY (SEE FIG 2 FOR NEXT HIGHER ASSY)	REF	
-1	2806284 00		. BRACKET PLATE, BACKBOARD	1	
-2	2806293 00		. PANEL, RIGHT SIDE	1	
-3	2806294 00		. PANEL, LEFT SIDE	1	
-4	2806304 00		. CARD GUIDE ASSY	3	
-5	4912524 02		. SCREW, MACH, PAN HD, NO.6-32, 0.375 LG	10	
-6	905818 04		. NUT, SHEET SPRING, U-TYPE, NO.6 SCREW	2	
-7	905818 03		. NUT, SHEET SPRING, U-TYPE, NO.6 SCREW	8	
-8	3004054 00		. NUT, SHEET SPRING	8	

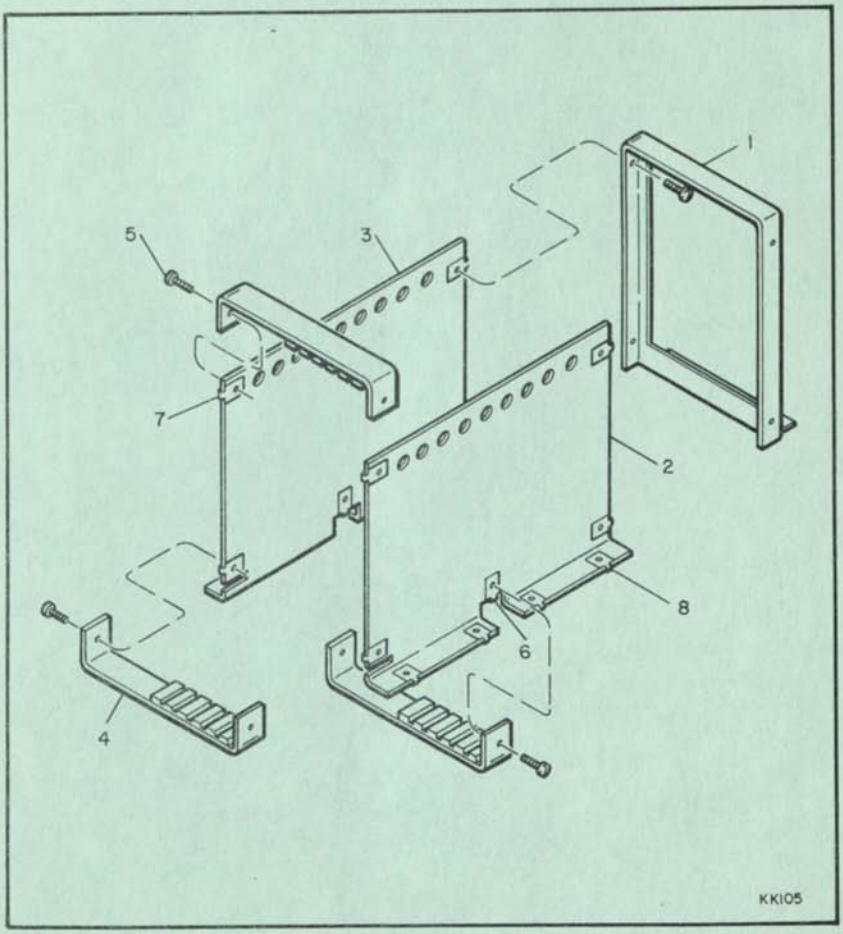

FIGURE 6. BACKBOARD FRAME ASSEMBLY

SECTION 3

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REF DESIG	FIG & INDEX NO.	REF DESIG	FIG & INDEX NO.	REF DESIG	FIG & INDEX NO.	REF DESIG	FIG & INDEX NO.
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908634	01	4-9
911651	02	4-15
2016785	00	2-21
2805444	00	5-2
2806237	00	4-14
2806238	00	2-3
2806238	01	2-3
2806245	00	4-34
2806250	00	1-1
2806250	00	2-8
2806255	00	1-1
2806255	00	2-8
2806259	00	2-12
2806259	00	4-7
2806261	00	4-32
2806261	01	4-33
2806266	00	3-1
2806268	00	1-3
2806268	00	3-28
2806269	00	3-2
2806270	00	4-12
2806278	00	4-1
2806279	00	2-12
2806279	00	4-7
2806280	00	4-22
2806284	00	6-1
2806288	01	2-8
2806290	00	2-1
2806291	00	1-2
2806292	00	2-23
2806292	00	6-9
2806293	00	6-2
2806294	00	6-3
2806296	00	5-4
2806298	00	5-5
2806301	00	5-1
2806302	00	5-3
2806304	00	6-4
2806305	00	2-16
2806305	00	5-35
2806310	00	4-34
2806312	00	4-11
2806315	00	4-29
2806316	00	4-26
2806323	00	2-20
2807734	02	1-6
2807736		1-8
2807758		1-7
2899050	01	4-31
2899050	02	4-28
2899067	02	4-13
2899068	00	4-11
2899095	01	4-10
2899100	01	4-35
2899172	00	4-27
2899182	00	2-7
2899235	00	2-2
2899377	01	2-27
2899380	01	2-13
2899380	03	2-26
2899513	00	3-4
2899514	00	3-6
3006054	00	6-8
3011815	00	3-7
3155736	34	4-18
3155737	00	4-3
4912523	05	5-6
4912523	06	5-8
4912524	00	5-7
4912524	01	2-25
4912524	02	1-4
4912524	02	2-24
4912524	02	4-17
4912524	02	6-5
4912524	08	4-19
4912524	09	4-16
4912524	09	4-23
4912525	02	2-15
4912525	03	2-22
4912525	04	4-4
4912527	04	2-28
4912540	01	2-6
4912540	01	4-21
4912540	02	4-7
4912540	03	2-19
4912548	00	2-9
4912548	01	2-4
4912550	00	2-10
4912550	01	2-5
4912550	01	4-20
4912550	01	4-24
4912550	02	4-6
4912550	03	2-18
4912551	02	2-14
4912551	02	4-5
4912552	03	4-8
4913516	00	4-2
4914901	00	4-11
4915125	02	2-17
4915127	02	4-25
4915135	00	3-3
4915136	00	3-5
4915360	04	4-30
4916072	05	5-9
NO NUMBER		1-

MR6014

UNIVAC UNISCOPE 100 DISPLAY TERMINAL TYPE 3536 -06

INSTALLATION PROCEDURES

JULY, 1973

SPERRY UNIVAC

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SECTION 1

INTRODUCTION

1-1. SCOPE

This book contains information for installing the UNIVAC® UNISCOPE®100 Display Terminal Type 3536-06 (Display Terminal). The contents of each section are as follows:

Section 2. Installation

Section 3. Printed Circuit Board Strapping

Section 4. Repacking

1-2. MAINTENANCE AIDS

The following special equipment is required for installation of a Display Terminal:

Volt-ohmmeter 3001444-00 (or equivalent)

Card extender assembly 2806444-00

Card extractor 2808033-00

Strapping connector 2805281-17 (8 each)

1-3. REFERENCE DOCUMENTATION

SP 2012 Guide for Planning the Installation of a UNISCOPE 100 Display Terminal

1-4. DISPLAY TERMINAL DESCRIPTION

The Display Terminal is an input/output terminal device used to receive data from and transmit data to a centrally located processor, or another terminal. If the processor is at a remote location this data is transmitted and received over telephone lines via a modem.

The Display Terminal cabinet, together with the attached keyboard, houses all of the electronics required for Display Terminal operation.

The Display Terminal is capable of operating other input/output devices. Available optional auxiliary devices for the Display Terminal include:

Type 0866 Tape Cassette System

Type 8541-06, -07 Communications Output Printer

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1-5. MOUNTING CONSIDERATIONS

The Display Terminal is designed to mount on any flat, smooth surface (such as a desk top) which affords an operator comfortable access to the keyboard controls and visibility of the display screen. A minimum of four inches clearance should be allowed for the right and left sides and rear of the Display Terminal. Operator clearance to the front of the unit should be sufficient for comfortable operation of the keyboard controls.

1-6. SIGNAL CABLE WIRING

The Display Terminal is connected within a system by means of signal cables. The cables used are dependent upon system configuration. A sample system configuration is shown in figure 1-1, sheets 1 and 2, and more detailed system cabling requirements are given in SP 2012, "Guide for Planning the Installation of a UNISCOPE 100 Display Terminal". Table 1-1 lists the standard UNIVAC cables, with available lengths, used for connections between devices. Item numbers correspond to reference designations on figure 1-1.

CAUTION

Finger-tighten the jackscrews on all signal connectors to ensure even contact between mating parts. Over-tightening makes the connectors difficult to remove for servicing at a later time and may cause damage to connector pins.

Table 1-1. UNIVAC System Cables

Item	Part Number	Description
1	2805096-XX	Standard unshielded cable used to connect Display Terminal with Multiplexer, modem, or DCM. Male and female ends. Maximum length to modem is 50 feet. Available lengths: 3 feet 5 feet to 100 feet in 5-foot increments 100 feet to 200 feet in 10-foot increments 200 feet to 300 feet in 20-foot increments
2	2807723-XX	Unshielded cable used to connect Display Terminal or Multiplexer with junction box assembly 2807819. One end open and one female end. Available lengths: 3 feet 5 feet to 100 feet in 5-foot increments 100 feet to 200 feet in 10-foot increments 200 feet to 300 feet in 20-foot increments
3	2807819-00	Junction box assembly, used for onsite cable fabrication.

Table 1-1. UNIVAC System Cables (Cont)

Item	Part Number	Description
4	2807724-XX	Unshielded cable used to connect junction box assembly with modem, Multiplexer, or DCM. One end open and one male end. Available lengths: 3 feet 5 feet to 100 feet in 5-foot increments 100 feet to 200 feet in 10-foot increments 200 feet to 300 feet in 20-foot increments
5	2807725-XX	Shielded cable used for long distance runs between junction box assemblies. Designed for aerial or duct installation. Both ends open. Available lengths: 300 feet to 5000 feet in 50-foot increments
6	2807765-XX	Shielded cable used for direct burial long distance runs between junction box assemblies. (Junction boxes are not buried.) Both ends open. Available lengths: 300 feet to 5000 feet in 50-foot increments
7	2807748-XX	Unshielded cable used to connect Display Terminal or Multiplexer directly to a CTMC. Male and female ends. Available lengths: 3 feet 5 feet to 100 feet in 5-foot increments 100 feet to 200 feet in 10-foot increments 200 feet to 300 feet in 20-foot increments
8	2807754-XX	Unshielded cable used to connect junction box assembly to CTMC. One end open and one male connector. Available lengths: 3 feet 5 feet to 100 feet in 5-foot increments 100 feet to 200 feet in 10-foot increments 200 feet to 300 feet in 20-foot increments
9	2807867-XX	Unshielded cable used to connect Display Terminal or Multiplexer directly to DCS. Male and female ends. Available lengths: 5 feet to 50 feet in 5-foot increments.
10	2807868-XX	Unshielded cable used to connect junction box assembly to DCS. One end open and one male connector. Available lengths: 5 feet to 50 feet in 5-foot increments

Table 1-1. UNIVAC System Cables (Cont)

Item	Part Number	Description
11	2807716-XX	Unshielded cable used to connect Display Terminal with an auxiliary device. Male and female ends. Available lengths: 5 feet 10 feet to 200 feet in 10-foot increments

This space reserved for notes.

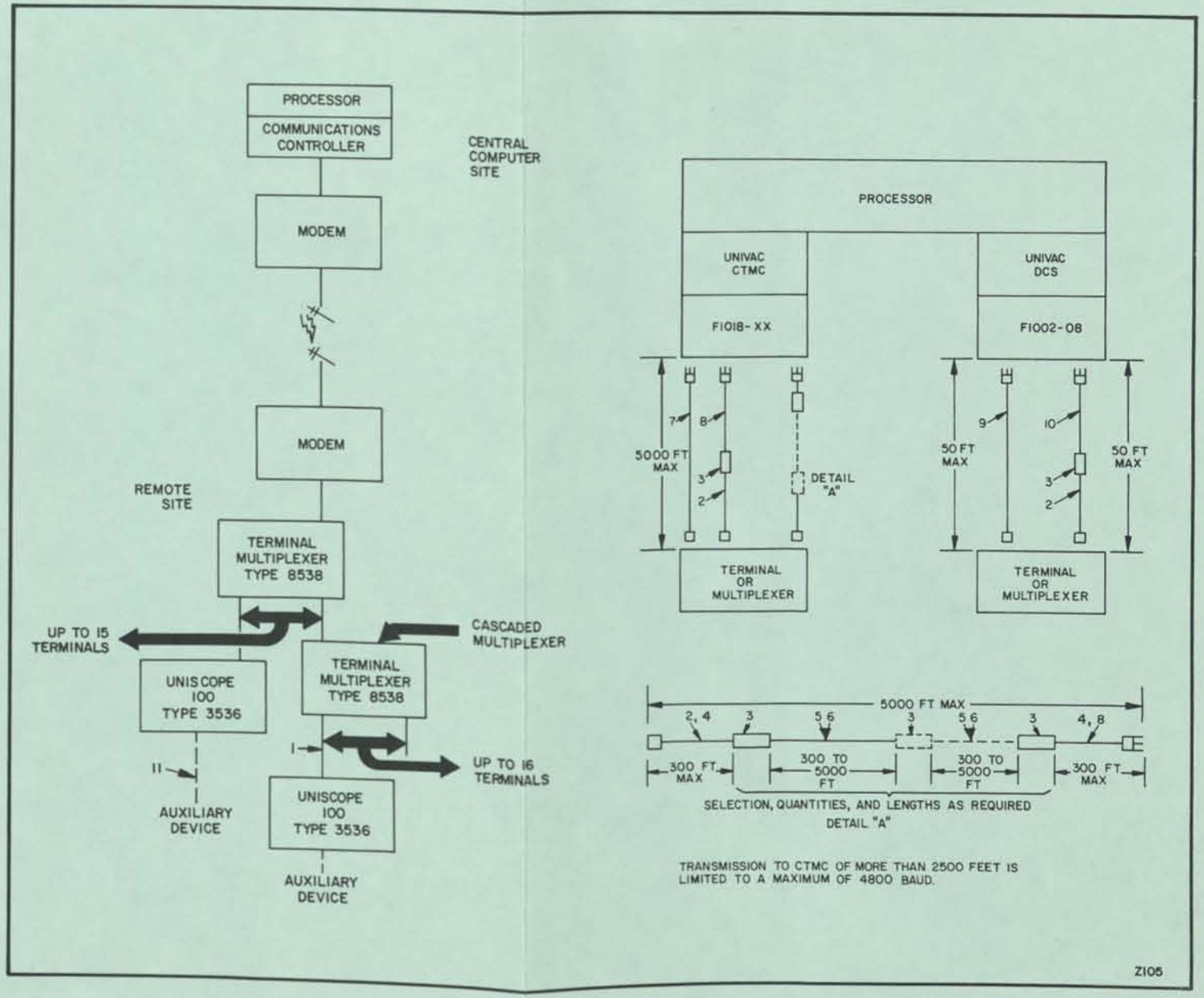

Figure 1-1. Sample System Configurations

MR6014

SECTION 2

INSTALLATION

2-1. INTRODUCTION

This section contains instructions for unpacking, installing, and checking the UNISCOPE 100 Display Terminal Type 3536-06. The procedures outlined are designed to allow the Customer Engineer to install and set-up the Display Terminal in a minimum amount of time.

2-2. EQUIPMENT PLACEMENT

The carrier is responsible for moving the equipment to its approximate location in the prescribed area. The customer should be present while the carrier is unloading and spotting the equipment to ensure that it is not handled roughly and that improper lifting devices are not used.

CAUTION

Do not use a fork-lift to move equipment containers. The Display Terminal is packed in a polystyrene container which should be handled with care.

The customer should instruct the carrier as to initial unit placement at the operating location. Correct placement at this time will avoid problems in unpacking later. After the unit is unloaded and placed in the approximate operating location, inspect the container for signs of damage that may have occurred during shipment.

If damage is found, or a portion of the shipment is missing, this must be noted on the bill of lading. Also any equipment which was handled roughly or dropped during unloading or placement should be so noted on the bill of lading, even though no damage may be apparent. This aids in filing a claim if damage is discovered during unpacking.

2-3. UNPACKING

It is recommended that two men be available for lifting the Display Terminal during unpacking to avoid possible damage to the unit.

The procedure for unpacking the unit is listed in table 2-1.

Detailed procedures for removal and replacement of the major component assemblies of the Display Terminal are described in MR6015 UNISCOPE 100 Display Terminal Type 3536-06 Servicing Data and Adjustments.

NOTE

Be sure to save packing material, shipping bags, and the two container halves removed in table 2-1, in the event that the Display Terminal should require shipment to a new location. The number of sets of shipping material to be retained should be determined in consultation with the customer. The procedure for repacking the unit is provided in Section 4.

Table 2-1. Unpacking Procedure

Step	Procedure	Reference
1	Place Display Terminal container on floor.	
2	Cut bands holding container halves together and remove top half of container.	
3	Remove bagged communications cable (if present) from top of Display Terminal.	
4	Remove and unpack Display Terminal and keyboard. Check for visible damage to the units.	
5	Remove tape securing power cord and faceplate to Display Terminal.	Figure 2-1 Page 2-7
6	Remove faceplate by releasing four tension fasteners located near corners of CRT face. Apply pressure at these points and pull straight away until faceplate clears front panel WAIT, INTENSITY, and POWER controls and indicators.	Figure 2-1
7	Release top cover by rotating fastener screws counterclockwise until spring clips release.	Figure 2-1
8	Lift top cover and swing back until cover clears two hinge slots at bottom rear of unit.	
9	Slide side panel back approximately 1/2 inch to release front clip, lift up and slightly outward to release bottom clips and remove. NOTE Make certain that side panels are on the outside of the top cover lip when assembling.	Figure 2-1
10	If front panel WAIT, INTENSITY, and POWER knobs, and WAIT, POWER, MESSAGE WAITING, and MESSAGE INCOMPL lights are not installed, they will be found in a separate shipping bag in a cavity at rear of container.	Figure 2-1
11	Install knobs and lights described in step 10.	Figure 2-1
12	Remove foam packing from top of chimney assembly and rear of component board housing assembly.	Figure 2-2 Page 2-9
13	Press chimney retainers at front and rear of chimney assembly and lift chimney assembly vertically.	Figure 2-2
14	Remove foam packing from inside of chimney assembly.	Figure 2-1
15	With one hand under large deflection coil on CRT, gently lift tube and remove foam packing from under CRT (top of power supply housing).	Figure 2-2
16	Pull keyboard cable from Display Terminal housing and attach to connector strip at rear of keyboard.	Figure 2-1

Table 2-1. Unpacking Procedure (Cont)

Step	Procedure	Reference
17	Place keyboard in approximate mounting position and rotate thumbscrews clockwise into retaining nuts on Display Terminal chassis until keyboard is firmly attached to Display Terminal cabinet.	Figure 2-1
18	Inventory equipment and fill in appropriate sections of Inventory and Inspection Report shipped with each unit. Notify branch office of any damage or shortage.	
19	If installation is to be done at this time perform the procedure provided in table 2-2. If installation is not to be done at this time perform step 15.	
20	Replace faceplate ard cover assembly.	Figure 2-1

2-4. INSTALLATION PROCEDURE

The procedure for installing the Display Terminal is provided in table 2-2.

Table 2-2. Installation Procedure

Step	Procedure	Reference
1	Remove faceplate, top cover, and side panels, if in place.	Figure 2-1
2	Check for broken or cracked connectors or terminal boards, and bent or shorted connector or wire-wrap pins. Pay particular attention to areas near circuit breakers and bus bars.	
3	Verify that all push-on terminals are securely attached to deflection coil terminals, switches, potentiometers, indicators, and so on.	
4	Verify that high voltage lead is connected to CRT.	Figure 2-2
5	Inspect for metal chips, wire cuttings, solder drippings, or other loose particles of foreign material.	
6	Verify that all cables are securely plugged into the appropriate connectors.	
7	Remove all printed circuit boards from Display Terminal (except power supply).	
8	Place Display Terminal on right side.	Figure 2-3 Page 2-11
	NOTE Line voltages may vary over a period of time. The nominal operating voltage at the site should be determined before strapping as described in step 9. The lowest range which contains the nominal operating voltage should be selected.	
9	Determine voltage level at operating location and strap voltage selector appropriately.	Figure 2-4 Page 2-13
10	Fill out the Configuration Description Record shipped with each unit. Follow instructions contained on form. When future field change orders (FCO's) are installed, a record should be kept on the reverse side of form.	
11	Set circuit breaker CB01 to OFF.	Figure 2-1
12	Set enable/disable switch S01 to "disable" (forward) position.	Figure 2-1
	NOTE Units are shipped from the factory strapped for 115 VAC, with an H. Hubbell 5251, 5252, or equivalent 60 Hz power plug. On units to be used with 230 VAC, a 50 Hz primary power plug must first be installed. Wires are color coded as follows: BLACK - "Hot"; WHITE - Neutral; GREEN - Ground.	

Table 2-2. Installation Procedure (Cont)

Step	Procedure	Reference
13	Connect power cord to primary power source.	
14	Set circuit breaker CB01 to ON.	Figure 2-1
	WARNING When step 15 is performed primary power is applied to the Display Terminal. Use caution in performing the remainder of this procedure.	
15	Press and release front panel POWER pushbutton S03. Note indicator lamp in S03 lights as power is applied to Display Terminal.	Figure 2-1
16	Verify that fan B01 is operating and airflow is unobstructed.	
17	Verify that power supply voltages are within "no load" values.	Table 2-3
18	Perform required Display Terminal strapping.	Section 3
19	Set circuit breaker CB01 to OFF and insert component boards in correct positions. If boards do not insert easily with finger pressure check connectors for foreign particles or bent contacts.	Figure 2-1 Figure 2-2
20	Set circuit breaker CB01 to ON.	Figure 2-1
21	With all component boards installed, verify operating range power supply voltages.	Table 2-3 Figure 2-5 Page 2-15
22	Set enable/disable switch S01 to "enable" (rear) position.	Figure 2-1
	NOTE Perform steps 24 through 29 and omit step 23 for units with protect format. For units without protect format perform step 23, omit steps 24 through 27, and perform steps 28 and 29.	
23	Press and release CURSOR TO HOME and ERASE TO END OF DISPL keys. After a warm-up of approximately 30 seconds, cursor should appear at upper left hand corner of display screen. If cursor does not appear, rotate front panel INTENSITY control R01 clockwise until cursor appears.	Figure 2-1 Figure 2-6 Page 2-17
	NOTE Steps 24 through 27 are performed to clear all data, both protected and unprotected, from the Display Terminal memory.	
24	Press and release CURSOR TO HOME and ERASE DISPL keys.	Figure 2-6

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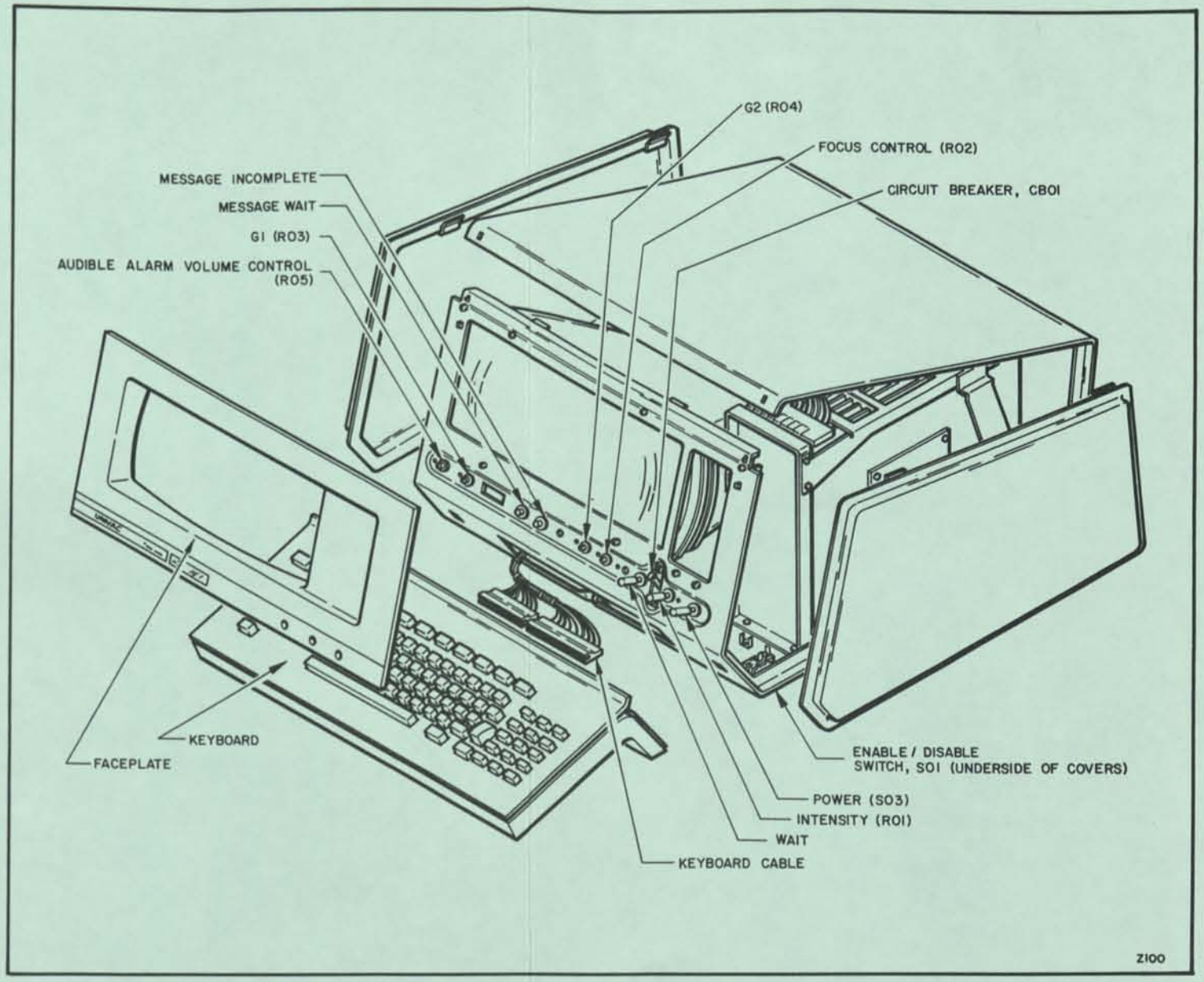

Figure 2-1. UNISCOPE 100 Display Terminal Cover Removal

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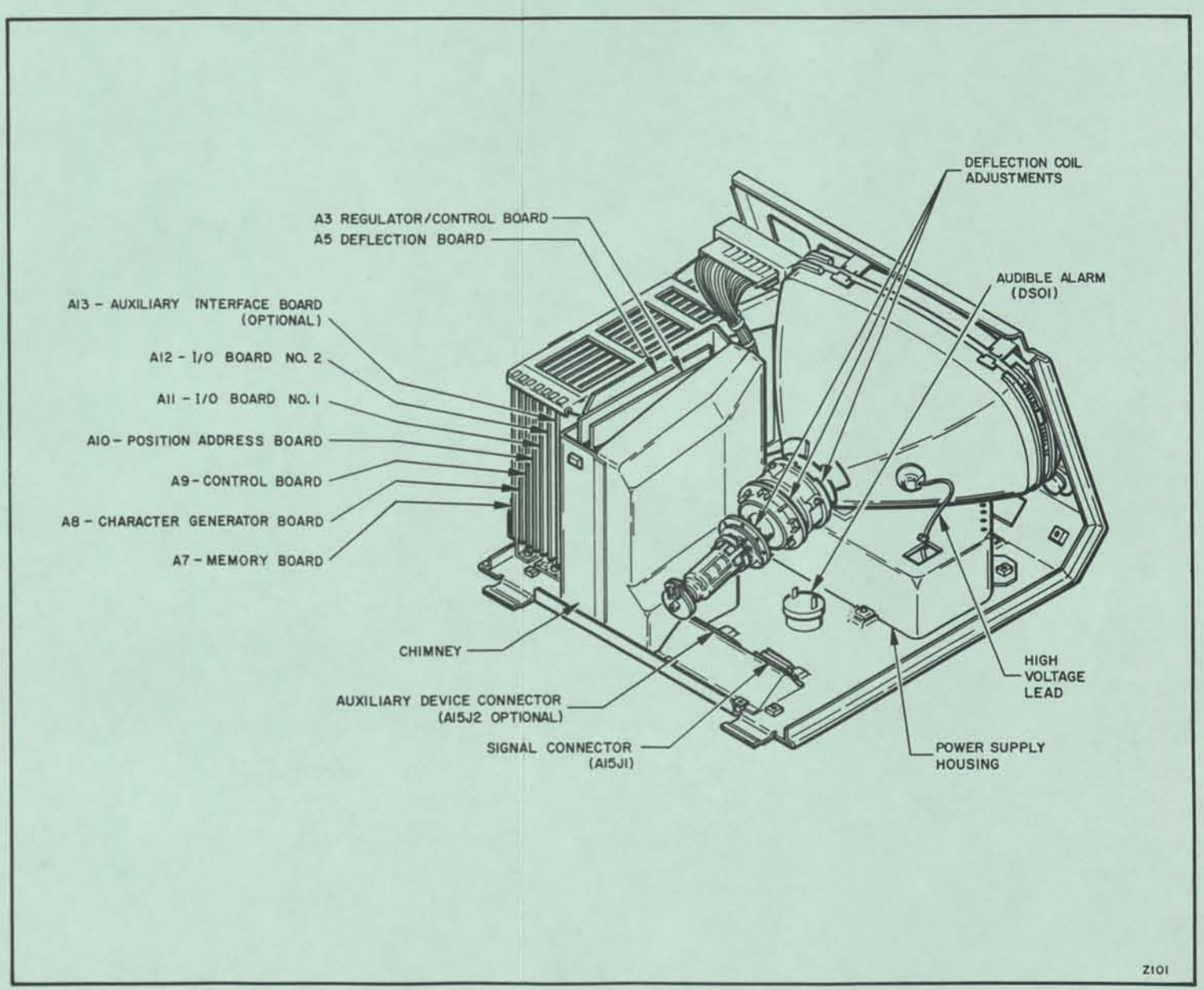

Figure 2-2. UNISCOPE 100 Display Terminal Rear View

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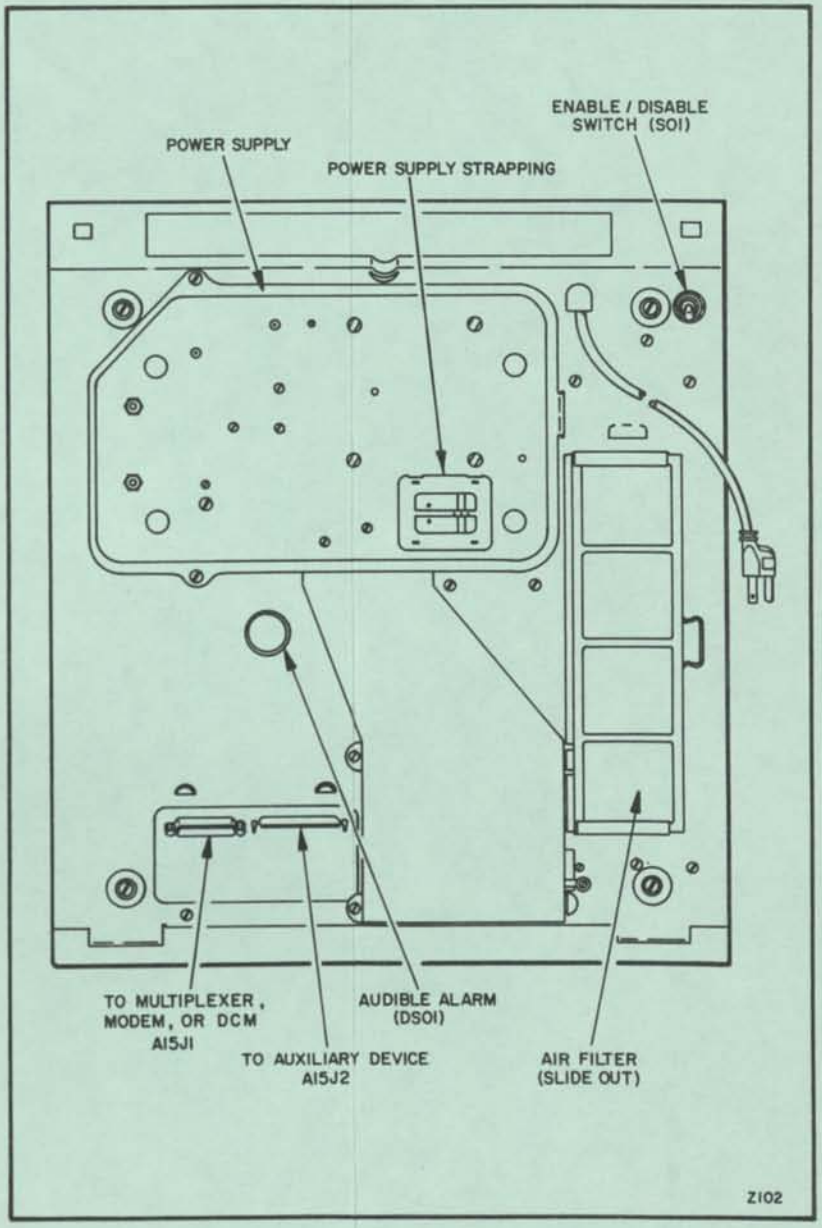

Figure 2-3. UNISCOPE 100 Display Terminal
Bottom View

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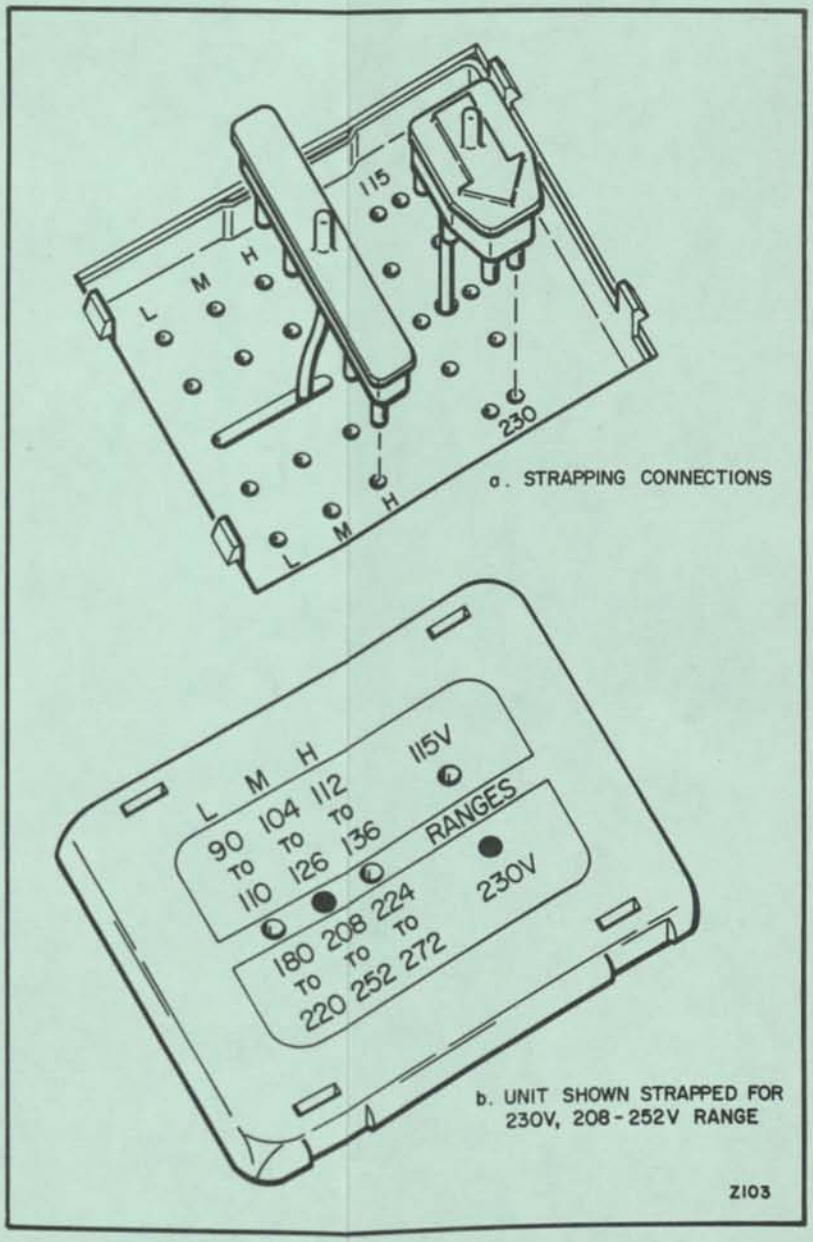

