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CA-8 CHASSIS  
CQ-430  
CQ-432

### IC201 FUNCTION



	MODE	VGA1	VGA2	VGA3	8514	E.VGA	
INPUT	VS (22PIND)	MEGA	POST	MEGA	POST	NE/PO	NON
	HS (23PIND)	POST	MEGA	MEGA	POST	NE/PO	NON
OUTPUT	A (3PIND)	LDV	LDV	LDV	HIGH	HIGH	HIGH
	B (4PIND)	LDV	LDV	HIGH	LDV	HIGH	LDV
	C (5PIND)	LDV	HIGH	LDV	LDV	HIGH	HIGH

REF NO	028 DOT CDT(V/8514/A)	031 DOT CDT(W/D 8514/A)
	DESCRIPTION	DESCRIPTION
C722	MPP, 0.0051UF/1600V	MPP, 0.0062UF/1600V
L702	150-468U	150-468U
PC3	CONTROL, 111-D26C	CONTROL, 111-D26A
R612	RD, 36 KOHM 1/6W	RD, 33 KOHM 1/6W
R620	RD, 27 KOHM 1/6W	RD, 24 KOHM 1/6W
R621	RD, 15 OHM 1/2W	RD, 1 OHM 1/2W
R633	RD, 240 OHM 1/2W	RD, 180 OHM 1/2W
R638	RD, 8.2 KOHM 1/6W	RD, 15 KOHM 1/6W
R701	RD, 15 KOHM 1/6W	RD, 22 KOHM 1/6W
R727	RD, 15 KOHM 1/6W	RD, 22 KOHM 1/6W
R733	RD, 18 KOHM 1/6W	RD, 820 OHM 1/6W
R736	RD, 43 KOHM 1/6W	RD, 51 KOHM 1/6W
R749	RD, 220 KOHM 1/6W	RD, 270 KOHM 1/6W
R927	RF, 0.47 OHM 2W	RN, 0.33 OHM 1W
VR604	SEMI-FLX,SR-19R 20K3	JUMP WIRE
VR608	SEMI-FLX,SR-29R 10K3	RD, 390 OHM 1/6W(R3)
VR703	SEMI-FLX,SR-29R 50K3	RD, 12 KOHM 1/6W(R1)
VR706	SEMI-FLX,SR-19R 5K3	RD, 12 KOHM 1/6W(R2)
VR710	VR, 250K3	VR,250K3
CDT	MATSUSHITA K34K3BV80XE HITACHI K34K3D50XE	HITACHI M34JCA30X
FBT	MATSUSHITA MSU1FVG19 HITACHI P2435333	HITACHI P2435333

IMPORTANT SAFETY NOTICE

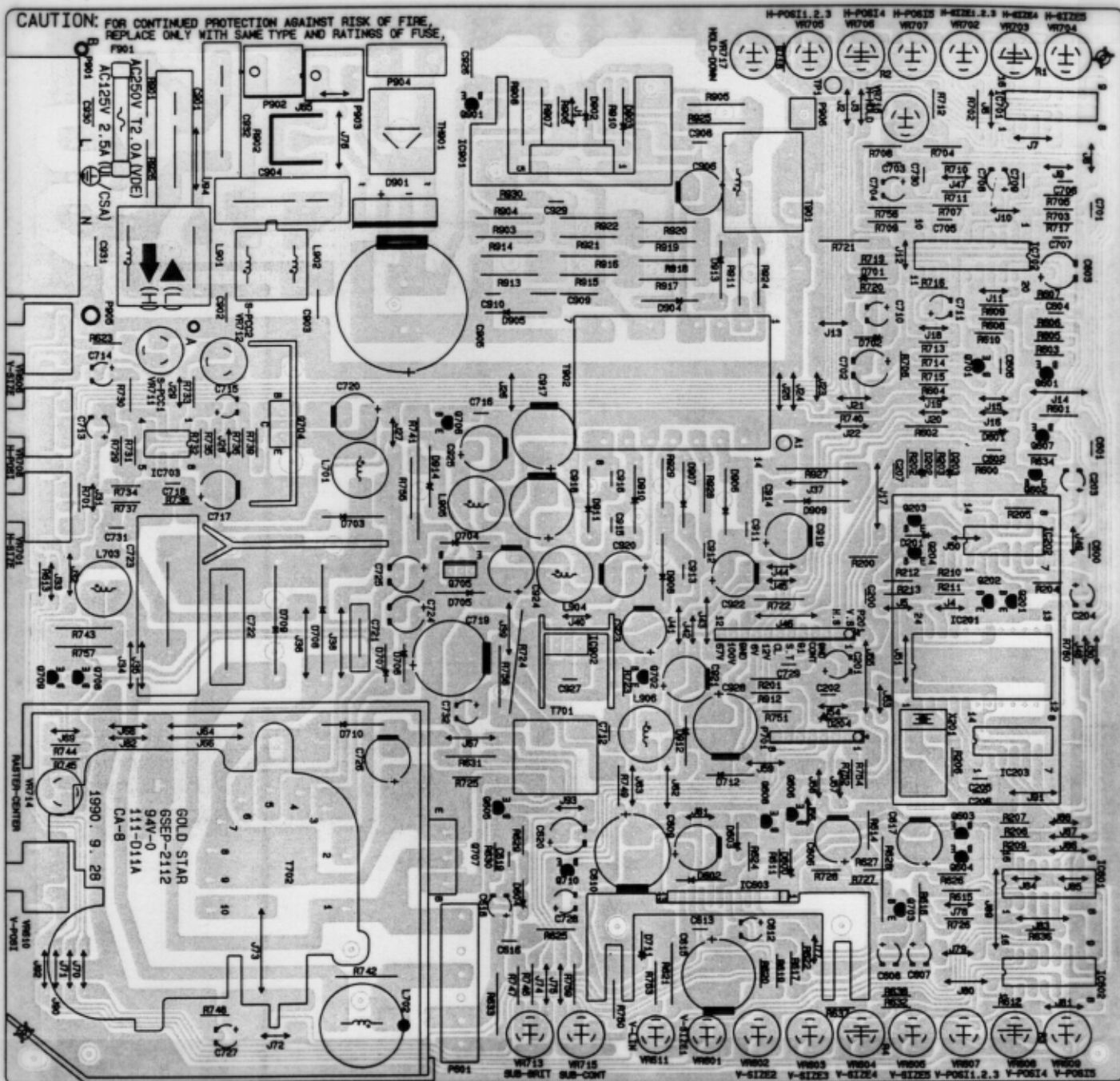
THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURER'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

# IMPORTANT AVIS SUR LA SÉCURITÉ

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 N'UTILISEZ QUE DES PIÈCES SPÉCIFIÉES PAR LE MANUFACTURIER.

