

**“VUSET*” DS150C DATA TERMINAL
MAINTENANCE
COMMUNICATION DISPLAY TERMINALS**

1. GENERAL

1.01 This section covers the VUSET DS150C data terminal manufactured by Plantronics, Inc., of Santa Cruz, California.

1.02 Whenever this section is reissued, the reason(s) for reissue will appear in this paragraph.

*Registered trademark of Plantronics, Inc.

1.03 Information covering the maintenance of the data terminal is contained in the attached reprint of the practice prepared by Plantronics, Inc.

1.04 Information covering the description, installation, and operation of the data terminal is contained in Section 578-160-102.



VuSet® DATA TERMINAL
DS150C

CONTENTS	PAGE	FIGURES	PAGE
1. MAINTENANCE	1	Figure 1, Terminal Bottom View	2
General Information	1	Figure 2, Removing Chassis From Housing ..	3
Recommended Tools and Equipment	1	Figure 3, Left Side of Chassis	4
Disassembly/Reassembly Procedures	1	Figure 4, Rear View of Chassis	5
Fault Isolation Procedure	10	Figure 5, Right Side of Chassis	6
Video Brightness Control	10	Figure 6, Removal of Data	
Video Patterns	10	Converter Board	8
Margin Control Adjustment	11	Figure 7, Chassis With Data	
Cleaning and Touch-Up Procedure	11	Converter Board Removed	9
		Figure 8, Top View of Chassis	11
		Figure 9, Front Panel Removal	12
2. SPARE PARTS LIST	13	Figure 10, Disassembled Terminal	13



VuSet[®] DATA TERMINAL DS150C

1. MAINTENANCE

General Information

1.01 This manual contains maintenance and repair instructions, to the subassembly level, for the VuSet DS150C Data Terminal. Included are Recommended Tools, Disassembly/Reassembly, Fault Isolation, Cleaning and a Spare Parts List. The Fault Isolation Procedure is intended to aid TelCo personnel in isolating damage and/or malfunction to a particular subassembly and determination of disposition with a minimum of external test equipment.

Recommended Tools and Equipment

1.02 A WECO type 2500 telephone or equivalent and access to a VuSet Data Set and DTE Simulator will be needed, along with standard hand tools.

Disassembly/Reassembly Procedures

1.03 Each subassembly is removable independently of the others, with the exception of the demodulator board assembly. Removal procedure for each subassembly is followed immediately by its replacement procedure. When removing any part, ensure that the power cord and interface cable are disconnected from the terminal chassis.

CAUTION: Hazardous voltages may be present at or near the second anode of the cathode ray tube. (See Figure 8.) Voltage dissipates within 10 seconds after power OFF. Other hazardous voltages exist in portions of the Display Monitor Assembly.

1.04 Chassis Removal:

- a) Disconnect the power supply cord from the power main.
- b) Disconnect the power supply cord from the back of the terminal.
- c) Disconnect the interface cable from the back of the terminal.
- d) Remove the three #6-32 screws from the bottom of the terminal (See Figure 1)
- e) Slide the terminal chassis out the front of the housing. (See Figure 2)

NOTE: For troubleshooting purposes, the terminal may be operated with the outer housing removed by reconnecting the power cord and interface cable.

1.05 Chassis Replacement:

- a) Disconnect the power supply cord from the power main.
- b) Disconnect the power supply cord from the back of the terminal.
- c) Disconnect the interface cable from the back of the terminal.
- d) Slide the terminal chassis into the housing from the front.
- e) Install the three #6-32 screws on the bottom of the terminal. (See Figure 1)

1.06 Regulator Board Removal:

- a) Disconnect the power supply cord from the power main.
- b) Disconnect the power supply cord from the back of the terminal.
- c) Disconnect the interface cable from the back of the terminal.
- d) Disconnect connectors J2C and P1C from the regulator board. (See Figure 3)

CAUTION: J1A, J1B, J1C, P1A, P1B, and P1C are dual in-line ribbon type cable connectors and should be removed carefully with a thin screwdriver, being careful not to bend the pins. Other terminal connectors are retained by spring type metal clips or RTV on some models.

- e) Remove the three regulator support screws (#4-40) from the back chassis. (See Figure 4)
- f) Remove the board by pulling it up from the chassis being careful not to lose the mica washer insulating the transistor from the chassis.

1.07 Regulator Board Replacement:

- a) Slide the board into place from the top of the terminal.
- b) Install the two bottom #4-40 screws into the back panel. Do not tighten. (See Figure 4)
- c) Insert the mica washer, coated with heat conductive silicone, between the back panel and the top transistor on the regulator board.
- d) Install the top #4-40 screw into the back panel and tighten all three screws.
- e) Connect J2C and P1C to the regulator board. (See Figure 3)

