

## Errata

**Title & Document Type:** 1335A/H01 Display Operating and Service Manual

**Manual Part Number:** 01335-90922

**Revision Date:** June 1977

### About this Manual

We've added this manual to the Agilent website in an effort to help you support your product. This manual provides the best information we could find. It may be incomplete or contain dated information, and the scan quality may not be ideal. If we find a better copy in the future, we will add it to the Agilent website.

### HP References in this Manual

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## **OPERATING AND SERVICE MANUAL**

### **MODIFICATIONS**

#### **MODEL 1335A/H01 VARIABLE PERSISTENCE DISPLAY**

This modification sheet applies directly to instruments with serial numbers prefixed 2517A.

Model 1335A/H01 is a standard HP Model 1335A Variable Persistence Display modified to meet customer requirements as follows:

1. Attenuators on X-axis and Y-axis inputs are changed to 2:1 ratio.
2. Analog Z-axis input removed.
3. Digital Z-axis input inverted.
4. Remote storage from rear panel.
5. INTENSITY and PERSISTENCE controls are 10-turn potentiometers.
6. X and Y POSITION are screwdriver adjustments.
7. Front panels special paint.
8. Special rear panel.

**SPECIFICATION CHANGES.** Altered operating characteristics and construction details require that the following changes be made to Table 1-1 and Table 1-2 in the Operating and Service Manual for the standard instrument.

#### **VERTICAL AND HORIZONTAL AMPLIFIERS**

##### **Deflection Factor**

Horizontal: 200 mV/div (2 V p-p for 10 div deflection).

Vertical: 200 mV/div (1.6V p-p for 8 div deflection).

##### **Inputs**

Input RC: approx. 10.3 kilohms.

#### **Z-AXIS AMPLIFIER**

##### **Inputs**

No analog input to Z-Axis.

Digital: Input inverted by special circuit.

Open circuit or short to ground will blank trace of any intensity.

Input signal of +10V to +20V enables beam, and returns INTENSITY control capability.

#### **REMOTE PROGRAMMING**

##### **Remote Store**

Open circuit at rear panel BNC allows control from front panel.

Rear panel BNC shorted to ground places instrument in STORE mode.

#### **CATHODE-RAY TUBE**

Graticule: None.

**ELECTRICAL CHANGES.** Modifications listed above require changes to the standard instrument circuitry. These changes are discussed in more detail in the following paragraphs.

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**Attenuators on X-Axis and Y-Axis**

Compensated 2:1 attenuators are installed on both sides of the X-Axis and Y-Axis input amplifiers. Attenuator components are installed in pads provided on board A2. The manual supplied with this instrument shows the location of these components on schematics 1 and 2. Schematic notes show points of circuit difference for standard options as installed. The changes described in this paragraph apply only to Model 1335A/H01 and all other circuitry is treated as standard for the purpose of the schematic notes.

**Changes to Y-Axis input circuit:**

Remove: A2R1/R2 (1-megohm).  
Replace: A2C1/C2 with variable capacitors.  
Replace: A2R3/R4 with 5110-ohm resistors.  
Add: A2R5/R6, 5110-ohm resistors.

**Changes to X-Axis input circuit:**

Remove: A2R45/R46 (1-megohm).  
Replace: A2C18/C19 with variable capacitors.  
Replace: A2R47/R48 with 5110-ohm resistors.  
Add: A2R49/R50, 5110-ohm resistors.

**Z-Axis Changes.**

Digital TTL blanking input is located on the rear panel of this special instrument. Because customer requirements call for inverted blanking input, a special printed circuit board is installed to provide this capability. The board is designated A7, Inverter Board and is mounted inside the rear panel. Digital blanking signals are applied directly to A7, and after conditioning are applied to the standard Z-Axis amplifier as shown in figure 2 of this manual supplement. A component location drawing is supplied in figure 1. Add the circuitry of figure 2 to schematic 3 in the manual supplied.

In the changed configuration, an open or 0V input at the Digital Z-Axis input will blank the trace. A voltage in the range of +10V to +20V applied to Digital Z-Axis input will enable the beam.