Figure 2-4. Voltage Selector Strapping

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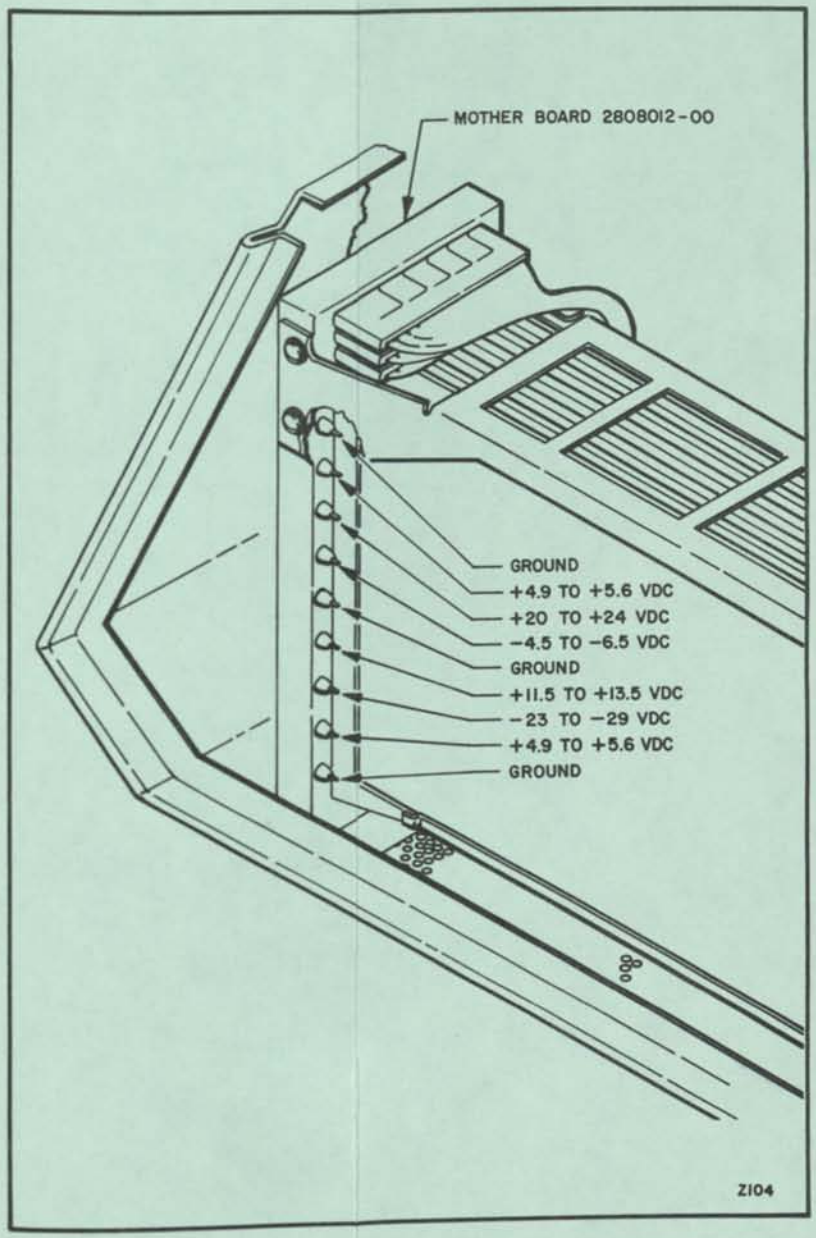

Figure 2-5. Voltage Bus Locations

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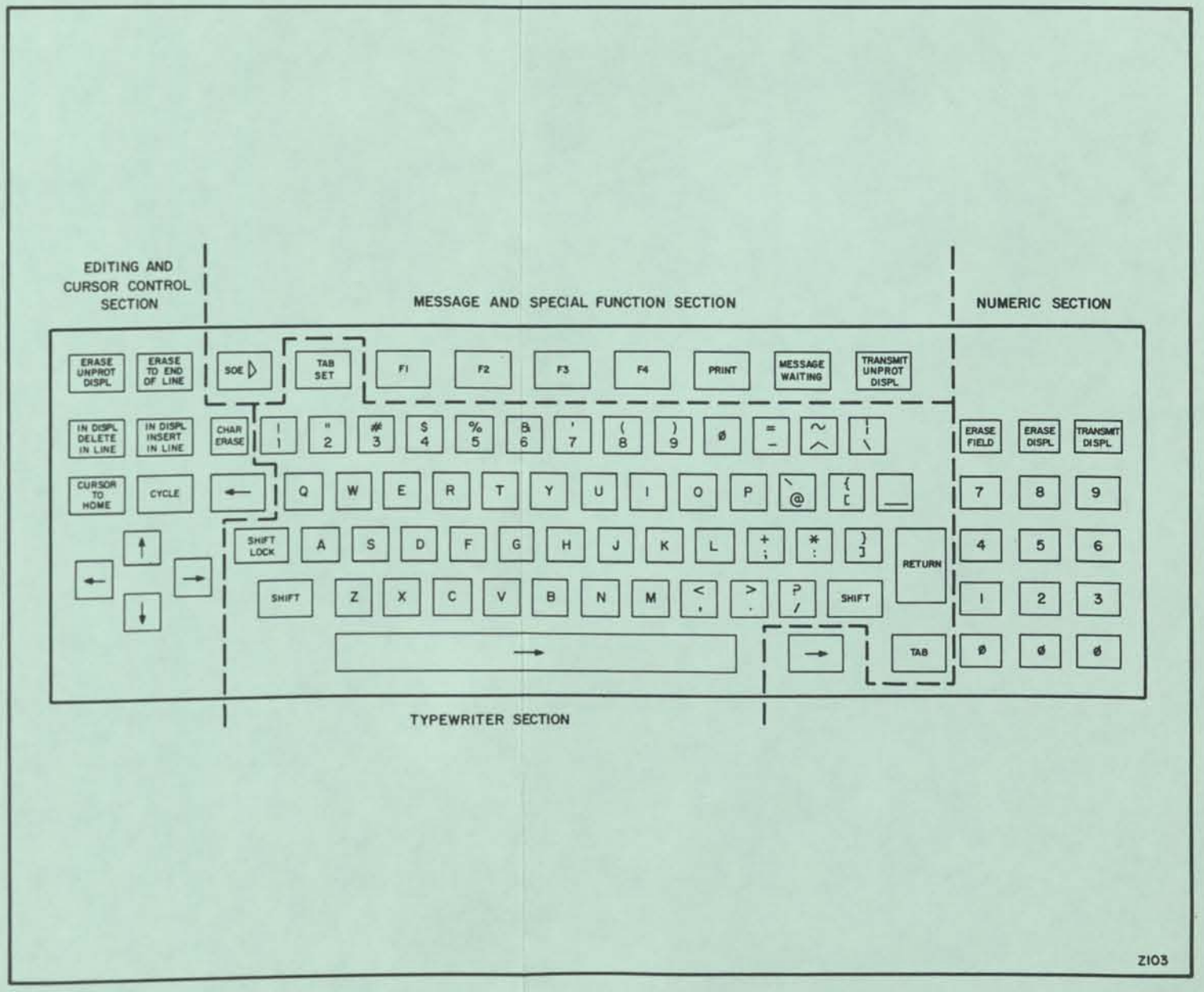

Figure 2-6. UNISCOPE 100 Display Terminal Keyboard

SECTION 3

PRINTED CIRCUIT BOARD STRAPPING

3-1. GENERAL

This section contains procedures for strapping the printed circuit boards of the UNISCOPE 100 Display Terminal Type 3536-06. The Display Terminal may be operated in either a synchronous or an asynchronous mode and in a variety of configurations. Table 3-1 provides a list of strapping connections which may be performed in the field and references the tables which provide strapping details.

NOTE

If the unit is to be installed in a 3760 Communications Controller Console only the strapping described in table 3-1 for the power supply board (A2) and the regulator/control board (A3) should be performed.

Table 3-1. Display Terminal Strapping - By Printed Circuit Board

Board	Description	Strapping Function	Reference	
			Figure	Table
A2	Power Supply	Operating voltage and average level	Section 2	
A3	Regulator/ Control	Use with 64 or 96 character A8 board	3-4 Page 3-15	----
A9	Control	Protect Format	3-5 Page 3-17	----
A11	I/O-1	RID/SID Selection	3-1,3-2 Page 3-11,3-13	3-4,3-5
		System use (UNIVAC/IBM)	3-1,3-2	3-8,3-11
A12	I/O-2	Interface mode selection	3-1,3-2	3-6,3-9
		Baud rate (direct-synchronous)	3-3 Page 3-15	3-7
		Baud rate (asynchronous)	3-1,3-2	3-10
		System use (UNIVAC/IBM)	3-1,3-2	3-8,3-11

Table 3-2 provides a step-by-step procedure for strapping the Display Terminal for synchronous operation, and table 3-3 provides a step-by-step procedure for strapping the Display Terminal for asynchronous operation.

The Display Terminal may already be strapped to any one of a variety of configurations. Therefore, check carefully to ensure that each strap conforms to the requirements for the system in which the unit is being installed.

It should be noted that the strapping connectors resemble IC packs; however, each pin on one side of a strapping connector feeds through the body of the connector and is electrically common with the corresponding pin of the other side of the connector. Thus, the pins on either side of the strapping connector may be lifted for strapping.

The strapping connectors are usually installed with the pins slightly compressed to fit the strapping socket. Lifting too many pins on one side of the strapping connector may cause the remaining pins on that side to become disengaged from the socket. It is recommended that not more than four pins be lifted on one side of a strapping connector.

Three identifier codes used by the processor to address units in a system -- a Remote IDentifier (RID), Station IDentifier (SID), and Device IDentifier (DID) -- are discussed briefly here and more completely in UP-7807, "UNISCOPE 100 Display Terminal Programmers Reference." Each identifier corresponds to an addressing "level" as follows:

(a) RID is the first level of addressing. In a system using the UNIVAC Type 8538 Terminal Multiplexer, the RID code is normally used to address a group of Display Terminals connected to a single line or data channel. However, all units operating through a given Multiplexer do not have to respond to the same RID.

(b) SID is the second level of addressing and is normally used to address a specific Display Terminal within a group which responds to a given RID.

(c) DID is the third level of addressing and is used to identify an auxiliary device connected to a specific Display Terminal. DID codes are selected at the auxiliary device rather than at the Display Terminal.

RID and SID codes are selected at the Display Terminal by means of strapping connectors which plug into input/output (I/O) board no. 1 (A11). Note that in tables 3-4 and 3-5 one character from each group (40, RID and 120, SID) has been selected as a General IDentifier (GID). General identifiers can be used in any or all of the identifier positions of a message. For example if a GID is used in the RID address position of a computer message, all groups and any connected displays will recognize that GID as the RID portion of their address. All UNIVAC terminal devices are hard-wired to respond to the GID selection codes.

Strapping connector 2805281-17 is used to make the connector described in this section. Pins are bent up on 2805281-17 as listed in the tables to make connector part numbers 2807774-00 through 2807774-70.

The Display Terminal can be connected directly to a central processor equipped with a Communication Terminal Module Controller (CTMC) or Data Communication Subsystem (DCS) by installing direct interface board 2808063 (A12). The CTMC provides interface to a UNIVAC 400 or 1100 Series computer and the DCS provides interface to a UNIVAC 9000 Series computer. An appropriate baud rate must be selected by connecting straps on 2808063 as listed in table 3-7. The direct interface board can be used in conjunction with any synchronous I/O no. 1 board (A11).

Synchronous strapping is described for a noninverted clock signal as specified in MIL-STD-188C. MIL-STD-188B specified either an inverted or noninverted clock signal, and modems contain a provision which allows either configuration.

The modem configuration present in the system in which the Display Terminal is being installed should be determined and changed to conform to the MIL-STD-188C (noninverted) clock signal if necessary.

Table 3-2. Strapping Procedure for Synchronous Operation

Step	Procedure	Figure	Table
1	Strap RID selection on input/output (I/O) board no. 1 (A11), location Z72.	3-1	3-4
2	Strap SID selection on I/O board no. 1 (A11), location Z60.	3-1	3-5
3	Strap interface selection on I/O board no 2 (A12).	3-1	3-6
4	Strap baud rate selection on direct interface board 2808063 (A12) if applicable.	3-1	3-7
5	Strap for IBM system operation (if applicable) on I/O board no. 1 (A11) and I/O board no. 2 (A12).	3-1	3-8

Table 3-3. Strapping Procedure for Asynchronous Operation

Step	Procedure	Figure	Table
1	Strap RID selection on I/O board no. 1 (A11), location Z72.	3-2	3-4
2	Strap SID selection on I/O board no. 1 (A11), location Z60.	3-2	3-5
3	Strap interface selection on I/O board no. 2 (A12).	3-2	3-9
4	Strap baud rate selection on I/O board no. 2 (A12), location Z133.	3-2	3-10
5	Strap for IBM system operation (if applicable) on I/O board no. 1 (A11) and I/O board no. 2 (A12).	3-2	3-11

Table 3-4. RID Address Codes

RID Code (Octal)	Connector Part Number	Bend Pins
40 (GID)	2807774-01	3-5-7-9-11-13
41	2807774-02	3-5-7-9-13
42	2807774-03	3-7-9-11-13
43	2807774-04	3-7-9-13
44	2807774-05	5-7-9-11-13
45	2807774-06	5-7-9-13
46	2807774-07	7-9-11-13
47	2807774-08	7-9-13
50	2807774-09	3-5-7-9-11
51	2807774-10	3-5-7-9
52	2807774-11	3-7-9-11
53	2807774-12	3-7-9
54	2807774-13	5-7-9-11
55	2807774-14	5-7-9
56	2807774-15	7-9-11
57	2807774-16	7-9
60	2807774-17	3-5-9-11-13
61	2807774-18	3-5-9-13
62	2807774-19	3-9-11-13
63	2807774-20	3-9-13
64	2807774-21	5-9-11-13
65	2807774-22	5-9-13
66	2807774-23	9-11-13

Table 3-4. RID Address Codes (Cont)

RID Code (Octal)	Connector Part Number	Bend Pins
67	2807774-24	9-13
70	2807774-25	3-5-9-11
71	2807774-26	3-5-9
72	2807774-27	3-9-11
73	2807774-28	3-9
74	2807774-29	5-9-11
75	2807774-30	5-9
76	2807774-31	9-11
77	2807774-32	9
100	2807774-33	1-3-5-7-11-13
101	2807774-34	1-3-5-7-13
102	2807774-35	1-3-7-11-13
103	2807774-36	1-3-7-13
104	2807774-37	1-5-7-11-13
105	2807774-38	1-5-7-13
106	2807774-39	1-7-11-13
107	2807774-40	1-7-13
110	2807774-41	1-3-5-7-11
111	2807774-42	1-3-5-7
112	2807774-43	1-3-7-11
113	2807774-44	1-3-7
114	2807774-45	1-5-7-11
115	2807774-46	1-5-7
116	2807774-47	1-7-11
117	2807774-48	1-7

Table 3-5. SID Address Codes

SID Code (Octal)	Connector Part Number	Bend Pins
120 (GID)	2807774-17	3-5-9-11-13
121	2807774-21	5-9-11-13
122	2807774-25	3-5-9-11
123	2807774-29	5-9-11
124	2807774-18	3-5-9-13
125	2807774-22	5-9-13
126	2807774-26	3-5-9
127	2807774-30	5-9
130	2807774-19	3-9-11-13
131	2807774-23	9-11-13
132	2807774-27	3-9-11
133	2807774-31	9-11
134	2807774-20	3-9-13
135	2807774-24	9-13
136	2807774-28	3-9
137	2807774-32	9
140	2807774-49	1-3-5-11-13
141	2807774-50	1-5-11-13
142	2807774-51	1-3-5-11
143	2807774-52	1-5-11
144	2807774-53	1-3-5-13
145	2807774-54	1-5-13
146	2807774-55	1-3-5
147	2807774-56	1-5
150	2807774-57	1-3-11-13
151	2807774-58	1-11-13
152	2807774-59	1-3-11
153	2807774-60	1-11
154	2807774-61	1-3-13

Table 3-5. SID Address Codes (Cont)

SID Code (Octal)	Connector Part Number	Bend Pins
155	2807774-62	1-13
156	2807774-63	1-3
157	2807774-64	1

Table 3-6. Synchronous Interface Selection

System Operation	Connector Location on A12	Connector Part Number	Bend Pins
RS232C/V.24	Z24	2807774-00	None
	Z48	2807774-40	1-7-13
Display Terminal	Z60	2807774-00	None
to Modem	Z72	2807774-14	5-7-9
	Z84	2807774-00	None
MIL-STD-188C	Z36	2807774-69	4-7
	Z48	2807774-09	3-5-7-9-11
Display Terminal	Z60	2807774-70	2-3-4-6-7-8
to Modem	Z72	2807774-14	5-7-9
	Z96	2807774-00	None
Multiplexer	Z48	2807774-09	3-5-7-9-11
	Z60	2807774-00	None
Display Terminal	Z72	2807774-33	1-3-5-7-11-13
to Multiplexer	Z84	2807774-00	None
Modem	Z48	2807774-09	3-5-7-9-11
	Z60	2807774-00	None
Long Distance	Z72	2807774-14	5-7-9
Interface	Z84	2807774-00	None

Table 3-7. Direct Interface Baud Rate Selection

Baud Rate	Strapping Connection at Location XZ84
2400 bps	Pin 3 to Pin 12
4800 bps	Pin 1 to Pin 14
9600 bps	Pin 2 to Pin 13

Table 3-8. IBM Synchronous Interface Connection

I/O Board No. 1 (A11)	I/O Board No. 2 (A12)
Strap:	Strap:
E1 to E2	A to B
E3 to E4	C to D

Table 3-9. Asynchronous Interface Selection

System Operation	Connector Location on A12	Connector Part Number	Bend Pins
RS232C/V.24	Z24	2807774-00	None
	Z48	2807774-65	3-7-13
Display Terminal	Z60	2807774-64	1
to Modem	Z72	2807774-15	7-9-11
	Z84	2807774-00	None
MIL-STD-188C	Z36	2807774-00	None
	Z48	2807774-66	1-5-7-9-11
Display Terminal	Z72	2807774-15	7-9-11
to Modem	Z96	2897774-00	None
Multiplexer	Z48	2807774-66	1-5-7-9-11
	Z60	2807774-00	None
Display Terminal	Z72	2807774-33	1-3-5-7-11-13
to Multiplexer	Z84	2807774-00	None
Modem	Z48	2807774-66	1-5-7-9-11
	Z60	2807774-64	1
Long Distance	Z72	2807774-15	7-9-11
Interface	Z84	2807774-15	7-9-11

Table 3-10. Asynchronous Baud Rate Selection

Baud Rate	Connector Part Number	Bend Pins
300 bps	2807774-67	1-3-9-11-13
600 bps	2807774-34	1-3-5-7-13
1200 bps	2807774-19	3-9-11-13
1600 bps	2807774-42	1-3-5-7
1800 bps	2807774-38	1-5-7-13
2400 bps	2807774-68	3-5-7-13

Table 3-11. IBM Asynchronous Interface Connection

I/O Board No. 1 (A11)	I/O Board No. 2 (A12)
Strap:	Strap:
E1 to E2 E3 to E4	E1 to E2

3-2. PRINTED CIRCUIT BOARD INTERCHANGEABILITY

Several printed circuit boards within the Display Terminal are assigned part numbers as a result of strapping provisions contained on the boards. For, example; input/output board no. 1 (A11), synchronous - UNIVAC, is the same board as input/output board no. 1, synchronous IBM except for the connection of the IBM straps listed in table 3-8. Interchangeable boards are listed in table 3-12.

Table 3-12. Interchangeable Board Pairs

Board	Description	Part Number	Strapping	Reference Figure	Reference Table	Remarks
A11	I/O-1 Sync-UNIVAC	2808054	E1-E2, E3-E4 OUT	3-1	---	
A11	I/O-1 Sync-IBM	2808056	E1,E2 E3-E4 IN	3-1	3-8	
A12	I/O-2 Sync-UNIVAC	2808055	A-B C-D OUT	3-1	---	
A12	I/O-2 Sync-IBM	2808057	A-B C-D IN	3-1	3-8	
A11	I/O-1 Async-UNIVAC	2808059	E1-E2 E3-E4 OUT	3-2	---	
A11	I/O-1 Async-IBM	2808061	E1-E2 E3-E4 IN	3-2	3-11	
A12	I/O-2 Async-UNIVAC	2808060	E1-E2 OUT	3-2	---	
A12	I/O-2 Async-IBM	2808062	E1-E2 IN	3-2	3-11	
A3	Regulator/ Control	2807934	E1-E2 IN	3-4	---	Used with A8 board 2807786 (64C)
A3	Regulator/ Control	2807934	E1-E2 OUT	3-4	---	Used with A8 board 2807816 (96C)
A9	Control, with Protect Format	2808052	E20-E23 IN	3-5	---	A8, A17, must be Protect Format
A9	Control, without Protect Format	2808053	E20-E23 OUT	3-5	---	A8, A17, must not be Protect Format

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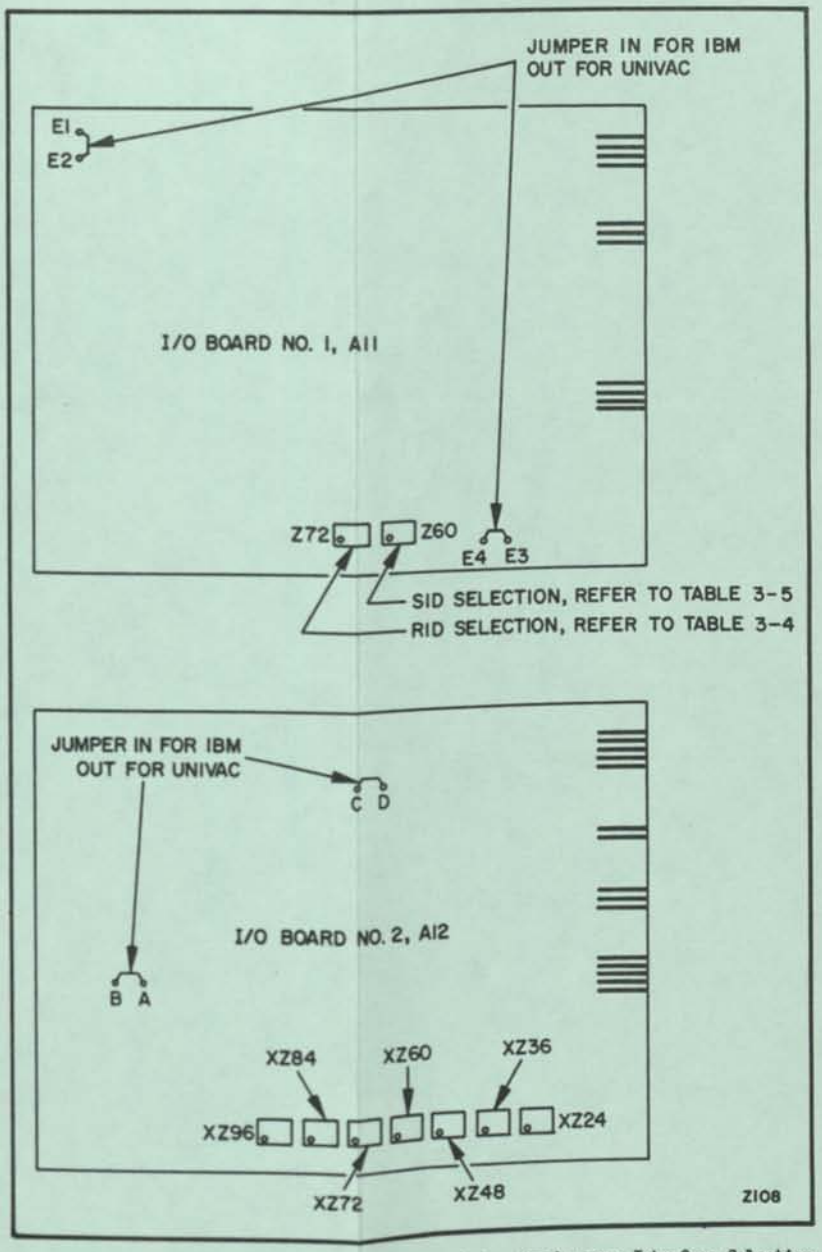

Figure 3-1. Synchronous Interface Selection

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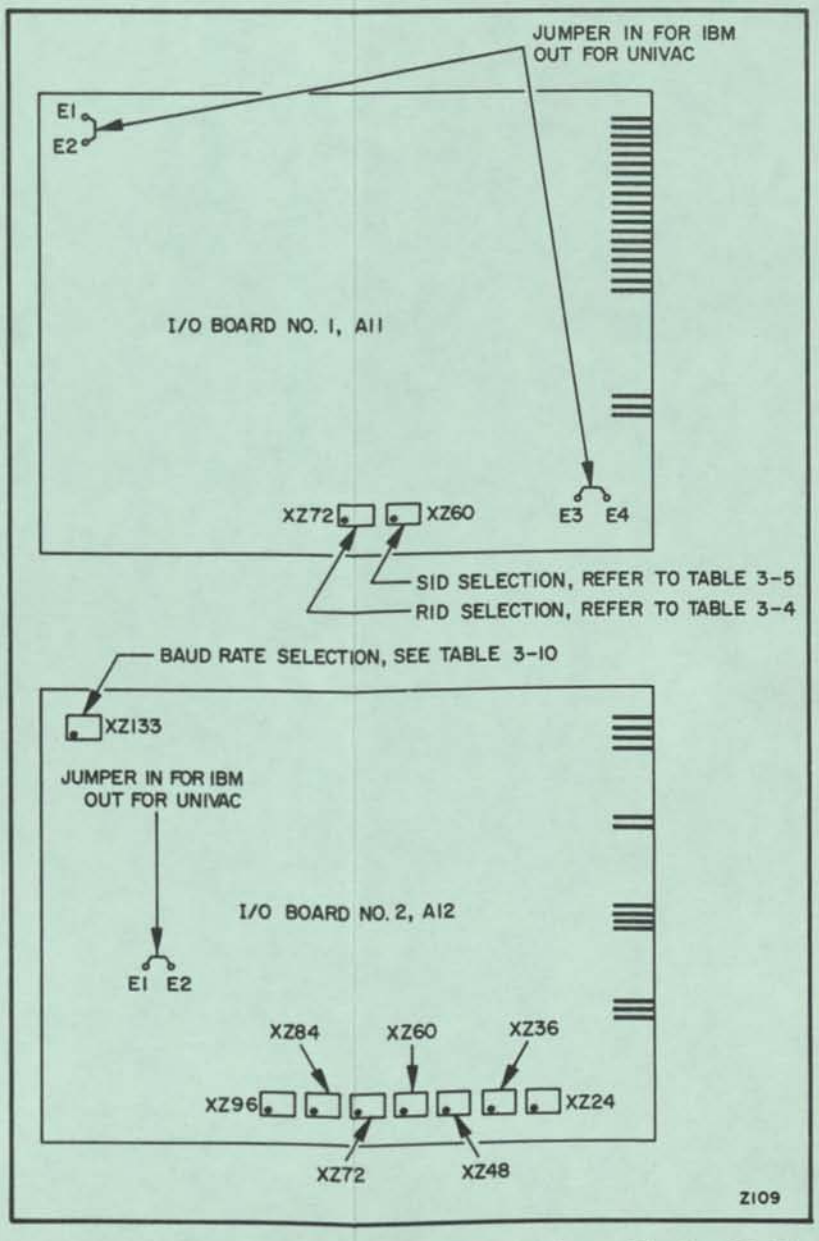

Figure 3-2. Asynchronous Interface Selection

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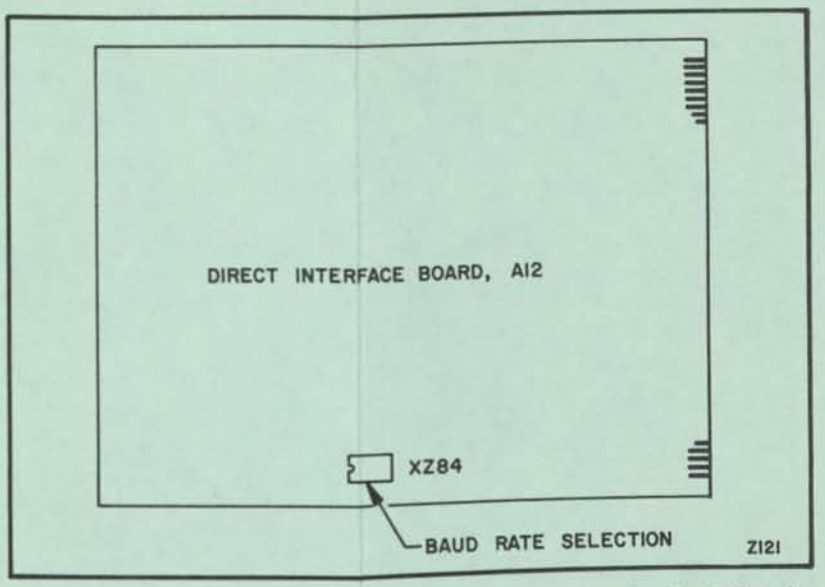

Figure 3-3. Direct Interface Board Strapping

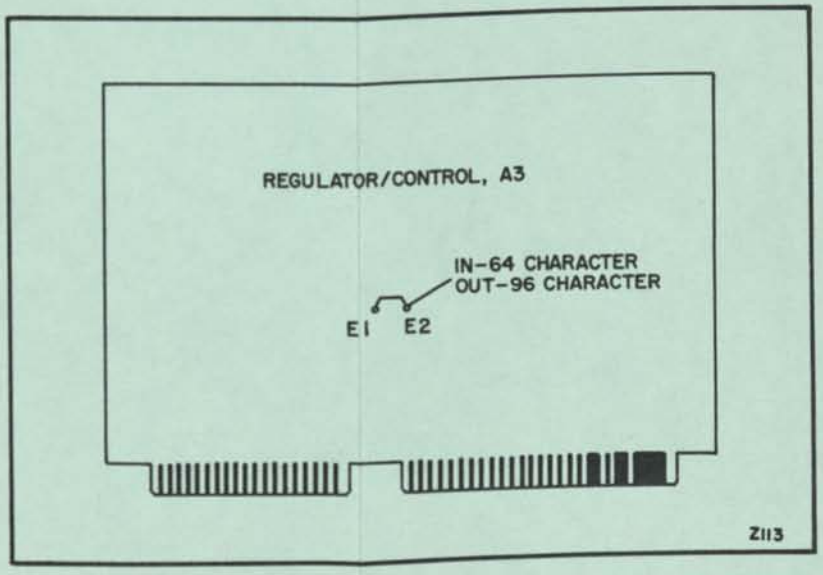

Figure 3-4. Regulator/Control Strapping

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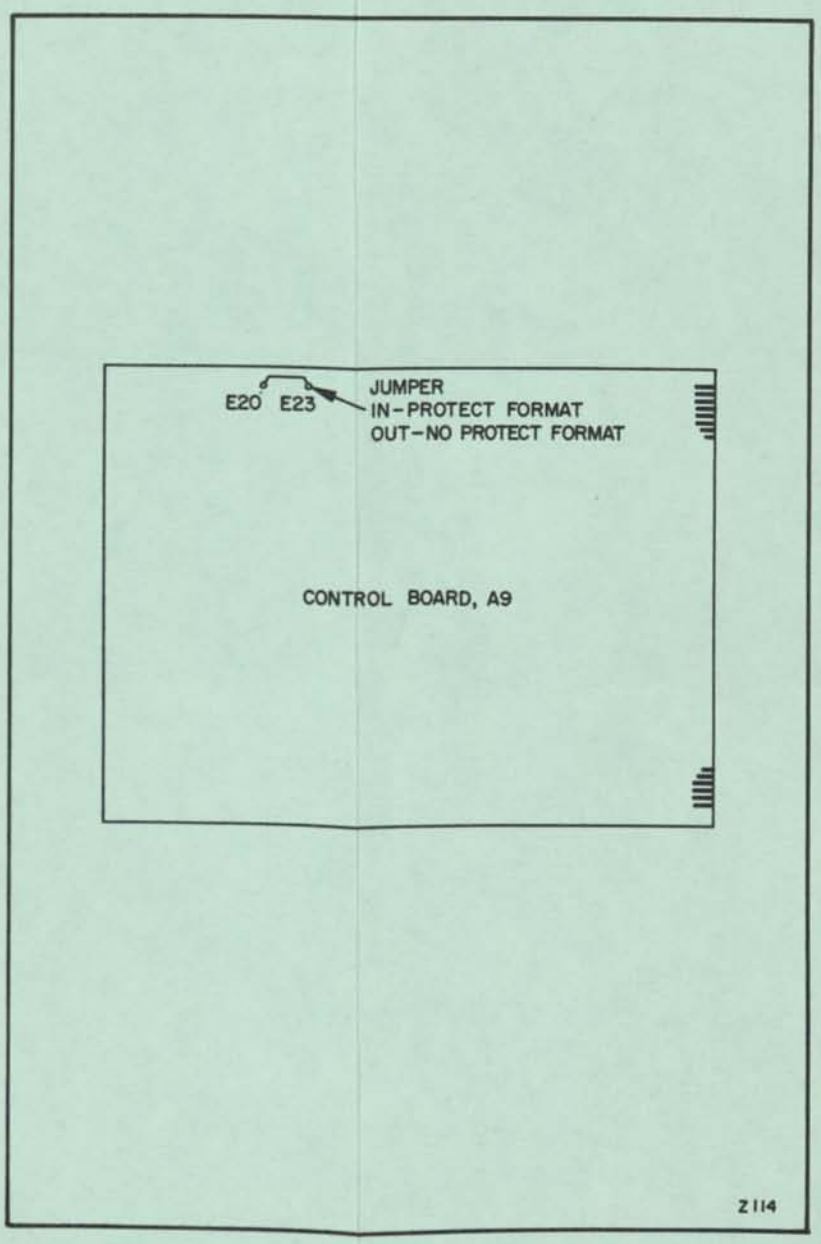

Figure 3-5. Control Board Strapping

SECTION 4

REPACKING

4-1. GENERAL

This section contains instructions for disconnecting and repacking the UNISCOPE 100 Display Terminal Type 3536 in preparation for shipment. Table 4-1 lists the cleaning materials and equipment needed to prepare the Display Terminal for shipment. Table 4-2 provides a step-by-step procedure for repacking the Display Terminal.

Table 4-1. Cleaning Materials and Equipment

Quantity	Description
1 qt.	Detergent, mild household
1	Cloth, clean, dry, lint free

Table 4-2. Repacking Procedure

Step	Procedure	Reference
1	Remove primary power from Display Terminal.	
2	Remove keyboard, disconnect cable, and replace cable in Display Terminal housing.	Figure 4-1 Page 4-3
3	Remove faceplate and cover assembly.	Figure 4-1
4	Remove WAIT, INTENSITY, and POWER control knobs, place in padded shipping bag, and place in cavity at rear of lower container.	Figure 4-1
5	Place one hand under major deflection coil, gently lift, and insert foam packing on top of power supply housing.	Figure 4-2 Page 4-5
6	Replace side panels.	Figure 4-1
7	Replace foam packing at rear of component board assembly.	Figure 4-2
8	Remove chimney assembly and replace foam packing.	Figure 4-2
9	Replace chimney assembly.	Figure 4-2
10	Replace foam packing in cutout on underside of top cover.	
11	Close top cover. Make sure both front panel fasteners are engaged.	Figure 4-1
12	Replace faceplate and secure to front panel with a piece of tape on each side.	Figure 4-1
13	Coil and tape power cable.	Figure 4-3 Page 4-7
14	Place Display Terminal in shipping bag.	
15	Fold shipping bag over Display Terminal and place unit in lower styrofoam container so that display screen is toward front of container and coiled power cable lies in cavity at rear center of container.	

Table 4-2. Repacking Procedure (Cont)

Step	Procedure	Reference
14	Place Display Terminal in shipping bag.	
15	Fold shipping bag over Display Terminal and place unit in lower styrofoam container so that display screen is toward front of container and coiled power cable lies in cavity at rear center of container.	
16	Place keyboard in shipping bag.	
17	Place bagged keyboard, front end down and keys facing forward, into cutout at front of lower styrofoam container.	
18	Coil, tape, and place the communications cable (50 feet maximum) in a padded shipping bag and place on top of Display Terminal so that cable fits in cutout in upper styrofoam container.	
19	Place upper styrofoam container over Display Terminal, and gently pull keyboard forward while pressing upper container into place. This is to ensure that keyboard does not wedge against CRT.	
20	Strap or tape container halves together and place in shipping box.	
21	Seal box for shipment.	

