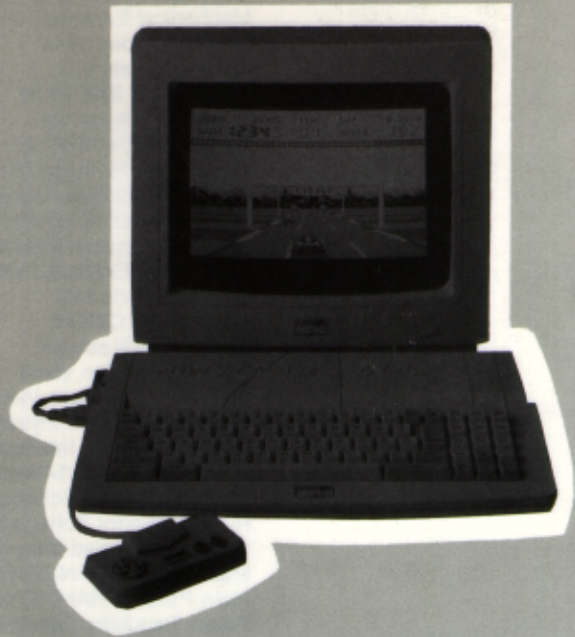


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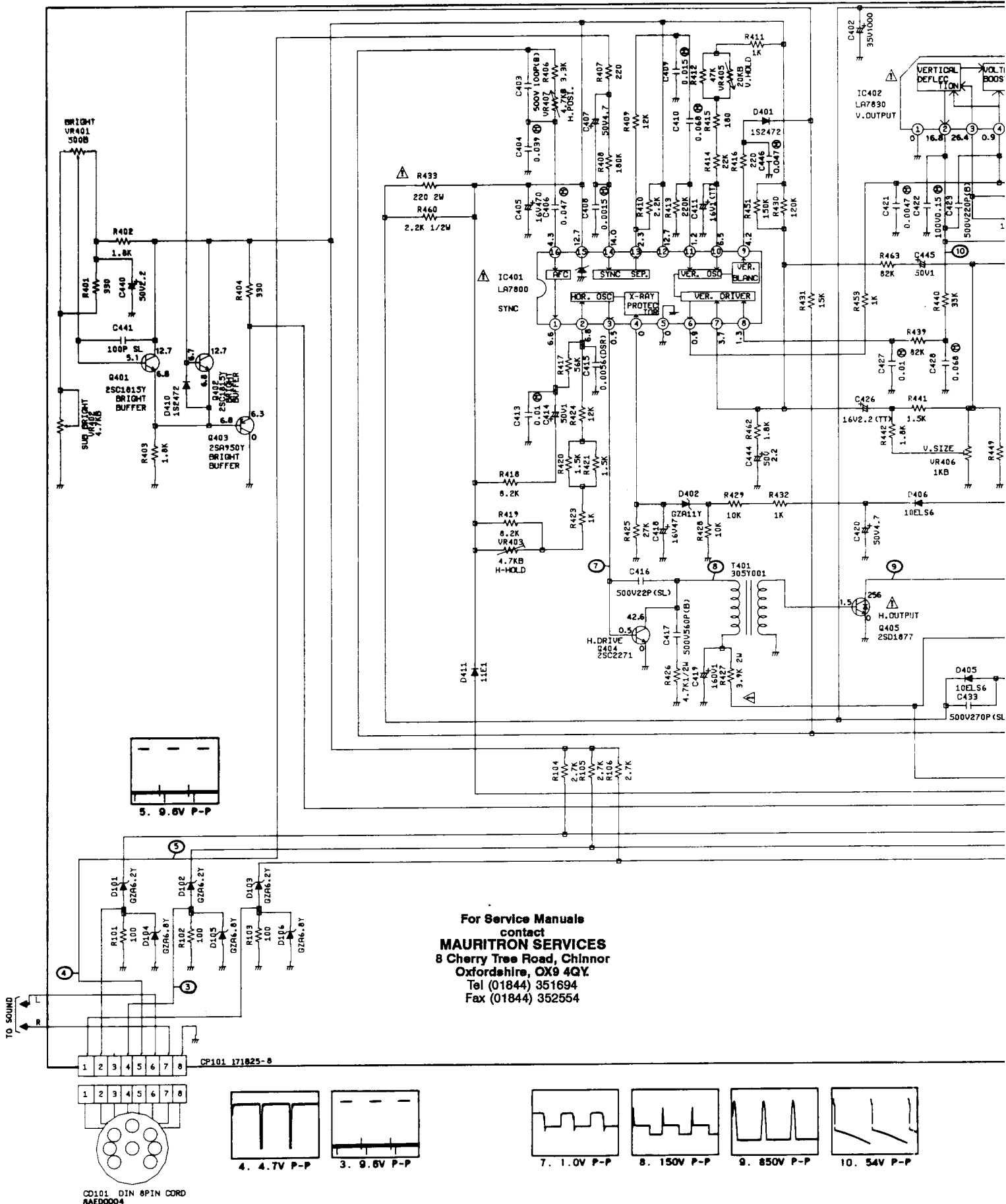
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**464 PLUS HOME COMPUTER
6128 PLUS HOME COMPUTER
GX4000 GAMES CONSOLE
MM 12 MONOCHROME MONITOR
CM 14 COLOUR MONITOR**