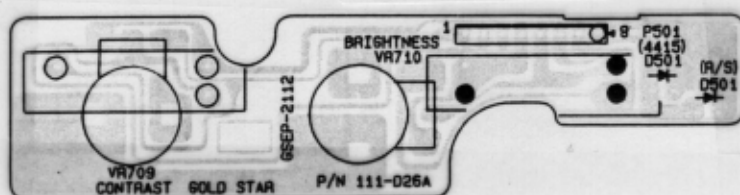
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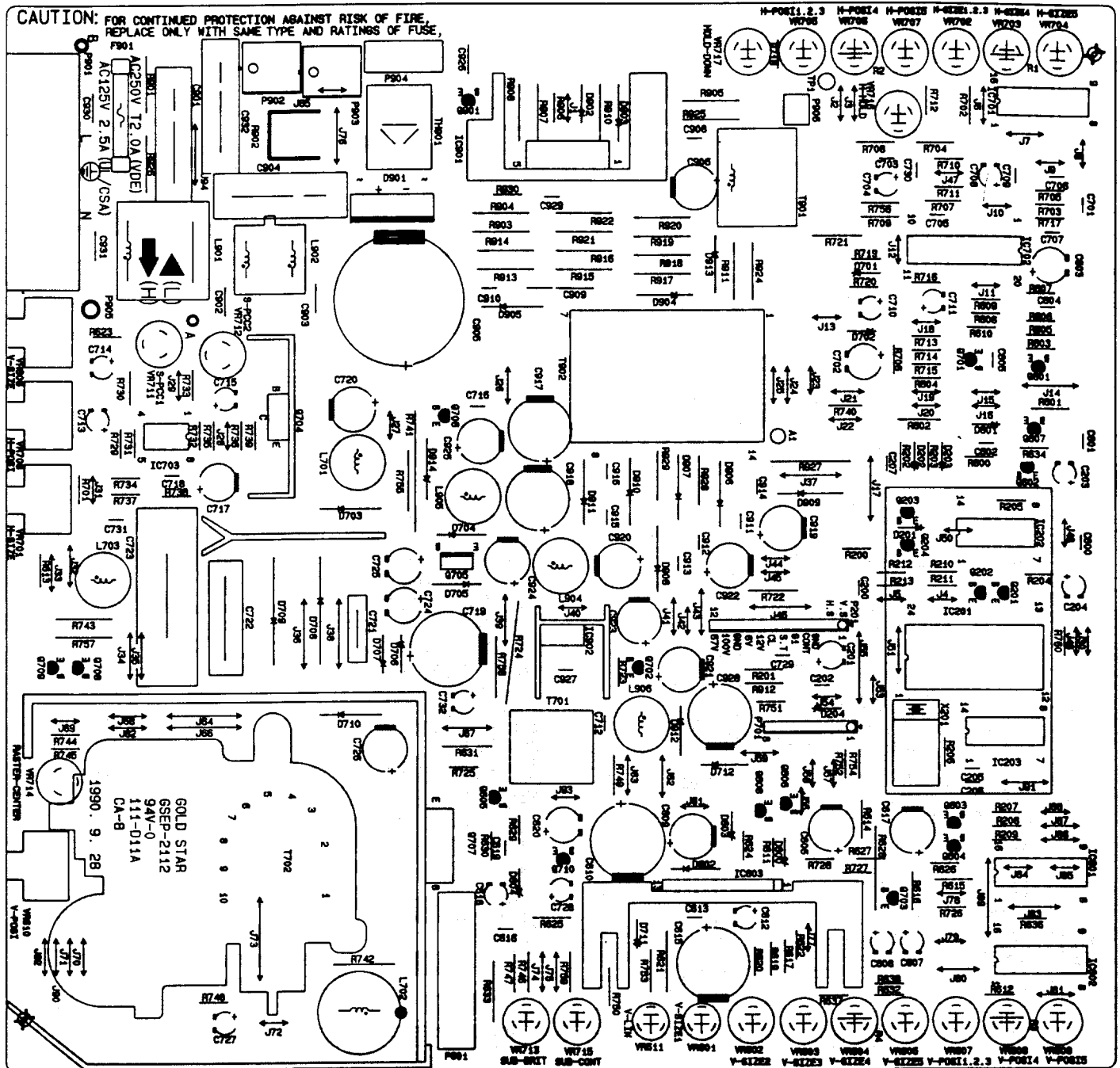
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## CONTROL PCB



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## CONTROL PCB

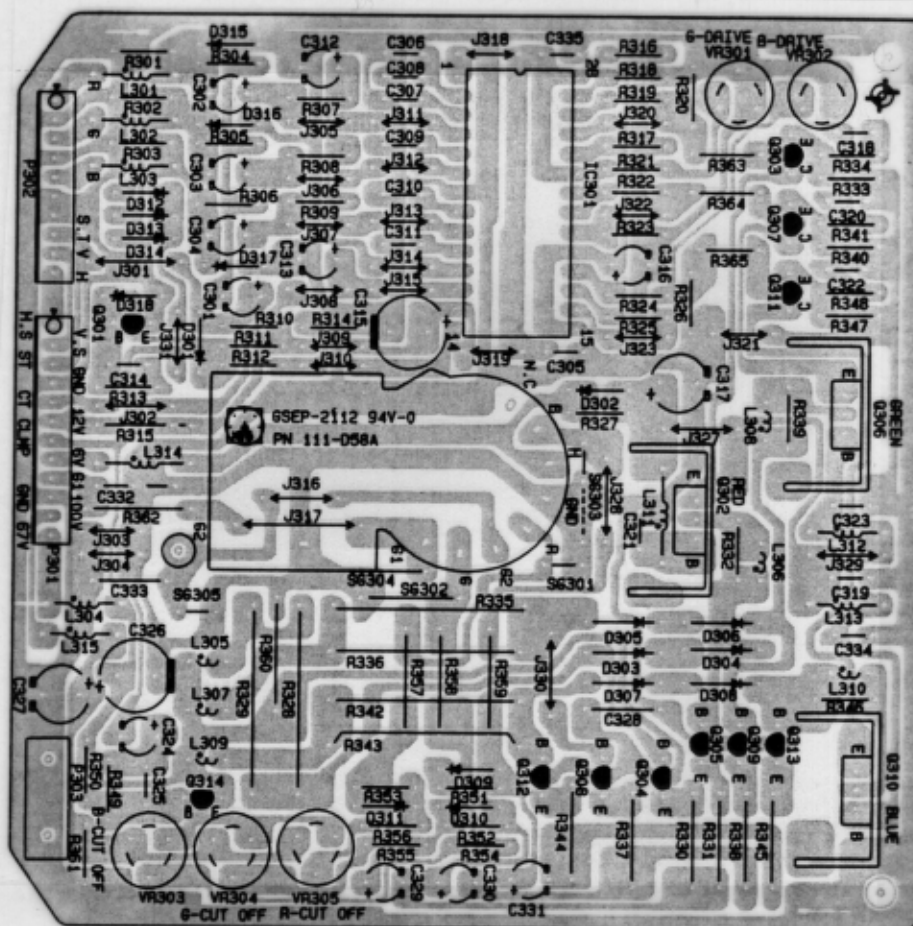
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MAURITRON  
**59**  
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AC INPUT (120V/220V)

REGASSING COIL

FUSE F901

PROTECTION 0901

POWER SWITCHING (IC090) STR 53041

TRIGGER INPUT

PULSE TRANS 7901

MODE CONTROL SYNC POLARITY DETECTOR H/V SYNC OUTPUT (IC204 2802)