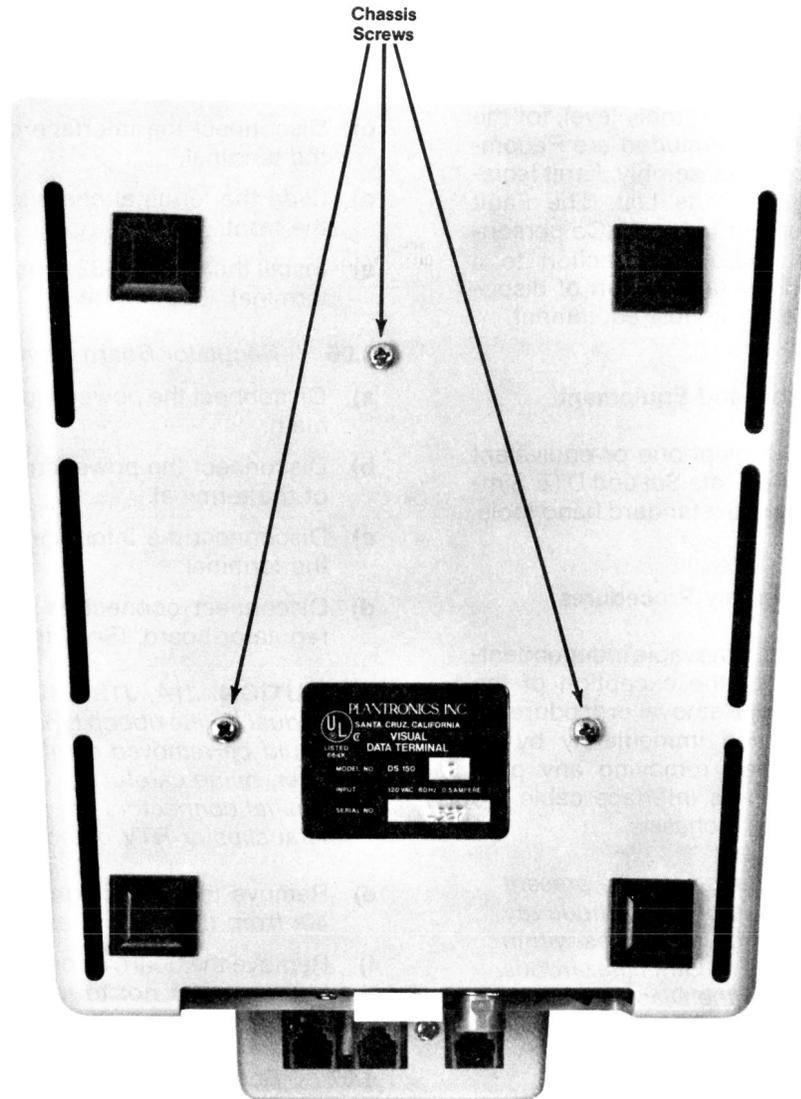


Figure 1, Terminal Bottom View

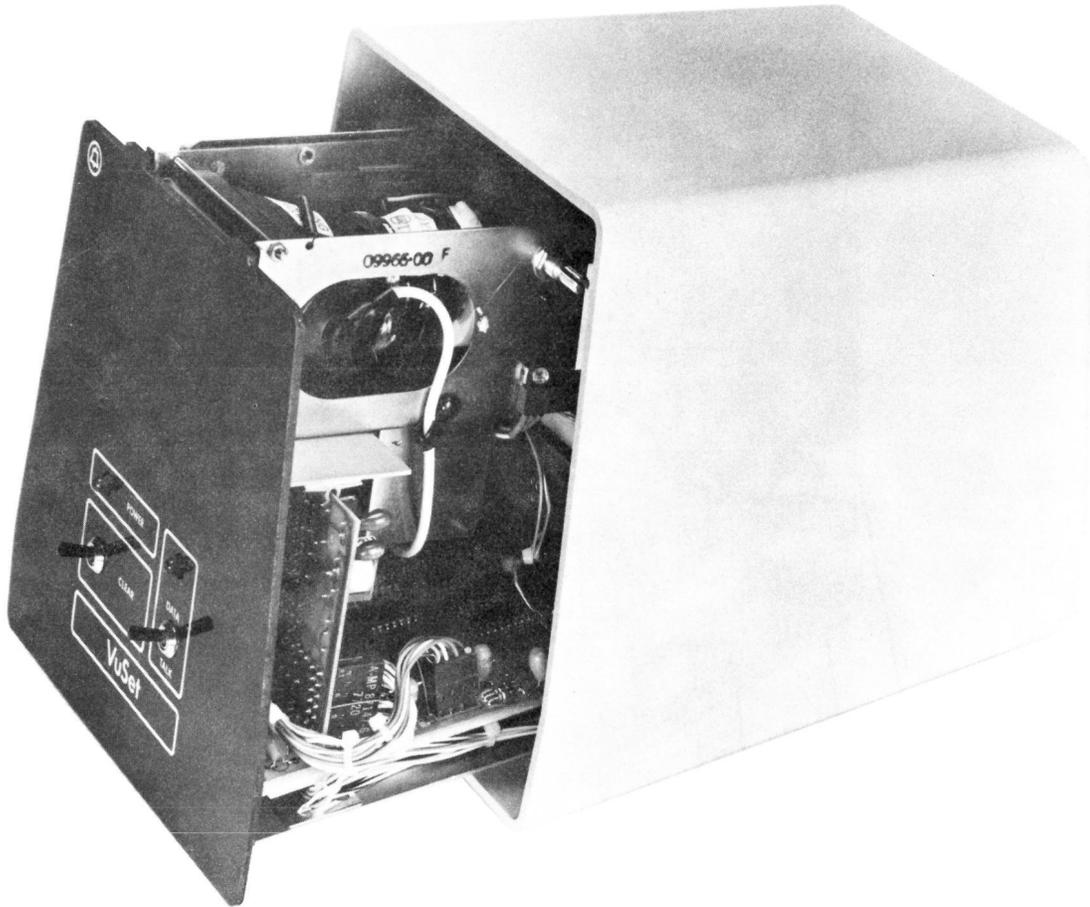


Figure 2, Removing Chassis From Housing

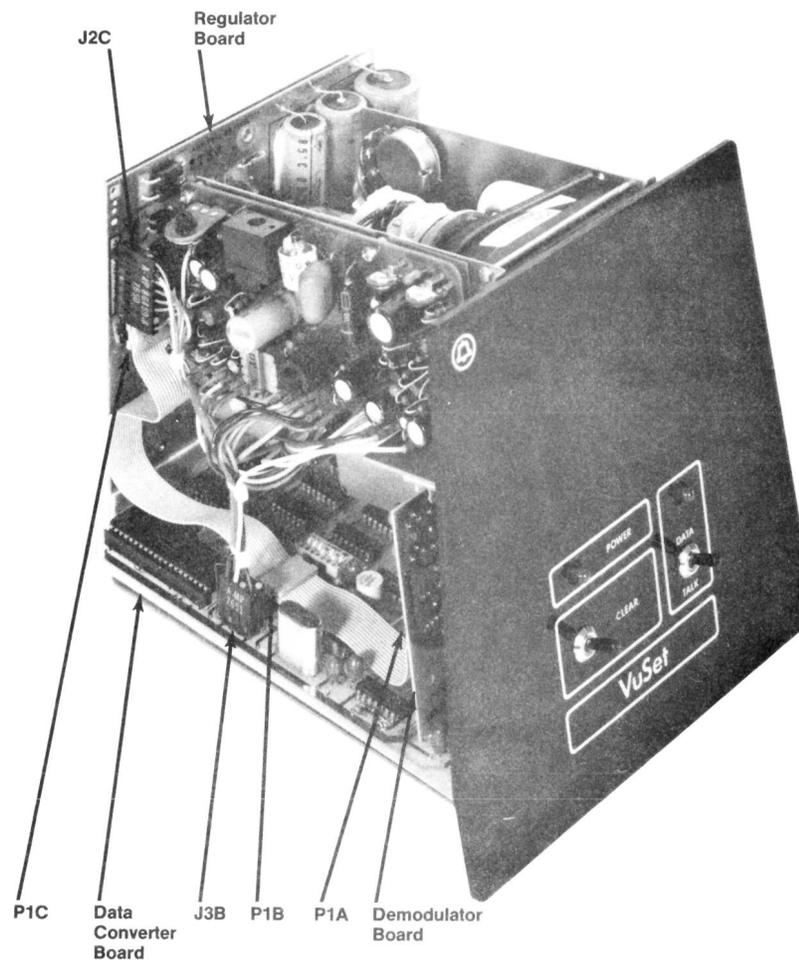


Figure 3, Left Side of Chassis

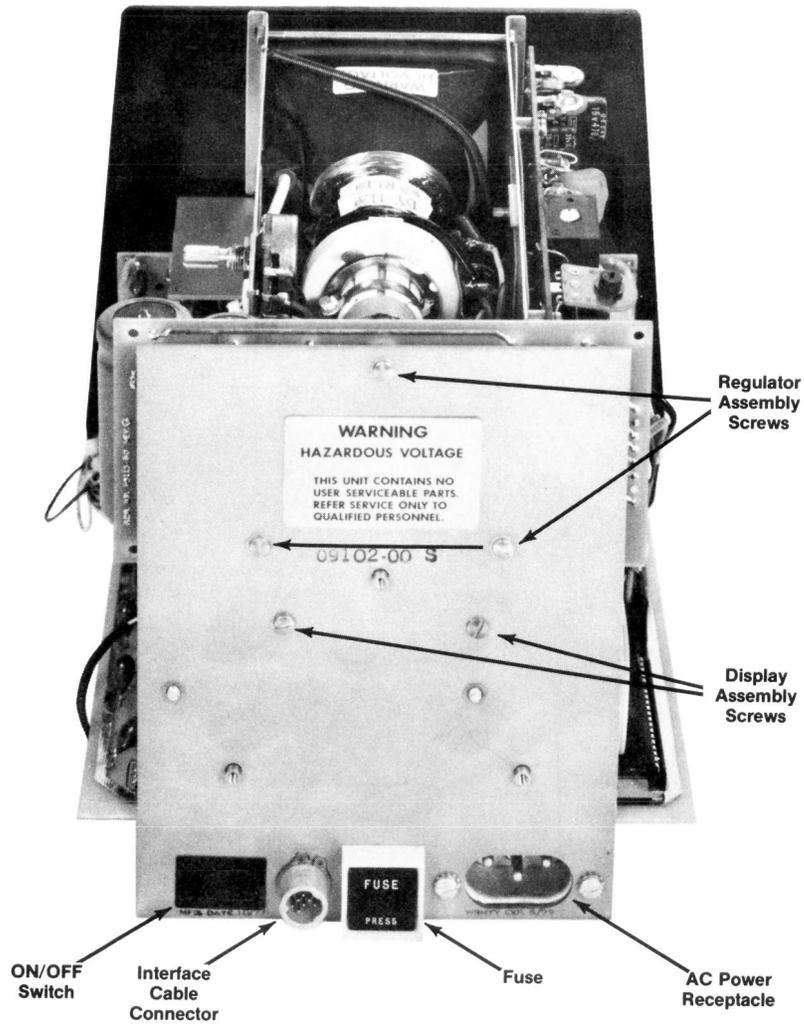


Figure 4, Rear View of Chassis

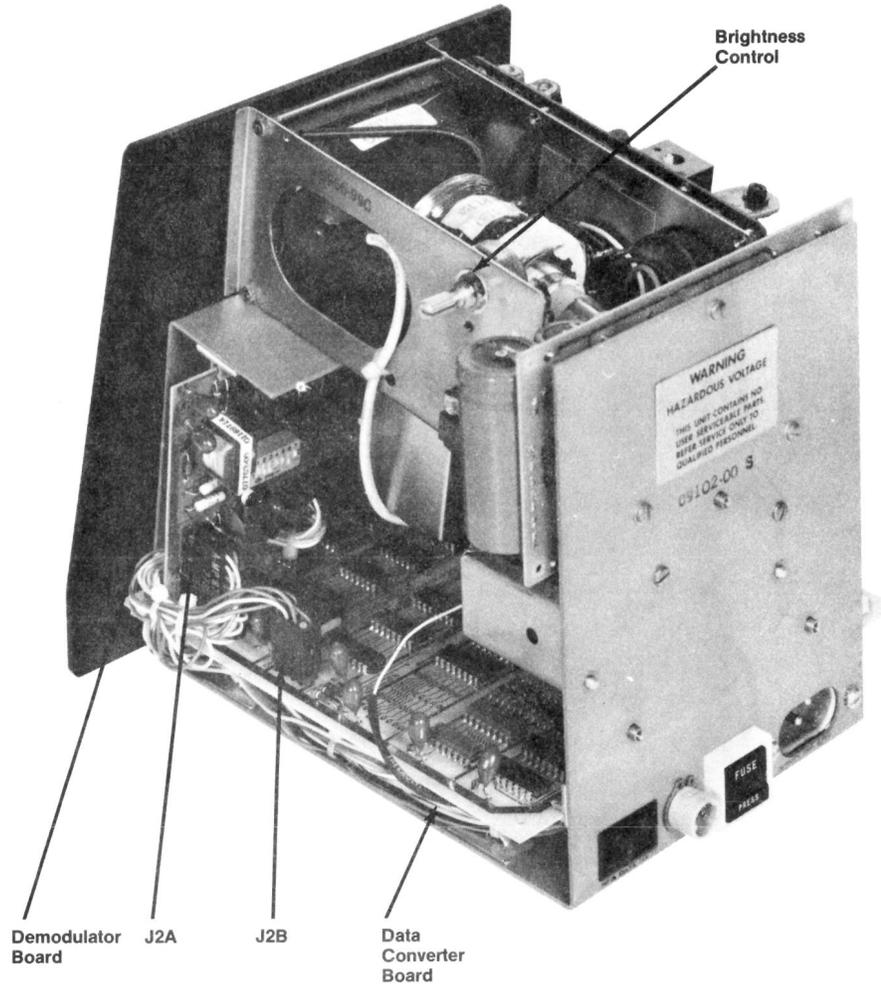


Figure 5, Right Side of Chassis

VuSet SYSTEM

1.08 Data Converter Removal:

- a) Disconnect the power supply cord from the power main.
- b) Disconnect the power supply cord from the back of the terminal.
- c) Disconnect interface cable from the back of the terminal.
- d) Disconnect P1B, J2B and J3B from the data converter board. (See Figures 3 and 5)
- e) The data converter board can be removed by sliding it out of the card guide from the left side of the terminal (See Figure 6). The opposite side is restricted for data converter removal because of the wiring between subassemblies.

