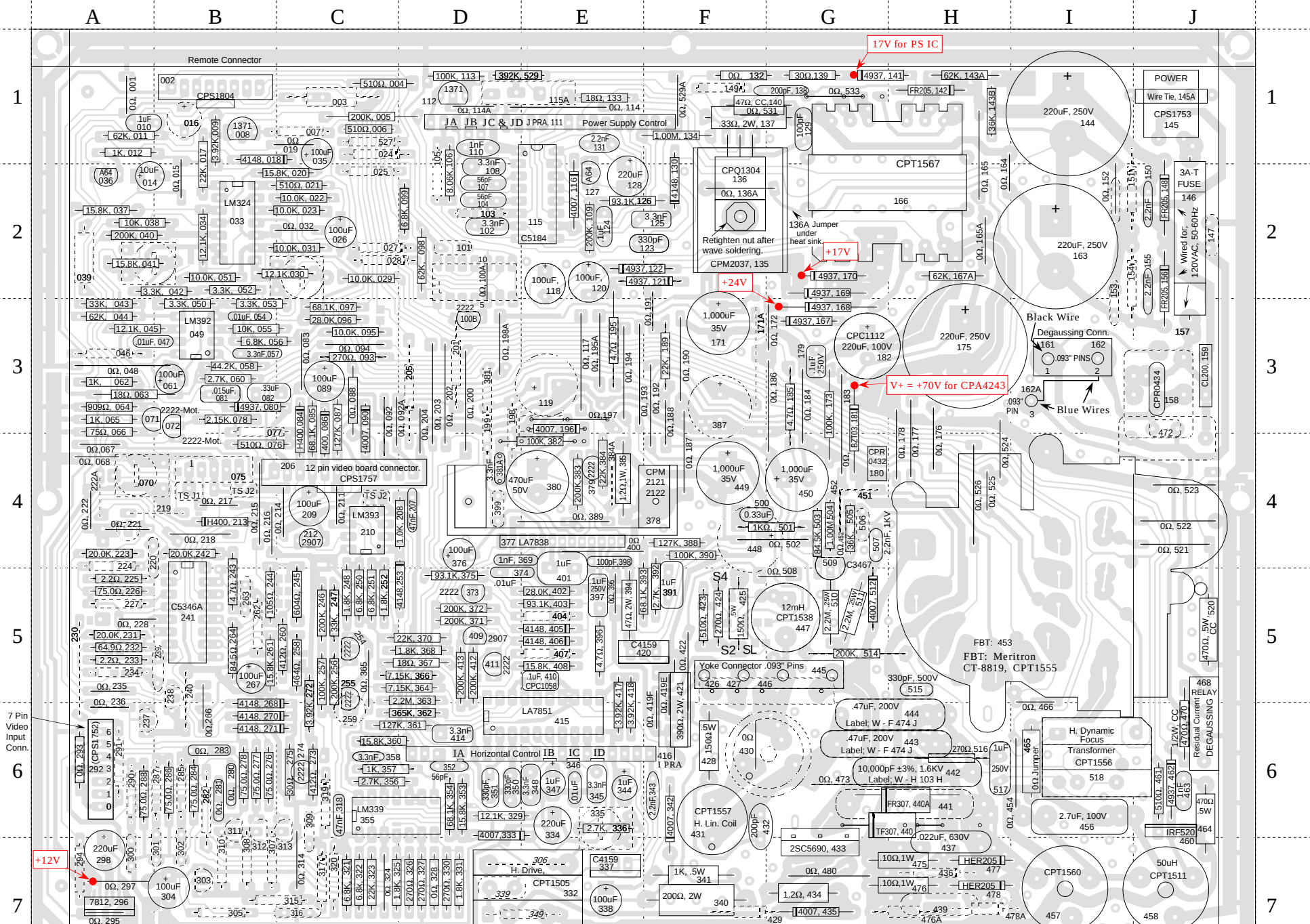




Video PCB: CPA4216

FBT Screen Voltage: [453]

4.0V to 4.4 V measured at [920] Pin 8.

ECOs: 384-B, 392, 393-A, 403, 420, 424, 445-A, 448, 456, 463, 464, 468, 487A, 505, 512B, 520-A, 522, 523, 527 CPM 2029 - (LEFT) 559, 571, 572, 576.

NOTE: USE SUPPORT BRACKETS

CPM 2060 - (REAR)

CPM 2024 - (FRONT)

CPM 2026 - (RIGHT)

CPM 2029 - (LEFT)

Video is: Positive analog, Black = 0.00V, Saturated Color = 0.70V

Sync is: Separate, +Horizontal and ±Vertical.

Solder connections are; IA, ID, SL, S2, S4

1 PRA (IB, IC, and ID) set for Hfo=31.5KHz ±350Hz

J PRA (JA, JB, JC, and JD) set for V+=69.5V to 70.5V

CERONIX CPA4243. CRT: Chunghwa M41AGE93X46C

Model 1793-31.5DF - VGA Power: 120VAC

Date: 12/2/03 Rev. E9

= Solder Connections, Tie Wraps
 = Resistors, Pots
 = Coils, Diodes, ICs

 = PRA's, Transformers
 = Connectors, Mech. Assembly (Heat Sinks)
 = Capacitors, Posistors

 = Pins, Fuses, Jumpers
 = Transistors, FETs

CROSS REFERENCE TABLE

MODEL	DESCRIPTION PART LOCATION/TYPE	TYPE OF TUBE	MANUFACTURING MODEL#	VIDEO BOARD	ECO
1490	301/CPT1506 302/CPT1506	RCA	33ACD42X	CPA4101	
1492	301/JUMPER 302/CPT1506	CHUNGHWA	E2971B22 TC17ET(Y)	CPA4101	
1492	301/CPT1523 302/CPT1506	ORION	M34JZT20X22	CPA4101	
MODEL	DESCRIPTION	TYPE OF TUBE	MANUFACTURING MODEL #	VIDEO BOARD	ECO
CPA4110	1493 MAIN PCB ASSM. CGA IGT	ORION	M34JZT20X22	CPA4124	
CPA4124	1493 VIDEO PCB ASSM., CGA	ORION	M34JZT20X22	N/A	
CPA4136	1493 MAIN PCB ASSM. CGA IGCA	ORION	M34JZT20X22	CPA4124	
OLD P/N	DESCRIPTION	TYPE OF TUBE	MANUFACTURING MODEL #	VIDEO BOARD	ECO
CPA 4107	1493 MAIN PCB,VGA 220V	ORION	M34KZM40XX11 &M34KZM40XX15	CPA4113	
CPA 4132	1493 MAIN PCB,VGA 120V	ORION	M34KZM40XX11 &M34KZM40XX15	CPA4113	
CPA 4149	1493 MAIN PCB,VGA UNITED COIN	ORION	M34KZM40XX11 &M34KZM40XX15	CPA4113	
CPA 4152	1493 MAIN PCB,CGA BRUNSWICK	ORION	M34KZM40XX11 &M34KZM40XX15	CPA4153	
CPA 4153	1493 VIDEO PCB, CGA	ORION	M34KZM40XX11 &M34KZM40XX15	N/A	
CPA 4154	1493 MAIN PCB, CGA IGT	ORION	M34KZM40XX11 &M34KZM40XX15	CPA4153	
CPA 4155	1493 MAIN PCB, CGA BALLY	ORION	M34KZM40XX11 &M34KZM40XX15	CPA4153	
CPA 4156	1493 VIDEO PCB, CGA FICHE PAPER	ORION	M34KZM40XX11 &M34KZM40XX15	N/A	
CPA 4157	1493 MAIN PCB , CGA IGT	ORION	M34KZM40XX11 &M34KZM40XX15	CPA4156	
CPA 4167	1493 MAIN PCB, CGA ARISTOCRAT	ORION	M34KZM40XX11 &M34KZM40XX15	CPA4153	
CPA 4168	1493 MAIN PCB, CGA WEB PRINTING	ORION	M34KZM40XX11 &M34KZM40XX15	CPA4153	
CPA 4170	1493 MAIN PCB, CGA AUTOMATION/LOGIC	ORION	M34KZM40XX11 &M34KZM40XX15	CPA4153	
NEW P/N	DESCRIPTION	TYPE OF TUBE	MANUFACTURING MODEL #	VIDEO BOARD	ECO
CPA 4200	1493 MAIN PCB,VGA 220V	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4134	
CPA 4201	1493 MAIN PCB,VGA 120V	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4134	
CPA 4202	1493 MAIN PCB,VGA UNITED COIN	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4134	
CPA 4203	1493 MAIN PCB,CGA BRUNSWICK	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4134	
CPA 4204	1493 VIDEO PCB, CGA	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	N/A	
CPA 4205	1493 MAIN PCB, CGA IGT	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4204	
CPA 4206	1493 MAIN PCB, CGA BALLY	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4204	
CPA 4207	1493 VIDEO PCB, CGA FICHE PAPER	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	N/A	
CPA 4208	1493 MAIN PCB , CGA IGT	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4207	

