

UNIVAC®

UNISCOPE 300

VISUAL
COMMUNICATIONS
TERMINAL

OPERATOR'S REFERENCE

This manual is published by the Univac Division of Sperry Rand Corporation in loose leaf format. This format provides a rapid and complete means of keeping recipients apprised of UNIVAC[®] Systems developments. The information presented herein may not reflect the current status of the product. For the current status of the product, contact your local Univac Representative.

The Univac Division will issue updating packages, utilizing primarily a page-for-page or unit replacement technique. Such issuance will provide notification of hardware changes and refinements. The Univac Division reserves the right to make such additions, corrections, and/or deletions as, in the judgment of the Univac Division, are required by the development of its Systems.

UNIVAC is a registered trademark of Sperry Rand Corporation.

Other trademarks of Sperry Rand Corporation appearing in the text of this publication are:

UNISCOPE

CONTENTS

CONTENTS	1 to 2
1. INTRODUCTION	1-1 to 1-2
1.1. PURPOSE	1-1
1.2. SCOPE	1-2
2. OPERATOR'S RESPONSIBILITY	2-1 to 2-1
2.1. GENERAL	2-1
2.2. REQUIREMENTS	2-1
3. CONTROLS AND INDICATORS	3-1 to 3-12
3.1. GENERAL	3-1
3.2. KEYBOARD/CONTROL PANEL	3-1
3.3. POWER CONTROL PANEL	3-8
3.3.1. Single Station UNISCOPE Terminal	3-8
3.3.2. Multi-Station UNISCOPE Terminal	3-9
3.3.3. Multi-Station Control Unit	3-11
3.4. MULTI-STATION CONTROL UNIT STATUS INDICATOR PANEL	3-12
4. OPERATION	4-1 to 4-9
4.1 GENERAL	4-1
4.2 TURNON PROCEDURE	4-1
4.2.1. Single Station UNISCOPE Terminal	4-1
4.2.2. Multi-Station UNISCOPE Terminal	4-2
4.2.3. Multi-Station Control Unit	4-2
4.3 TURNOFF PROCEDURE	4-3
4.3.1. Single Station UNISCOPE Terminal	4-3
4.3.2. Multi-Station UNISCOPE Terminal	4-4
4.3.3. Multi-Station Control Unit	4-4
4.4. OPERATING PROCEDURES	4-5
4.4.1. Mode Plate Insertion	4-5
4.4.2. Composing and Transmitting Message	4-6
4.4.3. Receiving Processor Output Messages	4-7
4.5 FAULT CORRECTION AND RECOVERY	4-8

5. OPERATOR PERFORMED MAINTENANCE	5-1 to 5-2
5.1. GENERAL	5-1
5.2. AIR FILTER REPLACEMENT	5-1
5.2.1. Single Station and Multi-Station UNISCOPE Terminals	5-1
5.2.2. Multi-Station Control Unit	5-2

FIGURES

1-1. UNISCOPE 300 Visual Communications Terminal	1-1
3-1. Keyboard/Control Panel	3-2
3-2. Single Station UNISCOPE Terminal, Rear View (Protective Cover Removed)	3-8
3-3. Multi-Station UNISCOPE Terminal, Rear View (Protective Cover Removed)	3-10
3-4. Multi-Station Control Unit Power Control Panel	3-11
3-5. Multi-Station Control Unit Status Indicator Panel	3-12
4-1. Display Controls	4-2
4-2. Mode Plate Installed in Keyboard/Control Panel	4-6
5-1. UNISCOPE Terminal, Bottom View	5-2

TABLES

3-1. Keyboard/Control Panel, Controls and Indicators	3-3
3-2. Power Control Panel (SSU) Controls	3-9
3-3. Power Control Panel (MSU) Controls	3-9
4-1. Operator Response To Processor Output Messages	4-8
4-2. UNISCOPE Terminal Trouble Analysis Table	4-9

1. INTRODUCTION



Figure 1-1. UNISCOPE 300 Visual Communications Terminal

1.1. PURPOSE

The UNISCOPE 300 Visual Communications Terminal*, shown in Figure 1-1, is a two-way remote terminal device which makes it possible to hold time-shared direct data communications with a central processor. Each UNISCOPE terminal is keyboard operated, and it has a Cathode-Ray Tube (CRT) for message display. The CRT displays the processor Output Message and allows Input Messages to be composed and edited before they are transmitted to the processor.

UNISCOPE terminals can communicate over any ordinary communication system with any central installation that complies with the accepted standard for serial data transmission. Interface with the communication facilities is accomplished by the use of Bell System 200 series Data Sets (or equivalent) and voice grade switched network or voice grade private lines. There are no special power requirements; it operates on ordinary commercial power.

A UNISCOPE terminal station is arranged according to the expected use: a self-contained Single Station UNISCOPE (SSU) terminal, or up to 48 Multi-Station UNISCOPE (MSU) terminals connected to one Multi-Station Control Unit (MSCU).

No programming is required at the UNISCOPE terminal location. The operator need not be concerned with message and function codes, since the UNISCOPE terminal automatically codes characters and functions in all messages to the processor. The operator is required only to compose the message on the display and initiate transmission to the processor.

*For convenience, references to the UNISCOPE 300 Visual Communications Terminal omit the designation 300 throughout this manual.

The exchange and control of traffic within the system is controlled entirely by the processor. Exchange of data between the processor and remote terminals (SSU and MSU) is accomplished by a system of interrogation and reply (polling). The processor sends a Poll Message (request for information) to a remote terminal and the terminal, in turn, replies with either a Query or No Traffic Message. The sequence of operation for a complete message is as follows:

- (1) Operator prepares Query Message and presses TRANSMIT key.
- (2) Input data is ready and waiting for processor Poll Message.
- (3) Poll Message is received and input data is transmitted to processor.
- (4) Data is processed and reply message is prepared.
- (5) Output reply is ready and waiting for free telephone line.
- (6) Output reply is transmitted to waiting UNISCOPE terminal and displayed on screen.

1.2. SCOPE

This manual contains the information and procedures required for operation of UNISCOPE terminals by operators having a knowledge of typing and a general understanding of data communications systems. Operators may require additional information describing software peculiarities which may be encountered during operation. This information shall be presented when required.

This manual is divided into the following basic sections:

- Operator's Responsibilities
- Controls and Indicators
- Operation
- Operator-Performed Maintenance.

Although this manual contains sufficient information for the operator, if further information or explanation is desired, refer to "UNISCOPE 300 Visual Communications Terminal Programmers Reference Manual," UP-7597 (Current Version).

2. OPERATOR'S RESPONSIBILITY

2.1. GENERAL

The operator has the responsibilities of composing and transmitting Query Messages for normal business transactions and of performing the routines and making the checks required for the efficient operation of the UNISCOPE terminal.

2.2. REQUIREMENTS

To assume these responsibilities the operator should be familiar with the UNISCOPE terminal and the concept of the communications system. The operator should be able to turn power on and off and perform fault correction and recovery procedures when required.

In addition to operating the UNISCOPE terminal, the operator (if qualified) should replace the UNISCOPE terminal and Multi-Station Control Unit air filters periodically. These procedures are described in Section 5 of this manual.

The operator should also ensure that temperature and humidity are suitable. They must be in the ranges 30 to 105 degrees Fahrenheit and 5 to 95 percent relative humidity. The optimum values are 70 degrees Fahrenheit and 50 percent relative humidity.

3. CONTROLS AND INDICATORS

3.1. GENERAL

This section contains a description of the controls and indicators used in the operation of the Single Station and the Multi-Station UNISCOPE terminals and the Multi-Station Control Unit.

The controls and indicators of the Single Station UNISCOPE (SSU) terminal and Multi-Station UNISCOPE (MSU) terminal are located on the Keyboard/Control Panel and Power Control Panel.