SERVICE MANUAL

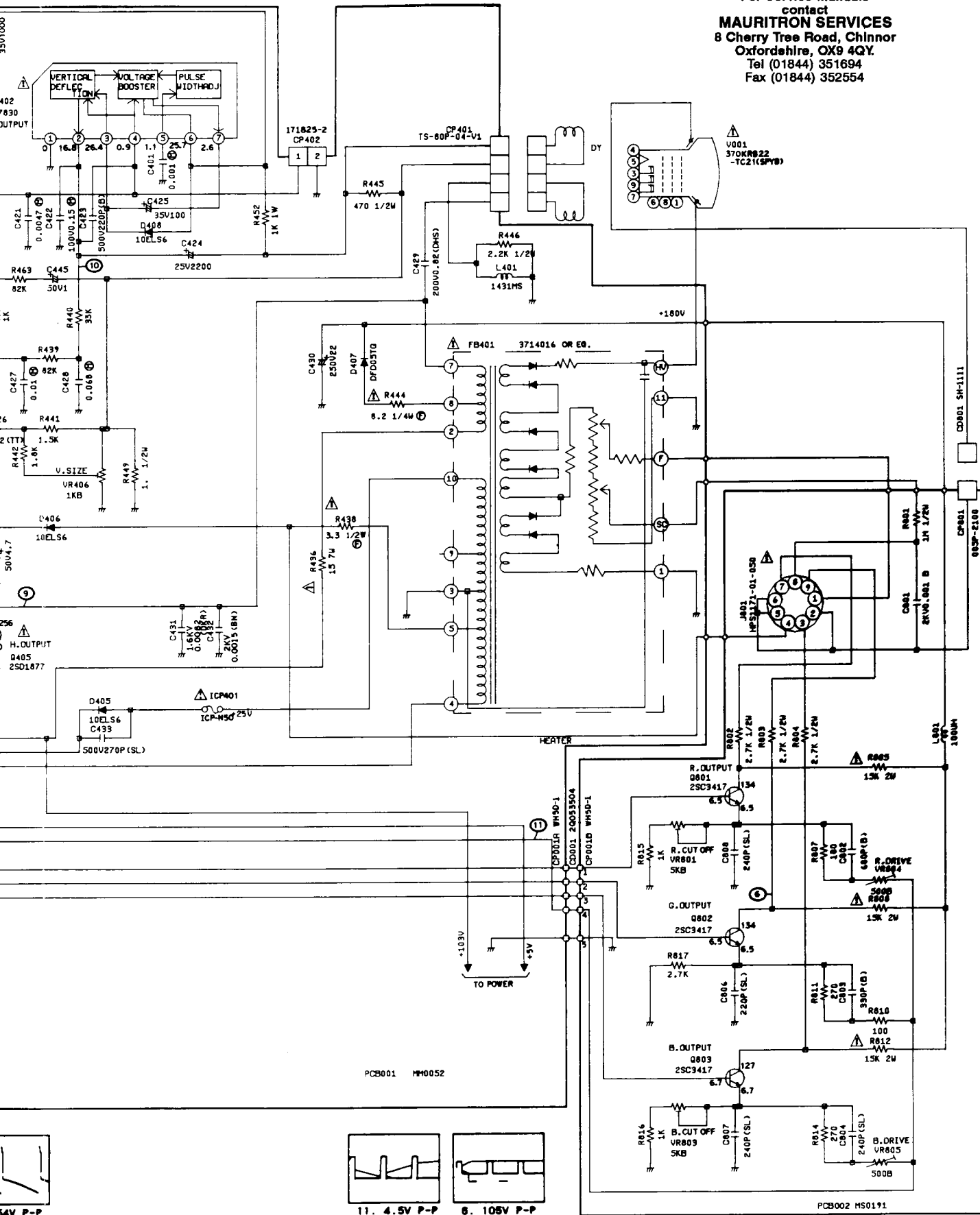


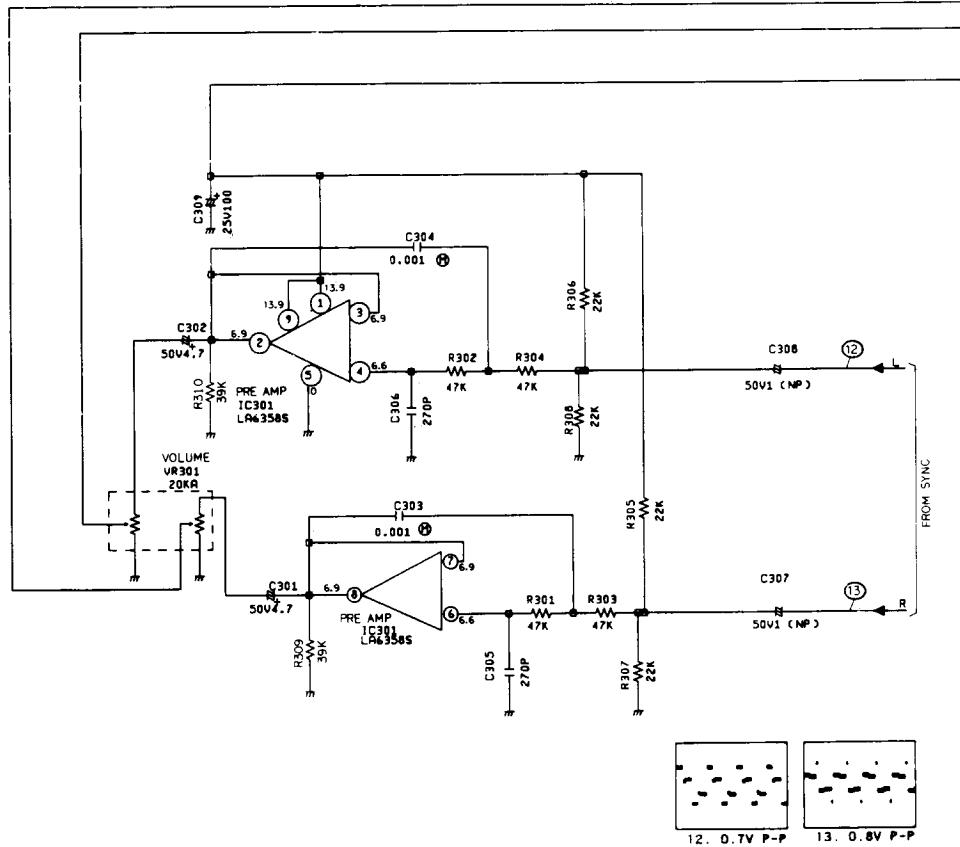
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CD101 