

**Manual Supplement to
Troubleshooting and Repair Manual
HP 85662A Spectrum Analyzer IF-Display Section**



**HP Part No. 85662-90089
Printed in USA January 1992**

Supplement to Part Number 85662-90085

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Changes

Insert the following pages in the “A4A1 Video Processor” section of the *HP 85662A IF-Display Section Troubleshooting and Repair Manual, Vol. 2*.

- Insert pages 2a and 2b after page 2.
- Insert parts list (part number 85662-60241) after existing parts list (part number 85662-60122).
- Insert component location at the end of the section.
- Insert schematic (drawing number D-85662-60241-1) at the end of the section.

Note



This supplement does not replace existing information. This supplement only applies to serial number prefixes 3144A and above.

A4A1 Video Processor (85662-60241), Circuit Description (Serial Number Prefixes: 3144A and Above)

Overall Theory of Operation

The Video Processor is the interface between the Log Amp/Detector, and the Track and Hold function blocks. It provides switchable video bandwidths, log offset, and expanded log scale. The Video Processor also provides the switching necessary for Recorder Video and Recorder Sweep functions.

Input Amplifier (A)

The detector on the A4A2 log amp board provides a video voltage ranging from 0 V to 1 V which is conveyed to the video processor via the motherboard. U101 inverts the video signal and provides a gain of two, then the Unity Gain amplifier U102 reinverts the signal. U101 pin 2 provides a summing node for the log offsets. The output of this block is 0 to 2 V for signals at or below the reference level.

Video Filter (B)

The Video Filter consists of a network of resistor-capacitor low-pass filters corresponding to video bandwidths from 1 Hz to 1 MHz. Each video bandwidth filter is selected by U105, a 16-input multiplexer, via VBWA through VBWD logic levels. The video signal is buffered by U106 for output to the next block. When the 3 MHz video bandwidth is selected the video bandwidth low-pass filters are all off, and the Video Processor board is at its maximum bandwidth (≈ 11 MHz).

Log Offset and Reference (C)

Log offsets are DC voltages summed into the video signal to simulate additional gain in the IF signal path. VR101 and U151 generate a 4.0 V reference which produces currents through switched resistors R160, R161, and R162 into the virtual ground summing node of U101.

When U153C is closed, 4.0 V across R161 provides 0.2 mA through R103. The voltage drop across R103 is $(0.2 \text{ mA})(R103) = 0.4 \text{ V}$. Since full scale deflection is 2 V, and the graticule is divided into 10 major divisions, applying 0.4 V to U101 offsets the incoming video signal by two major divisions or 20 dB in Log 10 dB/DIV.

Log Expand ⑩

Log scales of 1, 2, 5, and 10 dB/DIV are implemented here. In LINEAR mode the video processor remains in the 10 dB/DIV state.

U107 inverts the signal and has a gain of three. U107 also offsets the signal by 6 V, which sets the top-of-screen signal at 0 V and bottom screen signal at 6 V. (Measurements taken at Test Point 2.)

R127 through R130 form a voltage divider with selectable attenuations of 1 (1 dB/DIV), 0.5 (2 dB/DIV), 0.2 (5 dB/DIV) and 0.1 (10 dB/DIV).

U109 is a unity gain buffer, U110 reinverts the signal and provides a gain of 3.333 and an offset of 2 V to set the output of the board to 2 V at top screen.

The output of the A4A1 Video Processor goes to the A3A9 Track and Hold board via the video loop, and to the Recorder Output Video on the rear panel via the Recorder Output circuit, block F.

Power Supplies ⑨

L103, C132 form a 14 kHz low-pass filter for the +15 V supply. L104 and C133 form a 14 kHz low-pass filter for the -15 V supply.

Recorder Output ⑥

The Recorder Output circuit provides both signal and calibration outputs for an X-Y plotter.

The control line REC CAL from the IF Control board A4A9 controls the state of analog switch U111. When REC CAL is high, the 0 to 1 V video from the Log Scale circuit and the 0 to 10 V ramp from AUX SWEEP have closed paths through the switch to provide video and sweep signal outputs to the rear panel. Note that in this state, switches U11B and UUA are closed and U11C and U11D are open. When REC CAL is low, the switch changes state and provides calibration voltages developed across the R170, R171, R172 divider stick to the rear panel. When Lower Left (LL) is activated, control line REC ZERO from A4A9 IF Control board is low and the switch inputs are pulled to approximately 0 V. When REC ZERO is high, its open collector output will be set to the voltage determined by the divider stick: +10 V for X_r out, and 1.0 V for Y_r out.

