

SECTION VI CIRCUIT DIAGRAMS

6-1. INTRODUCTION.

6-2. This section contains the circuit diagrams necessary for the operation and maintenance of the Model 3400A RMS Voltmeter. Included are schematic and parts location diagrams.

6-3. SCHEMATIC DIAGRAMS.

6-4. The schematic diagrams depict the circuits contained within each assembly of the 3400A as well as assembly interconnection. Main signal paths and significant feedback paths are identified.

6-5. The schematic diagrams are arranged in ascending order of assembly reference designation.

6-6. PARTS LOCATION DIAGRAMS.

6-7. The parts location diagrams show the physical location of parts within an assembly. Parts are identified by reference designation. A parts location diagram is included for each assembly which does not have adequate silk screening of reference designations.

6-8. The parts location diagrams are located on the same figure as the schematic of the assembly.

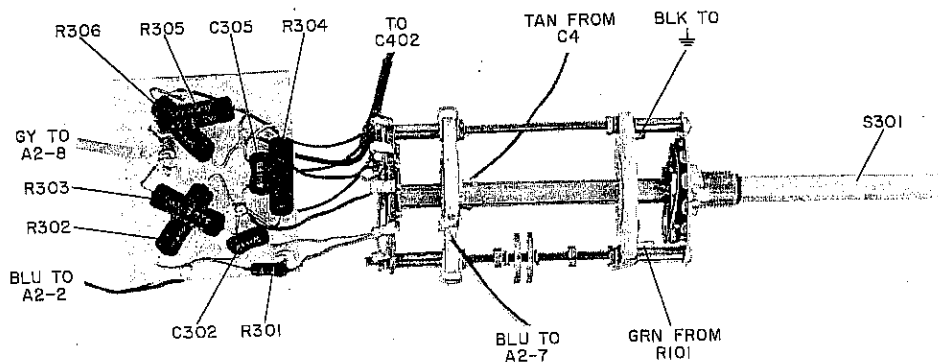
Model 3400A

PERFORMANCE CHECK TEST CARD

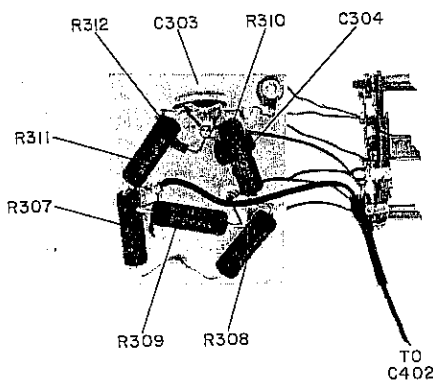
Hewlett-Packard Model 3400A RMS Voltmeter Serial No. _____		Tests performed by _____ Date _____																																																																																									
DESCRIPTION		CHECK																																																																																									
ACCURACY, LINEARITY AND DC OUTPUT: <table border="0"> <thead> <tr> <th>Calibrator Output</th> <th>3400A Range</th> <th>Meter Reading</th> <th>DC Output</th> </tr> </thead> <tbody> <tr><td>0.001</td><td>0.001</td><td>0.000990</td><td>0.992</td></tr> <tr><td>0.003</td><td>0.003</td><td>0.00297</td><td>0.942</td></tr> <tr><td>0.01</td><td>0.01</td><td>0.00990</td><td>0.992</td></tr> <tr><td>0.03</td><td>0.03</td><td>0.0297</td><td>0.942</td></tr> <tr><td>0.1</td><td>0.1</td><td>0.0990</td><td>0.992</td></tr> <tr><td>0.3</td><td>0.3</td><td>0.297</td><td>0.942</td></tr> <tr><td>1.0</td><td>1.0</td><td>0.990</td><td>0.992