H/V SYNC INPUT

CONTRAST CONTROL 0719

H/V SYNC OUTPUT

H/V SYNC TRIGGER (IC702 GLA7852)

V. SIZE CONTROL

V. OUTPUT (IC683 GLA7837)

BALANCING 0645

BRIGHTNESS CONTROL

SIDE PCC/H-SIZE CONTROL IC703 GLA7958

H. DRIVE/OUTPUT 0702, 7701, 0707

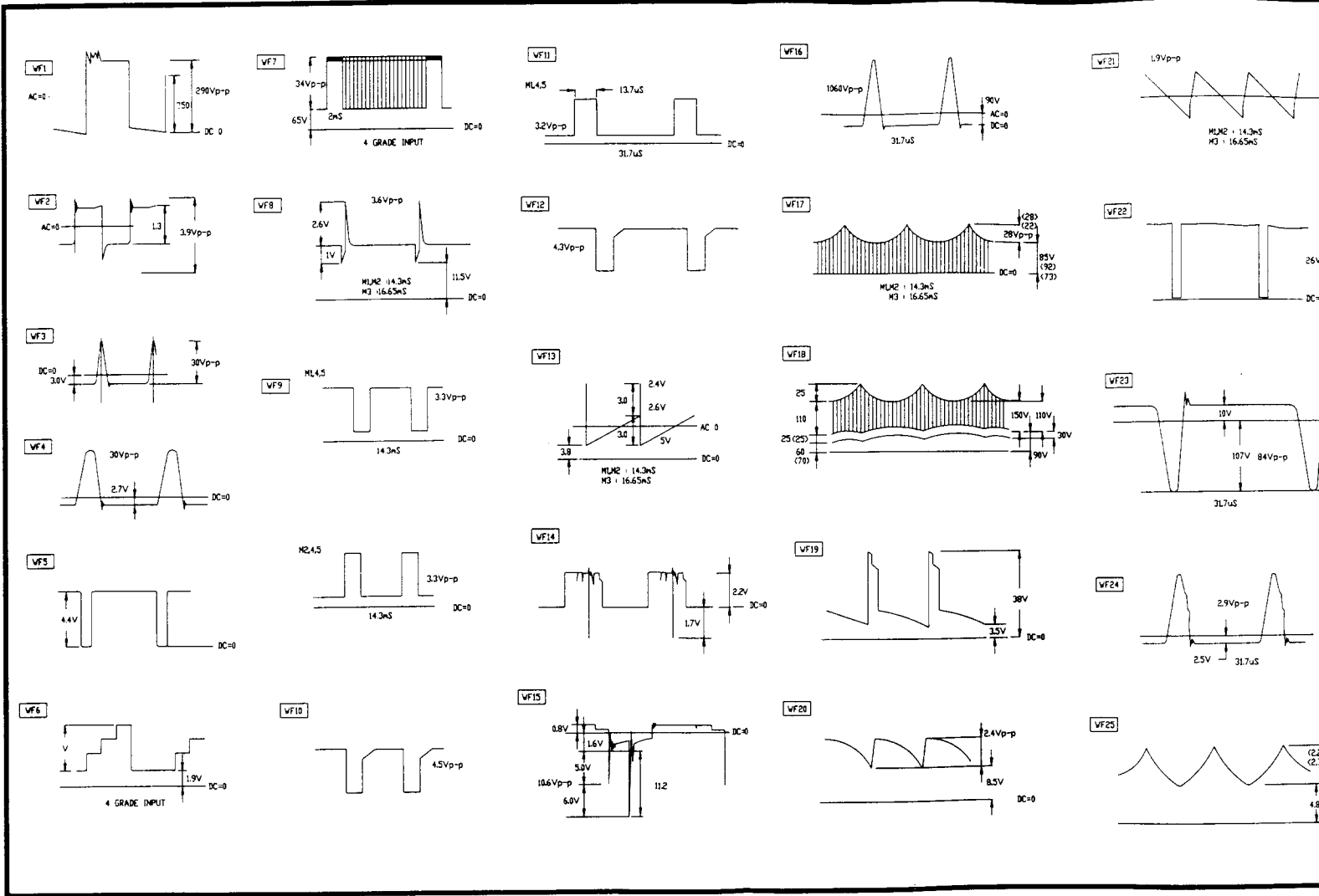
3-RAY PROTECTION 0702, 702

FLY-BACK PULSE

VIDEO PROCESSOR (IC001 CLM2823)

