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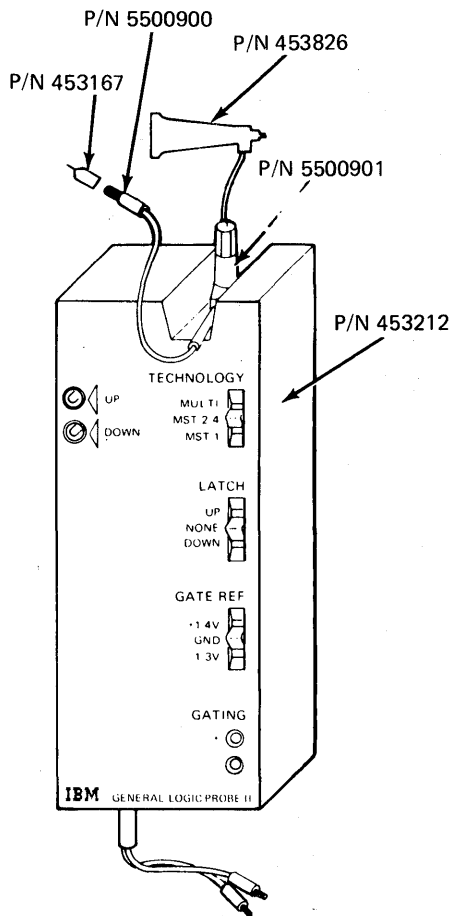
02-010 INTRODUCTION

The general reference information in this section includes the following:

- Instructions on how to test and use the IBM General Logic Probe II.
- Signal levels used in System/34 logic circuits.
- Locations of optional features on the System/34.
- Additional information needed for servicing the System/34.

02-015 PROBING INFORMATION

When using the MAPs, use the General Logic Probe II (IBM part 453212) to determine if a signal level is Up or Down. Use this probe instead of an oscilloscope for most System/34 maintenance. Additional information about using and maintaining this probe is in the *IBM General Logic Probe II Manual, SY27-0127*.



02-020 How to Prepare the Probe for Use

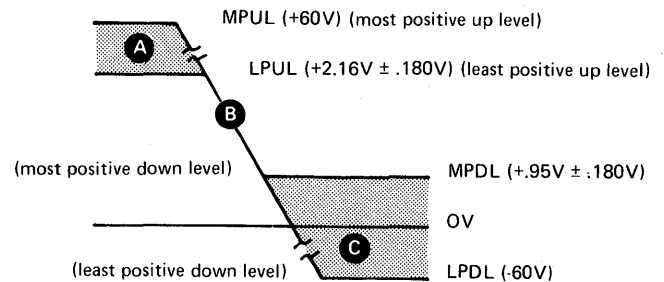
To make the probe ready for use, do the following:

- Set the Technology switch to the Multi position.
- Set the Latch switch to the None position.
- Set the Gate Ref switch to +1.4V.
- Attach the red lead to any convenient +5V pin (D03).
- Attach the black lead to any convenient ground pin (D08).

02-025 Input Voltage Levels of the Probe

When you use the General Logic Probe II with the Technology switch set to Multi, you can probe voltage levels as shown in the figure that follows.

General Logic Probe II Input Voltage Ranges



Indicating Lights

Region	Up	Down
A	ON	OFF
B	OFF	OFF
C	OFF	ON

VTL and Dutchess Input Voltage Ranges

02-035 What the Probe Lights Mean

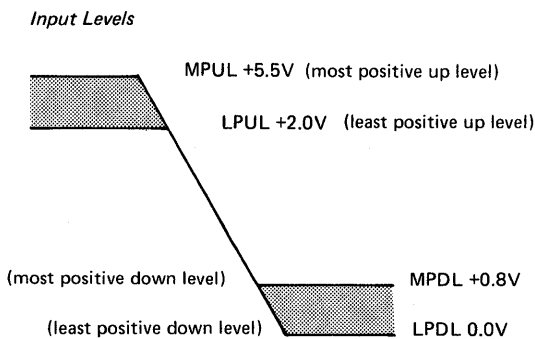
The probe lights can have different meanings that rely on the condition of the lights. Some of the possible conditions and their meanings are shown in the table that follows.