CROSS REFERENCE TABLE

CPA 4209	1493 MAIN PCB, CGA ARISTOCRAT	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4204	
CPA 4210	1493 MAIN PCB, CGA WEB PRINTING	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4204	
CPA 4211	1493 MAIN PCB, CGA AUTOMATION/LOGIC	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4204	
CPA4265	1493 MAIN PCB,VGA 220V FLAT TOP	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4134	
CPT1516	CGA MONITORS	TYPE OF TUBE	MANUFACTURING MODEL #	VIDEO BOARD	ECO
FLYBACK					
CPA 4203	1493 MAIN PCB,CGA BRUNSWICK	SAMSUNG/CHUNGHWA	M34AFA13X07/ M34QBB351X111	CPA4204	
CPA 4204	1493 VIDEO PCB, CGA	SAMSUNG/CHUNGHWA	M34AFA13X07/ M34QBB351X111	N/A	
CPA 4205	1493 MAIN PCB, CGA IGT	SAMSUNG/CHUNGHWA	M34AFA13X07/ M34QBB351X111	CPA4204	
CPA 4206	1493 MAIN PCB, CGA BALLY	SAMSUNG/CHUNGHWA	M34AFA13X07/ M34QBB351X111	CPA4204	
CPA 4207	1493 VIDEO PCB, CGA FICHE PAPER	SAMSUNG/CHUNGHWA	M34AFA13X07/ M34QBB351X111	N/A	
CPA 4208	1493 MAIN PCB , CGA IGT	SAMSUNG/CHUNGHWA	M34AFA13X07/ M34QBB351X111	CPA4207	
CPT1558	CGA MONITORS	TYPE OF TUBE	MANUFACTURING MODEL #	VIDEO BOARD	ECO
FLYBACK					
CPA4212	1493 MAIN PCB,CGA LOGIC	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4234	
CPA 4233	1493 MAIN PCB,CGA BRUNSWICK	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4242	
CPA 4234	1493 VIDEO PCB, CGA	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	N/A	
CPA 4235	1493 MAIN PCB, CGA IGT	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4234	
CPA 4236	1493 MAIN PCB, CGA BALLY	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4242	
CPA 4237	1493 VIDEO PCB, CGA FICHE PAPER	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	N/A	
CPA 4238	1493 MAIN PCB , CGA IGT	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4237	
CPA4239	1493 MAIN PCB, CGA ARISTOCRAT	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4234	
CPA4240	1493 MAIN PCB, CGA WEB PRINTING	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4234	
CPA4241	1493 MAIN PCB, CGA AUTOMATION/LOGIC	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4234	
CPA4242	1493 VIDEO PCB, CGA	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	N/A	
CPA4246	1493 MAIN PCB, CGA WORLD TOUCH	CHUNGHWA/SAMSUNG	M34AFA13X07/ M34QBB351X111	CPA4234	
17" MODELS	DESCRIPTION	TYPE OF TUBE	MANUFACTURING MODEL #	VIDEO BOARD	ECO
CPA 4129	17" IGT MAIN PCB	LG ELECTRONICS	M41QAV803X	CPA4131	
CPA 4131	17" VIDEO PCB WITH FICHE PAPER	LG ELECTRONICS	M41QAV803X	N/A	
CPA4146	17" ARISTOCRAT MAIN PCB	LG ELECTRONICS	M41QAV803X	CPA4161	
CPA 4150	17" ATRONICS MAIN PCB	LG ELECTRONICS	M41QAV803X	CPA4161	
CPA4161	17" VIDEO PCB	LG ELECTRONICS	M41QAV803X	N/A	

CROSS REFERENCE TABLE

17" MODELS	DESCRIPTION	TYPE OF TUBE	MANUFACTURING MODEL #	VIDEO BOARD	ECO
CPA 4215	17" IGT E8 MAIN PCB	CHUNGHWA	M41AGE13X46	CPA4216	
CPA 4216	17" VIDEO PCB WITH FICHE PAPER	CHUNGHWA	M41AGE13X46	N/A	
CPA 4219	17" VIDEO PCB	CHUNGHWA	M41AGE13X46	N/A	
CPA 4220	17" IGT E7 MAIN PCB	CHUNGHWA	M41AGE13X46	CPA4216	
CPA 4222	17" ATRONICS E7MAIN PCB	CHUNGHWA	M41AGE13X46	CPA4219	
CPA 4228	17" ATRONICS E8 MAIN PCB	CHUNGHWA	M41AGE13X46	CPA4219	
CPA 4229	17" ARISTOCRAT E8 MAIN PCB	CHUNGHWA	M41AGE13X46	CPA4219	
CPA 4243	17" IGT E8 MAIN PCB	CHUNGHWA	M41AGE13X47	CPA4216	
CPA 4244	17" ATRONICS/WILLIAMS E8 MAIN PCB	CHUNGHWA	M41AGE13X47	CPA4219	
CPA 4245	17" ARISTOCRAT E8 MAIN PCB 31.0KHZ	CHUNGHWA	M41AGE13X47	CPA4219	
CPA4275	17" ARISTOCRAT E8 MAIN PCB 29.6KHZ	CHUNGHWA	M41AGE13X47	CPA4219	
CPA 4283	17" IGT E8 MAIN PCB USE ONLY WITH CPA4051	CHUNGHWA	M41AGE93X46 C(L)	CPA4216	
CPA 4284	17" ATRONICS/WILLIAMS E8 MAIN PCB	CHUNGHWA	M41AGE93X46 C(L)	CPA4219	
CPA 4285	17" ARISTOCRAT E8 MAIN PCB 31.0KHZ	CHUNGHWA	M41AGE93X46 C(L)	CPA4219	
1493 MODELS	DESCRIPTION	CUSTOMER #	TUBE MANUFACTURING MODEL#	VIDEO BOARD	ECO
CPA 4059	14" COLOR MONITOR,CGA	69914190 REV B	M34KZM40XX11 &M34KZM40XX15		
CPA 4060	14" S/T COLOR MONITOR,CGA	69917600 REV B	M34KZM40XX11 &M34KZM40XX15		
CPA 4061	14" FLAT TOP COLOR MONITOR, CGA	69917700 REV B	M34KZM40XX11 &M34KZM40XX15		
CPA 4062	14" COLOR MONITOR,CGA	69918100 REV B	M34KZM40XX11 &M34KZM40XX15		
CPA 4063	14" COLOR MONITOR,CGA T/S	69918000 REV B	M34KZM40XX11 &M34KZM40XX15		
CPA 4064	14" COLOR MONITOR, CGA	69917300 REV C	M34KZM40XX11 &M34KZM40XX15		
CPA 4066	14" COLOR MONITOR, CGA BALLY	E832-27A	M34KZM40XX11 &M34KZM40XX15		
CPA 4067	14" COLOR MONITOR, CGA BALLY	E832-69	M34KZM40XX11 &M34KZM40XX15		
CPA 4070	14" COLOR MONITOR, CGA IGCA	57020700	M34KZM40XX11 &M34KZM40XX15		
CPA 4072	14" COLOR MONITOR, CGA ARISTOCRAT		M34KZM40XX11 &M34KZM40XX15		
CPA 4074	14" COLOR MONITOR, CGA CEI		M34KZM40XX11 &M34KZM40XX15		
CPA 4076	14" COLOR MONITOR, CGA WEB PRINTING		M34KZM40XX11 &M34KZM40XX15		
CPA 4077	14" COLOR MONITOR, CGA AUTOMATION/LOGIC		M34KZM40XX11 &M34KZM40XX15		
CPA 4000	14" COLOR MONITOR,CGA	69914190 REV B	M34KZM40XX11 &M34KZM40XX15		