1.09 Data Converter Replacement:

- a) Slide the data converter board into the card guides from the left side of the terminal. (See Figure 6)
- b) Connect P1B, J2B and J3B to the data converter board. (See Figures 3 and 5)

1.10 Demodulator Board Removal:

- a) The data converter board must be removed before removing the demodulator board. (See paragraph 1.08)
- b) Disconnect the power supply cord from the power main.
- c) Disconnect the power supply cord from the back of the terminal.
- d) Disconnect the interface cable from the back of the terminal.
- e) Disconnect P1A and J2A from the demodulator board. (See Figures 3 and 5)
- f) Remove the demodulator board by pressing in the keeper on the standoff. (See Figure 7). The demodulator board may now be pulled loose from the standoff by swinging the bottom of the board rearward, away from the front panel. Pull downward gently to release the upper edge from its guide.

NOTE: Care should be taken when removing the board that it does not catch on the wiring harness for the lamps.

- g) The board may now be cleared from either side of the chassis.

1.11 Demodulator Board Replacement:

CAUTION: Care should be taken when replacing the demodulator board, that it does not catch on or pinch the front panel wiring harness.

- a) The data converter board must **not** be in place before installing the demodulator board.

- b) Place the upper (straight) edge of the demodulator board in the chassis and guide with components facing rearward, and traces facing the front panel; push upward to seat in guide. (See Figure 7.)
- c) Press the demodulator board onto the snap-on standoff.
- d) Connect P1A and J2A to the demodulator board. (See Figures 3 and 5) Reconnect spring retainers whenever completing an electrical reconnection.

