OSE   Hewlett Packard 7550A/7550B Graphics Plotter

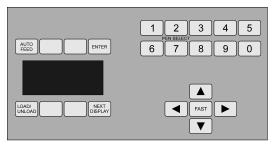|	
Plotting method	8-pen, flat bed, auto-pen changing, auto capping
Plotting speed.	80 cm/s - 7550A; 120 cm/s - 7550B
Resolution.	Smallest addressable move 0.025MM
Paper handling	Letter/A4-size media loading tray (up to 150 sheets), built-in 11 x 17 and A3 manual single-sheet feeder. Most standard paper, vellum, double-matte polyester film, transparency film. From 0.05mm to 0.1mm thick
Fonts	20 character sets
Interfaces.	HP-IB parallel, RS-232C serial
Emulations	HP-GL
Options	Letter, A4, 11x17, and A3-size media loading trays and catchers; 8-pen carousels for fiber-tip transparency pens, fiber-tip paper pens, roller-ball pens and drafting pens

Control Panel

LCD display - Displays additional function sets, error messages and operation messages and requests configuration input.

AUTO FEED key - Press to toggle between automatic and manual feed mode. When an asterisk (*) is present on the LCD display under the **AUTO FEED** key, the plotter is in automatic feed mode; when the asterisk is absent, the plotter is in manual feed mode.

ENTER key - Use to implement new plotter states and to store new configuration settings. Press in conjunction with **NEXT DISPLAY** key to toggle between Level 1 (plotter function sets) and Level 2 (interface function sets). Also use in conjunction with a **PEN SELECT** key to return a pen to the carousel without retrieving a new pen. Press **ENTER** key and then a **PEN SELECT** key whose number corresponds to the number of an empty carousel position.

LOAD/UNLOAD key - When plotter is in manual feed mode, press to load media from the single-sheet feeder or to unload media manually. When plotter is in automatic feed mode, press to load media from the media tray.

NEXT DISPLAY key - Use to advance from one function set to the next within a level (Level 1 or Level 2). A function set contains three or four functions and appears on the LCD display when selected.

Unmarked function keys - When appearing on the LCD display, a function set is used in conjunction with the four unmarked function keys surrounding the LCD display. Each function appearing on the LCD display corresponds to one function key.

PEN SELECT keys - Press a **PEN SELECT** key to select the corresponding pen from the carousel. If a plot is in progress when a **PEN SELECT** key is pressed, plotting is suspended until the pen holder retrieves the selected pen and returns to its previous location.

Cursor keys - Press a cursor key to move the pen in the direction of the arrow. Press two adjacent cursor keys to move the pen diagonally in the direction between the two arrows. Simultaneously press the **FAST** key and a cursor key to increase the speed of the pen movement by 16 times. If a plot is in progress when a cursor key is pressed, plotting is suspended while the pen performs the appropriate action. Plotting will resume at the new pen location when the cursor key is released. Press the **FAST** key by itself to pause the plotting. Plotting is resumed when the **FAST** key is released. (Pausing the plotting in this way may affect the outcome of the plot.) Hold the **FAST** key while turning on the plotter to set the plotter to its factory default state.

Self-test

Run the demonstration plot described in "Plotter Configuration" below to test the plotter. The demonstration plot draws an area graph and a line graph.

Plotter Configuration

The plotter is configured through a system of function sets accessed through the control panel. The function sets are divided into two levels: Level 1 contains functions used to govern the plot currently being drawn; Level 2 contains functions used to configure the interface between the plotter and its host. Press the **NEXT DISPLAY** key to advance from one function set to the next within a level. When a function set appears on the LCD display, each function in that set corresponds to one of the four unmarked function keys. Press the **ENTER** key in conjunction with the **NEXT DISPLAY** key to toggle between Levels 1 and 2. Use the **ENTER** key to store new configuration settings. Press the **NEXT DISPLAY** key to ignore a selection and return to the previous level.

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Summary of Level 1 Function Sets

Function Set #1

VIEW	ALIGN
P1	P2

Function Set #2

SPEED	FORCE
PEN-UP	PEN-DN

Function Set #3

SOFTKEY	DEMO
	ROTATE- ∅

Function Set #4

RESET	CLEAR
REPLOT	ESCAPE

VIEW - Press the **VIEW** key to view what is being plotted. "VIEW" will flash on the LCD display. Press the **VIEW** key a second time to resume plotting.