CROSS REFERENCE TABLE

CPA 4002	14" COLOR MONITOR,CGA	69918100 REV B	M34KZM40XX11 &M34KZM40XX15		
CPA 4005	14" COLOR MONITOR, CGA BALLY	E832-27A	M34KZM40XX11 &M34KZM40XX15		
CPA 4006	14" S/T COLOR MONITOR,CGA	69917600 REV B	M34KZM40XX11 &M34KZM40XX15		
CPA 4009	14" COLOR MONITOR, CGA WEB PRINTING		M34KZM40XX11 &M34KZM40XX15		
CPA 4011	14" FLAT TOP COLOR MONITOR, CGA	69917700 REV B	M34KZM40XX11 &M34KZM40XX15		
CPA 4014	14" COLOR MONITOR, CGA ARISTOCRAT		M34KZM40XX11 &M34KZM40XX15		
CPA 4015	14" COLOR MONITOR, CGA CEI		M34KZM40XX11 &M34KZM40XX15		
CPA 4016	14" COLOR MONITOR, CGA BALLY	E832-69	M34KZM40XX11 &M34KZM40XX15		
CPA 4026	14" COLOR MONITOR, CGA	69917300 REV C	M34KZM40XX11 &M34KZM40XX15		
CPA 4037	14" COLOR MONITOR, CGA IGCA	57020700	M34KZM40XX11 &M34KZM40XX15		
CPA 4041	14" COLOR MONITOR,CGA T/S	69918000 REV B	M34KZM40XX11 &M34KZM40XX15		
CPA 4043	14" COLOR MONITOR, CGA AUTOMATION/LOGIC		M34KZM40XX11 &M34KZM40XX15		
				VIDEO BOARD	ECO
CPA 4108	2093 MAIN PCB, VGA IGT 220V	RCA	A48AAB37X03	CPA4264	
CPA 4121	2093 MAIN PCB, VGA PACIFIC GAMING	RCA	A48AAB37X503	CPA4161	
CPA 4126	2093 MAIN PCB, VGA ARISTOCRAT AUSTRALIA	RCA	A48AAB37X503	CPA4161	
CPA 4133	2093 MAIN PCB, VGA ARISTOCRAT TRUCKEE	RCA	A48AAB37X03	CPA4264	
CPA 4161	2093 VIDEO PCB, VGA	RCA	A48AAB37X503,X03,X473	N/A	
CPA4264	2093 VIDEO PCB, VGA	RCA	A48AAB37X503,X03,X473	N/A	
CPA4268	2093 MAIN PCB,VGA WILLIAMS	RCA	A48AAB37X03	CPA4264	
2093 VGA	DESCRIPTION	CUSTOMER #	TUBE MANUFACTURING MODEL#	VIDEO BOARD	ECO
CPA 4223	2093 MAIN PCB, VGA PACIFIC G. REPLACES CPA4121	CHUNGHWA	A48AGY13X87	CPA4225	
CPA 4224	2093 MAIN PCB, VGA ARIST. A.U. REPLACES CPA4126	CHUNGHWA	A48AGY13X87	CPA4259	
CPA 4225	2093 VIDEO PCB, VGA	CHUNGHWA	A48AGY13X87	N/A	
CPA 4226	2093 MAIN PCB, VGA IGT REPLACES CPA4108	CHUNGHWA	A48AGY13X87	CPA4225	551
CPA 4227	2093 MAIN PCB, VGA ARIST. RENO REPLACES CPA4133	CHUNGHWA	A48AGY13X87	CPA4225	
CPA4259	2093 VIDEO PCB, VGA	CHUNGHWA	A48AGY13X87	N/A	
CPA4277	2093 MAIN PCB, VGA WILLIAMS REPLACES CPA4268	CHUNGHWA	A48AGY13X87	CPA4225	
2093 CGA	DESCRIPTION	CUSTOMER #	TUBE MANUFACTURING MODEL#	VIDEO BOARD	ECO
CPA4279	2093 MAIN PCB, CGA LEISURE TIME REPLACES CPA4128	CHUNGHWA	A48AGY13X87	CPA4280	549
CPA4280	2093 VIDEO PCB, CGA	CHUNGHWA	A48AGY13X87	N/A	
CPA4281	2093 MAIN PCB, CGA IGT REPLACES CPA4112	CHUNGHWA	A48AGY13X87	CPA4280	550

SINGLE FOCUS FLYBACK

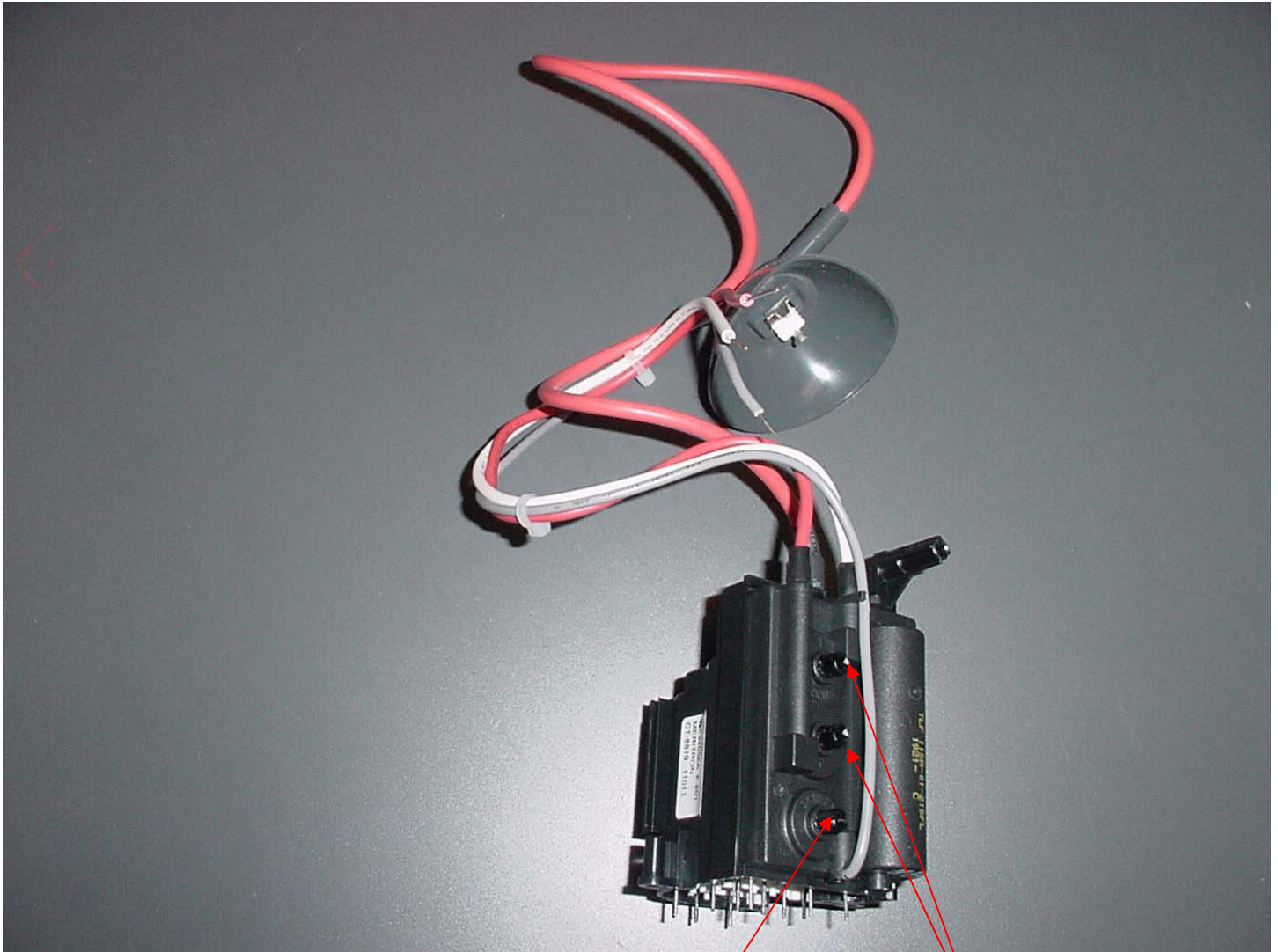


This potentiometer is used to adjust the screen voltage

This potentiometer is used to adjust the focus.

NOTE: The Single focus flyback is used on the 1493, 2093, 2793, 3693. it is also used on some 1793 models that do not use a chunghwa tube.

DUAL FOCUS FLYBACK



This potentiometer is used to adjust the screen voltage.

These potentiometers are used to adjust the focus.