The controls and indicators of the Multi-Station Control Unit (MSCU) are located on the Power Control Panel and Status Indicator Panel. If desired, the SSU and MSU Keyboard/Control Panel is available:

- without Format Key feature;
- with 5 format keys located above alphanumeric keys (Feature Number F0926-02);
- with a total of 40 format keys (35 additional keys) as shown in Figure 3-1 (Feature Number F0926-03).

3.2. KEYBOARD/CONTROL PANEL

The Keyboard/Control Panel, as shown in Figure 3-1, is located on the lower front of the SSU and MSU display units and consists of keys, controls, and indicators. Key shape, key travel, and touch pressure are similar to those of a standard electric typewriter. Typing speeds in excess of 80 words per minute can be achieved. The keys, controls and indicators are grouped according to the following functions:

- Cursor Control Keys
- Editing Keys
- Alphanumeric Keys
- Format Keys
- Message and Equipment Status Indicators
- Data Control Keys
- Display Controls
- Sonalert Alarm

The function of each operating component is described in Table 3-1.

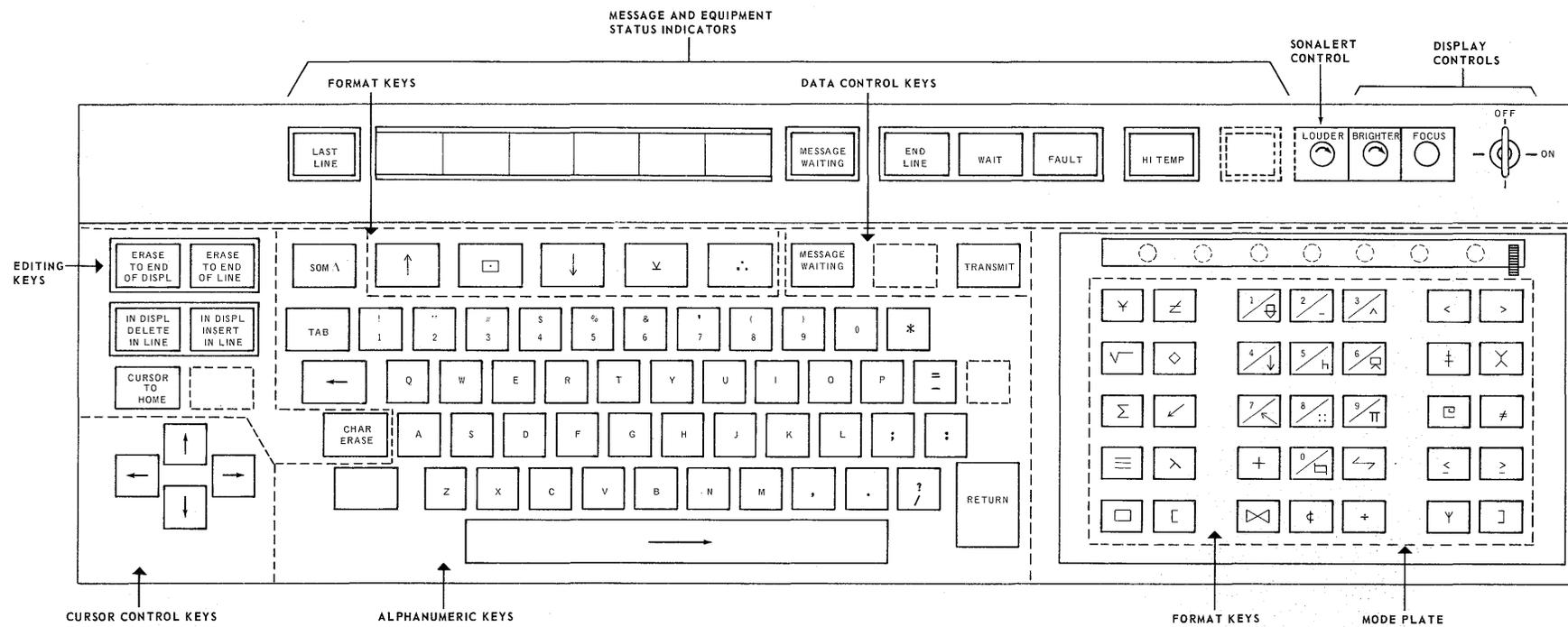


Figure 3-1. Keyboard/Control Panel

NAME	FUNCTION
CURSOR CONTROL KEYS	
The cursor symbol (\ulcorner) is always present in the Cathode-Ray Tube (CRT) display and indicates the location where the next keyboard or processor generated character will be displayed.	
 key	If the key is pressed momentarily, it causes the cursor to move forward one position. If the key is held depressed the cursor moves forward approximately 10 character positions per second.
 key	If the key is pressed momentarily, it causes the cursor to move backward one position. If the key is held depressed the cursor moves backward approximately 10 character positions per second.
 key	If the key is pressed momentarily, it causes the cursor to move up one line. If the key is held depressed, the cursor moves upward approximately 10 lines per second.
 key	If the key is pressed momentarily, it causes the cursor to move down one line. If the key is held depressed, the cursor moves downward approximately 10 lines per second.
<div style="border: 1px solid black; padding: 2px; text-align: center;">CURSOR TO HOME</div> key	Causes the cursor to move to the first character position on the display (upper left-hand corner).
EDITING KEYS	
<div style="border: 1px solid black; padding: 2px; text-align: center;">ERASE TO END OF DISPLAY</div> key	Erases and enters spaces in all character positions from and including the cursor position to the end of the display
<div style="border: 1px solid black; padding: 2px; text-align: center;">ERASE TO END OF LINE</div> key	Erases and enters spaces in all character positions from and including the cursor position to the end of that line
<div style="border: 1px solid black; padding: 2px; text-align: center;">IN DISPL DELETE IN LINE</div> key	<p>Lowercase operation of this key causes the characters in the line to the right of the cursor to shift left one position. The original character at the cursor position is deleted and a space is inserted into the last character position in the cursor line. This key is pressed once for each character to be deleted.</p> <p>Uppercase operation of this key causes all characters in the display to the right of the cursor to move left one position. The original character at the cursor position is deleted and a space is inserted into the last character position of the display. This key is pressed once for each character deleted.</p>

Table 3-1. Keyboard/Control Panel, Controls and Indicators
(Part 1 of 5)

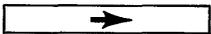
NAME	FUNCTION
EDITING KEYS (cont'd)	
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> IN DISPL INSERT IN LINE </div> <p style="text-align: center;">key</p>	<p>Lowercase operation of this key causes all the characters in the line from and including the cursor position to move right one position. A space is inserted in the cursor position and if a character is moved out of the last position of the line it is discarded.</p> <p>Uppercase operation of this key causes all the characters in the display from and including the cursor position to move right one position. A space is inserted in the cursor position and if a character is moved out of the last position of the display, it is discarded.</p>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> CHAR ERASE </div> <p style="text-align: center;">key</p>	<p>Causes a character at the cursor position to be deleted, inserting a space in lieu of the character.</p>
ALPHANUMERIC KEYS	
<p>The alphanumeric keys, with the exception of four keys, are essentially the same as those keys on a standard electric typewriter keyboard. The alphanumeric keys are used for composing messages for input to the processor. As each key is pressed, the alphabetic or numeric character etched on the top of the key is displayed on the CRT. (The blank key located next to the Z key is the uppercase key.) The special keys which are the exception to the standard keyboard are illustrated in Figure 3-1 and described below.</p>	
SPECIAL KEYS	
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> SOM Δ </div> <p style="text-align: center;">key</p>	<p>Causes the delta sign (Δ) to be displayed on the CRT. When the message is transmitted, all information from the cursor backwards to the delta (start-of-message) symbol is sent to the processor.</p>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> TAB </div> <p style="text-align: center;">key</p>	<p>Special cursor positioning key that moves the cursor forward until a special tab character is detected in the SSU or MSU memory. The cursor will stop either one space beyond the tab character or at the end of the display if no tab character is found. The tab stop character is placed in the SSU or MSU memory by the processor.</p>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">  </div> <p style="text-align: center;">key</p>	<p>Occupies the position normally occupied by the space bar on the standard electric typewriter keyboard. Pressing this key moves the cursor one character position to the right or if the cursor is in the last character position in a line, it moves to the first character position in the next lower line. If the cursor is in the last character position in the last line, it will not move.</p>