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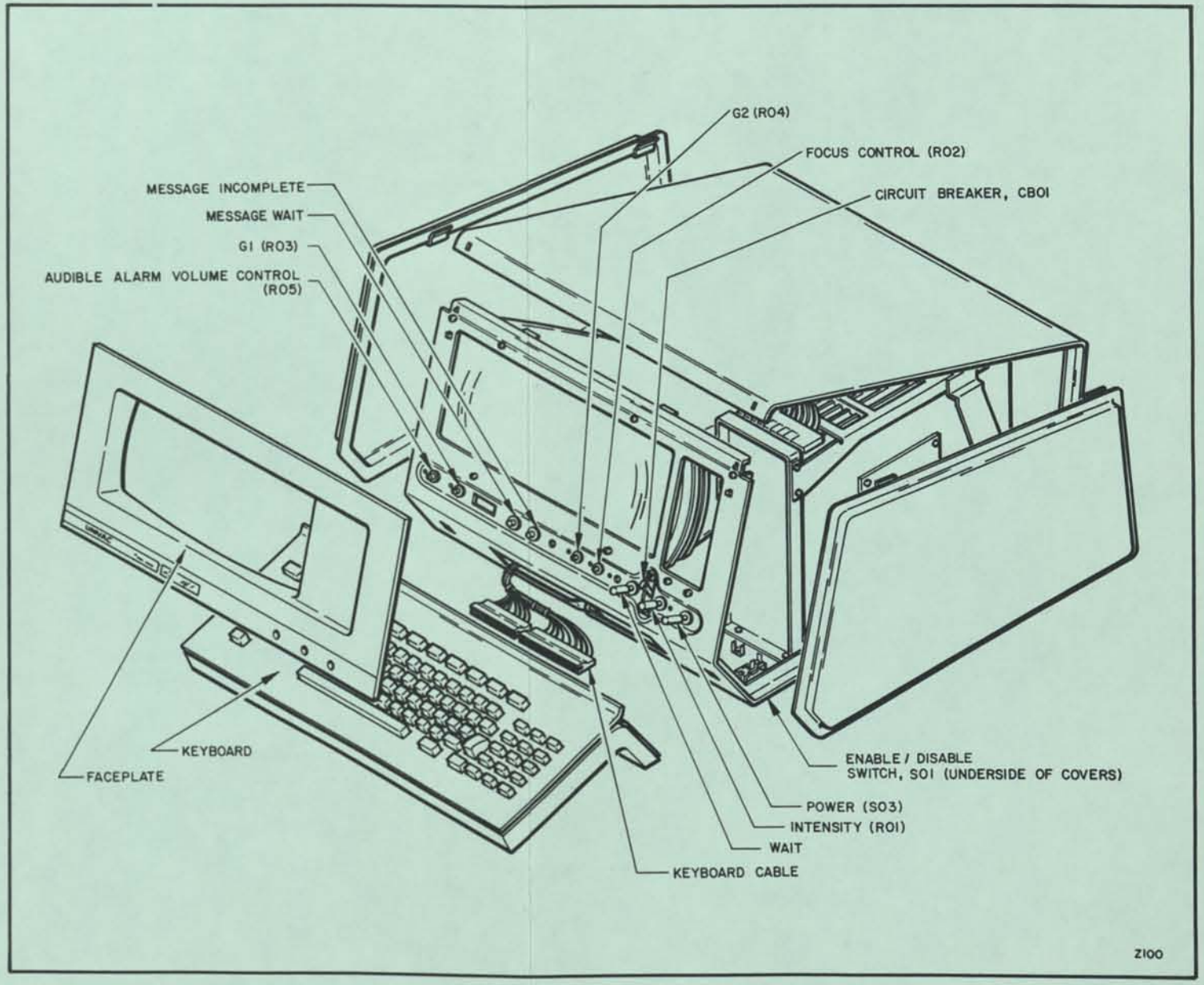

Figure 4-1. UNISCOPE 100 Display Terminal Cover Removal

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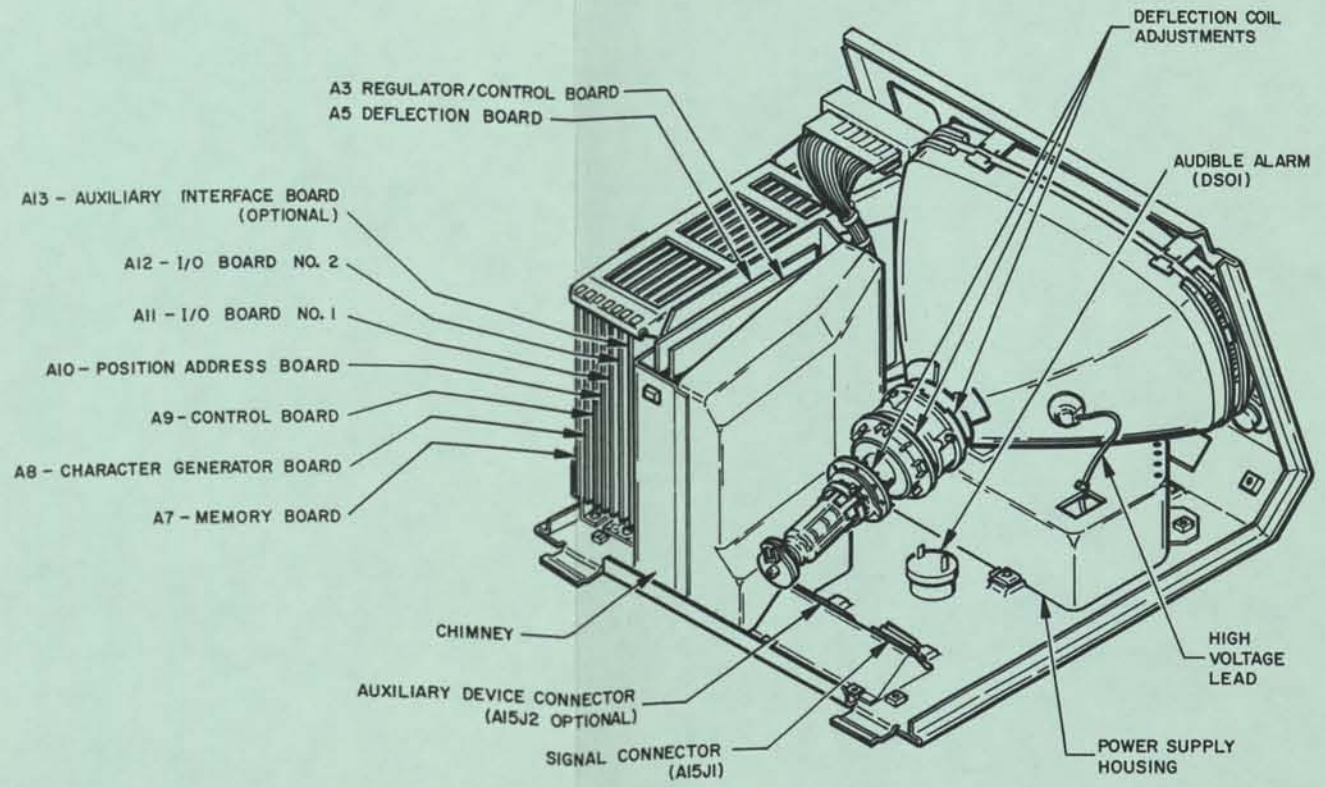

Figure 4-2. UNISCOPE 100 Display Terminal Rear View

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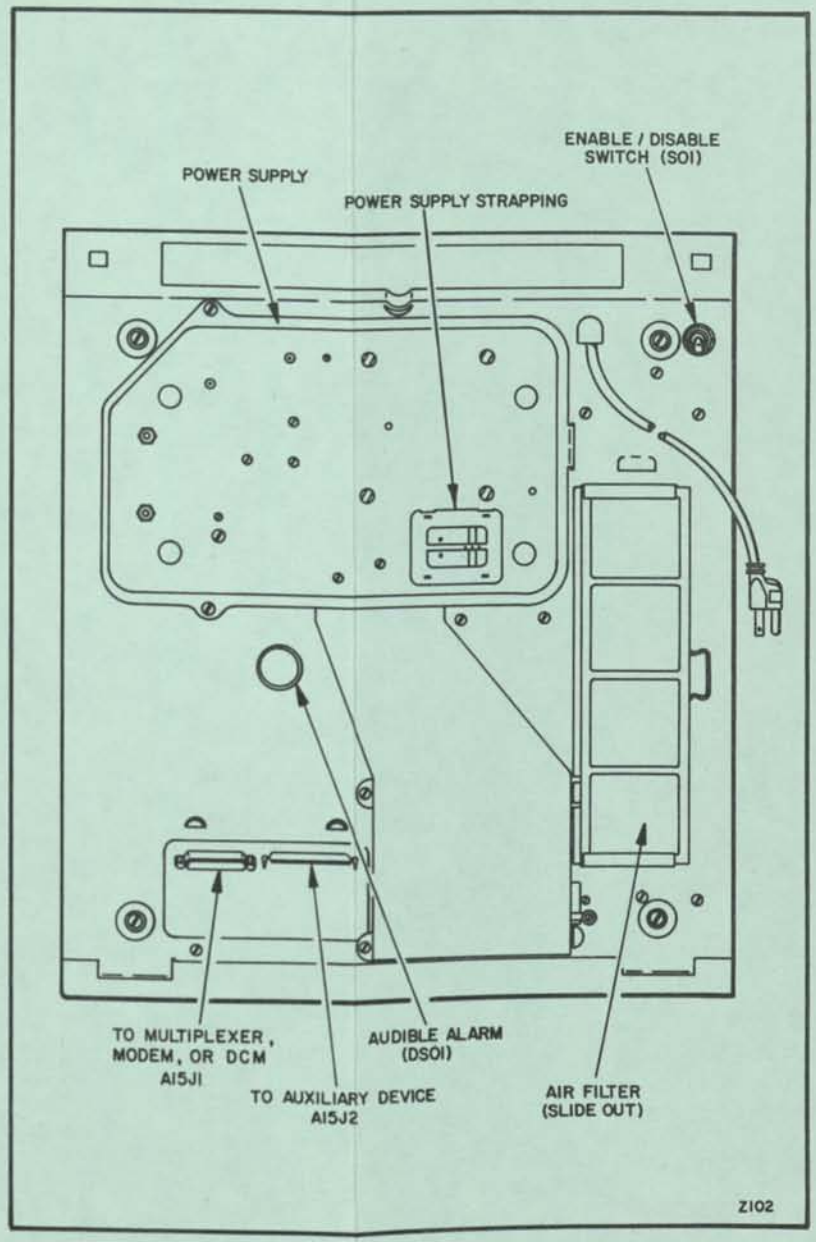

Figure 4-3. UNISCOPE 100 Display Terminal Bottom View

MR6015

UNIVAC UNISCOPE 100 DISPLAY TERMINAL TYPE 3536-06

SERVICING DATA AND ADJUSTMENTS

AUGUST, 1973

SPERRY UNIVAC

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SECTION 1

INTRODUCTION

1-1. SCOPE

This book is divided into three sections that contain servicing data for the UNIVAC® UNISCOPE® 100 Display Terminal Type 3536-06 (Display Terminal). These sections contain the following:

Section 2 provides a description of unit features, with listings of available and interchangeable printed circuit boards.

Section 3 describes the operation of the controls and indicators for the Display Terminal.

Section 4 contains electrical and mechanical procedures required for servicing the Display Terminal.

1-2. REFERENCE DOCUMENTATION

SD 12002-00 Servicing Diagrams for UNISCOPE 100, Types 3536-04, -05, -06

UP-7788 UNISCOPE 100 Display Terminal Operators Reference

UP-7807 UNISCOPE 100 Display Terminal Programmers Reference

1-3. DISPLAY TERMINAL DESCRIPTION

The Display Terminal is an input/output terminal device used to receive data from and transmit data to a centrally located processor, or another terminal. If the processor is at a remote location, this data is transmitted and received over telephone lines via a modem.

The Display Terminal cabinet, together with the attached keyboard, houses all of the electronics required for Display Terminal operation.

The Display Terminal is capable of operating other input/output devices. Available optional auxiliary devices for the Display Terminal include:

Type 0866 Tape Cassette System

Type 8541-06, -07 Communications Output Printer

1-4. SPECIAL EQUIPMENT REQUIRED

The following special equipment is required for servicing and adjusting a Display Terminal:

(1) Crimp tool (2805788-00/UPC # 921013)

(2) Locator tool (2805789-00)

(3) Pin extractor (2805790-00)

(4) Integrated Circuit (IC) test clip, 14-pin dual in-line (4916149-01)

® UNIVAC is a registered trademark of the Sperry Rand Corporation. Another Sperry Rand trademark appearing in this book is: UNISCOPE.

(5) IC test clip, 16-pin dual in-line (4916149-00)

(6) Degaussing coil, suitable for commercial television servicing

(7) Volt-ohmmeter, Triplett Model 310 or equivalent (3001444-00)

SECTION 2

GENERAL DESCRIPTION

2-1. INTRODUCTION

This section provides brief descriptions of the equipment, features, and selections that comprise the UNISCOPE 100 Display Terminal Type 3536-06. For more detailed descriptions of the Display Terminal, software, and system considerations involved in using the unit, refer to the reference documents listed in Section 1.

2-2. PROTECTED FORMAT FEATURE

The protected format feature in the Display Terminal provides protection of specified data fields as defined by computer programs. The "form" defining the protected and unprotected data fields of individual files is established by the computer program.

The protected format logic of the Display Terminal recognizes the control characters SO and SI (when received from the processor) as start and stop signals, respectively, for protected fields. The logic prevents an operator from overwriting or modifying these fields in normal operation.

With protected format logic, communication line and processor interrupt time are reduced because of space suppression at the end of unprotected fields and because of the transmission of only unprotected data. The single character code SUB in place of each protected field, a carriage return at the end of each line, and all unprotected data are transmitted. Spaces are suppressed within each field and at the end of each line.

The transmission of both protected and unprotected characters in one message is permitted. Any number of protected characters, within memory limits, may be included in a protected area or field. Any number of protected areas (fields) may be included in a single message from the processor.

When keyboards with protected formal logic are used, extended operator control is offered. The requirement for this additional control is determined by system and application requirements. These keyboards offer the following protected format capabilities:

Erase Field - gives specified erase of unprotected data within one field, with the field location defined by cursor position.

Erase Display - gives the operator the ability to erase all data, protected and unprotected, from the cursor to the end of the display.

Transmit Display - gives the operator the capability of transmitting all data, protected and unprotected, to the processor.

The protected format feature permits the processor to transmit a "form" which may be filled in by the operator without the operator being able to alter the form itself. Either the contents of the complete screen, including the form, or just the data inserted by the operator can be transmitted to the processor. The second type of transmission permits a reduction of the quantity of data transferred. The protected format feature affects many of the editing functions in a standard Display Terminal, as listed in table 3-1.

Each protected data character in memory is marked by a ZERO in the eighth bit position. A ONE in the eighth bit position indicates an unprotected character. The processor defines the beginning of a series of protected characters by means of an SO character. All characters sent in a message after the SO character will be

marked by the absence of an extra bit. This is true even of functions such as CR and space, which result in characters not being sequentially distributed through memory. The end of a protected field is marked by an SI character.

It should be noted that SI is also used with the cursor address sequence. The SI character is a character specified by the ASCII code to end a sequence started by the ESC and VT codes. For example, if an SO starts a protected field, and a cursor address sequence is subsequently inserted in the data stream, the cursor is repositioned and the protected field is terminated. If an SO is placed directly after the SI in the cursor address sequence, the data will continue to be protected after the cursor is repositioned.

Whenever the cursor is positioned over a protected character by use of any cursor control key, the cursor will advance to the next unprotected character as soon as the key is released. Thus, the cursor cannot be positioned over a protected character by the operator. If, at the end of a transmission, the processor leaves the cursor positioned over a protected character, the cursor will remain in that position.

If a key is pressed with the cursor positioned over a protected character at the end of a transmission, the character under the cursor is changed to an unprotected character and the cursor advances to the next unprotected character. If, in normal typing, the cursor is moved over a protected character, the cursor advances to the next unprotected character when the key is released.

2-3. FEATURES AND SELECTIONS

Features and selections available with the Display Terminal are listed in table 2-1. Note that type, feature, and selection numbers used here do not necessarily reflect marketing (price-book) listings, but rather reflect manufacturing configurations corresponding to those given on the Configuration Description Record shipped with each unit.

Table 2-1. Features and Selections

Feature, Selection, or Type Number	Description	Feature Contains
C1240-00	Deflection Format, 12 x 80 with Protect Format Logic	2805338 (A10) 2808052 (A9) 2807918/2805290 (A7) 2807988 (A5)
C1240-06	Deflection Format, 16 x 64 with Protect Format Logic	2805353 (A10) 2808052 (A9) 2807918/2805290 (A7) 2807992 (A5)
C1240-07	Deflection Format, 12 x 80, without Protect Format Logic	2805338 (A10) 2808053 (A9) 2807918/2805290 (A7) 2807988 (A5)
C1240-08	Deflection Format, 16 x 64, without Protect Format Logic	2805353 (A10) 2808053 (9) 2807918/2805290 (A7) 2807992 (A5)
F1241-03	64 Character Generator	2807786 (A8)
F1241-04	96 Character Generator	2807816 (A8)

Table 2-1. Features and Selections (Cont)

Feature, Selection, or Type Number	Description	Feature Contains
	STANDARD KEYBOARD	
F1242-00	Numeric Keyboard, modified with:	
	Keyset A, F1465	2805251-10
	Keyset B, F1466	2805251-20
	F1241-03 is required (64C)	
F1242-01	Alpha Keyboard, modified with:	
	Keyset A, F1465	2805251-11
	Keyset B, F1466	2805251-21
	F1241-03 is required (64C)	
F1242-02	Alpha Keyboard, modified with:	
	Keyset A, F1465	2805251-12
	Keyset B, F1466	2805251-22
	F1241-04 is required (96C)	
F1242-03	Alphanumeric Keyboard, modified with:	
	Keyset A, F1465	2805251-13
	Keyset B, F1466	2805251-23
	F1241-03 is required (64C)	
F1242-04	Alphanumeric Keyboard, modified with:	
	Keyset A, F1465	2805251-14
	Keyset B, F1466	2805251-24
	F1241-04 is required (96C)	
F1242-05	Alpha Keyboard, modified with:	
	Keyset A, F1465	2805251-15
	Keyset B, F1466	2805251-25
	F1241-03 is required (64C)	
	Protected Format	
F1242-06	Alpha Keyboard, modified with:	
	Keyset A, F1465	2805251-16
	Keyset B, F1466	2805251-26
	F1241-04 is required (96C)	
	Protected Format	
F1242-07	Alphanumeric Keyboard, modified with:	
	Keyset A, F1465	2805251-17
	Keyset B, F1466	2805251-27
	F1241-03 is required (64C)	
	Protected Format	
F1242-08	Alphanumeric Keyboard, modified with:	
	Keyset A, F1465	2805251-18
	Keyset B, F1466	2805251-28
	F1241-04 is required (96C)	
	Protected Format	

Table 2-1. Features and Selections (Cont)

Feature, Selection, or Type Number	Description	Feature Contains
	ENHANCED KEYBOARD	
F1844-00	Numeric Keyboard, modified with:	
	Keyset A, F1465	2808039-00
	Keyset B, F1466	2808039-01
	F1241-03 is required (64C)	
F1844-01	Alpha Keyboard, modified with:	
	Keyset A, F1465	2808038-00
	Keyset B, F1466	2808038-02
	F1241-03 is required (64C)	
F1844-02	Alpha Keyboard, modified with:	
	Keyset A, F1465	2808038-01
	Keyset B, F1466	2808038-03
	F1241-04 is required (96C)	
F1844-03	Alphanumeric Keyboard, modified with:	
	Keyset A, F1465	2808036-00
	Keyset B, F1466	2808036-04
	F1241-03 is required (64C)	
F1844-04	Alphanumeric Keyboard, modified with:	
	Keyset A, F1465	2808036-01
	Keyset B, F1466	2808036-05
	F1241-04 is required (96C)	
F1844-05	Alpha Keyboard, modified with:	
	Keyset A, F1465	2808037-00
	Keyset B, F1466	2808037-02
	F1241-03 is required (64C)	
	Protect Format	
F1844-06	Alpha Keyboard, modified with:	
	Keyset A, F1465	2808037-01
	Keyset B, F1466	2808037-03
	F1241-04 is required (96C)	
	Protected Format	
F1844-07	Alphanumeric Keyboard, modified with:	
	Keyset A, F1465	2808036-02
	Keyset B, F1466	2808036-06
	F1241-03 is required (64C)	
	Protected Format	
F1844-08	Alphanumeric Keyboard, modified with:	
	Keyset A, F1465	2808036-03
	Keyset B, F1466	2808036-07
	F1241-04 is required (96C)	
	Protected Format	

Table 2-1. Features and Selections (Cont)

Feature, Selection, or Type Number	Description	Feature Contains
	KEYBOARD HARDWARE	
C1900-00	Keyboard Support Hardware, for use on Type 3536-06 with no keyboard installed. Cover plate 2807714 is required.	2808088-00
C1900-01	Keyboard Support Hardware, for use on Type 3536-06 with an F1844 keyboard installed.	2808088-01
C1900-02	Keyboard Support Hardware, for use on Type 3536-06 with an F1242 keyboard installed.	2808088-02
F1245-00	Direct Interface, Synchronous Interface to CTMC or DCS.	2808063 (A12) Any synchronous A11
	Speed Selections	
C1467-00	2400 bps	
C1467-01	4800 bps	
C1467-02	9600 bps	
F1245-01	Synchronous Interface, UNIVAC	2808055 (A12) 2808054 (A11)
	Mode Selections	
C1468-00	RS232C/V.24	
C1468-01	UNIVAC Terminal Multiplexer Type 8538	
C1468-02	MIL-STD-188C	
F1245-02	Asynchronous Interface, UNIVAC	2808060 (A12) 2808059 (A11)
C1468-00	Mode Selection - RS232C/V.24	
	Speed Selections	
C1469-00	300 bps	
C1469-01	600 bps	
C1469-02	1200 bps	
C1469-03	1600 bps	
C1469-04	1800 bps	
C1469-05	2400 bps	
C1468-01	Mode Selection - Terminal Multiplexer	
	Speed Selections	
C1469-06	300 bps	
C1469-06	600 bps	
C1469-08	1200 bps	
C1469-09	1600 bps	
C1469-10	1800 bps	
C1469-11	2400 bps	

Table 2-1. Features and Selections (Cont)

Feature, Selection, or Type Number	Description	Feature Contains
C1468-02	Mode Selection - MIL-STD-188C	
	Speed Selections	
C1469-12	1200 bps	
C1469-13	1600 bps	
C1469-14	1800 bps	
C1469-15	2400 bps	
F1245-13	Synchronous Interface - IBM* (For mode selections see F1245-01)	2808057 (A12) 2808056 (A11)
F1245-14	Asynchronous Interface - IBM (For mode and speed selections see F1245-02)	2808062 (A12) 2808061 (A11)
F1247-00**	Auxiliary Interface	2808058 (A13) 2807716 (W4)

*Registered trademark of International Business Machines Corporation.

**Auxiliary interface feature is required when a UNIVAC Communications Output Printer Type 8541-06, -07 or UNIVAC Series 600 Tape Cassette System Type 0866 is used with the Display Terminal.

2-4. INTERCHANGEABLE PRINTED CIRCUIT BOARDS

Several printed circuit boards within the Display Terminal are assigned part numbers as a result of strapping provisions contained on the boards. For example; input/output board no. 1 (A11), synchronous - UNIVAC, is the same board as input/output board no. 1, synchronous-IBM except for the connection of the appropriate straps. Interchangeable boards are listed in table 2-2. Refer to MR6014, "UNISCOPE 100 Display Terminal Installation Procedures" for strapping information.

Table 2-2. Interchangeable Printed Circuit Boards

Board	Description	Part Number	Strapping	Remarks
A11	I/O-1 Sync-UNIVAC	2808054	E1-E2, E3-E4 OUT	I/O-1 and I/O-2 boards must be compatible: sync/async, UNIVAC/IBM
A11	I/O-1 Sync-IBM	2808056	E1-E2 E3-E4 IN	
A12	I/O-2 Sync-UNIVAC	2808055	A-B C-D OUT	
A12	I/O-2 Sync-IBM	2808057	A-B C-D IN	
A11	I/O-1 Async-UNIVAC	2808059	E1-E2 E3-E4 OUT	
A11	I/O-1 Async-IBM	2808061	E1-E2 E3-E4 IN	
A12	I/O-2 Async-UNIVAC	2808060	E1-E2 OUT	
A12	I/O-2 Async-IBM	2808062	E1-E2 IN	
A3	Regulator/ Control	2807934	E1-E2 IN	Used with A8 board 2807786 (64C)
A3	Regulator/ Control	2807934	E1-E2 OUT	Used with A8 board 2807816 (96C)
A9	Control, with Protect Format	2808052	E20-E23 IN	A8, A17, must be Protect Format
A9	Control, without Protect Format	2808053	E20 E23 OUT	A8, A17, must not be Protect Format

SECTION 3

OPERATION

3-1. INTRODUCTION

Section 3 contains a description of UNISCOPE 100 Display Terminal Type 3536-06 operating controls and indicators, basic operating procedures, and a fault check list.

3-2. OPERATING CONTROLS AND INDICATORS

Unit operation is discussed briefly in this Section. For a more complete description, refer to the latest version of UP-7788, "UNISCOPE 100 Display Terminal Operators Reference". Table 3-1 lists the controls and indicators provided with the Display Terminal.

3-3. CURSOR

The cursor ( ) is a unique character that is displayed on the CRT at all times, except during message transmission. The cursor is used to indicate the position at which the next data character will be entered on the display screen, and also the last data character to be transmitted to the processor. When located in a position containing a character other than a space, the cursor and the character are displayed alternately, thus creating a blinking effect, and providing easy location by the operator of the cursor position. A blinking cursor which occupies a space in the display is an indication that a nondisplayable character, such as a tab stop, is located in that position.

The "home" position for the cursor is the first character position of the first line (upper left hand corner) on the display screen.

All cursor control keys are nondestructive; that is, they do not affect the character located at the cursor position. The cursor has its own control circuitry and does not occupy a memory location, thereby allowing positioning anywhere on the display screen without affecting the existing display.

3-4. KEYBOARD

In addition to providing the cursor control keys, the keyboard also provides message control keys, editing keys, special function keys, and a conventional typewriter keyboard. Figure 3-1 illustrates a fully equipped keyboard, and table 3-1 lists the operation of the control keys provided on this keyboard.

3-5. AUDIBLE ALARM

The Display Terminal contains an audible alarm which is used to indicate the following conditions:

(a) The alarm sounds once when the cursor reaches the eighth character position from the end of any line in the display.

(b) The alarm sounds once when the cursor reaches the last line of the display at any character position.

(c) The alarm sounds continuously at brief, regular intervals when the MESSAGE WAIT indicator is lit. The alarm is turned off when the MESSAGE WAIT key is pressed.

Table 3-1. Controls and Indicators

Key, Control, or Indicator	Description
SOE ▷	This key is used to enter the start-of-entry (SOE) symbol (▷) on the display screen at the position indicated by the cursor. The SOE nearest the left side of the cursor indicates the starting point of the message to be transmitted to the processor. All characters between this SOE and the cursor will be transmitted when the appropriate transmit key is pressed (after being polled by the processor).
TRANSMIT	When pressed, the unprotected format message contained between the SOE symbol and the cursor will be transmitted to the processor after the next poll to the Display Terminal. If no SOE symbol is in the display, transmission will begin at the home position. On units with protected format, this key is labeled TRANSMIT UNPROT DISPLAY.
PRINT	This key is used to initiate a data transfer between the Display Terminal and an auxiliary device. The key is only functional when an auxiliary device is connected to the Display Terminal.
MESSAGE WAITING	This key is used to send a special message to the processor (at the next poll from the processor). The message indicates that the Display Terminal can accept a message from the processor.
CURSOR TO HOME	This key is used to position the cursor in the home position on the display screen. On units with protected format, pressing this key causes the cursor to be positioned at the first unprotected character location in the display. If all display screen positions are protected, the cursor will be returned to the home position and the keyboard functionally disabled (keys will still depress).
RETURN	This key is the equivalent of the carriage return key on a standard typewriter keyboard. When pressed, the cursor is positioned in the first character location of the next line. If the first character location of the next line is protected, the cursor advances to the first unprotected character. When the cursor reaches the last character position of any line, the next positioning to the right automatically generates a cursor return without use of the return key.
⟶	The space bar is in the position normally occupied by the space bar on a typewriter keyboard. The cursor moves to the right one space each time the space bar is pressed.
⟶	A redundant space bar (⟶) is provided to the right of the main space bar on numeric keyboards so that the controls normally used with a numeric keyboard (space, tab, return) are available immediately adjacent to the numeric keyboard.

Table 3-1. Controls and Indicators (Cont)

Key, Control, or Indicator	Description
	Each scan key, when pressed, causes the cursor to move one space at a time in the direction of the arrow. Each key provides this action repeatedly, so long as the key is held pressed. When the cursor is in the last character position of the bottom line in the display and the scan right (→) key is pressed, the cursor will "wrap around"; that is, the cursor will advance to the home position. Wrap around also occurs with the cursor in the home position if the scan left (←) key is pressed.
TAB SET	This key is used to place tab stop codes in the Display Terminal memory for use with the TAB key. The cursor is used to indicate the position for setting a tab stop. Tab stops must be individually set for each line, and for every new set of display screen data (unless program provision is made to retain them). Tab stops are transmitted to the processor, along with display screen data.
TAB	This is a special cursor positioning key which, when pressed, causes the cursor to scan right until a tab stop character is located. The cursor stops one character to the right of the tab stop, or, if no tab stops are found, returns to the home position.
←	This key, when pressed, causes the cursor to move one space to the left. The function is non-repetitive; that is, the key must be pressed once for each movement left. When the cursor reaches the first character position of any line, the cursor will move to the last position of the previous (above) line the next time this key is pressed. When the cursor reaches the home position this key, when pressed, causes the cursor to wrap around to the last character position in the bottom line of the display.
CHAR ERASE	This key, when pressed, causes the character in the cursor position to be erased and a space entered in that position. The cursor then moves automatically one space to the right.
ERASE TO END OF LINE	This key, when pressed, causes all characters between the cursor and either the end of the unprotected field in which the cursor is positioned, or the end of the line in which the cursor is positioned (whichever occurs first), to be erased. This key will not function when pressed with the cursor in a protected field.
ERASE TO END OF DISPL	This key, when pressed, causes all characters from the cursor position to the end of the display to be erased. The cursor remains in the same position. With protected format, only unprotected characters are affected when this key is pressed.

Table 3-1. Controls and Indicators (Cont)

Key, Control, or Indicator	Description
IN DISPL INSERT IN LINE	Upper case operation: In this mode, the INSERT IN DISPL function is activated when this key is pressed. Those characters from the cursor position to the end of the display are shifted one space to the right. A space is inserted in the cursor position and characters in the last character position of each line, except the last display line, are shifted to the first position of the next line. If a character is present in the last screen position, that character is lost. With protected format, only the display within the unprotected field in which the cursor is positioned is affected when this key is pressed. Lower case operation: In this mode, the INSERT IN LINE function is activated when this key is pressed. Those characters from the cursor position to the end of the line in which the cursor is located are shifted right one space. If a character is present in the last screen position, that character is lost. With protected format, the function is limited to one unprotected field or one unprotected line, and the shifting will stop at the end of whichever occurs first.
IN DISPL DELETE IN LINE	Upper case operation: In this mode, the DELETE IN DISPL function is activated when this key is pressed. The character in the cursor position is deleted, and all characters are shifted left one space. A space is inserted in the last character position of the display. The cursor position remains unchanged. A character in the first position of any display line shifts to the last position of the previous line each time the key is pressed. Lower case operation: In this mode, the DELETE IN LINE key function is activated when this key is pressed. The character in the cursor position is deleted, and all characters from the cursor position to the end of the line in which the cursor is located are shifted left one space. A space is inserted in the last character position of the line. The cursor position remains unchanged. With protected format, the function is limited to one unprotected field, rather than to the end of the line or of the display. This permits the operator to shift several lines within one unprotected field, but does not allow the shifting of more than one unprotected field at a time.
CYCLE	Pressing this key causes the next character or function chosen by the operator to be repeated as long as both the CYCLE key and the other key are pressed. This key operates with all keys except the ERASE, DELETE, INSERT, SHIFT, SHIFT-LOCK, PRINT, RETURN, MESSAGE WAITING, TRANSMIT, CURSOR TO HOME, and special function keys.
F1 F2 F3 F4	Pressing one of the special function keys causes a special message to be transmitted in response to the next poll. The meaning of each special message depends on local programming provisions.

Table 3-1. Controls and Indicators (Cont)

Key, Control, or Indicator	Description
ERASE UNPROT DISPL	This key, when pressed, causes all unprotected data from the cursor position to the end of the display to be erased. For units without protected format, this key is labeled ERASE TO END OF DISPLAY.
TRANSMIT UNPROT DISPL	When this key is pressed, the data within the unprotected areas on the screen are transmitted to the processor. No protected areas can be transmitted. The area to be transmitted is defined by an SOE symbol and the cursor. All unprotected data between the cursor and the first preceding SOE symbol are transmitted. If no SOE symbol is used, all unprotected data from the beginning of the screen display to the cursor are transmitted. For units without protected format, this key is labeled TRANSMIT.
ERASE FIELD	This key, when pressed, causes all characters from the cursor position to the end of the field or to the end of the display (whichever occurs first) to be erased within the unprotected field in which the cursor is positioned. This key function can be activated by the processor, an auxiliary device, or the operator. If, at the end of a transmission, the processor leaves the cursor positioned within a protected field, the cursor does not move, and the erase-to-end-of-field cannot be performed. The cursor first must be moved into an unprotected field either by the software, or by pressing a cursor control key before the ERASE FIELD key will function.
ERASE DISPL	This key, when pressed, causes all characters between the cursor and the end of the display (protected and unprotected) to be erased.
TRANSMIT DISPL	This key, when pressed, provides for the transmission of all characters on the display screen between the SOE symbol nearest the left of the cursor and the cursor at the next processor poll.
○ WAIT	This switch/indicator lights when the transmit key is pressed by the operator, or when a message is received from the processor, and is extinguished when transmission is completed, or when the switch is pressed by the operator. When the WAIT indicator is lit the keyboard is functionally disabled. When this switch/indicator is pressed, the keyboard is enabled, and the transmit or print function that caused the indicator to light is cancelled. It is not advisable to use this switch when in on-line operation. Actuation of the switch may interfere with processor polling activity and interrupt transmission or print activities, thus causing loss of data.
○ INTENSITY	This control is used to adjust display brightness. Intensity should be set to provide a clear image, but not for maximum brightness; high intensity settings can cause damage to the display screen.

Table 3-1. Controls and Indicators (Cont)

Key, Control, or Indicator	Description
○ POWER	This switch/indicator is used to apply power to the Display Terminal. The switch is pressed to apply and pressed to remove primary power and lights when power is applied.
MESSAGE WAITING	This indicator lights when the processor has a conditional, unsolicited message for display. The indicator remains on until the MESSAGE WAITING key is pressed. The indicator also lights and remains on from the time an unconditional unsolicited message is received until the MESSAGE WAITING key is pressed after the message is displayed.
MESSAGE INCOMPL	This indicator lights when a message is received by the Display Terminal and goes out when communication error checks are satisfied.

3-6. BLINK MARKER CHARACTERS

Blink marker characters (▷◁) are special characters which can be sent by the processor to call operator attention to selected display data. They are not a part of the displayable keyboard characters. Use of these characters is described in UP-7807, UNISCOPE 100 Display Terminal Programmers Reference.

3-7. OPERATING PROCEDURE

Table 3-2 contains the turn-on procedure and table 3-3 the turn-off procedure for the Display Terminal.

Table 3-2. Turn-On Procedure

Step	Procedure	Reference
1	Press and release front panel POWER switch (S03). Note indicator lamp in S03 lights as power is applied to Display Terminal.	Figure 3-2 Page 3-13
2	Set enable/disable switch (S01) to "enable" (rear) position.	Figure 3-2
	NOTE For units without protect format, perform step 3 (which completes the procedure). For units with protect format, omit step 3.	
3	Press and release CURSOR TO HOME and ERASE TO END OF DISPL keys. After a warm-up of approximately 30 seconds, cursor should appear at upper left-hand corner of display screen. If cursor does not appear, rotate front panel INTENSITY control R01 clockwise until cursor appears. Display Terminal is now ready for operation.	Figure 3-1 Page 3-11
	CAUTION High intensity control settings can cause damage to the CRT screen. Use the lowest intensity setting that provides a clear, readable display.	

Table 3-2. Turn-On Procedure (Cont)

Step	Procedure
4	Press and release CURSOR TO HOME and ERASE DISPL keys.
5	Position cursor in last line on display screen.
6	Simultaneously press WAIT pushbutton, CYCLE key and any displayable character key. Allow cursor to cycle through home position.
7	Press and release CURSOR TO HOME and ERASE DISPL keys.

Table 3-3. Turn-Off Procedure

Step	Procedure	Reference
1	To functionally disable keyboard and remove high voltage from CRT, and to keep Display Terminal in an active status relative to the processor, set enable/disable switch S01 to "disable" (forward) position. The POWER indicator will remain lit.	Figure 3-2
2	To remove all power from the Display Terminal, press POWER pushbutton and note that indicator lamp goes out.	Figure 3-2

3-8. FAULT CHECK LIST

The Fault Check List shown in table 3-4 is provided to aid the Customer Engineer in obtaining information from the customer prior to making a service call. In addition, the following questions are useful in diagnosing many Display Terminal malfunctions:

(a) Which keys do not operate correctly, if any?

(b) Does the audible alarm function for the conditions outlined in paragraph 3-5? Ensure that the volume control is adjusted properly.

(c) Does the cursor disappear when the TRANSMIT key is pressed and reappear shortly after the WAIT key is pressed?

(d) Does other equipment on the same communications line operate properly?

Table 3-4. Display Terminal Fault Check List

Step	Indication	Probable Cause	Operator Action
1	WAIT indicator lit and keyboard locked for an excessive amount of time.	Processor did not send a keyboard-unlock code to Display Terminal after receiving a message or acknowledgment. Also, the Display Terminal detected a parity error in message from processor.	Unlock keyboard by pressing WAIT pushbutton and try retransmitting message to processor (TRANSMIT key).

Table 3-4. Display Terminal Fault Check List (Cont)

Step	Indication	Probable Cause	Operator Action
2	Equipment inoperative and POWER switch/indicator does not light when pressed.	1. Power cord not plugged into AC outlet receptacle. 2. Circuit breaker CB01 trips to OFF position from an AC line surge or a short circuit overload.	1. Plug cord into AC outlet receptacle 2. Remove Display Terminal faceplate (pull from friction catches in unit panel) and reset circuit breaker. If the circuit breaker trips off again, notify supervisor.
3	Equipment inoperative and POWER switch/indicator lit.	1. Enable/disable switch S01 is in "disable" (forward) position. 2. INTENSITY control set too far counterclockwise. 3. Logic circuitry defective.	1. Set switch S01 to "enable" (rear) position. 2. Adjust control clockwise until cursor appears satisfactorily. Intensity should be set to provide a clear image, but not for maximum brightness; high intensity settings can cause damage to the display screen. 3. Notify supervisor.
4	All Display Terminals on a Terminal Multiplexer inoperative.	Terminal Multiplexer inoperative.	Ensure that the switch on the front panel is in position ON (rocker set with top portion pressed in). Ensure that the power cord is plugged into the AC outlet receptacle. If these actions do not remedy the trouble, notify supervisor.
5	Some Display Terminals on a Terminal Multiplexer inoperative.	Cable jacks at rear of unit loose or disconnected.	Ensure that all cables are connected properly.

Table 3-4. Display Terminal Fault Check List (Cont)

Step	Indication	Probable Cause	Operator Action
6	Character entered (as displayed on screen) incorrectly or in wrong screen position; for example, if G key is pressed and another character is displayed, or character not positioned at the cursor position.	Defective keyboard or logic circuits.	Notify supervisor.
7	Unit overheating.	1. Ventilating fan under the unit is inoperative. 2. Obstruction to fan outlet. 3. Object is obstructing air flow through filter located on underside of unit. 4. Clogged air filter.	1. Press the POWER switch to remove power and notify supervisor. 2. Ensure that the fan is clear and that the air duct under the fan is open to the rear of unit. 3. Lift unit and remove the object. 4. Replace the air filter.
8	MESSAGE WAIT, MESSAGE INCOMPL, and WAIT indicators not lighting under appropriate conditions.	1. Lamp burned out. 2. Logic circuits faulty.	1. Replace lamp. 2. Notify supervisor.
9	Audible alarm not loud enough.	Volume control not set properly.	Remove the display screen faceplate and use a screwdriver to adjust the volume control (left-most control) for satisfactory sound.
10	Screen images out of focus.	Focus control not set properly.	Remove display screen faceplate and use a screwdriver to adjust the focus control (right-most control) for a clear image.