NOTE: This type of Flyback at this time (1-31-03) is used only on two models, 1793 models that use a Chunghwa tube and 1993 models.

COLOR PROBLEMS

A helpful hint when working with color problems is to first identify the color of the three grid lines at the top of the screen.

When there is a missing color and the lines are white, the problem lies in the video interface section. This means it can be found in between the video source and pin #8 of the Video Amplifiers (K-PRA).

If the lines were not white it would be an output problem, which is anything after pin 8 to the picture tube.

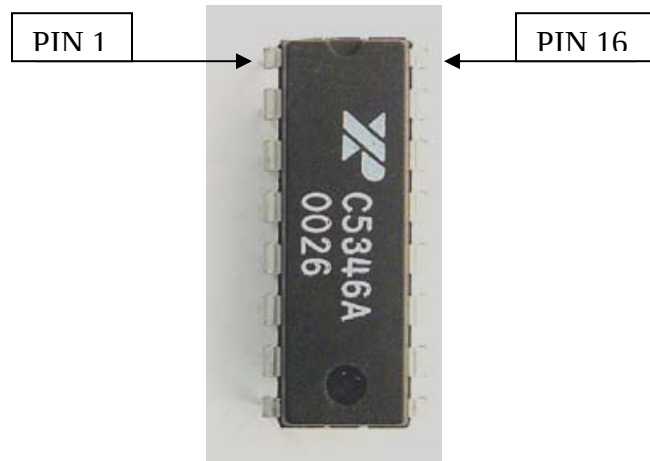
Use the following steps when troubleshooting a missing color.

1. First determine if it is an input or output problem.
2. If it is an input problem check pins 16, 13, and 9 on IC 241 (Video Interface IC). If the color you are missing has a DC voltage higher or lower than the other two colors by .3V replace IC 241.
3. If the voltages are all the same check for an open between the output pins of IC 241 and pin 8 of Video Amplifiers (K-PRA).
4. If you determine it to be an output problem check pin 20 of the Video Amplifiers (K-PRA). If the voltage at pin 20 for the color that is missing is a minimum of 20 volts higher than the other two colors. Replace the Video Amplifier (K-PRA) and Transistor at 945, 812 or 822, depending on which Video amplifier is being changed.

C5346A: VIDEO INTERFACE IC (Location 241).

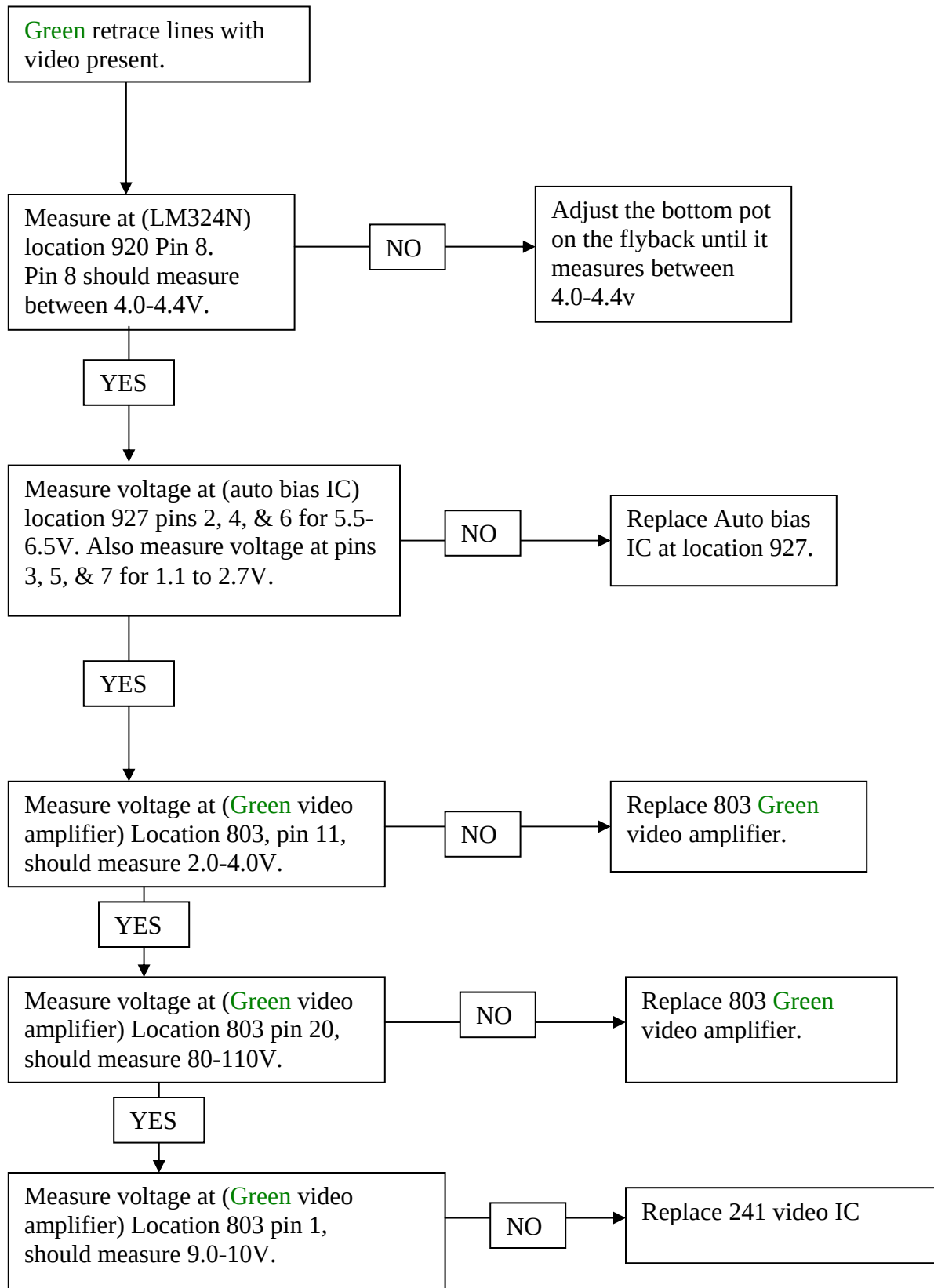
TABLE DISPLAYS CORRECT DC VOLTAGES FOR VGA BOARDS

PIN 1	RED REFERENCE	.630
PIN 2	RED IN	.756
PIN 3	BLACK LEVEL	5.7
PIN 4	GND	0
PIN 5	TTL	0
PIN 6	BLACK LEVEL	6.3
PIN 7	BLUE IN	.755
PIN 8	BLUE REFERENCE	.630
PIN 9	BLUE OUT	9.4
PIN 10	Vcc	11.97
PIN 11	+ ENABLE	10
PIN 12	MASTER GAIN	5.9
PIN 13	GREEN OUT	9.4
PIN 14	GREEN IN	.755
PIN 15	GREEN REFERENCE	.640
PIN 16	RED OUT	9.30



Troubleshooting flow charts: Symptom – Green Retrace with Video.

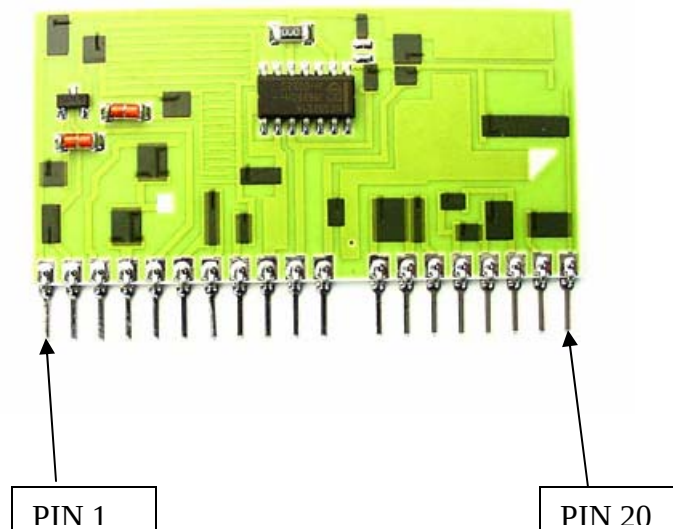
Note: Test generator needs to be set-up with color bar pattern.



K-PRA: VIDEO AMPLIFIER CIRCUIT.