DIN 8PIN CORD
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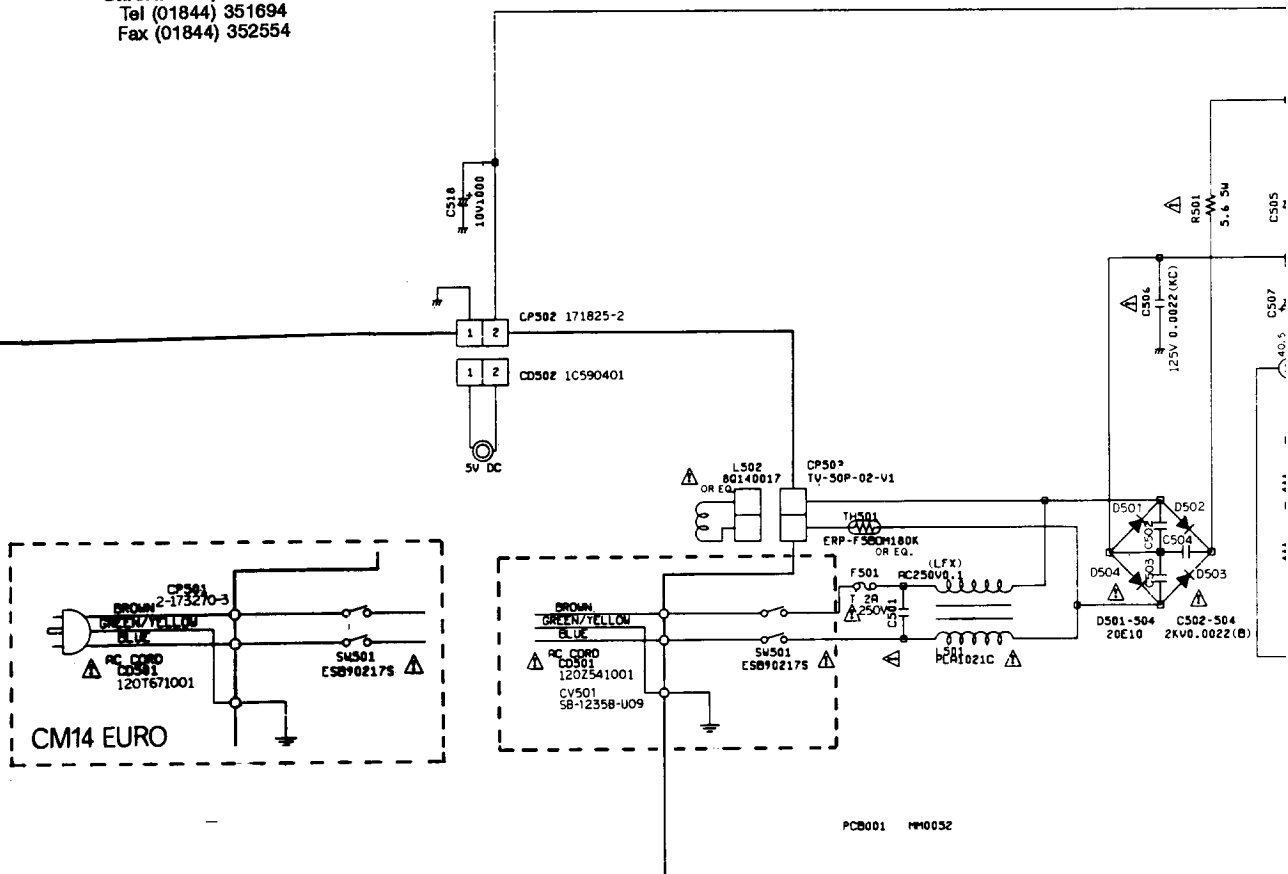
OR SCHEMATIC DIAGRAM