</td></tr> <tr><td>0.9</td><td>1.0</td><td>0.89</td><td>0.892</td></tr> <tr><td>0.8</td><td>1.0</td><td>0.79</td><td>0.792</td></tr> <tr><td>0.7</td><td>1.0</td><td>0.69</td><td>0.692</td></tr> <tr><td>0.6</td><td>1.0</td><td>0.59</td><td>0.592</td></tr> <tr><td>0.5</td><td>1.0</td><td>0.49</td><td>0.492</td></tr> <tr><td>0.4</td><td>1.0</td><td>0.39</td><td>0.392</td></tr> <tr><td>0.3</td><td>1.0</td><td>0.29</td><td>0.292</td></tr> <tr><td>0.2</td><td>1.0</td><td>0.19</td><td>0.192</td></tr> <tr><td>0.1</td><td>1.0</td><td>0.090</td><td>0.092</td></tr> <tr><td>3.0</td><td>3.0</td><td>2.97</td><td>0.942</td></tr> <tr><td>10.0</td><td>10.0</td><td>9.90</td><td>0.992</td></tr> <tr><td>30.0</td><td>30.0</td><td>29.7</td><td>0.942</td></tr> <tr><td>100.0</td><td>100.0</td><td>99.0</td><td>0.992</td></tr> <tr><td>300.0</td><td>300.0</td><td>297.0</td><td>0.942</td></tr> </tbody> </table>		Calibrator Output	3400A Range	Meter Reading	DC Output	0.001	0.001	0.000990	0.992	0.003	0.003	0.00297	0.942	0.01	0.01	0.00990	0.992	0.03	0.03	0.0297	0.942	0.1	0.1	0.0990	0.992	0.3	0.3	0.297	0.942	1.0	1.0	0.990	0.992	0.9	1.0	0.89	0.892	0.8	1.0	0.79	0.792	0.7	1.0	0.69	0.692	0.6	1.0	0.59	0.592	0.5	1.0	0.49	0.492	0.4	1.0	0.39	0.392	0.3	1.0	0.29	0.292	0.2	1.0	0.19	0.192	0.1	1.0	0.090	0.092	3.0	3.0	2.97	0.942	10.0	10.0	9.90	0.992	30.0	30.0	29.7	0.942	100.0	100.0	99.0	0.992	300.0	300.0	297.0	0.942		
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INPUT IMPEDANCE CHECK: Resistance _____ Capacitance _____		_____ 10 MΩ or greater _____ 50 pF or less 0.001 V to 0.3 V _____ 20 pF or less 1 V to 300 V																																																																																									
CREST FACTOR CHECK:		_____ 10:1 full scale _____ 20:1 half scale																																																																																									
OUTPUT NOISE CHECK:		_____ 1 mV RMS or less																																																																																									