HP Part Number 85662-60241

A4A1 Video Processor

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|---|----------|-----------------|
| A4A1 | 85662-60241 | 1 | 1 | BOARD ASSEMBLY, VIDEO PROCESSOR (SERIAL PREFIX: 3144A) | 28480 | 85662-60241 |
| A4A1C101 | 0160-4807 | 3 | 1 | CAP-FXD 33pF +-5% 100 V CER COG | 02010 | SA102A330JAAH |
| A4A1C104 | 0160-4832 | 4 | 1 | CAP-FXD 0.01uF +-10% 100 V CER X7R | 02010 | SA101C103KAAH |
| A4A1C105 | 0160-4832 | 4 | 1 | CAP-FXD 0.01uF +-10% 100 V CER X7R | 02010 | SA101C103KAAH |
| A4A1C107 | 0160-4832 | 4 | 1 | CAP-FXD 0.01uF +-10% 100 V CER X7R | 02010 | SA101C103KAAH |
| A4A1C108 | 0160-4835 | 7 | 1 | CAP-FXD 0.1uF +-10% 50 V CER X7R | 02010 | SA105C104KAAH |
| A4A1C109 | 0160-4832 | 4 | 1 | CAP-FXD 0.01uF +-10% 100 V CER X7R | 02010 | SA101C103KAAH |
| A4A1C111 | 0160-4804 | 0 | 1 | CAP-FXD 56pF +-5% 100 V CER COG | 02010 | SA102A560JAAH |
| A4A1C112 | 0160-4811 | 9 | 1 | CAP-FXD 270pF +-5% 100 V CER COG | 02010 | SA101A271JAAH |
| A4A1C113 | 0160-4811 | 9 | 1 | CAP-FXD 270pF +-5% 100 V CER COG | 02010 | SA101A271JAAH |
| A4A1C114 | 0160-4574 | 1 | 1 | CAP-FXD 1000pF +-10% 100 V CER X7R | 02010 | SA101C102KAAH |
| A4A1C115 | 0160-5099 | 7 | 1 | CAP-FXD 3300pF +-5% 100 V CER COG | 02010 | SA301A332JAAH |
| A4A1C116 | 0160-4832 | 4 | 1 | CAP-FXD 0.01uF +-10% 100 V CER X7R | 02010 | SA101C103KAAH |
| A4A1C117 | 0160-6588 | 1 | 1 | CAP-FXD 0.033uF +-10% 100 V CER X7R | 02010 | SA301C333KAAH |
| A4A1C119 | 0160-4835 | 7 | 1 | CAP-FXD 0.1uF +-10% 50 V CER X7R | 02010 | SA105C104KAAH |
| A4A1C120 | 0180-4225 | 1 | 1 | CAP-FXD 0.33uF +-10% 35 V TA | 12340 | T322A334K035AS |
| A4A1C121 | 0180-4129 | 4 | 1 | CAP-FXD 1uF +-10% 35 V TA | 04200 | 173D105X9035V |
| A4A1C122 | 0180-3736 | 7 | 1 | CAP-FXD 3.3uF +-10% 50 V TA | 04200 | 173D335X9050X |
| A4A1C123 | 0180-4136 | 3 | 1 | CAP-FXD 10uF +-10% 20 V TA | 04200 | 173D106X9020W |
| A4A1C124 | 0180-4135 | 2 | 1 | CAP-FXD 33uF +-10% 10 V TA | 04200 | 173D336X9010X |
| A4A1C125 | 0160-4832 | 4 | 1 | CAP-FXD 0.01uF +-10% 100 V CER X7R | 02010 | SA101C103KAAH |
| A4A1C128 | 0160-4832 | 4 | 1 | CAP-FXD 0.01uF +-10% 100 V CER X7R | 02010 | SA101C103KAAH |
| A4A1C130 | 0160-4835 | 7 | 1 | CAP-FXD 0.1uF +-10% 50 V CER X7R | 02010 | SA105C104KAAH |
| A4A1C131 | 0160-4832 | 4 | 1 | CAP-FXD 0.01uF +-10% 100 V CER X7R | 02010 | SA101C103KAAH |
| A4A1C132 | 0180-3847 | 1 | 1 | CAP-FXD 22uF +-10% 25 V TA | 04200 | 299D226X9025DB1 |
| A4A1C133 | 0180-3847 | 1 | 1 | CAP-FXD 22uF +-10% 25 V TA | 04200 | 299D226X9025DB1 |
| A4A1C134 | 0160-4835 | 7 | 1 | CAP-FXD 0.1uF +-10% 50 V CER X7R | 02010 | SA105C104KAAH |
| A4A1C150 | 0160-4835 | 7 | 1 | CAP-FXD 0.1uF +-10% 50 V CER X7R | 02010 | SA105C104KAAH |
| A4A1C151 | 0160-4835 | 7 | 1 | CAP-FXD 0.1uF +-10% 50 V CER X7R | 02010 | SA105C104KAAH |
| A4A1C152 | 0160-4832 | 4 | 1 | CAP-FXD 0.01uF +-10% 100 V CER X7R | 02010 | SA101C103KAAH |
| A4A1C153 | 0160-4832 | 4 | 1 | CAP-FXD 0.01uF +-10% 100 V CER X7R | 02010 | SA101C103KAAH |
| A4A1CR101 | 1901-0179 | 7 | 1 | DIODE-SWITCHING 15V 50MA 750PS DO-7 | 03406 | FD777 |
| A4A1CR102 | 1901-0050 | 3 | 1 | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 03406 | |
| A4A1J1 | 1250-0690 | 6 | 1 | CONNECTOR-RF SMB M SGL-HOLE-FR 50-OHM | 05769 | 51-047-4610 |
| A4A1J2 | 1250-0690 | 6 | 1 | CONNECTOR-RF SMB M SGL-HOLE-FR 50-OHM | 05769 | 51-047-4610 |
| A4A1J3 | 1250-0690 | 6 | 1 | CONNECTOR-RF SMB M SGL-HOLE-FR 50-OHM | 05769 | 51-047-4610 |
| A4A1J4 | 1250-0690 | 6 | 1 | CONNECTOR-RF SMB M SGL-HOLE-FR 50-OHM | 05769 | 51-047-4610 |
| A4A1L103 | 9100-1618 | 1 | 1 | INDUCTOR RF-CH-MLD 5.6UH +-10% | 05826 | 1537-30 |
| A4A1L104 | 9100-1618 | 1 | 1 | INDUCTOR RF-CH-MLD 5.6UH +-10% | 05826 | 1537-30 |
| A4A1L105 | 9100-3548 | 0 | 1 | INDUCTOR RF-CH-MLD 470NH +-5% | 03273 | 15M470J |
| A4A1Q103 | 1854-0637 | 1 | 1 | TRANSISTOR NPN 2N2219A SI TO-5 PD=800MW | 02037 | 2N2219A |
| A4A1R2 | 2100-3109 | 2 | 1 | RESISTOR-TRMR 2K 10% TKF SIDE-ADJ 17-TRN | 04568 | 89PR2K |
| A4A1R14 | 2100-3123 | 0 | 1 | RESISTOR-TRMR 500 10% TKF SIDE-ADJ | 04568 | 89PR500 |
| A4A1R32 | 2100-3094 | 4 | 1 | RESISTOR-TRMR 100K 10% TKF SIDE-ADJ | 04568 | 89PR100K |
| A4A1R36 | 2100-3123 | 0 | 1 | RESISTOR-TRMR 500 10% TKF SIDE-ADJ | 04568 | 89PR500 |
| A4A1R101 | 0698-6355 | 9 | 1 | RESISTOR 400 +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |

*Indicates factory-selected value

85662-60241 Parts List

Page 1 of 3

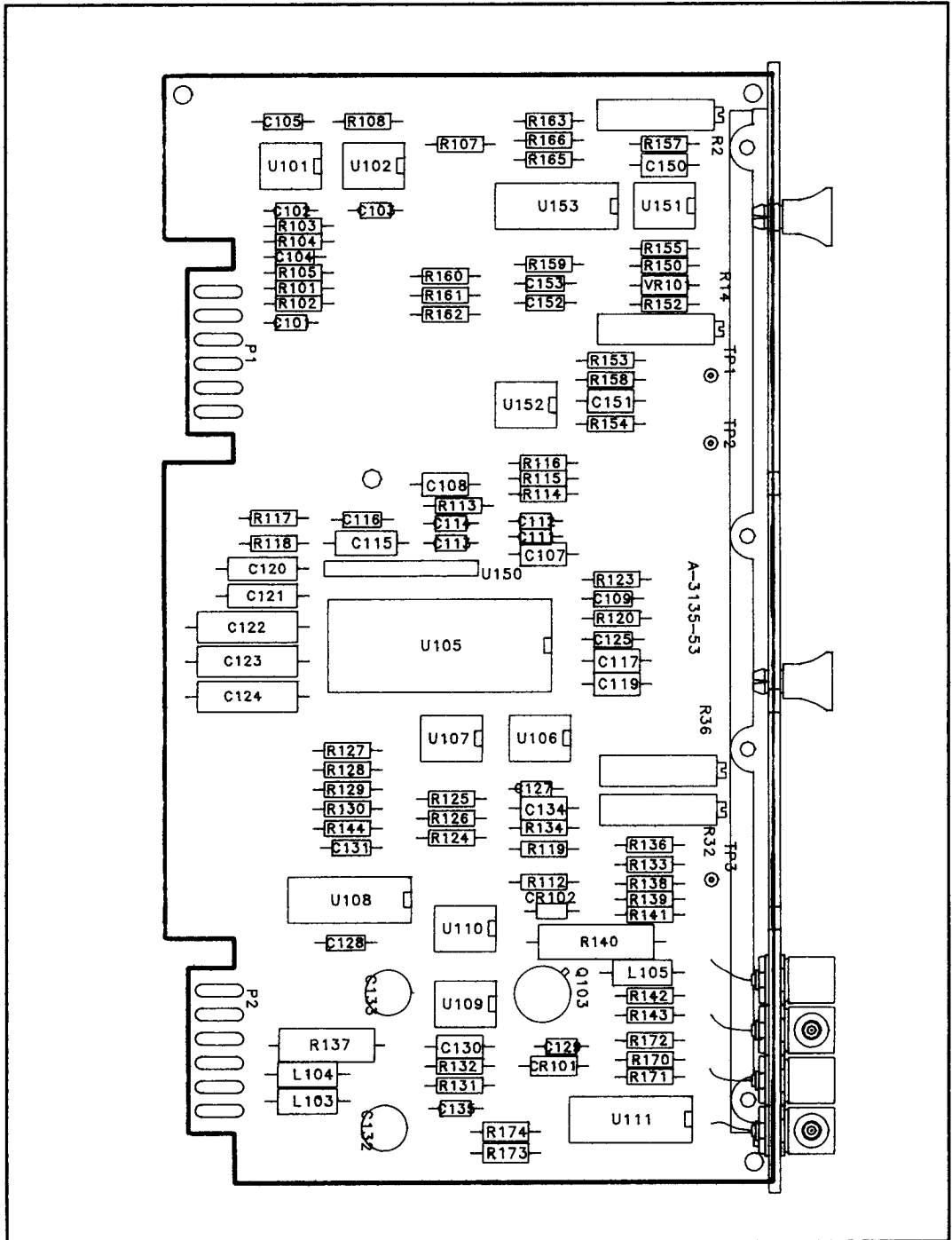
HP Part Number 85662-60241
A4A1 Video Processor

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
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| A4A1R102 | 0698-6317 | 3 | 1 | RESISTOR 500 +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R103 | 0698-6624 | 5 | 1 | RESISTOR 2K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R104 | 0698-6624 | 5 | 1 | RESISTOR 2K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R105 | 0757-0394 | 0 | 1 | RESISTOR 51.1 +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R107 | 0698-6624 | 5 | 1 | RESISTOR 2K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R108 | 0757-0394 | 0 | 1 | RESISTOR 51.1 +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R112 | 0698-6362 | 8 | 1 | RESISTOR 1K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R113 | 0757-0279 | 0 | 1 | RESISTOR 3.16K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R114 | 0757-0428 | 1 | 1 | RESISTOR 1.62K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R115 | 0757-0428 | 1 | 1 | RESISTOR 1.62K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R116 | 0757-0428 | 1 | 1 | RESISTOR 1.62K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R117 | 0757-0438 | 3 | 1 | RESISTOR 5.11K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R118 | 0757-0438 | 3 | 1 | RESISTOR 5.11K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R119 | 0698-6362 | 8 | 1 | RESISTOR 1K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R120 | 0757-0394 | 0 | 1 | RESISTOR 51.1 +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R123 | 0757-0394 | 0 | 1 | RESISTOR 51.1 +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R124 | 0698-6362 | 8 | 1 | RESISTOR 1K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R125 | 0698-6348 | 0 | 1 | RESISTOR 3K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R126 | 0698-6624 | 5 | 1 | RESISTOR 2K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R127 | 0698-6317 | 3 | 1 | RESISTOR 500 +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R128 | 0698-6346 | 8 | 1 | RESISTOR 300 +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R129 | 0698-6323 | 1 | 1 | RESISTOR 100 +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R130 | 0698-6323 | 1 | 1 | RESISTOR 100 +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R131 | 0698-6355 | 9 | 1 | RESISTOR 400 +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R132 | 0698-6377 | 5 | 1 | RESISTOR 200 +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R133 | 0698-6322 | 0 | 1 | RESISTOR 4K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R134 | 0757-0465 | 6 | 1 | RESISTOR 100K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R136 | 0757-0394 | 0 | 1 | RESISTOR 51.1 +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R137 | 0813-0050 | 5 | 1 | RESISTOR 100 +-5% 3W PWI TC=0+-20 | 05524 | RS-2B |
| A4A1R138 | 0757-0199 | 3 | 1 | RESISTOR 21.5K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R139 | 0698-6624 | 5 | 1 | RESISTOR 2K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R140 | 0757-0814 | 9 | 1 | RESISTOR 511 +-1% .5W TF TC=0+-100 | 05524 | CMF-65-2 |
| A4A1R141 | 0757-0394 | 0 | 1 | RESISTOR 51.1 +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R142 | 0698-6323 | 1 | 1 | RESISTOR 100 +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R143 | 0698-6323 | 1 | 1 | RESISTOR 100 +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R144 | 0757-0394 | 0 | 1 | RESISTOR 51.1 +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R150 | 0757-0280 | 3 | 1 | RESISTOR 1K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R152 | 0698-6322 | 0 | 1 | RESISTOR 4K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R153 | 0698-6322 | 0 | 1 | RESISTOR 4K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R154 | 0698-6320 | 8 | 1 | RESISTOR 5K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R155 | 0698-6348 | 0 | 1 | RESISTOR 3K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R157 | 0698-6320 | 8 | 1 | RESISTOR 5K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R158 | 0757-0394 | 0 | 1 | RESISTOR 51.1 +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R159 | 0757-0394 | 0 | 1 | RESISTOR 51.1 +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R160 | 0698-6630 | 3 | 1 | RESISTOR 20K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R161 | 0698-6630 | 3 | 1 | RESISTOR 20K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R162 | 0698-6363 | 9 | 1 | RESISTOR 40K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R163 | 0757-0199 | 3 | 1 | RESISTOR 21.5K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |

HP Part Number 85662-60241
A4A1 Video Processor

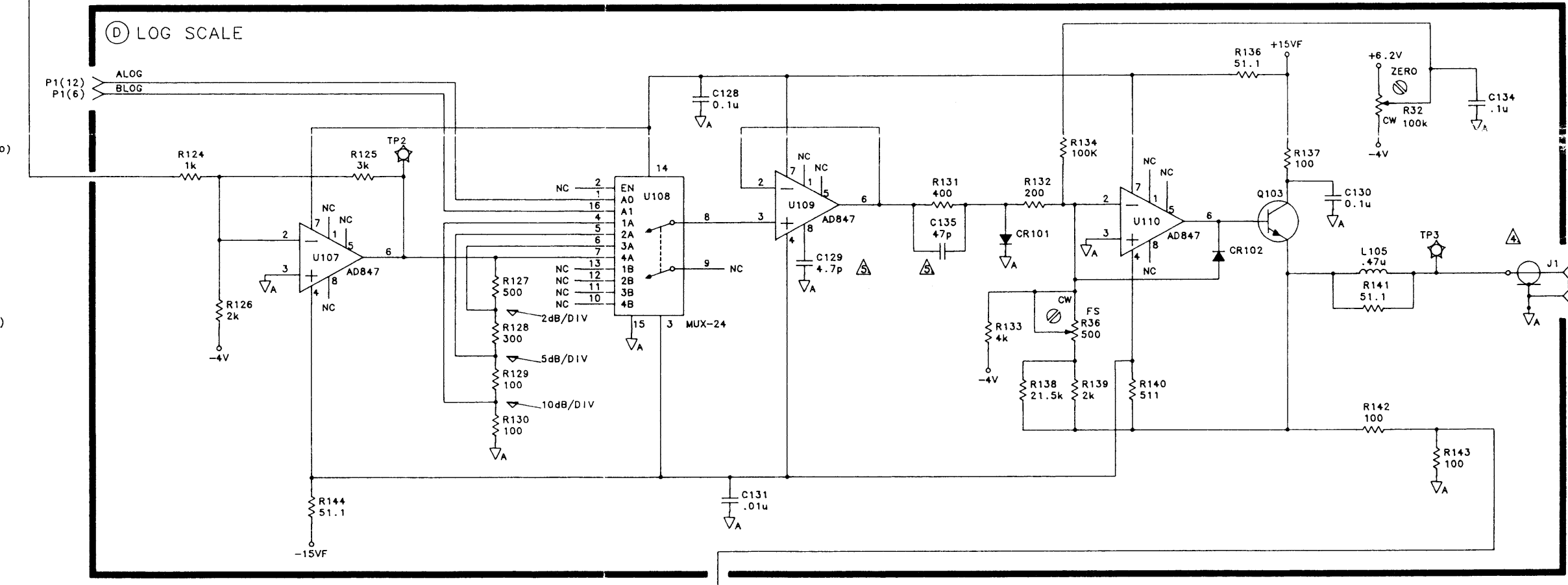
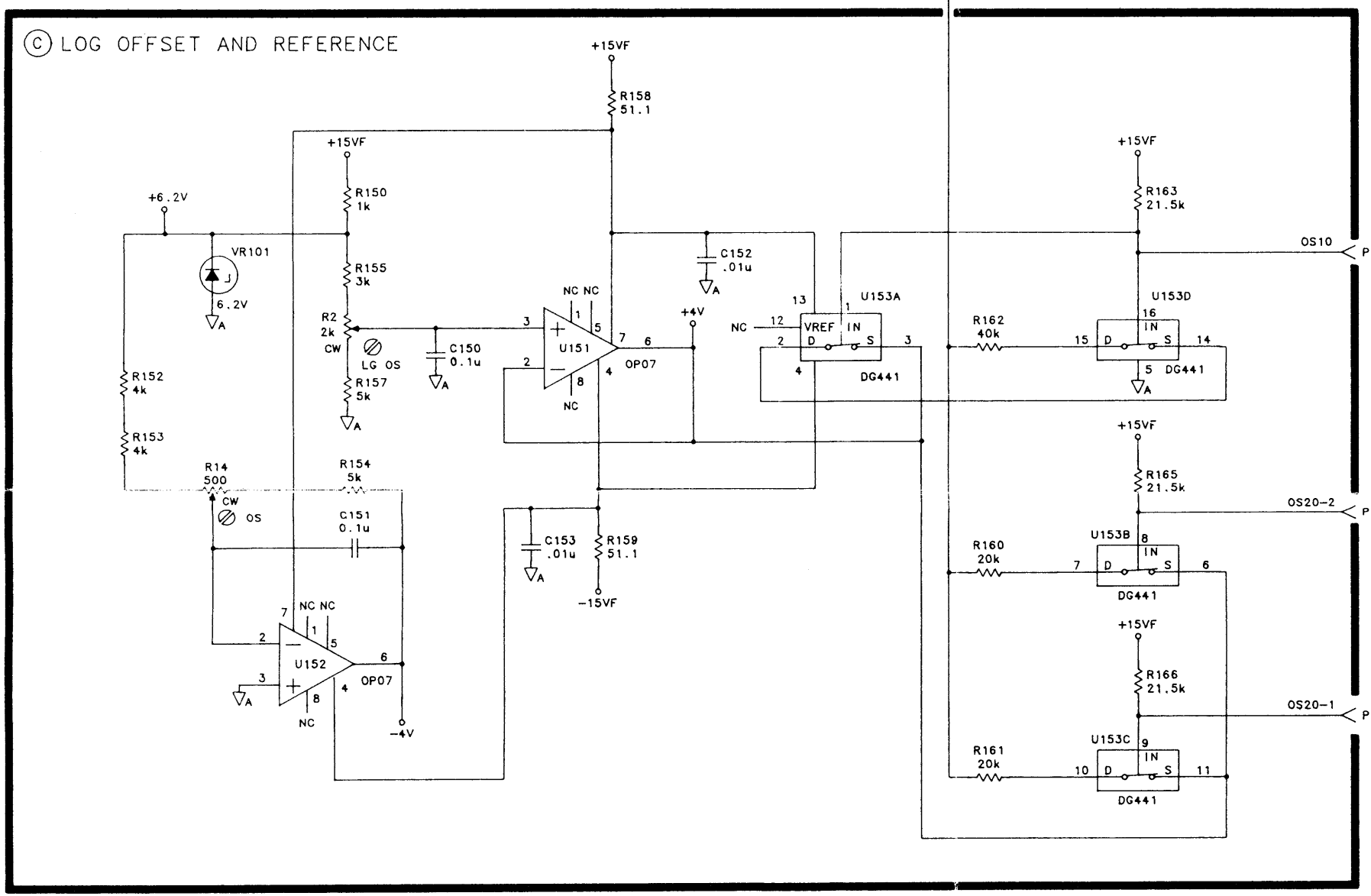
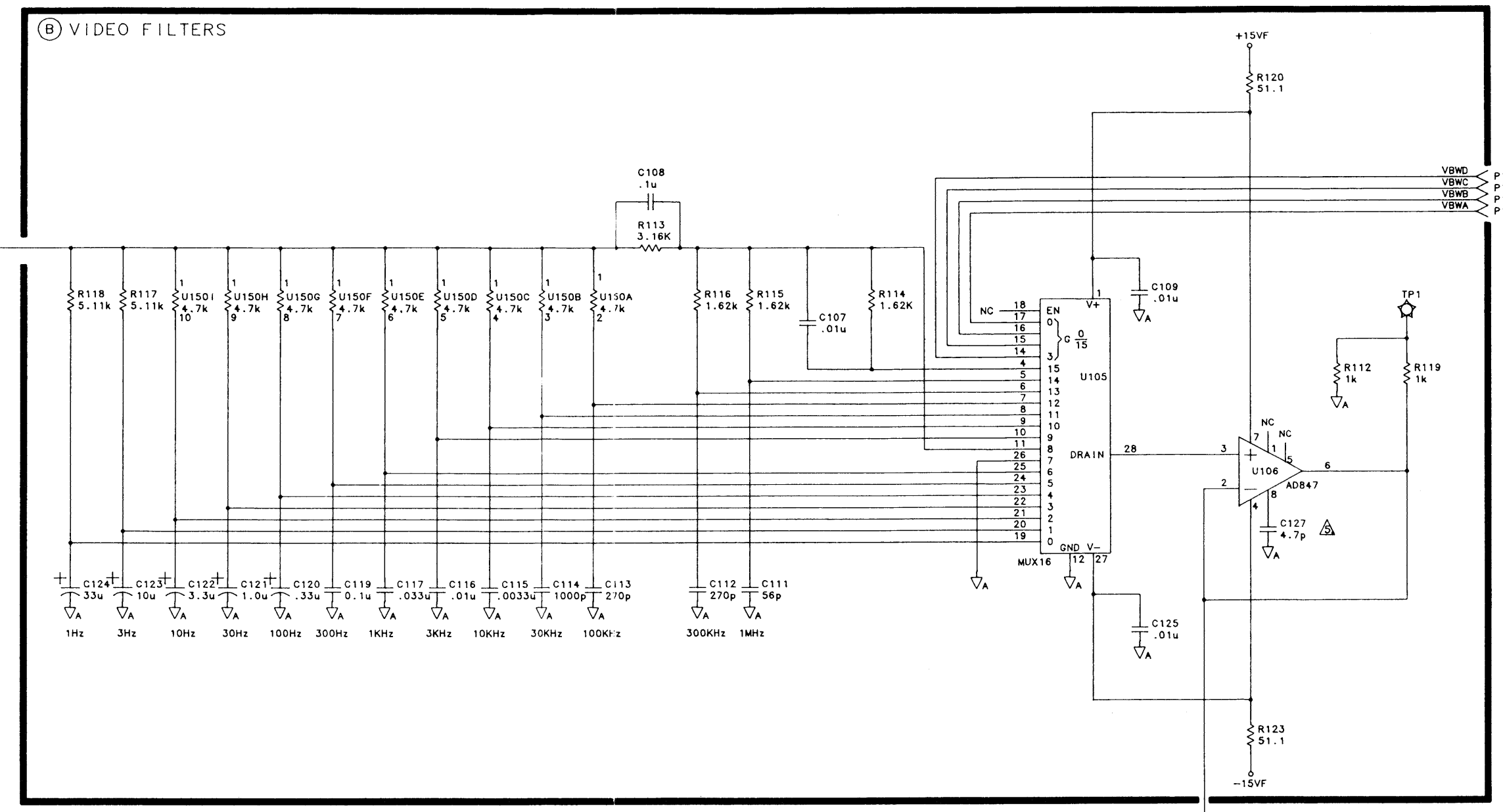
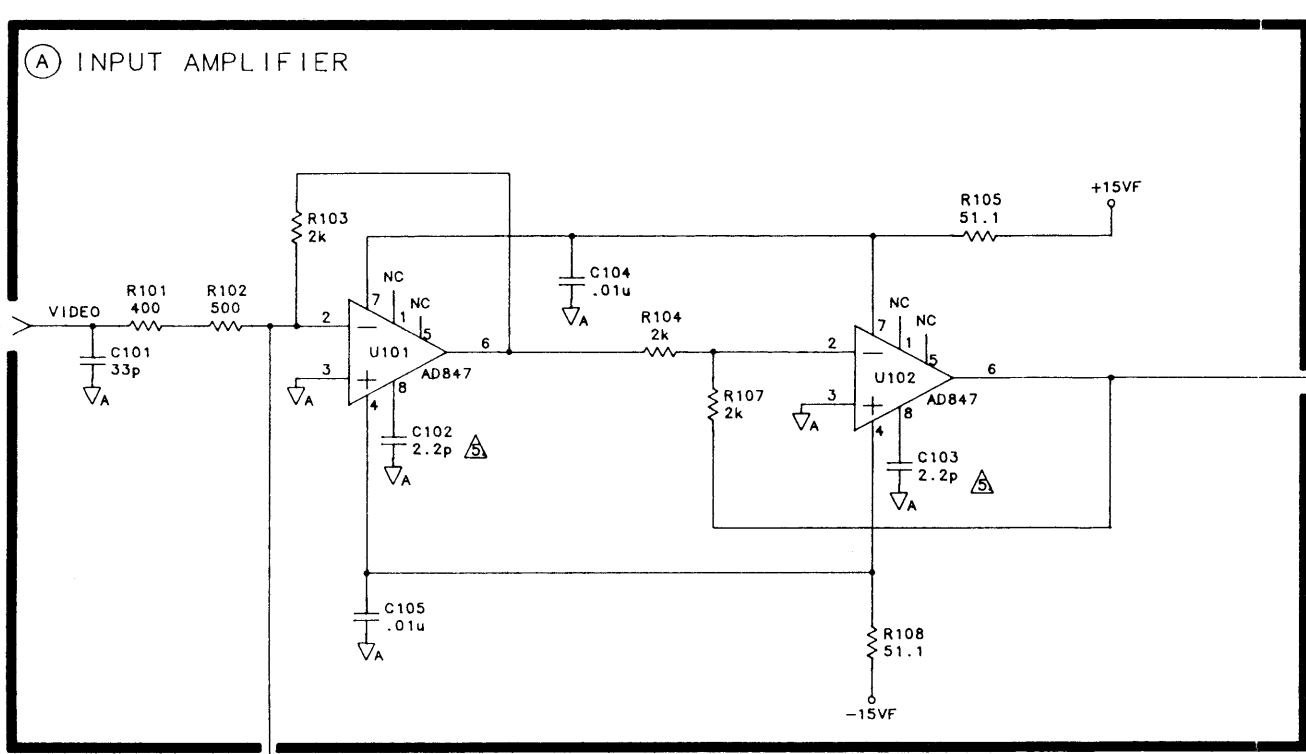
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| A4A1R165 | 0757-0199 | 3 | 1 | RESISTOR 21.5K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R166 | 0757-0199 | 3 | 1 | RESISTOR 21.5K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R170 | 0757-0416 | 7 | 1 | RESISTOR 511 +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R171 | 0698-3155 | 1 | 1 | RESISTOR 4.64K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R172 | 0698-6631 | 4 | 1 | RESISTOR 2.5K +-0.1% .125W TF TC=0+-25 | 05524 | CMF-55-1, T-9 |