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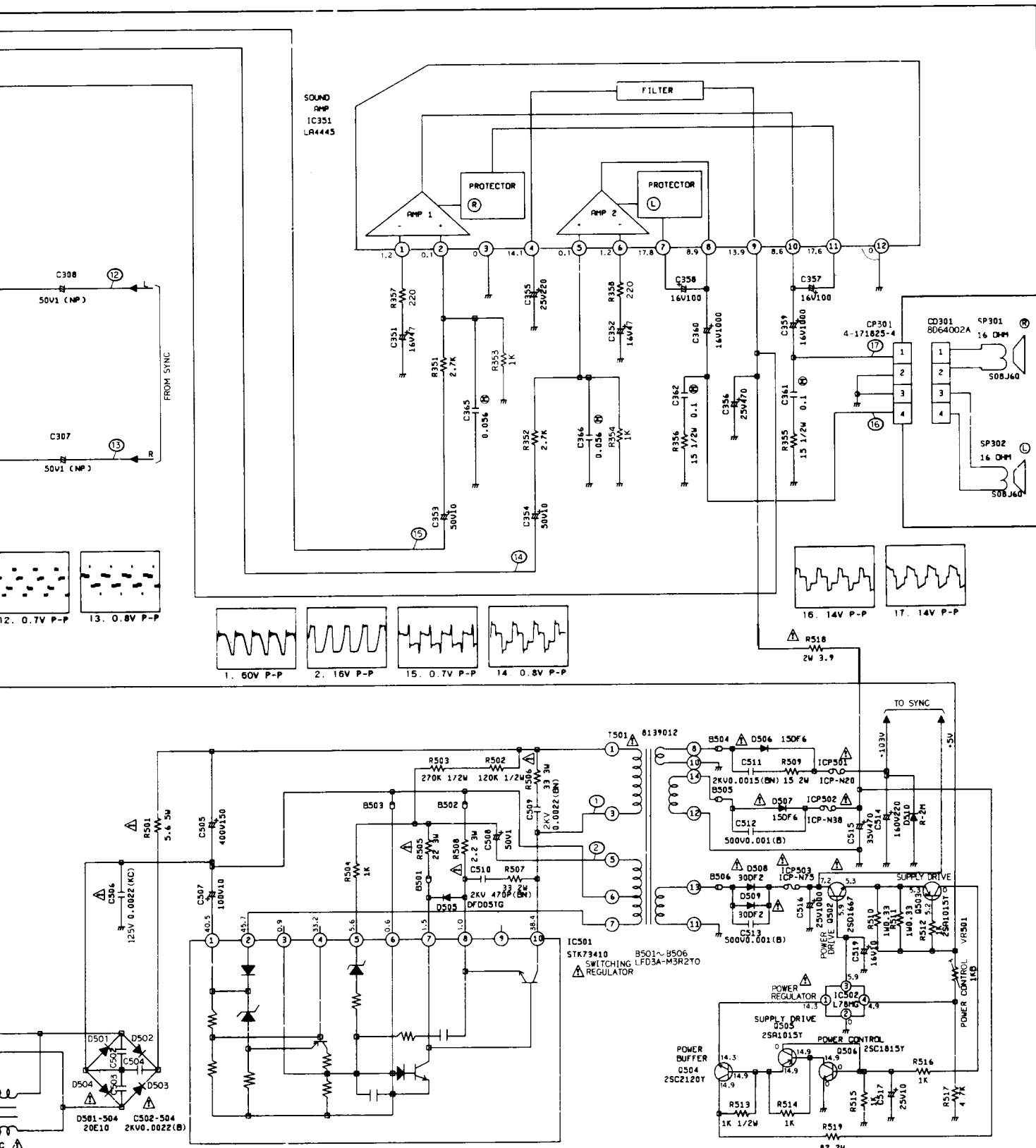




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ER / SOUND SCHEMATIC DIAGRAM



CM 14 COLOUR MONITOR

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts.