NOTES

1. ALL DC AND AC VOLTAGE LEVELS SHOWN IN RED ARE WITH 1 MV INPUT (FULL SCALE DEFLECTION). A TOLERANCE OF $\pm 10\%$ SHOULD BE ALLOWED FOR VARIATIONS FROM INSTRUMENT TO INSTRUMENT.
2. ALL AC VOLTAGES ARE UNDERLINED>. ALL DC VOLTAGES HAVE A POLARITY INDICATION.



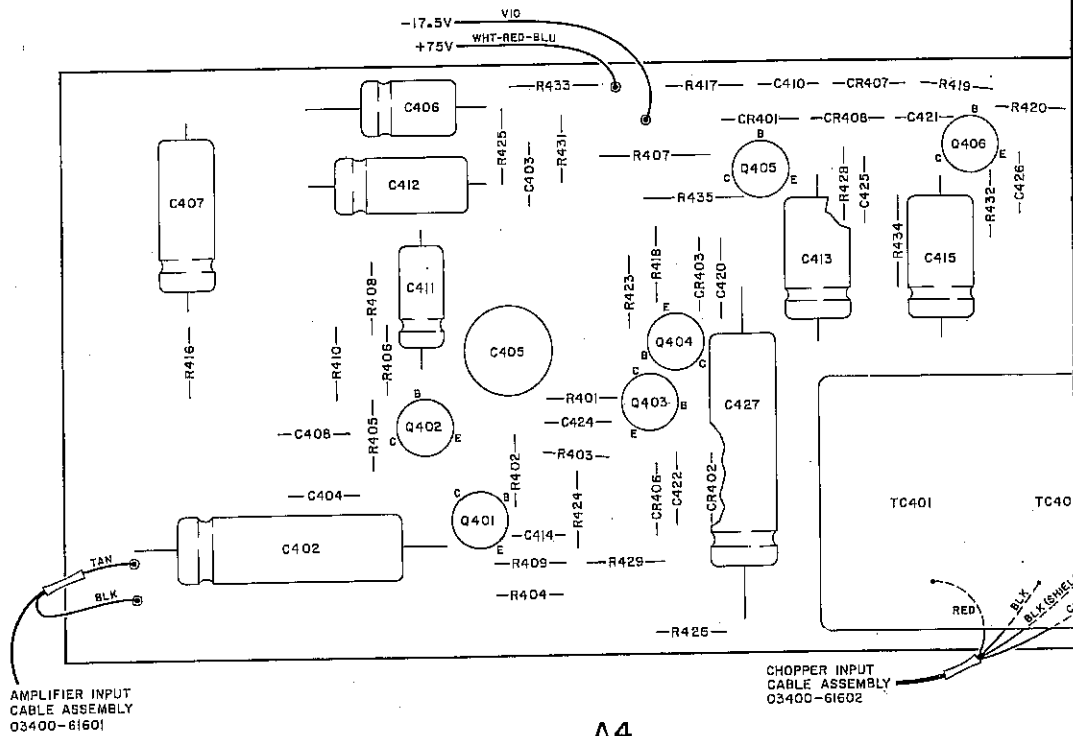
3400A-A-0107



A3
 (hp PART NO. 03400-63401)
 (BOARD ONLY)

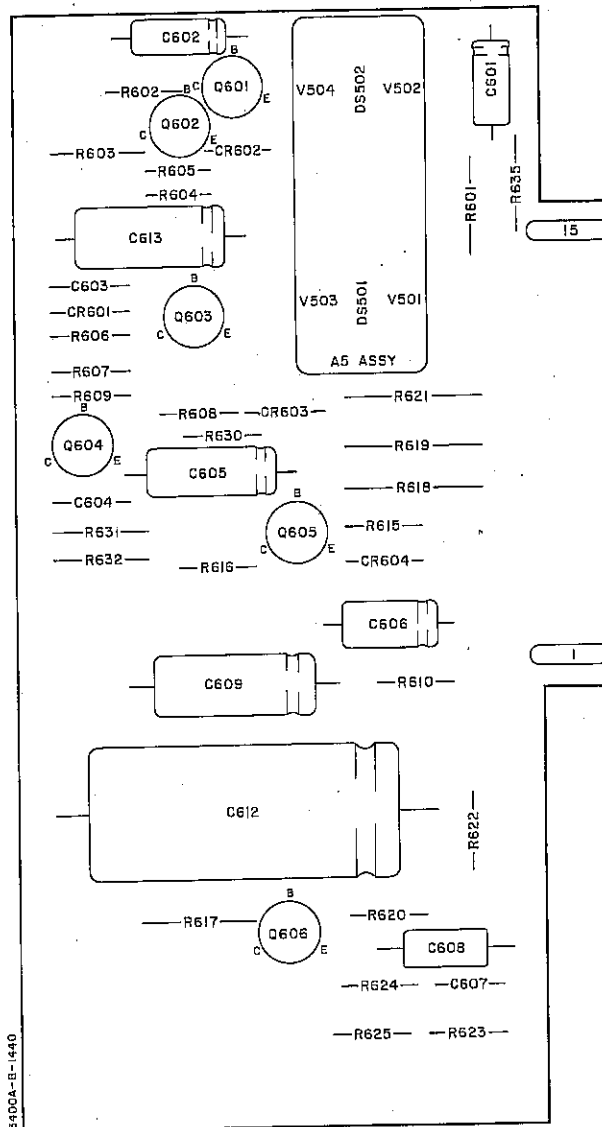
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3. AC VOLTAGE LEVELS AT Q405 AND Q406 MUST BE OBSERVED WITH 10:1 DIVIDER PROBE.
4. IF C427 IS REPLACED, IT MAY BE NECESSARY TO SELECT THE VALUE OF C427 FOR PROPER FREQUENCY RESPONSE. THIS IS DUE TO CAPACITOR TOLERANCE.