P1 and P2 - Press the **P1** or **P2** key to raise the pen and move it to the current coordinate location of scaling point P1 or P2. To establish the current pen location as the new coordinates for scaling point P1 or P2, press the **ENTER** key followed by the **P1** or **P2** key. If you want P2 to be at a specific location, set P1 before setting P2, as P2 tracks P1 to maintain the original aspect.

ALIGN - Use the following procedure to align gridded media with the physical axes of the plotter.

1. Manually load a sheet of gridded media. The left edge of the sheet should be aligned with the left edge of the platen.

2. Press the **P1** key and load the digitizing sight directly into the pen.

3. Use the cursor keys to position the digitizing sight directly over one end of the lower grid line that is in the direction of the X-axis.

4. Press the **ENTER** key and then the **P1** key to store the new P1 location.

5. Press the **ALIGN** key.

6. Use the cursor keys to position the digitizing sight directly over the other end of the previously selected grid line.

7. Press the **ENTER** key and then the **ALIGN** key to store the new alignment point location.

SPEED and FORCE - Use the following procedure to change pen speed and force.

1. Press either the **SPEED** or **FORCE** key. The appropriate sublevel will appear on the LCD display and an asterisk (*) will flash under the **ENTER** key.

2. Set the **PEN** key to "ALL" to set all pens in the carousel, or set the **PEN** key to the carousel position number of the desired pen.

3. Press the **SPEED** or **FORCE** key to set the desired speed or force value. Speed values are displayed in cm/s. Default carousel settings are listed in the following two table.

4. Press the **ENTER** key to save selection.

Carousel Speed and Force Defaults

Media	Speed Value	Force Value
Transparency	10	2
Refillable drafting	15	1
Disposable drafting	20	1
Paper	50	2
Roller-ball	60	6

PEN-UP and PEN-DN - Press the **PEN-UP** key to raise the pen and the **PEN-DN** key to lower the pen.

SOFTKEY - Use in conjunction with the HP-GL write-to-display (WD) instruction. Pressing the **SOFTKEY** key will display the last message sent with the instruction and will activate any function key definitions assigned with the define-softkey (KY) instruction in your program.

DEMO - Press to initiate the plotter's built-in demonstration plot. Before running the demonstration, make sure paper is loaded. The demonstration plot draws an area graph and a line graph.

ROTATE-90 - Press the **ROTATE-90** key to rotate the X- and Y-axes 90 degrees. Upon rotating the axes, this key will read "ROTATE-0". Press the **ROTATE-0** key to cancel the 90-degree rotation. Rotations are not cumulative.

RESET - Use to return the plotter to its initial power-up conditions. A confirmation message will appear on the LCD display and an asterisk (*) will flash under the **ENTER** key. Press the **ENTER** key to reset the plotter. Resetting the plotter is equivalent to turning the plotter off and then on again except that any existing axis alignment is maintained.

CLEAR - Use to clear the plotter buffer, reset the parser and cancel any pending output. A confirmation message will appear on the LCD display and an asterisk (*) will flash under the **ENTER** key. Press the **ENTER** key to clear the plotter.

REPLOT - Use the following procedure to store the current plot in the replot buffer, specify the number of copies of the plot desired, and automatically draw the plot that many times without rerunning plot job.

1. Make sure paper is loaded and the plotter is in automatic feed mode.

2. Press the **REPLOT** key. "LOAD" will appear on the LCD display next to an asterisk (*).

3. Press the **LOAD** key. "START" will appear on the LCD display to the right of "LOAD". The plotter is now ready to load a plot job into the replot buffer.

4. Send plot job to the plotter. The plotter will draw the plot and store it in the replot buffer.

5. When the initial plot is completed and unloaded, press the **START** key. The question "HOW MANY COPIES" will appear on the LCD display.

6. Use the **PEN SELECT** keys to enter the desired number of copies (from 0 to 99).

7. Press the **ENTER** key and replotting will begin. The LCD display will indicate the number of plots requested and the number of plots completed.

The plot job must fit into the available memory space (default 9,954 bytes; maximum 12,750). If memory space is exceeded during the LOAD function, the message "#7 BUFFER OVERFLOW" will appear on the LCD display.

ESCAPE - Use the **ESCAPE** key in conjunction with the output-group (OG) instruction to clear the plotter buffer. Press the **ESCAPE** key to activate the escape mode. When the plotter receives an OG instruction in the escape mode, all HP-GL instructions are ignored until the plotter receives an ESC-U instruction. Press the **NEXT DISPLAY** key to deactivate the escape mode and return to Function Set #1.