CAUTION

Use an isolation transformer when performing any service on this chassis.

Before removing the anode cap, discharge electricity because it contains high voltage.

When removing a PCB or related component, after unfastening or changing wire, be sure to put wire back in its original position.

1-1: Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Frequency Counter
3. White Balance Signal Generator
4. White Balance Checker
5. DC Voltmeter

2. BASIC ADJUSTMENTS

2-1: +5V

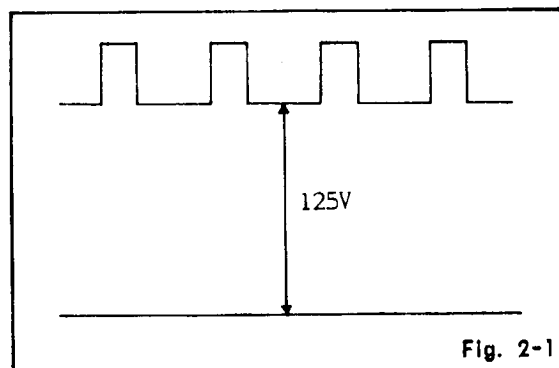
1. Load 2.4A into DC out.
2. Connect the DC voltmeter to DC out.
3. Adjust VR501 until voltage is $4.8 \pm 0.03V$.
4. After adjustments, verify if the voltage is less than 5.25V in no-load mode.

2-2: H-HOLD

1. Shut off the input signal and set the screen to the free-run condition.
2. Connect a frequency counter to CRT heater.
3. Adjust VR403 to obtain 15.625KHz reading.

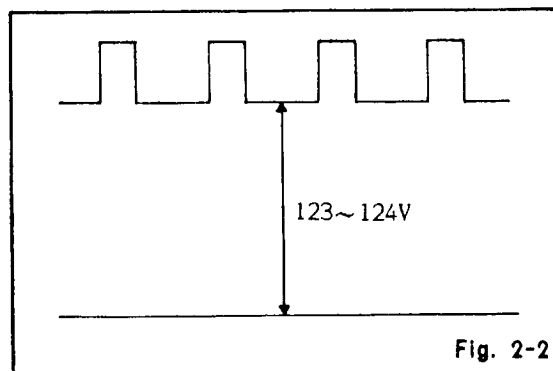
2-3: CUT OFF

1. Shut off the input signal and set the screen to the free-run condition.
2. Set the bright control to maximum position.
3. Set VR801, VR803, VR804 and VR805 to center positions.
4. Connect the oscilloscope to collector of Q802.
5. Adjust VR402 to obtain 125V as shown in Fig. 2-1.
6. Then, short the first pin and the second pin in CP402.
7. Keeping the condition, adjust the horizontal line on the picture to a extent of lighting faintly.



2-4: SUB BRIGHT

1. Shut off the input signal and set the screen to the free-run condition.
2. Set the bright control to maximum position.
3. Connect the oscilloscope to collector of Q802.
4. Adjust VR402 to obtain 123 ~ 124V as show in Fig. 2-2.

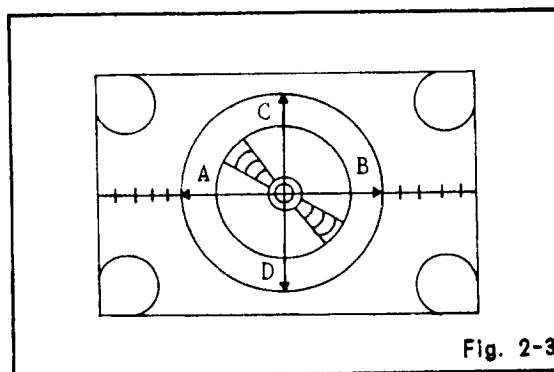


2-5: WHITE BALANCE

1. Input 75% white and 25% white patterns to the monitor with the white balance signal generator.
2. Set the SW1 of the white balance signal generator to auto position. Adjust high control of the white balance signal generator until green of the white balance checker is centered for 75% white. Adjust low control until green is centered for 25% white.
3. Adjust VR802 and VR805 until blue of white balance checker is centered. Adjust VR801 and VR803 until red of white balance checker is also centered.

2-6: V.SIZE

1. Set the bright control to maximum position.
2. Receive the monochrome pattern.
3. Adjust VR406 to AB = CD as shown in Fig. 2-3.



