

3. ADJUSTMENT

3.1. GENERAL INFORMATION

All adjustments are thoroughly checked and corrected when the monitor leaves the factory. Therefore the monitor should operate normally and produce proper color and pictures upon installation. However, several minor adjustments may be required depending on the particular location in which the monitor is to operate. This monitor is shipped completely in carton. Carefully draw out the monitor from the carton and remove all packing materials. Check and adjust all the customer controls such as Brightness and Contrast to obtain a normal picture.

3.2. AUTOMATIC DEGAUSSING

A degaussing coil mounted around the picture tube so that external degaussing is normally unnecessary after moving the monitor. The monitor should be properly degaussed upon installation.

If the set is moved or faced in a different direction, the power switch must be switched off for at least 30 minutes in order that the automatic degaussing circuit operates properly.

When the chassis or parts of the cabinet become magnetized, cause poor color purity, use an external degaussing coil. Slowly move the degaussing coil around the faceplate of the picture tube, the sides and front of the monitor, and slowly withdraw the coil to a distance of about 2 meters before disconnecting it from the AC source. If color shading still persists, perform the convergence adjustment procedures, as mentioned later.

3.3. HORIZONTAL HOLD ADJUSTMENT

- 3.3.1. Disconnect the signal cable of monitor from signal source (PC).
- 3.3.2. Connect the ground terminal of a frequency counter to chassis ground of monitor and the other terminal to RED colored wire of DY connector.
- 3.3.3. Adjust VR704 (H.HOLD), so that the horizontal frequency is 35.35 KHz \pm 50Hz.

3.4. H-RASTER CENTER ADJUSTMENT

- 3.4.1. Display the 8514/A crosshatch pattern on the monitor.
- 3.4.2. Adjust VR711, so that the raster position is mechanical center.

3.5. VERTICAL LINEARITY ADJUSTMENT

- 3.5.1. Display the MODE 3 crosshatch pattern on the monitor.
- 3.5.2. Adjust VR602, so that the vertical linearity should be best condition.

3.6. VERTICAL SIZE ADJUSTMENT

- 3.6.1. Adjust V.Size control (VR603), so that the vertical size of image is 186 \pm 1 mm at MODE 4 (8514/A) crosshatch pattern.
- 3.6.2. Check the vertical size of image for each mode. VGA 1,2,3, EVGA (800 x 600) mode: 184 \pm 5 mm. 8514/A mode : 184 \pm 5 mm.

3.7. SIDE PINCUSHION ADJUSTMENT

- 3.7.1. Display the crosshatch pattern at VGA MODE 3.
- 3.7.2. Adjust VR705(S.PCC), so that minimize the side pincushion distortion.

3.8. H-POSITION ADJUSTMENT

- 3.8.1. Display the crosshatch pattern at 8514/A mode.
- 3.8.2. Adjust the H.POSITION control VR(VR703), so that the image is mechanical horizontal center position.
- 3.8.3. Display the crosshatch pattern at VGA MODE 3.
- 3.8.4. Adjust the H.PHASE VR(VR701), so that the image is mechanical horizontal center position.
- 3.8.5. Display the crosshatch pattern at EVGA mode.
- 3.8.6. Adjust the H.PHASE VR(VR702), so that the image is mechanical horizontal center position.

3.9. H-SIZE ADJUSTMENT

- 3.9.1. Adjust the H.SIZE VR(VR706), so that the horizontal size is 245 \pm 1.5 mm at VGA MODE 2 crosshatch pattern.
- 3.9.2. Check the horizontal size of image for all mode. VGA MODE 1,2,3, EVGA(800 x 600), 8514/A mode : 245 \pm 3 mm.

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3.10. WHITE BALANCE ADJUSTMENT

- 3.10.1. Following instruments should be prepared to adjust WHITE BALANCE and CONTRAST.
 - White Balance Meter.
 - External Degaussing Coil.
 - Optical Photo Meter.
- 3.10.2. Display the pattern color 0,0 (back raster only) at VGA MODE 3.
- 3.10.3. Set the external BRIGHT VR, CONTRAST VR and SUB-BRIGHT VR (VR707) to max position.
- 3.10.4. Set the B cut-off VR(VR303) and G cut-off VR (VR304) to minimum position.
- 3.10.5. Adjust the SCREEN VR of FBT to the point that luminance of back-raster is about 0.3 FL.
- 3.10.6. Adjust G cut-off (VR304) and B cut-off (VR303), so that X-0.282, Y-0.304.
- 3.10.7. Adjust SUB-BRIGHT VR(VR707), so that the luminance of back-raster is about 0.8 FL.
- 3.10.8. Display the window pattern (70 mm x 70 mm) of color 15,0(intensity full white) at VGA MODE 3.
- 3.10.9. Set the BRIGHT VR and SUB-CONTRAST VR (VR708) to mechanical center position.
- 3.10.10. Turn the B-DRIVE (VR302), so that X is 0.282 and the G-DRIVE (VR301), so that Y is 304.
- 3.10.11. Repeat 8-10 until X-0.282 \pm 0.02 and Y-0.304 \pm 0.022.
- 3.10.12. Set BRIGHT VR to minimum and adjust CONTRAST VR until luminance is 5 FL at full white pattern (color 15,0).
- 3.10.13. Confirm X-0.282 \pm 0.02, Y-0.304 \pm 0.022, if the color coordinate is out of specification, readjust G,B cut-off VR, so that the screen is white.
- 3.10.14. Repeat 10-10, 10-11, 10-12, so that the screen should be white.

3.11. CONTRAST ADJUSTMENT

- 3.11.1. Display the window pattern (70 mm x 70 mm) of color 7,0 at VGA MODE 3.
- 3.11.2. Set the BRIGHT VR and CONTRAST VR to the maximum position.
- 3.11.3. Adjust the SUB-CONTRAST VR (VR708) to the following point.
 - * MEDIUM PERSISTENCE CDT : 25 FL
 - * MEDIUM SHORT PERSISTENCE CDT : 30 FL.

3.12. FOCUS ADJUSTMENT

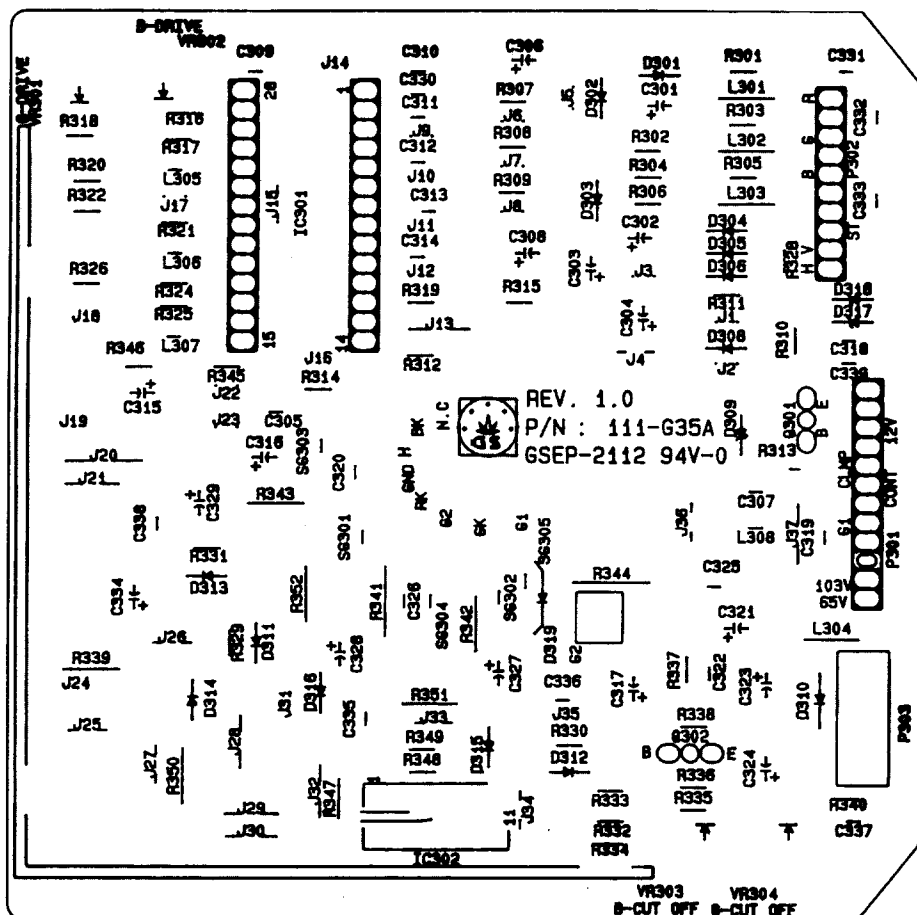
- 3.12.1. Set the BRIGHT VR and CONTRAST VR to the MAX position.
- 3.12.2. Display "H" character pattern (color 7,0) in full screen.
- 3.12.3. Adjust FOCUS VR OF FBT, so that the focus should be best condition.

3.13. CONFIRMING SELF-TEST

- 3.13.1. Set the BRIGHT VR and CONTRAST VR to the MAX position.
- 3.13.2. Remove the signal connector from the signal source (PC)
- 3.13.3. Confirm that the luminance of the self-raster screen is more than 5 FL.

3.14. FAIL SAFETY ADJUSTMENT

- 3.14.1. Set the BRIGHT VR and CONTRAST VR to the MIN. position.
- 3.14.2. Display the crosshatch pattern at VGA MODE 3.
- 3.14.3. Confirm that voltage of FBT pin #2 is 90V \pm 1V.
- 3.14.4. Check the TP1 voltage should be 24.5 V \pm 1V.
- 3.14.5. Apply the 30V by external DC voltage regulator to TP 1.
- 3.14.6. Confirm the SMPS power is OFF.
- 3.14.7. If the power is off, then the power switch should be turned off.
- 3.14.8. After 11 seconds, turn on the POWER SWITCH again.