1.12 Display Assembly Removal:

CAUTION: Hazardous voltages may be present at or near the second anode of the cathode ray tube. (See Figure 8)

- a) Disconnect the power supply cord from the power main.
- b) Disconnect the power supply cord from the back of the terminal.
- c) Disconnect the interface cable from the back of the terminal.
- d) Disconnect J3B from the data converter board. (See Figure 3)
- e) Remove the regulator board per 1.06.
- f) Remove the two display support screws (#4-40) from the back of the chassis. (See Figure 4)
- g) Loosen the two display assembly hold-down screws (#4-40) on each side of the CRT. (See Figure 8)
- h) Slide the display assembly forward to clear the hold-down screws; it can now be cleared straight up from the main chassis being careful not to scratch the front panel.

1.13 Display Assembly Replacement:

CAUTION: Hazardous voltages may be present at or near the second anode of the cathode ray tube. (See Figure 8)

- a) Place the display assembly over the two hold-down screws (#4-40) and slide back and tighten the screws.
- b) Install the two support screws (#4-40) in the back of the chassis. (See Figure 4)
- c) Connect J3B to the data converter board. (See Figure 6)

1.14 Front Panel Removal:

- a) Remove the nuts on the DATA/TALK and CLEAR switches with a 7/16" open end wrench, being careful not to mar the plastic front panel. The front panel should now be free from the toggle switches. (See Figure 9)