| A4A1R173 | 0698-3157 | 3 | 1 | RESISTOR 19.6K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1R174 | 0757-0442 | 9 | 1 | RESISTOR 10K +-1% .125W TF TC=0+-100 | 05524 | CMF-55-1 |
| A4A1TP1 | 1251-0600 | 0 | 1 | CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ | 03418 | 16-06-0034 |
| A4A1TP2 | 1251-0600 | 0 | 1 | CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ | 03418 | 16-06-0034 |
| A4A1TP3 | 1251-0600 | 0 | 1 | CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ | 03418 | 16-06-0034 |
| A4A1U101 | 1826-1940 | 2 | 1 | IC OP AMP HS 8 PIN DIP-P | 03285 | AD847JN |
| A4A1U102 | 1826-1940 | 2 | 1 | IC OP AMP HS 8 PIN DIP-P | 03285 | AD847JN |
| A4A1U105 | 1826-1177 | 7 | 1 | ANALOG MULTIPLEXER 16 CHNL 28 -CERDIP | 02180 | MUX-16-FT |
| A4A1U106 | 1826-1940 | 2 | 1 | IC OP AMP HS 8 PIN DIP-P | 03285 | AD847JN |
| A4A1U107 | 1826-1940 | 2 | 1 | IC OP AMP HS 8 PIN DIP-P | 03285 | AD847JN |
| A4A1U108 | 1826-0610 | 1 | 1 | ANALOG MULTIPLEXER 4 CHNL 16 -CERDIP | 02180 | MUX-24FQ |
| A4A1U109 | 1826-1940 | 2 | 1 | IC OP AMP HS 8 PIN DIP-P | 03285 | AD847JN |
| A4A1U110 | 1826-1940 | 2 | 1 | IC OP AMP HS 8 PIN DIP-P | 03285 | AD847JN |
| A4A1U111 | 1826-0417 | 6 | 1 | ANALOG SWITCH 4 SPST 16 -CBRZ | 03406 | LF13333D |
| A4A1U150 | 1810-0279 | 5 | 1 | NETWORK-RES 10-SIP 4.7K OHM X 9 | 05524 | MSP10A01 |
| A4A1U151 | 1826-1048 | 1 | 1 | IC OP AMP PRCN 8 PIN DIP-C | 02180 | OP-07CZ |
| A4A1U152 | 1826-1048 | 1 | 1 | IC OP AMP PRCN 8 PIN DIP-C | 02180 | OP-07CZ |
| A4A1U153 | 1826-2191 | 7 | 1 | ANALOG SWITCH 4 SPST 16 -DIP-P | 02883 | DG441DJ |
| A4A1VR101 | 1902-0625 | 0 | 1 | DIODE-ZNR 1N829 6.2V 5% DO-35 PD=.4W | 02037 | 1N829 |