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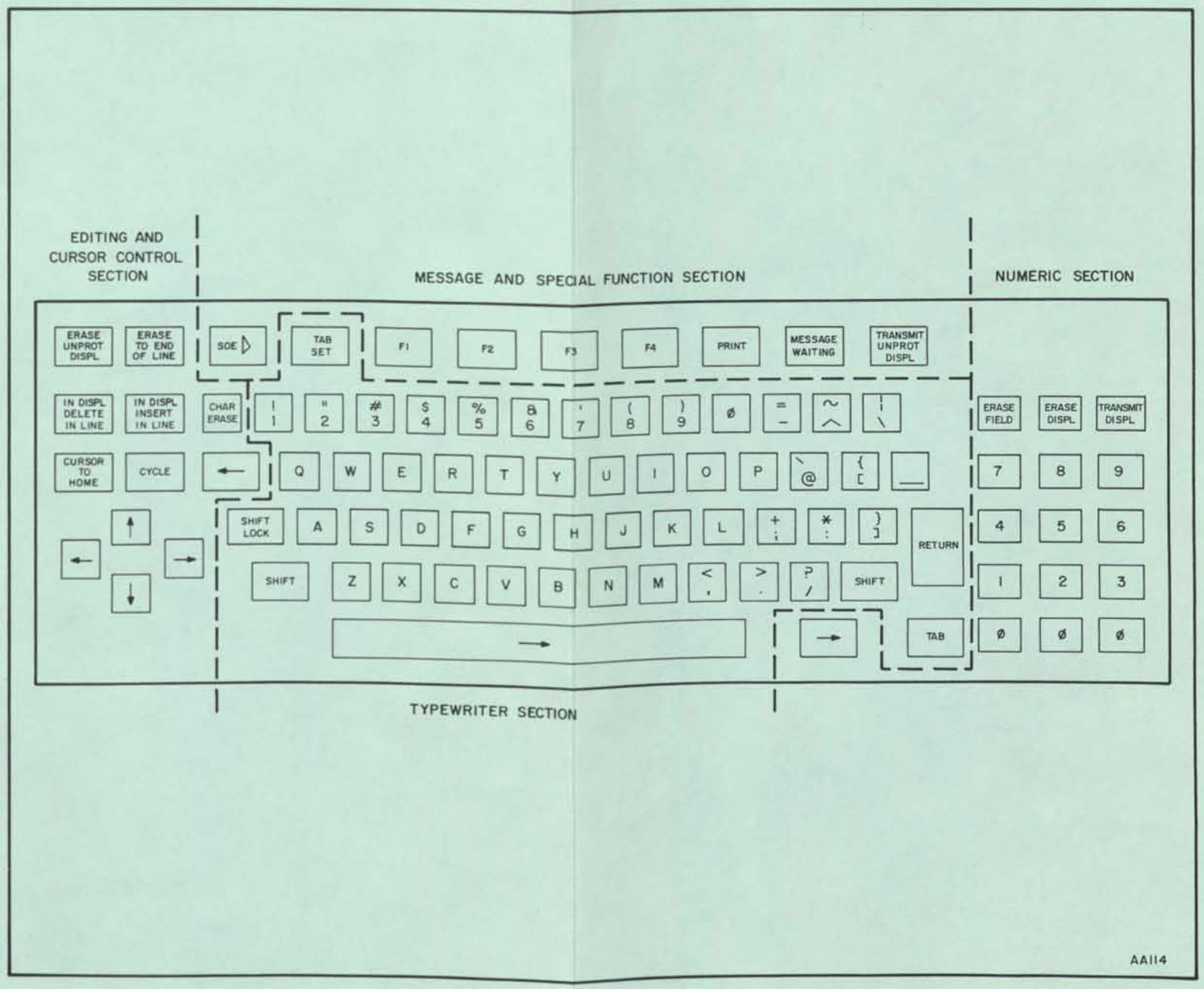

Figure 3-1. UNISCOPE 100 Display Terminal Keyboard

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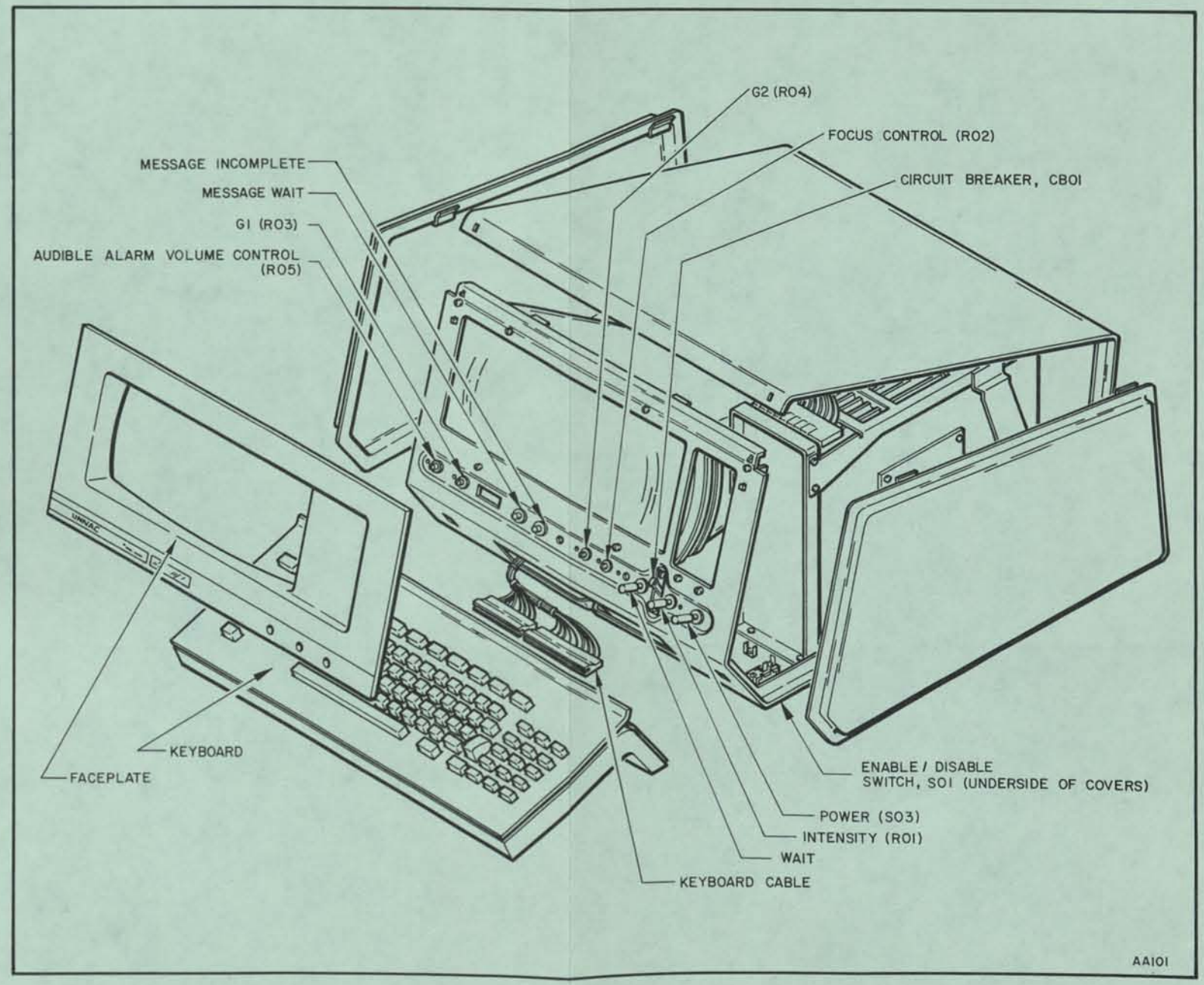

Figure 3-2. UNISCOPE 100 Display Terminal Control Locations

SECTION 4

ADJUSTMENTS AND PROCEDURES

4-1. INTRODUCTION

This section contains electrical adjustment procedures, mechanical disassembly procedures, and a recommended preventive maintenance procedure for the UNISCOPE 100 Display Terminal.

4-2. GENERAL PRECAUTIONS

The following precautions should be observed when adjusting or maintaining the Display Terminal:

(1) Keep hands and tools away from the high voltage power supply and the high voltage connections on the CRT when power is applied to the unit.

(2) High INTENSITY control settings can cause permanent damage to the CRT screen. The lowest setting that provides a clear, readable display should be used.

WARNING

Handle the CRT with care. Breakage of the CRT, which contains a high vacuum, may result in injury from flying glass. Do not strike or scratch the tube or subject it to any pressure at any time.

4-3. PREVENTIVE MAINTENANCE

A substantial number of servicing problems can be eliminated by a good preventive maintenance program. The procedure listed in table 4-1 will accomplish this and ensure optimum performance from the Display Terminal.

Table 4-1. Preventive Maintenance Procedure

Step	Procedure	Reference
1	Remove AC power from Display Terminal.	
2	Remove faceplate and cover assembly.	Table 4-2 Page 4-22 Figure 4-10 Page 4-23
3	Remove keyboard.	Table 4-3 Page 4-22
4	Remove all printed circuit boards (except power supply) from Display Terminal.	
5	Clean contacts on all printed circuit boards with soft rubber erasser (pink pearl type).	
6	Disassemble keyboard.	Figure 4-14 Page 4-31
7	Remove rubber plungers and space bar key shaft and push keys down.	Figure 4-14

Table 4-1. Preventive Maintenance Procedure (Cont)

Step	Procedure	Reference
8	Check key shafts for dirt or other foreign material. Wipe clean with soft cloth.	
9	Spray key shafts generously with silicone spray.	
10	Shake keys up and down and repeat step 9.	
11	Check foil for bumps, dents, wrinkles, and so on. Replace if necessary.	Figure 4-14
12	Clean foil and printed circuit board contacts with Freon and soft, lint-free cloth.	
13	Re-assemble and replace keyboard.	Figure 4-14
14	Clean all dust and foreign material from Display Terminal with brush and/or vacuum and soft lint-free cloth.	
15	Clean mother board pins with brush and Freon.	
16	Check all connectors for bent or broken contacts and replace if necessary.	
17	Clean or replace air filter.	Figure 4-12 Page 4-27
18	Re-insert all printed circuit boards.	
19	Apply AC power to Display Terminal and verify power supply voltages.	Figure 4-15 Page 4-33
20	Perform initial power-on procedure.	Section 3
21	Return Display Terminal to service.	

4-4. DISPLAY TERMINAL ELECTRICAL ADJUSTMENTS

Figures 4-1 through 4-9 described the electrical adjustments for the Display Terminal.

Figures 4-16 and 4-17 are included as aids in servicing the Display Terminal. Figure 4-16 illustrates an interconnection wiring diagram and figure 4-17 illustrates a functional block diagram of the unit.

4-5. DISPLAY TERMINAL MECHANICAL PROCEDURES

Tables 4-2 through 4-8 provide removal and replacement procedures for the major mechanical assemblies of the Display Terminal.

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SPECIAL EQUIPMENT REQUIRED
(None)

PURPOSE OF ADJUSTMENT

Provide a display area of proper heighth and width dimensions for deflection format used.

RELATED ADJUSTMENTS

Major deflection coil adjustment (figure 4-2)
Minor deflection coil adjustment (figure 4-3)
Line spacing adjustment (figure 4-9)

PROCEDURE

NOTE

Perform this adjustment after any field change requiring installation of variations of position address board (A10) or deflection board (A5).

This adjustment may affect display quality as well as image size and should be performed before any other display adjustments.

1. Remove faceplate and cover assembly (table 4-2).
2. Apply primary power to Display Terminal and fill screen with characters.
3. Measure size of image area.

FORMAT	IMAGE AREA
12 x 60	9.5 x 3.75
16 x 64	9.5 x 3.5

NOTE

The two dimensions are not separately adjustable; when width is adjusted to 9.5 inches, heighth should be approximately as listed.

4. If required, adjust R48 to produce a display of proper dimensions for Display Terminal deflection format.
5. Replace faceplate and cover assembly.

Figure 4-1. Image Area Adjustment (Sheet 1)

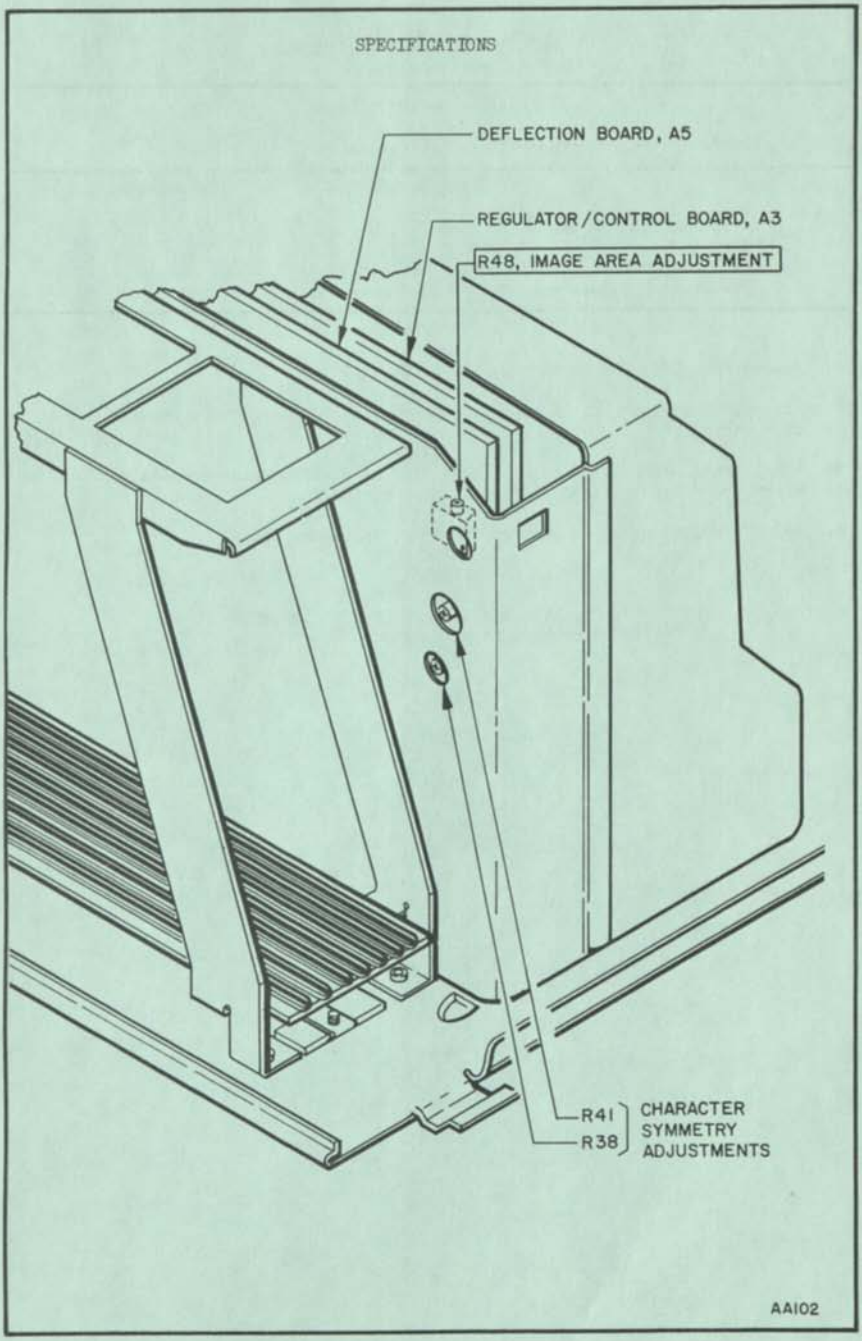

Figure 4-1. Image Area Adjustment (Sheet 2)

SPECIAL EQUIPMENT REQUIRED
(None)

PURPOSE OF ADJUSTMENT

Provide overall horizontal display alignment.

RELATED ADJUSTMENTS

Antipincushion magnet adjustment	(figure 4-4)
Minor deflection coil adjustment	(figure 4-3)
Character symmetry adjustment	(figure 4-8)
Line spacing adjustment	(figure 4-9)

PROCEDURE

1. Remove faceplate and cover assembly (table 4-2).
2. Apply primary power to Display Terminal and fill screen with uppercase E or H characters.
3. Rotate major deflection coil clockwise or counterclockwise as required to align characters horizontally on display screen.
4. Adjust antipincushion magnet as described in figure 4-4.

NOTE

Antipincushion magnet must be adjusted after this adjustment is performed.

Figure 4-2. Major Deflection Coil Adjustment (Sheet 1)

SPECIFICATIONS

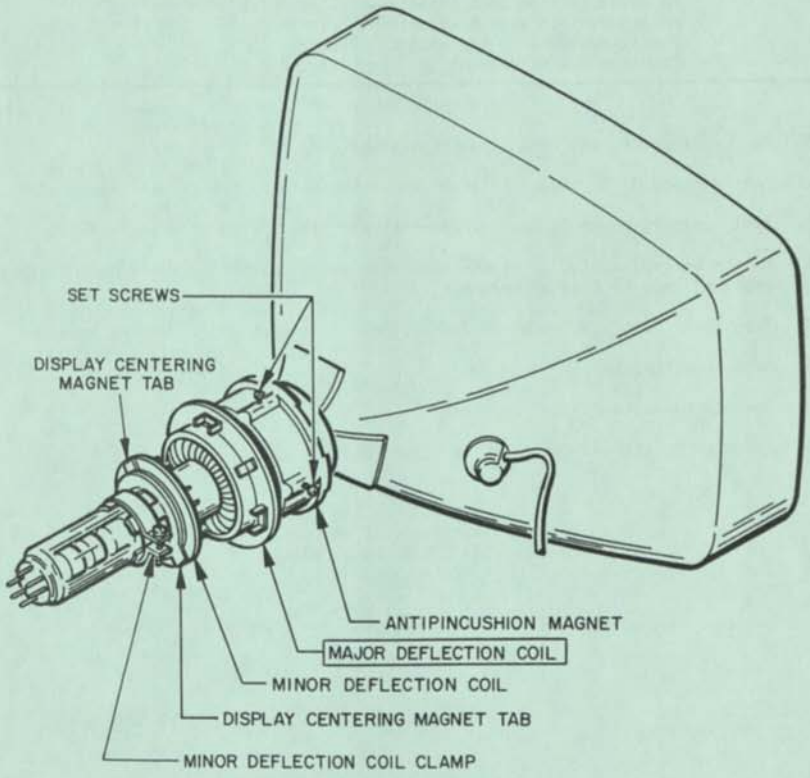

Figure 4-2. Major Deflection Coil Adjustment (Sheet 2)

SPECIAL EQUIPMENT REQUIRED
(None)

PURPOSE OF ADJUSTMENT

Provide a display with proper horizontal and vertical alignment relative to display screen.

RELATED ADJUSTMENTS

Major deflection coil adjustment	(figure 4-2)
Antipincushion magnet adjustment	(figure 4-4)
Character symmetry adjustment	(figure 4-8)
Line spacing adjustment	(figure 4-9)

PROCEDURE

1. Remove faceplate and cover assembly (table 4-2).
2. Loosen minor deflection coil clamp and slide coil as far forward as possible.
3. Apply primary power to Display Terminal and fill screen with characters.
4. Rotate coil clockwise or counterclockwise until characters are aligned with vertical axis of display screen.
5. Turn power off, tighten minor deflection coil clamp, and close top cover.
6. Replace faceplate.
7. Reapply power to Display Terminal.
8. Recenter display as described in figure 4-5.

NOTE

This adjustment should be performed whenever the CRT is replaced.

Figure 4-3. Minor Deflection Coil Adjustment (Sheet 1)

SPECIFICATIONS

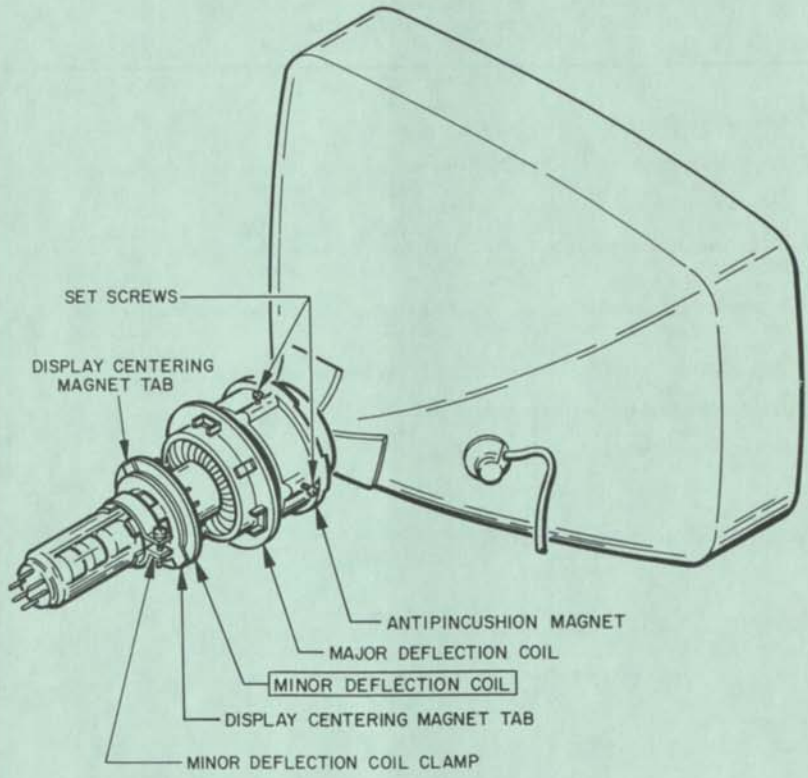

Figure 4-3. Minor Deflection Coil Adjustment (Sheet 2)

SPECIAL EQUIPMENT REQUIRED
(None)

PURPOSE OF ADJUSTMENT

Provide even character spacing and alignment of the display.

RELATED ADJUSTMENTS

Major deflection coil adjustment (figure 4-2)
Minor deflection coil adjustment (figure 4-3)
Line spacing adjustment (figure 4-9)
Character symmetry adjustment (figure 4-8)

PROCEDURE

1. Remove faceplate and cover assembly (table 4-2).
2. Apply primary power to Display Terminal and fill screen with characters.
3. Loosen antipincushion magnet setscrews.
4. Slide antipincushion magnet as far forward on major deflection coil as possible.
5. Rotate antipincushion magnet clockwise or counterclockwise until characters are evenly spaced and aligned horizontally.
6. Turn power off and tighten antipincushion magnet setscrews.
7. Apply primary power and recheck adjustment.
8. Replace faceplate and cover assembly.

NOTE

This adjustment should be performed after the major deflection coil is adjusted.

When the antipincushion magnet is as far forward as possible on the major deflection coil the greatest effect on the display screen is produced.

Figure 4-4. Antipincushion Magnet Adjustment (Sheet 1)

SPECIFICATIONS

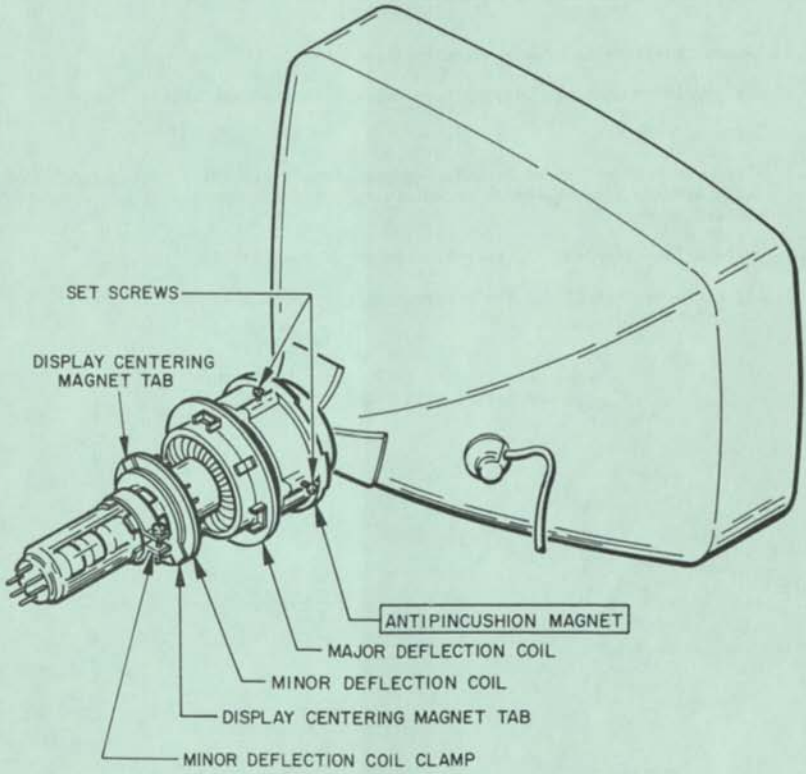

Figure 4-4. Antipincushion Magnet Adjustment (Sheet 2)

SPECIAL EQUIPMENT REQUIRED
(None)

PURPOSE OF ADJUSTMENT

Provide a character display that is centered on the display screen.

RELATED ADJUSTMENTS

Image area adjustment (figure 4-1)

PROCEDURE

1. Remove faceplate and cover assembly (table 4-2).
2. Apply primary power to Display Terminal and fill screen with characters.
3. Replace faceplate.
4. Alternately adjust display centering magnet tabs clockwise or counterclockwise until display is centered in faceplate cutout and no shadows are present at display corners.
5. Write a few asterisks (*) near the center of the display.
6. Adjust focus control R02 for sharpest display possible.

NOTE

Image area (figure 4-1) should be properly adjusted before attempting this procedure.

Figure 4-5. Display Centering Magnet Tab Adjustment (Sheet 1)

SPECIFICATIONS

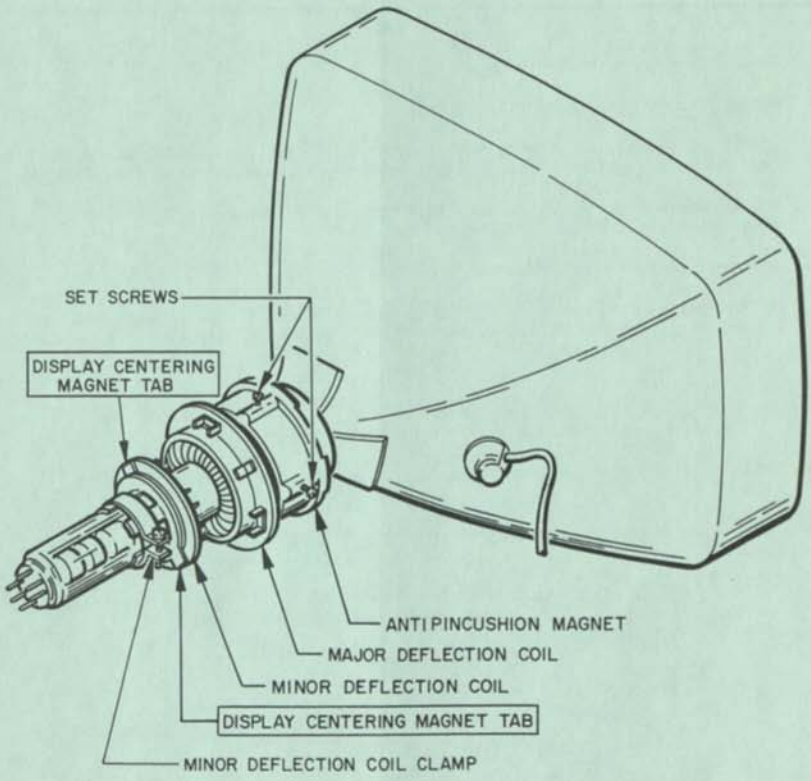

Figure 4-5. Display Centering Magnet Tab Adjustment (Sheet 2)

SPECIAL EQUIPMENT REQUIRED
(None)

PURPOSE OF ADJUSTMENT

Provide a display of proper intensity.

RELATED ADJUSTMENTS

Clock adjustment (figure 4-7)

PROCEDURE

1. Remove faceplate (table 4-2).
2. Apply primary power to Display Terminal.
3. With a blank display screen, adjust control G1 clockwise until center starting dot and retrace lines appear, then counterclockwise until they just disappear.
4. Write some characters at various locations and adjust control G2 until characters are bright and clear but do not "bloom" or defocus.
5. Readjust control G1 as described in step 3.
6. If characters are excessively bright, adjust G1 fully counterclockwise momentarily. Adjust G2 clockwise and then readjust G1 as described in step 3.

NOTE

Conditions (a), (b), and (c), as listed below should now be satisified.

(a) With no display on screen, retrace lines and center starting dot should not be visible.

(b) With a full display screen, and front panel INTENSITY control fully counterclockwise, all strokes of all characters should be visible.

(c) With a full display screen, and front panel INTENSITY control fully clockwise, characters should be bright and clear but should not "bloom" or defocus.

NOTE

Control G2 should not be set within 1/4 turn of full counterclockwise position. This will cause poor focus and/or too dim a display.

Figure 4-6. Intensity Control Adjustment (Sheet 1)

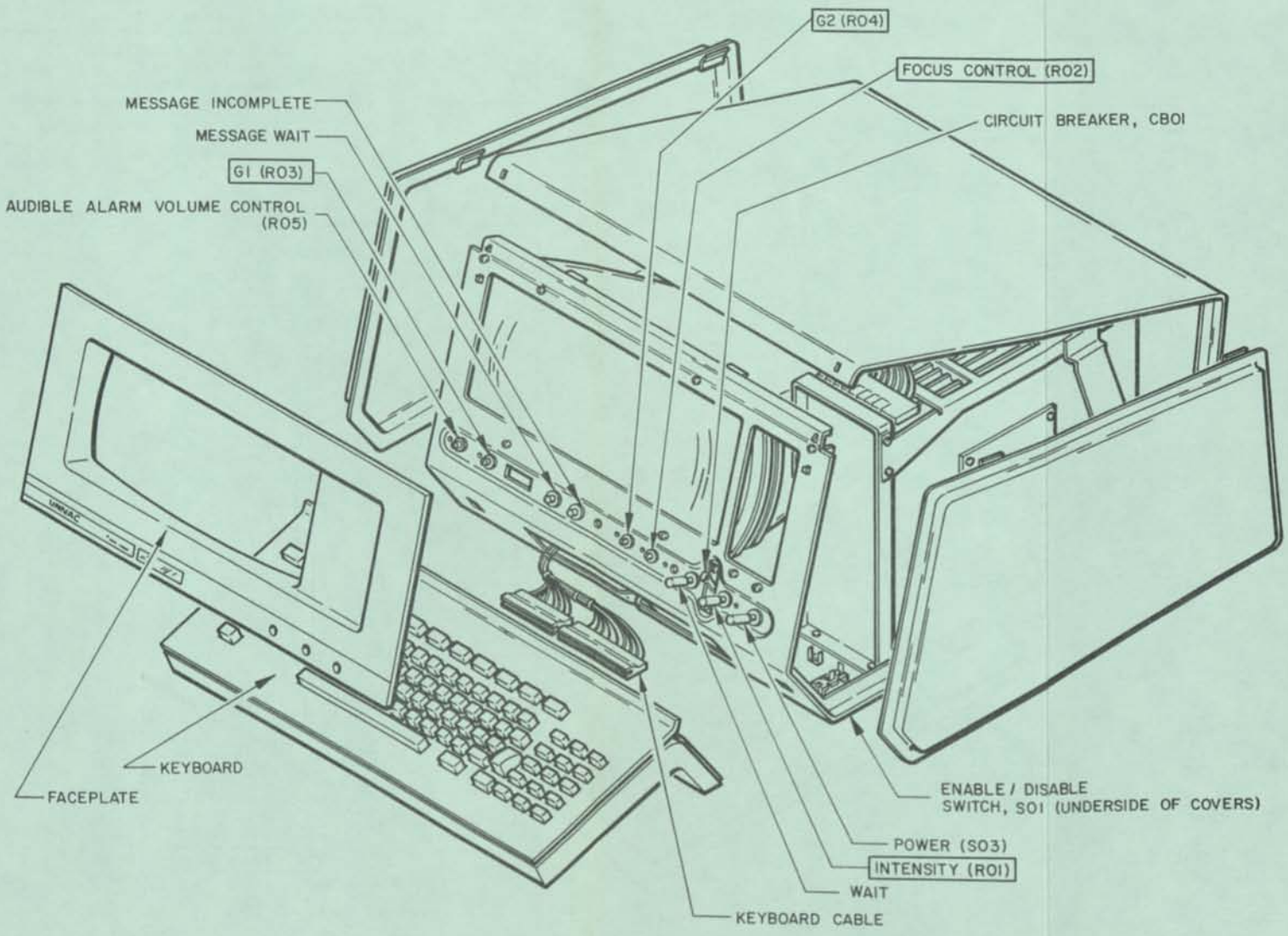

Figure 4-6. Intensity Control Adjustment (Sheet 2)

SPECIAL EQUIPMENT REQUIRED
(None)

PURPOSE OF ADJUSTMENT

Provide a stable display, free of jitter.

RELATED ADJUSTMENTS

Intensity control adjustment (figure 4-6)

PROCEDURE

1. Remove faceplate and cover assembly (table 4-2).
2. Apply primary power to Display Terminal.
3. Erase any characters near center of display screen.
4. Adjust control G2 clockwise until retrace lines appear and start-of-trace dot is present at center of display screen.
5. Adjust R12 on character generator board (A8) until start-of-trace dot is minimum in size. Retrace lines and any characters displayed should remain stable.
6. Readjust G2 as described in figure 4-6.

NOTE

This adjustment should be performed whenever a new position address or deflection board is installed, or if primary is changed from either 50 or 60 Hz.

Figure 4-7. Clock Adjustment (Sheet 1)

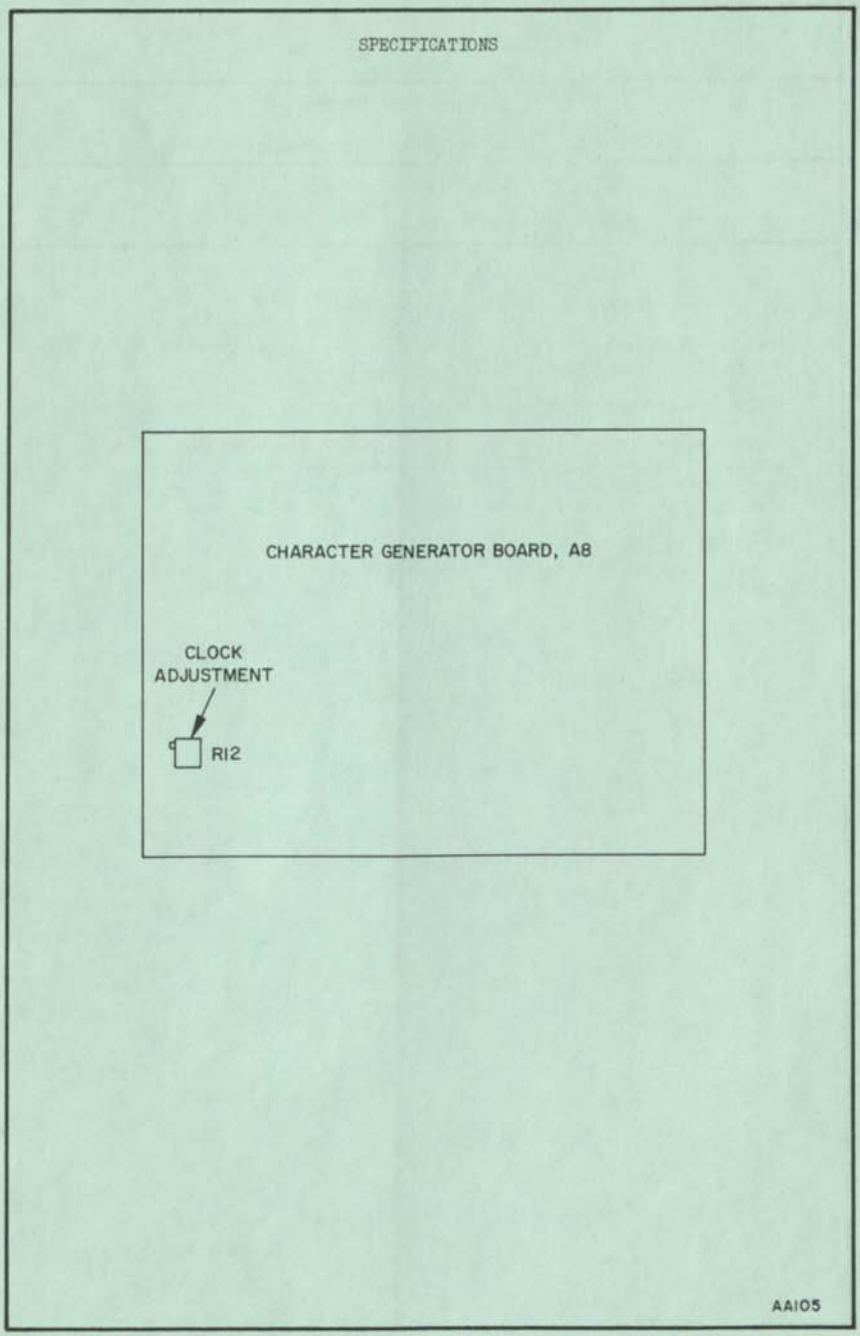

Figure 4-7. Clock Adjustment (Sheet 2)

SPECIAL EQUIPMENT REQUIRED
(None)

PURPOSE OF ADJUSTMENT

Provide display characters of proper symmetry.

RELATED ADJUSTMENTS

Clock Adjustment (figure 4-7)

PROCEDURE

1. Remove faceplate and cover assembly (table 4-2).
2. Apply primary power to Display Terminal, and enter an uppercase letter X near center of display screen.
3. Adjust R38 and R41 to full clockwise position.
4. Slowly adjust R38 counterclockwise. Initially, a bright spot should be quite evident at upper end of lower left to upper right stroke. As R38 is adjusted spot should dim then disappear. Further adjustment should cause line to shorten in length. Adjust R38 so that spot is barely visible.
5. Adjust R41 slowly counterclockwise until lower right to upper left stroke of X is as straight as possible. Both strokes should now be symmetrical and straight.