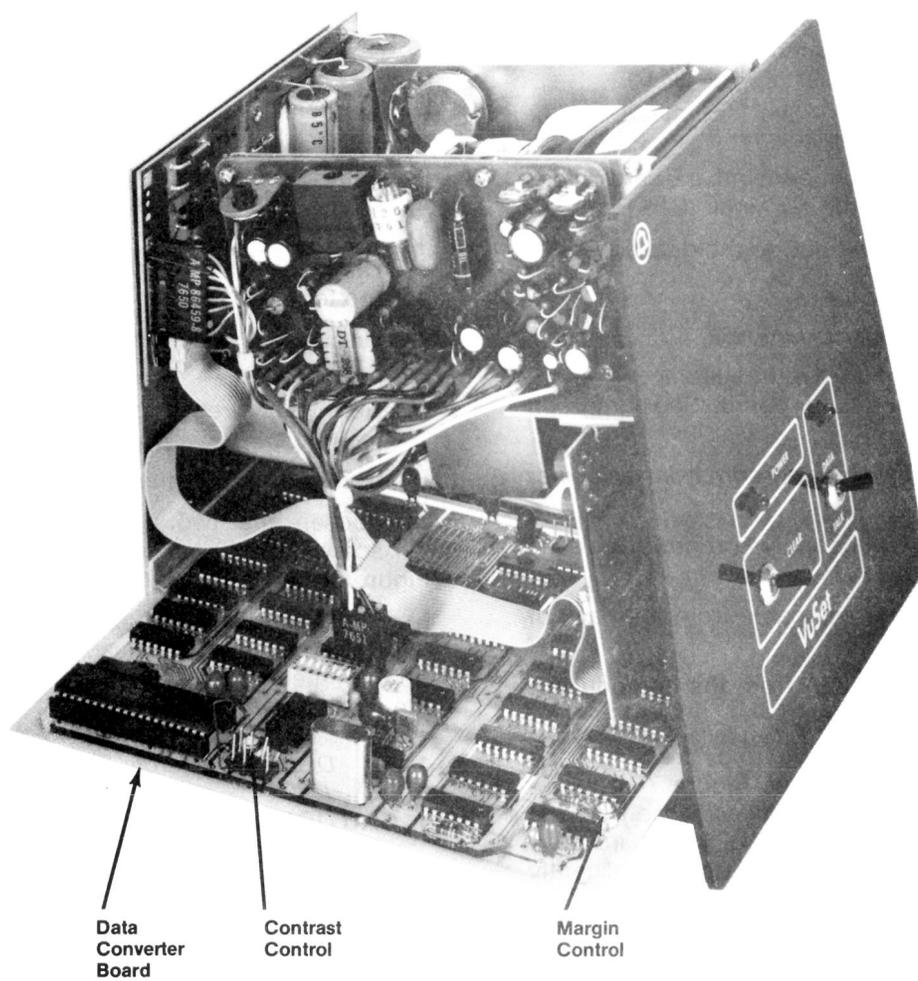


Figure 6, Removal of Data Converter Board

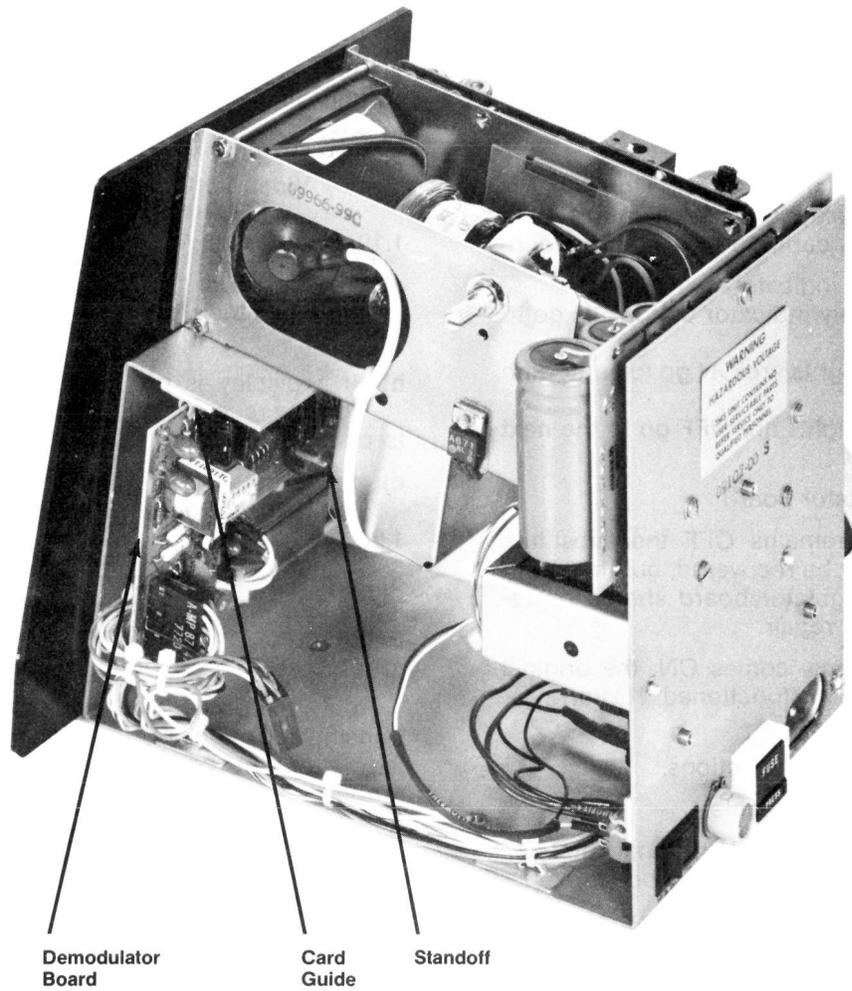


Figure 7, Chassis With Data Converter Board Removed

1.15 Front Panel Replacement:

- a) Place the front cover in place over the DATA/TALK and CLEAR switches.
- b) Install the nuts on the DATA/TALK and CLEAR switches and tighten.

Fault Isolation Procedure

1.16 Connect VuSet terminal to an appropriate FSK signal and apply A.C. power.

1.17 Perform a preliminary check-out and determine that data modulated FSK signals can be heard in the handset receiver. Do not place handset in telephone cradle. Depress CLEAR switch.

- a) Observe Display Screen:
 1. If there are any light areas or a grey background in the display, go to paragraph 1.19(f).
 2. If display remains dark, go to next paragraph.
- b) Observe front panel indicators:
 1. If power is the only indicator that is ON go to paragraph 1.12.
 2. If both indicator lights are ON go to paragraph 1.19.
 3. If both indicator lights are OFF go to the next step.
- c) Substitute the regulator board.
- d) If power indicator remains OFF the substitute regulator board may be recovered, but the terminal with the original regulator board should be returned to the factory for repair.
- e) If power indicator now comes ON, the original regulator board has malfunctioned. Restart procedure.
- f) Recheck the interface connections.
- g) If OK substitute interface cable.
- h) If data lamp now comes ON original interface cable has malfunctioned. Restart procedure.
- j) If data lamp remains OFF go to the next step.
- k) Substitute the demodulator board.
- l) If the data lamp indicator now comes ON, the original demodulator card has malfunctioned. Restart procedure.
- m) If the data lamp indicator does not come ON, the terminal has malfunctioned. Substitute part(s) may be recovered and the terminal should be returned to the factory for repair.

Video Brightness Control (Figure 5)

CAUTION: *Too much brightness on the CRT display can cause an image to be permanently burned into the face of the screen.*

1.18 Adjust video brightness as follows:

- a) Rotate first counter-clockwise to stop, then clockwise to stop, while observing the display screen. Return to original setting.
- b) If the display screen remains dark, go to paragraph 1.19.
- c) If a white (grey) raster background, or white pattern appears, set brightness for ease of viewing and go on to next paragraph.

Video Patterns

1.19 Adjust Video Patterns as Follows:

- a) If a single line or a solid horizontal line appears on the screen just above center, go to paragraph 1.20.
- b) If a display is not dark and there are not well formed recognizable alphanumeric characters, go to paragraph 1.20(e).
- c) If the patterns are alphanumeric characters but the text lines are tilted or ragged, go to paragraph 1.20 (f).
- d) If the characters appear to be correct but the text lines are formed off screen to the left or right, go to paragraph 1.20(e).
- e) Characters are well formed but data (text) on display screen does not correspond with data being transmitted, or display format not correct. If transmitted data rate is known to be correct, go to next paragraph.
- f) Substitute the demodulator board assembly.
- g) If data is now correct, the original demodulator board has malfunctioned.
- h) If data is not correct, re-install the original demodulator board and go to next paragraph.
- j) Substitute the data converter.
- k) If the data is now correct, the original data converter board has malfunctioned.
- l) If the data is incorrect, re-install the original data converter board and go to next paragraph.
- m) Substitute the regulator board assembly.
- n) If data is now correct, the original regulator board has malfunctioned. Replace regulator board. Adjust brightness and contrast control if necessary. (See Figures 5 and 6).
- o) If symptom has remained, re-install the original regulator board and return the terminal for repair.

VuSet SYSTEM

Margin Control Adjustment (Figure 6)

1.20 Adjust Video Margin as Follows:

- a) If the data can be centered using the margin control, set the control for the best display and retest the terminal.
- b) If data cannot be centered using the margin control, go to the next paragraph.
- c) Substitute the data converter board assembly.
- d) If data is correct and can be centered by using the margin control (See Figure 6) or if the symptoms are now different, the original data converter board has malfunctioned.
- e) If symptom has remained, re-install the original data converter board and go to next paragraph.
- f) Substitute the display assembly module.
- g) If data is correct and can be centered using the margin control or if the symptoms are now different, the original display assembly module has malfunctioned.