VIDEO OUTPUT 0302-0313 0304, 0305, 0306, 0307, 0308, 0309, 0310, 0311, 0312, 0313, 0314, 0315, 0316, 0317, 0318, 0319, 0320, 0321, 0322, 0323, 0324, 0325, 0326, 0327, 0328, 0329, 0330, 0331, 0332, 0333, 0334, 0335, 0336, 0337, 0338, 0339, 0340, 0341, 0342, 0343, 0344, 0345, 0346, 0347, 0348, 0349, 0350, 0351, 0352, 0353, 0354, 0355, 0356, 0357, 0358, 0359, 0360, 0361, 0362, 0363, 0364, 0365, 0366, 0367, 0368, 0369, 0370, 0371, 0372, 0373, 0374, 0375, 0376, 0377, 0378, 0379, 0380, 0381, 0382, 0383, 0384, 0385, 0386, 0387, 0388, 0389, 0390, 0391, 0392, 0393, 0394, 0395, 0396, 0397, 0398, 0399, 0400, 0401, 0402, 0403, 0404, 0405, 0406, 0407, 0408, 0409, 0410, 0411, 0412, 0413, 0414, 0415, 0416, 0417, 0418, 0419, 0420, 0421, 0422, 0423, 0424, 0425, 0426, 0427, 0428, 0429, 0430, 0431, 0432, 0433, 0434, 0435, 0436, 0437, 0438, 0439, 0440, 0441, 0442, 0443, 0444, 0445, 0446, 0447, 0448, 0449, 0450, 0451, 0452, 0453, 0454, 0455, 0456, 0457, 0458, 0459, 0460, 0461, 0462, 0463, 0464, 0465, 0466, 0467, 0468, 0469, 0470, 0471, 0472, 0473, 0474, 0475, 0476, 0477, 0478, 0479, 0480, 0481, 0482, 0483, 0484, 0485, 0486, 0487, 0488, 0489, 0490, 0491, 0492, 0493, 0494, 0495, 0496, 0497, 0498, 0499, 0500, 0501, 0502, 0503, 0504, 0505, 0506, 0507, 0508, 0509, 0510, 0511, 0512, 0513, 0514, 0515, 0516, 0517, 0518, 0519, 0520, 0521, 0522, 0523, 0524, 0525, 0526, 0527, 0528, 0529, 0530, 0531, 0532, 0533, 0534, 0535, 0536, 0537, 0538, 0539, 0540, 0541, 0542, 0543, 0544, 0545, 0546, 0547, 0548, 0549, 0550, 0551, 0552, 0553, 0554, 0555, 0556, 0557, 0558, 0559, 0560, 0561, 0562, 0563, 0564, 0565, 0566, 0567, 0568, 0569, 0570, 0571, 0572, 0573, 0574, 0575, 0576, 0577, 0578, 0579, 0580, 0581, 0582, 0583, 0584, 0585, 0586, 0587, 0588, 0589, 0590, 0591, 0592, 0593, 0594, 0595, 0596, 0597, 0598, 0599, 0600, 0601, 0602, 0603, 0604, 0605, 0606, 0607, 0608, 0609, 0610, 0611, 0612, 0613, 0614, 0615, 0616, 0617, 0618, 0619, 0620, 0621, 0622, 0623, 0624, 0625, 0626, 0627, 0628, 0629, 0630, 0631, 0632, 0633, 0634, 0635, 0636, 0637, 0638, 0639, 0640, 0641, 0642, 0643, 0644, 0645, 0646, 0647, 0648, 0649, 0650, 0651, 0652, 0653, 0654, 0655, 0656, 0657, 0658, 0659, 0660, 0661, 0662, 0663, 0664, 0665, 0666, 0667, 0668, 0669, 0670, 0671, 0672, 0673, 0674, 0675, 0676, 0677, 0678, 0679, 0680, 0681, 0682, 0683, 0684, 0685, 0686, 0687, 0688, 0689, 0690, 0691, 0692, 0693, 0694, 0695, 0696, 0697, 0698, 0699, 0700, 0701, 0702, 0703, 0704, 0705, 0706, 0707, 0708, 0709, 0710, 0711, 0712, 0713, 0714, 0715, 0716, 0717, 0718, 0719, 0720, 0721, 0722, 0723, 0724, 0725, 0726, 0727, 0728, 0729, 0730, 0731, 0732, 0733, 0734, 0735, 0736, 0737, 0738, 0739, 0740, 0741, 0742, 0743, 0744, 0745, 0746, 0747, 0748, 0749, 0750, 0751, 0752, 0753, 0754, 0755, 0756, 0757, 0758, 0759, 0760, 0761, 0762, 0763, 0764, 0765, 0766, 0767, 0768, 0769, 0770, 0771, 0772, 0773, 0774, 0775, 0776, 0777, 0778, 0779, 0780, 0781, 0782, 0783, 0784, 0785, 0786, 0787, 0788, 0789, 0790, 0791, 0792, 0793, 0794, 0795, 0796, 0797, 0798, 0799, 0800, 0801, 0802, 0803, 0804, 0805, 0806, 0807, 0808, 0809, 0810, 0811, 0812, 0813, 0814, 0815, 0816, 0817, 0818, 0819, 0820, 0821, 0822, 0823, 0824, 0825, 0826, 0827, 0828, 0829, 0830, 0831, 0832, 0833, 0834, 0835, 0836, 0837, 0838, 0839, 0840, 0841, 0842, 0843, 0844, 0845, 0846, 0847, 0848, 0849, 0850, 0851, 0852, 0853, 0854, 0855, 0856, 0857, 0858, 0859, 0860, 0861, 0862, 0863, 0864, 0865, 0866, 0867, 0868, 0869, 0870, 0871, 0872, 0873, 0874, 0875, 0876, 0877, 0878, 0879, 0880, 0881, 0882, 0883, 0884, 0885, 0886, 0887, 0888, 0889, 0890, 0891, 0892, 0893, 0894, 0895, 0896, 0897, 0898, 0899, 0900, 0901, 0902,



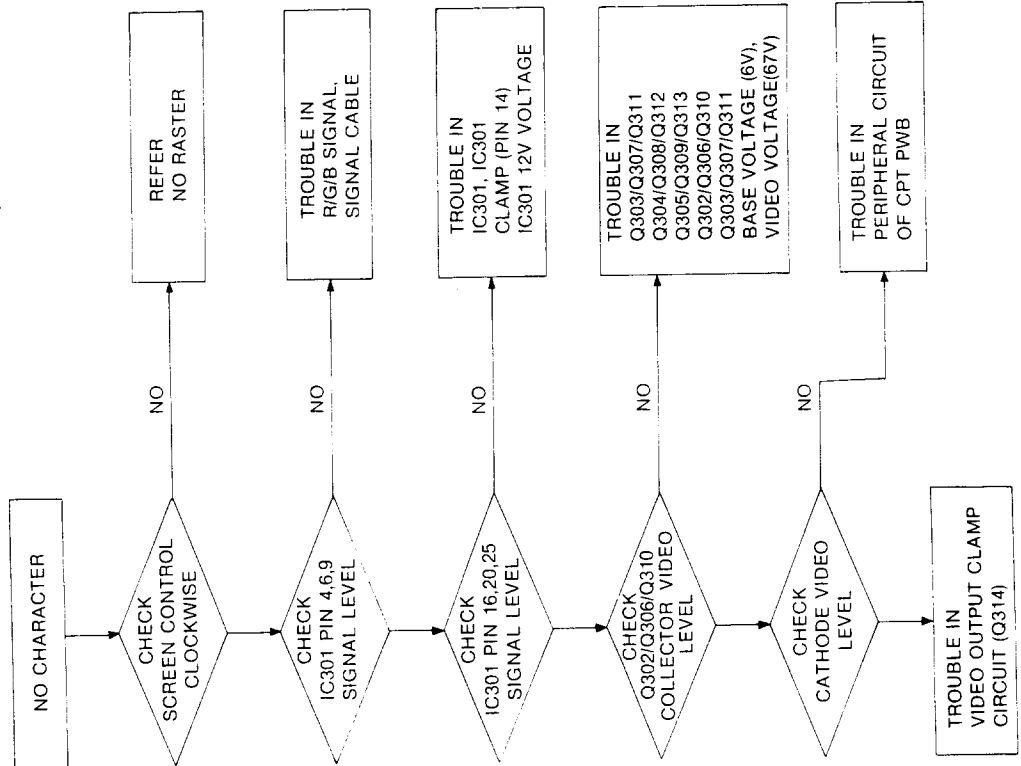


\* ALL POINT VOLTAGE ARE  
DC VOLTAGE IN MODES (VGA3)  
( ) = M4 (8514A)  
< > = M5 (X-VGA)

