CalComp

2500 Series

User's Manual

TRADEMARKS

Each of the following products is a trademark, a registered trademark or a copyright of the company listed after the product name.

CADVANCE	CALCOMP CORPORATION
AUTOCAD	AUTODESK, INC.
MICRO DIGI-PAD	GTCO CORPORATION
DP5, MD7	
SERIES I, SERIES	KURTA CORPORATION
TIGER	HITACHI CORPORATION
HDG 1111, HDG 1515	
BITPAD 1	SUMMAGRAPHICS
BITPAD 2, 1103, 1105, MM	
VERSACAD	T&W SYSTEMS
ANVIL	MANUFACTURING AND CONSULTING SERVICES
HI PAD	HOUSTON INSTRUMENTS
PERSONAL DESIGNER	COMPUTERVISION
1MPRESSIONIST	EXECUCOM
MIRAGE	ZENOGRAPHICS
DR HALO II	MEDIA CYBERNETICS
CAD KEY	MICRO CONTROL SYSTEMS, INC.
GENERIC CADD	GENERIC SOFTWARE
POINTLINE	POINT LINE COMPANY
DRAFIX I	FORESIGHT RESRURCES CORP.

WARNING

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15, FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that such interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna.

Relocate the computer/device with respect to the receiver.

Move the computer/device away from the receiver.

Plug the computer into a different outlet so that computer and receiver are on different circuits.

Reorient or coil cables.

Keep cursor or pen on the active area.

If necessary, consult the dealer or an experienced radio/television technician for additional suggestions.

You may find the following booklet helpful:

"How to Identify and Resolve Radio TV Interference Problems". The booklet is available from the U. S. Government Accounting office, Washington, DC 20401. The stock number is 004-000-00345-4 (FCC, Part 15,838 b).

CAUTION:

Any cables the user adds to the device must be shielded to be in compliance with the FCC standards.

COPYRIGHT NOTICE

WARRANTY

Seller makes no warranties except as set forth herein. Seller warrants that articles furnished hereunder are free from defects in material and workmanship, and perform to applicable published CalComp specifications. This warranty is in lieu of any other warranty expressed or implied. In no event will seller be liable for special or consequential damages as a result of any alleged breach of this warranty provision. (This does not apply in those states that do not allow exclusions or limitations of consequential damages.) The liability of Seller hereunder shall be limited to replacing or repairing, at its option, any defective units which are returned FOB Seller's plant during such applicable warranty period as is set forth below. Equipment or parts which have been subjected to abuse, misuse, accident, alteration, neglect or unauthorized repair or installation are not covered by warranty. Seller shall have the right of final determination as to the existence and cause of defect. As to items repaired or replaced, the warranty shall continue in effect for the remainder of the warranty period on the original equipment, or for thirty days following date of shipment by Seller of the repaired or replaced part, whichever period is longer. No liability is assumed for expendable items, such as pen ink cartridges and fuses.

The periods of warranty for the various classes of equipment are:

Subassemblies and Accessories -- 1 year from date of shipment by Seller.

Standard and Modified Standard CalComp Equipment -- 1 year from date of shipment or date of installation by Seller (if installation is provided hereunder).

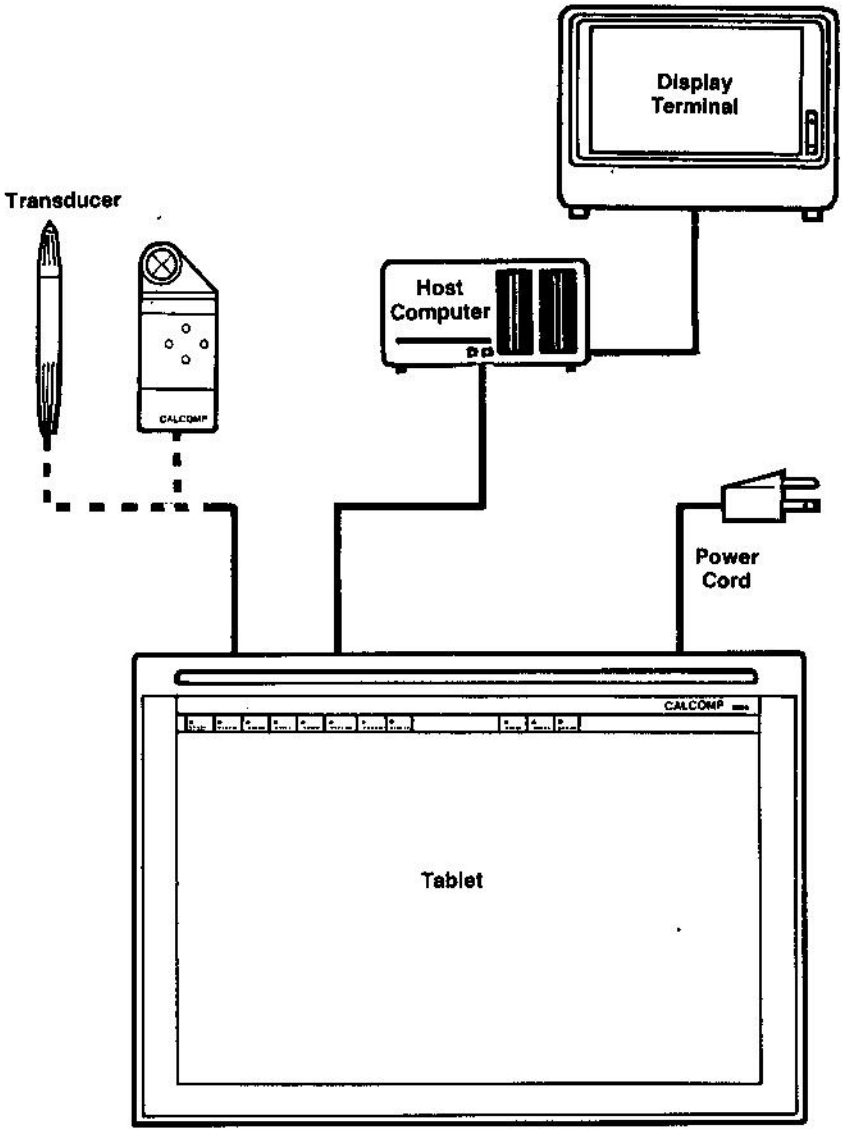
Custom Equipment or Product Produced to Buyer's Specifications -- No warranty is made with respect to this class of equipment, except as specifically stated in the contract.