- h) If the symptom has remained, re-install the original display module and return the terminal to the factory for repair.

Cleaning and Touch-Up Procedure

1.21 Soap and warm water applied with a damp towel to all external surfaces will give the best results. For stubborn scuff marks, most commercial cleansers can be used as directed without harm. Care should be taken to avoid scratching the surface.

1.22 The acrylic plexiglass front panel may be washed with plain water or window cleaner. Use a lintless cloth or tissue to polish. Caution should be taken in cleaning the plastic screen as it is easily scratched. Use only non-abrasive cleaning cloths for this purpose.

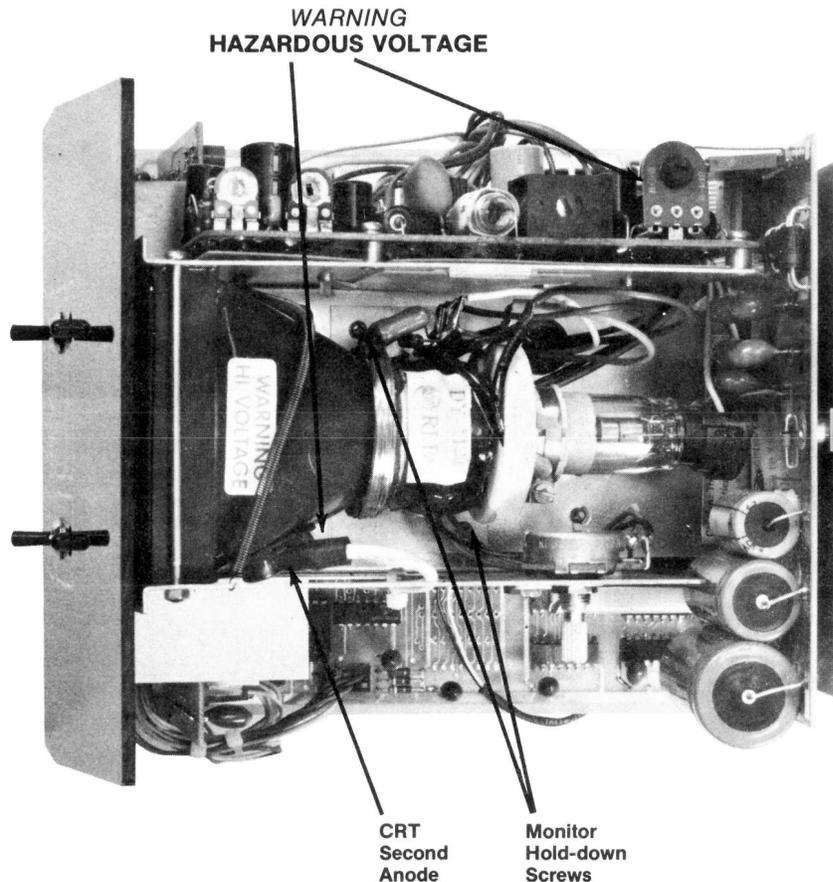


Figure 8, Top View of Chassis

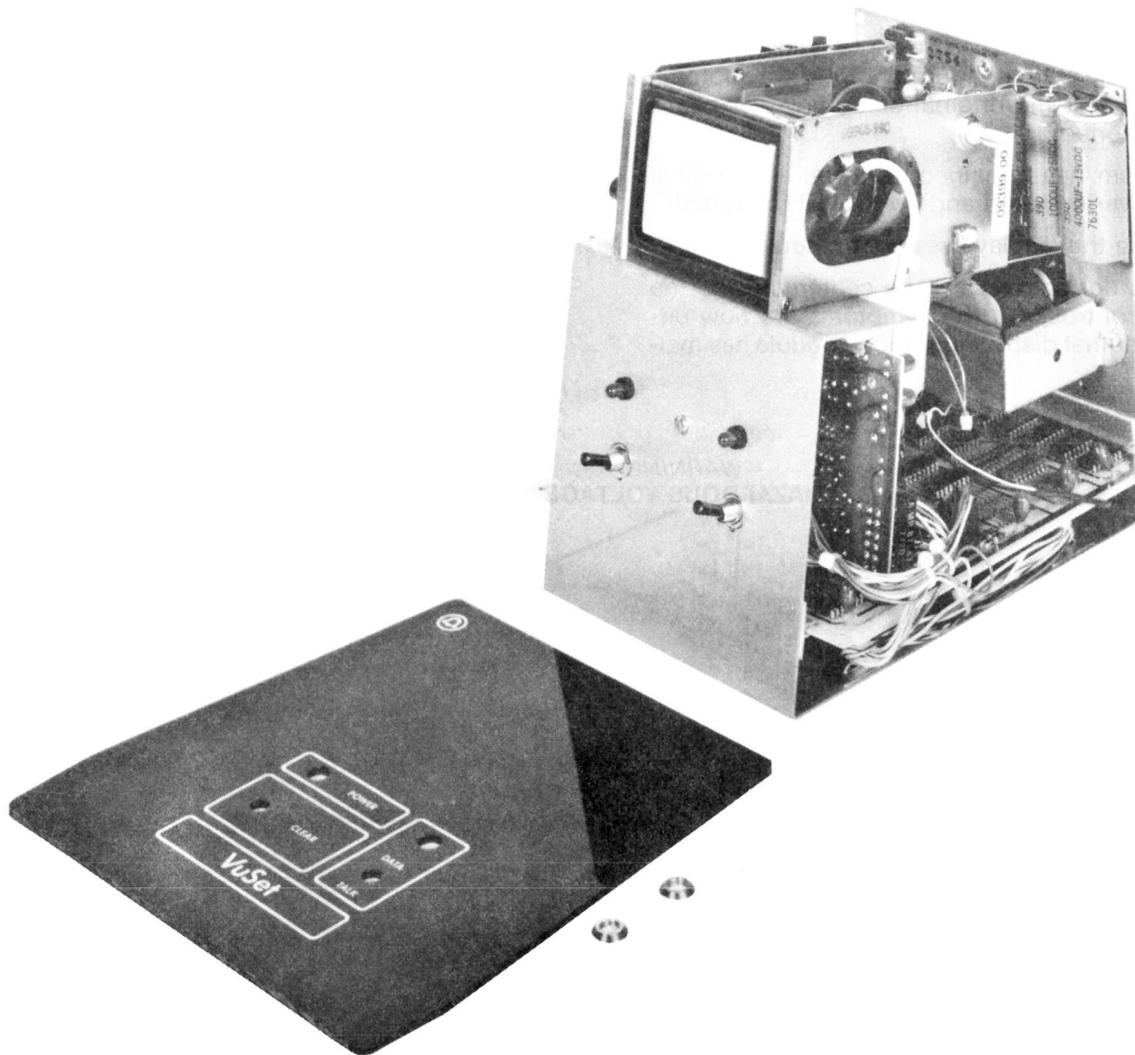