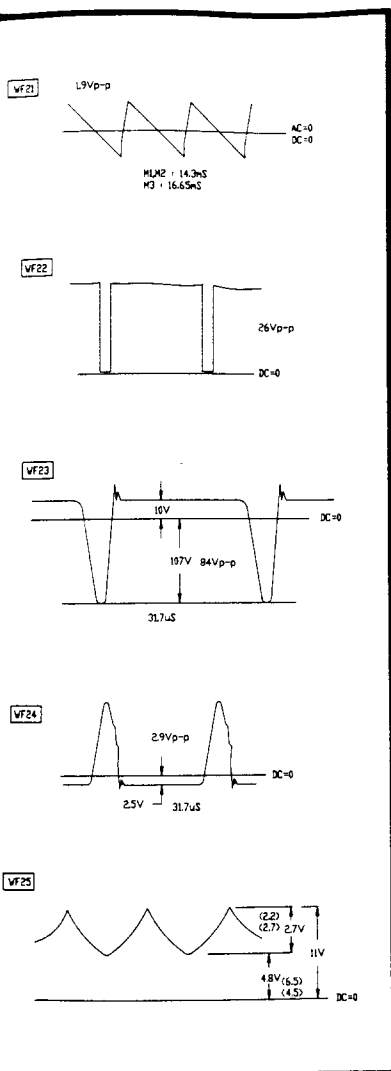
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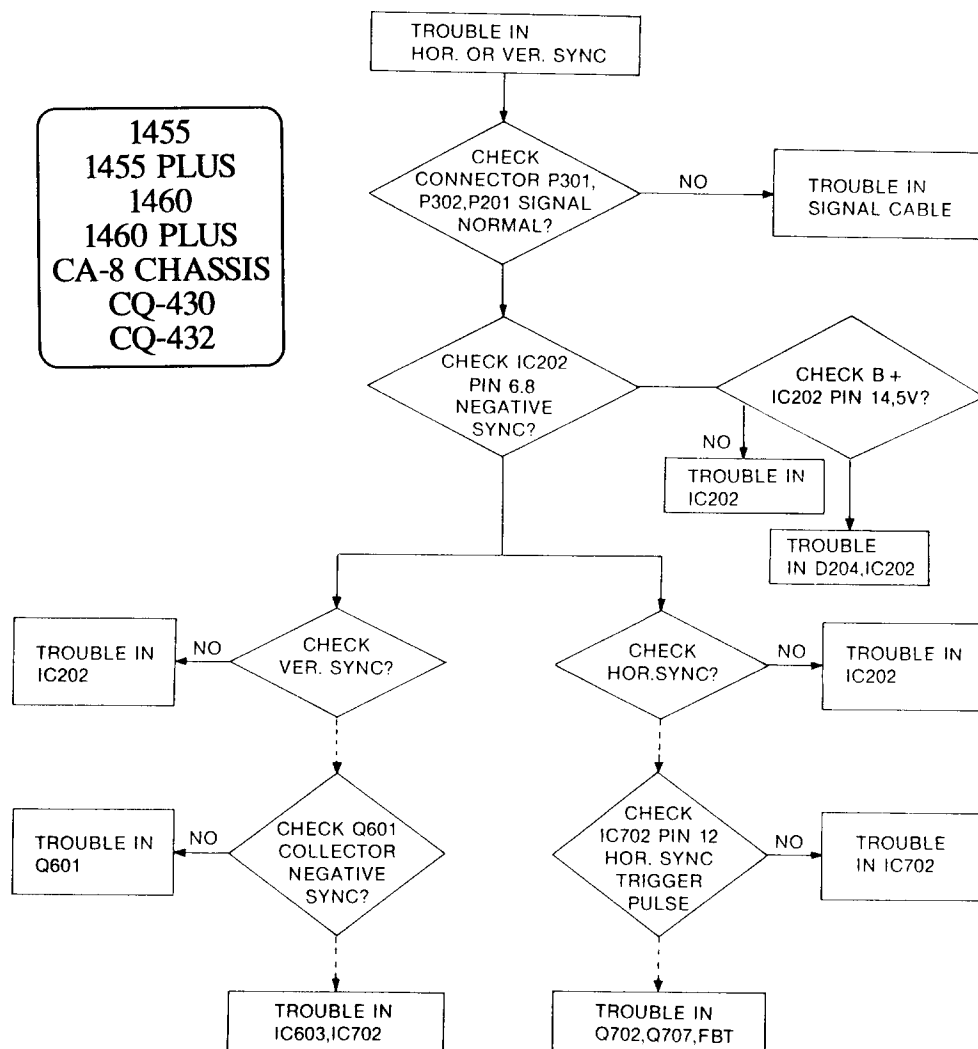
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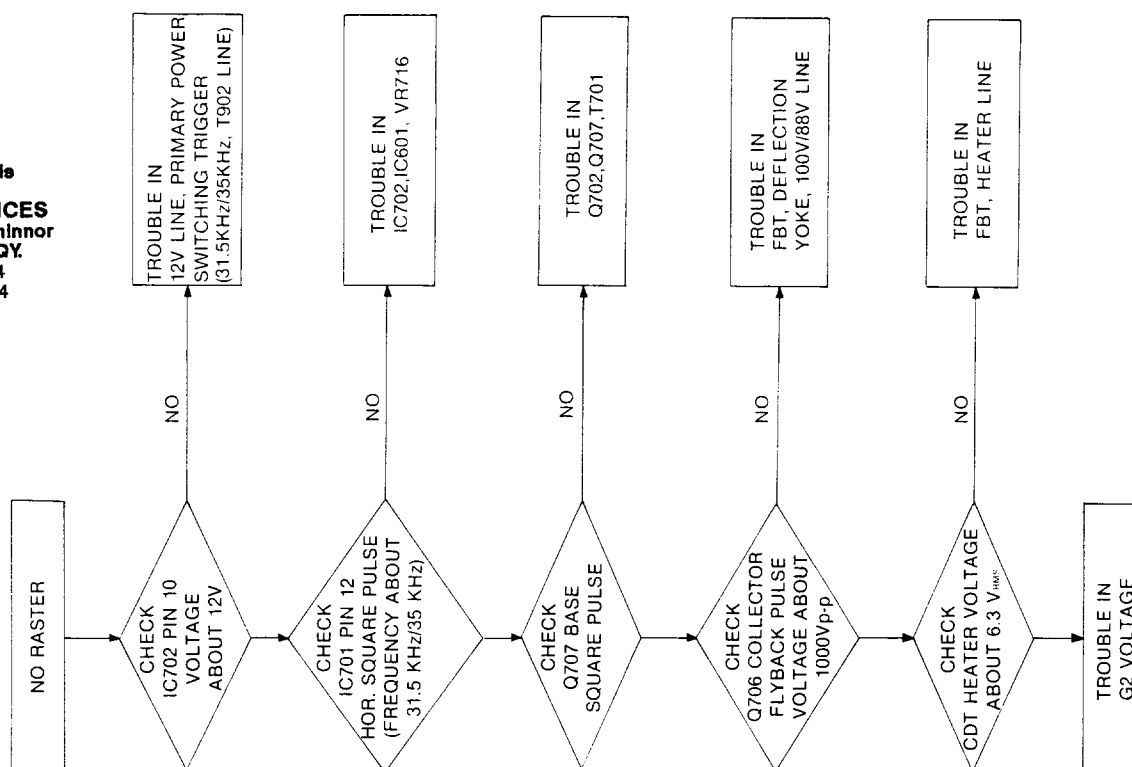