Table 3-1. Keyboard/Control Panel, Controls and Indicators
(Part 2 of 5)

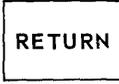
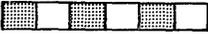
NAME	FUNCTION
SPECIAL KEYS (cont'd)	
 key	Occupies the position normally occupied by the carriage return key on the standard electric typewriter keyboard. Pressing this key causes the cursor to move to the first character position in the next lower line. If the cursor occupies the last character position in the last line, it will not move when the key is pressed.
FORMAT KEYS	
If installed, the Format Key feature provides the operator with either 5 Format Keys (Feature Number F0926-02) or a total of 40 Format Keys (35 additional Format Keys, Feature Number F0926-03). Each Format Key symbol, when transmitted in the Input Message, conveys a predetermined meaning to the processor. A plastic overlay (Mode Plate) is associated with the 35 Format Keys.	
MODE PLATE	
The Mode Plates are cards each of which has an edge formed according to an indentifying code; when a Mode Plate is in position, the coded edge causes the operation of some combination of seven switches controlling the significance of the function keys. On the face of each Mode plate and appearing adjacent to the format keys when it is in place, are markings to indicate the corresponding use of each key. One hundred and twenty-two different Mode Plates can be used, enabling representation of as many as 4000 different functions. Typically, the different Mode Plates can be used to identify stations, operators, applications, or security requirements. In addition to initiating a function, each key produces on the display a unique symbol, which is engraved on the face of the key.	
MESSAGE AND EQUIPMENT STATUS INDICATORS	
 indicator	Lights white whenever the cursor is positioned anywhere in the last line of the display
 indicators	These six indicators are used only for maintenance purposes by the Univac Field Engineer. They light to indicate the presence of signals originating from the communications modem. The indicators operate on the SSU only.

Table 3-1. Keyboard/Control Panel, Controls and Indicators
(Part 3 of 5)

NAME	FUNCTION
MESSAGE AND EQUIPMENT STATUS INDICATORS (cont'd)	
<div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;">MESSAGE WAITING</div> <p style="text-align: center;">indicator</p>	Lights yellow when the processor has a Conditional Unsolicited Message for display. The indicator remains lit until the MESSAGE WAITING key is pressed, to request the message. Also, the indicator lights and remains lit from the time an Unconditional Unsolicited Message (see 4.4.3) is received until the MESSAGE WAITING key is pressed.
<div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;">END LINE</div> <p style="text-align: center;">indicator</p>	Lights white when the cursor is located in any of the last eight character positions of each line
<div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;">WAIT</div> <p style="text-align: center;">indicator</p>	Lights yellow during the time a message is being transmitted to or being received from the processor. This indicator remains lit for the entire time period of time the keyboard is locked. (The keyboard is locked whenever the MESSAGE WAITING or TRANSMIT key is pressed and remains locked until a keyboard unlock code is received from the processor.)
<div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;">FAULT</div> <p style="text-align: center;">indicator</p>	Lights red when a parity error is detected in a message received from the processor
<div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;">HI TEMP</div> <p style="text-align: center;">indicator</p>	Lights red when the internal temperature of the UNISCOPE unit reaches a predetermined setting (200 degrees Fahrenheit for the SSU and 125 degrees Fahrenheit for the MSU).
DATA CONTROL KEYS	
<div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;">MESSAGE WAITING</div> <p style="text-align: center;">key</p>	Requests a waiting processor message when MESSAGE WAITING indicator is lit
<div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;">TRANSMIT</div> <p style="text-align: center;">key</p>	Causes the message displayed on the CRT, starting from the cursor and continuing backwards to the delta symbol (Δ) or the beginning of the display (if the delta symbol is not displayed), to be transmitted to the processor.

Table 3-1. Keyboard/Control Panel, Controls and Indicators
(Part 4 of 5)

NAME	FUNCTION
DISPLAY CONTROLS	
FOCUS <input type="radio"/> control	Adjusts the sharpness of the displayed characters
BRIGHTER <input type="radio"/> control	Varies the intensity of brightness of the characters displayed on the Cathode-Ray Tube (CRT).
OFF <input type="radio"/> ON control	ON – Required for normal operation OFF – Turns off display on SSU and turns off display and resets logic circuits on MSU
SONALERT ALARM	
<p>The Sonalert is an audible alarm that sounds for any of the following conditions:</p> <ul style="list-style-type: none"> ■ The Sonalert sounds once when the cursor moves into the last eight character positions on any line in the display. ■ The Sonalert sounds once when the cursor moves into the first character position of the last line and again when it reaches the 57th character position of the last line of the display. ■ The Sonalert sounds continuously during the time that the MESSAGE WAITING indicator is lighted. The alarm is turned off when the MESSAGE WAITING key is pressed. 	
LOUDER <input type="radio"/> control	Varies the volume of the Sonalert audible alarm

Table 3-1. Keyboard/Control Panel, Controls and Indicators
(Part 5 of 5)

3.3. POWER CONTROL PANEL

A Power Control Panel is located under a protective cover at the rear of the SSU and MSU terminals and behind the rear door of the MSCU cabinet. A description of the operating components for each terminal and MSCU is given below.

3.3.1. Single Station UNISCOPE Terminal

The Power Control Panel for the SSU consists of one circuit breaker and a push-button switch (see Figure 3-2). These controls allow the operator to turn power on and off and to reset the logic circuits. The function of each operating component is described in Table 3-2.