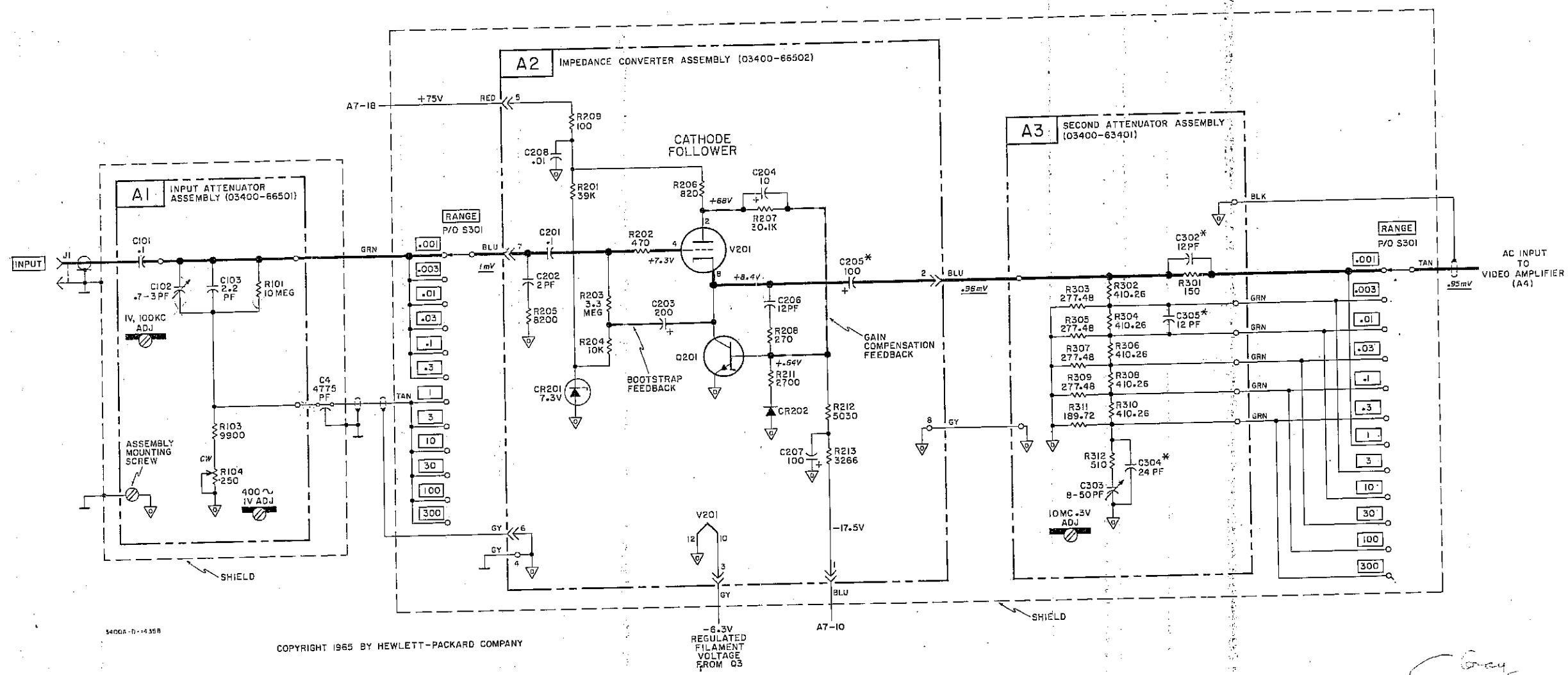


A4

(hp PART NO. 03400-66503)

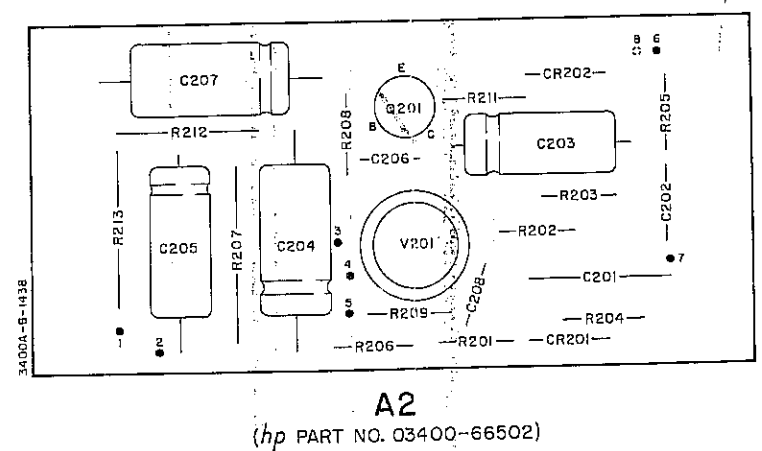
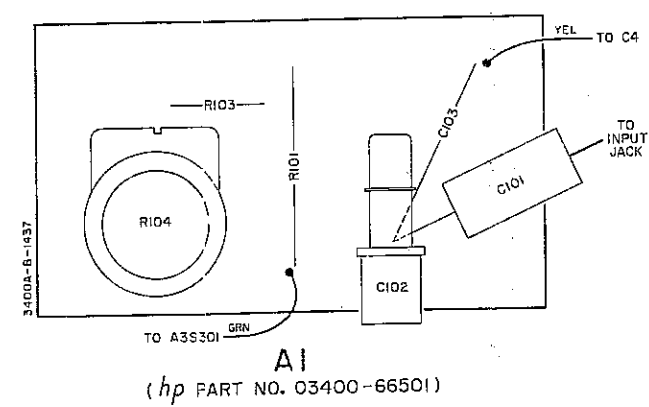