2-7: FOCUS

1. Set the bright control to maximum position.
2. Adjust the picture by using focus volume.

3. PURITY AND CONVERGENCE ADJUSTMENT

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. (Refer to Fig. 3-1)
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
Adjust the pair of purity magnets so the color at ends are equally wide.
3. Move the deflection yoke backward (To neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

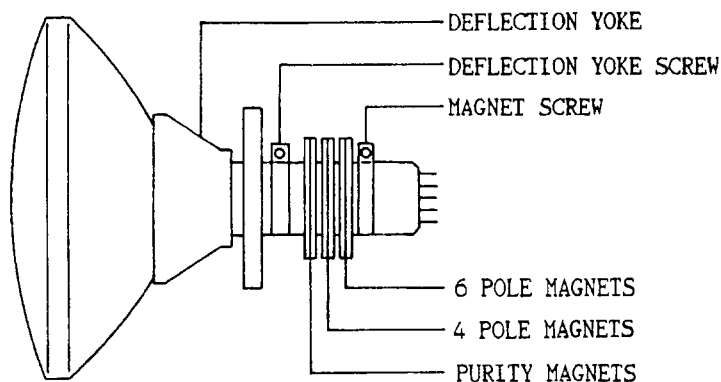


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. (Refer to Fig. 3-2-a)
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. (Refer to Fig. 3-2-b)

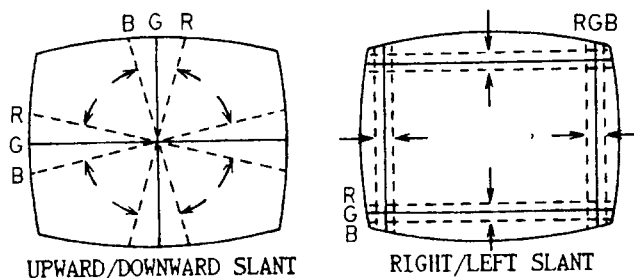
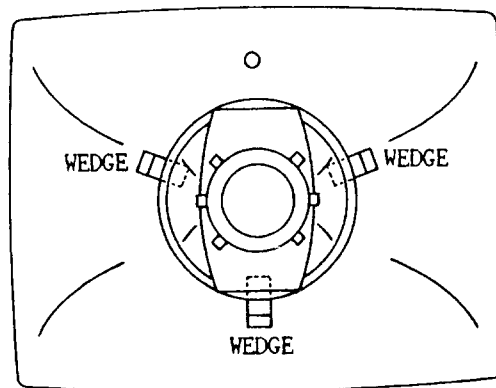