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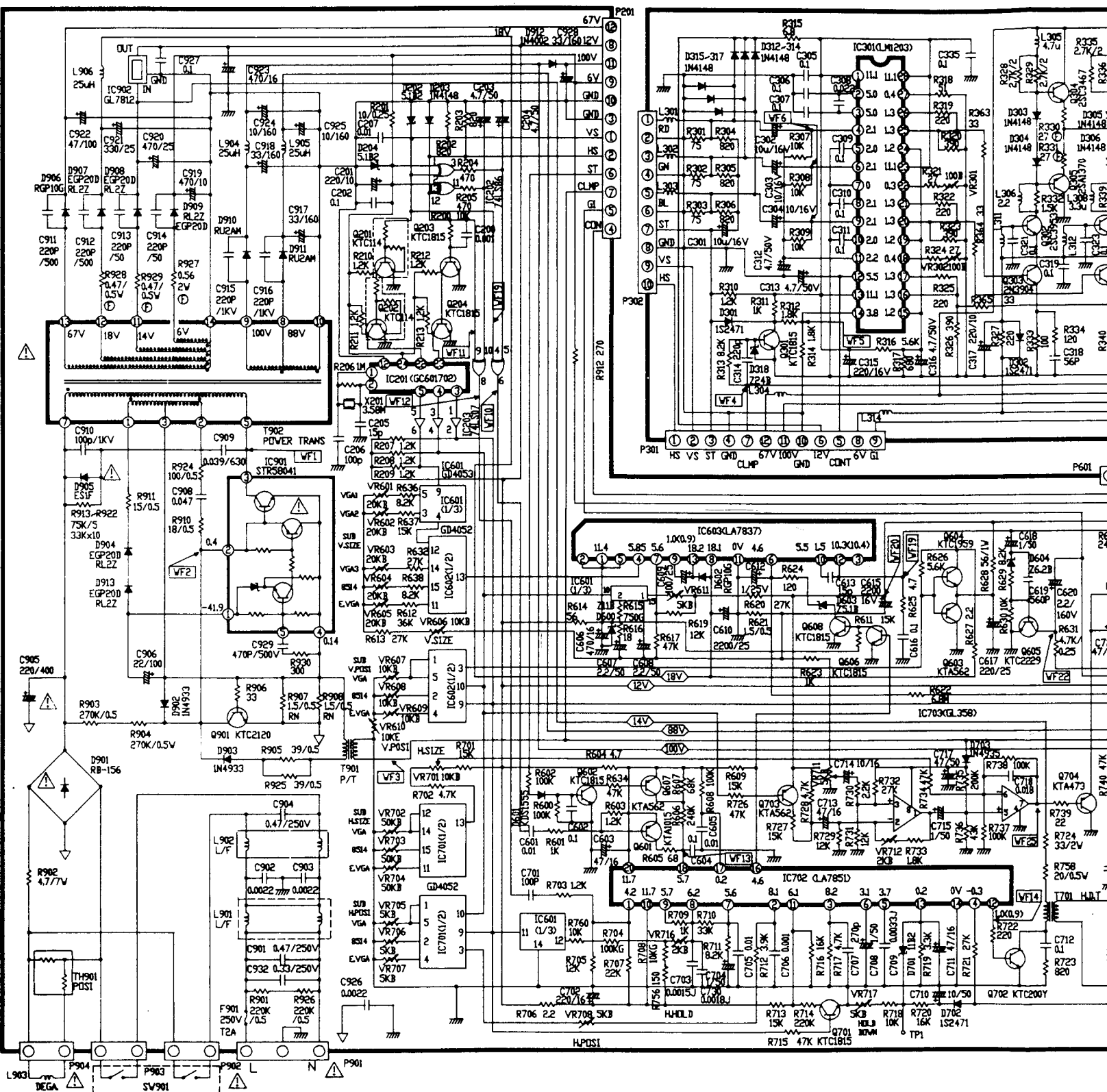
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NO RASTER





# GoldS











# GoldStar

## CIRCUIT DESCRIPTION

### POWER SUPPLY

The power supply is a SMPS (Switching Mode Power Supply) that consists of switching IC(IC901), SMPS transformer (T902) pulse transformer (T901), over current protection transistor (Q901) and the associated components. The primary winding of the SMPS transformer is applied the pulse by operating IC901. Therefore, rectified DC output voltage is obtained by the secondary winding of SMPS transformer T902.

### POWER SUPPLY DESCRIPTIONS

This SMPS (Switching Mode Power Supply) using STR53041(STR58041: 220V) obtains rectified DC 100V, 88V, 67V, 18V, 14V, 6V from AC120V, 60Hz (USA Version)/AC 220V, 50Hz (Europe version).

Power is supplied in the following procedure:

- 1) AC120V/AC220V supplied from the AC socket is rectified by D901.
- 2) Rectified voltage is supplied to the T902. The primarily rectified voltage by D901 is supplied to PIN 7 of T902 through PIN 5 of T902.
- 3) A switching pulse is applied at PIN 2 of the IC901.
- 4) This oscillation causes IC901 to switched, and at the secondary terminal of T902, a voltage (proportional to the turn ratio) is generated.

### HORIZONTAL AFC AND OSCILLATION LIMITER

The AFC circuit consists of phase detection circuit of IC701 and the associated components. The oscillation limit circuit is necessary to prevent the pulse from excessive high voltage. This circuit is located in IC702 and controls the oscillator to maintain the control signal in its correct frequency and in phase with the horizontal sync signal.

### HORIZONTAL DRIVE CIRCUIT

To obtain horizontal drive pulses from IC702 PIN 12, the horizontal oscillator must be working. Horizontal drive pulses from IC702 PIN 12 are applied to horizontal drive transformer and drive transistor Q702.

The B+ for T701 is supplied from the 14V line.

### HORIZONTAL DEFLECTION OUTPUT

Horizontal drive pulses from IC702 PIN 12 are coupled through T701 to the base of horizontal output Q707. Transistor Q702 is biased on when the beam is at about mid-screen.

The charge stored in C722 causes current to flow through the horizontal yoke winding and Q707 to ground. When the beam reaches the right side of the screen, Q702 is turned off, and the current in the yoke is directed into C721 and C723.

At the same time current flows into C721 and C723 from the regulated B+ via the horizontal choke coil (L702) winding.

Due to resonance, the current then reverses and flows back through the horizontal yoke winding in to C722 and C719.

### X-RAY PROTECTION CIRCUIT

The X-RAY protection circuit consists of D701, D702, R718, R719, R720, VR717 and the associated component that connected to PIN 13 of IC702. A voltage from the FBT PIN 5 is divided by R720 and VR717. Under normal operating conditions, the resultant voltage (TP1) maintains the specified value.

If a malfunction causes excessive high voltage, the voltage of FBT PIN 5 is increasing and TP1 voltage is increasing. As a result, D701 is conducted when the cathode voltage of D701 is arrived as much as Zener voltage. A voltage increase at IC702 PIN 13 makes the X-RAY protection circuit conduct, and the horizontal oscillation operation no longer functional. The circuit latches as above, and it is necessary for the circuit to turn the power off for at least 30 seconds to function again.

### VERTICAL OSCILLATION/DRIVE CIRCUIT

The time constant circuit that determines the vertical oscillation frequency consists of C604, R606 and R607. (IC701 PIN 18).

The vertical ramp generator output circuit (IC603 PIN 6) is driven by the vertical sync. negative polarity pulse from the IC702 PIN 16.

The negative feedback waveform at IC603 PIN 7 driven from the vertical deflection output is applied to the other input of the differential amplifier.