A6
 (hp PART NO. 03400-66508)



3400A-B-1438
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*Red BK BK
 5mm BK CLEAR*

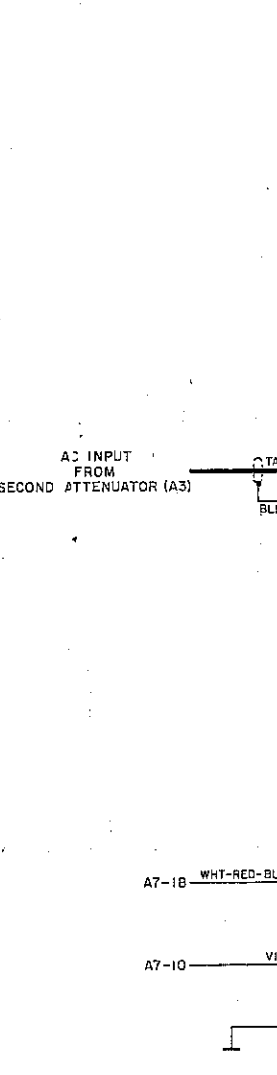
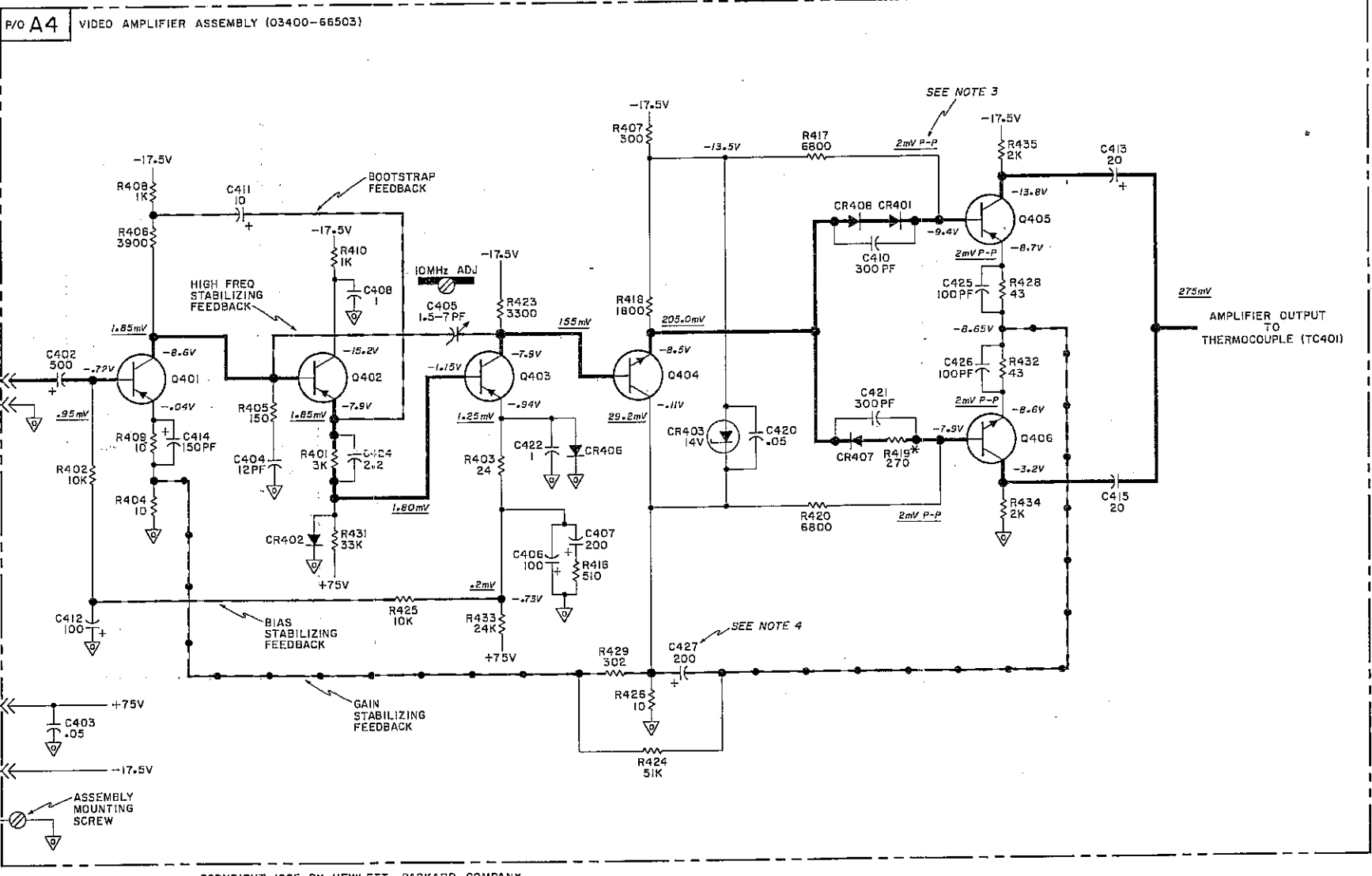