ADJUSTMENT

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and CONTRAST.

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r.

color 0,0 (back raster only)

HT VR, CONTRAST VR and (VR707) to max position.

R(VR303) and G cut-off VR to position.

VR of FBT to the point that raster is about 0.3 FL.

(VR304) and B cut-off (VR303), (VR304).

T VR(VR707), so that the raster is about 0.8 FL.

pattern (70 mm x 70 mm) of all white) at VGA MODE 3.

R and SUB-CONTRAST VR to center position.

(VR302), so that X is 0.282 and so that Y is 304.

0.282 +/- 0.02 and Y-0.304 +/-

minimum and adjust CON-TRAST VR to 5 FL at full white

0.02, Y-0.304 +/- 0.022, if the raster is out of specification,

VR, so that the screen

10-12, so that the screen

ADJUSTMENT

pattern (70 mm x 70 mm) of all white) at VGA MODE 3.

and CONTRAST VR to the

TRAST VR (VR708) to the

CE CDT : 25 FL

SISTENCE CDT : 30 FL.

and CONTRAST VR to the

pattern (color 7,0) in full

F FBT, so that the focus is on.

TEST

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ADJUSTMENT

and CONTRAST VR to the

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F FBT pin #2 is 90V +/- 1V.

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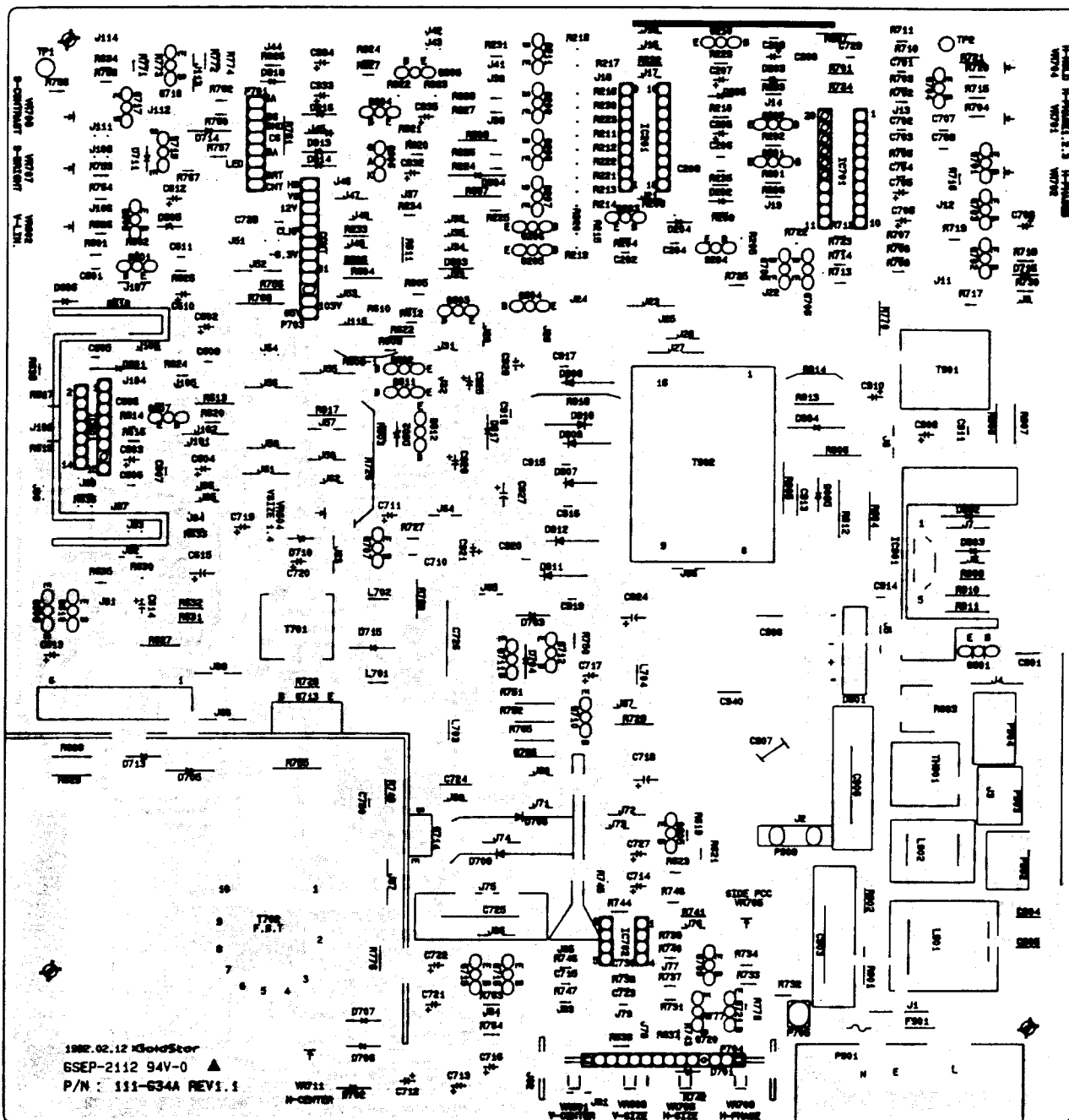
the power switch should

on the POWER SWITCH

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Fax (01844) 352554

1453 PLUS.
1460 PLUS.
1460 SSI.
CA-14 CHASSIS.
CQ-430A.
CQ-432A.
CQ-438A.
CQ-440A.

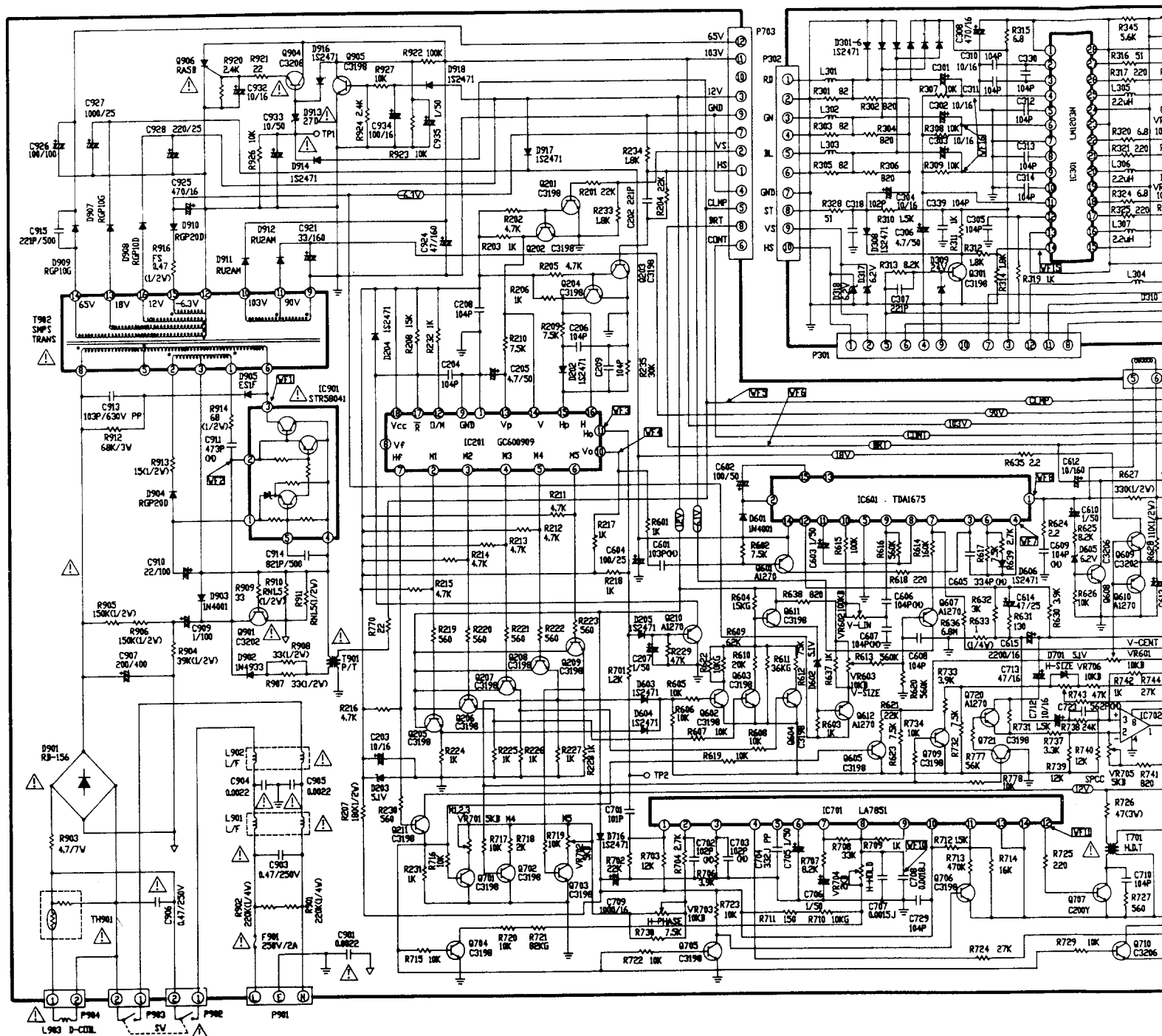
MAIN BOARD(BOTTOM SIDE)