Fig. 3-2-a



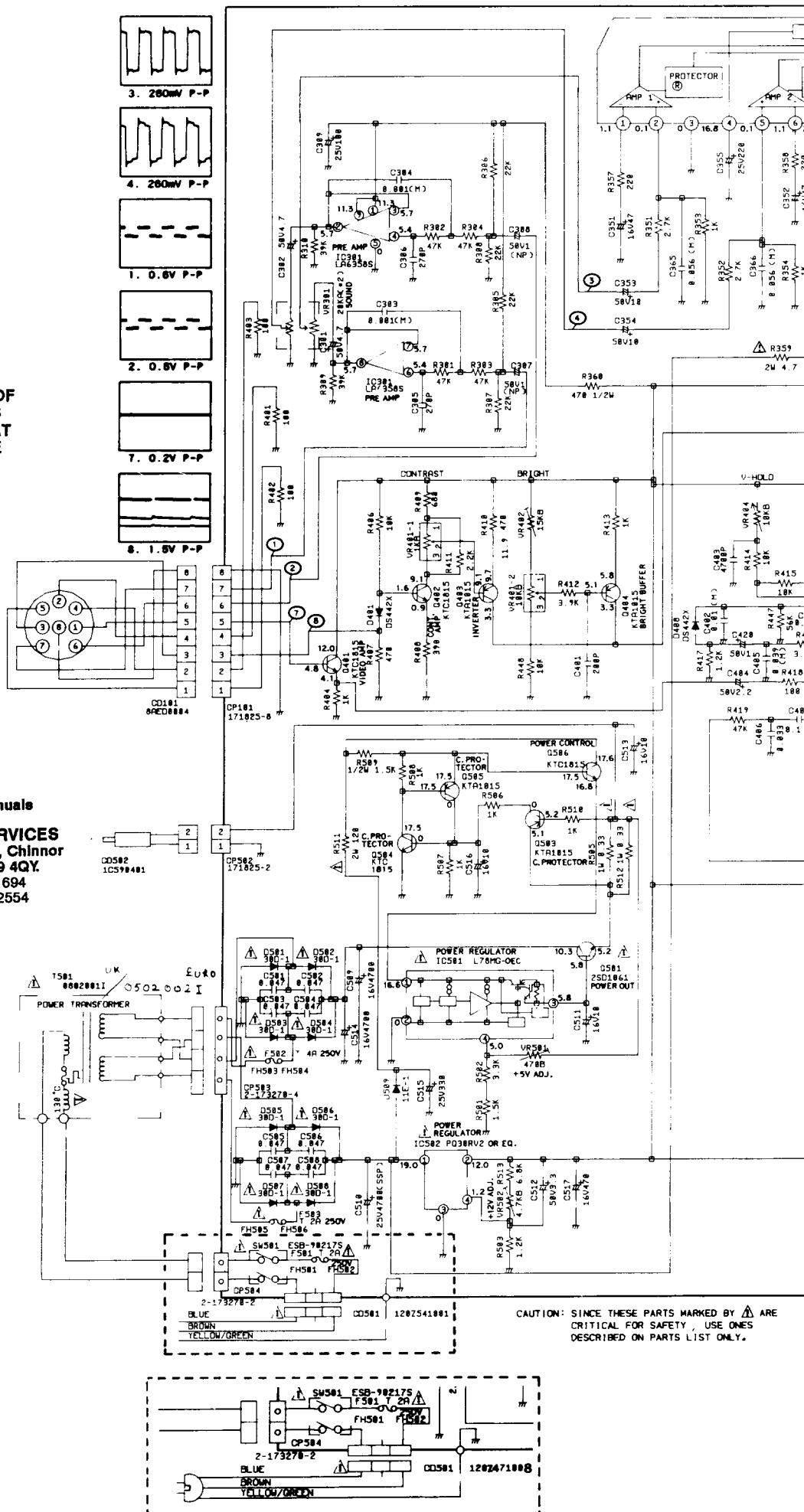
WEDGE POSITION

Fig. 3-2-b

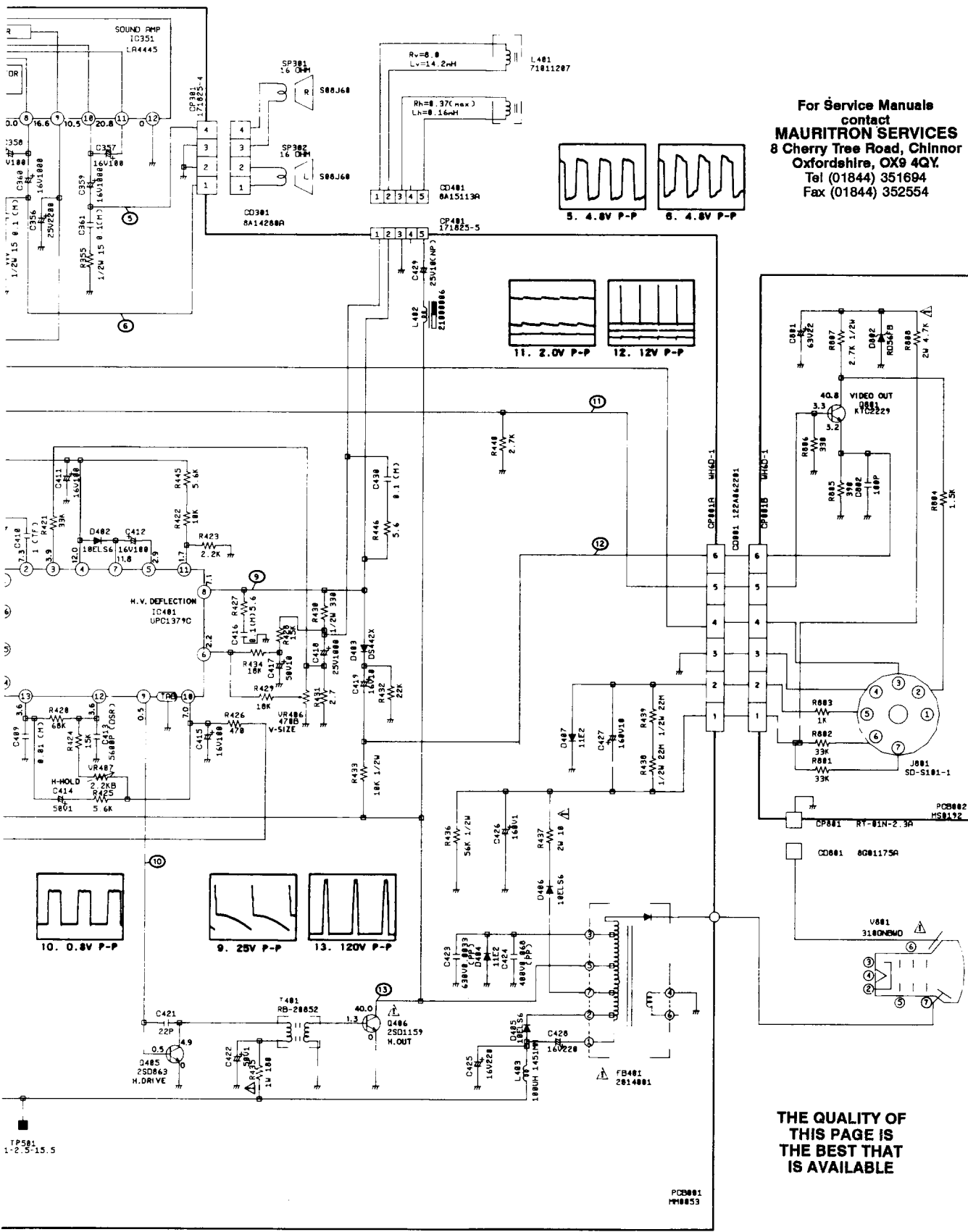
MM-12 MONITOR / CRT SCHEMATIC DIAGRAM

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ELECTRICAL ADJUSTMENTS

MM-12 SECTION

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts.