**NOTE**

To permit performance check or adjustment procedures, a signal amplitude of +10V to +20V must be applied to Digital Z-Axis input to make the trace visible.

**Remote Storage Capability.**

A BNC connector on the rear panel provides the capability of storing a trace on the CRT from a location remote from the instrument. When this BNC looks at 0V or open circuit input, control of the STORE function is at the front panel. When this input BNC is shorted to ground, the instrument is placed in STORE mode as long as the shorted condition exists.

**Intensity and Persistence Controls**

Standard potentiometers are removed from the control board A5. In their place, 10-turn potentiometers are installed inside the front panel. These new potentiometers are hard-wired to board A5 with jumper wires. Turn-counting dials are provided on the front panel.

**Section VI. Replaceable Pa**

Table 1 lists replaceable parts deleted, changed, or added to make these modifications. make appropriate changes to table 6-2 in the manual supplied with the instrument.

**Section VIII. Service**

Add: Figures 1 and 2 of this modification sheet.

When changed to include the information on this modification sheet, the manual will apply to the 1335A/H01.

ENCL: 1335A Operating and Service Manual

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Rev. EM/sm/11-81

Rev. wdh/1-78

Rev. SM/sm/5-82

Rev. SM/sm/12-80

Rev. GH/sm/6-85

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**Table 1. Replaceable Parts**

| Action | Ref. Desig. | HP Part No. | C<br>D | Qty | Description                          |
|--------|-------------|-------------|--------|-----|--------------------------------------|
| Change | A1          | 01335-66530 |        | 1   | BOARD-ASSY MOTHER                    |
|        | A2          | 01335-66510 |        | 1   | BOARD-ASSY X Y AMP                   |
|        | A5          | 01335-66511 |        | 1   | BOARD-ASSY CONTROL                   |
| Add    | A7          | 01335-66508 |        | 1   | BOARD-ASSY INVERTER                  |
| Delete | MP1         | 0370-2785   |        | 5   | KNOB-ROUND                           |
| Add    | MP6         | 1140-0066   |        | 2   | DIAL-TURNS COUNTING                  |
|        | MP12        | 1460-1345   |        | 2   | STAND-TILT                           |
|        | MP17        | 5001-0439   |        | 2   | TRIM-FRONT SIDE                      |
|        | MP25        | 5040-7201   |        | 4   | FEET                                 |
|        | MP26        | 5040-7203   |        | 1   | TRIM-TOP FRONT                       |
|        | MP33        | 01335-04106 |        | 1   | COVER-TOP                            |
|        | MP34        | 01335-04109 |        | 1   | COVER-BOTTOM                         |
| Change | MP37        | 01335-07209 |        | 1   | INSERT-RIGHT                         |
|        | MP38        | 01335-07210 |        | 1   | INSERT-LEFT                          |
|        | MP43        | 01335-00202 |        | 1   | PANEL-ASSY-REAR                      |
| Add    | MP70        | 01332-66508 |        | 1   | FILTER ROUND CLR                     |
|        | MP200       | 01335-02203 |        | 1   | MASK-METAL SQ                        |
| Change | V1          | 5083-4453   |        | 1   | CRT P31 AL NG                        |
|        | W2          | 8120-1992   |        | 1   | POWER CORD                           |
| Delete | W8          | 01332-61605 |        | 1   | Z INPUT CABLE ASSY                   |
| Change | W9          | 01335-61607 |        | 1   | LOGIC BLANKING CABLE ASSY            |
| Change | A1          | 01335-66526 |        | 1   | BOARD ASSY MOTHER                    |
|        | A1R75       | 0683-1025   |        | 1   | RESISTOR-FXD 1K 5% .25W              |
| Change | A2          | 01335-66510 |        | 1   | BOARD-ASSY X-Y AMP                   |
| Delete | A2R1        |             |        |     |                                      |
|        | A2R2        |             |        |     |                                      |
| Add    | A2R5        | 0757-0747   |        | 4   | RESISTOR-FXD 5.11K 1% .25W           |
|        | A2R6        | 0757-0747   |        |     | RESISTOR-FXD 5.11K 1% .25W           |
| Change | A2C1        | 0121-0455   |        | 4   | CAPACITOR-VAR 1.9-15.5PF             |
|        | A2C2        | 0121-0455   |        |     | CAPACITOR-VAR 1.9-15.5PF             |
| Change | A2R3        | 0757-0747   |        |     | RESISTOR-FXD 5.11 1% .25W            |
|        | A2R4        | 0757-0747   |        |     | RESISTOR-FXD 5.11 1% .25W            |
| Delete | A2R45       |             |        |     |                                      |
|        | A2R46       |             |        |     |                                      |
| Add    | A2R49       | 0757-0747   |        |     | RESISTOR-FXD 5.11K 1% .25W           |
|        | A2R50       | 0757-0747   |        |     | RESISTOR-FXD 5.11K 1% .25W           |
| Change | A2C18       | 0121-0455   |        |     | CAPACITOR-VAR 1.9-15.5 PF            |
|        | A2C19       | 0121-0455   |        |     | CAPACITOR-VAR 1.9-15.5 PF            |
| Change | A2R47       | 0757-0747   |        |     | RESISTOR-FXD 5.11K 1% .25W           |
|        | A2R48       | 0757-0747   |        |     | RESISTOR-FXD 5.11K 1% .25W           |
| Change | A5          | 01335-66511 |        | 1   | BOARD-ASSY CONTROL                   |
|        | A5R3        | 2100-3401   |        | 2   | RESISTOR-VAR 10-TRN 20K 5%           |
|        | A5R5        | 2100-3401   |        |     | RESISTOR-VAR 10-TRN 20K 5%           |
| Add    | A7          | 01335-66508 |        | 1   | BOARD-ASSY INVERTER                  |
|        | A7C1        | 0140-0205   |        | 1   | CAPACITOR-FXD 62PF 300 VDCW          |
|        | A7CR1       | 1901-0040   |        | 1   | DIODE-SWITCHING 2NS 30V 50MA         |
|        | A7CR2       | 1910-0016   |        | 1   | DIODE-GE 60V 60MA 1 USEC DO-7        |
|        | A7Q1        | 1854-0071   |        | 1   | TRANSISTOR NPN SI PD=300MW FT=200MHZ |
|        | A7R1        | 0757-0442   |        | 2   | RESISTOR-FXD 10K 1% .125W            |
|        | A7R2        | 0757-0442   |        |     | RESISTOR-FXD 10K 1% .125W            |