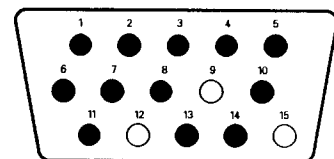
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SCHEMATIC DIAGRAM (CQ430A/ 1460 PLUS 0.28 230V)



3.15. PIN CONNECTOR (MALE) TO THE CON

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- | | | |
|---------------|-----------------|----------|
| 1. Red | 6. Red GND | 11. ID 0 |
| 2. Green | 7. Green GND | 12. ID 1 |
| 3. Blue | 8. Blue GND | 13. H-S |
| 4. ID 2 (GND) | 9. No Pin | 14. V-S |
| 5. Self Test | 10. Digital GND | 15. No |

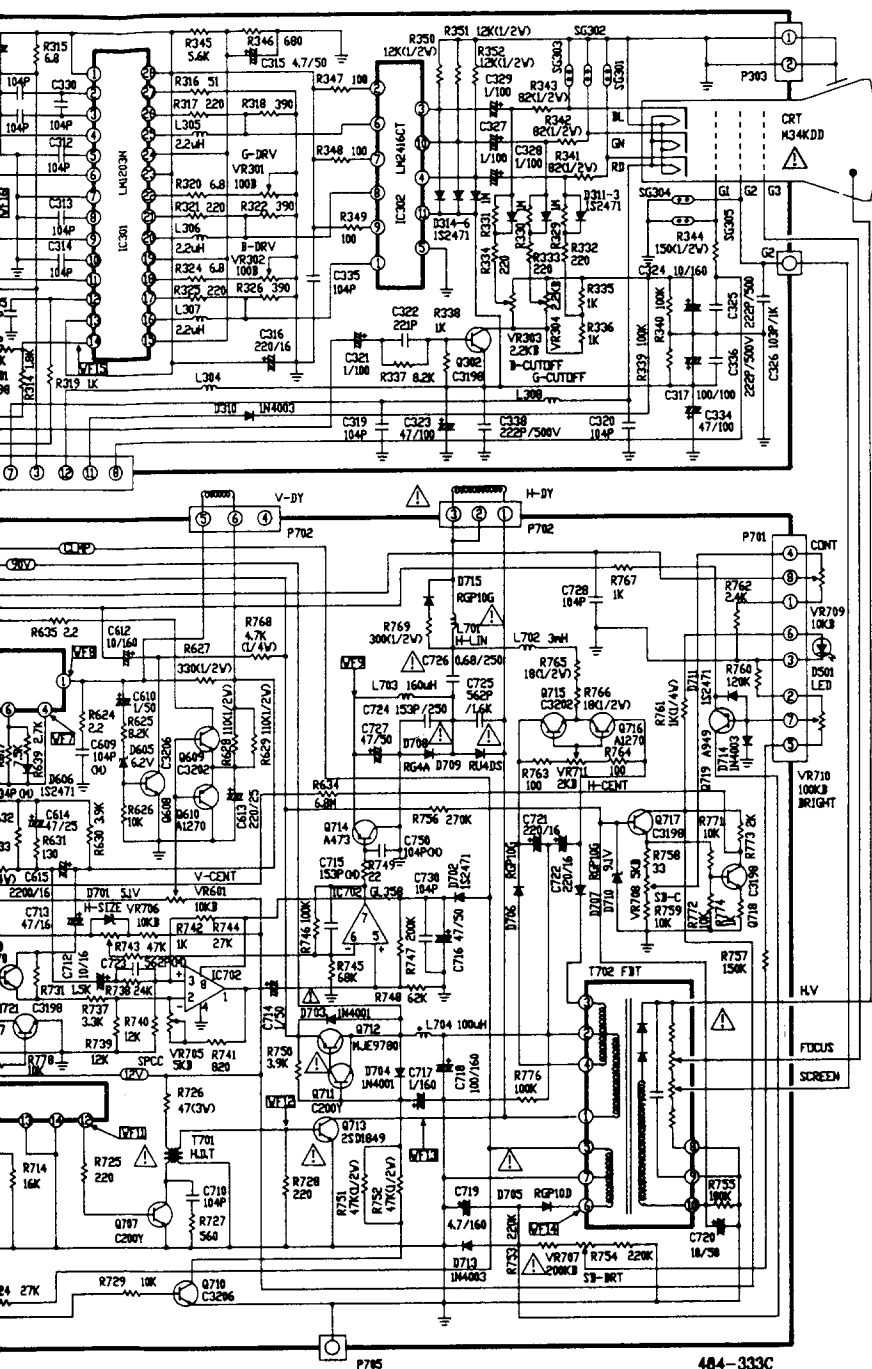
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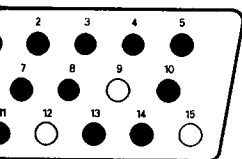
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1460 PLUS (0.28 230V)

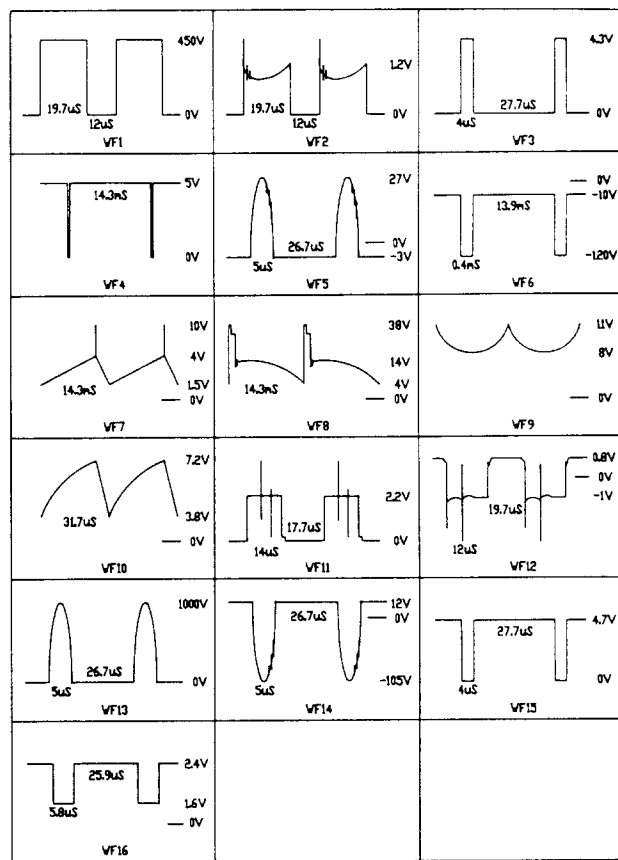


CONNECTOR (MALE) TO THE COMPUTER



- 6. Red GND
- 7. Green GND
- 8. Blue GND
- 9. No Pin
- 10. Digital GND
- 11. ID 0 (GND)
- 12. ID 1 (No Pin)
- 13. H-Sync
- 14. V-Sync
- 15. No Pin

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(WAVE FORM) : VGA MODE 2
FULL WHITE PATTERN

IMPORTANT SAFETY NOTICE

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IMPORTANT AVIS SUR LA SÉCURITÉ

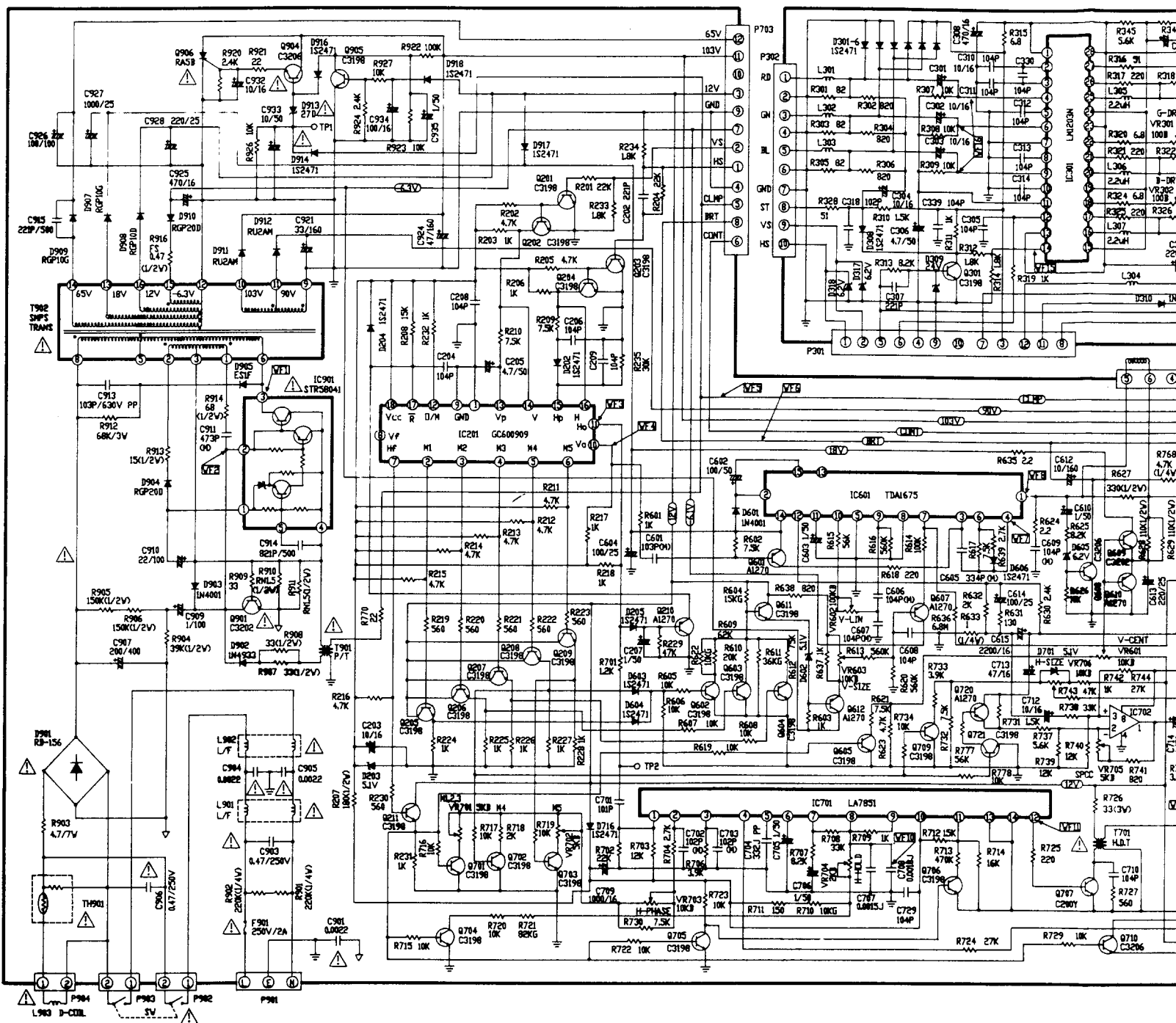
LA \triangle SYMBOLE MARQUE DE CE DIAGRAMME SCHEMATIQUE COMPREND D'IMPORTANTES CARACTÉRISTIQUES SPÉCIALES CONÇUES POUR PROTÉGER DES RAYONS X, ET DES DANGERS D'INCENDIE ET DE SECOURS ÉLECTRIQUES. EN CAS DE BESOIN SI DES PIÈCES DE CETTE \triangle SYMBOLE MARQUE DOIVENT ÊTRE REMPLACÉES UTILISEZ QUE DES PIÈCES SPÉCIFIÉES PAR LE MANUFACTURIER.