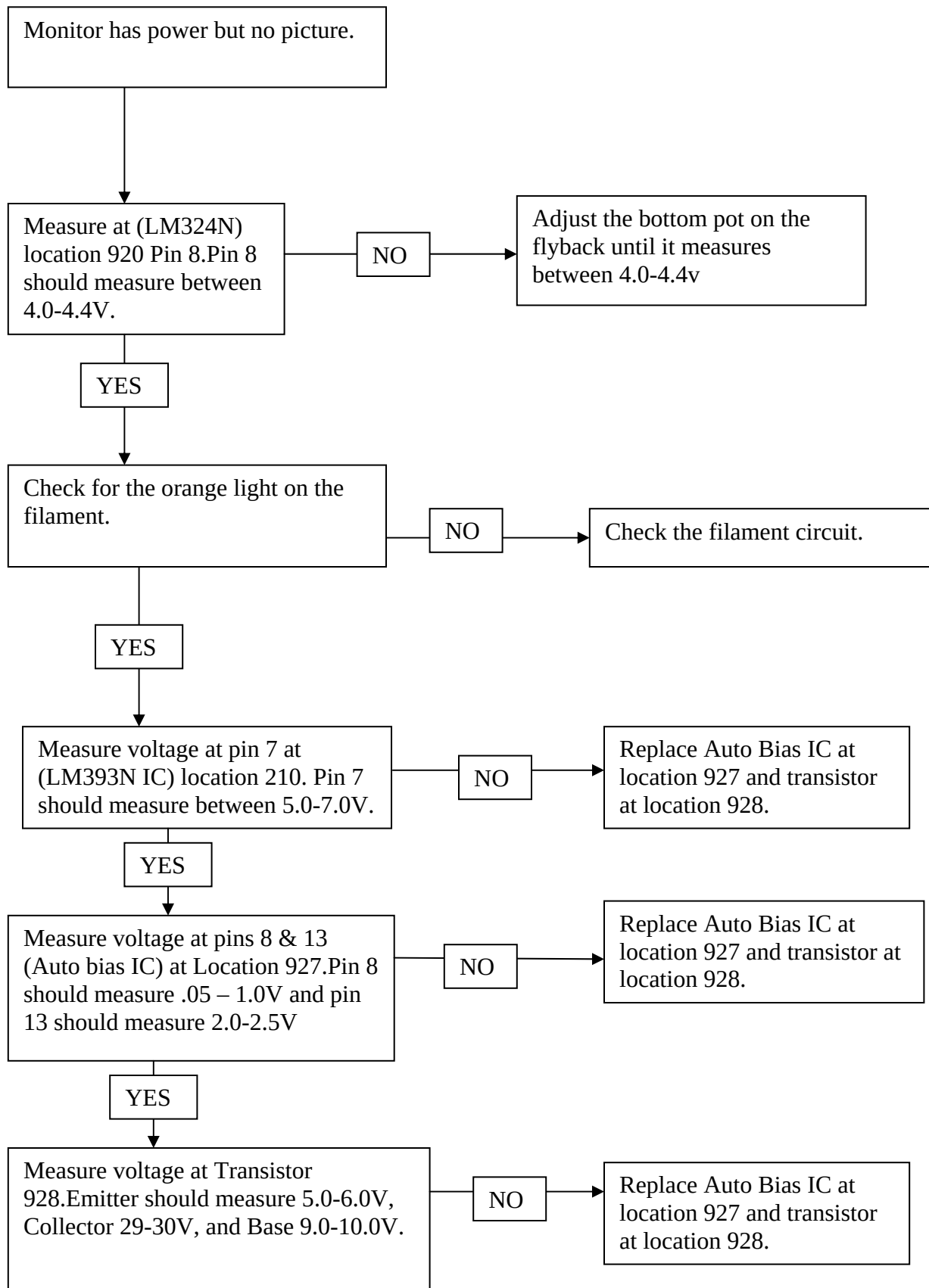
TABLE DISPLAYS CORRECT DC VOLTAGES

PIN 1	VIDEO INPUT	9.5
PIN 2	+12 V LINE	11.9
PIN 3	+ 16 V LINE	17.17
PIN 4	NPN B	10
PIN 5	GND	0
PIN 6	NPN E	9.4
PIN 7	9.25 V LINE	9.4
PIN 8	NE592 OUTPUT	9.4
PIN 9	GND	0
PIN 10	+12 V LINE	11.99
PIN 11	AUTO BIAS	4.3
PIN 12	GND	0
PIN 13	127V LINE	129
PIN 14	PNP E. CAP	128
PIN 15	PNP E.	128
PIN 16	PNP B	127
PIN 17	PNP B DIODE	127
PIN 18	120V LINE	123
PIN 19	PNP C	78
PIN 20	AMP OUTPUT	77



Troubleshooting flow charts: Symptom – No picture, monitor powers up.

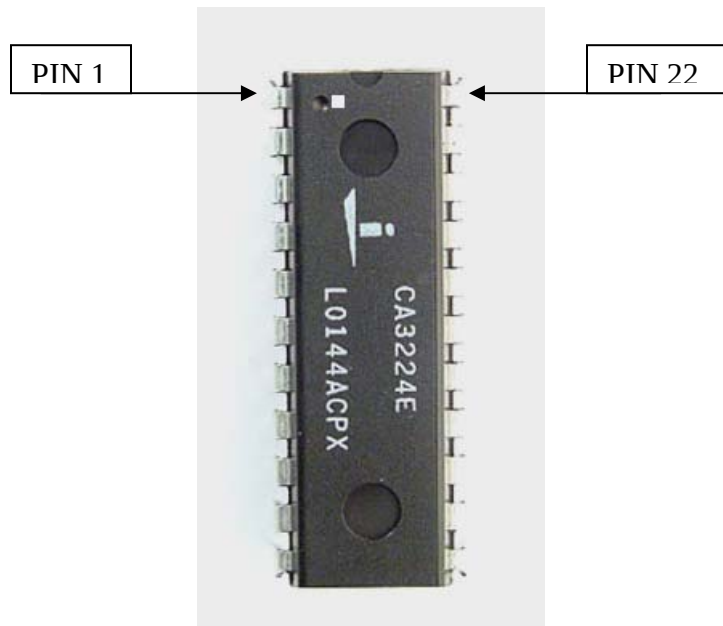
Note: Test generator needs to be set-up with color bar pattern.



CA3224E: AUTOMATIC BIAS CONTROL CIRCUIT.

TABLE DISPLAYS CORRECT DC VOLTAGES FOR VGA BOARDS

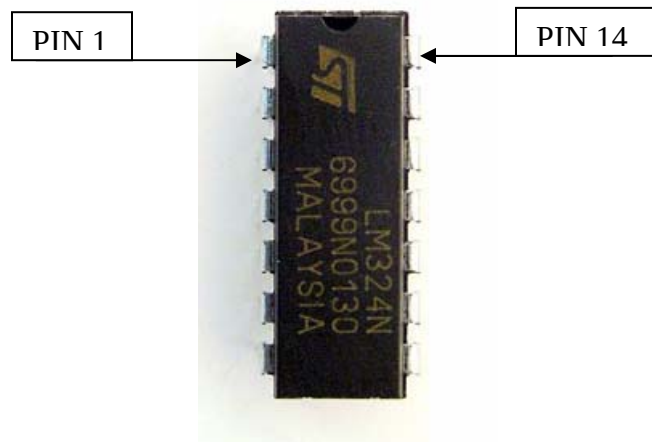
PIN 1	GND	0
PIN 2	BLUE INPUT	5.25
PIN 3	COMPARATOR	1.6
PIN 4	GREEN INPUT	5.3
PIN 5	COMPARATOR	1.8
PIN 6	RED INPUT	5.1
PIN 7	COMPARATOR	1.8
PIN 8	VERTICAL INPUT	.053
PIN 9	GND	0
PIN 10	HORIZONTAL INPUT	1.6
PIN 11	GRID PULSE OUTPUT	9.7
PIN 12	PROGRAM PULSE OUTPUT	8.4
PIN 13	AUTO BIAS ACTIVE PULSE OUTPUT	2.5
PIN 14	5V REFERENCE	4.9
PIN 15	VERTICAL REFERENCE BIAS	4.9
PIN 16	RED OUTPUT	3.5
PIN 17	RED HOLD CAP	3.4
PIN 18	GREEN OUTPUT	4.2
PIN 19	GREEN HOLD CAP	4.2
PIN 20	BLUE OUTPUT	4.2
PIN 21	BLUE HOLD CAP	4.2
PIN 22	Vcc	9.8



LM324N: AUTO BRIGHT CONTROL CIRCUIT.