SHIPPING DAMAGE

Inspect and test equipment as soon as it is received. If the equipment shows signs of damage, please notify the carrier immediately and request that their claims agent prepare a report of damage.

Table of Contents

INTRODUCTION 1
INSTALLATION 4
SWITCHES AND INDICATORS 8
SETTING THE SOFT SWITCHES 10
SELECTED APPLICATIONS SOFTWARE 12
SWITCH CONTROLLED PARAMETERS 19
SWITCH BANK SETTINGS 21
DATA OUTPUT FORMATS 27
FORMAT DEFINITIONS 28
MODEL-TO-FORMAT CONVERSION 30
ASCII OUTPUT FORMATS 32
BINARY OUTPUT FORMATS 36
OPERATING MODES 40
TROUBLESHOOTING 42
TABLET DIAGNOSTIC TESTS 44
MAINTENANCE 51
CHANGING THE OPERATING VOLTAGE 52
COMMUNICATION INTERFACE 54
ACCESSORIES 55
SPECIFICATIONS 56
FACTORY SETTINGS 57
COMMANDS 58
2000 SERIES COMMAND SUMMARY 89
16-BUTTON CURSOR COMMAND SUMMARY . . 90
9100 COMPATIBLE COMMAND SUMMARY 91
BASIC DIAGNOSTIC PROGRAM 99
ASCII CODE CHART 100
MENU OVERLAY ILLUSTRATION 101
INDEX 102


Display
Terminal
Transducer
Host
Computer
Power
Cord
CALCOMP
Tablet

INTRODUCTION

The CalComp 2500 Tablet, when used with the appropriate host computer and applications program (or "software"), is a means of entering information into the computer. The tablet produces position information which is used by the host and software. A change of software can convert the tablet from a drafting table to a special function keyboard.

Tracing existing art, or drawing freehand, on the tablet's surface with the cursor or stylus converts the cursor position into digital information for the software. The software converts this information into lines and colors on the computer display.

The tablet can be used as a special menu or function selection device. An overlay with commands is placed on the tablet. Activating the cursor or stylus over the position of a command sends the corresponding command to the software as if a key had been pressed.

The tablet can also be used to steer the display screen's cursor to on-screen menu selections. Move the cursor or stylus on the tablet; the screen cursor moves in the same direction. Push one of the cursor buttons or depress the stylus tip to activate the menu command indicated by the screen cursor.

The 2500 tablet may be set to emulate CalComp's 2000, 4000 wedge, 2200 and 9100 series tablets as well as many other manufacturers' tablets.

USING THIS MANUAL

The 2500 tablet may be used as an input tablet for graphics software, with the software controlling all aspects of the tablet's operation. It may also be operated as an interactive graphics input device, under operator or host control.

The first pages of this manual give the installation procedure, explain basic tablet operation and include the switch settings for several commercially available CAD programs. If you will be using the tablet only as an input for a graphics program, you may not need to read further.

The rest of the manual explains the operating modes, gives details of the output formats, lists the pinout of the communications interface, explains how to change the operating voltage or fuses, and contains the commands that are necessary to operate the 2500 tablet as if it were a 2000 or 9100. A detailed troubleshooting section covers the most common causes of tablet problems; it also explains how to use the built-in diagnostic functions.

WARNINGS, CAUTIONS AND NOTES

WARNINGS

A warning indicates conditions, practices or procedures which must be followed to avoid injury or loss of life.

CAUTIONS

A caution indicates conditions, practices or procedures which must be followed to avoid equipment damage or destruction.

NOTES

A note highlights information of special importance or interest to the user.

DEFINITIONS USED IN THIS MANUAL

The "top" of the tablet as used in this manual is the frame edge with the CALCOMP logo. The "bottom" is the edge opposite the logo.

"Right" and "left", "up" and "down" are with respect to the top of the tablet, as you would see it during normal operation.

The tablet may be producing data for a personal computer, an engineering or drafting mini-computer workstation or a remote main-frame computer with multiple terminals. This manual refers to the device at the other end of the RS-232 cable as the "host", regardless of the type of device.