1453 PLUS.
1460 PLUS.
1460 SSI.
CA-14 CHASSIS.
CQ-430A.
CQ-432A.
CQ-438A.
CQ-440A.



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SCHEMATIC DIAGRAM (1453 P)



4. DESCRIPTION OF BLOCK DIAGRAM

1. SMPS

First of all if you push on the power switch, the line voltage is applied to the rectifier diode (D901) and rectified voltage is applied to the primary coil of trans.
Depending on turn ratio of the transformer, the secondary voltage appears at the secondary coil.
And it is rectified by each diode.
The output voltage are as follows;
DC 103V, 90V, 65V, 18V, 12V, -6.3V.

2. MODE CONTROL

Display modes are detected by horizontal and vertical sync signal, and the mode signals control the vertical and horizontal processing ICs.

3. VER. DRV & OUT

The vertical sync signal with 56Hz/60Hz/70Hz/87Hz/TTL level from mode control IC is applied to vertical IC.
The output signal of the IC drives vertical deflection yoke.

4. HOR.DRIVE

The horizontal sync signal with 31.5 KHz/35.5KHz TTL level from mode control IC is applied to horizontal IC, the output signal of the IC drives the H-OUT.

5. H-OUT

Switching transistor (Q713) drives horizontal deflection yoke and

6. B+ SELECTOR

The input voltage of FBT is changed by mode signal as follows:
31.5 KHz mode : 90V DC
35.5 KHz mode : 103V DC

7. X-RAY PROTECT

If the high voltage of FBT approximately reach to 29KV in abnormal, all circuits stop operating.

8. VERT. BLANKING



This circuit is operated that vertical retrace line is not shown on CRT.



retrace line is not shown. Output signal of vertical. Blanking circuit is

484-333D
1992. 03. 25.

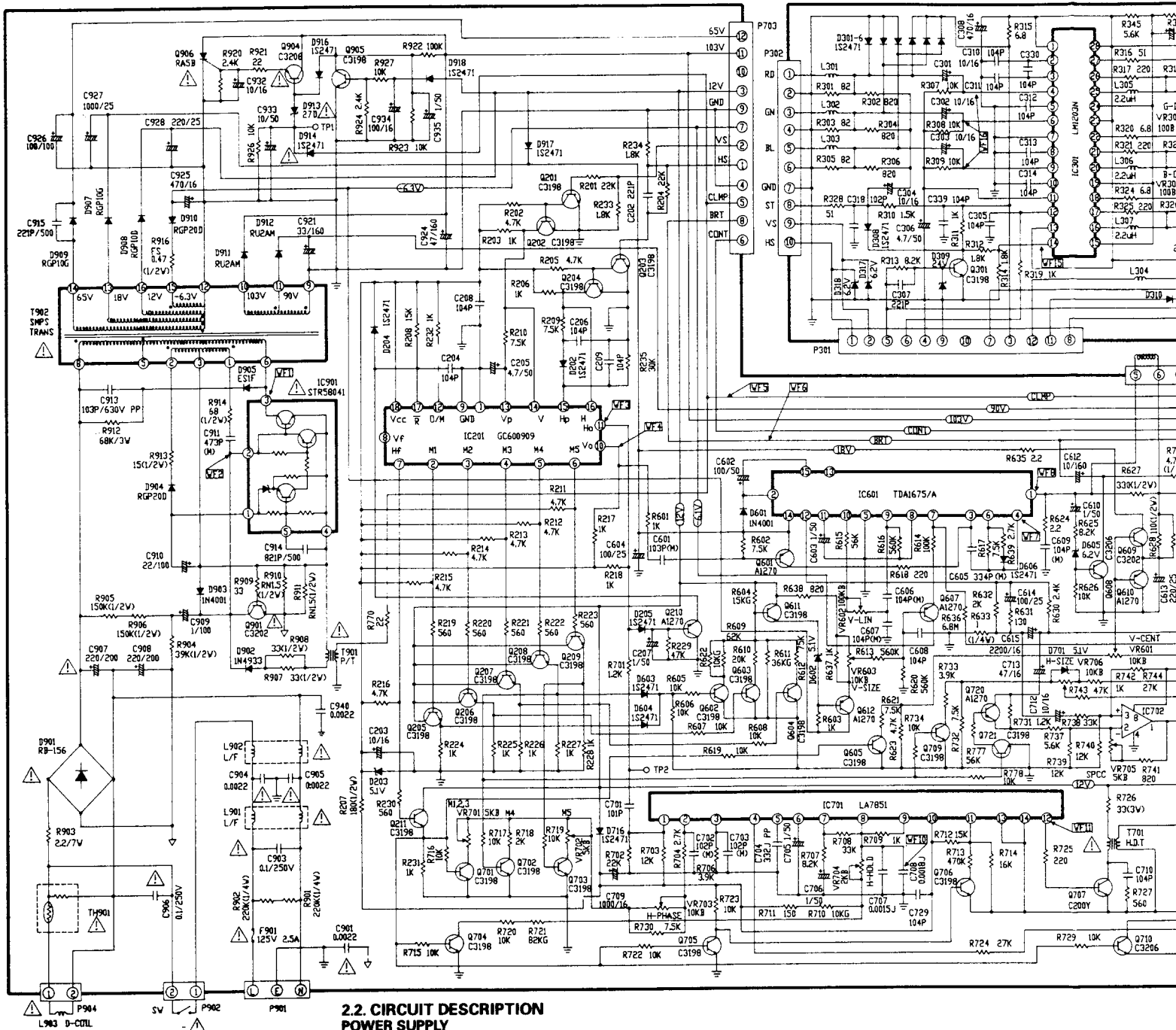
The video signal from the VIDEO AMP is amplified again, and applied to each cathode on CRT.

LA  SYMBOLE MARQUE DE CE DIAGRAMME SCHEMATIQUE COMPREND D'IMPORTANTES CARACTÉRISTIQUES SPÉCIALES CONÇUES POUR PROTÉGER DES RAYONS X, ET DES DANGERS D'INCENDIE ET DE SECOURS ÉLECTRIQUES. EN CAS DE BESOIN SI DES PIÈCES DE CETTE  SYMBOLE MARQUE DOIVENT ÊTRE REMPLACÉES, UTILISEZ QUE DES PIÈCES SPÉCIFIÉES PAR LE MANUFACTURIER.



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SCHEMATIC DIAGRAM (1460 PLUS 0.28 2



2.2. CIRCUIT DESCRIPTION

POWER SUPPLY

The power supply is a SMPS (Switching Mode Power Supply) that consists of switching IC(IC901), SMPS transformer (T902) and pulse transformer (T901), over current protection transistor (Q901) and the associated components.

POWER SUPPLY DESCRIPTIONS

This SMPS (Switching Mode Power Supply) is operate to obtains rectified DC103V, 90V, 65V, 18V, 12V, -6.3V from AC 120V, 60Hz (USA version)/AC220-240V, 50Hz (Europe Version).

The power is supplied in the following procedure:

- 1) Applied input power, AC120V/AC220-240V, is rectified by Bridge rectifier diode D901.
- 2) Rectified DC voltage is applied to T902 (pin No. 8 through No. 6) and IC901 (pin No. 2).
- 3) IC901 is starting ON/OFF switching.
- 4) This oscillation is generating switching pulses in the primary turn of SMPS transformer (T902). Therefore switching pulses are generated in the secondary turn which are proportion to the secondary turn Ratio.
- 5) Generated pulses are rectified by secondary rectifier diode D907, 908, 909, 910, 911, 912.

HORIZONTAL AFC AND OSCILLATION LIMITER

The AFC circuit consists of phase detection circuit and the associated components. The oscillation limit circuit is necessary to prevent the pulse from excessive high voltage. This circuit is located in IC701 and controls the oscillator to maintain correct frequency.