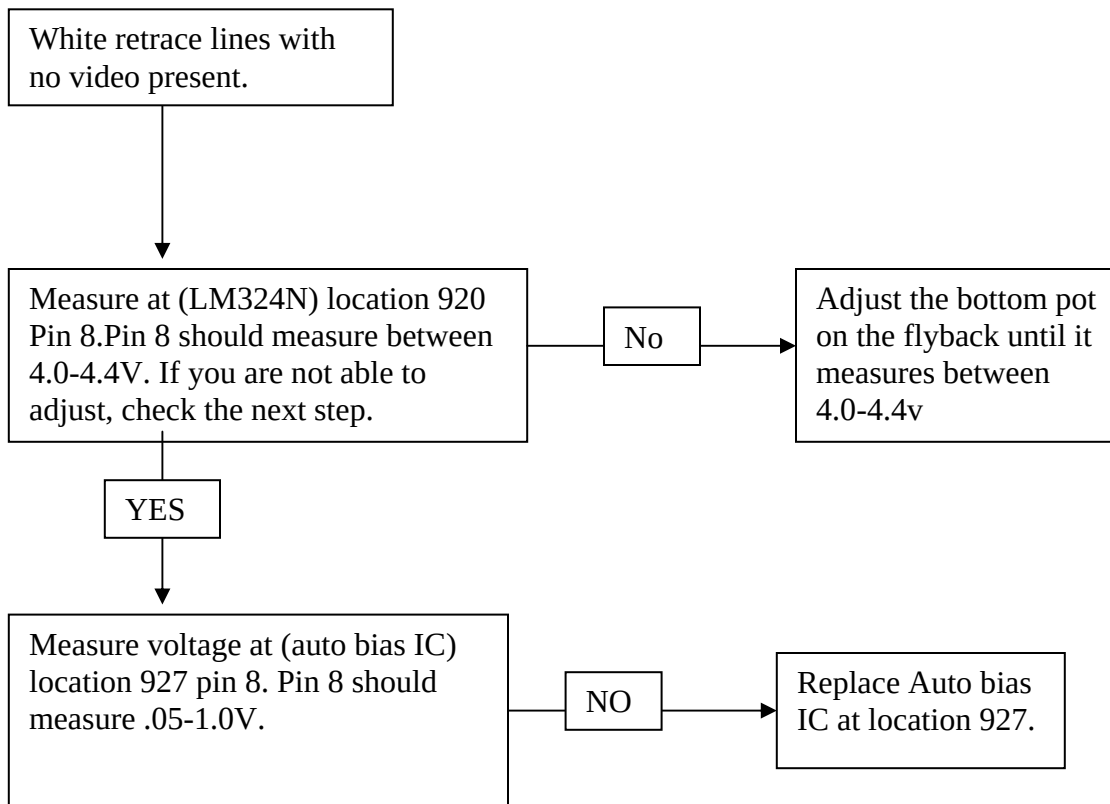
TABLE DISPLAYS CORRECT DC VOLTAGES

PIN 1	GREEN CHANNEL OUTPUT	3.4
PIN 2	INVERTING INPUT	4.0
PIN 3	NON- INVERTING INPUT	4.0
PIN 4	Vcc	11.95
PIN 5	NON- INVERTING INPUT	4.0
PIN 6	INVERTING INPUT	4.0
PIN 7	BLUE CHANNEL OUTPUT	3.3
PIN 8	SCREEN VOLTAGE ADJUSTMENT	4.0
PIN 9	INVERTING INPUT	4.0
PIN 10	NON- INVERTING INPUT	4.0
PIN 11	GND	0
PIN 12	NON- INVERTING INPUT	4.0
PIN 13	INVERTING INPUT	4.0
PIN 14	RED CHANNEL OUTPUT	3.1



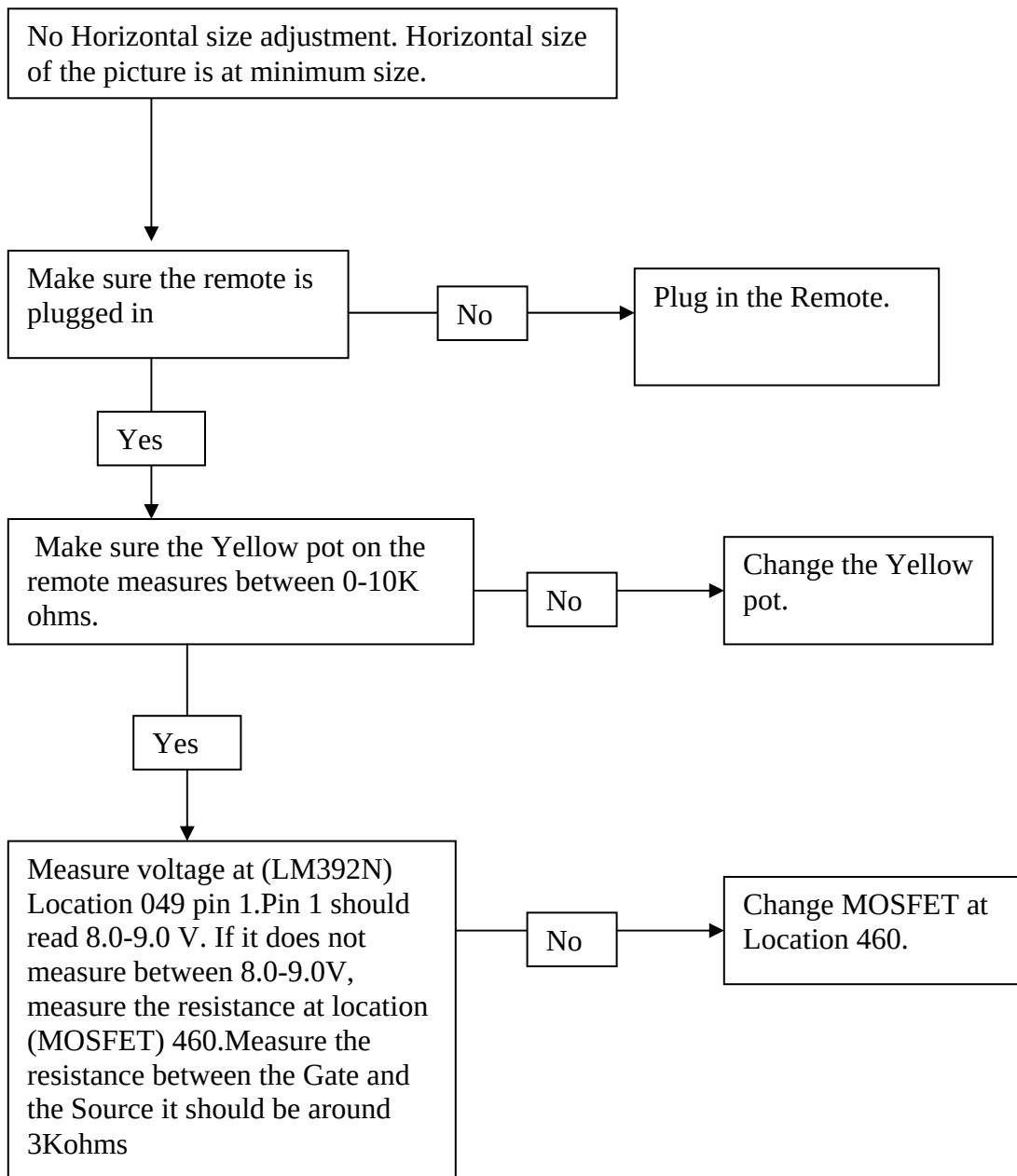
Troubleshooting flow charts: Symptom – White Retrace Lines and no video.

Note: Test generator needs to be set-up with color bar pattern.



Troubleshooting flow charts: Symptom – No H-Size adjust.