What the Probe Lights Mean

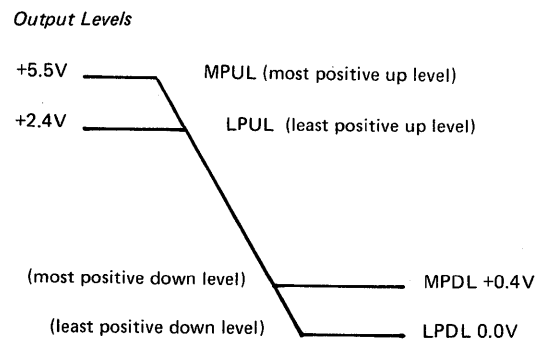
Condition		Meaning
UP light DOWN light	OFF OFF	The point being probed is not at either an up logic level or a down logic level, or the power cable of the General Logic Probe II is not connected correctly.
UP light DOWN light	ON OFF	The point being probed is at the up level (1).
UP light DOWN light	OFF ON	The point being probed is at the down level (0).
UP light DOWN light	ON ON	The point being probed is pulsing at a frequency of more than 30 pulses per second.
UP light DOWN light	Flashing Flashing	The point being probed is pulsing at a frequency of less than 30 pulses per second.
UP light DOWN light	Flashing ON	The point being probed has a series of narrow positive pulses with a frequency of less than 30 pulses per second.
UP light DOWN light	ON Flashing	The point being probed has a series of narrow negative pulses with a frequency of less than 30 pulses per second.

02-040 Machine Voltage Levels

System/34 uses mainly Dutchess and VTL logic technology. Both of these technologies have the same input and output levels. The input and output voltage levels for these technologies range from 0.0V to +5.5V as shown.



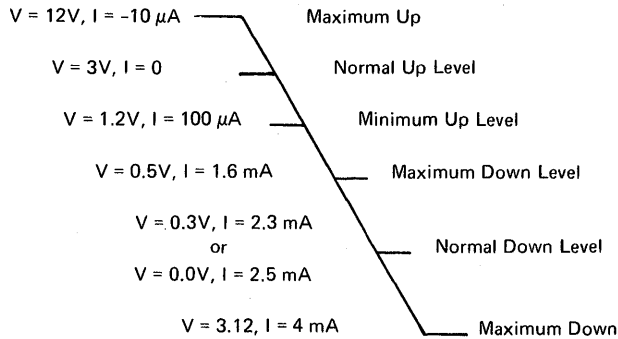
VTL and Dutchess INPUT/OUTPUT Requirements



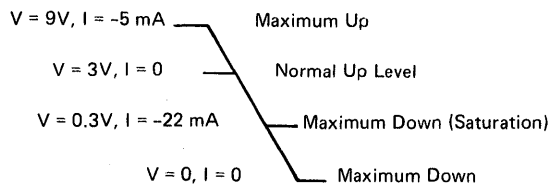
VTL Dutchess

SLT technology is also used when the data communications feature is installed. SLT input and output voltage levels are shown in the figure that follows.

Input Requirements



Output Specifications



SLT I/O Voltage Levels Requirement

02-045 How to Check the Probe for Correct Operation

To verify that the General Logic Probe II is working correctly, use a CE multimeter (IBM part 1749231 or 452796) or a similar tool. For information on repairing the probe, see the *IBM General Logic Probe II Manual*, SY27-0127.