HORIZONTAL DRIVE CIRCUIT

To obtain horizontal drive pulses from IC701 PIN 12, the horizontal oscillator must be working. Horizontal drive pulses from IC701 PIN 12 are applied to transistor Q707.

The B+ for T701 is supplied from the 12V line.

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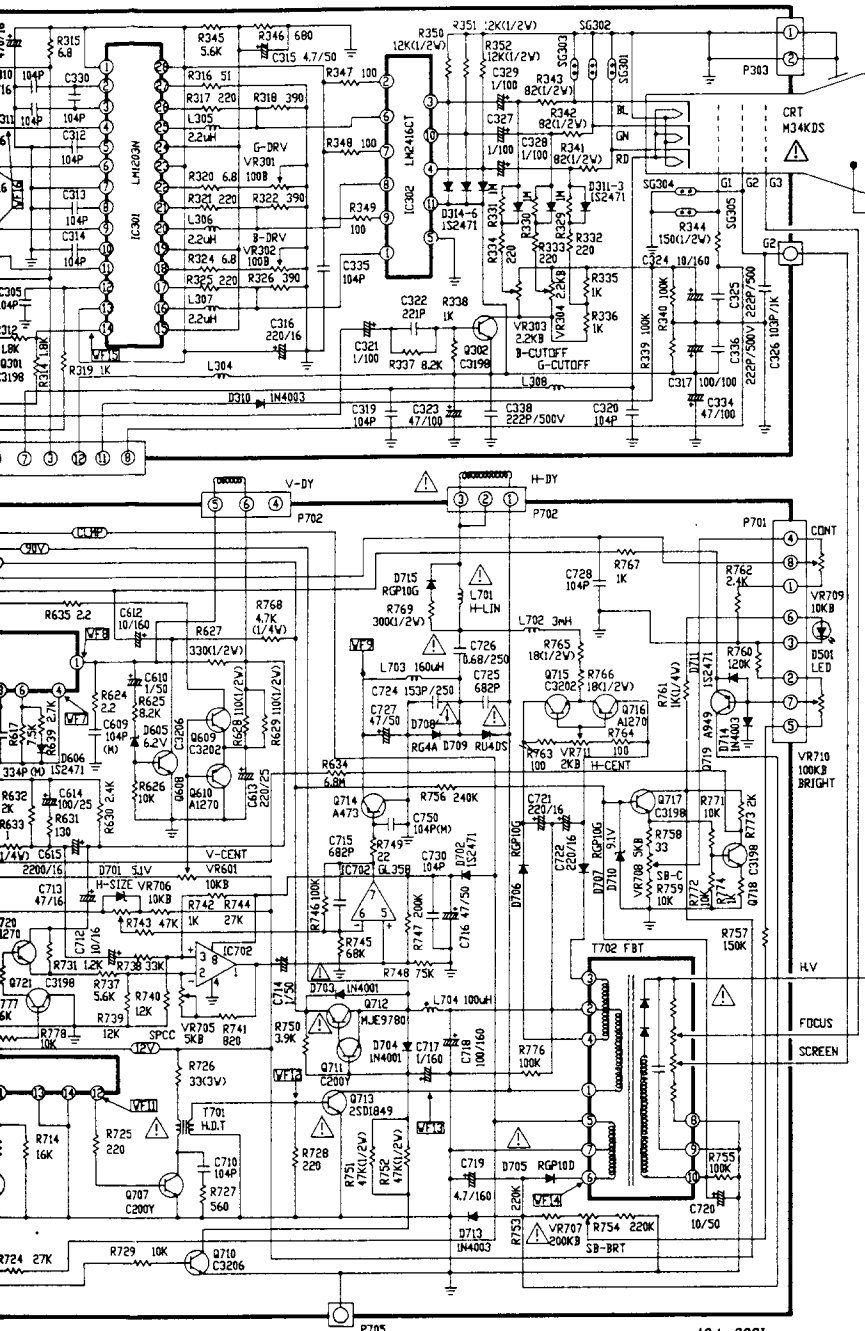
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CQ-430A.
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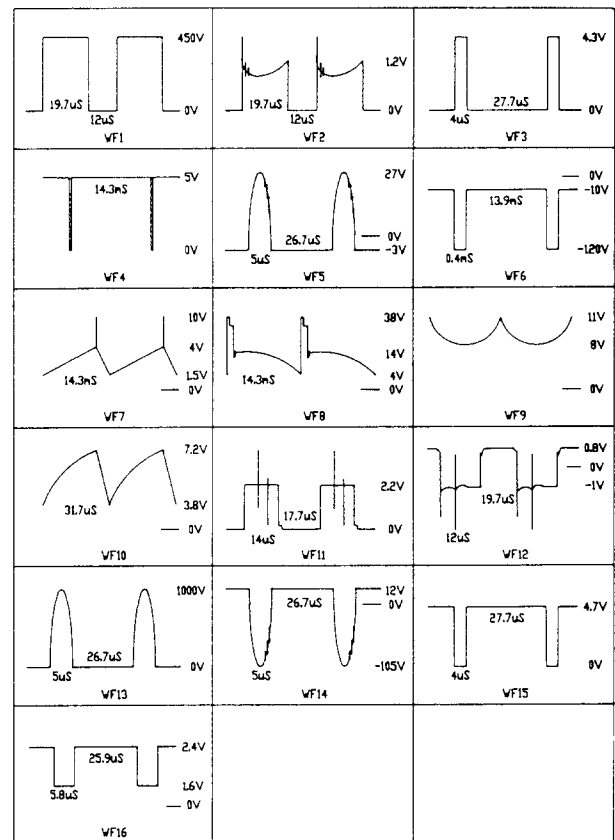
OSCILLATION LIMITER
The oscillation limit
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HORIZONTAL OUTPUT CIRCUIT

Horizontal drive pulses from IC701 pin 12 are coupled to the base of horizontal output transistor Q713. When Q713 is ON, the current is flow from B+ through the primary turn of FBT (T702) to collector of Q713. At the same time horizontal deflection current is flow from C726 through horizontal yoke coil to GND. During retrace time transistor Q713 is off. At the moment R.C oscillation that is charged energy in the FBT and horizontal deflection coil discharge to C725 and C724 is occurred. Therefore generated high voltage pulses are applied to collector of Q713 and primary turn of the FBT (T702). As a result, high voltage pulses are generated in the secondary turn of FBT proportion to secondary turn ration. Under normal operating condition, the FBT B+ is as follows.

- 90V for VGA 1,2,3, mode
- 103V for E-VGA, 8514/A mode.



(WAVE FORM) : VGA MODE 2
FULL WHITE PATTERN

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IMPORTANT AVIS SUR LA SÉCURITÉ

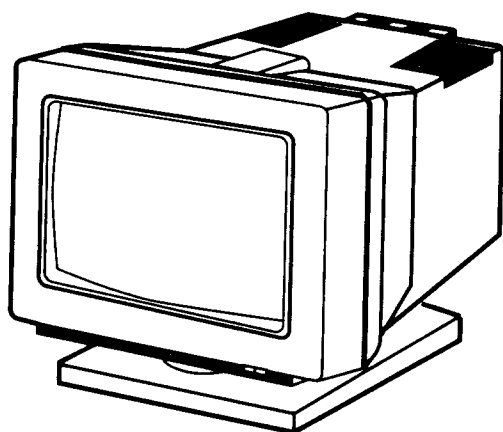
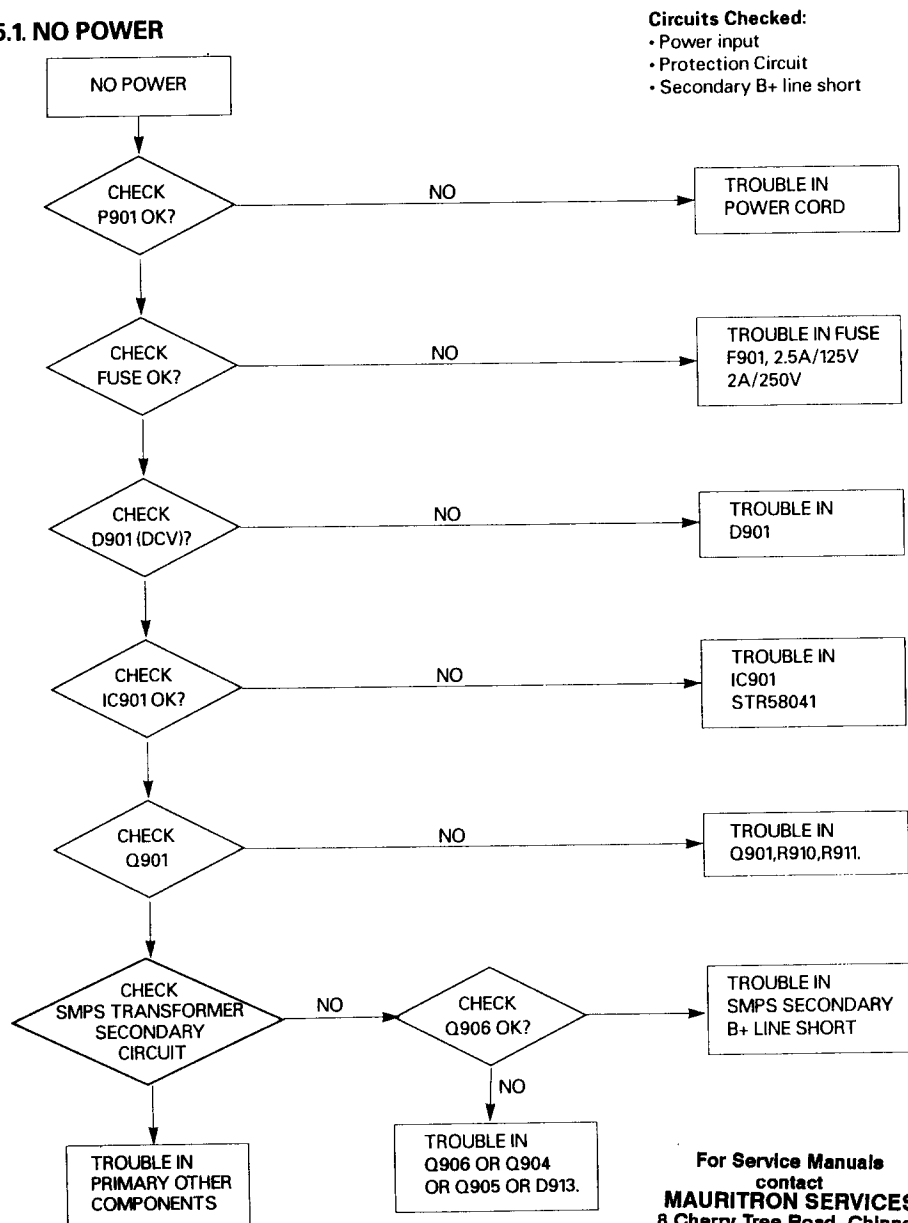
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VOLUME BOARD(BOTTOM SIDE)