- 1 BLU A7-10
- 2 BLU A3R302
- 3 GY Q3 EMITTER
- 4 GY C2 (1/2)
- 5 RED A7-18
- 6 GY C4 (1/2)
- 7 BLU S301
- 8 GY A3R305 (1/2)

Figure 6-1. Input Attenuator A1, Impedance Converter A2, and Second Attenuator A3 Schematic and Parts Location Diagram

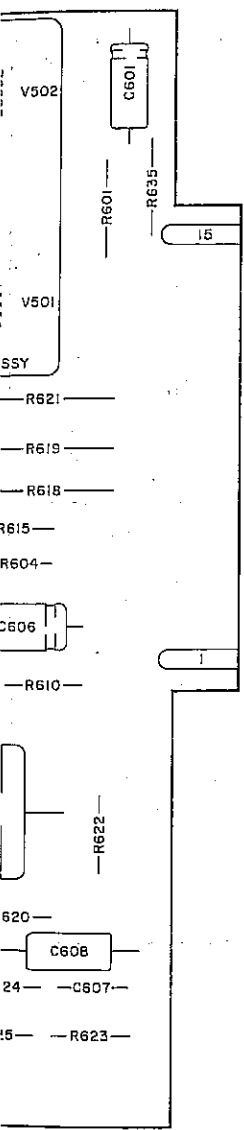
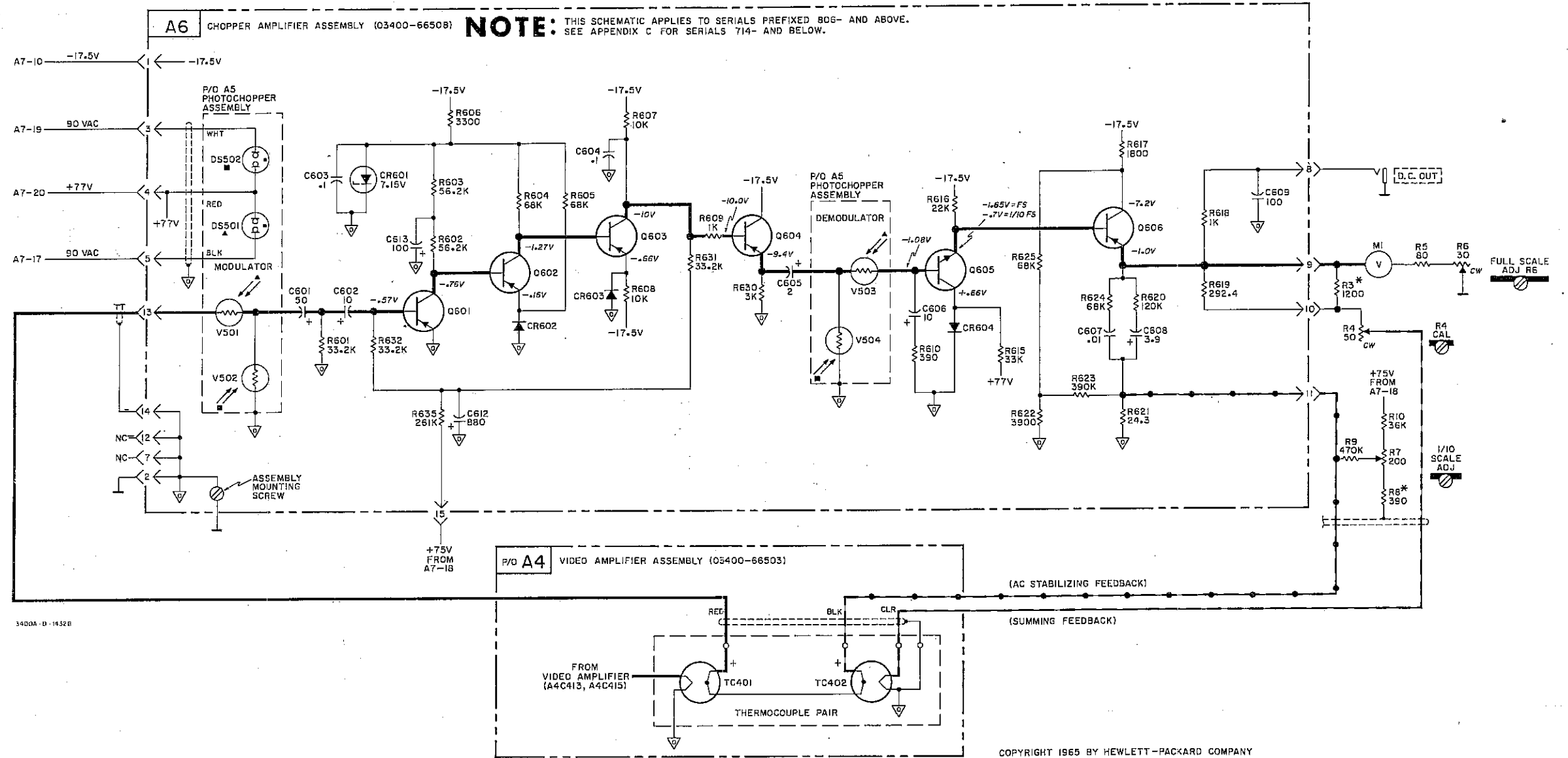
LOW IN RED ARE WITH 1 MV
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- 406 MUST BE OBSERVED WITH
- CESSARY TO SELECT THE
- ENCY RESPONSE. THIS IS DUE