Figure 9, Front Panel Removal

VuSet SYSTEM

2. SPARE PARTS LIST

2.01 Figure 10 is a pictorial description of the replaceable subassemblies. The following table indicates the Plantronics part number, description and reference number of Figure 10 for these subassemblies:

Part #	Description	Reference #
09966-00	Display Subassembly	1
10867-02	Interface Cable Kit	—
09172-00	Fuse Kit	—
09113-01	Regulator Board	2
10824-01	Data Converter Board	3
09077-01	Interconnect Buss	4
10861-01	Demodulator Board	5
10143-01	Front Panel	6
07779-01	Power Cord	7
09803-00	Terminal Packing Kit (Set of 5)	—
09105-01	TOUCH-TONE Interface Cable Kit	8

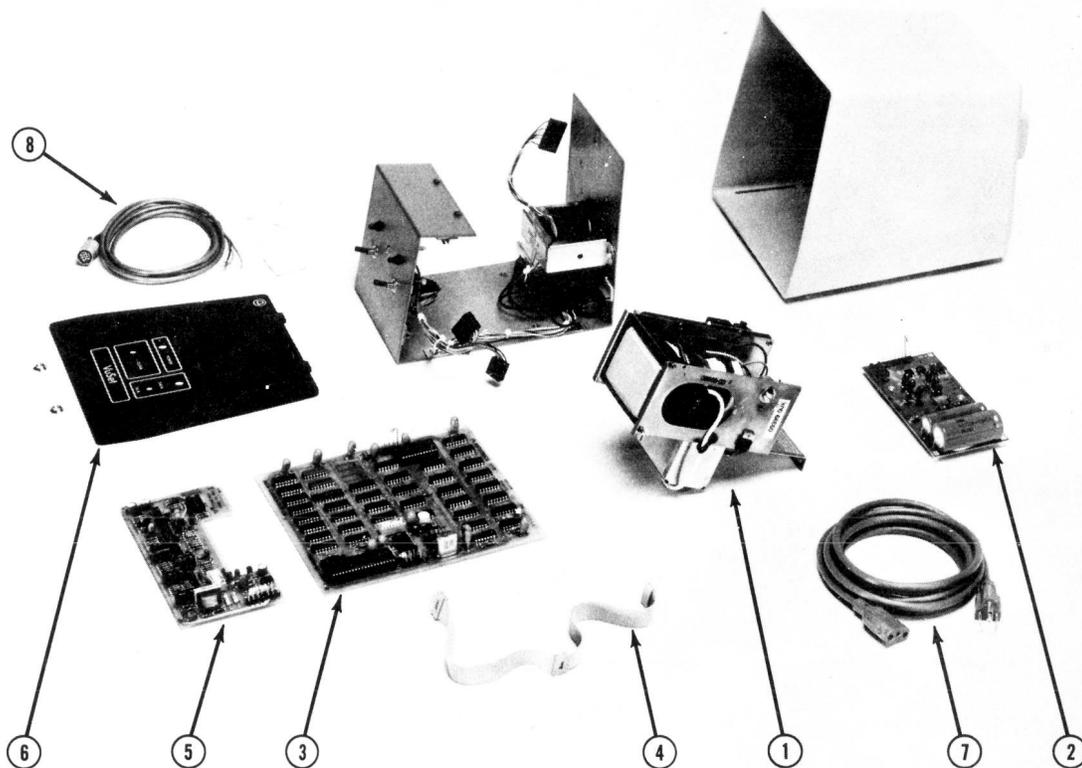


Figure 10, Disassembled Terminal

11001-00

Plantronics, Inc. | 345 Encinal Street | Santa Cruz, California 95060 | 408/426-5858