Figure 4-8. Character Symmetry Adjustment (Sheet 1)

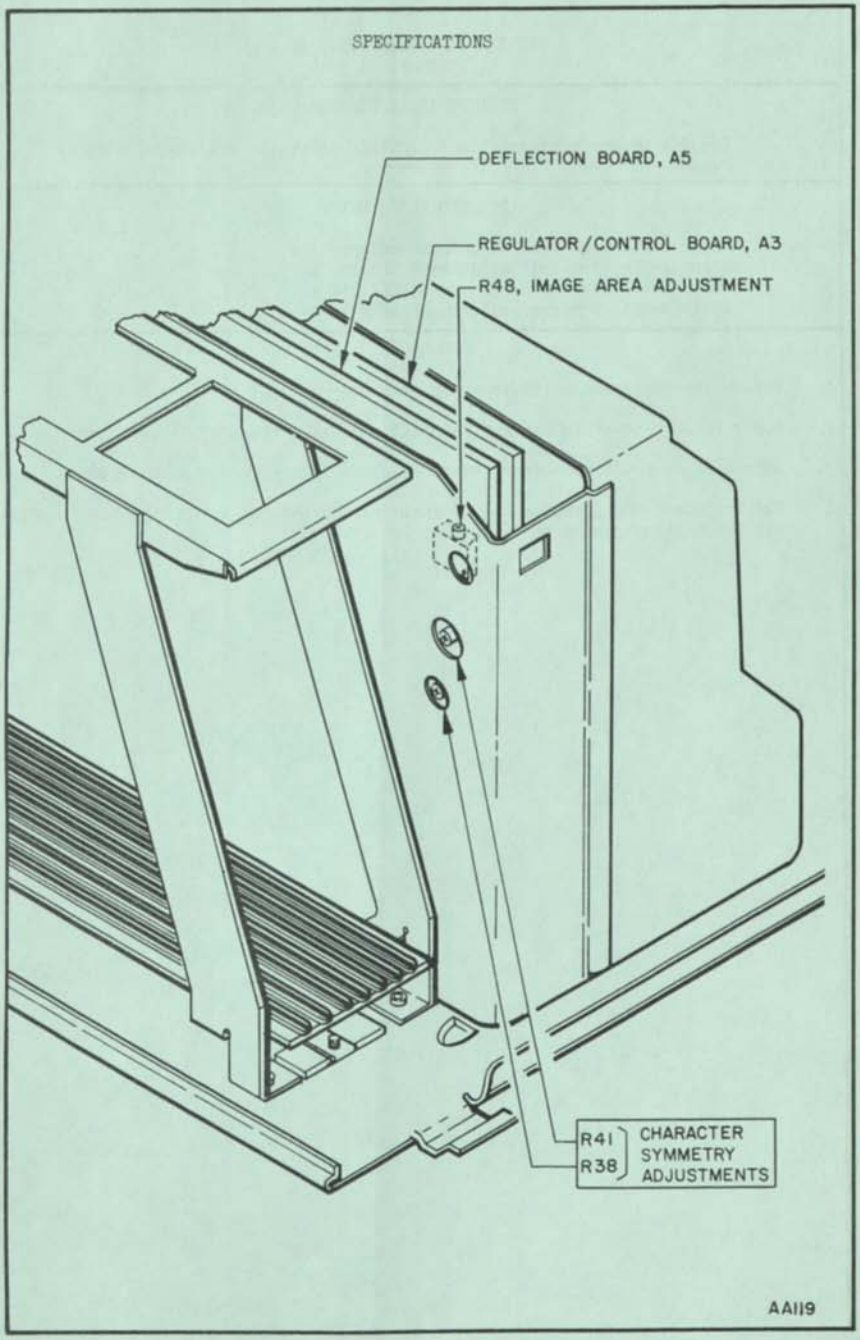

Figure 4-8. Character Symmetry Adjustment (Sheet 2)

SPECIAL EQUIPMENT REQUIRED
(None)

PURPOSE OF ADJUSTMENT

Provide proper horizontal and vertical character spacing on display screen.

RELATED ADJUSTMENTS

Major deflection coil adjustment (figure 4-2)
Minor deflection coil adjustment (figure 4-3)
Image area adjustment (figure 4-1)
Antipincushion magnet adjustment (figure 4-4)

PROCEDURE

1. Remove faceplate and cover assembly (table 4-2).
2. Apply primary power to Display Terminal and fill screen with characters.
3. Adjust R6 on position address board (A10) to full counterclockwise position.
4. Slowly adjust R6 clockwise until equal spacing between horizontal lines and optimum vertical character alignment is obtained.

Figure 4-9. Line Spacing Adjustment (Sheet 1)

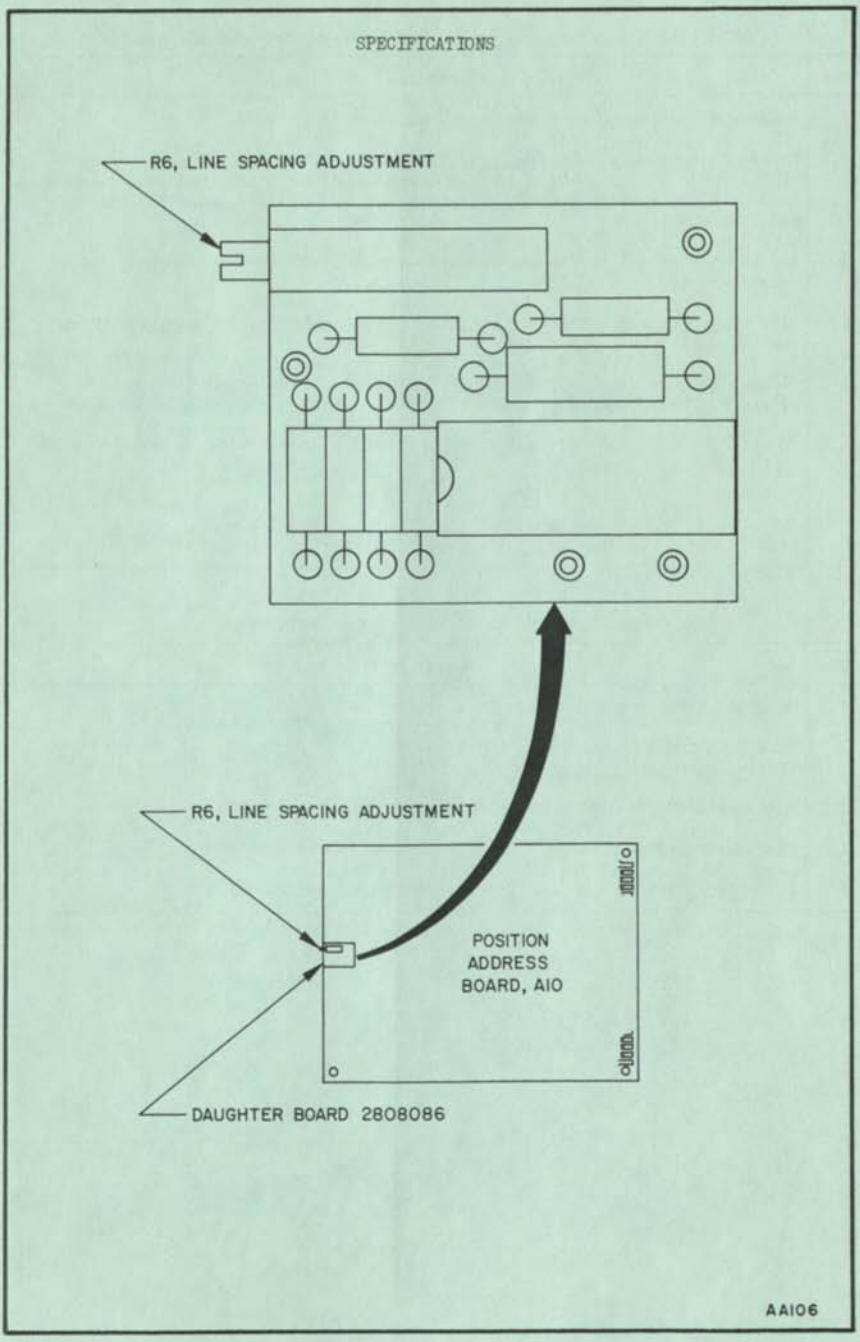

Figure 4-9. Line Spacing Adjustment (Sheet 2)

Table 4-2. Faceplate and Cover Assembly Removal and Replacement

Step	Procedure
1	Remove primary power from Display Terminal.
2.	Remove faceplate by releasing four tension fasteners located near corners of CRT face (figure 4-10). Apply pressure at these points and pull straight away until faceplate clears front panel WAIT, INTENSITY, and POWER controls and indicators.
3.	Release top cover by rotating fastener screws clockwise until spring clips release.
4.	Lift top cover and swing back until cover clears two hinge slots at bottom rear of unit.
5	Slide side panel back approximately 1/2 inch to release front clip, lift up and slightly outward to release bottom clips, and remove side panel.
6	To replace cover assembly and faceplate, follow these steps in reverse order. NOTE Make certain that the side panels are on the outside of the top cover lip when assembling.

Table 4-3. Keyboard Removal and Replacement

Step	Procedure
1	Disconnect primary power from Display Terminal.
2	Turn keyboard thumbscrews counterclockwise until keyboard is released from Display Terminal.
3	Pull keyboard straight away from unit.
4	Disconnect keyboard cable from keyboard and remove keyboard.
5	To replace keyboard follow these steps in reverse order.

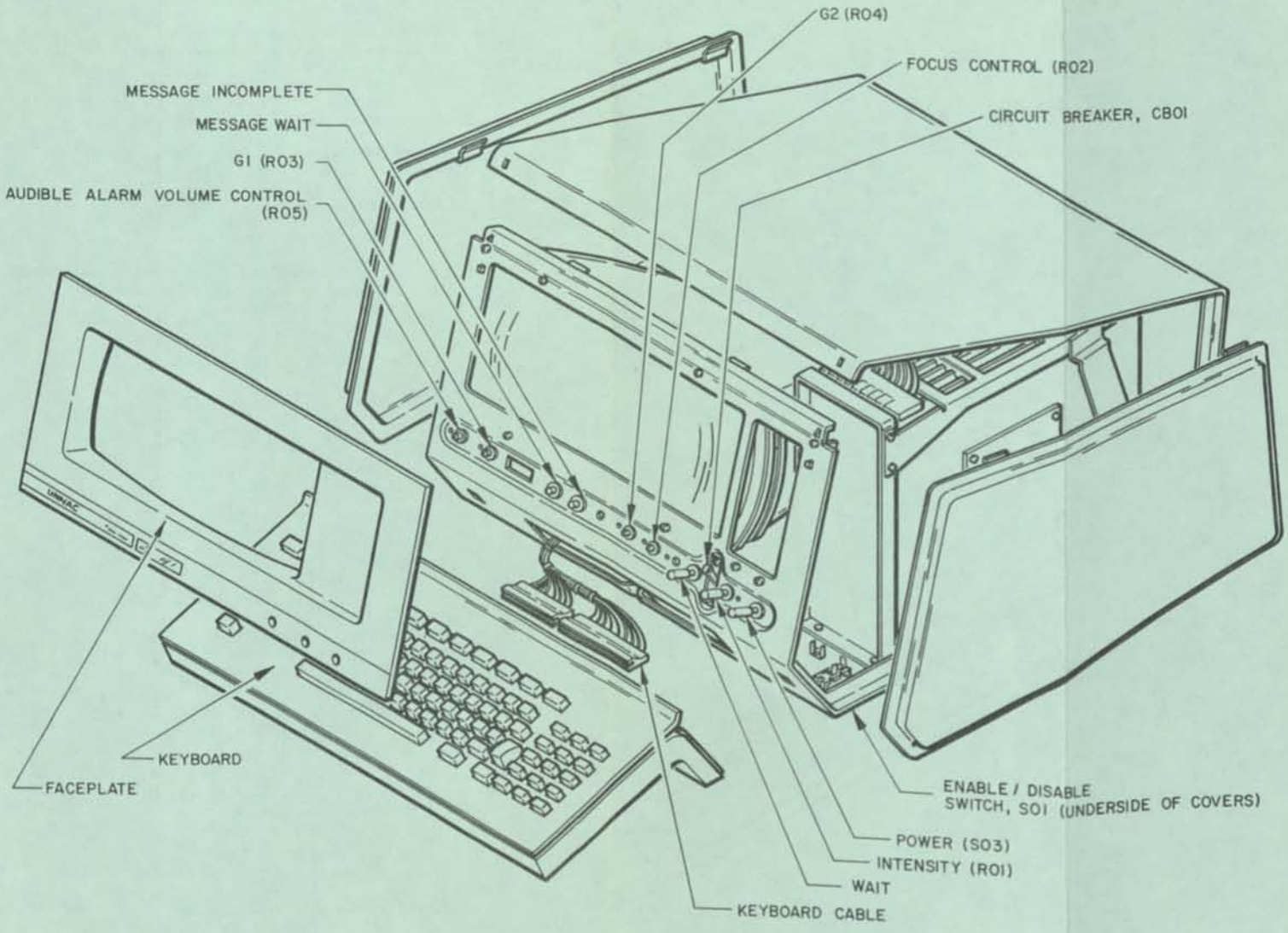

Figure 4-10. UNISCOPE 100 Display Terminal Cover Removal

Table 4-4. Chimney Removal and Replacement

Step	Procedure
1	Remove primary power from Display Terminal.
2	Remove faceplate and top cover (table 4-2).
	CAUTION Be careful not to damage CRT or yoke assemlies when lifting chimney assembly.
3	Press chimney retainers (figure 4-11) at front and rear of chimney assembly and lift chimney assembly vertically.
4	To replace, follow these steps in reverse order.
	NOTE Make certain that cables are routed through cutout in base of chimney assembly and not pinched underneath.

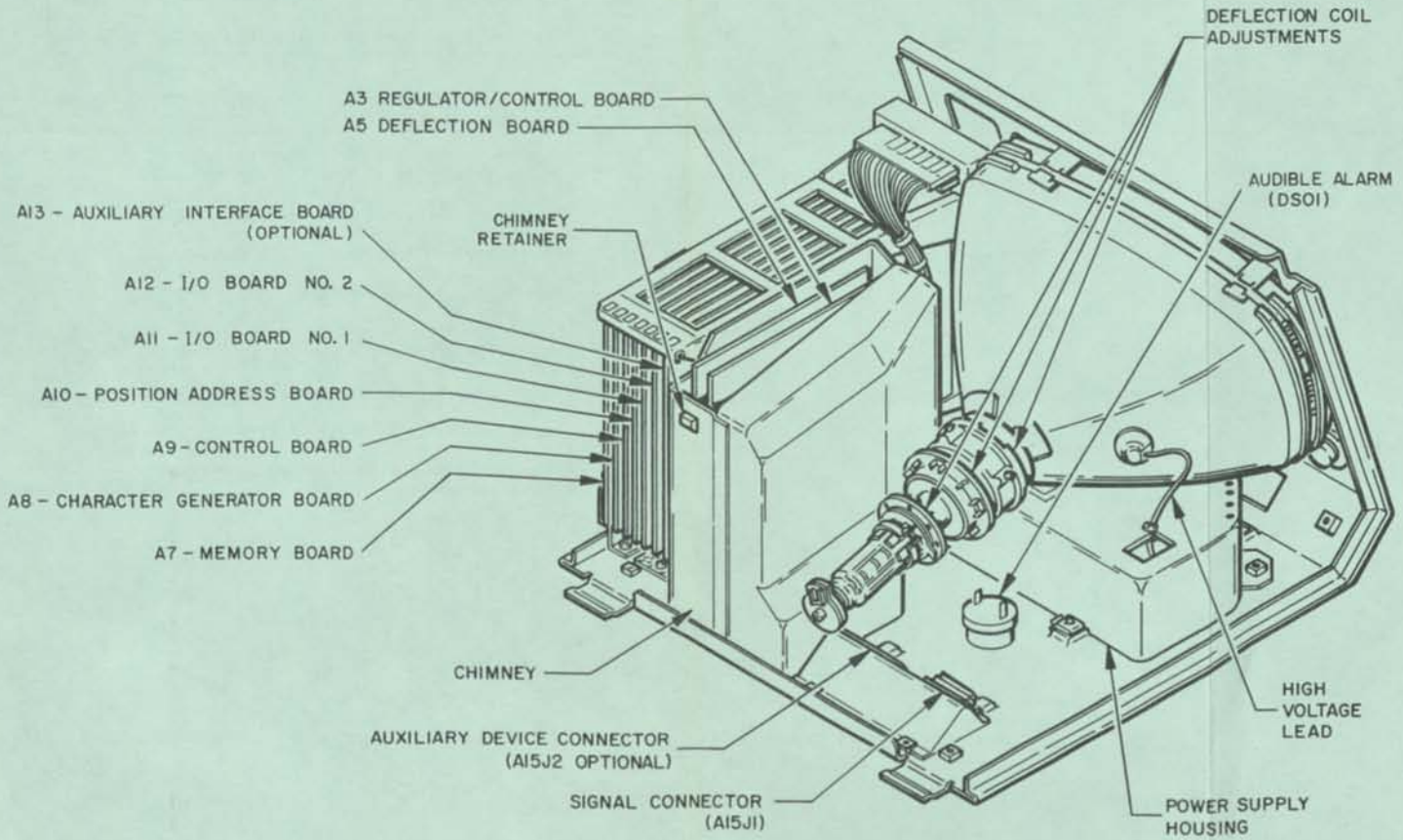

Figure 4-11. UNISCOPE 100 Display Terminal Rear View

Table 4-5. Filter Removal and Replacement

Step	Procedure
1	Locate filter tray handle on bottom of unit (figure 4-12).
2	Slide filter tray and filter out until unit is cleared and remove filter.
3	Clean or replace filter and insert in filter tray.
4	Replace filter tray and filter in retainer under unit.

Table 4-6. Power Supply Removal and Replacement

Step	Procedure
1	Remove primary power from Display Terminal.
2	Remove faceplate and left side panel (table 4-2).
3	Place Display Terminal on right side.
4	Remove high voltage cap from CRT.
5	Rotate two power supply turnlock fasteners on bottom of unit (figure 4-12) counterclockwise until power supply releases (approximately 1/2 turn).
6	Remove plug A2J1 from power supply.
7	Remove power supply assembly from Display Terminal.
8	To replace, follow these steps in reverse order.

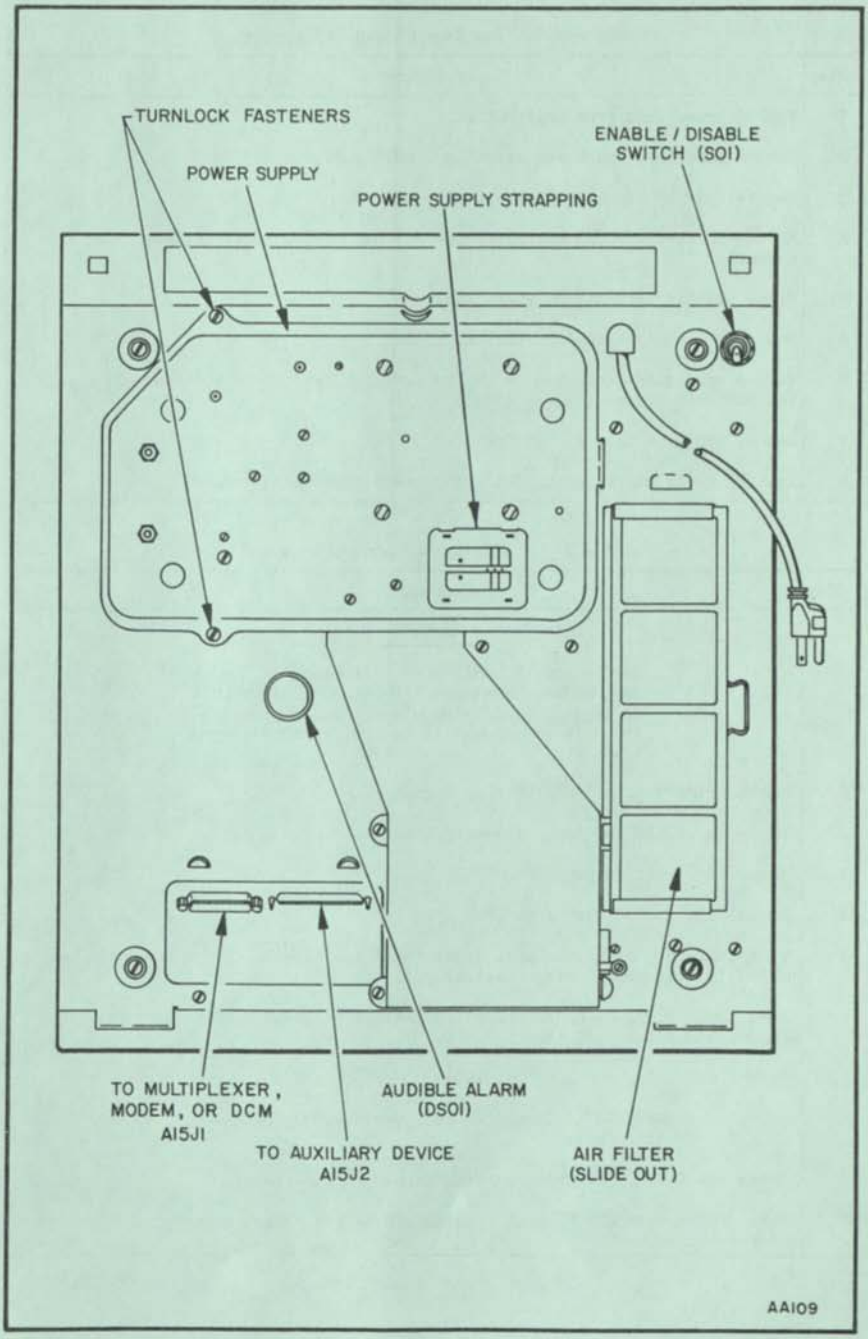

Figure 4-12. UNISCOPE 100 Display Terminal Bottom View

Table 4-7. Fan Removal and Replacement

Step	Procedure
1	Unplug power cord from wall outlet.
2	Remove faceplate and cover assembly (table 4-2).
3	Remove chimney assembly (table 4-4).
4	Remove printed circuit boards A3 and A5 from card guides inside chimney assembly.
5	Place Display Terminal on right side.
6	Unplug AC input connectors to fan.
7	Remove card guides mounted on fan by removing four machine screws which hold fan and card guides (figure 4-13).
8	Remove fan from Display Terminal.
9	Install replacement fan by following steps in reverse order.

Table 4-8. CRT Removal and Replacement

Step	Procedure
	WARNING Handle the CRT with care. Breakage of the CRT, which contains a high vacuum, may result in injury from flying glass. Do not scratch the tube or subject it to any pressure at any time.
1	Remove primary power from Display Terminal.
2	Remove faceplate and cover assembly (table 4-2).
3	Remove high voltage plug from CRT.
4	Remove tube socket plug from CRT.
5	Put a temporary reference mark in vertical position on CRT yoke assemblies to aid in alignment during reassembly.
6	Label leads going to major and minor deflection coils to correspond to pin numbers and disconnect them. NOTE Figure 4-11 illustrates the procedure described in this table.
7	Loosen the four CRT retaining strap screws (figure 4-13).
8	Gently raise base of CRT bell from double backed adhesive strip underneath.

Table 4-8. CRT Removal and Replacement (Cont)

Step	Procedure
9	Carefully remove CRT by lifting up and tilting so that retaining strap is cleared. Set CRT face down on some soft material.
10	Remove screw clamp from neck of CRT.
11	Remove minor deflection coil.
12	Remove plastic retaining ring.
13	Remove major deflection coil.
14	To install replacement tube, follow reverse order of removal procedures but do not replace covers. Make certain that double-backed adhesive strips are correctly placed between base of CRT bell and major deflection coil, CRT and retaining strap, CRT and power supply housing.
15	Make certain that yoke assemblies are properly oriented on CRT.
16	Follow procedures listed in figures 4-1 through 4-5.
17	Replace faceplate and cover assembly (table 4-2) and return unit to service.

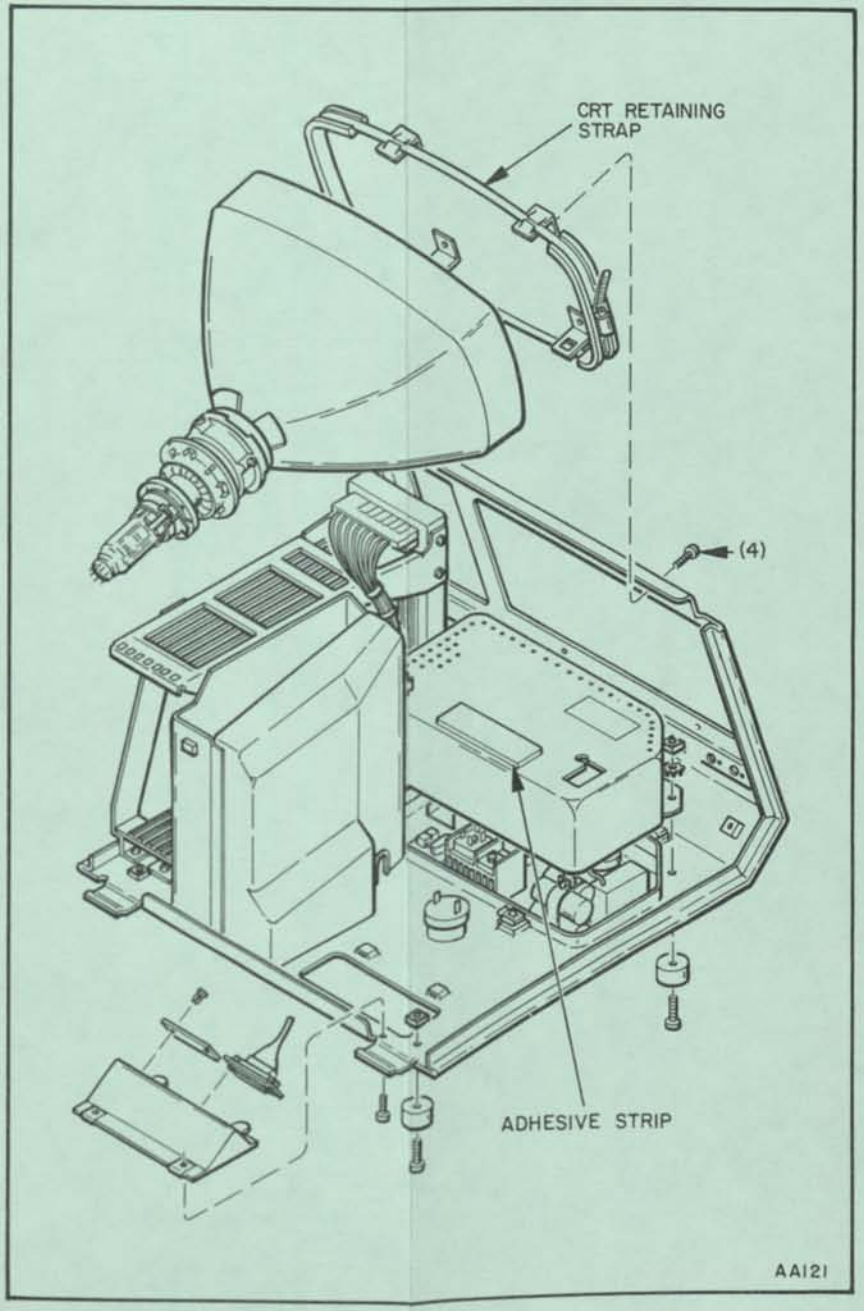

Figure 4-13. UNISCOPE 100 Display Terminal CRT Removal and Replacement

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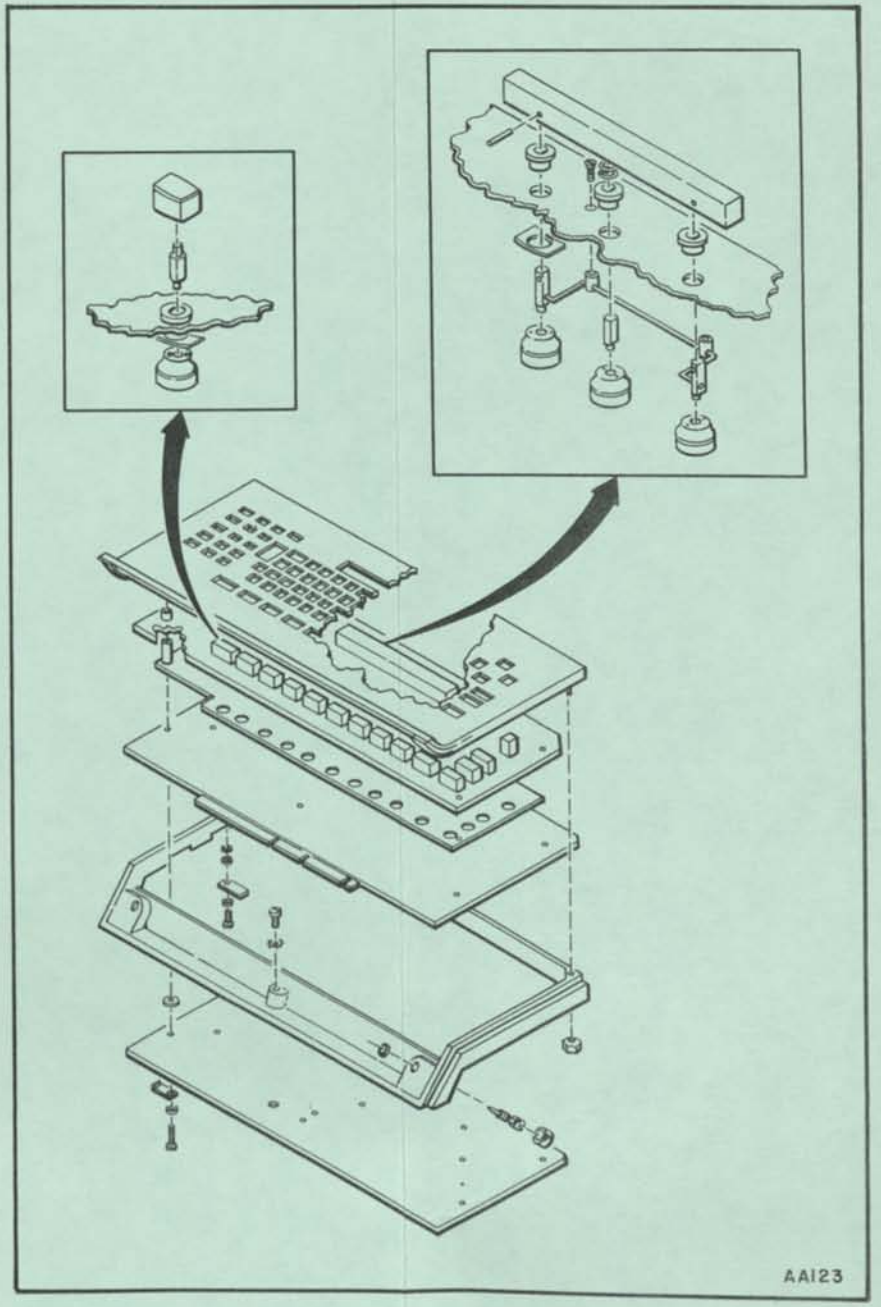

Figure 4-14. Keyboard Disassembly

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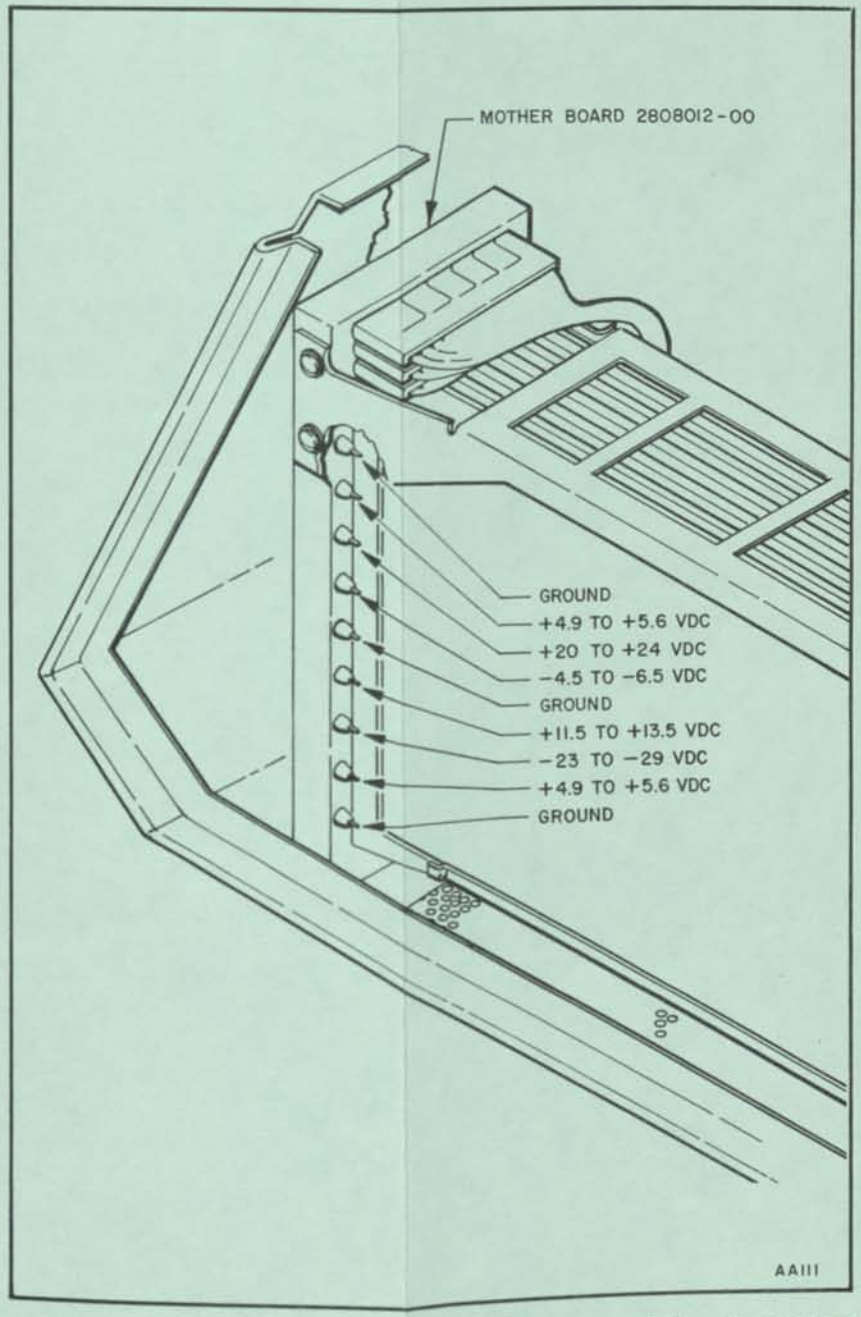

Figure 4-15. Voltage Bus Locations

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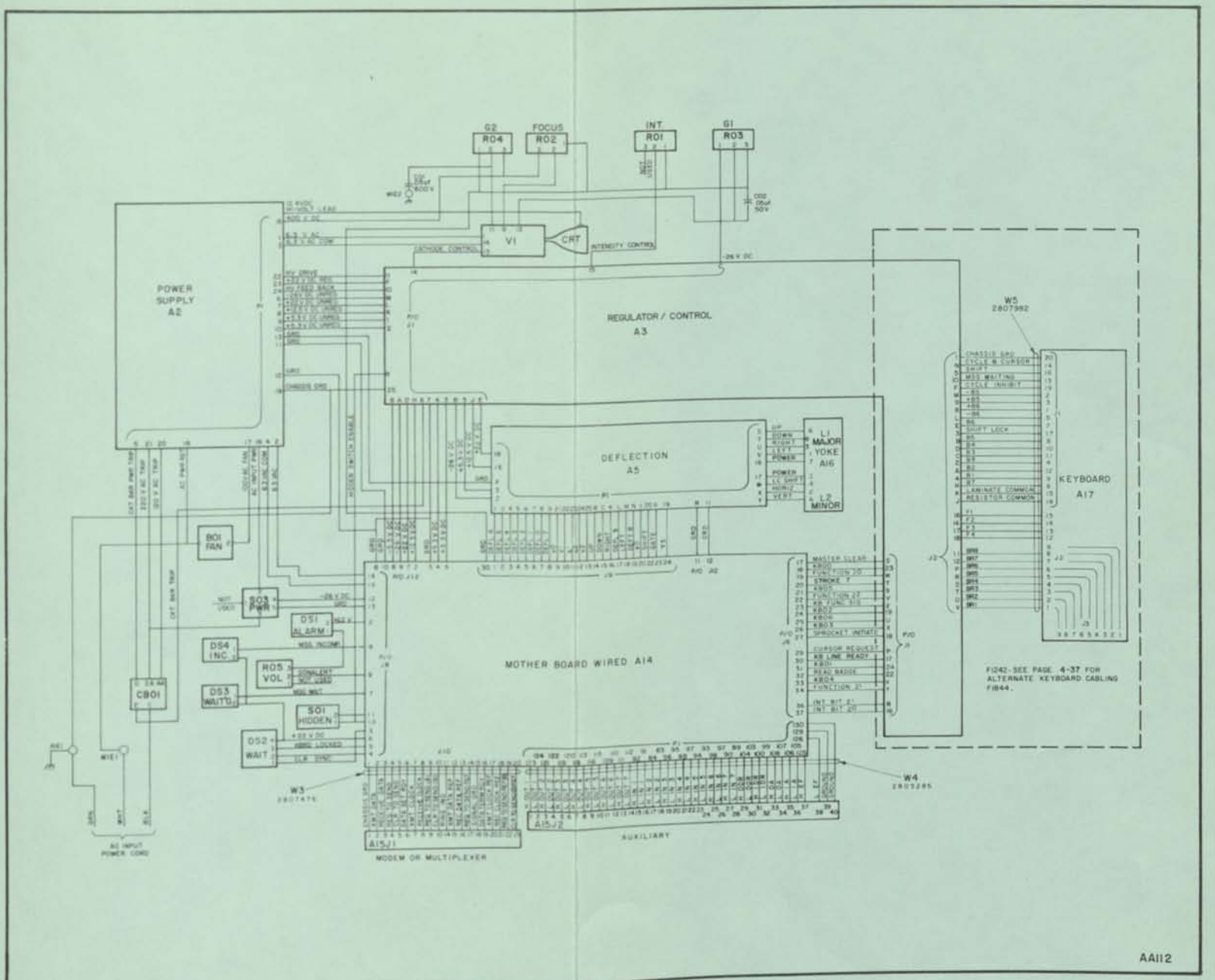