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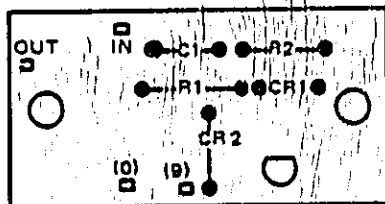


Figure 1. Component Locator, A7 Inverter Board Assembly

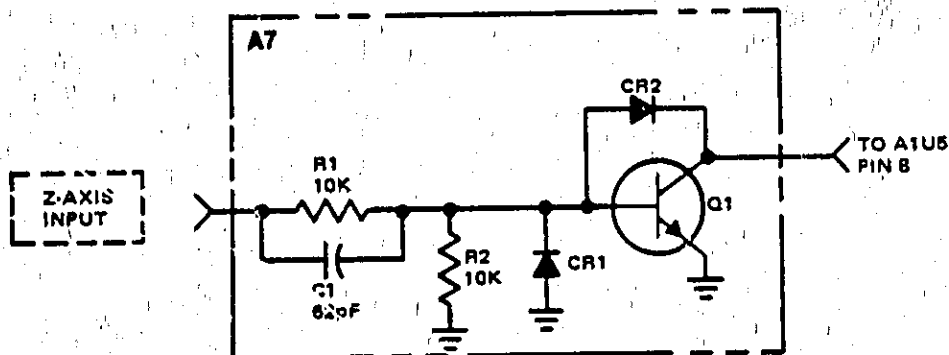


Figure 2. Schematic A7, Inverter Board Assembly