Function Set #5 - Level 2

HP-IB	MONITOR
STANDARD/ENHANCED	SERIAL

Function Set #6 - Serial

DATA FLOW	
BYPASS	HANDSHAKE

Function Set #7 - Data Compatability

DUPLEX	PARITY
BAUD	

Function Sets #6 and #7 are subsets of the SERIAL function. Press the **SERIAL** key to access the subsets. Use the **NEXT DISPLAY** key to move between the subsets. Press the **ENTER** key followed by the **NEXT DISPLAY** key to return to Function Set #1.

HP-IB - Use to set the HP-IB address. When the HP-IB key is pressed, the current address will appear on the LCD display. Press the unmarked function key under the address to increment the address by one. Press the key to the left of the address key to decrement the address by one. The range of addresses is 0 to 30 (inclusive) plus "LISTEN ONLY". Press the **ENTER** key when the desired address is displayed

MONITOR - Use to place the plotter in one of two monitor modes. When in a monitor mode, you can monitor the communication between the plotter and the host. When you press the MONITOR key, the option "OFF", "PARSE MODE" or "RECEIVE MODE" will appear on the LCD display. In the parse mode, HP-GL instructions sent to the plotter's buffer are retransmitted to the host terminal as they are executed. In the receive mode, HP-GL instructions, device-control instructions and handshake sequences are retransmitted from the plotter's buffer to the host terminal as they are received. Use the unmarked function key under the displayed option to toggle between the three options. An asterisk (*) will flash under the **ENTER** key. After selecting an option, press the **ENTER** key to implement your selection.

STANDARD/ENHANCED - Press to toggle between the standard and enhanced modes. These modes affect the implementation of the OD, IW, OW and UC instructions. Once displayed, the standard or enhanced mode is implemented immediately. The selected mode is stored in the plotter's nonvolatile memory.

SERIAL - Press to enter the first sublevel (i.e., Function Set #6).

DATA FLOW - Press to configure the serial interface between the plotter and its host. When you press the **DATA FLOW** key, the current configuration options will appear on the LCD display. An asterisk (*) will flash under the **ENTER** key. There are two configuration options:

Option 1 - Pressing the upper-left unmarked function key toggles the display between "REMOTE", "LOCAL" and "STANDBY". Use the remote mode when your computer's RS-232C interface is plugged into the plotter's "COMPUTER/MODEM" port. Use the local mode when your terminal's RS-232C interface is plugged into the plotter's "TERMINAL" port. Use the standby mode in conjunction with the eavesdrop mode (see below) to analyze data communication or interfacing problems. In the standby mode, the plotter ignores information received through both the "COMPUTER/MODEM" and "TERMINAL" ports.

Option 2 - Pressing the lower-right unmarked function key toggles the display between "EAVESDROP" and "STANDALONE". Use the eavesdrop mode when the plotter is connected in series between the computer and the terminal with one computer line. The line can be an RS-232C cable or a telephone line. Use the standalone mode when the plotter is only connected to a computer or controller.

After setting the options, press the **ENTER** key to store selections in the plotter's nonvolatile memory.

BYPASS - Use to place the plotter in the bypass mode. When the bypass mode is used in conjunction with the eavesdrop mode, the plotter ignores instructions received from the terminal and computer until the ESC (or ESC.Y) instruction is received. When the plotter receives an ESC instruction, the bypass mode is turned off and the plotter resumes intercepting and plotting data. When the **BYPASS** key is pressed, "ON" or "OFF" will appear on the LCD display. An asterisk (*) will flash under the **ENTER** key. Press the unmarked function key under "OFF" or "ON" to toggle the bypass mode on and off. Press the **ENTER** key to save the selection.

HANDSHAKE - Use to configure the manner in which handshaking is accomplished. When the **HANDSHAKE** key is pressed, the current configuration options will appear on the LCD display. There are two configuration options:

Option 1 - Press the lower-left unmarked function key to toggle between "NONE", "XON/XOFF", "ENQ/ACK" and "HARDWIRE".

Option 2 - Press the lower-right unmarked function key to toggle between "DIRECT" and "MODEM". These modes select the RS-232C communication line method. In the direct mode, three pins (2, 3 and 7) run from the plotter to the computer. Line 20 is available for handshaking. In the modem mode, pins 5 (DSR) and 6 (CTS) in addition to 2, 3 and 7 are monitored.