5. TROUBLE SHOOTING GUIDE

5.1 NO POWER

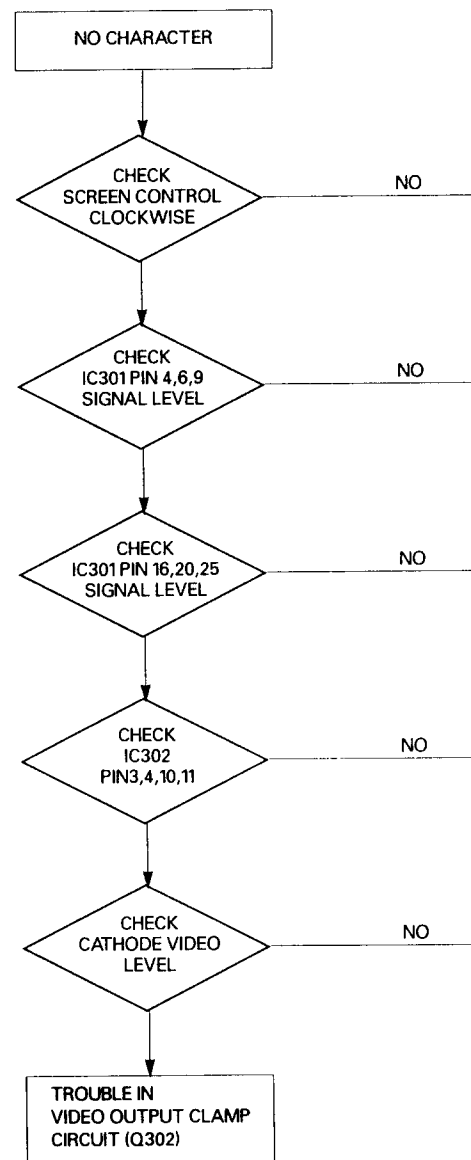


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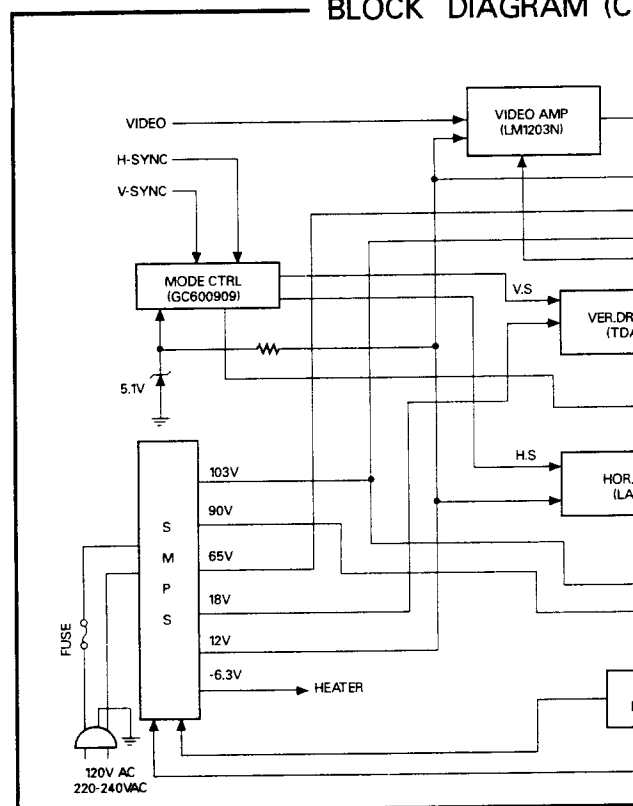
5.2 NO CHARACTER



Go



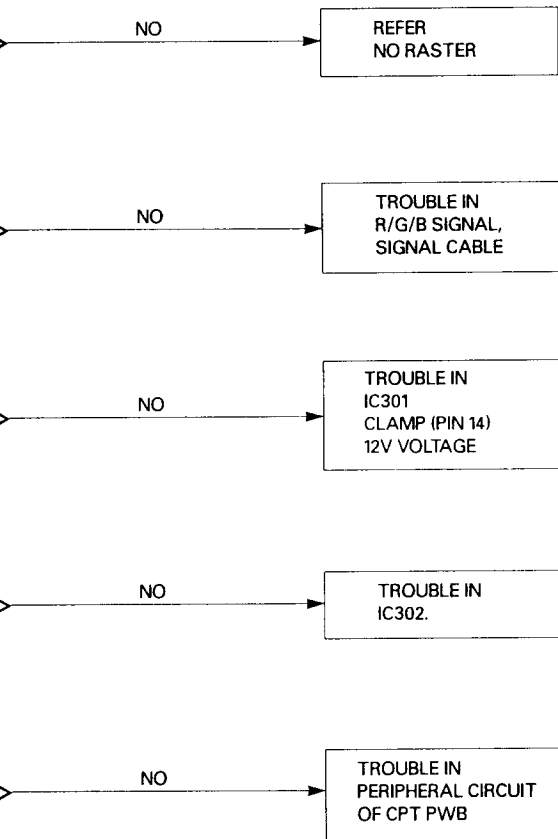
BLOCK DIAGRAM (C)



5.3 NO RASTER

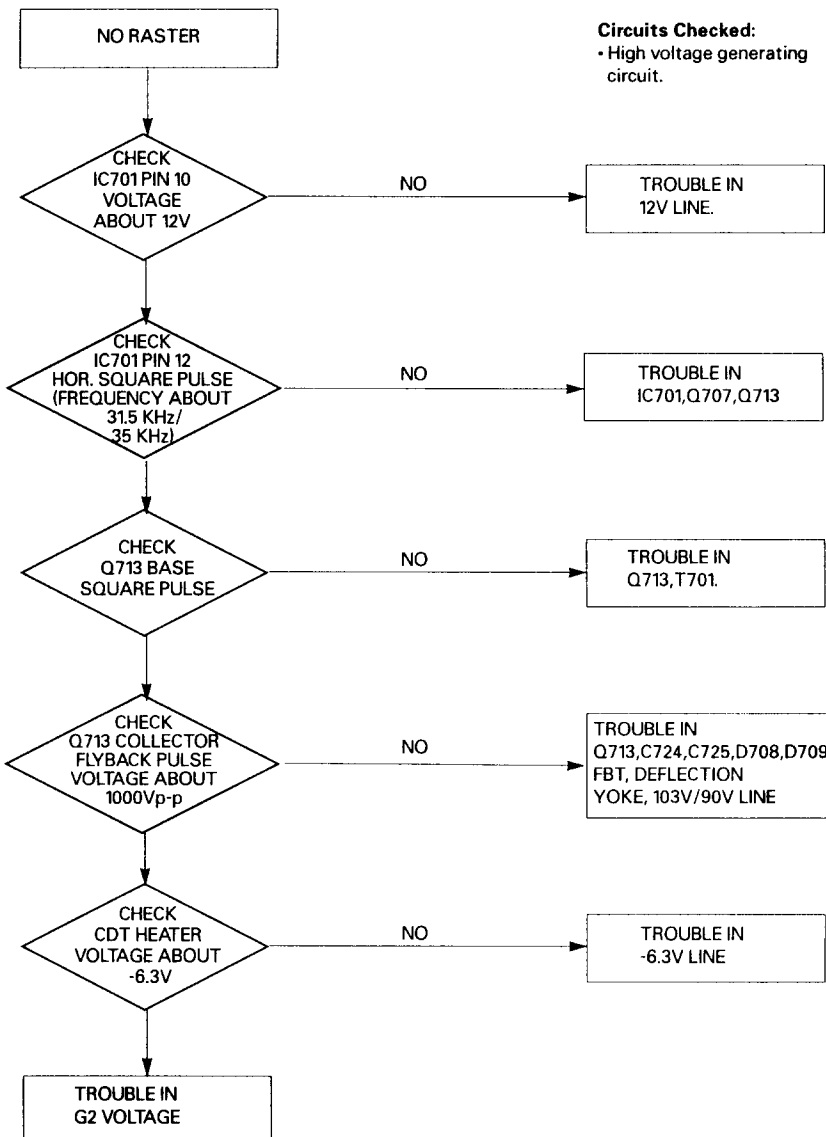
Circuits Checked:

- Video Circuit and its related circuits.