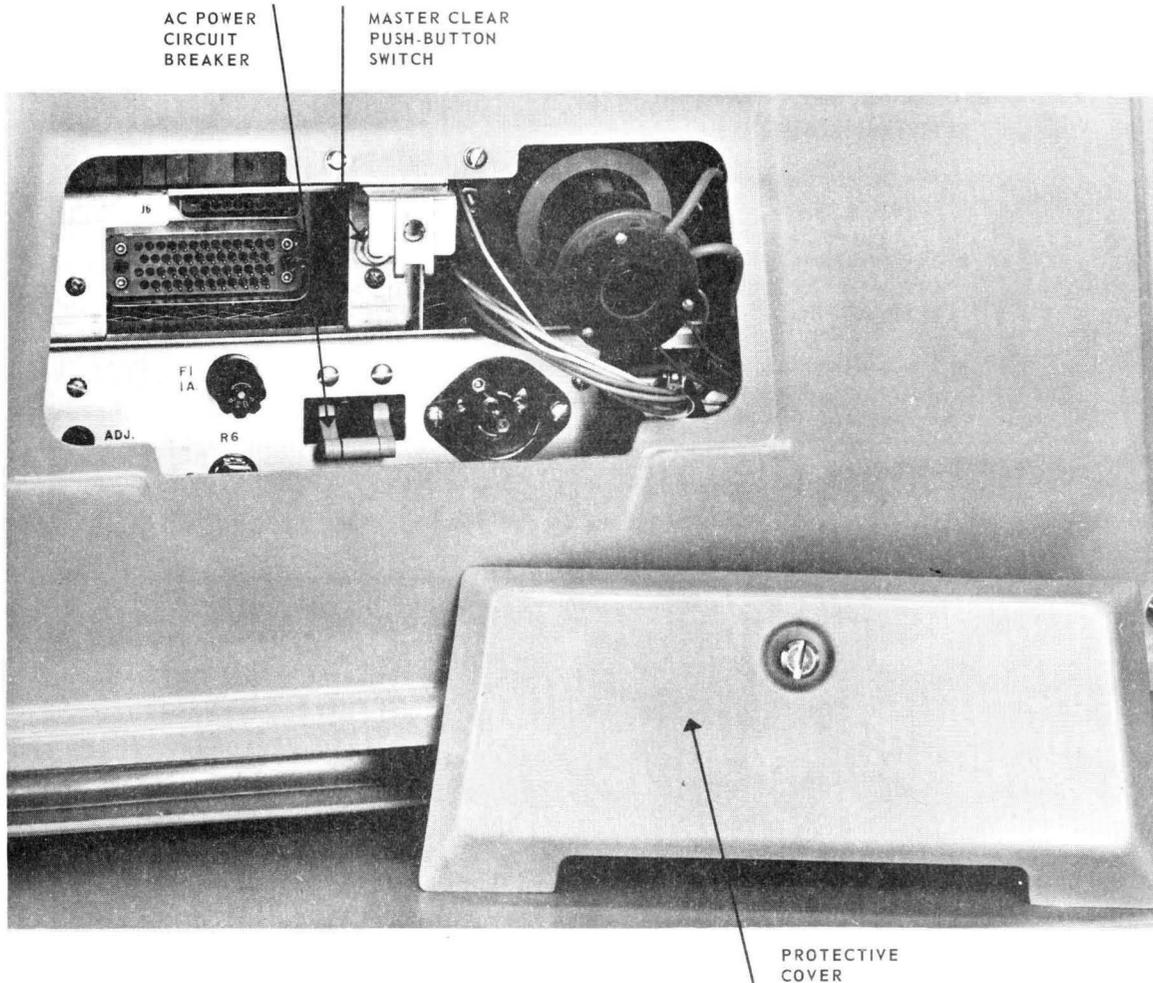


Figure 3-2. Single Station UNISCOPE Terminal, Rear View
(Protective Cover Removed)

NAME	FUNCTION
Master Clear Push-button Switch	Resets control circuits. This switch is used when power is turned on and again prior to turning power off. It is also used when AC power to the SSU has been interrupted or when it is desired to unlock the SSU keyboard.
AC Power Circuit Breaker	When operated to ON applies AC voltage the power supply and provides overload protection for the SSU circuits

Table 3-2. Power Control Panel (SSU) Controls

3.3.2. Multi-Station UNISCOPE Terminal

The Power Control Panel for the MSU consists of one circuit breaker and two or three toggle switches. (MSU Type Number 3526-00 has 2 toggle switches and MSU Type Number 3526-01 has 3 toggle switches.) This panel (shown in Figure 3-3) allows the operator to turn power on and off and to establish an address identifying the MSU terminal. The function of each component is described in Table 3.3.

NAME	FUNCTION
AC Power Circuit Breaker	Controls AC voltages to the power supply and provides overload protection for the MSU circuits
Address Switches	Establishes the address of the MSU. Depending on the type of MSU used (3526-00 or 3526-01) up to 4 or 8 MSU's are connected to a common cable from the MSCU. Each MSU, Type Number 3526-00, on a cable will have an address of 0, 1, 2, or 3. Each MSU, Type Number 3526-01, will have an address of 0, 1, 2, 3, 4, 5, 6, or 7. The only situation in which two MSU's on the same cable will have identical addresses occurs when a MSU is used to monitor traffic of another MSU. It is most important that the address switches are not changed. The MSCU will accept only messages directed to an MSU whose preset address agrees with that in the Output Message. Moreover, if the MSU terminal is replaced with another unit, the address switches on the replacement unit must have the same settings as those of the replaced unit.

Table 3-3. Power Control Panel (MSU) Controls

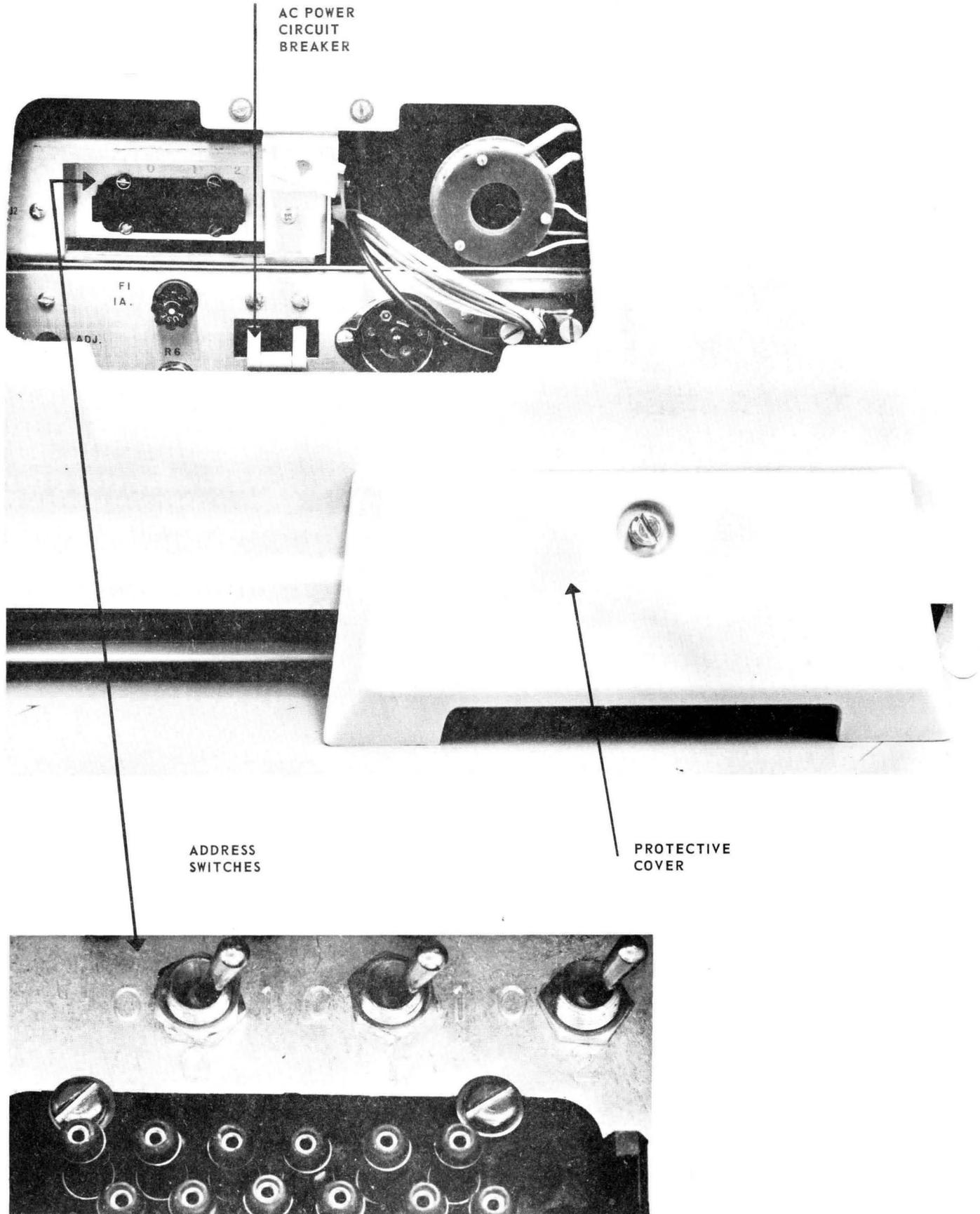


Figure 3-3. Multi-Station UNISCOPE Terminal, Rear View
(Protective Cover Removed)

3.3.3. Multi-Station Control Unit

The Power Control Panel for the Multi-Station Control Unit is behind the rear door at the lower portion of the MSCU cabinet. (See Figure 3-4.) The voltage or circuit function associated with each of the ten circuit breakers and five indicators are illustrated in the figure.