To "digitize" is the act of using the cursor or stylus to convert graphic information into digital information; to "pick" is the act of placing the cursor or stylus on a menu choice and pressing a button or clicking the stylus to activate that command. Pick is also used when a point on the tablet surface must be designated as part of a command sequence.

THEORY OF OPERATION

The cursor or stylus emits a weak electromagnetic field like a radio signal. A conductive grid in the active area acts like an antenna. The grid picks up the signal and transmits it to the tablet's microprocessor. The microprocessor calculates the position of the cursor or stylus on the grid, converts it to the designated output format and sends the information out the communications port to the host. The program, or software, receives the information and responds.

INSTALLATION

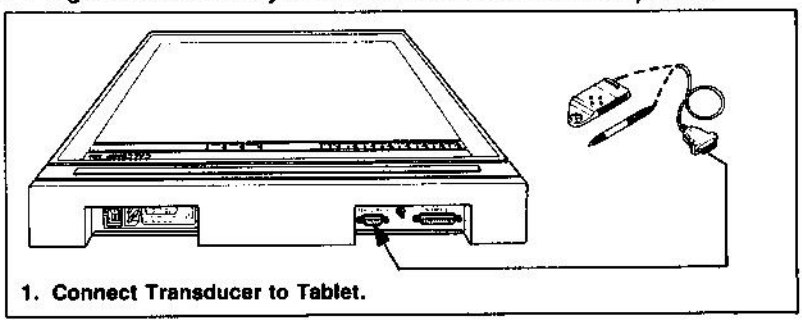
Before beginning the installation, check the voltage indicator pin at the rear of the tablet to ensure that the voltage is correct for your locale. The indicator pin should appear in the 120 volt position for areas with 100-125 Volts AC, and the 240 Volt position for 200-250 Volts AC. If necessary, see page 52 to change the operating voltage and fusing.

Then connect the tablet to the host, turn on the power and set the tablet's soft switches to correspond to the host and software's requirements. A selection of switch settings is included on page 12.

TABLET CONNECTIONS

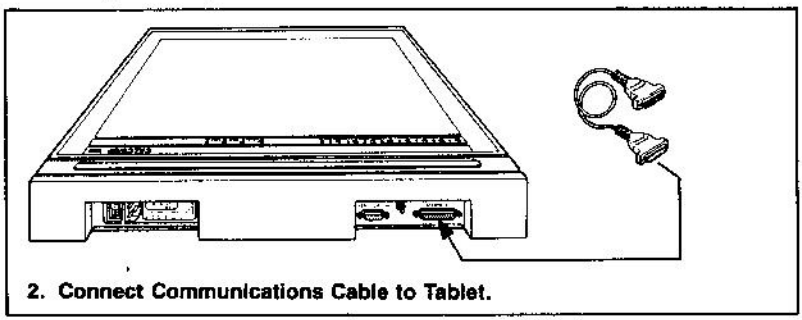
All cable connections are made on the rear panel of the 2500 tablet. After connections are made, tighten the screws of each plug connector with a flat head screwdriver.

1. Plug the cursor or stylus cable into the smaller receptacle.



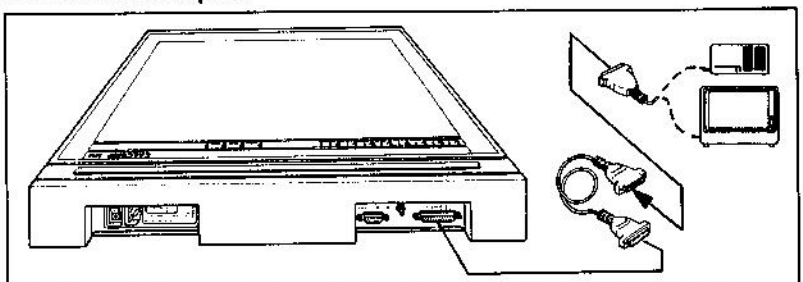
1. Connect Transducer to Tablet.

2. Connect the Asynchronous Communications Cable (RS-232C) into the larger receptacle. Be careful not to bend the connector pins.



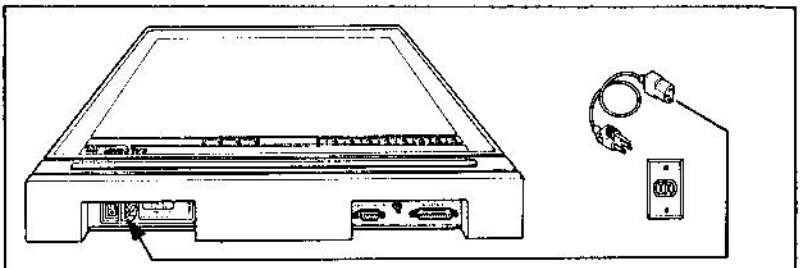
2. Connect Communications Cable to Tablet.

3. Connect the other end of the RS-232C cable to the host's communications port.



3. Connect Communications Cable to Terminal Display/Host Computer.

4. Connect the tablet's power cable to the tablet and to a wall power outlet.



4. Connect Power Cable to Tablet and to Power Outlet.

5. Turn the 2500 tablet ON. The power switch is next to the power cord at the rear of the tablet. 0 is off, and 1 is on. The tablet will run a series of self-tests and then beep to indicate it is ready. If the TEST light is flashing after power up, see page 42.