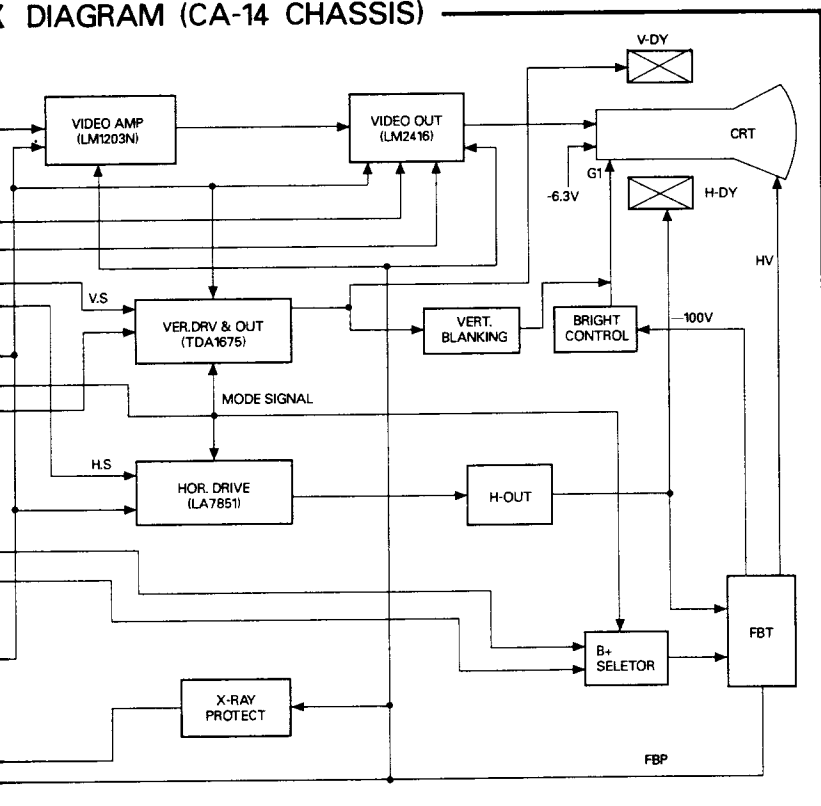


Circuits Checked:

- High voltage generating circuit.



WIRING DIAGRAM (CA-14 CHASSIS)



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CQ-438A.
CQ-440A.

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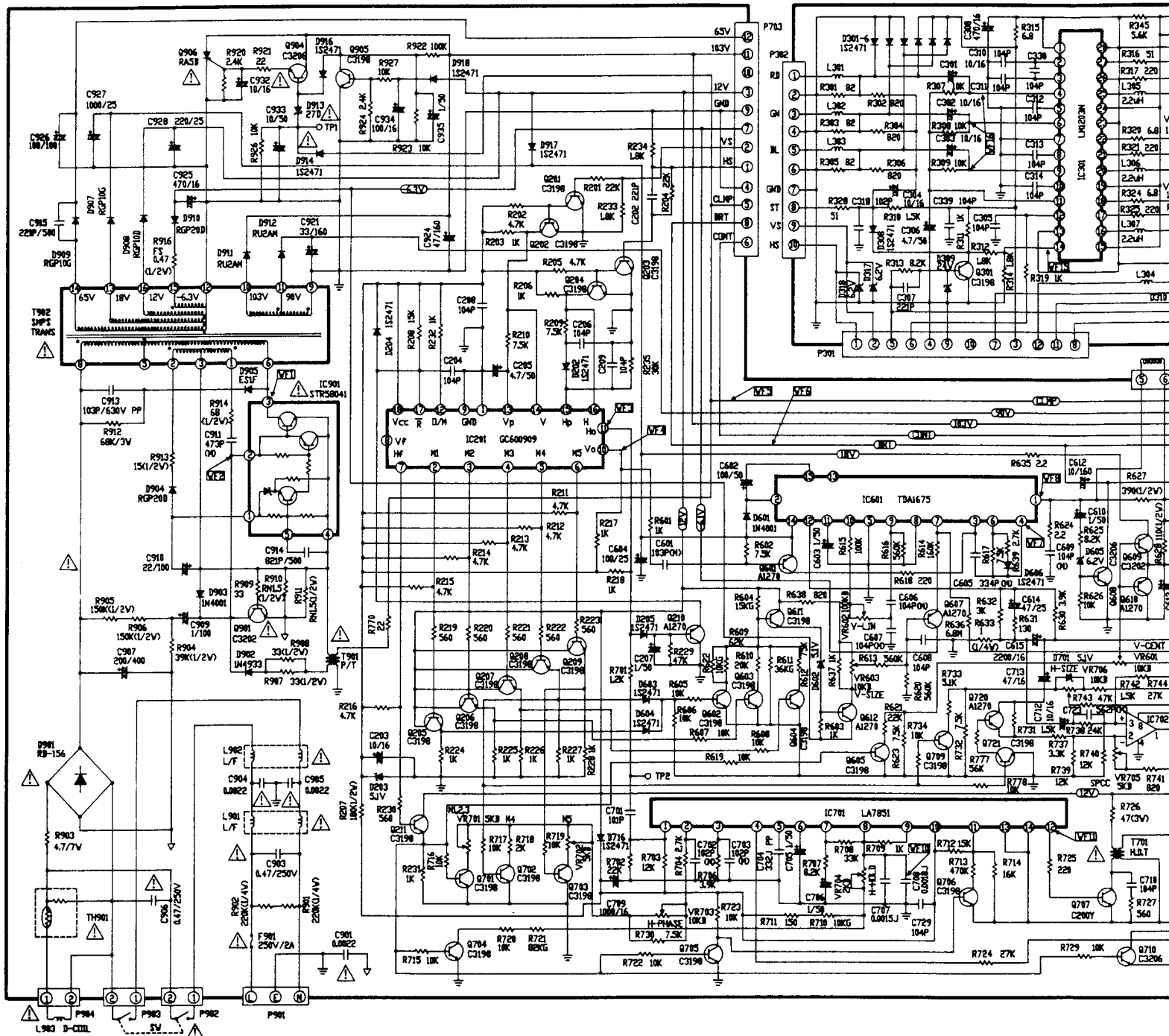
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SCHEMATIC DIAGRAM(1460 SSI 0.28 VLMF 230)



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1460 PLUS.
1460 SSI.
CA-14 CHASSIS.
CQ-430A.
CQ-432A.
CQ-438A.
CQ-440A.

VERTICAL DEFLECTION CIRCUIT

IC601 include vertical drive and output circuits. The time constant of C605, R617 which are connected to pin 3,4,6, of IC601 determine vertical oscillation frequency. Vertical size control circuit consist of pin 7 of IC601 and associated components. That are Q602, 603, 604, 607, 611, 612. V-Size control method is current control which is flow through pin 7. Vertical linearity circuit consist of VR602, C606, 607, R615. The pin 1 of IC501 is vertical output pin and connected to vertical deflection yoke. At this point, vertical center is controlled by DC voltage control. Vertical center circuit consist of Q609, 610 and associated components.

MODE CONTROL CIRCUIT

Mode control circuit is consist of IC201 and associated components. This IC compare to frequency and polarity of input signal. The comparison table which is input signal VS output signal is as follows.

Input VS output Comparison list

	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 11	PIN 12
VGA 1	5V	0V	0V	0V	0V	5V		
VGA 2	0V	5V	0V	0V	0V	5V		
VGA 3	0V	0V	5V	0V	0V	5V		
8514A	0V	0V	0V	5V	0V	0V		
E-VGA	0V	0V	0V	0V	5V	0V		