To check the probe, perform the following test using the 5340 logic gate:

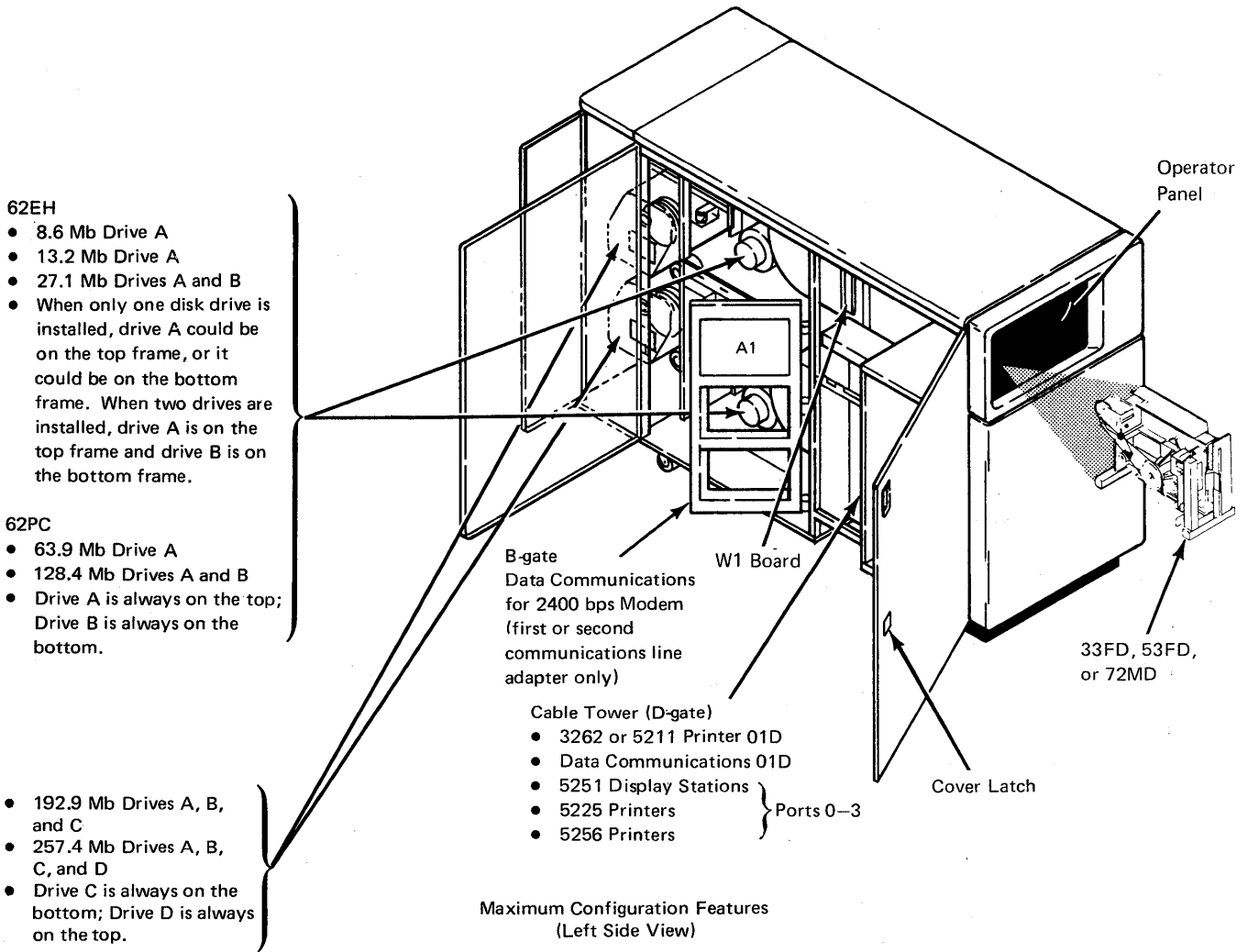
1. With system power on, attach the red probe lead to any convenient +5V pin (D03); attach the black probe lead to any convenient ground pin (D08).
2. Using the multimeter, verify that the voltage measured from pin D03 (+) to pin D08 (-) is between 4.5 and 5.5 volts DC.