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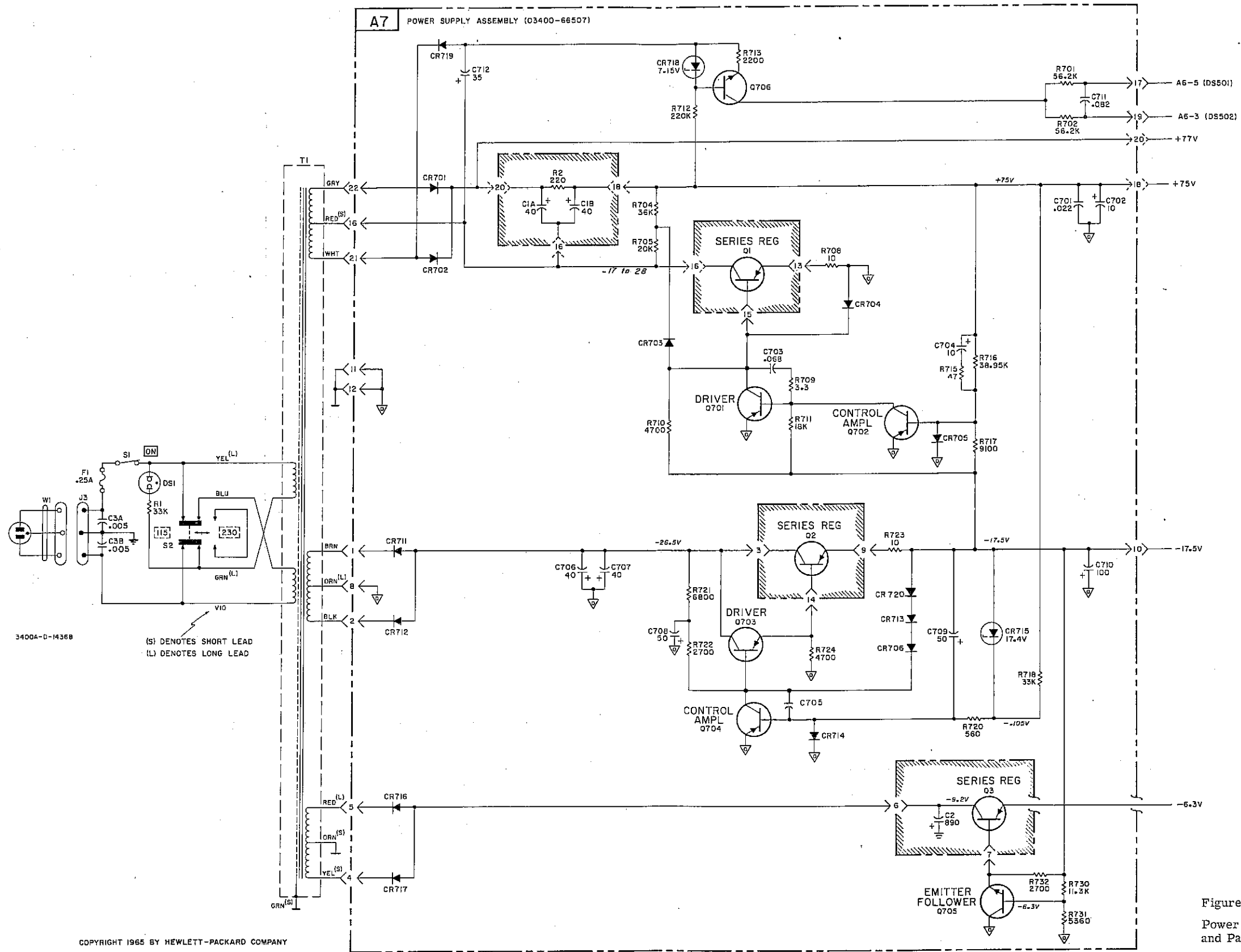
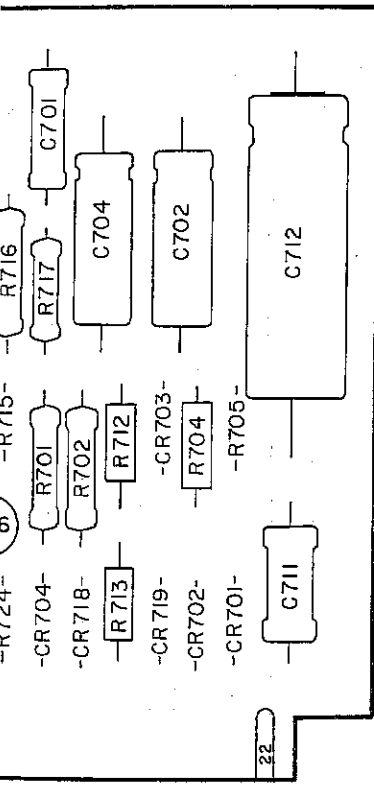
Figure 6-2. Video Amplifier A4 Schematic and Parts Location Diagram