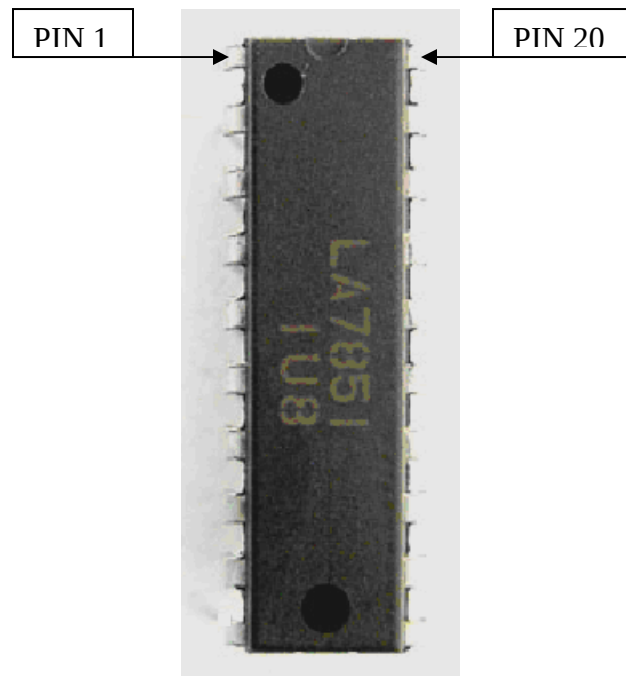
Note: Test generator need to be set-up with color bar pattern.



LA7851: VERTICAL AND HORIZONTAL DEFLECTION CONTROL CIRCUIT.

TABLE DISPLAYS CORRECT DC VOLTAGES

PIN 1	H-SYNC INPUT	3.8
PIN 2	PICTURE POS. O/S	8.2
PIN 3	DELAYED SYNC O/S	8.3
PIN 4	TRIGGER	.1
PIN 5	SAW TOOTH GEN.	3.5
PIN 6	BIAS	2.9
PIN 7	MULTIPLIER	5.8
PIN 8	HORZ. OSCILLATOR	5.8
PIN 9	DISCHARGE	5.4
PIN 10	H. V+	11.25
PIN 11	FIXED VOLTAGE FOR COMP.	5.6
PIN 12	OUTPUT COMP.	.396
PIN 13	GND	0
PIN 14	GND	0
PIN 15	OUTPUT OF OP AMP.	2.4
PIN 16	V. REF	5.0
PIN 17	VERTICAL OSC. O/S	.137
PIN 18	VERTICAL OSCILLATOR	5.8
PIN 19	VERTICAL +/- SYNC INPUT	5.9
PIN 20	VERTICAL V+	11.25



Power supply troubleshooting technique

NOTE: All voltage measurements are DC with –lead to GND unless otherwise noted.

Monitors with zero voltage at V+

- Ohm out the zener diode at location 181.
- Replace the zener if it is shorted, check the FET to make sure it is not shorted.
- Replace the FET if it is shorted and the switching mode transformer at location 136.
- Apply power to the monitor.
- If the V+ reads between 10-35V DC, turn your power off and apply external power to the Power supply IC (SEE ILLUSTRATION 101).
- Once the external power supply has been properly hooked up measure the voltage at pins 16,15,10 and 8 on IC (C5184) at location 115. If any of the readings are in correct replace IC 115 and Transistor (MPSA64) 127. After the IC has been replaced repeat the step above. If the readings are correct remove the external power supply and power up the monitor.

Monitors with 10–35 volts at V+

- If the V+ reads between 10-35V DC, turn your power off and apply external power to the Power supply IC (SEE ILLUSTRATION 101).
- Once the external power supply has been properly hooked up measure the voltage at pins 16,15,10 and 8 on IC (C5184) at location 115. If any of the readings are in correct replace IC 115 and Transistor (MPSA64) 127. After the IC has been replaced repeat the step above. If the readings are correct remove the external power supply and power up the monitor.

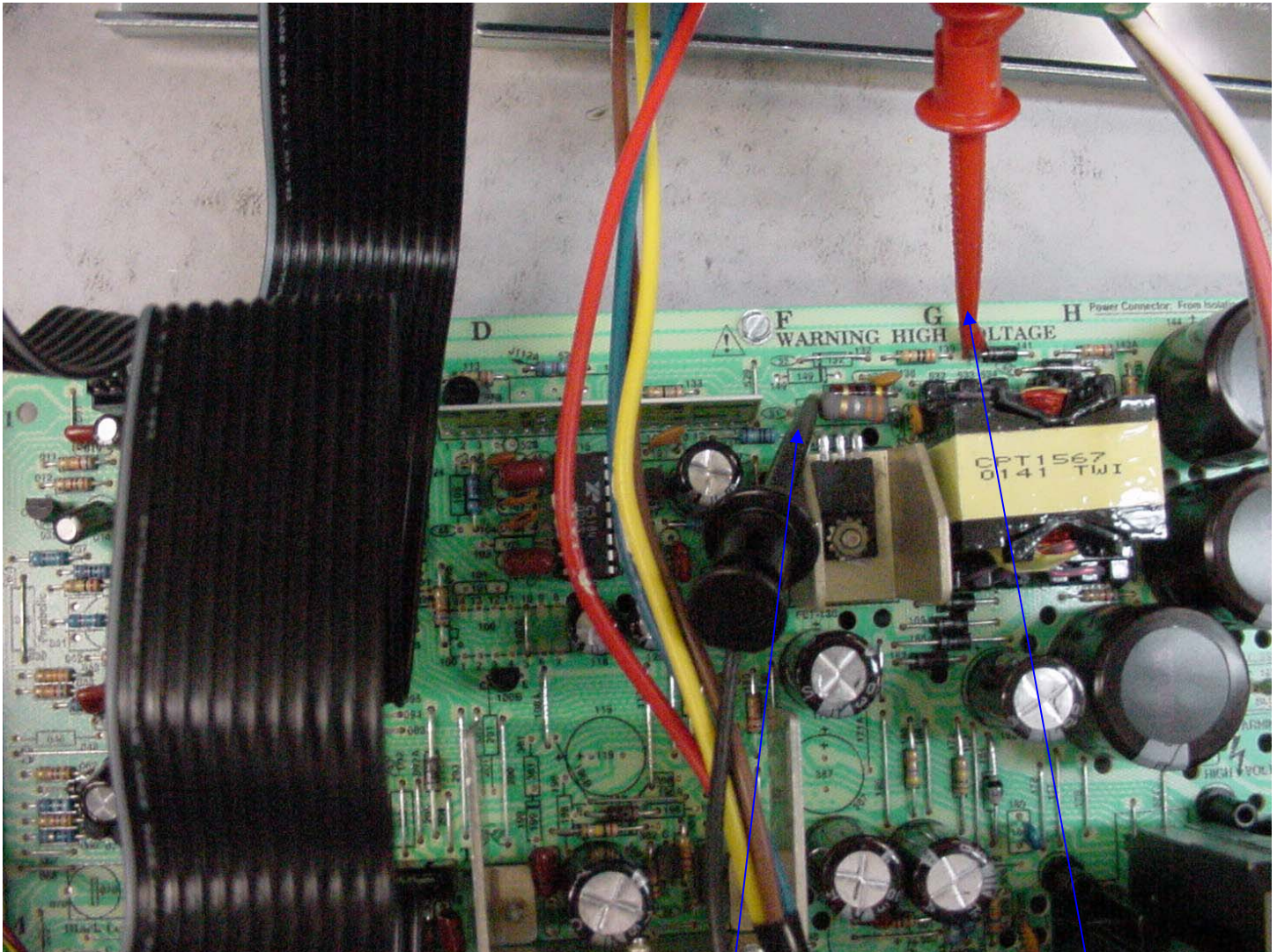
Monitors with a fluctuating V+

- Check the 16V line at diode 170(See illustration 102).
- Measure the 12V-regulator input and output.
- Measure pins 8,11 and 12 on IC (LA7851) at location 415.

Monitors with a fluctuating V+

- Check the 24V line at diode 168. (See illustration 103)
- Check the vertical IC (LA7838) and relay (location 468) for degaussing circuit that requires 24V.