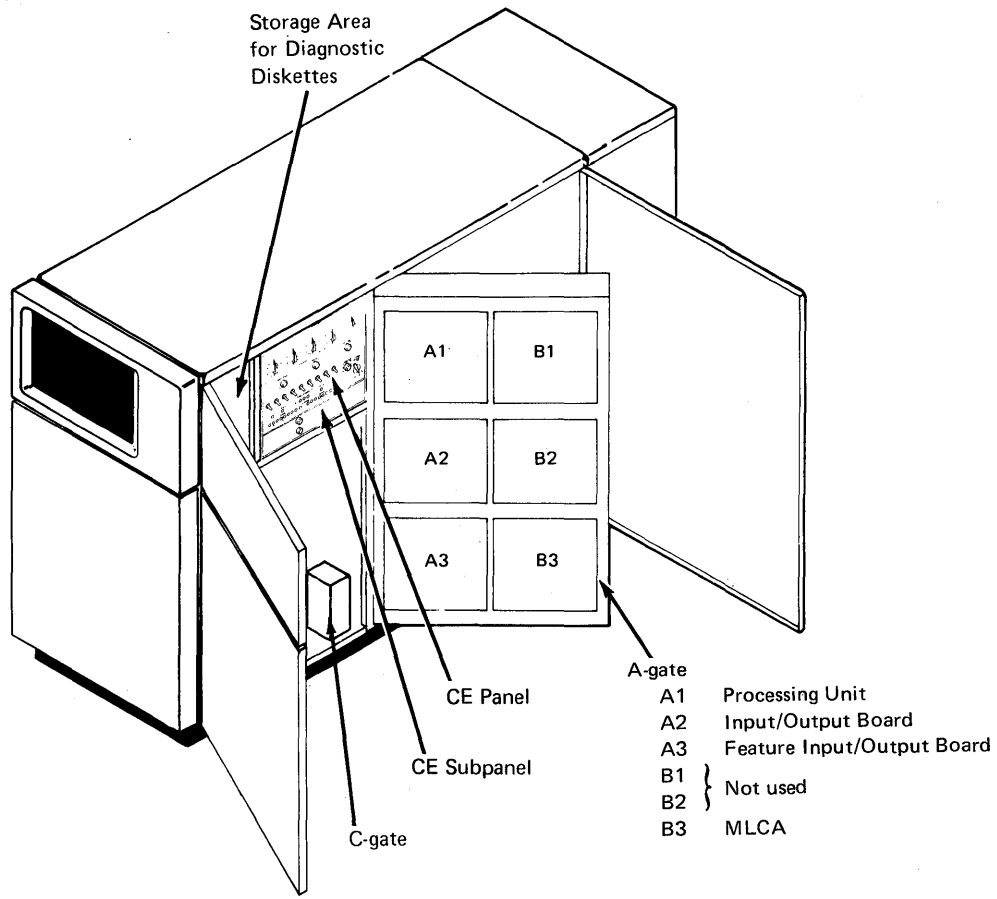
3. Set the Latch switch on the probe to the None position.
4. Set the Technology switch on the probe to the Multi position. Both lights should be off.
5. Attach the probe tip to any D03 pin. Attach the probe ground to any D08 pin (ground). Only the Up light should be on.
6. Attach the probe tip to any D08 pin. Attach the probe ground to any D08 pin (ground). Only the Down light should be on.
7. Set the Gate Ref switch to +1.4V.
8. Use a 12-inch jumper (IBM part 2588263) to connect the +Gating pin on the probe to any D08 pin (ground). The Up light and the Down light should both be off.
9. Use the 12-inch jumper to connect the -Gating pin on the probe to any D03 pin. The Up light and the Down light should both be off.
10. Remove the 12-inch jumper from the -Gating pin on the probe. Attach the probe tip to pin A-A1K2S02. Remove the 12 inch jumper from the +Gating pin and you should see a slow (1 second) pulse on the probe.
11. Attach the probe tip to pin A-A1K2S13. You should see a fast (16 ms) pulse on the probe.