CAUTION

Use an isolation transformer when performing any service on this chassis.

Before removing the anode cap, discharge electricity because it contains high voltage.

When removing a PCB or related component, after unfastening or changing wire, be sure to put wire back in its original position.

1-1: Prepare the following measurement tools for electrical adjustments.

1. Frequency Counter
2. DC Voltmeter

2. BASIC ADJUSTMENTS

2-1: DC 12V

1. Get the screen of initial pattern on screen from PC.
2. Set the bright and contrast controls to maximum position.
3. Connect the hot the digital voltmeter to TP501.
4. Adjust the VR502 so that the digital voltmeter indicates $DC\ 12.00 \pm 0.05V$.

2-2: DC 5V

1. Put the following loads in the DC cord and set to the following values by using VR501.

LOAD	SETTING VALUE
Load 2.4A	$DC\ 4.80 \pm 0.05V$
Load $3.6 \pm 0.4A$	$DC\ 0V$
No load(0A)	Less than 5.25V

2-3: H-HOLD

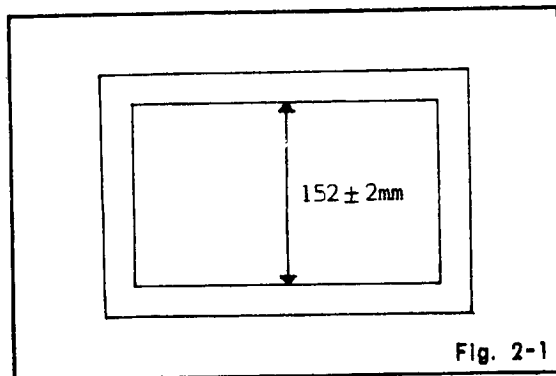
1. Shut off the input signal and set the screen to the free-run condition.
2. Connect a frequency counter to CRT heater.
3. Adjust VR407 to obtain 15.625KHz reading.

2-4: SUB BRIGHT

1. Set the bright and contrast controls to minimum position.
2. Adjust VR402 until letters of initial pattern on screen can be seen slightly.

2-5: V SIZE

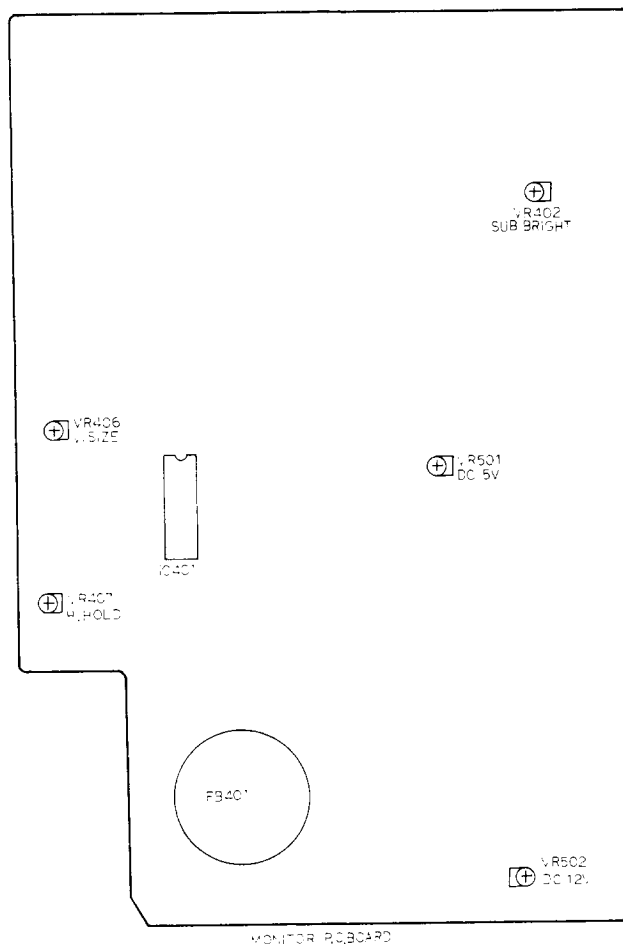
1. Get the screen of border 26 pattern from PC.
2. Set the bright and contrast controls to maximum position.
3. Adjust the VR406 so that the width "A" in border size become $152 \pm 2mm$.
(Refer to Fig. 2-1)



2-6: CENTERING

1. Set the bright and contrast controls to maximum position.
2. Get the screen of border 26 pattern from PC adjust it by means of the magnet on the back of DY so that it comes to the center of the screen.

MAJOR COMPONENTS LOCATION GUIDE



POWER REGULATOR SCHEMATIC DIAGRAM