Figure 4-16. Interconnection Wiring Diagram (Sheet 1)

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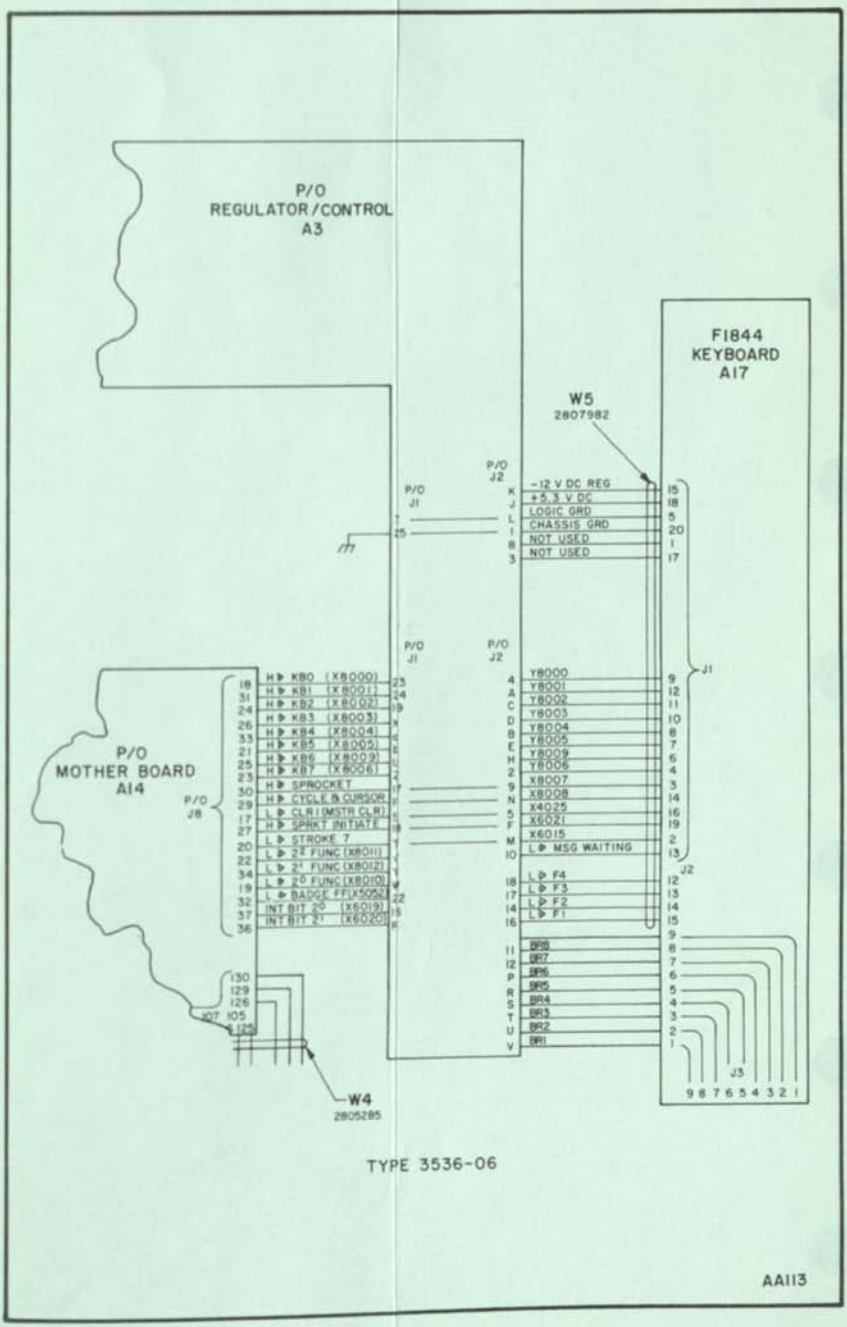

Figure 4-16. Interconnection Wiring Diagram (Sheet 2)

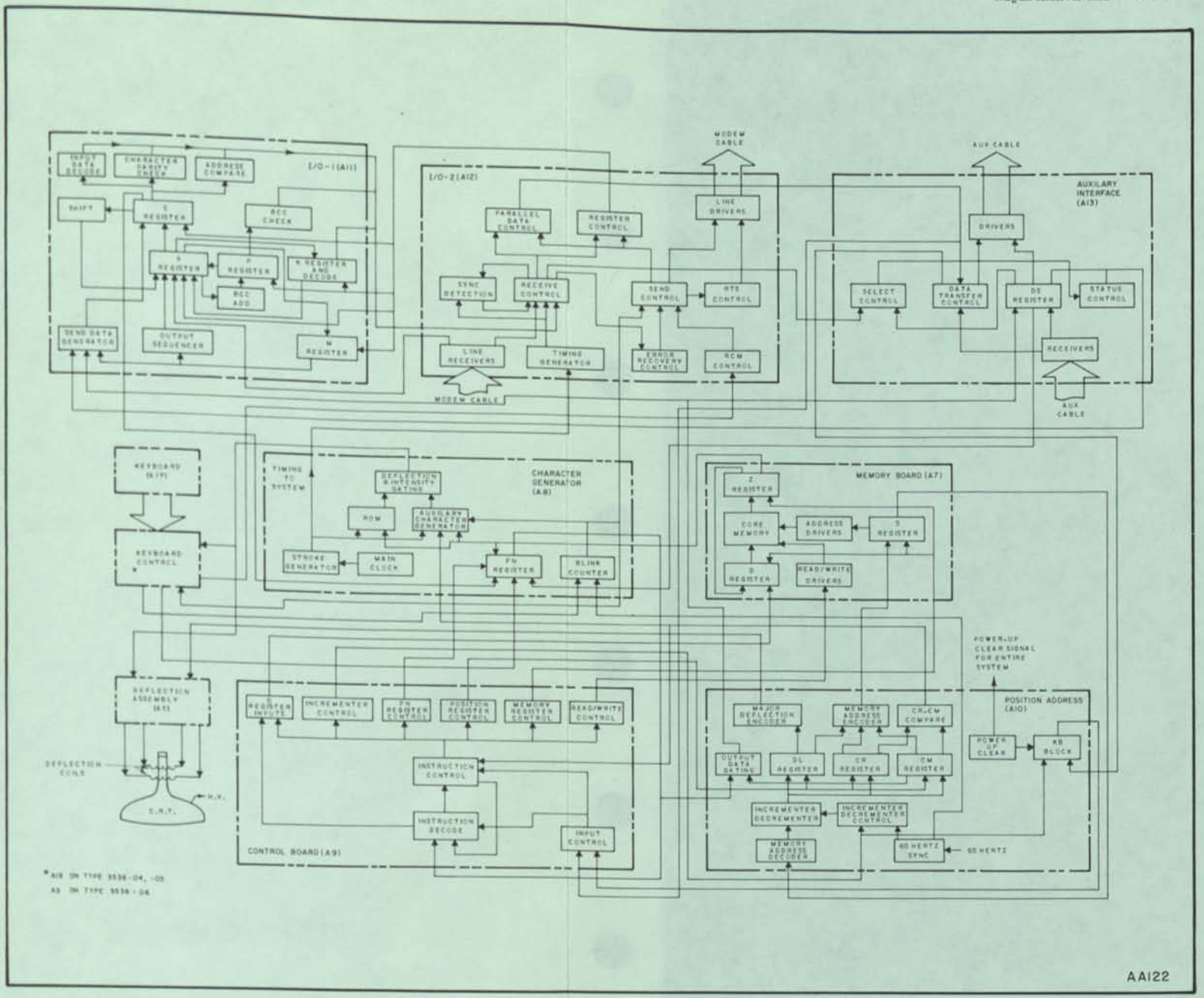

Figure 4-17. Functional Block Diagram

MR6032

UNIVAC UNISCOPE 100 DISPLAY TERMINAL TYPE 3536-06

ILLUSTRATED PARTS BREAKDOWN

AUGUST, 1973

SPERRY UNIVAC

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SECTION 1

INTRODUCTION

1-1. GENERAL

This Illustrated Parts Breakdown lists and illustrates the field-replaceable parts for the UNIVAC® UNISCOPE® 100 Display Terminal Type 3536-06.

This breakdown is divided into four sections as described in the following paragraphs. The information contained in these sections is used for requisitioning, storing, issuing, and identifying parts.

1-2. GROUP ASSEMBLY PARTS LIST, SECTION 2

1-3. GENERAL

The Group Assembly Parts List consists of a breakdown of the Display Terminal into assemblies, subassemblies, and detail parts as shown on the related illustrations. The lowest order of disassembly is dictated by current field practices, and field personnel should not replace or disassemble parts below the order that is presented. Each assembly listed in the Group Assembly Parts List is followed immediately by a list of component parts of the assembly. Component parts are indented below the assembly to show their relationship to the assembly. Attaching parts are listed immediately following the parts which they attach. Items which are made from raw stock, such as cut lengths of wire and insulating materials, are not included in the Group Assembly Parts List.

Index numbers on the illustrations correspond to the index numbers in the Group Assembly Parts List. A circled index number indicates an assembly whose component parts are indexed. Assemblies or subassemblies whose component parts are shown exploded are indexed in disassembly sequence.

Some illustrations are contained on foldout sheets. When the sheets are unfolded, illustrations are fully visible and can be used concurrently with the parts list.

1-4. FIGURE AND INDEX NUMBER COLUMN

In this column, the digits preceding the hyphen refer to the figure in which a part or assembly is illustrated. The digits following the hyphen are the index numbers of procurable and non-procurable parts and assemblies illustrated on the figure.

1-5. PART NUMBER COLUMN

This column contains the Univac part number for the field-replaceable parts of the unit. "No Number" indicates a group of parts for which no overall assembly number has been assigned.

1-6. REFERENCE DESIGNATION COLUMN

This column lists the reference designation of each part appearing on the schematic diagram for this particular unit. Mechanical parts are not identified in this type of listing.

1-7. DESCRIPTION COLUMN

This column contains the names and descriptions of the replaceable assemblies, subassemblies, and detail parts of the unit. The indention system used in presenting the descriptions shows the relationship between assemblies, subassemblies, and detail parts. For example, an item listed in the third indention is a component of the assembly or subassembly listed in the preceding second indention.

Parts which attach other parts of assemblies are preceded and followed by an asterisk (*), and are listed immediately after the parts or assemblies they attach.

1-8. UNITS PER ASSEMBLY COLUMN

The quantities shown in this column for indexed items are the quantities used at the indicated location(s) or similar locations on the assembly. The quantities shown for items listed between asterisks are the quantities required to mount the specified number of assemblies, subassemblies, or parts which they attach.

The letters AR denote "as required" and are used to indicate parts of which an indeterminate number may be required. The letters REF indicate that an assembly is shown completely assembled in a preceding illustration, and is now shown exploded in the illustration where the reference appears. In this case the description has a notation that refers to the illustration in which the assembly is shown completely assembled and indexed. The entry NP indicates that the part or assembly is non-procurable.

1-9. USED ON CODE COLUMN

Part variations within the Display Terminal are indicated by alpha and numeric symbols in the Used On Code column. In cases where the Used on Code column has been left blank, parts listed apply to all Display Terminals covered in this book.

1-10. REFERENCE DESIGNATION INDEX, SECTION 3

The Reference Designation Index is a list of parts for which a reference designation is given in the Group Assembly Parts List. The parts are listed in alphanumeric order by reference designation; figure and index numbers are given to aid in the location of the part in the Group Assembly Parts List.

1-11. NUMERICAL INDEX, SECTION 4

The Numerical Index provides a parts list in numerical order by part number. The figure and index number are given for each part to aid in the location of the part in the Group Assembly Parts List.

1-12. HOW TO USE THE ILLUSTRATED PARTS BREAKDOWN

1-13. WHEN THE PART LOCATION IS KNOWN

To obtain information about a part when its location is known, the following steps should be taken:

(a) Refer to the applicable assembly breakdown illustration.

(b) Compare the part with the illustration until the part is located.

(c) Note the index number for the part.

(d) Locate the index number in the corresponding Group Assembly Parts List.

(e) Find the part number, name and reference designation, where applicable, opposite the index number.

1-14. WHEN THE REFERENCE DESIGNATION IS KNOWN

To locate a part when the reference designation is known, the following steps should be taken:

(a) Locate the reference designation in the Reference Designation Index (Section 3).

(b) Note the figure and index number shown opposite the reference designation.

(c) Locate the figure and index number in the Group Assembly Parts List (Section 3).

1-15. WHEN THE PART NUMBER IS KNOWN.

To locate a part when the part number is known, the following steps should be taken:

(a) Locate the part number in the Numerical Index (Section 4).

(b) Note the figure and index number shown opposite the part number.

(c) Locate the figure and index number in the Group Assembly Parts List (Section 2).

SECTION 2

GROUP ASSEMBLY PARTS LIST

UNISCOPE 100 DISPLAY TERMINAL
TYPE 3536-06

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
1-	NO NUMBER		UNISCOPE 100, TYPE 3536-06	NP	
-1	2807953 00		. CABINET ASSEMBLY, WIRED 50/60 HZ (SEE FIG 2 FOR DETAIL BREAKDOWN)	1	
-2	2807490 00		. SIDE PANEL COLOR KIT, GREEN	1	
-3	2807416 00		. . PANEL, LEFT, FINISHED, GREEN	1	
-4	2807775 00		. . PANEL, RIGHT, FINISHED, GREEN	1	
-2	2807490 01		. SIDE PANEL COLOR KIT, GOLD	1	
-3	2807416 01		. . PANEL, LEFT, FINISHED, GOLD	1	
-4	2807775 01		. . PANEL, RIGHT, FINISHED, GOLD	1	
-2	2807490 02		. SIDE PANEL COLOR KIT, RUSSET	1	
-3	2807416 02		. . PANEL, LEFT, FINISHED, RUSSET	1	
-4	2807775 02		. . PANEL, RIGHT, FINISHED, RUSSET	1	
-2	2807490 03		. SIDE PANEL COLOR KIT, ORANGE	1	
-3	2807416 03		. . PANEL, LEFT, FINISHED, ORANGE	1	
-4	2807775 03		. . PANEL, RIGHT, FINISHED, ORANGE	1	
-2	2807490 04		. SIDE PANEL COLOR KIT, OLIVE	1	
-3	2807416 04		. . PANEL, LEFT, FINISHED, OLIVE	1	
-4	2807775 04		. . PANEL, RIGHT, FINISHED, OLIVE	1	
-5	2805251 XX		. KEYBOARD, UNISCOPE 100 (SEE FIG 4 FOR DETAIL BREAKDOWN)	1	
-5	2808036 XX		. KEYBOARD ASSEMBLY, ALPHANUMERIC (SEE FIG 4 FOR DETAIL BREAKDOWN)	1	
-5	2808037 XX		. KEYBOARD ASSEMBLY, ALPHA WITH PROTECT (SEE FIG 4 FOR DETAIL BREAKDOWN)	1	
-5	2808038 XX		. KEYBOARD ASSEMBLY, ALPHA (SEE FIG 4 FOR DETAIL BREAKDOWN)	1	
-5	2808039 XX		. KEYBOARD ASSEMBLY, NUMERIC (SEE FIG 4 FOR DETAIL BREAKDOWN)	1	
-6	2807456 00		. FRONT PANEL ASSEMBLY	1	
-7	2807918 03	A7	. 1024 I.C. MEMORY	1	
-7	2805290 05	A7	. 1024 MEMORY (MAGNETIC CORE)	1	
-8	2807786 02	A8	. 64 CHARACTER GENERATOR	1	
-8	2807816 02	A8	. 96 CHARACTER GENERATOR	1	
-9	2808052 00	A9	. CONTROL, WITH PROTECT FORMAT	1	
-9	2808053 00	A9	. CONTROL, WITHOUT PROTECT FORMAT	1	
-10	2805338 09	A10	. POSITION ADDRESS, 12 X 80	1	
-10	2805352 07	A10	. POSITION ADDRESS, 16 X 64	1	
-11	2808054 00	A11	. I/O-1, SYNC-U	1	
-11	2808056 00	A11	. I/O-1, SYNC-IBM	1	
-11	2808059 00	A11	. I/O-1, ASYNC-U	1	
-11	2808061 00	A11	. I/O-1, ASYNC-IBM	1	
-12	2808055 00	A12	. I/O-2, SYNC-U	1	
-12	2808057 00	A12	. I/O-2, SYNC-IBM	1	
-12	2808060 00	A12	. I/O-2, ASYNC-U	1	
-12	2808062 00	A12	. I/O-2, ASYNC-IBM	1	
-12	2808063 00	A12	. I/O-2, SYNC-DIRECT	1	
-13	2808058 00	A13	. AUXILIARY INTERFACE (OPTIONAL)	1	
-14	2807988 01	A5	. DEFLECTION, 12 X 80	1	
-14	2807992 01	A5	. DEFECTION, 16 X 64	1	
-15	2807934 02	A3	. REGULATOR/CONTROL	1	
-16	2807982 00	W5	KEYBOARD CABLE ASSEMBLY (SEE FIG 9 FOR DETAIL BREAKDOWN)	1	
-17	2805285 00	W4	CABLE ASSEMBLY, AUX I/F, INTERNAL (PRESENT ONLY IF AUX INTERFACE BOARD A13 IS INSTALLED - SEE FIG 10 FOR DETAIL BREAKDOWN)	1	
-18	7099615 00		CABLE ASSEMBLY, PARALLEL I/F (3760) (PRESENT ONLY IF 3760 INTERFACE BOARDS ARE INSTALLED - SEE FIG 11 FOR DETAIL BREAKDOWN)	1	

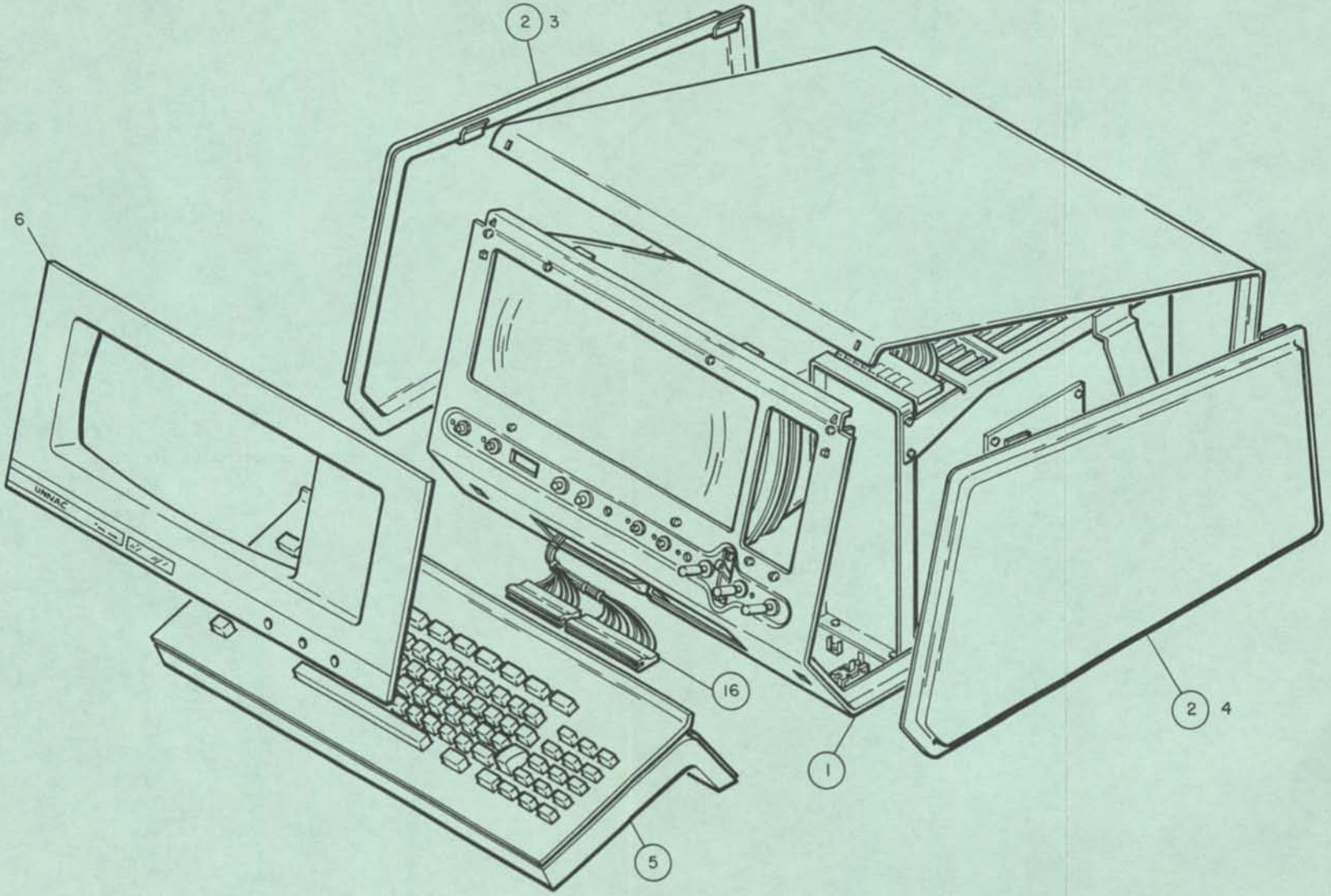

Figure 1. UNISCOPE 100, Type 3536-06
(Sheet 1 of 2)

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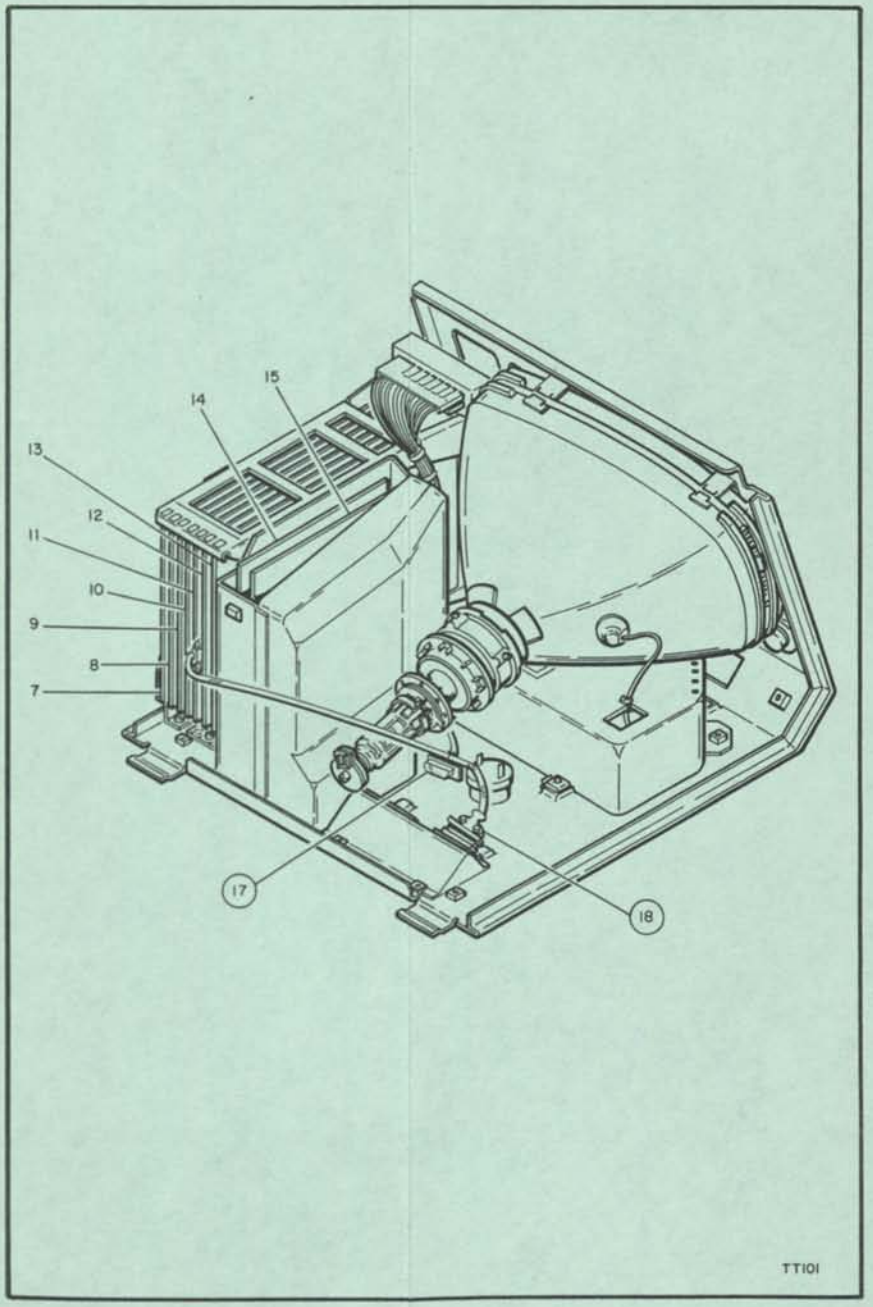

Figure 1. UNISCOPE 100, Type 3536-06
(Sheet 2 of 2)

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
2-	2807953 00		CABINET ASSEMBLY, WIRED 50/60 HZ	REF	
-1	2807738 01		. CASE, BOTTOM AND FRONT	1	
-2	2807759 01		. COVER, TOP	1	
-3	4913556 03		. SCREW, TAPPING, THD FMG, PAN HD, X-REC, NO. 8, 0.625 LG	2	
-4	4912548 02		. WASHER, FLAT, ROUND, NO.8	2	
-4A	2808079 00		. SPACER, TOP COVER LATCH	2	
-5	2808019 00		. LATCH, TOP COVER	2	
-6	2899095 02		. TERMINAL, QUICK-DISCONNECT, DOUBLE-MALE, .187 SERIES	1	
			*		
-7	4912524 01		. SCREW, MACH, PAN HD, NO.6-32, 0.312 LG	1	
-8	4912551 01		. LOCKWASHER, BRONZE, NO.6	1	
-9	4912540 01		. NUT, HEX, NO.6-32	1	
			*		
-10	2899144 00	S01	. SWITCH, TOGGLE, SPST	1	
-11	2899098 01		. RETAINER AND NUT ASSY	2	
-12	2899316 00		. KNOB AND LENS ASSY, POWER IND	1	
-13	2807648 00		. KNOB, INTENSITY	1	
-14	2899509 00		. KNOB AND LENS ASSY, WAIT IND	1	
-15	2899464 00	CB01	. CIRCUIT BREAKER ASSY	1	
			*		
-16	4912524 07		. SCREW, MACH, PAN HD, NO.6-32, 0.188 LG	2	
-17	4912550 01		. LOCKWASHER, NO.6	2	
			*		
-18	2899103 01		. LAMPHOLDER, MIN, SLIDE SOCKET	2	
-19	2899110 01	DS03,DS04	. LAMP, INCAN, MIN, SLIDE BASE	2	
-20	2899017 03	V1	. TUBE, ELECTRON, CATHODE RAY TUBE	1	
			*		
-21	2807351 00		. MOUNTING ASSY, CRT	1	
-22	4956341 16		. PLASTIC SHEET AND STRIP, PRES SENS, ADH COATED, CELLULAR	AR	
-23	4912524 00		. SCREW, MACH, PAN HD, NO.6-32, 0.250 LG	4	
			*		
-24	2807950 01		. COVER, POWER SUPPLY	1	
			*		
-25	2899380 03		. NUT, SHEET SPRING, NO.10-32UNF	4	
-26	4912551 03		. LOCKWASHER, BRONZE, NO.10	1	
-27	2899377 00		. BUMPER, RUBBER, SCREW-ON, 1 INCH	4	
-28	4912527 04		. SCREW, MACH, PAN HD, NO.10-32UNF, 0.750 LG	4	
			*		
-29	2807954 00	A2	. POWER SUPPLY ASSEMBLY (SEE FIG 3 FOR DETAIL BREAKDOWN)	1	
-30	3007287 00		. RECEPTACLE, TURNLOCK FASTENER, 0.055 - 0.090 FRAME THK	2	
-31	4914485 04	DS01	. HORN, ELECTRIC, AUDIBLE ALARM	1	
-32	2808006 00		. CONNECTOR BRACKET, I/O	1	
			*		
-33	911651 03		. NUT, SHEET SPRING, V-TYPE	2	
-34	4912524 01		. SCREW, MACH, PAN HD, NO.6-32, 0.312 LG	2	
-35	2807637 01		. COVER PLATE, CONNECTOR	1	
-36	2899418 01		. FASTENER, SPRING TENSION, TRIM	2	
-37	3011815 00		. SCREW ASSY, CONNECTOR PLUG, NO.4-40	2	
			*		
-38	2807476 00	W3	. CABLE ASSEMBLY, INTERNAL MODEM (SEE FIG 6 FOR DETAIL BREAKDOWN)	1	
-39	2807850 00		. AIR DUCT ASSEMBLY	1	
-40	2807955 01	W1	. WIRING HARNESS ASSEMBLY (SEE FIG 7 FOR DETAIL BREAKDOWN)	1	

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
2-41	2807461 00	A16L2	. MINOR DEFLECTION YOKE ASSEMBLY	1	
-42	2805493 00		. COIL CENTERING RING	1	
-43	2899305 00	A16L1	. TUBE DEFLECTION COIL ASSEMBLY	1	
-44	2807366 00		. ANTI-PINCUSHION MAGNET RING, MOLDED, ASSY	1	
-45	4912539 00		. SETSCREW HEXAGON SOCKET 1/4-20	2	
-46	2807707 00		. BRACKET, CARD GUIDE, WELDED	1	
-47	2807803 00		. CARD GUIDE	1	
-48	2807803 01		. CARD GUIDE	1	
-49	4912550 01		. LOCKWASHER, NO.6	4	
-50	4912524 07		. SCREW, MACH, PAN HD, NO.6-32, 0.188 LG	4	
-51	4912550 02		. LOCKWASHER, NO.8	2	
-52	4912525 03		. SCREW, MACH, PAN HD, NO.8-32, 0.438 LG	2	
-53	2808012 00	A14	. MOTHER BOARD ASSY, WIRED	1	
-54	4912551 02		. LOCKWASHER, BRONZE, EXT TOOTH, NO.8	1	
-55	4912550 02		. LOCKWASHER, NO.8	1	
-56	4912525 01		. SCREW, MACH, PAN HD, NO.8-32, 0.312 LG	2	
-57	2899100 01		. BUSHING, STRAIN RELIEF, RT ANGLE	1	
-58	2807797 00		. CARD GUIDE, REAR	1	
-59	2807798 00		. BRACKET, CONNECTOR	1	
-60	3156579 04		. TY WRAP	2	
-61	2899381 01	B01	. FAN, AXIAL, 50/60 HZ, 100 CFM	1	
-62	4912524 14		. SCREW, MACH, PAN HD, NO.6-32, 2.00 LG	4	
-63	2807802 00		. CARD GUIDE, FRONT	1	
-64	4912524 04		. SCREW, MACH, PAN HD, NO.6-32, 0.500 LG	2	
-65	2899395 00		. NUT, CLAMPING, NO.6-32	6	
-66	2808009 00		. AIR DUCT, EXHAUST	1	
-67	911651 03		. NUT, SHEET SPRING, V-TYPE	1	
-68	4912524 02		. SCREW, MACH, PAN HD, NO.6-32, 0.375 LG	1	
-69	2808041 00		. TRAY, FILTER, AIR INLET	1	
-70	4956810 05		. PLASTIC MATERIAL, CELLULAR, 0.375 THK, 30 PORES/INCH	1	
-71	2807772 00		. RETAINER, AIR FILTER	1	
-72	911651 03		. NUT, SHEET SPRING, V-TYPE	1	
-73	4912524 01		. SCREW, MACH, PAN HD, NO.6-32, 0.312 LG	1	
-74	2807981 01		. POWER CORD, AC	1	
-75	3007700 02		. CLAMP, LOOP, POLYPROPYLENE, 0.260 W, 2.085 LG, 0.375 LOOP	1	

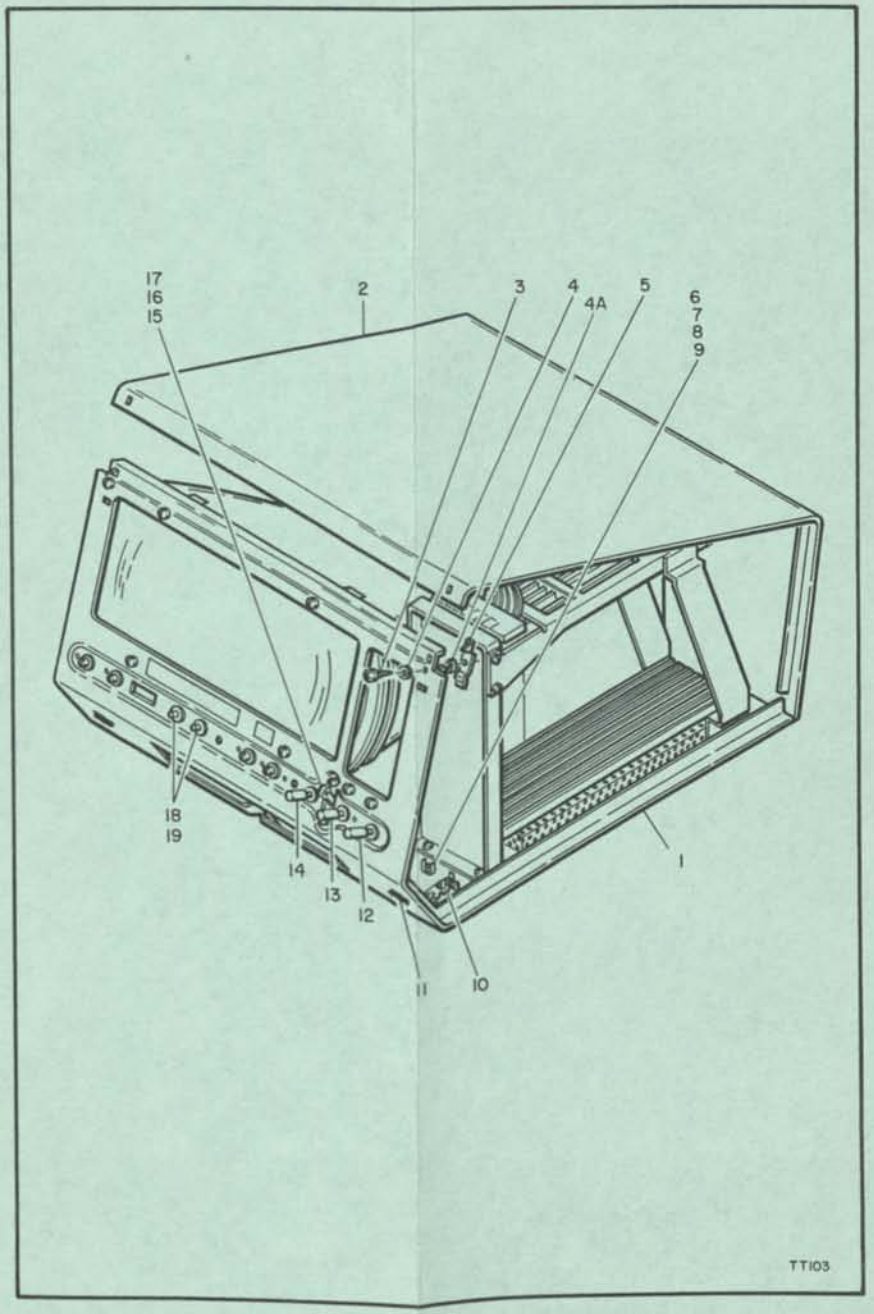

Figure 2. Cabinet Assembly (Sheet 1 of 3)

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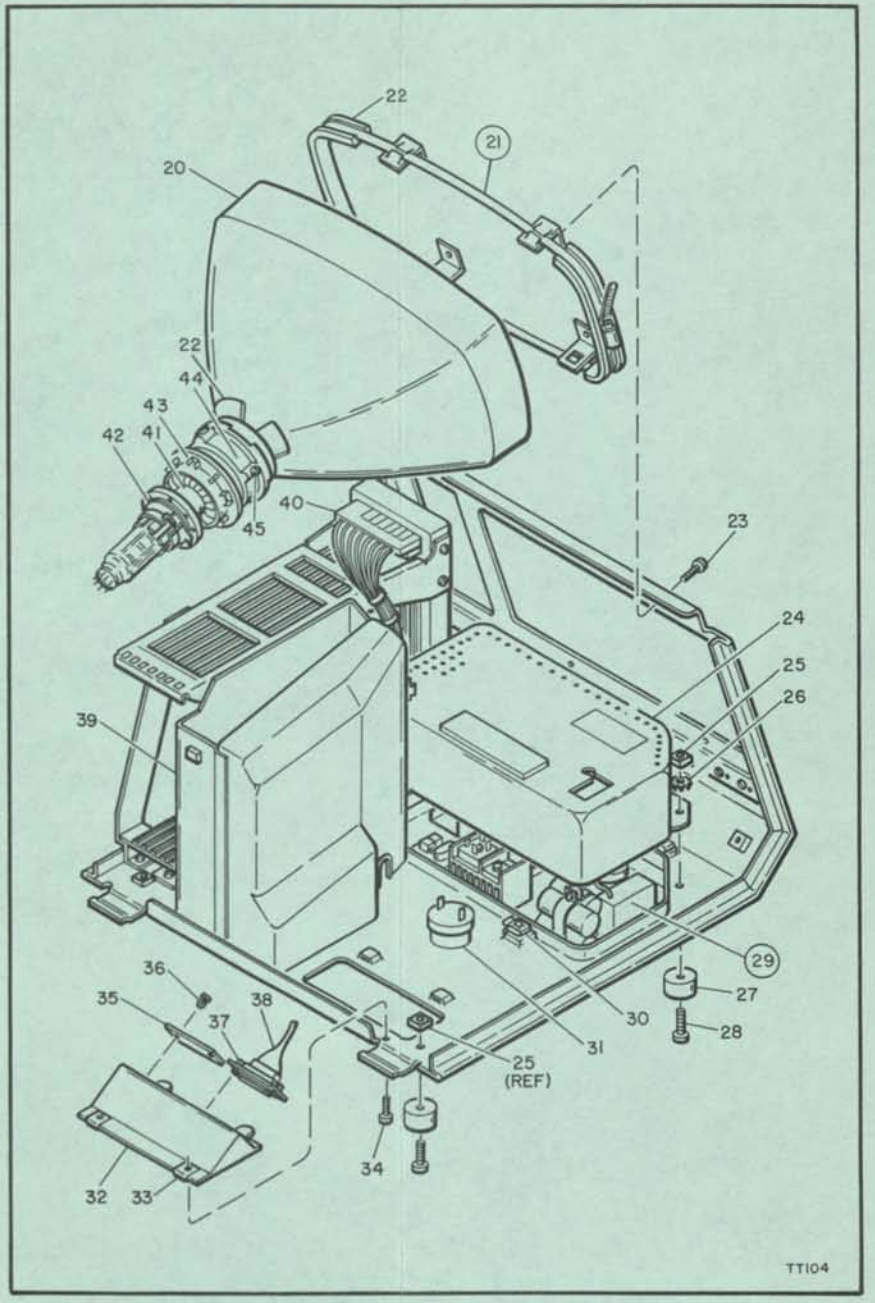