If this service check fails, see the General Logic Probe II manual for instructions on how to repair the probe.

02-070 FEATURES

The figures that follow show the features that are available for System/34 and their locations in the 5340 system unit.



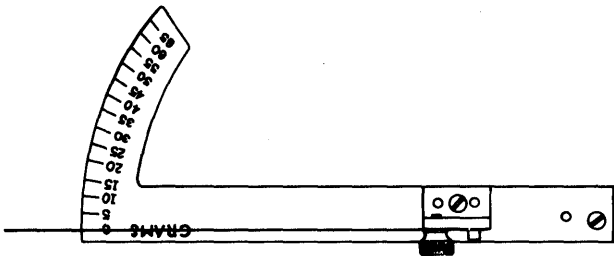


Maximum Configuration Features
(Right Side View)

02-080 SPECIAL TOOLS

In addition to the tools in the medium CE tool case, you will need the following tools when working on the System/34:

- Ten 6-inch red jumpers (IBM part 0829117)
- General Logic Probe II test lead extender (IBM part 453605)
- CE multimeter (IBM part 1749231) or a similar tool
- Metric bill of material (IBM part 1749235)
- Gram gauge (IBM part 450459)
- Times 10 (X10) gram scale (IBM part 451915)

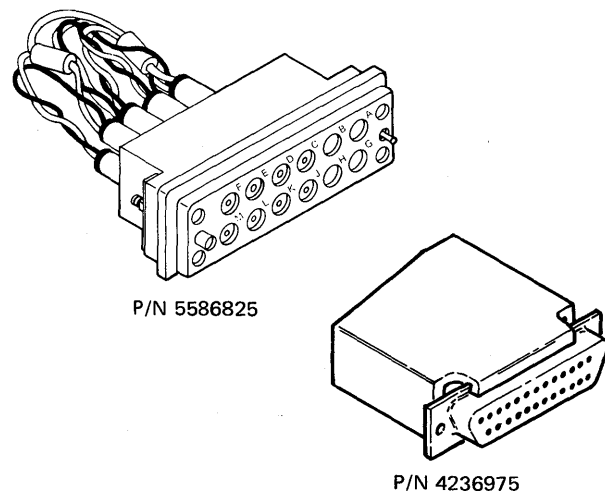
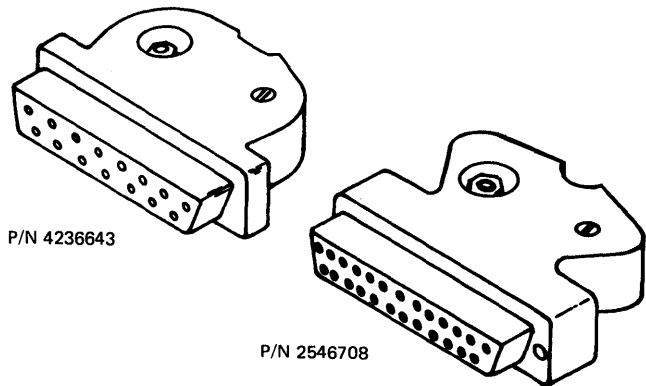


You will need the following special tools only if the data communications feature is installed:

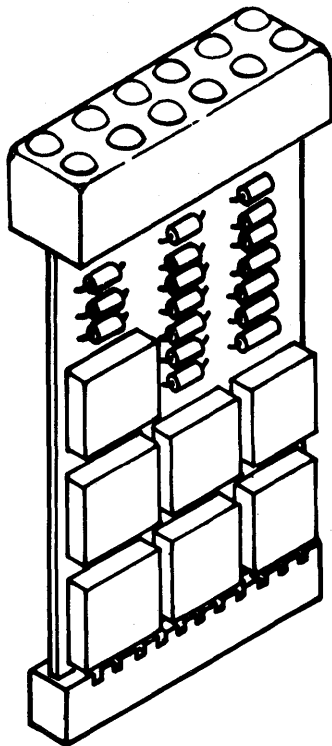
- Decibel meter (IBM part 453545) or dB adapter (IBM part 1749299) and head phone (IBM part 2728116). These tools, which are not shipped with the system, are used for the integrated modem transmit level adjustment.