OPTIONAL POWER INPUT

Power can be applied to the tablet either through a line cord from an AC outlet, or directly from the host via the RS-232C connector if the host can supply +12 to +15 VDC at 300 mA on pin 24 and power ground on pin 25. Remove the bottom cover and connect the two pins labelled "W3" on the printed circuit board if you wish to use this option. When the host power option is used the tablet will be turned on or off by the host power switch, not the tablet switch.

CAUTION

Damage to the host may result if the tablet is operated with the AC line cord connected and the W3 jumper installed. Use either option, not both.

The tablet uses magnetic coupling to detect the position of the cursor. The performance may be degraded (excessive jitter) by the presence of strong magnetic fields produced by AC sources. Potential sources of AC magnetic fields include some television sets and monitors with minimum shielding around the horizontal sweep circuits. If this is a problem, increase the distance between the digitizer and the source of the interference. Permanent magnets or other large pieces of ferrous metal will cause position shifts if they are brought close to the transducer.

The cursor or stylus produces a magnetic field when it is on. Magnetic storage media (tapes or discs) may be partially or completely erased by magnetic fields. To prevent possible loss of data, do not let the cursor or stylus touch your magnetic storage media.

USING THE CURSORS

Place the cursor flat on the material to be digitized. Sight through the lens from directly over the cursor, moving it until the intersection of the crosshairs covers the point to be digitized. Depress the cursor buttons designated by the program you are using.

The 16-button cursor can be used to send commands to the tablet and the host. Page 90 contains a listing of 16-button cursor commands.

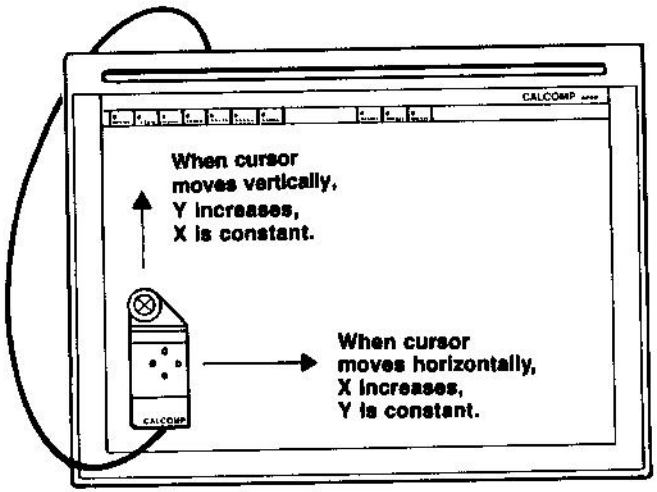
USING THE STYLUS

A pen-like stylus also is an available option. Place the stylus on the point to be digitized and press down gently. The stylus is intended for sketching and low accuracy digitizing.

USING THE ACTIVE AREA

The active area is approximately designated by the dark gray area of the tablet surface. The tablet can detect the transducer up to 0.5 inches above the active area, allowing the user to digitize through thick, non-conductive materials. If the transducer is moved outside the dark area or more than 0.5 inches above the tablet the proximity indicator (#4) will light. If out of proximity or margin data are enabled the tablet will transmit data, but at reduced accuracy, with the transducer out of the active area.

The lower left corner of the tablet's active area is the default coordinate origin.



SWITCHES AND INDICATORS

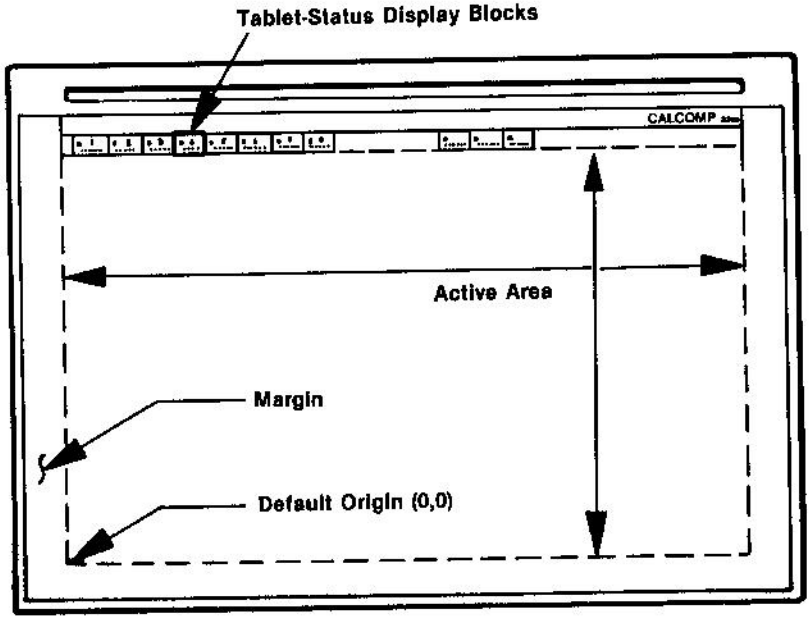
The Tablet-Status Display blocks across the top of the tablet have multiple functions. In the operating mode, the numbered indicators light to inform the operator of the tablet's activities. In the self-test mode, the lights indicate which test was failed. In the set-up mode, the blocks become "switches" that are used to set operating parameters. The indicators may be used by some programs to indicate special functions.