### 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.

### 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. The degaussing coil switched on.

If the set is moved or faced in a different direction, the power switch must be switched off for at least 10 minutes in order that the automatic degaussing circuit operates properly.

Should the chassis or parts of the cabinet become magnetized to 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.

### HORIZONTAL HOLD ADJUSTMENT

1. Disconnect the signal cable from signal source.
2. Connect the ground terminal of frequency counter to chassis ground and the other terminal to red covered wire of DY connector.
3. Adjust VR716 (H.HOLD), so that the horizontal frequency is  $35.34 \pm 0.05$  kHz.

## ADJUSTMENT

### H.RASTER CENTER

1. Disconnect the source.
2. Adjust VR714, so that the horizontal center is correct.

### VERTICAL LINEARITY

1. Display the MOD monitor.
2. Adjust VR611, so that the vertical linearity should be best.

### VERTICAL SIZE ADJUSTMENT

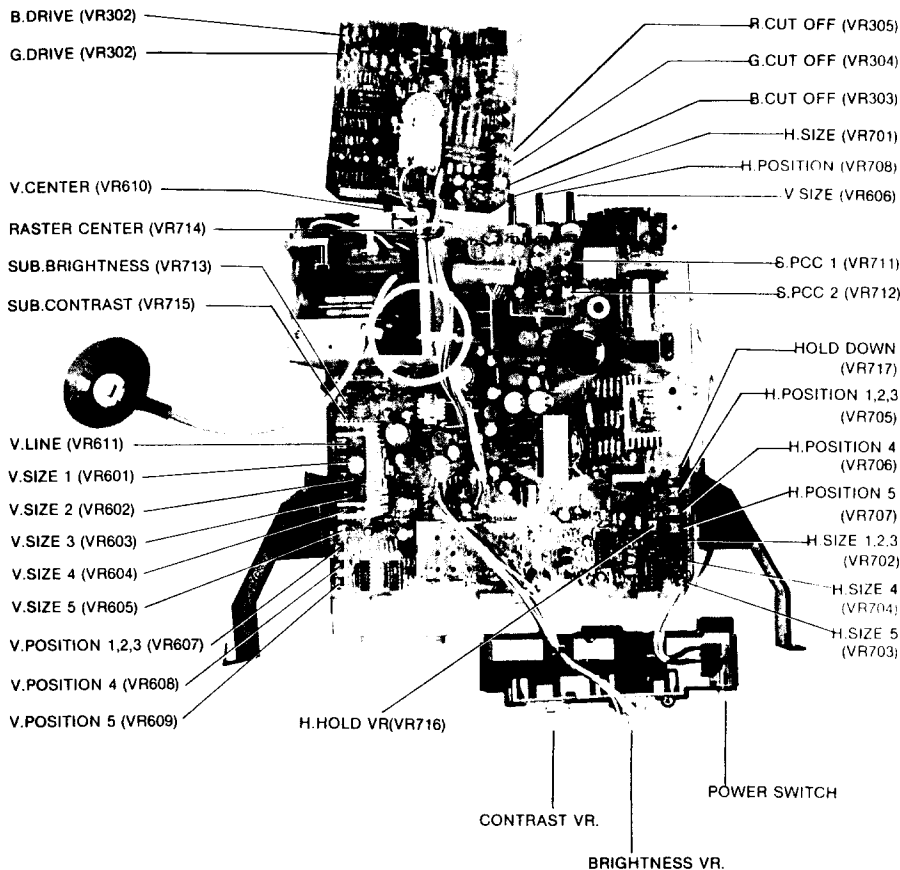
1. Set the V.Size control to the center position.
2. Display the crosshairs.
3. Adjust Sub V.Size control so that the vertical size of the image is correct.
4. Display the crosshairs.
5. Adjust Sub V.Size control so that the vertical size of the image is correct.
6. Display the crosshairs.
7. Adjust Sub V.Size control so that the vertical size of the image is correct.
8. Display the crosshairs.
9. Adjust Sub V.Size control so that the vertical size of the image is correct.
10. Display the crosshairs.
11. Adjust Sub V.Size control so that the vertical size of the image is correct.

### SIDE PINCUSHION ADJUSTMENT

1. Display the crosshairs.
2. Adjust VR711 and VR712 so that the side pincushion is correct.

### H.POSITION ADJUSTMENT

1. Set the H.Position control to the center position.
2. Display the crosshairs.
3. Adjust Sub H.Position control so that the horizontal position is correct.
4. Display the crosshairs.
5. Adjust Sub H.Position control so that the horizontal position is correct.
6. Display the crosshairs.
7. Adjust Sub H.Position control so that the horizontal position is correct.



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## ADJUSTMENT

### H.RASTER CENTER ADJUSTMENT

1. Disconnect the signal cable from the signal source.
2. Adjust VR714, so that the raster position is horizontal center.

### VERTICAL LINEARITY ADJUSTMENT

1. Display the MODE 3 crosshatch pattern on the monitor.
2. Adjust VR611, so that the vertical linearity should be best condition.

### VERTICAL SIZE ADJUSTMENT

1. Set the V.Size control (VR606) to center (locked position).
2. Display the crosshatch pattern at VGA mode 3.
3. Adjust Sub V.Size control (VR601), so that the vertical size of the image is  $180 \pm 2$  mm.
4. Display the crosshatch pattern at VGA mode 2.
5. Adjust Sub V.Size control (VR602), so that the vertical size of the image is  $180 \pm 2$  mm.
6. Display the crosshatch pattern at VGA mode 3.
7. Adjust Sub V.Size control (VR603), so that the vertical size of the image is  $180 \pm 2$  mm.
8. Display the crosshatch pattern at EVGA mode.
9. Adjust Sub V.Size control (VR605), so that the vertical size of the image is  $180 \pm 2$  mm.
10. Display the crosshatch pattern at 8514/A MODE.
11. Adjust Sub V.Size control (VR604), so that the vertical size of the image is  $187 \pm 2$  mm.

### SIDE PINCUSHION ADJUSTMENT

1. Display the crosshatch pattern at VGA mode 3.
2. Adjust VR711 and VR712, so as to minimize the side pincushion distortion.

### H.POSITION ADJUSTMENT

1. Set the H.Position control (VR708) to center (locked position).
2. Display the crosshatch pattern at VGA mode 3.
3. Adjust Sub H.Phase VR.(VR705), so that the image is horizontal center position.
4. Display the crosshatch pattern at EVGA mode.
5. Adjust Sub H.Phase VR.(VR707), so that the image is horizontal center position.
6. Display the crosshatch pattern at 8514/A mode.
7. Adjust Sub H.Phase VR.(VR706), so that the image is horizontal center position.

### H.SIZE ADJUSTMENT

1. Set the H.Size control (VR701) to center (locked position).
2. Display the crosshatch pattern at VGA mode 3.
3. Adjust Sub H.Size VR.(VR702), so that the horizontal size is  $240 \pm 2$  mm.
4. Display the crosshatch pattern at EVGA mode.
5. Adjust Sub H.Size VR.(VR704), so that the horizontal size is  $240 \pm 2$  mm.
6. Display the crosshatch pattern at 8514/A mode.
7. Adjust Sub H.Size VR.(VR703), so that the horizontal size is  $250 \pm 2$  mm.