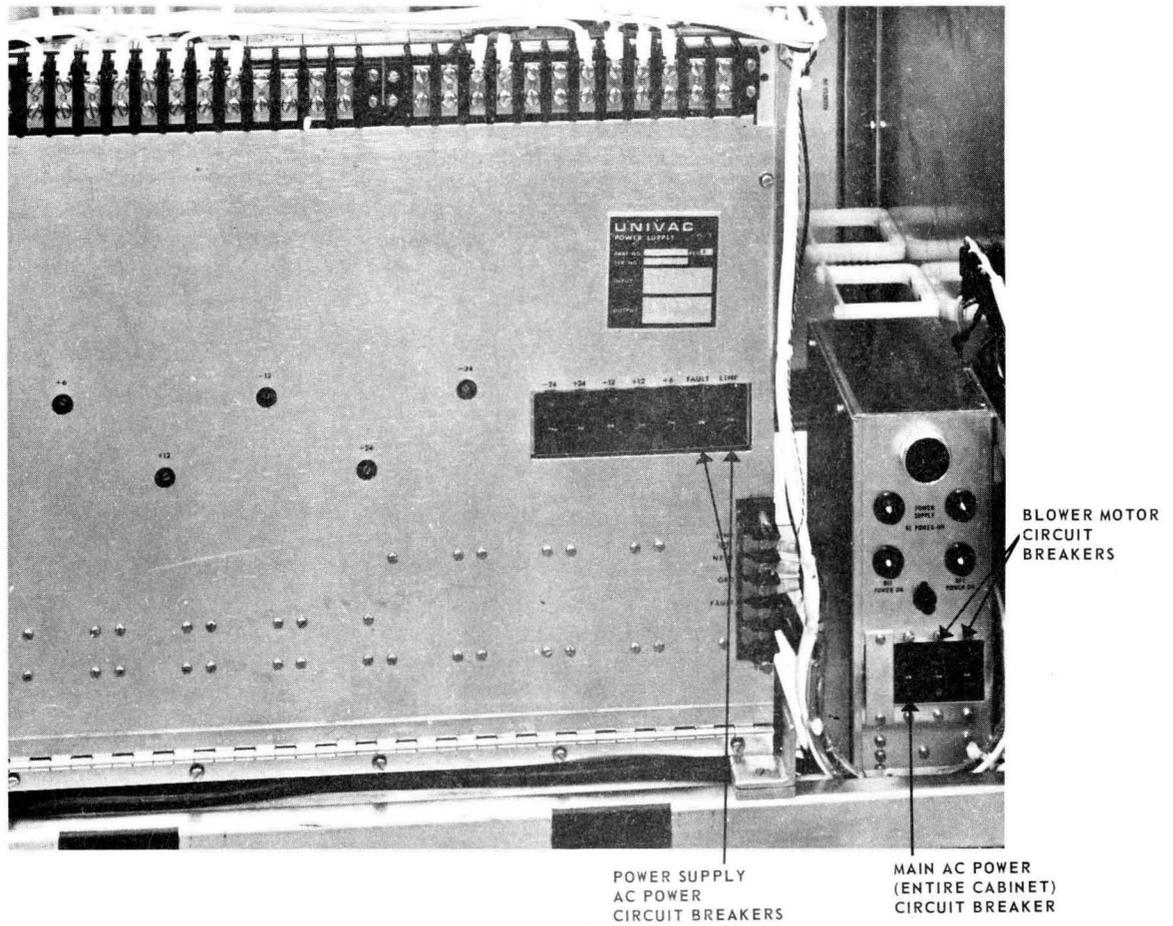


Figure 3-4. Multi-Station Control Unit Power Control Panel

3.4. MULTI-STATION CONTROL UNIT STATUS INDICATOR PANEL

The Multi-Station Control Unit Status Indicator Panel is located behind the front door at the upper portion of the MSCU cabinet. (See Figure 3-5.) The indicator panel provides status indications of the various logic circuits in the MSCU cabinet; associated push-button switches located directly beneath each indicator permits the applicable circuitry to be cleared (reset) when necessary. Because this panel is used primarily by UNIVAC maintenance personnel, no function description is given for the indicators and push-button switches. The operator uses this panel only when turning on the MSCU, as described in 4.2.3.

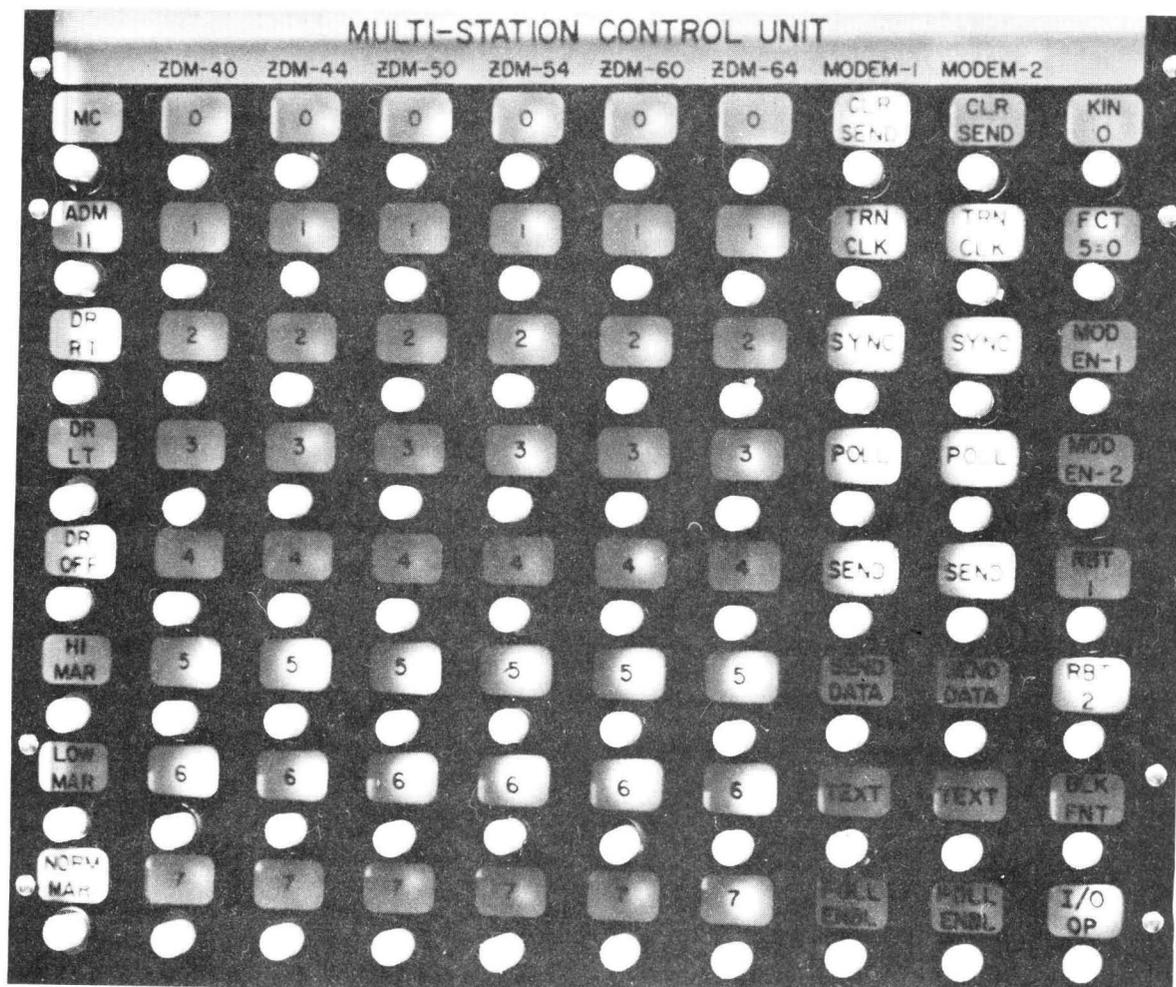


Figure 3-5. Multi-Station Control Unit Status Indicator Panel

4. OPERATION

4.1. GENERAL

The operator is required to turn power on and off to the Single Station UNISCOPE (SSU) terminals and Multi-Station UNISCOPE (MSU) terminals with their associated Multi-Station Control Unit (MSCU) according to operating schedules unless continuous operation is required. Also, if the commercial power should be interrupted, it is the responsibility of the operator to return the UNISCOPE equipment to an operational status when power is restored.