**Indicates factory-selected value*



A4A1 Video Processor Component Locations, 85662-60241

| SYM | REVISIONS | APPROVED | DATE |
|-----|----------------------------|----------|---------|
| A | AS ISSUED PER PCO 53-06516 | | 7-26-91 |



TRUTH TABLES:

1. UNLESS OTHERWISE INDICATED, LOGIC LEVELS ARE TTL:
+3.6V TO +5.0V = LOGIC 1 = HIGH
0V TO +0.8V = LOGIC 0 = LOW

2. OFFSET GAIN STEPS TRUTH TABLE:

| LOG REF LEVEL | RES BW >3kHz | RES BW <3kHz | OS10 | OS2-1 | OS2-2 |
|-------------------|-------------------|-------------------|-------|-------|-------|
| -70 TO -79.9dBm | -80 TO -89.9dBm | -80 TO -89.9dBm | OV | >+14V | >+14V |
| -80 TO -89.9dBm | -90 TO -99.9dBm | -90 TO -99.9dBm | >+14V | OV | >+14V |
| -90 TO -99.9dBm | -100 TO -109.9dBm | -100 TO -109.9dBm | OV | >+14V | OV |
| -100 TO -109.9dBm | -110 TO -119.9dBm | -110 TO -119.9dBm | >+14V | OV | OV |
| -110 TO -119.9dBm | -120 TO -129.9dBm | -120 TO -129.9dBm | OV | >+14V | OV |
| -120 TO -129.9dBm | -130 TO -139.9dBm | -130 TO -139.9dBm | >+14V | OV | OV |
| -130 TO -139.9dBm | -140 TO -149.9dBm | -140 TO -149.9dBm | OV | OV | OV |

5. RECORDER OUTPUT TABLE:

| | REC CAL | REC ZERO | J4 OUTPUT | J2 OUTPUT |
|-------------------------------|---------|----------|-----------|-----------|
| LOWER LEFT ACTIVATED | OV | OV | OV | OV |
| UPPER RIGHT ACTIVATED | OV | +10V | +10V | +1V |
| RECORDER LIMITS NOT ACTIVATED | +5V | +10V | SWEEP | VIDEO |

6. LOG EXPAND FIDELITY TABLE:

INSTRUMENT CONTROL SETTINGS ARE AS FOLLOWS:
 CENTER FREQUENCY: 20MHz
 FREQUENCY SPAN: 0Hz
 ATTENUATOR: 0dB
 REF LEVEL: -10dBm
 CONNECT 3550 ATTENUATOR BETWEEN RF SECTION CALIBRATOR OUTPUT AND SIGNAL INPUT.

| EXTERNAL ATTENUATOR | TP1 | TP2 | TP3 | SIGNAL POSITION |
|---------------------|-------|-----|-----|-----------------|
| 0dB | +1V | 0V | +2V | SCREEN |
| 50dB | +0.5V | +3V | +1V | SCREEN |
| 50dB+ | 0V | +6V | 0V | SCREEN |

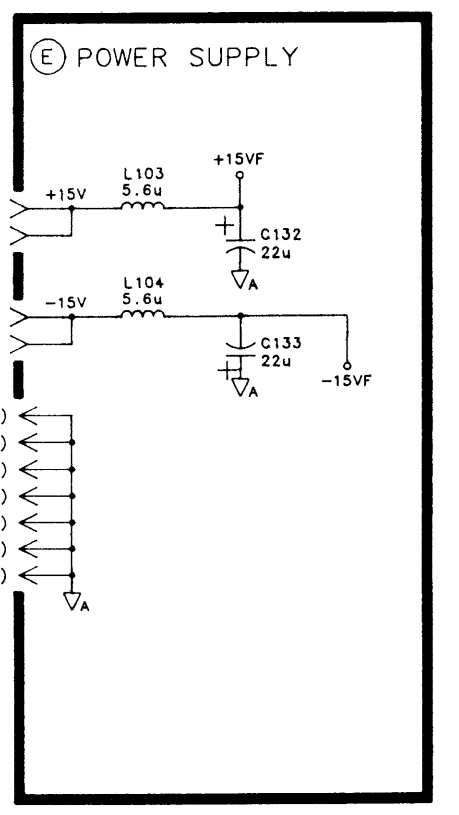
* PUSH LINEAR BUTTON

VIDEO BANDWIDTH TRUTH TABLE:

| VIDEO BANDWIDTH | VWMD | VWMC | VWMS | VWMA |
|-----------------|------|------|------|------|
| 3MHz | H | H | H | H |
| 1MHz | H | H | H | L |
| 200kHz | H | H | L | H |
| 30kHz | H | L | H | H |
| 10kHz | H | L | L | L |
| 3kHz | L | L | H | H |
| 1kHz | L | L | L | H |
| 300Hz | L | L | L | L |
| 100Hz | L | L | L | L |
| 30Hz | L | L | L | L |
| 10Hz | L | L | L | L |
| 3Hz | L | L | L | L |
| 1Hz | L | L | L | L |

4. LOG EXPAND TRUTH TABLE:

| LOG SCALE | B LOG | A LOG |
|-------------|-------|-------|
| 10 dB / DIV | L | A |
| 5 dB / DIV | L | H |
| 2 dB / DIV | H | L |
| 1 dB / DIV | H | H |



NOTES:

- REFERENCE DESIGNATORS WITHIN THIS ASSEMBLY ARE ABBREVIATED. PREFIX ABBREVIATION WITH ASSEMBLY NUMBER FOR COMPLETE REFERENCE DESIGNATOR.
- UNLESS OTHERWISE INDICATED: RESISTANCE IN OHMS; CAPACITANCE IN MICROFARADS; INDUCTANCE IN MICROHENRIES.
- MEMORIC TABLE

| MEMORIC | DESCRIPTION |
|------------|--------------------------|
| VWMA | VIDEO BANDWIDTH(LSB) |
| VWMB | VIDEO BANDWIDTH |
| VWMC | VIDEO BANDWIDTH |
| VWMD | VIDEO BANDWIDTH(MSB) |
| ALOG | LOG SCALE(LSB) |
| BLOG | LOG SCALE(MSB) |
| OS10 | LOG OFFSET 10dB-1 |
| OS20-1 | LOG OFFSET 20dB-1 |
| OS20-2 | LOG OFFSET 20dB-2 |
| VIDEO | DETECTED IF SIGNAL FILED |
| MAIN VIDEO | LOG SCALED VIDEO |

CONNECTOR PHYSICALLY MOUNTED TO AND GROUNDED BY COVER PLATE.