The functions of the blocks when the tablet is in operating mode are as follows:

1. TRANSDUCER	lights when a cursor button is pushed, or the stylus tip is depressed
2. USER-1	lit and extinguished as a user defined indicator by software command
3. USER-2	lit and extinguished as a user defined indicator by software command
4. PROXIMITY	lights when the transducer is out of proximity
5. TRANSMIT	flashes during any transmission from the tablet to the host
6. RECEIVE	flashes once for each character received from the host
7. HANDSHAKE	lights when host generated handshaking prevents tablet transmission
8. DISABLE	lights when tablet is in HALT mode, X-OFF has been selected, or the RS232 communications port is disabled

The other three indicators light to indicate whether the tablet is in TEST mode, or the switch selecting and setting mode.

TEST	lights when tablet is in TEST mode, flashes if the tablet has failed one of the self-tests on power up. Detailed explanations of diagnostic tests can be found beginning on page 44.
SETUP	lights in SETUP mode, soft switches can be set
BANK	lights when the tablet is in the BANK select mode, indicating one of the eight banks of soft switches can be selected.



SETTING THE SOFT SWITCHES

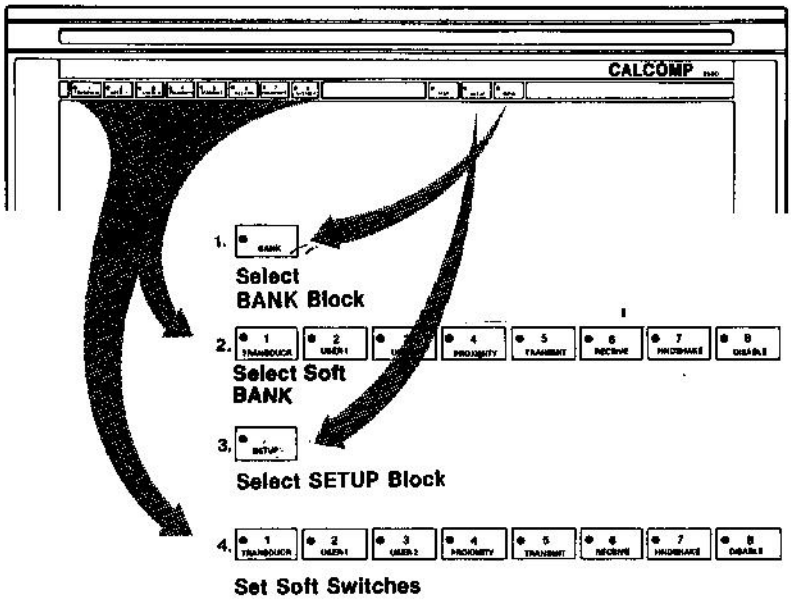
During installation, the numbered display blocks act as switches that must be set to select operating parameters for the tablet. There are eight banks of eight switches. The first five banks must be set to operate with your software. Activate each bank in turn, setting the switches as indicated in the tables on the following pages. The number "1" indicates that the switch light must be on, and the number "0" indicates that the light must be off.

1. Select the BANK block. ("SELECT" a block or switch by placing the crosshairs of the cursor over it and pressing a button or by placing the stylus tip on the block and depressing the tip.) The indicator will light, signaling that the switch banks are accessible. One of the eight numbered blocks will be lit, indicating which bank is currently active.

2. Select the display block whose number corresponds to the number of the bank you wish to set.

3. Select the SETUP block (the BANK indicator will go off, and the SETUP indicator will go on). The lights in the eight numbered blocks now indicate the status of the switches in that bank. ON, or 1, is indicated by a light. OFF, or 0, is indicated by no light.

4. To change a switch setting, select its block. Switches change from ON to OFF or OFF to ON each time they are selected.



5. Repeat steps 1 through 4, selecting new banks and setting the switches until all the necessary switches have been set. **Remember to change banks.**

6. Refer to Page 12 for the switch settings for selected graphics software, or to pages 19 through 26 for a listing of all the parameters controlled by each switch bank.

7. To go back to operating mode, select the SETUP block again after setting the last bank of switches instead of the BANK block. Neither the BANK nor the SETUP block lights should be on.

The switches will maintain their settings when the tablet is turned off or unplugged unless "this session only" is selected as the default setting in Bank One.

NOTE

If frequent changing of soft switch settings is required, one set of parameters may be saved in memory and recalled whenever the "restore baseline settings" soft switch in Bank Seven (see page 87) is selected. Save the most frequently used settings.

SELECTED APPLICATIONS SOFTWARE

The setting of Bank 5, switch 2 is dependent on the interface cables and the host's interface requirements. Taht switch determines whether the tablet transmits on pin 2 or 3 of the RS-232C interface. If the host is configured as DTE and uses handshake signals, a null modem should be used between the tablet and host. More complete information on the RS-232 interface can be found on page 54. If the program you want to use isn't listed here, follow the instructions and example at the end of the listings.