The information presented in this section and illustrations and descriptive tables presented in Section 3 of this manual are sufficient to enable the operator to perform the following procedures:

- Turnon
- Turnoff
- Operating
- Fault correction and recovery

4.2. TURNON PROCEDURE

The turnon procedure for the SSU terminal or the MSU terminals and associated MSCU consists of applying AC power and resetting the logic circuits. The step-by-step turn-on procedures for the SSU, MSU, and MSCU are described below.

4.2.1. Single Station UNISCOPE Terminal

To turn on the Single Station UNISCOPE terminal, proceed as follows:

- (1) Remove protective cover (Figure 3-2) located at the rear of the terminal.
- (2) Set Circuit Breaker to ON (up position). Blower should start.
- (3) Momentarily press Master Clear push-button switch.
- (4) Replace protective cover.
- (5) Turn Keylock Switch in a clockwise direction (Figure 4-1) to ON.
- (6) The cursor (␣) should appear on the screen. If the cursor does not appear, turn the BRIGHTER control in a clockwise direction until the cursor becomes visible.
- (7) The SSU is now ready for operation (see 4.4).

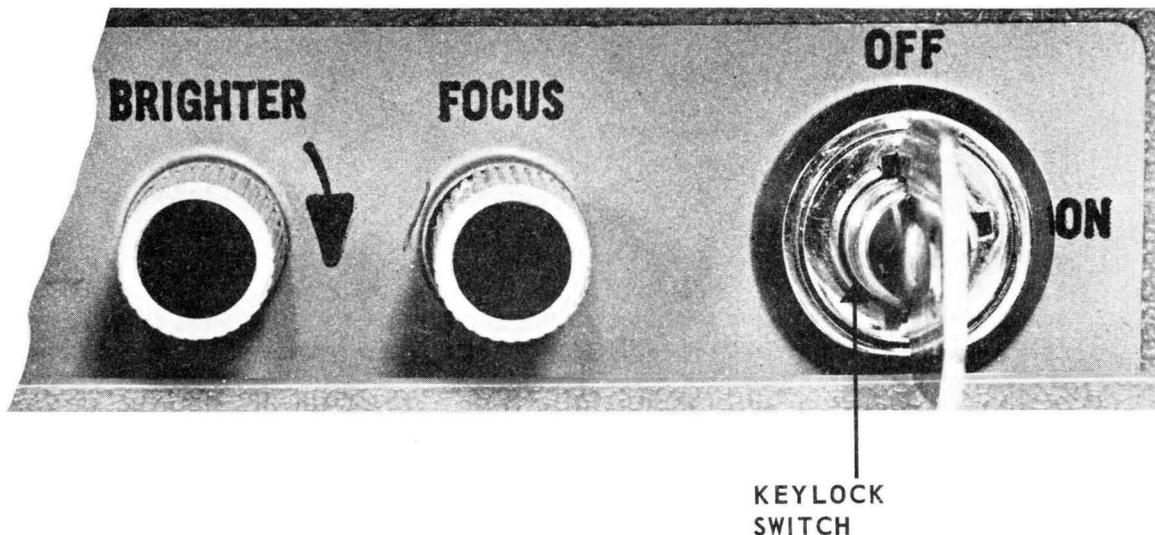


Figure 4-1. Display Controls

4.2.2. Multi-Station UNISCOPE Terminal

The turnon procedure for the MSU terminal is similar to that of the SSU terminal. The difference between the two units is that various logic circuits for the MSU terminals are located in the associated MSCU cabinet. Therefore, it is desirable to turn on power in the MSCU cabinet and prepare it for operation (see 4.2.3) prior to turning on the MSU terminal. To turn on the MSU terminal, proceed as follows:

- (1) Remove protective cover (Figure 3-3) at the rear of the terminal.
- (2) Operate Circuit Breaker to ON (up position). Blower should start.
- (3) Replace protective cover.
- (4) Turn Keylock Switch (Figure 4-1) in a clockwise direction to ON. (The Keylock Switch on the MSU terminal turns on the CRT display and also resets the logic circuits).
- (5) The cursor (\uparrow) should appear on the screen at a random position. If the cursor does not appear, turn the BRIGHTER control in a clockwise direction until the cursor becomes visible.
- (6) The MSU is now ready for operation (see 4.4).

4.2.3. Multi-Station Control Unit

To turn on the MSCU, the operator first applies power and then resets the logic circuits.

The procedure for applying power is described in steps (1) through (6) and the procedure for resetting (initializing) the logic circuits is described in steps (7) through (10). The circuit breakers should be operated in the order specified in step 5.

- (1) Open rear door of MSCU cabinet.
- (2) Turn on the unit by means of AC POWER ON circuit breaker (Figure 3-4). POWER SUPPLY AC POWER ON indicator should light.
- (3) Start blowers by pushing circuit breakers B1 and B2 ON. BO1 POWER ON and BO2 POWER ON indicators should light.
- (4) Operate FAULT and LINE circuit breakers to ON (up position).
- (5) Operate the circuit breakers for the DC supply, in the order presented, to ON (up position).
 - -24 circuit breaker
 - -12 circuit breaker
 - +6 circuit breaker
 - +12 circuit breaker
 - +24 circuit breaker
- (6) Close rear door and open front door of MSCU cabinet.
- (7) Momentarily press MC push-button switch (Figure 3-5) located in leftmost column of Status Indicator Panel. DR OFF indicator in the same column should light.
- (8) Momentarily press TEXT and POLL ENBL push-button switches located in columns marked MODEM-1 and MODEM-2.
- (9) Momentarily press DR RT push-button switch located in leftmost column of indicators. DR RT indicator should light and the DR OFF indicator should go out.
- (10) Close front door of MSCU cabinet.

4.3. TURNOFF PROCEDURE

The turnoff procedure for the SSU terminal and MSU terminal and associated MSCU consists of resetting (clearing) the logic circuits and removing AC power. Emergency turnoff and normal condition turnoff procedures for the SSU, MSU, and MSCU are described below.

4.3.1. Single Station UNISCOPE Terminal

In an emergency, when it is required to remove AC power from the SSU terminal quickly, remove the AC power cord from the wall receptacle. If the wall receptacle is not accessible, remove protective cover located at the rear of the SSU terminal (Figure 3-2) and turn off power by means of the circuit breaker. Under normal conditions, turn off the SSU terminal as described in steps (1) through (5).

- (1) Turn Keylock Switch in a counterclockwise direction (Figure 4-1) to OFF.
- (2) Remove protective cover (Figure 3-2) located at the rear of the terminal.
- (3) Momentarily press Master Clear push-button switch.
- (4) Operate circuit breaker to OFF (down position).
- (5) Replace protective cover.

4.3.2. Multi-Station UNISCOPE Terminal

In an emergency, when it is required to remove power from the MSU terminal quickly, remove the AC power cord from the wall receptacle. If the wall receptacle is not accessible, remove protective cover located at the rear of the MSU terminal (Figure 3-3) and turn off the power by means of the circuit breaker. Under normal conditions, turn off the MSU terminal as described in steps (1) through (5).

- (1) Turn Keylock Switch in a counterclockwise direction (Figure 4-1) to OFF.
- (2) Remove protective cover (Figure 3-3) located at rear of the terminal.
- (3) Momentarily press Master Clear push-button switch.
- (4) Operate circuit breaker to OFF (down position).
- (5) Replace protective cover.

4.3.3. Multi-Station Control Unit

In an emergency, when it is required to remove AC power from the MSCU, remove the AC power cord from the wall receptacle. If the wall receptacle is not accessible, open rear door of MSCU cabinet and turn off power by means of AC POWER ON circuit breaker (Figure 3-4). Under normal conditions, turn off the MSCU as described in steps (1) through (8).