-66508)

Figure 6-3. Photochopper A5, Chopper Amplifier A6, and Thermocouple Pair (Part of A4) Schematic and Parts Location Diagram

400-66510)



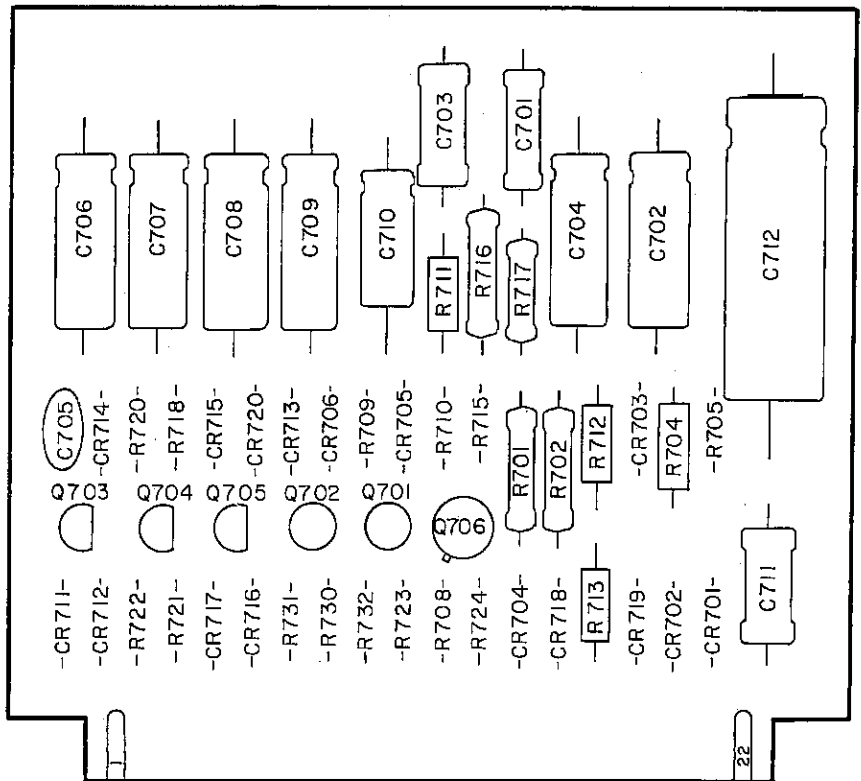
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Figure 6-4. Power Supply A7 Schematic and Parts Location Diagram

A7

(hp Part No. 03400-66510)

Rev A



3400A-B-2672

MODEL 3400A
RMS VOLTMETER