### WHITE BALANCE ADJUSTMENT

1. THE NECESSARY INSTRUMENT
  - White Balance meter.
  - External Degaussing Coil (Degauss the monitor before adjustment).
  - Photometer
2. PREPARING ADJUSTMENT
  - Connect the signal cable with PC, and display the Color 0.0 pattern on the monitor.
  - Minimize the screen control of FBT.
  - Set the Sub Bright (VR713) and the Sub Contrast (VR715) to mechanical center.
  - Set the Contrast VR to the MAX and Bright VR to the MAX.
  - Set the G drive (VR301) and the B drive (VR302) to mechanical center.
  - Turn the R cut-off VR. (VR305), B cut-off VR. (VR303) to counter-clockwise extremely and set the G cut-off VR.(VR304) to mechanical center (about 90°).
3. ADJUSTMENT (1)
  - Turn the screen control (G2) to clockwise slowly until the brightness of raster is 1~1.2 FL.
  - Let the G cut-off VR.(VR304) be the reference, and adjust the R and the B cut-off VR.(VR305, VR303) so as to get  $X = 0.282$ ,  $Y = 0.304$ .
4. ADJUSTMENT (2)
  - 1) Set Brightness VR to center and contrast VR to maximum.
  - 2) Display Full White Pattern (Color 7.0) on the screen.
  - 3) Turn the B drive (VR302) so that  $X = 0.282$  and the G drive (VR301) so that  $Y = 0.304$ .
  - 4) Repeat 3) until  $X = 0.282 \pm 0.02$ ,  $Y = 0.304 \pm 0.022$ .
  - 5) Set Brightness VR to MIN. and adjust contrast VR until luminance is 5 FL at Full White Pattern (Color 15.0).
  - 6) Confirm  $X = 0.282 \pm 0.02$ ,  $Y = 0.304 \pm 0.022$  unless the color co-ordinate is not in spec, readjust G, B cut-off VR so that the screen is white.
  - 7) Repeat 3),4),5),6) so that the screen should be white.

### BRIGHTNESS ADJUSTMENT

1. Maximize the Contrast VR.
2. Display the cut-off level (Color 0.0).
3. Adjust the Sub-Bright VR.(VR713) until the raster disappears when the Bright VR is at center.
4. Confirm that whether back raster appears or not when the Bright VR is at Max.

### CONTRAST ADJUSTMENT

1. Set the Bright VR at center and Contrast VR at Max.
2. Display the Full White Pattern (Color 7.0), of which the size is  $70 \times 70$ , on the screen.
3. At the center of the screen, adjust the Sub Contrast VR.(VR715), so that the luminance should be  $X \pm 2$  FL.

**Note:** The value of X is dependent on the type of CDT.

Medium short: 25  
Medium : 16

### FOCUS ADJUSTMENT

1. Set the Bright VR and Contrast VR to Max.
2. Display "H" character in full screen (Color 7.0)
3. Adjust Focus VR of FBT, so that the focus should be best condition.

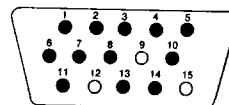
### CONFIRMING SELF-TEST

1. Set the Bright VR and the contrast VR at Max.
2. Remove the signal connector from the PC.
3. Confirm that the brightness of raster is more than 5 FL.

### FAIL SAFETY ADJUSTMENT

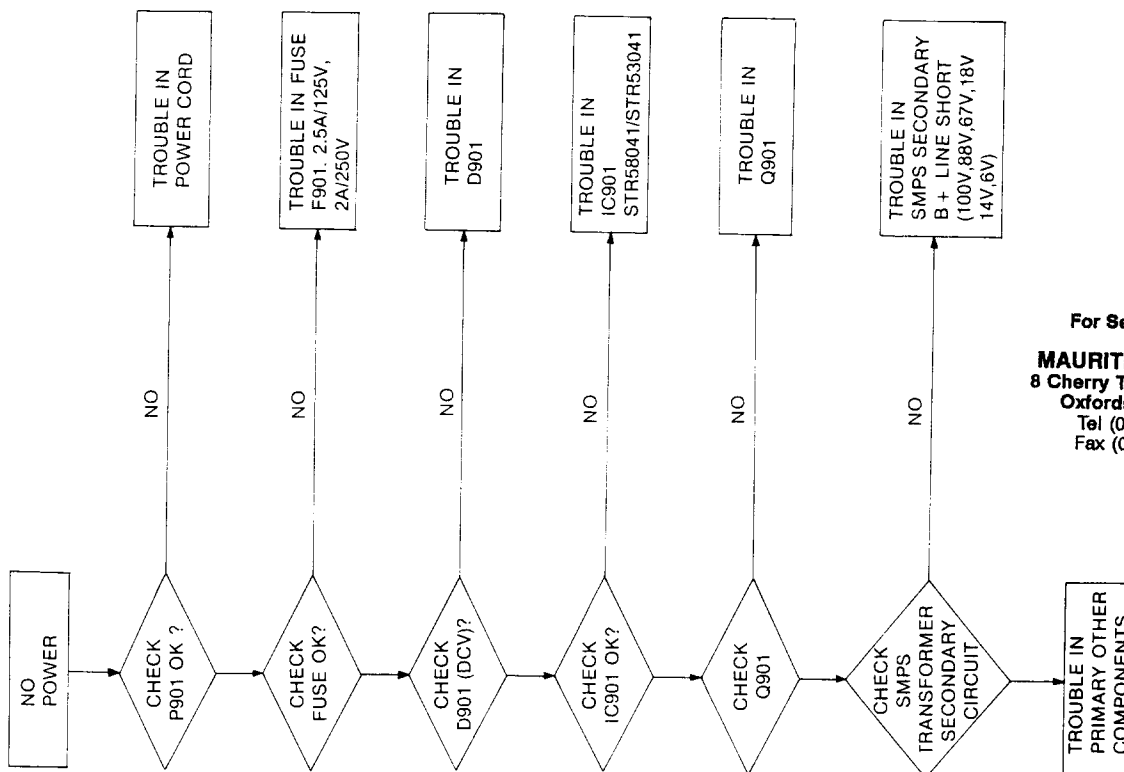
1. Set the Bright VR and Contrast VR at MIN.
2. Display the crosshatch pattern at VGA mode 3.
3. Confirm that B + of FBT (pin 2) is  $88 \pm 1V$ .
4. Adjust the HOLD-DOWN VR.(VR717) so that the TP1 voltage should be  $10.5 \pm 0.05 V$ .
5. Fasten the VR717 with glue or as such so as not to be changed after adjustment is done.

#### 15 Pin Connector (Male) to the Computer



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

## TROUBLE SHOOTING GUIDE



For Service Manuals  
contact  
**MAURITRON SERVICES**  
8 Cherry Tree Road, Chinnor  
Oxfordshire, OX9 4QY.  
Tel (01844) 351694  
Fax (01844) 352554

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01844-351694