- (1) Open front door of MSCU cabinet.
- (2) Momentarily press MC push-button switch (Figure 3-5). DR OFF indicator in leftmost column of indicators should light.
- (3) Close front door and open rear door of MSCU cabinet.
- (4) Operate the circuit breakers for the DC supply (Figure 3-4), in the order presented, to OFF (down position).
 - +24 circuit breaker
 - +12 circuit breaker
 - +6 circuit breaker
 - -12 circuit breaker
 - -24 circuit breaker

- (5) Operate FAULT and LINE circuit breakers to OFF (down position.)
- (6) Stop blowers by means of circuit breakers B1 and B2. B01 POWER ON and B02 POWER ON indicators should go out.
- (7) Turn off power by means of AC POWER ON circuit breaker. POWER SUPPLY AC POWER ON indicator should go out.
- (8) Close rear door of MSCU cabinet.

4.4. OPERATING PROCEDURES

Operating the SSU or MSU terminal requires only that the operator be adept at typing and familiar with a few basic procedures. These procedures are described below.

- Mode Plate Insertion (Format Key feature only)
- Message Composition
- Transmitting Messages
- Receiving Messages

NOTE: If the Format Key feature (FO926-03, full complement of 40 Format Keys) is installed, a Mode Plate must be in place on the SSU or MSU terminal keyboard prior to operating the SSU or MSU terminal (see 4.4.1).

4.4.1. Mode Plate Insertion (Format Key Feature)

If the Format Key feature is installed, a Mode Plate must be in place over the the group of 35 Format Keys before any keyboard operation can be initiated (see Figure 4-2). If a Mode Plate is not inserted in the SSU or MSU keyboard, the Format, TRANSMIT, and MESSAGE WAITING keys do not function. To insert the Mode Plate, proceed as follows:

- (1) Turn knurled knob until pressure bar is retracted.
- (2) Place Mode Plate over group of 35 keys (coded edge of Mode Plate between pressure bar and keyboard base) allowing alignment pins to project through alignment holes.
- (3) Turn knurled knob down to re-engage pressure bar. The pressure bar presses the Mode Plate against the identification switches.

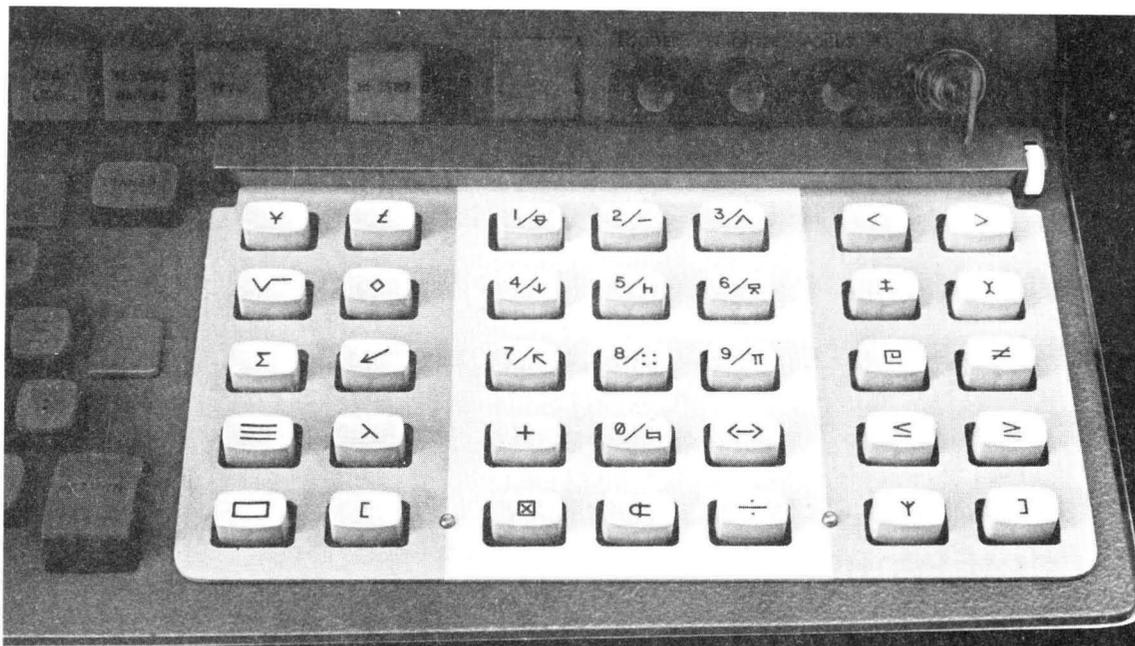


Figure 4-2. Mode Plate Installed In Keyboard/Control Panel

4.4.2. Composing and Transmitting Messages

Input information to the processor (in the form of a Query Message) is generated by the operator using the alphanumeric and special keys on the UNISCOPE terminal keyboard (see Figure 3-1). As the keyboard keys are pressed, the alphabetic or numeric character etched on the top of the key is simultaneously displayed on the CRT and stored in the SSU or MSU memory.

Messages on the CRT display can be corrected or changed by using the special keyboard editing keys (see Table 3-1). Data is changed by positioning the cursor over the character in the line of data to be changed and pressing the appropriate key.

Message format is determined by the applications programmer. Prior to operating the UNISCOPE terminal the operator must be informed of the conventions to be used for message formats.

Pressing the TRANSMIT key after the message is composed causes the keyboard to become locked, the WAIT indicator to light, and the UNISCOPE terminal to be in a traffic-ready condition. When the Poll Message (request for information) is received at the UNISCOPE terminal the data displayed between the cursor and start-of-message symbol (Δ) or home position (upper left hand corner of screen) is transmitted to the processor. The processor acknowledges correct receipt of the Query Message by transmitting a Keyboard Unlock Code, which extinguishes the WAIT indicator and unlocks the keyboard.

4.4.3. Receiving Processor Messages

During the operation of the UNISCOPE terminal, the processor will transmit the following types of messages:

- Reply Message

This message is sent in response to a previous Query Message.

- Conditional Unsolicited Message

This message is not requested by the operator. It alerts the operator that the processor has a message for display on the UNISCOPE terminal.

- Unconditional Unsolicited Message

This message is not requested by the operator. It is forced on the screen without operator intervention and overwrites any character that may be displayed on the screen in the area addressed by the processor.

- Broadcast Message

This message is not requested by the operator. The processor addresses the UNISCOPE terminals that are to receive the common message, placing them in a standby mode. Certain units on the party line are designated as broadcast units (one MSU attached to a MSCU receives broadcast message). When all terminals are properly addressed, the message is displayed on the screen of each designated UNISCOPE terminal.

The indications and the resulting operator action required for each indication are described in Table 4.1.

UNISCOPE INDICATION	OPERATOR ACTION
REPLY MESSAGE	
WAIT indicator lighted and keyboard locked from previous Query Message	No action – When Reply Message is transmitted by the processor and correctly received at UNISCOPE terminal, WAIT indicator goes out and the keyboard is unlocked.
CONDITIONAL UNSOLICITED MESSAGE	
MESSAGE WAITING indicator lights and audible alarm sounds	Press MESSAGE WAITING key. (MESSAGE WAITING indicator goes out, audible alarm is silenced, WAIT indicator lights and keyboard is locked.) When processor sends a message and it is correctly received at UNISCOPE terminal, WAIT indicator goes out and the keyboard is unlocked.
UNCONDITIONAL UNSOLICITED MESSAGE	
MESSAGE WAITING and WAIT indicators light, audible alarm sounds, and message is displayed on screen.	Press MESSAGE WAITING key. (MESSAGE WAITING and WAIT indicators go out and audible alarm is silenced.)
BROADCAST MESSAGE	
WAIT indicator lights and keyboard is locked	No action – If Broadcast Message is correctly received, WAIT indicator goes out and keyboard is unlocked.