Press the **ENTER** key to store selections in the plotter's nonvolatile memory

DUPLEX - Use to choose between full duplex and half duplex. When you press the DUPLEX key, the LCD display will read "DUPLEX FULL" or "DUPLEX HALF". Press the unmarked key under "FULL" or "HALF" to toggle between full and half duplex. Press the **ENTER** key to store selection in the plotter's nonvolatile memory.

PARITY - Use to configure parity checking. When you press the **PARITY** key, two options will appear on the LCD display. Press the lower-left unmarked function key to toggle between "8-BITS" and "7-BITS". Press the lower-right unmarked function key to toggle between "OFF", "EVEN" or "ODD". Press the **ENTER** key to store selections in the plotter's nonvolatile memory.

BAUD - Use to set the data transmission rate. When you press the **BAUD** key, the currently selected baud rate is displayed. Press the unmarked function key under the displayed baud rate to step through the values.

Press the unmarked key to the left of the baud rate key to reverse the order of selection. Press the **ENTER** key to store selection in the plotter's nonvolatile memory. The plotter generates two stop bits when set to a baud rate of 110 or lower and one stop bit when set to a baud rate greater than 110.

The following table lists the options that are stored in the plotter's non-volatile memory and their factory default settings.

Option	Factory Default Setting
HP-IB Address	05
Standard/Enhanced Mode	Standard
Eavesdrop/Standalone Mode	Eavesdrop
Handshake Mode	None
Direct/Modem Mode	Direct
Full/Half Duplex	Full
7 Bit/8 Bit Parity	8 Bit
Even/Odd Parity	OFF
Baud Rate	2400
Manual/Automatic Paper Load	Manual

To restore all factory default settings, hold the **FAST** key while turning on the plotter.

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Error Codes

HP-GL Instruction Error Messages

LCD Error Number	Problem
1	Command not recognized
2	Wrong number of parameters
3	Bad parameter
5	Unknown character set
6	Position overflow
7	Buffer overflow

Device-Control Instruction Error Messages

LCD Error Number	Problem
10	Invalid I/O output request
11	Invalid byte following ESC
12	Invalid byte in I/O control
13	Out of range I/O parameter
14	Too many I/O parameters
15	Error in I/O transmission
16	I/O buffer overflow
17	Transmit underrun
18	I/O error indeterminate

Common Problems and Fixes

The pen carousel should be cleaned periodically. If plotter is having trouble loading paper, clean the grit wheel. If the plotter fails to select pens properly, clean the pen holder. Cleaning procedures are described in "Critical Adjustments" below.

Critical Adjustments

Cleaning the pen carousel:
1. Remove pens from carousel.
2. Use a cotton swab moistened with alcohol or pen cleaning solution to wipe out the pen caps.
3. Allow the carousel to dry thoroughly before re-inserting pens.

Cleaning the grit wheel:
1. Turn on the plotter.
2. Raise the carriage cover to access the grit wheels.
3. Press the ↓ cursor key to slowly rotate the grit wheels.
4. While the grit wheels are rotating, brush dust from the grit surface using the brush supplied with the plotter. IMPORTANT: Use only the brush supplied with the plotter. Do not use cleaning solutions.

Cleaning the pen holder:
1. Remove pens from holder.
2. Insert a cotton swab into the pen holder and wipe away accumulated dust from the two ridges on the inside-front portion of the pen claw.
3. Wipe dust from pens and discard any pens that show wear above or below the pen collar.

X- and Y-axis motor gain calibration - Use this calibration to obtain maximum line quality. The calibration should be performed whenever replacing the Main PCA or either of the axis drive motors. To calibrate the X- and Y-axis motor gain:
1. Turn off the plotter.
2. While holding the **ENTER** key and **PEN SELECT** key **4**, turn on the plotter. Release the keys.
3. The pen carriage will move the left-hand limit of travel and then perform a series of short moves. During these moves, the performance of each motor is measured and matched to the servo gains. The gain calibration constants are stored in EEROM and remain unchanged until this calibration is performed again.

4. If the calibration is successful, the plotter will automatically enter its initialization sequence and will then be ready for normal operation. If a failure occurs, the gain calibration will not be performed.

Field Replaceable Units

DESCRIPTION	OEM P/N
Logic Board	07550-6816
Media Tray	17561A

Model	IBM P/N	IBM machine type
7550A	55X3585	1538-C01
7550B	45F5217	1538-H01

Tech Support 800-877-7764