Figure 2. Cabinet Assembly
(Sheet 2 of 3)

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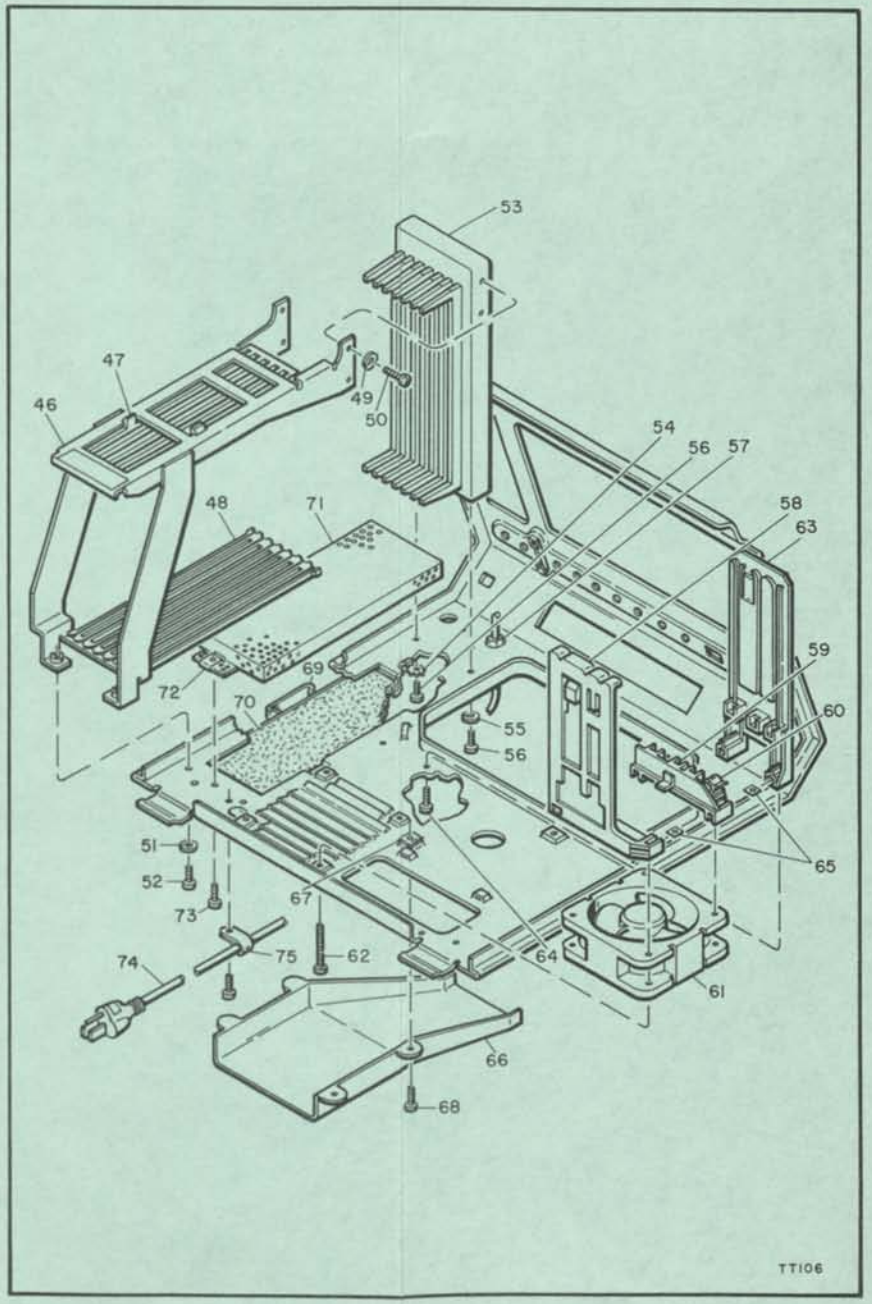

Figure 2. Cabinet Assembly
(Sheet 3 of 3)

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
3-	2807954 00	A2	POWER SUPPLY ASSEMBLY (SEE FIG 2 FOR NEXT HIGHER ASSY)	REF	
-1	2807764 00		. HOUSING, POWER SUPPLY	1	
-2	2807952 00		. CAPACITOR ASSEMBLY	1	
-3	2899105 03	C3	. . CAPACITOR, FIXED, ELECTROLYTIC, 4500 UF, 75 VDC	1	
-4	2899105 01	C2	. . CAPACITOR, FIXED, ELECTROLYTIC, 7400 UF, 35 VDC	1	
-5	2899105 02	C4	. . CAPACITOR, FIXED, ELECTROLYTIC, 890 UF, 75 VDC	1	
-6	2899105 00	C1	. . CAPACITOR, FIXED, ELECTROLYTIC, 17000 UF, 20 VDC	1	
			*		
-7	2807951 00		. . RETAINER, CAPACITOR	1	
-8	905818 03		. . NUT, SHEET SPRING, U-TYPE, NO.6 SCREW	2	
-9	4912524 00		. . SCREW, MACH, PAN HD, NO.6-32, 0.875 LG	1	
-10	4912524 02		. SCREW, MACH, PAN HD, NO.6-32, 0.375 LG	1	
			*		
-11	2899262 00	PS1	. POWER SUPPLY SUBASSEMBLY, VOLTAGE DOUBLER, 15 KV	1	
			*		
-12	4912551 02		. LOCKWASHER, EXT TOOTH, BRONZE, 0.023 THK, 0.176 ID, 0.381 OD	2	
-13	4912540 02		. NUT, MACH, HEX, NO.8-32	2	
			*		
-14	3008589 00		. WASHER, PANEL FASTENER SCREW, NO.2 STUD, 0.206 ID, 0.015 THK	2	
-15	3011173 09		. STUD, TURNLOCK FASTENER, 0.250 TO 0.269 GRIP RANGE	2	
-16	2899012 00	CR2	. RECTIFIER, SEMICONDUCTOR, FULL WAVE, SILICON, POWER STACK	1	
-17	2899274 00	CR1	. RECTIFIER, SEMICONDUCTOR, FULL WAVE, SILICON, BRIDGE	1	
-18	2808010 00		. HEAT SINK, LOW VOLTAGE PWR SUPPLY	1	
			*		
-19	4912548 11		. WASHER, FLAT, ROUND, 0.065 THK, 0.164 ID, 0.390 OD	4	
-20	4912550 01		. LOCKWASHER, SPRING, HELICAL, 0.037 THK, 0.151 ID, 0.253 OD	4	
-21	4912540 01		. NUT, MACH, HEX, NO.6-32	5	
-22	4912524 12		. SCREW, MACH, PAN HD, NO.6-32, 1.500 LG	1	
-23	4912524 13		. SCREW, MACH, PAN HD, NO.6-32, 1.750 LG	1	
			*		
-24	2807939 00		. COVER, CONNECTOR, VOLTAGE SELECTOR	1	
-25	2899467 00	T1	. TRANSFORMER, POWER, STEP DOWN	1	
			*		
-26	2899050 02		. RIVET, BLIND, NYLON, 0.174 GRIP, 0.245 DIA, 0.470 LG	4	
			*		
-27	2807985 00	A2W1	. WIRING HARNESS, POWER SUPPLY (SEE FIG 8 FOR DETAIL BREAKDOWN)	1	
-28	2899122 00	T2	. TRANSFORMER, RF, HIGH VOLTAGE	1	
			*		
-29	4912550 00		. LOCKWASHER, SPRING, HELICAL, 0.031 THK, 0.124 ID, 0.212 OD	2	
-30	4912540 00		. NUT, MACH, HEX, NO.4-40	2	
			*		

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
3-31	2899011 00	CR38 CR4	. RECTIFIER, SEMICONDUCTOR, FULL WAVE, SILICON, POWER STACK	2	
			*		
	4912540 01		. NUT, MACH, HEX, NO.6-32	REF	
	4912548 11		. WASHER, FLAT, ROUND, 0.065 THK, 0.164 ID, 0.390 OD	REF	
	4912550 01		. LOCKWASHER, SPRING, HELICAL, 0.037 THK, 0.151 ID, 0.253 OD	REF	
	4912524 04		. SCREW, MACH, PAN HD, NO.6-32, 0.500 LG	2	
			*		
-32	2899095 02		. TERMINAL, QUICK DISCONNECT, DOUBLE MALE, .187 SERIES	1	
			*		
	4912540 01		. NUT, MACH, HEX, NO.6-32	REF	
	4912551 01		. LOCKWASHER, EXT TOOTH, BRONZE, 0.022 THK, 0.150 ID, 0.320 OD	1	
	4912524 01		. SCREW, MACH, PAN HD, NO.6-32, 0.312 LG	1	
			*		

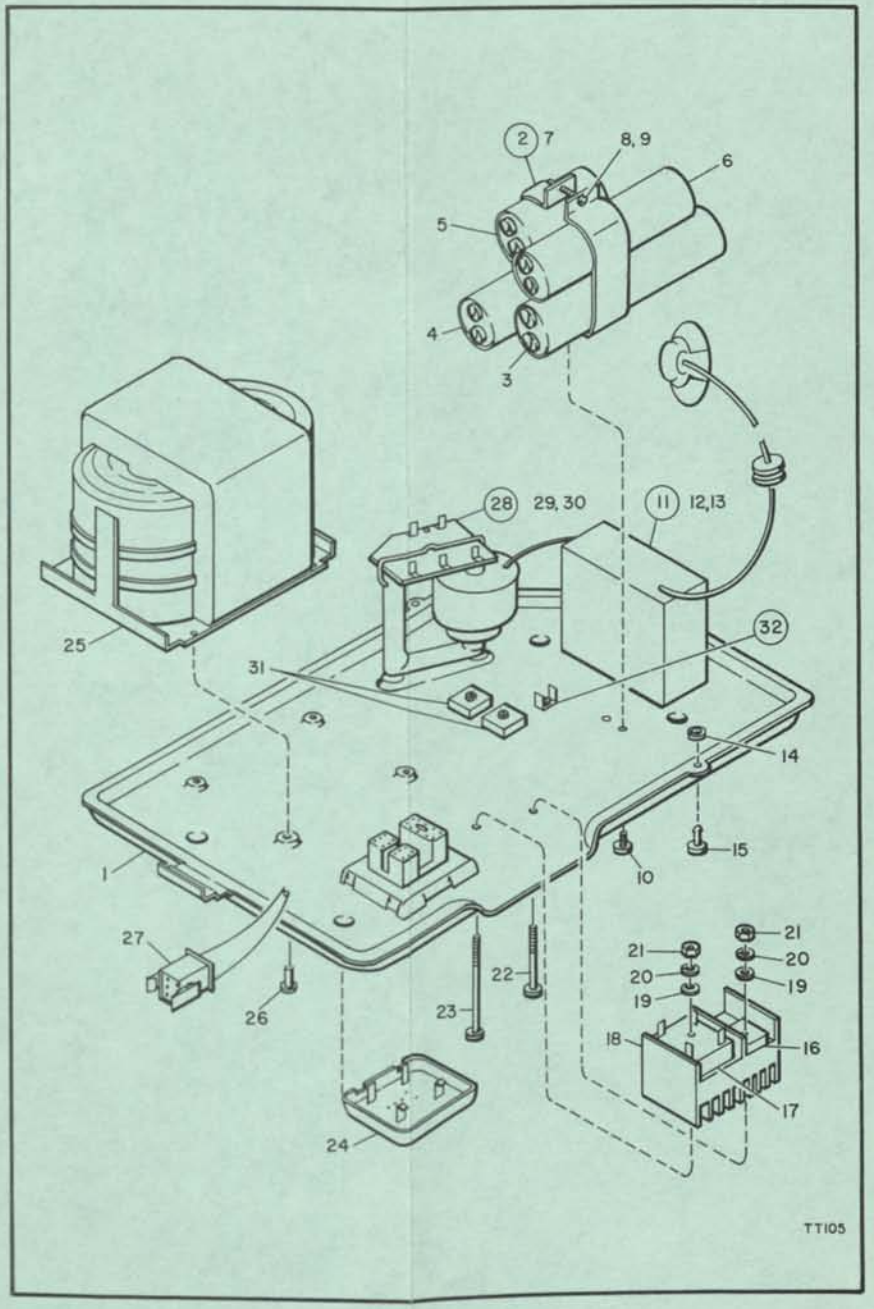

Figure 3. Power Supply Assembly

UNISCOPE 100 DISPLAY TERMINAL
TYPE 3536-06

FIG & INDEX NO.	PART NUMBER 98765432 1AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
4-	2805251	XX	KEYBOARD, UNISCOPE 100 (SEE FIG 1 FOR NEXT HIGHER ASSY) INDEX NO'S 17 THRU 33 ARE PECULIAR ITEMS FOR SPECIFIC KEYBOARD VARIATIONS AND ARE LISTED SEPARATELY FOR KEYBOARDS 2805251-10 THRU 2805251-18.	REF	
-1	2805264	00	. PLATE, BUSHING, KEYBOARD	1	
-2	2805495	00	. SUPPORT, KEYBOARD, DIE CASTING	1	
-3	2807745	00	. THUMBSCREW, SLOTTED, KNURLED HEAD	2	
-4	2899152	00	. NUT, SHEET SPRING, PUSH-ON	2	
-5	4912548	01	. WASHER, FLAT, ROUND, NO.6	7	
-5A	4912550	01	. WASHER, LOCK (SPRING) HELICAL	7	
-6	2805499	00	. STANDOFF, CENTER, KEYBOARD	1	
-7	4912524	04	. SCREW, MACH, PAN HD, NO.6-32, 0.500 LG	9	
-8	2805256	00	. COVER, PROTECTIVE, KEYBOARD	1	
-9	2805204	00	. SPACER, KEYBOARD	1	
-10	2807694	00	. SPRING CLIP, KEYBOARD	2	
-12	4914061	00	. SCREW, TAPPING, THREAD-FORMING, PAN HD, NO.8-32	1	
-13	4912551	02	. LOCKWASHER, EXT TOOTH, BRONZE, NO.8	1	
-14	2805268	05	. STANDOFF, KEYBOARD	8	
-15	2805022	05	. SPACER, KEYBOARD	8	
-16	4912796	01	. NUT, SELF-LOCKING, HEX, NO.6-32	2	
4-	2805251	10	KEYBOARD ASSY, PECULIAR ITEMS (NUMERIC PAD - INCLUDES NUMERIC KEYS 0 - 9, 3 SYMBOLS - PLUS (+), MINUS (-), PERIOD (.), EDITING KEYS, CURSOR CONTROL KEYS, SPACE, TAB, AND CARRIAGE RETURN) SPECIAL FUNCTION KEYS - SET A	REF	
-17	2805202	01	. PANEL, KEYBOARD, DECORATIVE	1	
-18	2807946	01 A17	. KEYSWITCHING ASSY, KEYBOARD	1	
-19	4912504	00	. SCREW, MACH, FLT HD, NO.6-32, 0.312 LG	1	
-20	2805269	02	. KEY PLUNGER RETURN	39	
-21	2805235	00	. BUSHING, PLUNGER	39	
-22	2805026	00	. PLUNGER, KEYSWITCH, MOLDED	39	
-23	2805458	10	. KEYCAP KIT (SEE FIG 5 FOR DETAIL BREAKDOWN)	1	
	2805243	10	. PLACEMENT CHART, KEYCAPS	NP	
4-	2805251	11	KEYBOARD ASSY, PECULIAR ITEMS (UPPERCASE KEYBOARD - INCLUDES 26 ALPHA, 10 NUMERIC, AND 27 SPECIAL SYMBOL KEYS, PLUS SPACE, TAB, CARRIAGE RETURN, EDITING KEYS, AND CURSOR CONTROL KEYS) SPECIAL FUNCTION KEYS - SET A	REF	
-17	2805202	04	. PANEL, KEYBOARD, DECORATIVE	1	
-18	2807946	01 A17	. KEYSWITCHING ASSY, KEYBOARD	1	
-19	4912504	00	. SCREW, MACH, FLT HD, NO.6-32, 0.312 LG	3	
-20	2805269	02	. KEY PLUNGER RETURN	74	
-21	2805235	00	. BUSHING, PLUNGER	75	
-22	2805026	00	. PLUNGER, KEYSWITCH, MOLDED	74	
-23	2805458	11	. KEYCAP KIT (SEE FIG 5 FOR DETAIL BREAKDOWN)	1	
-24	2805253	00	. SPACE BAR ASSY, KEYBOARD	1	
-25	4913003	02	. PIN, SPRING, CRES, 3/32 DIA	2	
-26	2805271	00	. PLUNGER, SWITCH, SPACE BAR	1	
-27	2805266	00	. SPRING, SPACE BAR	1	
-28	2805245	00	. GUIDE, SWITCH, SPACE BAR	2	
-29	2807788	00	. COMPRESSION SPRING	1	
-30	2805269	01	. KEY PLUNGER RETURN	1	

FIG & INDEX NO.	PART NUMBER 9876543210ANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
4-31	907451 05		. NUT, PUSH-ON	3	
-32	2807818 00		. BUTTON, PLUG, RECTANGLE	3	
-33	2805235 01		. BUSHING, PLUNGER	1	
	2805243 11		. PLACEMENT CHART, KEYCAPS	NP	
4-	2805251 12		KEYBOARD ASSY, PECULIAR ITEMS (UPPERCASE/LOWERCASE KEYBOARD - INCLUDES SAME KEYS AS 2805251-11 EXCEPT FOR LOWERCASE PROVISION AND 5 ADDITIONAL SYMBOLS) SPECIAL FUNCTION KEYS - SET A	REF	
-17	2805202 04		. PANEL, KEYBOARD, DECORATIVE	1	
-18	2807946 01	A17	. KEYSWITCHING ASSY, KEYBOARD	1	
-19	4912504 00		. SCREW, MACH, FLT HD, NO.6-32, 0.312 LG	3	
-20	2805269 02		. KEY PLUNGER RETURN	74	
-21	2805235 00		. BUSHING, PLUNGER	75	
-22	2805026 00		. PLUNGER, KEYSWITCH, MOLDED	74	
-23	2805458 12		. KEYCAP KIT (SEE FIG 5 FOR DETAIL BREAKDOWN)	1	
-24	2805253 00		. SPACE BAR ASSY, KEYBOARD	1	
-25	4913003 02		. PIN, SPRING, CRES, 3/32 DIA	2	
-26	2805271 00		. PLUNGER, SWITCH, SPACE BAR	1	
-27	2805266 00		. SPRING, SPACE BAR	1	
-28	2805245 00		. GUIDE, SWITCH, SPACE BAR	2	
-29	2807788 00		. COMPRESSION SPRING	1	
-30	2805269 01		. KEY PLUNGER RETURN	1	
-31	907451 05		. NUT, PUSH-ON	3	
-32	2807818 00		. BUTTON, PLUG, RECTANGLE	3	
-33	2805235 01		. BUSHING, PLUNGER	2	
	2805243 12		. PLACEMENT CHART, KEYCAPS	NP	
4-	2805251 13		KEYBOARD ASSY, PECULIAR ITEMS (UPPERCASE KEYBOARD PLUS NUMERIC PAD - CONSISTS OF 2805251-10 PLUS 2805251-11) SPECIAL FUNCTION KEYS - SET A	REF	
-17	2805202 03		. PANEL, KEYBOARD, DECORATIVE	1	
-18	2807946 01	A17	. KEYSWITCHING ASSY, KEYBOARD	1	
-19	4912504 00		. SCREW, MACH, FLT HD, NO.6-32, 0.312 LG	3	
-20	2805269 02		. KEY PLUNGER RETURN	90	
-21	2805235 00		. BUSHING, PLUNGER	91	
-22	2805026 00		. PLUNGER, KEYSWITCH, MOLDED	90	
-23	2805458 13		. KEYCAP KIT (SEE FIG 5 FOR DETAIL BREAKDOWN)	1	
-24	2805253 00		. SPACE BAR ASSY	1	
-25	4913003 02		. PIN, SPRING, CRES, 3/32 DIA	2	
-26	2805271 00		. PLUNGER, SWITCH, SPACE BAR	1	
-27	2805266 00		. SPRING, SPACE BAR	1	
-28	2805245 00		. GUIDE, SWITCH, SPACE BAR	2	
-29	2807788 00		. COMPRESSION SPRING	1	
-30	2805269 01		. KEY PLUNGER RETURN	1	
-33	2805235 01		. BUSHING, PLUNGER	2	
	2805243 13		. PLACEMENT CHART, KEYCAPS	NP	
4-	2805251 14		KEYBOARD ASSY, PECULIAR ITEMS (UPPERCASE/LOWERCASE KEYBOARD PLUS NUMERIC PAD - CONSISTS OF 2805251-10 + 2805251-12) SPECIAL FUNCTION KEYS - SET A	REF	
-17	2805202 03		. PANEL, KEYBOARD, DECORATIVE	1	
-18	2807946 01	A17	. KEYSWITCHING ASSY, KEYBOARD	1	
-19	4912504 00		. SCREW, MACH, FLT HD, NO.6-32, 0.312 LG	3	
-20	2805269 02		. KEY PLUNGER RETURN	90	
-21	2805235 00		. BUSHING, PLUNGER	91	
-22	2805026 00		. PLUNGER, KEYSWITCH, MOLDED	90	
-23	2805458 14		. KEYCAP KIT (SEE FIG 5 FOR DETAIL BREAKDOWN)	1	

FIG & INDEX NO.	PART NUMBER 98765432 1AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
4-24	2805253 00		. SPACE BAR ASSY	1	
-25	4913003 02		. PIN, SPRING, CRES, 3/32 DIA	2	
-26	2805271 00		. PLUNGER, SWITCH, SPACE BAR	1	
-27	2805266 00		. SPRING, SPACE BAR	1	
-28	2805245 00		. GUIDE, SWITCH, SPACE BAR	2	
-29	2807788 00		. COMPRESSION SPRING	1	
-30	2805269 01		. KEY PLUNGER RETURN	1	
-33	2805235 01		. BUSHING, PLUNGER	2	
	2805243 14		. PLACEMENT CHART, KEYCAPS	NP	
4-	2805251 15		KEYBOARD ASSY, PECULIAR ITEMS (SAME AS 2805251-11 EXCEPT THIS KEYBOARD HAS PROTECT FORMAT)	REF	
-17	2805202 04		. PANEL, KEYBOARD, DECORATIVE	1	
-18	2807946 00	A17	. KEYSWITCHING ASSY, KEYBOARD	1	
-19	4912504 00		. SCREW, MACH, FLT HD, NO.6-32, 0.312 LG	3	
-20	2805269 02		. KEY PLUNGER RETURN	78	
-21	2805235 00		. BUSHING, PLUNGER	78	
-22	2805026 00		. PLUNGER, KEYSWITCH, MOLDED	78	
-23	2805458 15		. KEYCAP KIT (SEE FIG 5 FOR DETAIL BREAKDOWN)	1	
-24	2805253 00		. SPACE BAR ASSY	1	
-25	4913003 02		. PIN, SPRING, CRES, 3/32 DIA	2	
-26	2805271 00		. PLUNGER, SWITCH, SPACE BAR	1	
-27	2805266 00		. SPRING, SPACE BAR	1	
-28	2805245 00		. GUIDE, SWITCH, SPACE BAR	2	
-29	2807788 00		. COMPRESSION SPRING	1	
-30	2805269 01		. KEY PLUNGER RETURN	1	
-33	2805235 01		. BUSHING, PLUNGER	2	
	2805243 15		. PLACEMENT CHART, KEYCAPS	NP	
4-	2805251 16		KEYBOARD ASSY, PECULIAR ITEMS (SAME AS 2805251-12 EXCEPT THIS KEYBOARD HAS PROTECT FORMAT)	REF	
-17	2805202 04		. PANEL, KEYBOARD, DECORATIVE	1	
-18	2807946 00	A17	. KEYSWITCHING ASSY, KEYBOARD	1	
-19	4912504 00		. SCREW, MACH, FLT HD, NO.6-32, 0.312 LG	3	
-20	2805269 02		. KEY PLUNGER RETURN	78	
-21	2805235 00		. BUSHING, PLUNGER	78	
-22	2805026 00		. PLUNGER, KEYSWITCH, MOLDED	78	
-23	2805458 16		. KEYCAP KIT (SEE FIG 5 FOR DETAIL BREAKDOWN)	1	
-24	2805253 00		. SPACE BAR ASSY	1	
-25	4913003 02		. PIN, SPRING, CRES, 3/32 DIA	2	
-26	2805271 00		. PLUNGER, SWITCH, SPACE BAR	1	
-27	2805266 00		. SPRING, SPACE BAR	1	
-28	2805245 00		. GUIDE, SWITCH, SPACE BAR	2	
-29	2807788 00		. COMPRESSION SPRING	1	
-30	2805269 01		. KEY PLUNGER RETURN	1	
-33	2805235 01		. BUSHING, PLUNGER	2	
	2805243 16		. PLACEMENT CHART, KEYCAPS	NP	
4-	2805251 17		KEYBOARD ASSY, PECULIAR ITEMS (SAME AS 2805251-13 EXCEPT THIS KEYBOARD HAS PROTECT FORMAT)	REF	
-17	2805202 03		. PANEL, KEYBOARD, DECORATIVE	1	
-18	2807946 00	A17	. KEYSWITCHING ASSY, KEYBOARD	1	
-19	4912504 00		. SCREW, MACH, FLT HD, NO.6-32, 0.312 LG	3	
-20	2805269 02		. KEY PLUNGER RETURN	90	
-21	2805235 00		. BUSHING, PLUNGER	91	
-22	2805026 00		. PLUNGER, KEYSWITCH, MOLDED	90	
-23	2805458 17		. KEYCAP KIT (SEE FIG 5 FOR DETAIL BREAKDOWN)	1	
-24	2805253 00		. SPACE BAR ASSY	1	
-25	4913003 02		. PIN, SPRING, CRES, 3/32 DIA	2	
-26	2805271 00		. PLUNGER, SWITCH, SPACE BAR	1	
-27	2805266 00		. SPRING, SPACE BAR	1	

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. USED PER ASSY	ON CODE
4-28	2805245 00		. GUIDE, SWITCH, SPACE BAR	2	
-29	2807788 00		. COMPRESSION SPRING	1	
-30	2805269 01		. KEY PLUNGER RETURN	1	
-33	2805235 01		. BUSHING, PLUNGER	2	
	2805243 17		. PLACEMENT CHART, KEYCAPS	NP	
4-	2805251 18		KEYBOARD ASSY, PECULIAR ITEMS (SAME AS 2805251-14 EXCEPT THIS KEYBOARD HAS PROTECT FORMAT)	REF	
-17	2805202 03		. PANEL, KEYBOARD, DECORATIVE	1	
-18	2807946 00	A17	. KEYSWITCHING ASSY, KEYBOARD	1	
-19	4912504 00		. SCREW, MACH, FLT HD, NO.6-32, 0.312 LG	3	
-20	2805269 01		. KEY PLUNGER RETURN	90	
-21	2805235 00		. BUSHING, PLUNGER	91	
-22	2805026 00		. PLUNGER, KEYSWITCH, MOLDED	90	
-23	2805458 18		. KEYCAP KIT (SEE FIG 5 FOR DETAIL BREAKDOWN)	1	
-24	2805253 00		. SPACE BAR ASSY	1	
-25	4913003 02		. PIN, SPRING, CRES, 3/32 DIA	2	
-26	2805271 00		. PLUNGER, SWITCH, SPACE BAR	1	
-27	2805266 00		. SPRING, SPACE BAR	1	
-28	2805245 00		. GUIDE, SWITCH, SPACE BAR	2	
-29	2807788 00		. COMPRESSION SPRING	1	
-30	2805269 01		. KEY PLUNGER RETURN	1	
-33	2805235 01		. BUSHING, PLUNGER	2	
	2805243 18		. PLACEMENT CHART, KEYCAPS	NP	
4-	2808036 XX		KEYBOARD ASSEMBLY, ALPHANUMERIC (SEE FIG 1 FOR NEXT HIGHER ASSY) VARIATIONS ARE LISTED FOR KEYBOARDS 2808036-00 THRU 2808036-07	REF	
-2	2805495 01		. SUPPORT, KEYBOARD DIE CASTING	1	
-3	2807745 00		. THUMSCREW, SLOTTED, KNURLED HEAD	2	
-4	2899152 00		. NUT, SHEET SPRING, PUSH-ON	2	
-5	4912548 11		. WASHER, FLAT	6	
-5A	4912550 01		. WASHER, LOCK (SPRING) HELICAL	8	
-7	4912524 04		. SCREW, PAN HEAD, SLOTTED 6-32 X 0.50	8	
-8	2808051 00		. COVER, PROTECTIVE	1	
-10	2807694 00		. SPRING CLIP	2	
-12	4912524 06		. SCREW, PAN HEAD, SLTD. 6-32 X 0.750	1	
-13	4912551 01		. WASHER, LOCK, EXT TOOTH, PH BRZ	3	
-14	2808050 00		. STAND OFF, THREADED - NO. 6-32	8	
-15	2808049 00		. SPACER	8	
-16	4912796 01		. NUT, SELF LKG, HEX 6-32	3	
-17	2805202 03		. PANEL, DECORATIVE	1	
-18	2808040 00		. SWITCH ASSY - KEYBOARD, ALPHANUMERIC	1	
4-	2808037 XX		KEYBOARD ASSEMBLY, ALPHA WITH PROTECT (SEE FIG 1 FOR NEXT HIGHER ASSY) VARIATIONS ARE LISTET FOR KEYBOARDS 2808037-00 THRU 2808037-03	REF	
-2	2805495 01		. SUPPORT, KEYBOARD DIE CASTING	1	
-3	2807745 00		. THUMSCREW, SLOTTED, KNURLED HEAD	2	
-4	2899152 00		. NUT, SHEET SPRING, PUSH-ON	2	
-5	4912548 11		. WASHER, FLAT	6	
-5A	4912550 01		. WASHER, LOCK (SPRING) HELICAL	8	
-7	4912524 04		. SCREW, PAN HEAD, SLOTTED 6-32 X 0.50	8	
-8	2808051 00		. COVER, PROTECTIVE	1	
-10	2807694 00		. SPRING CLIP	2	
-12	4912524 06		. SCREW, PAN HEAD, SLTD. 6-32 X 0.750	1	
-13	4912551 01		. WASHER, LOCK, EXT TOOTH, PH BRZ	3	
-14	2808050 00		. STAND OFF, THREADED - NO. 6-32	8	
-15	2808049 00		. SPACER	8	
-16	4912796 01		. NUT, SELF LKG, HEX 6-32	3	
-17	2805202 04		. PANEL, DECORATIVE	1	
-18	2808040 02		. SWITCH ASSY - KEYBOARD, ALPHA W/PROT	1	

UNISCOPE 100 DISPLAY TERMINAL
TYPE 3536-06

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
4-	2808038 XX		KEYBOARD ASSEMBLY, ALPHA (SEE FIG 1 FOR NEXT HIGHER ASSY)	REF	
			VARIATIONS ARE LISTED FOR KEYBOARDS 2808038-00 THRU 2808038-03		
-2	2805495 01		. SUPPORT, KEYBOARD DIE CASTING	1	
-3	2807745 00		. THUMSCREW, SLOTTED, KNURLED HEAD	2	
-4	2899152 00		. NUT, SHEET SPRING, PUSH-ON	2	
-5	4912548 11		. WASHER, FLAT	6	
-5A	4912550 01		. WASHER, LOCK (SPRING) HELICAL	8	
-7	4912524 04		. SCREW, PAN HEAD, SLOTTED 6-32 X 0.50	8	
-8	2808051 00		. COVER, PROTECTIVE	1	
-10	2807694 00		. SPRING CLIP	2	
-12	4912524 06		. SCREW, PAN HEAD, SLTD. 6-32 X 0.750	1	
-13	4912551 01		. WASHER, LOCK, EXT TOOTH, PH BRZ	3	
-14	2808050 00		. STAND OFF, THREADED - NO. 6-32	8	
-15	2808049 00		. SPACER	8	
-16	4912796 01		. NUT, SELF LKG, HEX 6-32	3	
-17	2805202 04		. PANEL, DECORATIVE	1	
-18	2808040 03		. SWITCH ASSY - KEYBOARD, ALPHA	1	
-31	907451 05		. NUT, PUSH-ON	3	
-32	2807818 00		. BUTTON, PLUG-RECTANGLE	3	
4-	2808039 XX		KEYBOARD ASSEMBLY, NUMERIC (SEE FIG 1 FOR NEXT HIGHER ASSY)	REF	
			VARIATIONS ARE LISTED FOR KEYBOARDS 2808039-00 AND 2808039-01		
-2	2805495 01		. SUPPORT, KEYBOARD DIE CASTING	1	
-3	2807745 00		. THUMSCREW, SLOTTED, KNURLED HEAD	2	
-4	2899152 00		. NUT, SHEET SPRING, PUSH-ON	2	
-5	4912548 11		. WASHER, FLAT	6	
-5A	4912550 01		. WASHER, LOCK (SPRING) HELICAL	8	
-7	4912524 04		. SCREW, PAN HEAD, SLOTTED 6-32 X 0.50	8	
-8	2808051 00		. COVER, PROTECTIVE	1	
-10	2807694 00		. SPRING CLIP	2	
-12	4912524 06		. SCREW, PAN HEAD, SLTD. 6-32 X 0.750	1	
-13	4912551 01		. WASHER, LOCK, EXT TOOTH, PH BRZ	3	
-14	2808050 00		. STAND OFF, THREADED - NO. 6-32	8	
-15	2808049 00		. SPACER	8	
-16	4912796 01		. NUT, SELF LKG, HEX 6-32	3	
-17	2805202 01		. PANEL, DECORATIVE	1	
-18	2808040 01		. SWITCH ASSY - KEYBOARD, NUMERIC	1	

This space reserved for notes.