Table 4-1. Operator Response to Processor Output Messages

4.5. FAULT CORRECTION AND RECOVERY PROCEDURES

Fault correction and recovery procedures are those actions required to correct abnormal conditions resulting from operator, communications, processor, or AC power malfunctions. These abnormal conditions and the probable cause and operator action are shown in Table 4-2.

UNISCOPE INDICATION	PROBABLE CAUSE	OPERATOR ACTION
HI TEMP indicator (Figure 3-1) lights	<ol style="list-style-type: none"> 1. Ventilation fan inoperative 2. Object obstructing air flow through filter located beneath keyboard on underside of UNISCOPE terminal cabinet 3. Clogged air filter 	<ol style="list-style-type: none"> 1. Remove AC power plug from wall receptacle or remove rear protective cover and operate AC Power Circuit Breaker to OFF (see Figure 3-2). Notify Supervisor of failure. 2. Remove object impeding air flow. 3. Clean air filter (See Section 5).
FAULT and WAIT indicators (Figure 3-1) light and keyboard is locked.	UNISCOPE terminal detected parity error (check of received data bits) in message from processor. This could be due to either a communication or a processor fault.	<p>No action required — Processor will retransmit message. If message is not retransmitted within a reasonable amount of time, the UNISCOPE keyboard can be unlocked and the logic circuits can be reset manually as follows:</p> <p>SSU — Turn Keylock Switch (Figure 4-1) to OFF. Remove rear protective cover and press Master Clear pushbutton switch (See Figure 3-2). Replace rear protective cover and turn Keylock Switch to ON.</p> <p>MSU — Operate ON-OFF Keylock Switch (Figure 4-1) to OFF then return to ON.</p>
SSU or MSU completely inoperative	AC Power Circuit Breaker (Figure 3-2) on rear of UNISCOPE terminal has tripped due to surge in line voltage or to defective component.	Remove rear protective cover and operate AC Power Circuit Breaker to ON. If AC Power Circuit Breaker remains on, resume operation. If AC Power Circuit Breaker again trips, remove AC power plug from wall receptacle and notify Supervisor of failure.
All MSU's attached to a MSCU inoperative (unable to generate a complete display)	MSCU inoperative — a circuit breaker tripped due to AC voltage variation or defective component (see Figure 3-4).	<p>Locate tripped circuit breaker and operate to ON. If circuit breaker remains on resume operation. If circuit breaker again trips, operate AC PWR On Circuit Breaker to OFF and notify Supervisor of failure.</p> <p>CAUTION: If Main AC, FAULT or LINE Circuit Breaker has tripped, perform steps (4) through (7) in 4.3.3; then perform Turnon Procedure in 4.2.3.</p>
WAIT indicator (Figure 3-1) lighted and keyboard locked for an excessive amount of time	Processor did not send a Keyboard Unlock code to the UNISCOPE terminal after receiving message or acknowledgment.	<p>Keyboard can be unlocked manually as follows:</p> <p>SSU — Turn Keylock Switch (Figure 4-1) to OFF. Remove rear protective cover (Figure 3-2) and momentarily press Master Clear pushbutton. Replace protective cover and turn Keylock Switch to ON.</p> <p>MSU — Turn Keylock Switch (Figure 4-1) to OFF; then back to ON.</p>

Table 4-2. UNISCOPE Terminal Trouble Analysis Table

5. OPERATOR-PERFORMED MAINTENANCE

5.1. GENERAL

Operator-performed maintenance for the UNISCOPE SSU and MSU terminals and Multi-Station Control Unit (MSCU) is limited to air filter replacement. It is necessary that the air filters be replaced as specified to prevent the unit from overheating causing premature component failure. The air filters should be replaced by qualified personnel once each month if the unit is in continuous operation or proportionately less often if operation is not continuous.

5.2. AIR FILTER REPLACEMENT

Air filters are used in the Single Station UNISCOPE (SSU), Multi-Station UNISCOPE (MSU) terminals and MSCU. One filter is located beneath the Keyboard/Control Panel in the SSU and MSU units and is accessible from the front of the unit. Two filters are located inside the MSCU cabinet and each can be reached by opening the service door on the front and rear of the cabinet.

5.2.1. Single Station and Multi-Station UNISCOPE Terminals

The air filter in each SSU and MSU cabinet is indicated in Figure 5-1. To replace the air filters, proceed as follows:

- (1) Raise front of unit approximately 4 inches and support unit by blocking it.
- (2) Reach under the Keyboard/Control Panel and move each slide fastener (one on each corner of air filter) toward the front outside edge. Remove air filter.
- (3) Insert replacement air filter, return slide fasteners to their original position, and lower the unit from the blocked position.

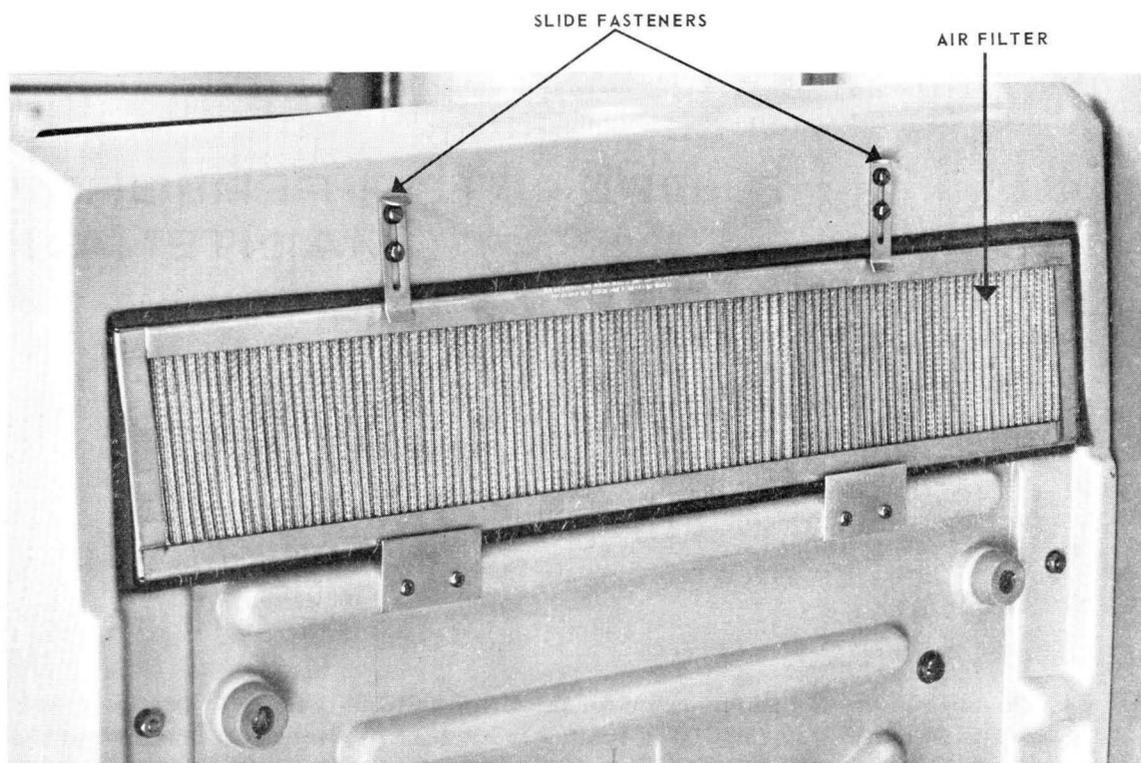


Figure 5-1. UNISCOPE Terminal, Bottom View

5.2.2. Multi-Station Control Unit

Two air filters are located in the MSCU cabinet. To replace the air filter, proceed as follows:

- (1) Open front door of MSCU cabinet. Lift the air filter until the bottom of the air filter is clear of the holder and remove.
- (2) Insert upper edge of replacement filter into slot in top of holder. Move bottom edge of air filter into holder and lower it into place. Close front door of MSCU cabinet.
- (3) Open rear door of MSCU cabinet and repeat steps (1) and (2).