CADVANCE WITH CALCOMP 2000 EMULATION
ANVIL 1000 WITH CALCOMP 2000 EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	1	0	0	1	0	0	0
BANK #3	0	0	0	1	1	1	0	0
BANK #4	0	0	1	1	0	1	0	0
BANK #5	0	*	0	1	0	1	0	0

CADVANCE WITH CALCOMP 9100 EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	0	1	1	0	0	0	0
BANK #3	0	1	1	0	0	1	1	0
BANK #4	0	0	1	1	0	0	0	0
BANK #5	0	*	0	1	0	1	0	0

AUTOCAD WITH CALCOMP 2000 EMULATION
AUTOCAD WITH SUMMAGRAPHICS BIT PAD ONE EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	1	0	0	1	0	0	0
BANK #3	0	0	0	1	1	1	0	0
BANK #4	0	0	1	0	0	0	0	1
BANK #5	0	*	0	1	0	1	0	0

*The setting of switch 2, Bank 5 may be either 1 or 0.

AUTOCAD WITH CALCOMP 9100 EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	1	1	0	1	0	0	0	0
BANK #3	0	1	1	0	0	1	0	0
BANK #4	0	0	1	0	0	0	0	1
BANK #5	0	*	0	1	0	1	0	0

The tablet must be ready before drawing is initiated.

Select a 16-button cursor during installation, regardless of the transducer you are using.

AUTOCAD WITH NUMONICS 2200 EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	1	0	0	1	0	0	0
BANK #3	0	1	1	1	0	0	1	1
BANK #4	0	0	1	1	0	0	0	0
BANK #5	0	0	0	1	0	1	0	0

AUTOCAD WITH GTCO MICRO DIGI-PAD EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	1	0	1	0	0	0	0
BANK #3	0	0	0	1	1	1	0	0
BANK #4	0	0	1	0	1	1	0	0
BANK #5	0	*	0	1	0	1	0	0

AUTOCAD WITH KURTA SERIES 1 EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	0	0	1	0	0	0	0
BANK #3	0	0	0	1	1	0	0	0
BANK #4	0	0	1	1	1	1	0	0
BANK #5	0	*	0	1	0	1	0	0

The setting of switch 2, Bank 5 may be either 1 or 0.

AUTOCAD WITH HITACHI TIGER HDG-1111 EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	1	0	0	1	1	0	0
BANK #3	0	1	1	0	1	1	0	0
BANK #4	0	0	1	0	0	0	0	1
BANK #5	0	*	0	1	0	1	0	0

PERSONAL DESIGNER WITH KURTA EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	0	1	0	1	0	0	0
BANK #3	0	0	0	1	1	1	0	0
BANK #4	0	0	1	0	1	0	0	1
Bank #5	0	*	0	1	0	1	0	0

VERSACAD WITH CALCOMP 2000 EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	1	0	0	1	0	0	0
BANK #3	0	0	0	1	1	1	0	0
BANK #4	0	0	1	0	1	0	0	1
BANK #5	0	*	0	1	0	1	0	0

DR HALO II WITH SUMMA BIT PAD ONE EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	0	0	1	0	0	0	0
BANK #3	0	0	0	1	1	1	0	0
BANK #4	0	0	1	0	0	0	0	0
BANK #5	0	1	0	1	0	1	0	0

CAD KEY WITH SUMMA BIT PAD ONE EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	1	0	0	0	0	0	0
BANK #3	0	0	0	1	1	1	0	0
BANK #4	0	0	1	0	1	0	0	1
BANK #5	0	1	0	1	0	1	0	0

*The setting of switch 2, Bank 5 may be either 1 or 0.

IMPRESSIONIST WITH KURTA EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	1	0	0	1	0	0	0
BANK #3	0	0	0	0	1	0	1	0
BANK #4	0	0	1	0	0	0	0	1
BANK #5	0	*	0	1	0	1	0	0

GENERIC CADD WITH CALCOMP 2000 EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	1	0
BANK #2	0	0	1	0	1	1	0	0
BANK #3	0	0	0	0	0	0	0	0
BANK #4	0	0	1	0	1	0	0	1
BANK #5	0	1	0	1	0	1	0	0

DRAFIX I WITH SUMMA BIT PAD ONE EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	1	0	0	0	0	0	0
BANK #3	0	0	0	1	1	1	0	0
BANK #4	0	0	1	1	0	1	0	0
BANK #5	0	1	0	1	0	1	0	0

POINT LINE WITH CALCOMP 2000 EMULATION

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	0	1
BANK #2	0	1	0	0	0	0	0	0
BANK #3	0	0	0	1	1	1	0	0
BANK #4	0	0	1	1	1	1	0	0
BANK #5	0	1	0	1	0	1	0	0

*The setting of switch 2, Bank 5 may be either 1 or 0.

OTHER SOFTWARE

If the software you will be using was not listed, follow the instructions below.

Check the software manual for the baud rate, data bits, start bits, stop bits, parity, line feed, data rate, operating mode and resolution it expects. Also look for a listing of tablets that are supported by the software. Fill out the table below.