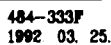
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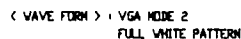
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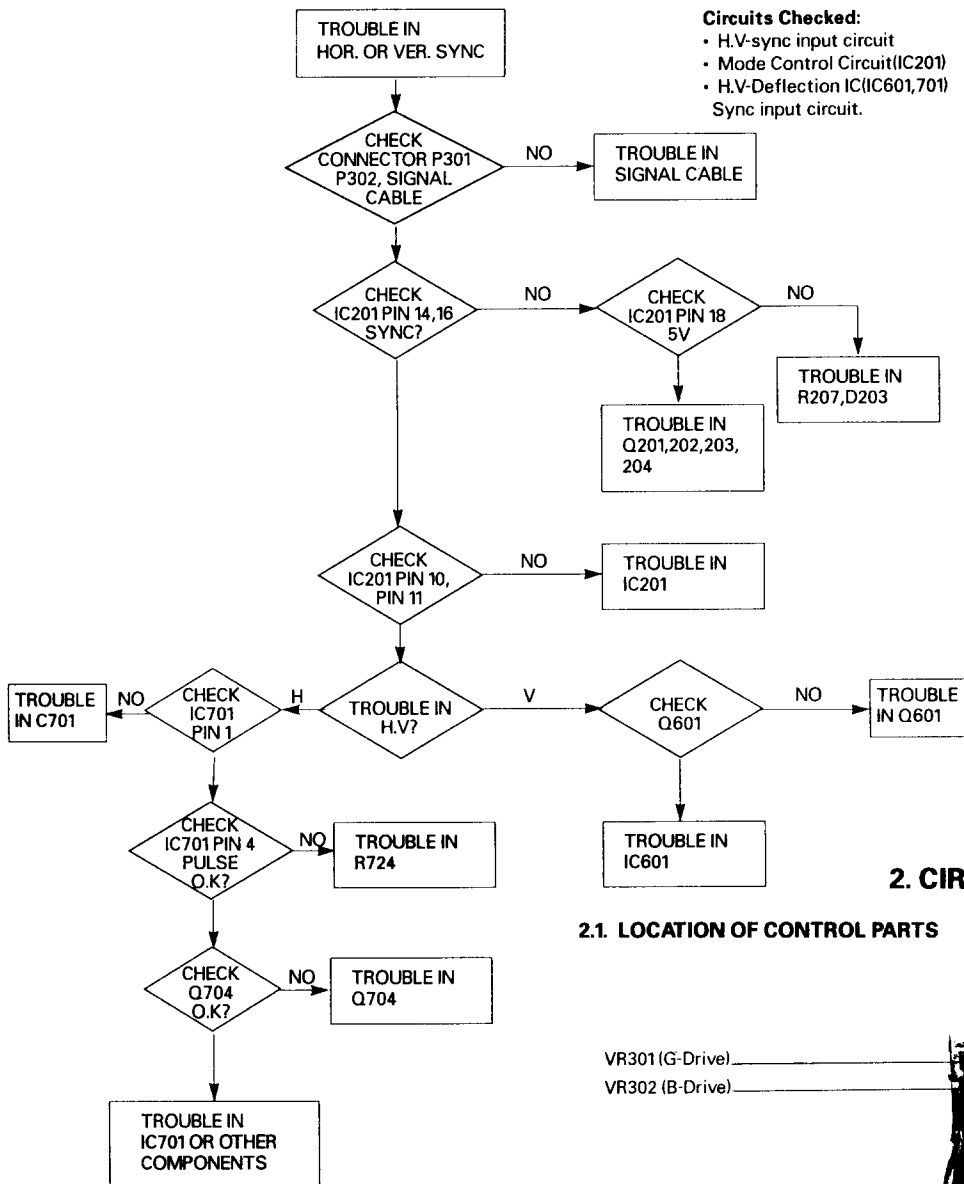
Unless power off time is enough, the power is not turned ON.



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5.4 TROUBLE IN H.V SYNC



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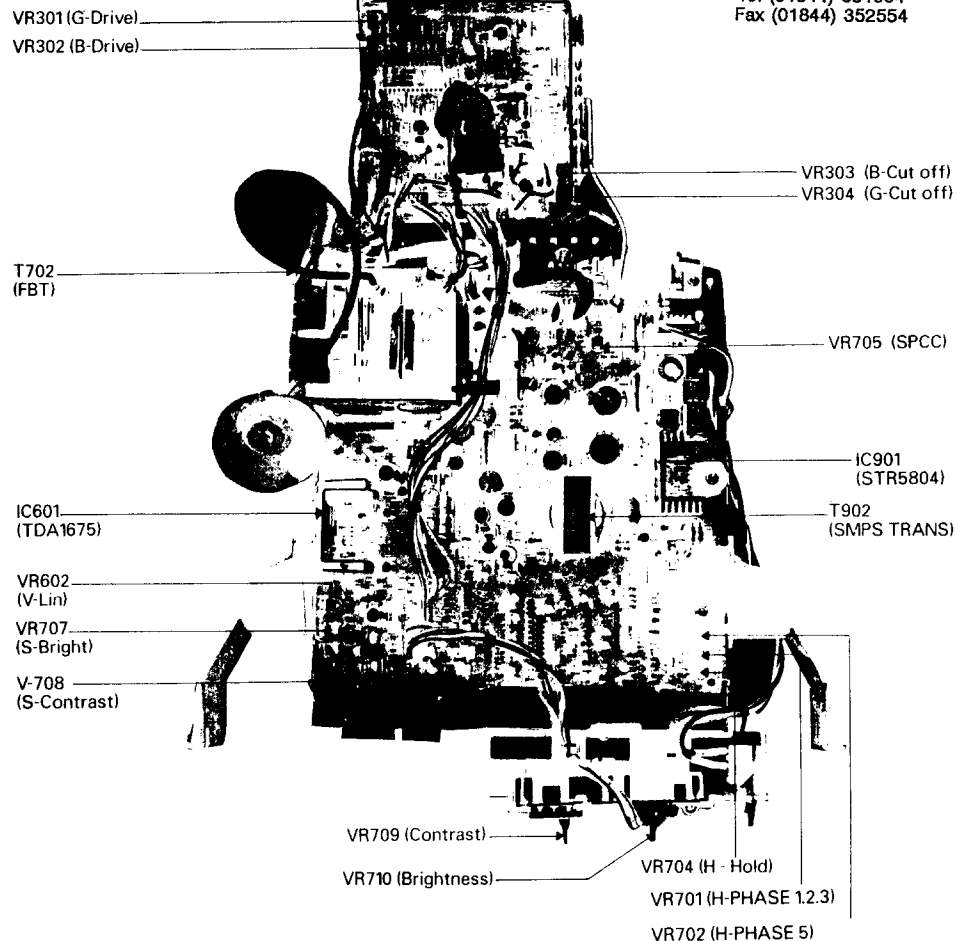
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1460 SSI.
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CQ-430A.
CQ-432A.
CQ-438A.
CQ-440A.

2. CIRCUIT DESCRIPTION

2.1. LOCATION OF CONTROL PARTS

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8 Cherry Tree Road, Chinnor
Oxfordshire, OX9 4QY.
Tel (01844) 351694
Fax (01844) 352554

MAIN BOARD(TOP SIDE)

PLUS.
PLUS.
SSI.
HASSIS.
30A.
32A.
38A.
40A.

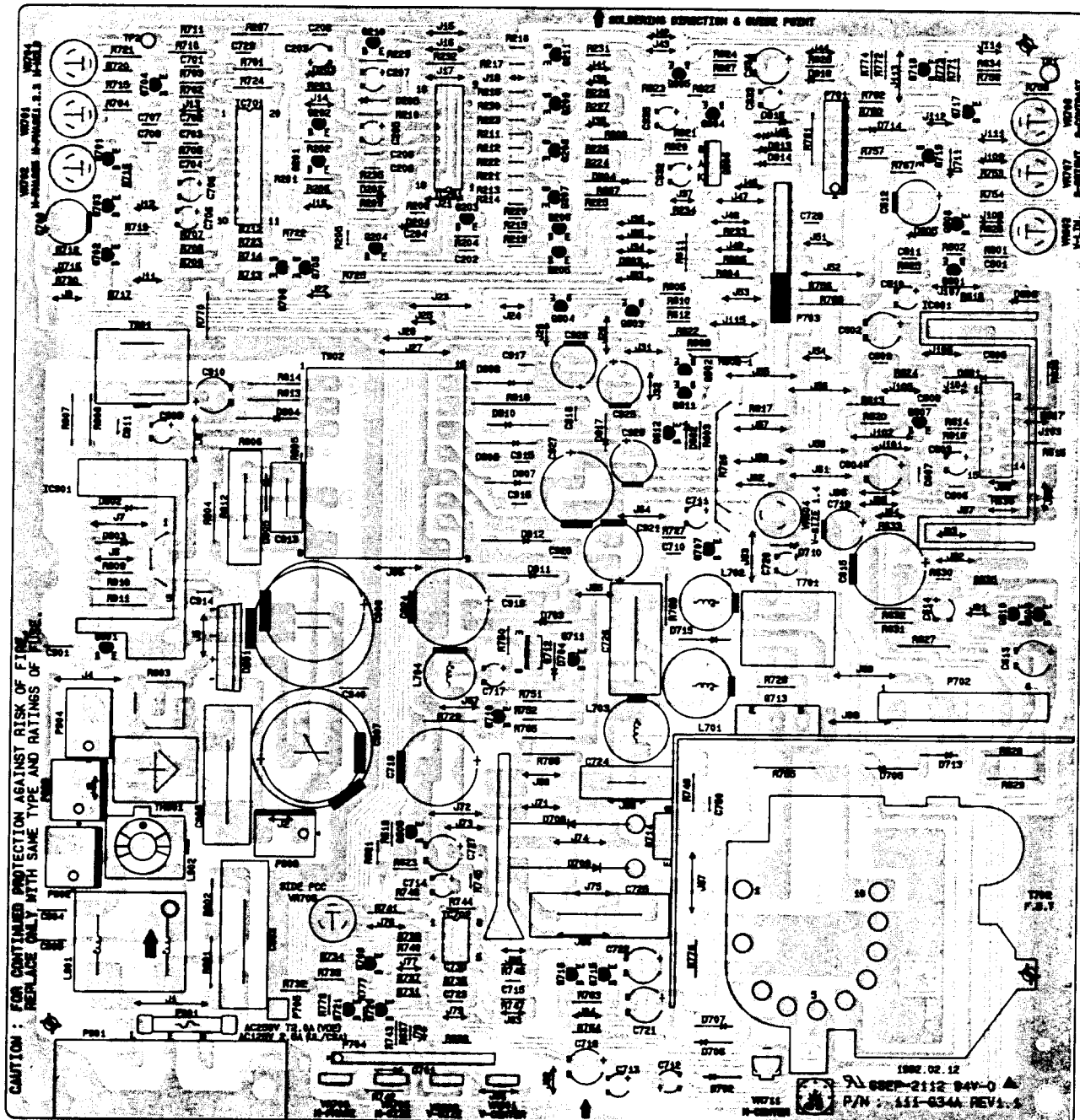
For Service Manuals
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VR303 (B-Cut off)
VR304 (G-Cut off)

VR705 (SPCC)

IC901
(STR5804)

T902
(SMPS TRANS)



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MAURITRON

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