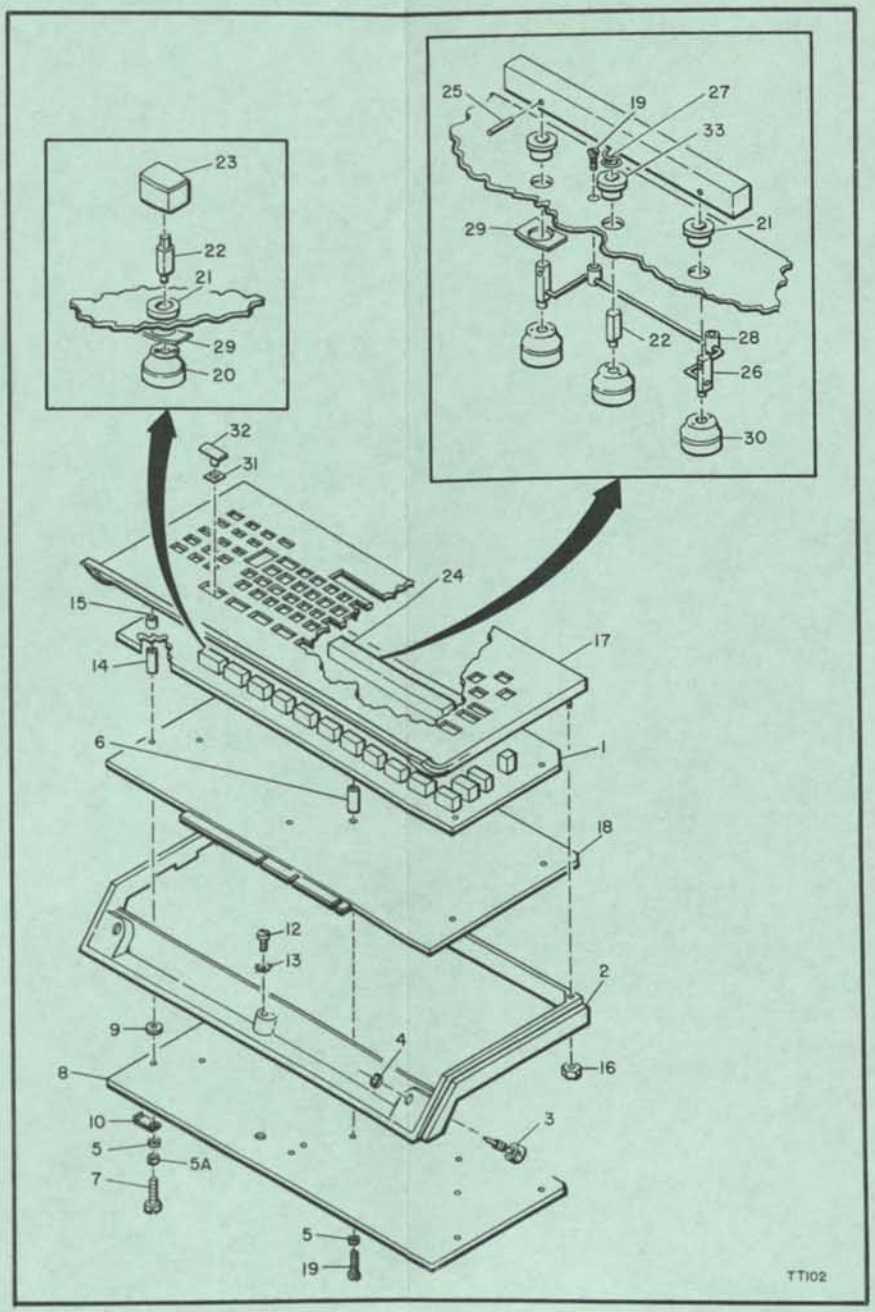

Figure 4. Keyboard, Uniscope 100

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
5-	NO NUMBER		KEYCAP DESCRIPTIONS - UNISCOPE 100	NP	
-1	4143622 00		. KEYCAP, SQUARE	1	
-2	4112775 01		. KEYCAP, SQUARE	1	
-3	4112775 02		. KEYCAP, SQUARE	1	
-4	4112775 03		. KEYCAP, SQUARE	1	
-5	4112775 04		. KEYCAP, SQUARE	1	
-6	4112775 05		. KEYCAP, SQUARE	1	
-7	4112775 06		. KEYCAP, SQUARE	1	
-8	4112775 07		. KEYCAP, SQUARE	1	
-9	4112775 08		. KEYCAP, SQUARE	1	
-10	4112775 09		. KEYCAP, SQUARE	1	
-11	4112775 10		. KEYCAP, SQUARE	1	
-12	4112775 11		. KEYCAP, SQUARE	1	
-13	4112775 12		. KEYCAP, SQUARE	1	
-14	4112775 13		. KEYCAP, SQUARE	1	
-15	4112775 14		. KEYCAP, SQUARE	1	
-16	4112775 15		. KEYCAP, SQUARE	1	
-17	4112775 16		. KEYCAP, SQUARE	1	
-18	4112775 17		. KEYCAP, SQUARE	1	
-19	4112775 18		. KEYCAP, SQUARE	1	
-20	4112775 19		. KEYCAP, SQUARE	1	
-21	4112775 20		. KEYCAP, SQUARE	1	
-22	4112775 21		. KEYCAP, SQUARE	1	
-23	4112775 22		. KEYCAP, SQUARE	1	
-24	4112775 23		. KEYCAP, SQUARE	1	
-25	4112775 24		. KEYCAP, SQUARE	1	
-26	4112775 25		. KEYCAP, SQUARE	1	
-27	4112775 26		. KEYCAP, SQUARE	1	
-28	4112775 27		. KEYCAP, SQUARE	1	
-29	4112775 28		. KEYCAP, SQUARE	1	
-30	4112775 29		. KEYCAP, SQUARE	1	
-31	4112775 30		. KEYCAP, SQUARE	1	
-32	4112775 31		. KEYCAP, SQUARE	1	
-33	4112775 32		. KEYCAP, SQUARE	1	
-34	4112775 33		. KEYCAP, SQUARE	1	
-35	4112775 34		. KEYCAP, SQUARE	1	
-36	4112775 35		. KEYCAP, SQUARE	1	
-37	4112775 36		. KEYCAP, SQUARE	1	
-38	4112775 37		. KEYCAP, SQUARE	1	
-39	4112775 38		. KEYCAP, SQUARE	1	
-39	4112775 39		. KEYCAP, SQUARE	1	
-41	4112775 40		. KEYCAP, SQUARE	1	
-42	4112775 41		. KEYCAP, SQUARE	1	
-43	4112775 42		. KEYCAP, SQUARE	1	
-44	4112775 43		. KEYCAP, SQUARE	1	
-45	4112775 44		. KEYCAP, SQUARE	1	
-46	4112775 45		. KEYCAP, SQUARE	1	
-47	4112775 46		. KEYCAP, SQUARE	1	
-48	4112775 47		. KEYCAP, SQUARE	1	
-49	4112775 48		. KEYCAP, SQUARE	1	
-50	4112775 49		. KEYCAP, SQUARE	1	
-51	4112775 50		. KEYCAP, SQUARE	1	
-52	4112775 51		. KEYCAP, SQUARE	1	
-53	4112775 52		. KEYCAP, SQUARE	1	
-54	4112775 53		. KEYCAP, SQUARE	1	
-55	4112775 54		. KEYCAP, SQUARE	1	
-56	4112775 55		. KEYCAP, SQUARE	1	
-57	4112775 56		. KEYCAP, SQUARE	1	
-58	4112775 57		. KEYCAP, SQUARE	1	
-59	4112775 58		. KEYCAP, SQUARE	1	
-60	4112775 59		. KEYCAP, SQUARE	1	
-61	4112775 60		. KEYCAP, SQUARE	1	
-62	4112775 61		. KEYCAP, SQUARE	1	
-63	4112775 62		. KEYCAP, SQUARE	1	
-64	4112775 63		. KEYCAP, SQUARE	1	
-65	4112775 64		. KEYCAP, SQUARE	1	
-66	4112775 65		. KEYCAP, SQUARE	1	
-67	4112775 66		. KEYCAP, SQUARE	1	
-68	4112775 67		. KEYCAP, SQUARE	1	
-69	4112775 68		. KEYCAP, SQUARE	1	
-70	4112775 69		. KEYCAP, SQUARE	1	

FIG & INDEX NO.	PART NUMBER 98765432 1AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
5-71	4112775 70		. KEYCAP, SQUARE	1	
-72	4112775 71		. KEYCAP, SQUARE	1	
-73	4112775 72		. KEYCAP, SQUARE	1	
-74	4112775 73		. KEYCAP, SQUARE	1	
-75	4112775 74		. KEYCAP, SQUARE	1	
-76	4112775 75		. KEYCAP, SQUARE	1	
-77	4112775 76		. KEYCAP, SQUARE	1	
-78	4112775 77		. KEYCAP, SQUARE	1	
-79	4112775 78		. KEYCAP, SQUARE	1	
-80	4112775 79		. KEYCAP, SQUARE	1	
-81	4112775 80		. KEYCAP, SQUARE	1	
-82	4112775 81		. KEYCAP, SQUARE	1	
-84	4112775 83		. KEYCAP, SQUARE	1	
-85	4112775 84		. KEYCAP, SQUARE	1	
-86	4112775 85		. KEYCAP, SQUARE	1	
-87	4112775 86		. KEYCAP, SQUARE	1	
-88	4112775 87		. KEYCAP, SQUARE	1	
-89	4112775 88		. KEYCAP, SQUARE	1	
-90	4112775 89		. KEYCAP, SQUARE	1	
-91	4112775 90		. KEYCAP, SQUARE	1	
-92	4112775 91		. KEYCAP, SQUARE	1	
-93	4112775 92		. KEYCAP, SQUARE	1	
-94	4112775 93		. KEYCAP, SQUARE	1	
-95	4112775 94		. KEYCAP, SQUARE	1	
-96	4112775 95		. KEYCAP, SQUARE	1	
-97	4112775 96		. KEYCAP, SQUARE	1	
-98	4112775 97		. KEYCAP, SQUARE	1	
-99	4112775 98		. KEYCAP, SQUARE	1	
-100	4112775 99		. KEYCAP, SQUARE	1	
-101	4143622 01		. KEYCAP, SQUARE	1	
-102	4112776 01		. KEYCAP, RECTANGLE	1	
-103	4112776 02		. KEYCAP, RECTANGLE	1	
-104	4112776 03		. KEYCAP, RECTANGLE	1	
-105	4112776 04		. KEYCAP, RECTANGLE	1	
-106	4112776 05		. KEYCAP, RECTANGLE	1	
-107	4112776 06		. KEYCAP, RECTANGLE	1	
-108	4112776 07		. KEYCAP, RECTANGLE	1	
-109	4112776 08		. KEYCAP, RECTANGLE	1	
-110	4112776 09		. KEYCAP, RECTANGLE	1	
-111	4112776 10		. KEYCAP, RECTANGLE	1	
-112	4112776 11		. KEYCAP, RECTANGLE	1	
-113	4112776 12		. KEYCAP, RECTANGLE	1	
-114	4112776 13		. KEYCAP, RECTANGLE	1	
-115	4112776 14		. KEYCAP, RECTANGLE	1	
-116	4112776 15		. KEYCAP, RECTANGLE	1	
-117	4112776 16		. KEYCAP, RECTANGLE	1	
-118	4112776 17		. KEYCAP, RECTANGLE	1	
-119	4112776 18		. KEYCAP, RECTANGLE	1	
-120	4112776 19		. KEYCAP, RECTANGLE	1	
-121	4112776 20		. KEYCAP, RECTANGLE	1	
-122	4112776 21		. KEYCAP, RECTANGLE	1	
-123	4112776 22		. KEYCAP, RECTANGLE	1	
-124	4112776 23		. KEYCAP, RECTANGLE	1	
-125	4112776 24		. KEYCAP, RECTANGLE	1	
-126	4112776 25		. KEYCAP, RECTANGLE	1	
-127	4112776 26		. KEYCAP, RECTANGLE	1	
-128	4112776 27		. KEYCAP, RECTANGLE	1	
-129	4112776 28		. KEYCAP, RECTANGLE	1	
-130	4112776 29		. KEYCAP, RECTANGLE	1	
-131	4112776 30		. KEYCAP, RECTANGLE	1	
-132	4112776 31		. KEYCAP, RECTANGLE	1	
-133	4112776 32		. KEYCAP, RECTANGLE	1	
-134	4112776 33		. KEYCAP, RECTANGLE	1	
-135	4112776 34		. KEYCAP, RECTANGLE	1	
-136	4112776 35		. KEYCAP, RECTANGLE	1	
-137	4112776 36		. KEYCAP, RECTANGLE	1	
-138	4112776 37		. KEYCAP, RECTANGLE	1	
-139	4112776 38		. KEYCAP, RECTANGLE	1	
-140	4112776 39		. KEYCAP, RECTANGLE	1	
-141	4112776 40		. KEYCAP, RECTANGLE	1	

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
5-142	4112776 41		. KEYCAP, RECTANGLE	1	
-143	4112776 42		. KEYCAP, RECTANGLE	1	
-144	4112780 00		. KEYCAP	1	
-145	4143622 02		. KEYCAP, SQUARE	1	
-146	4112777 01		. KEYCAP, RECTANGLE	1	
-147	4112777 02		. KEYCAP, RECTANGLE	1	
-148	4112777 03		. KEYCAP, RECTANGLE	1	
-149	4112777 04		. KEYCAP, RECTANGLE	1	
-150	4112777 05		. KEYCAP, RECTANGLE	1	
-151	4112777 06		. KEYCAP, RECTANGLE	1	
-152	4112777 07		. KEYCAP, RECTANGLE	1	
-153	4112777 08		. KEYCAP, RECTANGLE	1	
-154	4112777 09		. KEYCAP, RECTANGLE	1	
-155	4112777 10		. KEYCAP, RECTANGLE	1	
-156	4112777 11		. KEYCAP, RECTANGLE	1	
-157	4112777 12		. KEYCAP, RECTANGLE	1	
-158	4112777 13		. KEYCAP, RECTANGLE	1	
-159	4112777 14		. KEYCAP, RECTANGLE	1	
-160	4112777 15		. KEYCAP, RECTANGLE	1	
-161	4112777 16		. KEYCAP, RECTANGLE	1	
-162	4112777 17		. KEYCAP, RECTANGLE	1	
-163	4112777 18		. KEYCAP, RECTANGLE	1	
-164	4112777 19		. KEYCAP, RECTANGLE	1	
-165	4112777 20		. KEYCAP, RECTANGLE	1	
-166	4112777 21		. KEYCAP, RECTANGLE	1	
-167	4112777 22		. KEYCAP, RECTANGLE	1	
-168	4112777 23		. KEYCAP, RECTANGLE	1	
-169	4112777 24		. KEYCAP, RECTANGLE	1	
-170	4112777 25		. KEYCAP, RECTANGLE	1	
-171	4112777 26		. KEYCAP, RECTANGLE	1	
-172	4112777 27		. KEYCAP, RECTANGLE	1	
-174	4112777 29		. KEYCAP, RECTANGLE	1	
-175	4112777 30		. KEYCAP, RECTANGLE	1	
-176	4112777 31		. KEYCAP, RECTANGLE	1	
-177	4112777 32		. KEYCAP, RECTANGLE	1	
-178	4112777 33		. KEYCAP, RECTANGLE	1	
-179	4112777 34		. KEYCAP, RECTANGLE	1	
-180	4112777 35		. KEYCAP, RECTANGLE	1	
-181	4112777 36		. KEYCAP, RECTANGLE	1	
-182	4112777 37		. KEYCAP, RECTANGLE	1	
-183	4112777 38		. KEYCAP, RECTANGLE	1	
-184	4112777 39		. KEYCAP, RECTANGLE	1	
-185	4112777 40		. KEYCAP, RECTANGLE	1	
-186	4112777 41		. KEYCAP, RECTANGLE	1	
-187	4112777 42		. KEYCAP, RECTANGLE	1	
-188	4112777 43		. KEYCAP, RECTANGLE	1	
-189	4112777 44		. KEYCAP, RECTANGLE	1	
-190	4112777 45		. KEYCAP, RECTANGLE	1	
-191	4112777 46		. KEYCAP, RECTANGLE	1	
-192	4112777 47		. KEYCAP, RECTANGLE	1	
-193	4112777 48		. KEYCAP, RECTANGLE	1	
-194	4112777 49		. KEYCAP, RECTANGLE	1	
-195	4112777 50		. KEYCAP, RECTANGLE	1	
-196	4112777 51		. KEYCAP, RECTANGLE	1	
-197	4112777 52		. KEYCAP, RECTANGLE	1	
-198	4112777 53		. KEYCAP, RECTANGLE	1	
-199	4112777 54		. KEYCAP, RECTANGLE	1	
-200	4112777 55		. KEYCAP, RECTANGLE	1	
-201	4112777 56		. KEYCAP, RECTANGLE	1	
-202	4112777 57		. KEYCAP, RECTANGLE	1	
-203	4112777 58		. KEYCAP, RECTANGLE	1	
-204	4112777 59		. KEYCAP, RECTANGLE	1	
-205	4112777 60		. KEYCAP, RECTANGLE	1	
-206	4112777 61		. KEYCAP, RECTANGLE	1	
-207	4112777 62		. KEYCAP, RECTANGLE	1	
-208	4112777 63		. KEYCAP, RECTANGLE	1	
-209	4112777 64		. KEYCAP, RECTANGLE	1	
-210	4112777 65		. KEYCAP, RECTANGLE	1	
-211	4112797 00		. KEYCAP, RECTANGLE	1	
-212	4112797 01		. KEYCAP, RECTANGLE	1	

INDEX NO	CHAR
1	\
2	A
3	B
4	C
5	D
6	E
7	F
8	G
9	H
10	I
11	J
12	K
13	L
14	M
15	N
16	O

INDEX NO	CHAR	INDEX NO	CHAR	INDEX NO	CHAR	INDEX NO	CHAR	INDEX NO	CHAR	INDEX NO	CHAR	INDEX NO	CHAR
17	P	33	ø	49	@ P	65	\	81	7				
18	Q	34	! 1	50	+ ;	66	≠	82	8				
19	R	35	" 2	51	[	67	Δ	83	9				
20	S	36	# 3	52	< ,	68	BS	84	) (				
21	T	37	$ 4	53	' N	69	CR	85	= +				
22	U	38	% 5	54	> .	70	SPEC	86	?				
23	V	39	& 6	55	¢ M	71	□	87	' /				
24	W	40	' 7	56	II 2	72	%	88	: -				
25	X	41	(8	57	@	73	~	89	] }				
26	Y	42	) 9	58	LOCK	74	~ K	90	[M				
27	Z	43	? /	59	BEL G	75	!	91	6				
28	.	44	= -	60	VT K	76	2	92	|			
29	,	45	→	61	FF L	77	3	93	¬				
30	;	46	* :	62	EM Y	78	4	94	-				
31	:	47	LF	63	HT I	79	5	95	⊤				
32	*	48	^ 0	64	C	80	6	96	}]				

INDEX NO	CHAR	INDEX NO	CHAR	INDEX NO	CHAR	INDEX NO	CHAR	INDEX NO	CHAR	INDEX NO	CHAR	INDEX NO	CHAR
97	{ [	112	MESSAGE WAITING	132	CYCLE	152	≡	172	⊥	192	π		
98	—	113	TRANSMIT	133	SHIFT LOCK	153	∧	173	⊻	193	*		
99	~	114	TAB	134	SELECT	154	□	174	⊐	194	⊔		
100	` @	115	←	135	OUTPUT	155	⊏	175	≠	195	|		
101	^	116	CHAR ERASE	136	INPUT	156	1/⌀	176	≤	196	%		
102	ERASE TO END OF DISPL	117	EOM S	137	READ	157	2/_	177	≥	197	7/≠		
		118	DUP	138	PUNCH	158	3/∧	178	¥	198	¬		
103	ERASE TO END OF LINE	119	CLEAR	139	SOE ◊	159	4/↑	179	≠	199	ø		
		120	RELEASE	140	F1	160	5/h	180	√	200	ı		
104	IN DISPL DELETE IN LINE	121	CONTROL	141	F2	161	6/R	181	¢	201	2		
		122	SHIFT	142	F3	162	7/→	182	/π	202	3		
105	IN DISPL INSERT IN LINE	123	ⓢ ↓	143	F4	163	8/::	183	±	203	4		
		124	DELETE IN LINE	144	RETURN	164	9/π	184	□	204	5		
106	CURSOR TO HOME	125	INSERT IN LINE	145	CHAR ERASE	165	+	185	—	205	6		
		126	RETURN	146	⊀	166	O/□	186	⌒	206	7		
107	SOM ←	127	⊢	147	∠	167	⌐	187	|	207	8		
108	↑	128	⌊	148	√	168	⊠	188	h	208	9		
109	⊡	129	⊏	149	◇	169	∮	189	⊐	209	0		
110	⋋	130	PRINT	150	Σ	170	÷	190	\	210	.		
111	∴	131	TAB SET	151	/	171	<	191	: :	211	TRANSMIT		
										212	TRANSMIT UNSHIFT DISPL		

TT112

Figure 5. Keycaps

This space reserved for notes.

MR6032

FIG & INDEX NO.	PART NUMBER 98765432 1AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
6-	2807476 00	W3	CABLE ASSEMBLY, INTERNAL MODEM (SEE FIG 2 FOR NEXT HIGHER ASSY)	REF	
-1	2899147 00	A14P10	. INS. ELEC CONN. 20 CONTACTS, FEMALE	1	
-2	2899148 00		. . CONTACT, ELECTRICAL PLUG 20-24AWG	20	
-3	4915136 00	A15J01	. CONN ELEC RECP. MALE 25 CONTACTS	1	
-4	2899514 00		. . CONTACT, ELECTRICAL CONNECTOR MALE	20	

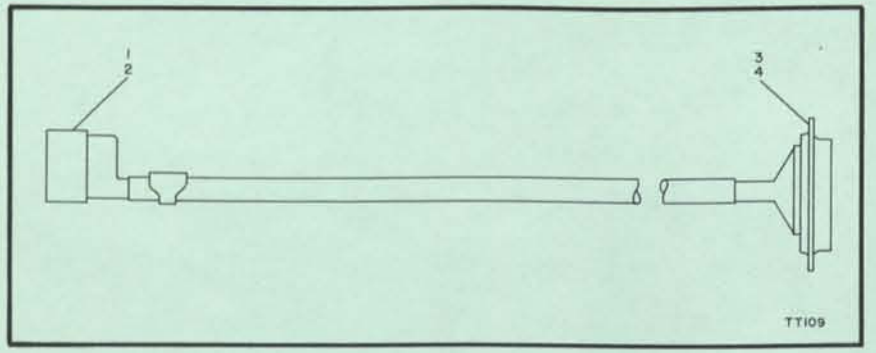

Figure 6. Cable Assembly, Internal Modem

FIG & INDEX NO.	PART NUMBER 98765432 1AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
7-	2807955 01	W1	WIRING HARNESS ASSEMBLY (SEE FIG 2 FOR NEXT HIGHER ASSY)	REF	
-1	2899161 00	V1P1	. SOCKET, 14 PIN CRT	1	
-2	2899267 00	A3P1 A5P1	. CONNECTOR, 50 HOLES FEMALE	2	
-3	3004893 02		. . CONTACT, PL & RECPT. 18AWG, 5 AMP	12	
-4	3004893 03		. . CONTACT, PL & RECPT. 26-22AWG, 5A	71	
-5	2899420 00		. SPLICE, CONDUCTOR	1	
-6	2899394 01		. TERMINAL, TAPER TAB, RECEPTACLE	4	
-7	2899316 00		. LENS, INDICATOR LIGHT - PLUNGER TYPE	1	
-8	2899317 00		. LAMP, INCANDESCENT 28V, 0.06A	1	
-9	2899315 01	S03	. SWITCH, PUSH, ILLUM. SPDT TAPER TAB	1	
-10	2899072 01	R01	. RESISTOR, VAR, 1500 OHMS 20% 1/2W	1	
-11	2899104 00	DS02	. LIGHT, IND. REPL LAMP, 28V, 1.30 CP	1	
-12	2899074 01	R02 R04	. RESISTOR, VAR, 1M 20% 2W LIN. COMP.	2	
-13	910834 11	C01	. CAP. 0.047UF 10% 600V PAPER	1	
-14	911458 00	W1E2	. TERMINAL LUG, SOLDER	1	
-15	2899074 02	R05	. RESISTOR, VAR, 10K 20% 2W LIN. COMP.	1	
-16	2899073 00	R03	. RESISTOR, VAR, 5K 20% 0.5W LIN. COMP	1	
-17	4914193 35	C02	. CAP. 50KPF 20% 100V CERAMIC	1	
-18	2899146 00	A14P8 A14P9	. INS ELEC CONN 40 HOLES FEMALE	2	
-19	2899148 00		. . CONTACT FEMALE 20-24AWG GOLD PL	57	
-20	2805512 00	A14P12	. INSULATOR, CONNECTOR	1	
-21	2899280 00		. . CONTACT FEMALE 0.000030 PLATE	11	
-22	3006413 00		. TERM. TAB RECEPTACLE 0.032X0.250 TAB	2	
-23	2899456 00	A2J1	. CONNECTOR, FEMALE, 24 CONTACT POS	1	
-24	2899448 00		. . CONTACT, ELECTRICAL - FEMALE	23	
-25	906495 02		. TERMINAL, QUICK DISCONNECT	1	
-26	906495 04		. TERMINAL, QUICK DISCONNECT	4	
-27	2899068 00		. TERM. Q DISC. FEMALE, 0.187	18	

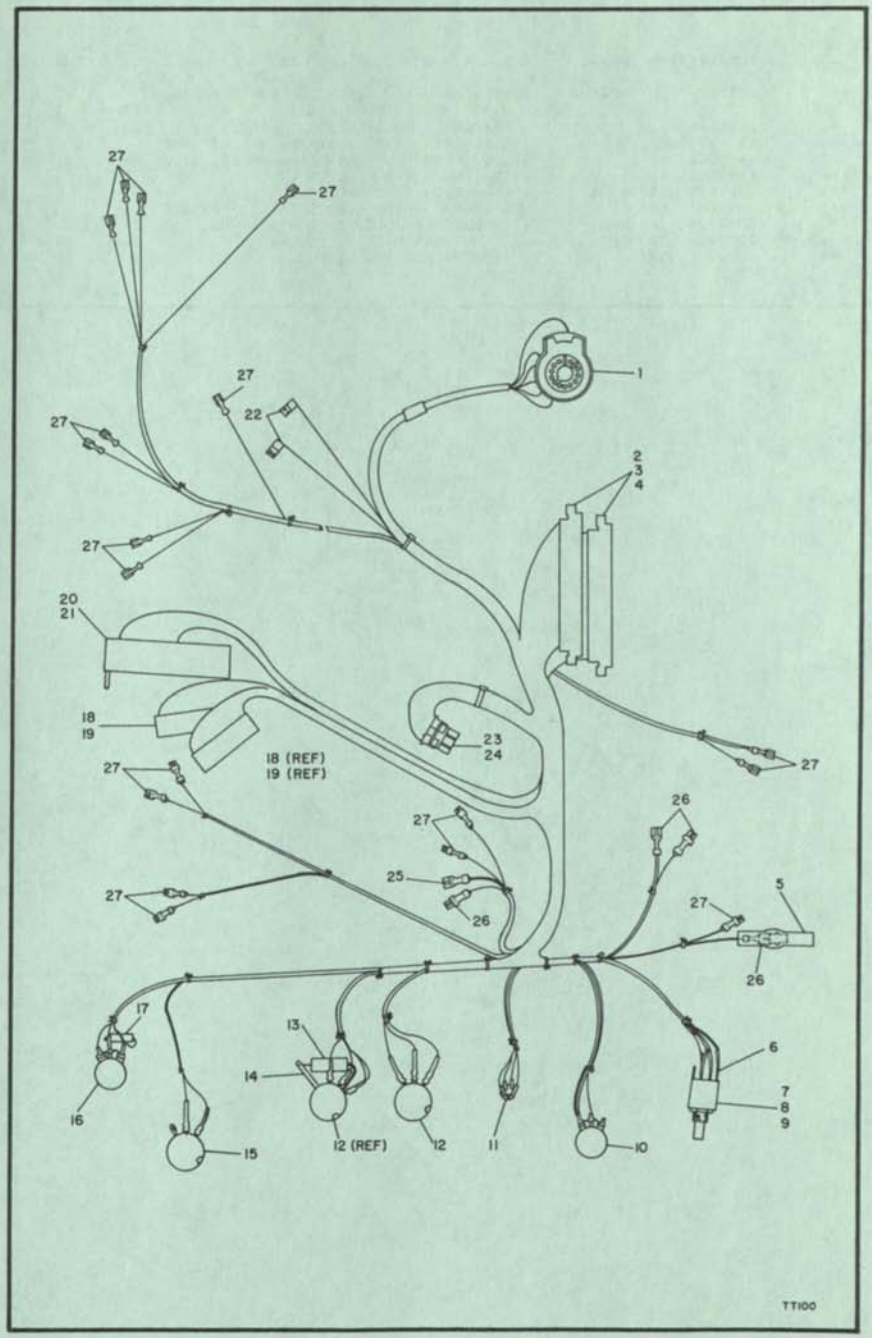

Figure 7. Wiring Harness Assembly

UNISCOPE 100 DISPLAY TERMINAL
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FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
8-	2807985 00	A2W1	WIRING HARNESS, POWER SUPPLY (SEE FIG 3 FOR NEXT HIGHER ASSY)	REF	
-1	2899068 00		. TERMINAL, QUICK DISCON, FEMALE 0.187	26	
-2	4914901 07		. LUG, CRIMP TYPE 22-18AWG NO. 10 STUD	5	
-3	4914901 08		. LUG, CRIMP TYPE 16-14AWG NO. 10 STUD	4	
-4	2899445 00		. TERMINAL, PIN RECEPTACLE	12	
-5	2807970 01	A2J1	. CONNECTOR ASSY, VOLTAGE SELECT	1	
-6	2899087 00		. . CONTACT PLUG & RECEPTACLE - FEMALE	21	
-7	2899457 00	A2P1	. CONNECTOR, PLUG, 24 CONTACT POS.	1	
-8	2899449 00		. . CONTACT, MALE 0.058 DIA	23	
-9	906495 04		. TERMINAL, QUICK DISCON.	4	

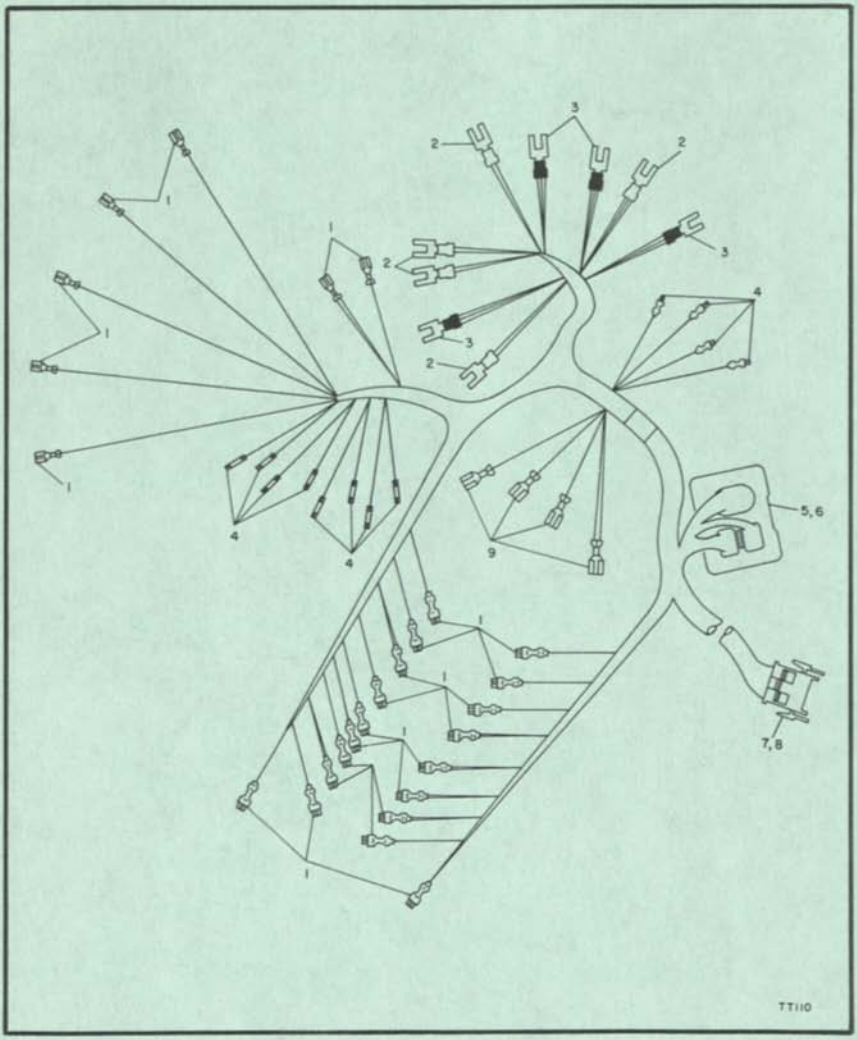

Figure Wiring Harness, Power Supply

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
9-	2807982 00	W5	KEYBOARD CABLE ASSEMBLY (SEE FIG 1 FOR NEXT HIGHER ASSY)	REF	
-1	2899093 00	A17P1	. INS CONN FEMALE, 20 CONTACT	1	
-2	2899081 00		. . CONTACT, PRINTED CIRCUIT BOARD, MINIATURE LEAF TYPE	32	
-3	2899090 00	A17P2	. INS CONN FEMALE, 16 CONTACT	1	
-4	3007553 02	A3P2	. INSULATOR, CONNECTOR 36 POSITIONS	1	
-5	3004893 03		. . CONTACT, PL & RECPT, 26-22AWG, 5A	32	

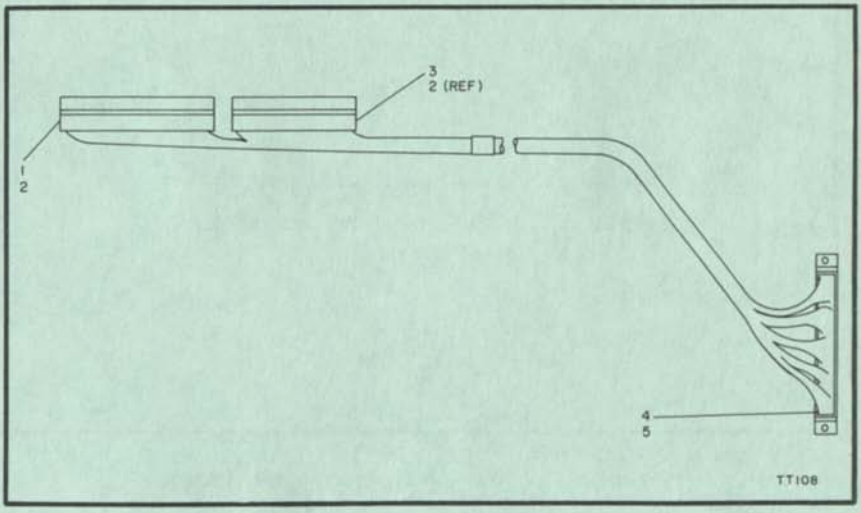

Figure 9. Keyboard Cable Assembly

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. PER ASSY	USED ON CODE
10-	2805285 00	W4	CABLE ASSEMBLY, AUX I/F, INTERNAL (SEE FIG 1 FOR NEXT HIGHER ASSY)	REF	
-1	2899323 00	P1	. CONNECTOR, PLUG - L 50 PIN	1	
-2	2899322 00		. . TERMINAL PIN RECPT, FEMALE, 22-26AWG, CRIMP TYPE	40	
-3	2899321 00	J2	. CONNECTOR, FEMALE, 50 CONTACT	1	
-4	2899513 00		. . CONTACT, ELECT CONNECTOR - FEMALE	40	

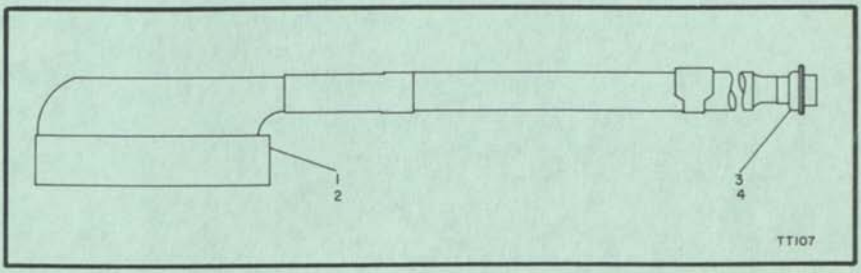

Figure 10. Cable Assembly, Aux I/F, Internal

FIG & INDEX NO.	PART NUMBER 987654321AANN	REF. DESIG.	1 2 3 4 5 6 7 DESCRIPTION	NO. USED PER ASSY	ON CODE
11-	7099615 00		CABLE ASSEMBLY, PARALLEL I/F (3760) (SEE FIG 1 FOR NEXT HIGHER ASSY)	REF	
-1	7904243 00		. CONNECTOR PLUG, FEMALE, 52 CONTACT	1	
-2	904656 00		. . HARDWARE SET, ELECT CONNECTOR	2	
-3	7904207 00		. ADAPTOR, CABLE TO CONNECTOR	1	
-4	7904204 00		. CONNECTOR PLUG, FEMALE, 44 CONTACT	1	
-5	7904209 01		. ADAPTOR, CABLE TO CONNECTOR	1	

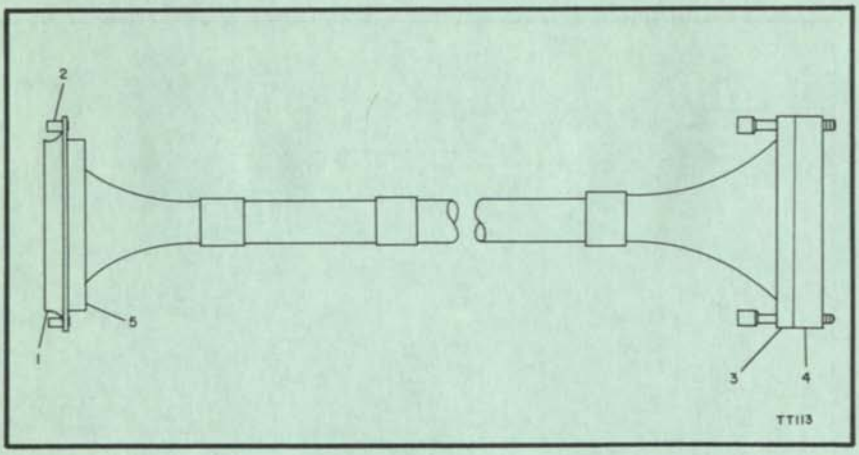

Figure 11. Cable Assembly, Parallel I/F (3760)

SECTION 3

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A11	1-11
A12	1-12
A13	1-13
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A14P8	7-18
A14P9	7-18
A14P10	6-1
A14P12	7-20
A15J1	6-3
A16L1	2-43
A16L2	2-41
A17P1	9-1
A17P2	9-3
A2J1	7-23
A2J1	8-5
A2P1	8-7
A2W1	3-27
A2W1	8-27
A3P2	9-4
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C1	3-6
C1	7-13
C2	3-4
C2	7-17
C3	3-3
C4	3-5
CB1	2-15
CR1	3-17
CR2	3-16
CR38,CR4	3-31
DS1	2-31
DS2	7-11
DS03,DS4	2-19
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PS1	3-11
R1	7-10
R3	7-16
R5	7-15
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S3	7-9
T1	3-25
T2	3-28
V1	2-20
V1P1	7-1
W1	2-40
W1	7-4
W3	2-38
W3	6-212
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W5	1-16
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SECTION 4

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906495 04	7-26
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907451 05	4-31
907451 05	4-31
910834 11	7-13
911458 00	7-14
911651 03	2-33
911651 03	2-67
911651 03	2-72
2805022 05	4-15
2805026 00	4-22
2805026 00	4-22
2805026 00	4-22
2805026 00	4-22
2805202 01	4-17
2805202 01	4-17
2805202 03	4-17
2805202 03	4-17
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2807970 01	8-5
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2807985 00	8-27
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2807992 01	1-14
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2808009 00	2-66
2808010 00	3-18
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2808019 00	2-5
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4912539 00	2-45
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4912548 11	4-5
4912548 11	4-5
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4912550 01	2-49
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4912550 01	3-31
4912550 01	4-5A
4912550 01	4-5A
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4912550 02	2-51
4912550 02	2-55
4912551 01	2-8
4912551 01	3-32
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4912551 01	4-13
4912551 01	4-13
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4912551 02	3-12
4912551 02	4-13
4912551 03	2-26
4912796 01	4-16
4912796 01	4-16
4912796 01	4-16
4912796 01	4-16
4913003 02	4-25
4913003 02	4-25
4913003 02	4-25
4913003 02	4-25
4913003 02	4-25
4913556 03	2-3
4914061 00	4-12
4914193 35	7-17
4914485 04	2-31
4914901 07	8-2
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4915136 00	6-3
4956341 16	2-22
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7099615 00	1-18
7099615 00	11-4
7904204 00	11-4
7904207 00	11-3
7904209 01	11-5
7904243 00	11-1
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MH____ BOX 500 BLUE BELL, PA. 19422
MI____ 311 TURNER ST., MD 12A UTICA, NEW YORK 13501
MR____ 322 N. 21st ST. WEST, SALT LAKE CITY, UTAH 84116
MT____ 1905 ROWLAND AVE., CINNAMINSON, N.J. 08077

2. WORLDWIDE DISTRIBUTION CENTER:

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