OPERATING MODE: _____
DATA RATE: _____
LINE FEED: _____
RESOLUTION: _____
FORMAT: _____
BAUD RATE: _____
DATA BITS: _____
STOP BITS: _____
PARITY: _____
DTE OR DCE: _____

Then look at the Model-to-Format listing on page 30 of this manual for one of the supported tablets. There may be several formats to choose from. Using the tables of soft switch bank settings,starting on page 21, note in the table below what the settings should be for each bank. When the five banks' settings have been written down, go back to the switch setting instructions and follow the table for each bank.

You may have to contact the software manufacturer to find out which format to use and what the software expects from the tablet.

SWITCH	1	2	3	4	5	6	7	8
BANK #1								
BANK #2								
BANK #3								
BANK #4								
BANK #5								

EXAMPLE

As an example, install MIRAGE, a business graphics program.

The MIRAGE manual lists five tablets, all of which are emulated by the CalComp 2500. We will use the Summagraphics Bit Pad One, ASCII output, which is format 0 in the CalComp 2500.

MIRAGE recommends 9600 baud, 8 data bits, 1 stop bit, and no parity. It must have a carriage return, line feed is optional. Resolution should be 200 "units" per inch. The operating mode specified is "Remote Programmable"; the tablet will wait for commands before outputting data. The corresponding 2500 operating mode is HALT.

SWITCH	1	2	3	4	5	6	7	8
BANK #1	0	0	0	0	0	0	1	0
BANK #2	1	0	0	0	1	1	0	0
BANK #3	0	1	1	0	0	0	0	0
BANK #4	0	1	1	0	0	0	0	1
BANK #5	0	*	0	1	0	1	0	0

NOTES

Most software for personal computers will work with the tablet provided that the transmit and receive lines are correct.

Commands, Bank 2, switch 1, should be enabled if a CalComp format is being used and disabled if any other format is being used.

If the software uses the commands of another manufacturer's tablet as part of its "driver" for that tablet, the 2500 will probably not work. Contact the software manufacturer to enquire if a driver for CalComp tablets has been developed.

SOFTWARE PROBLEMS

The most common error in installing software is setting the switches wrong. If the installation doesn't work, go back through the banks and doublecheck the settings.

A second common error is to set the host for one parity and baud rate and the tablet at another. Host , software and tablet must be all using the same communication protocol. The host and tablet must be set to give the software what it needs.

The tablet data rate may not be specified by the software. Start with a slow data rate and increase it until the software works best.

The BASIC program on page 99 will be a help for difficult installations on personal computers. Coordinate pairs will be transmitted as ASCII from the tablet to the host if the hardware hookup is correct. Once the tablet and host are communicating, try installing the software again.

SWITCH CONTROLLED PARAMETERS

The following operating characteristics are controlled by the settings of the soft switch banks. The settings are listed on the page given after the bank number. Parameters which were too complex to explain with a brief phrase have a thorough explanation on the page given after this brief explanation.

BANK ONE, page 21

Effectivity	soft switch settings may be made effective immediately, on reset, or for the current session only
Indicator	select tablet status or user defined LED indicators (page 75)
Operating mode	select operating mode (page 78 and 40)

BANK TWO, page 22

Commands	enable or disable 2000 and 9100 style commands (page 22 and 60)
Data rate	set data rate from 1 to 125 points per second (page 70)
Line feed	enable or disable line feed (page 71)
Proximity	enable or disable out-of-proximity data (page 87)
Margin data	enable or disable margin data (page 84)

BANK THREE, page 23

Resolution	set resolution (200 to 1000 Lines per Inch (LPI) or 10 to 100 Lines per millimeter (LPmm) (page 80)
Format	select output format 0 - 31 (pages 27 through 29)

BANK FOUR, page 24

RS232 setup	baud rate, data and stop bits, parity (page 54)

BANK FIVE, page 25

Communications	DTE or DCE (page 54), handshake (page 54), echo (page 71)
X-ON/X-OFF	enable or disable output. Tablet begins transmitting at power on (X-ON) or there is no transmission at power on (X-OFF).
Commands	enable or disable 16-button cursor commands (page 66), 2000 style commands or 9100 style commands
Beeper	enable or disable beeper command acknowledge (page 73)

BANKS SIX, SEVEN AND EIGHT, page 26

Reset	reset the tablet (software reset) (page 64)
Lamp test	light all LED indicators
Menu	position, erase or restore optional menu (page 65)
Restore factory settings	set all parameters to factory defaults (page 57)
Baseline settings	save current parameters as a baseline; restore baseline settings to active use (page 87 and 88)

SWITCH BANK SETTINGS

BANK 1 GENERAL OPERATION

SWITCH	1	2	SOFT SWITCH EFFECTIVITY
	0	0	IMMEDIATE
	0	1	RESET/POWER ON
	1	0	THIS SESSION ONLY
	1	1	RESERVED

SWITCH	3	INDICATOR ASSIGNMENT
	0	TABLET STATUS DISPLAY
	1	USER DEFINED DISPLAY

SWITCH	4	5	6	7	8	OPERATING MODE
	0	0	0	0	0	POINT
	0	0	0	0	1	RUN
	0	0	0	1	0	TRACK
	0	0	0	1	1	LINE
	0	0	1	0	0	PROMPT POINT
	0	0	1	0	1	PROMPT RUN
	0	0	1	1	0	PROMPT TRACK
	0	0	1	1	1	PROMPT LINE
	0	1	0	0	0	HALT
	0	1	0	0	1	INCREMENT RUN
	0	1	0	1	0	INCREMENT TRACK
	0	1	0	1	1	INCREMENT LINE
	0	1	1	0	0	DELTA POINT
	0	1	1	0	1	DELTA RUN
	0	1	1	1	0	DELTA TRACK
	0	1	1	1	1	DELTA LINE
	1	0	0	0	0	RESERVED
			TO			
	1	1	1	1	1	RESERVED

BANK 2 OUTPUT

SWITCH 1 COMMANDS *

0 DISABLED
1 ENABLED

NOTE

The commands must be enabled here before Bank 5 can be used to enable or disable a specific source. With commands disabled the tablet may be controlled from the soft switches only.