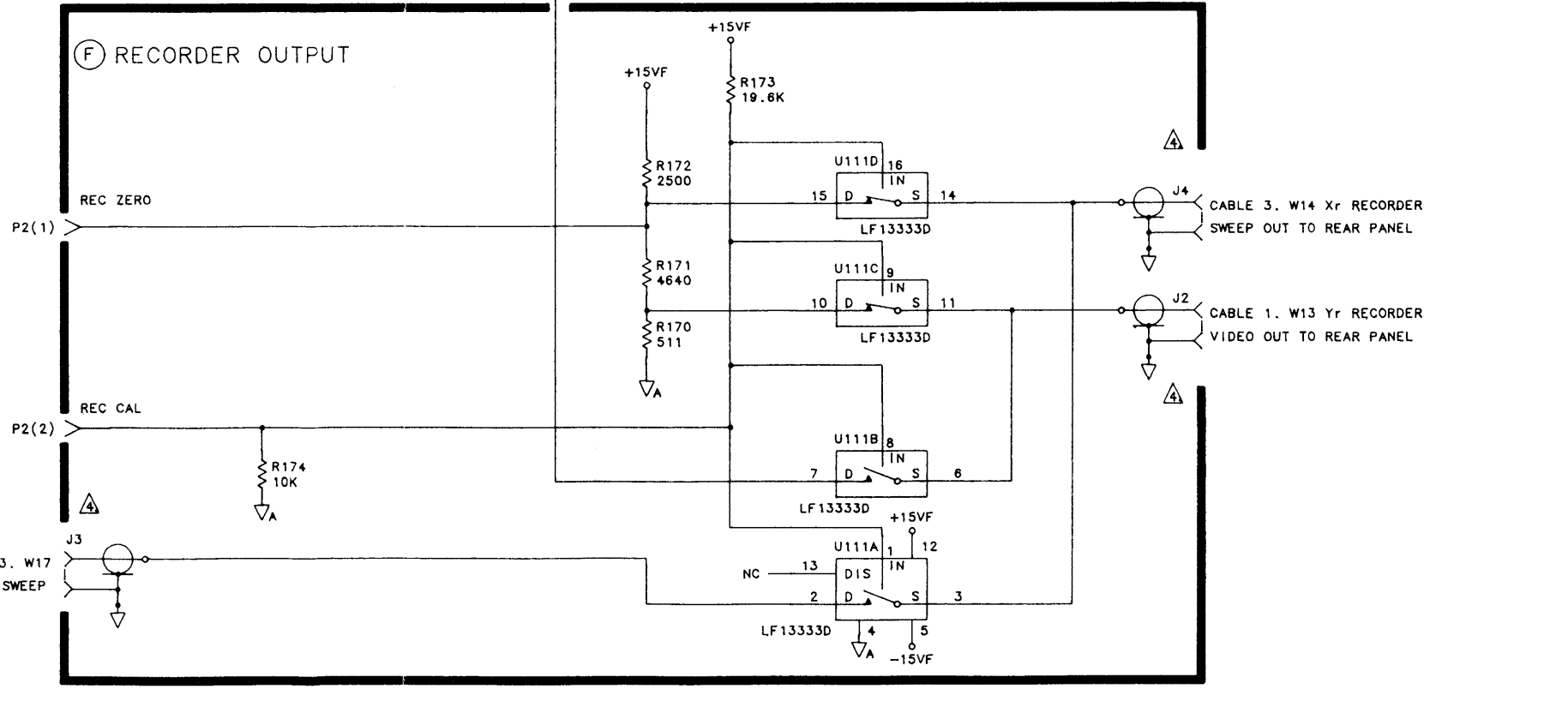
FACTORY SELECT PART. MAY NOT BE PRESENT ON PC BOARD.

P1

| PIN | SIGNAL | TO/FROM | FUNCTION BLOCK |
|-----|----------|-----------|----------------|
| 1 | AGND | AAASP1-32 | E |
| 2 | VWMD | AAASP1-33 | B |
| 3 | VWMC | AAASP1-34 | B |
| 4 | VWMA | AAASP1-35 | B |
| 5 | VWMB | AAASP1-36 | B |
| 6 | BLOG | AAASP1-20 | D |
| 7 | VIDEO IN | AAASP1-1 | A |
| 8 | OS10-1 | AAASP1-14 | C |
| 9 | OS20-1 | AAASP1-15 | C |
| 10 | OS20-2 | AAASP1-16 | C |
| 11 | A GND | AAASP1-17 | E |
| 12 | ALOG | AAASP1-19 | D |

P2

| PIN | SIGNAL | TO/FROM | FUNCTION BLOCK |
|-----|----------|----------|----------------|
| 1 | REC ZERO | AAASP1-2 | F |
| 2 | REC CAL | AAASP1-3 | F |
| 3 | A GND | AAASP1-1 | E |
| 4 | -15V | | E |
| 5 | +15V | | E |
| 6 | A GND | | E |
| 7 | A GND | | E |
| 8 | A GND | | E |
| 9 | A GND | | E |
| 10 | A GND | | E |
| 11 | -15V | | E |
| 12 | +15V | | E |



| ITEM | QTY. | PART/MATERIAL-DESCRIPTION | MAT'L-PART NO. | MAT'L-DWG. NO. | MAT'L-SPEC. |
|---------------------------|------|---------------------------|----------------|----------------|-------------|
| DRAWN BY _____ DATE _____ | | | | | |
| ENGINEER/CHECKER _____ | | | | | |
| RELEASE TO PROD. _____ | | | | | |
| SUPERSEDES DWG. _____ | | | | | |

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BOARD ASSEMBLY-VIDEO PROCESSOR (SCHEMATIC)

85662-60241

FILENAME=S241A004

SCALE NONE SHEET 1 OF 1

D-85662-60241-1

Customer Order Number

Printed in USA

**** For HP Internal Reference Only ****

Manufacturing Part Number

85662-90089