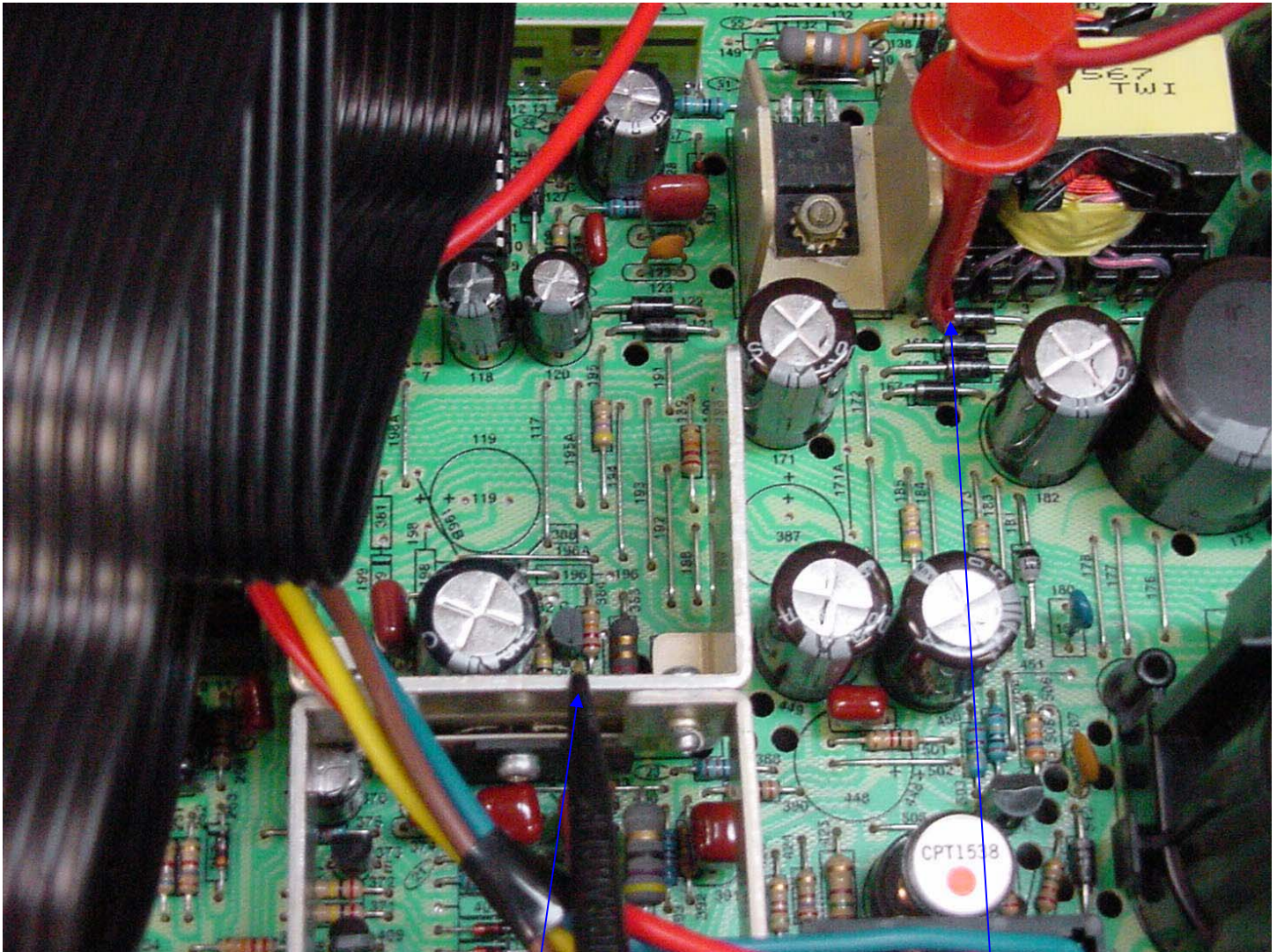
ILLUSTRATION 101
EXTERNAL 17V SUPPLY HOOK UP TO POWER IC (C5184) 115.



-LEAD TO V-

+LEAD TO THE
CATHODE OF
DIODE 141

ILLUSTRATION 102
EXTERNAL 16V LINE HOOK UP

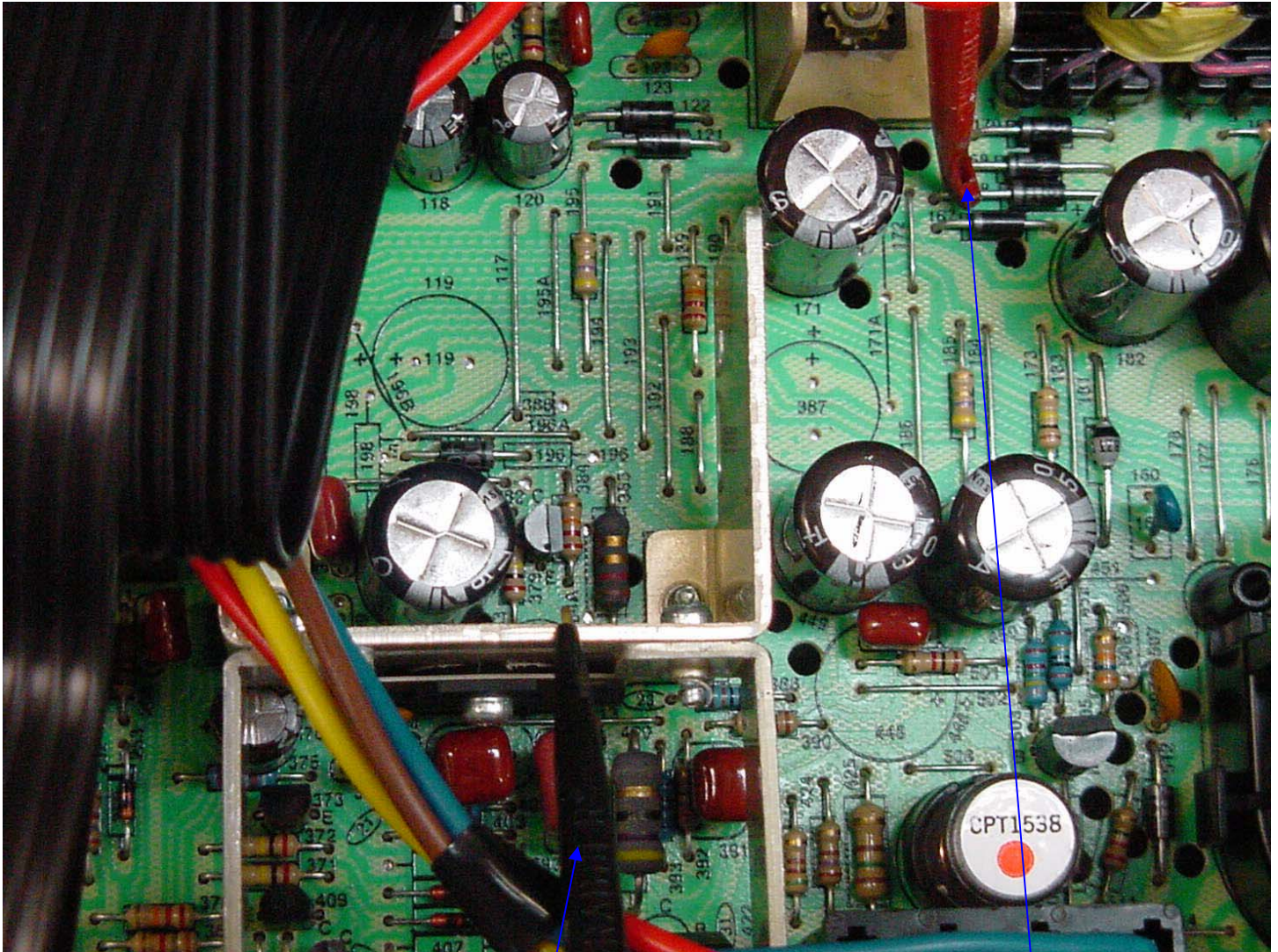


-LEAD TO GND

+ LEAD TO THE CATHODE
OF DIODE 170

ILLUSTRATION 103

EXTERNAL 24V LINE HOOK UP



-LEAD TO GND

+ LEAD TO THE
CATHODE SIDE OF
DIODE 168

C5184: POWER SUPPLY CONTROL CIRCUIT

TABLE DISPLAYS CORRECT DC VOLTAGES WITH REFERENCE TO V-

PIN 1	+ INPUT ERROR AMP	5.7
PIN 2	- INPUT ERROR AMP	5.7
PIN 3	COMPARATOR	0.5
PIN 4	OUTPUT	4.23
PIN 5	CONTROL & FAULT SENSE 4Us delay	0.1
PIN 6	Rx OSCILLATOR	6.0
PIN 7	Cx OSCILLATOR	3.7
PIN 8	+7.5 REFERENCE	7.7
PIN 9	GND	0
PIN 10	DRIVE	1.4
PIN 11	CURRENT SENSE	0.06
PIN 12	CONTROL & FAULT SENSE – COMP.	3.6
PIN 13	CONTROL & FAULT SENSE + COMP.	4.4
PIN 14	OVER VOLTAGE PROTECT INPUT	6.5
PIN 15	+17V INPUT	19
PIN 16	15V	17