Note: You can use the dB adapter (IBM part 1749299) only with the CE multimeter (IBM part 1749231). If you do not have this combination, use decibel meter (IBM part 453545) to adjust the transmit level on 2400 bps integrated modems.

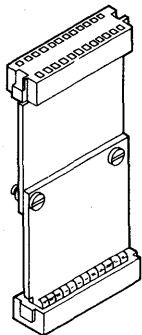
- Wrap plug (IBM part 2546708 for EIA/CCITT, first or second communications adapter; IBM part number 4236643 for the Digital Data Service Adapter; IBM part 5586825 for the Analog Wideband Adapter; or IBM part 4236975 for the Autocall Adapter and EIA) used for external wrap testing (shipped with specific feature).



- Indicator card (IBM part 5801645) used for the switched 2400 bps modem equalizer test (not shipped with system).



- MLCA wrap card (IBM part 4236797) used for internal wrap testing of the MLCA logic board and to perform the cable tower wrap test when the X.21 feature is installed (shipped with the MLCA feature).

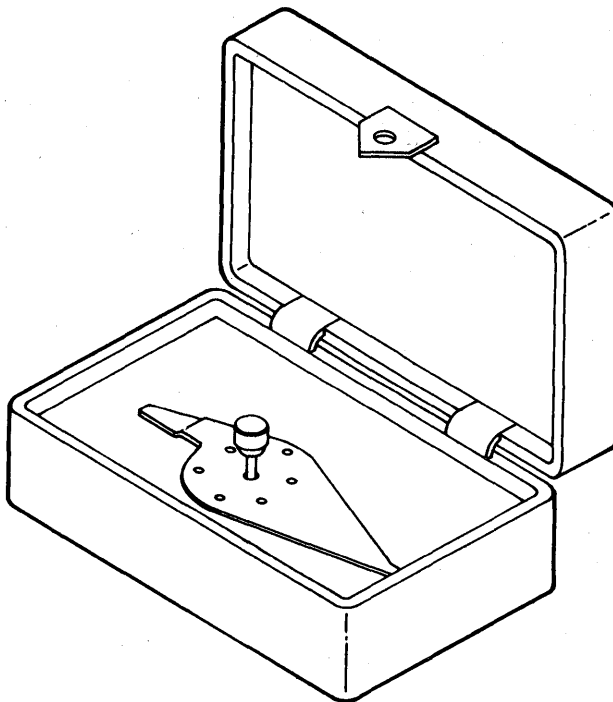


P/N 4236797

Use the following special tool only if your system has a 53FD diskette drive: Two timing pins (IBM part 5562019). These pins are inside the 53FD cover assembly.

If your system has a 33FD diskette drive, you will need the following special tools and supplies:

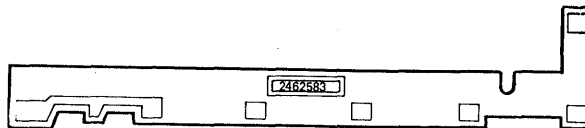
- 33FD alignment tool (IBM part 2200698, shipped with the system).



- Diskette head cleaning tools:
 - Brush (IBM part 2200106)
 - Isopropyl alcohol (IBM part 2200200)
 - Cloth (IBM part 2108930)

If your system has a 72MD diskette magazine drive, you will need the following special tools:

- 72MD adjusting tool (IBM part 2462583 for the old style picker or IBM part 2462612 for the new style picker).



- Two adjusting pins (IBM part 2462574). These pins are on the 72MD casting.