SWITCH	2	3	4	5	DATA RATE (POINTS PER SECOND)
	0	0	0	0	1
	0	0	0	1	5
	0	0	1	0	10
	0	0	1	1	20
	0	1	0	0	33
	0	1	0	1	40
	0	1	1	0	50
	0	1	1	1	75
	1	0	0	0	100
	1	0	0	1	125
	1	0	1	0	MAXIMUM
	1	0	1	1	RESERVED
			TO		
	1	1	1	1	RESERVED

SWITCH 6 LINE FEED

0 DISABLE
1 ENABLE

SWITCH 7 OUT OF PROXIMITY DATA

0 DISABLE
1 ENABLE

SWITCH 8 MARGIN DATA

0 ENABLE
1 DISABLE

BANK 3 OUTPUT

SWITCH	1	2	3	RESOLUTION
	0	0	0	200 LPI (LINES/INCH)
	0	0	1	400 LPI
	0	1	0	500 LPI
	0	1	1	1000 LPI
	1	0	0	10 LPmm (LINES/MILLIMETER) (254 LPI)
	1	0	1	40 LPmm (1016 LPI)
	1	1	0	50 LPmm (1270 LPI)
	1	1	1	100 LPmm (2540 LPI)(half resolution, page 81)

SWITCH	4	5	6	7	8	ASCII FORMATS
	0	0	0	0	0	0
	0	0	0	0	1	1
	0	0	0	1	0	2
	0	0	0	1	1	3
	0	0	1	0	0	4
	0	0	1	0	1	5
	0	0	1	1	0	6
	0	0	1	1	1	7
	0	1	0	0	0	8
	0	1	0	0	1	9
	0	1	0	1	0	10
	0	1	0	1	1	11
	0	1	1	0	0	12
	0	1	1	0	1	13
	0	1	1	1	0	14
	0	1	1	1	1	15
	1	0	0	0	0	16

SWITCH	4	5	6	7	8	RESERVED FORMATS
	1	0	0	0	1	17
					TO	
	1	0	1	1	0	22

SWITCH	4	5	6	7	8	BINARY FORMATS
	1	0	1	1	1	23
	1	1	0	0	0	24
	1	1	0	0	1	25
	1	1	0	1	0	26
	1	1	0	1	1	27 *
	1	1	1	0	0	28
	1	1	1	0	1	29
	1	1	1	1	0	30
	1	1	1	1	1	31

BANK 4 RS-232 OPERATION

SWITCH	1	2	3	BAUD RATE
	0	0	0	19200
	0	0	1	9600
	0	1	0	4800
	0	1	1	2400
	1	0	0	1200
	1	0	1	600
	1	1	0	300
	1	1	1	RESERVED

SWITCH	4	DATA BITS
	0	7 BITS
	1	8 BITS

SWITCH	5	STOP BIT (11 BIT FRAME LIMIT)
	0	1 BIT
	1	2 BITS

SWITCH	6	7	8	PARITY
	0	0	0	ODD
	0	0	1	EVEN
	0	1	0	MARK
	0	1	1	SPACE
	1	X	X	DISABLED

BANK 5 SPECIAL FUNCTIONS

SWITCH 1 ECHO
0 DISABLED
1 ENABLED

SWITCH 2 DATA LINE ASSIGNMENT
0 DTE (Transmit on pin 2)
1 DCE (Transmit on pin 3)

SWITCH 3 HANDSHAKE CONTROL
0 DISABLED
1 ENABLED

SWITCH 4 X-ON/X-OFF DEFAULT
0 Tablet not transmitting on power up (X-OFF)
1 Tablet transmitting on power up (X-ON)

SWITCH 5 16-BUTTON CURSOR COMMANDS
0 DISABLED
1 ENABLED

SWITCH 6 BEEPER COMMAND ACKNOWLEDGE
0 DISABLED
1 ENABLED

SWITCH 7 2000 SERIES COMMANDS
0 ENABLED
1 DISABLED

SWITCH 8 9100 SERIES COMMANDS
0 ENABLED
1 DISABLED

NOTE

Bank 2. switch 1 must be enabled before this switch bank may be used to selectively enable or disable command sources.

BANK 6 SPARE

BANK 7

(Momentary operation - select block to operate)

SWITCH	1	TABLET RESET
	2	LED TEST
	3	MENU LOCATE
	4	MENU ERASE
	5	MENU RESTORE
	6	RESTORE FACTORY SETTINGS
	7	RESTORE BASELINE SETTINGS
	8	SAVE BASELINE SETTINGS

BANK 8 SPARE