

Specifications

Picture Size :	21 inch
System :	PAL I
Frequency Range : UHF	21 - 69ch
Maximum Sensitivity : UHF	20dB
Intermediate Frequency	
Picture IF Carrier Frequency	39.5MHz
Colour Sub Carrier Frequency :	35.07MHz
Sound IF Carrier Frequency :	33.5MHz
Sound Intermediate Frequency :	6.0MHz
Maximum Output Power :	5.0 x 2W
10% THD Output power	3.0 x 2W
Speaker :	8 ohm
Power Source :	AC 240V

Service Adjustments

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

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

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 a wire, be sure to put the wire back in its original position.

Inferior silicon grease can damage IC's and transistors. When replacing IC's and transistors, use only specified silicon grease (YG6260M). Remove all old silicon before applying new silicon.

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

1. Sweepmarker Generator
2. Oscilloscope.
3. Digital Voltmeter.
4. Colour Bar Generator.

For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY

Tel: 01844-351694 Fax: 01844-352554
Email: enquiries@mauritron.co.uk

2. BASIC ADJUSTMENTS

2-1: VCO AND AFT

Note: Connect input and output terminals of the sweepmarker generator to the circuit as shown in Fig.2-1a, then adjust it.

1. Connect output terminal of the sweepmarker generator to TP201. (Connect a 2.7k ohm resistor between them).
2. Connect input terminal of the sweepmarker generator to TP203.
3. Connect a 10k ohm variable resistor to IF AGC terminal (TP202) 12V line and ground, then adjust to make the waveform of the oscilloscope readable.
4. Adjust L207 until the waveform marker (39.5MHz) becomes as shown in Fig. 2-1-b.
5. Disconnect output terminal of the sweepmarker generator.
6. Connect the AFT adjustment oscillator (39.5MHz) to TP of the tuner pack.
7. Connect the digital voltmeter to TP204.
8. Adjust L205 to find the point where the voltage of TP204 changes dramatically, and adjust to 4.5VDC at that point.

2-2: BRIGHT, AGC CONT AND COLOUR

On-Screen Display Adjustment

Insert the point of a straightened paper clip into the hole on the remote control marked with an arrow as shown in Fig.2-2. The adjustment mode display will appear as shown in Fig.2-3.

Note: Use the 1-7 keys on the remote control to select the options shown in Fig.2-3. Press the 7 key to end the adjustments.

2-A: BRIGHT

1. Receive the monochrome pattern.
2. Activate the adjustment mode display and press the 6 key.
3. Press the VOL. UP/DOWN key on the remote control until 0% of grey scale begins to lighten.

2-2-B: AGC

Note: Adjust after performing adjustments in section 2-1.

In case of weak electric field.

1. Tune to a noisy channel.
2. Activate the adjustment mode display and press the 3 key.
3. Press the VOL. UP/DOWN key on the remote control until noise is at minimum.
4. Change the channel, confirm that the other channels are normal.

In case of strong electric field.

(Radio frequency interference can cause diagonal streaks to appear).

1. Activate the adjustment mode display and press the 3 key.
2. Press the VOL. UP/DOWN key on the remote control until diagonal streaks are at minimum.
3. If there is still a problem after pressing the VOL. UP/DOWN key on the remote control, install an attenuator to the antenna terminals, then repeat step 1.
4. Confirm that noise does not appear.
5. Change the channel, confirm that the other channels are normal.

2-2-C: CONTRAST

1. Receive the magenta pattern.
2. Activate the adjustment mode display and press the 4 key.
3. Press the VOL. UP/DOWN key on the remote control until the COLOUR minimum.
4. Activate the adjustment mode display and press the 5 key.
5. Connect the oscilloscope to TP601.
6. Press the VOL. UP/DOWN key on the remote control until the TP601 level is set to the 1.7 +/- 0.1 Vp-p. (Refer to fig. 2-4)

2-2-D: COLOUR

1. Receive the colour bar pattern.
2. Connect the oscilloscope to TP022.
3. Activate the adjustment mode display and press the 4 key.
4. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope. Press the VOL. UP/DOWN key on the remote control until the red colour level is adjusted to 75% for the white level. (Refer to Fig.2-5)

2-3 CUT OFF

1. Receive the colour bar pattern.
2. Using the remote control, set brightness and contrast to minimum position.
3. Connect the oscilloscope to TP024.
4. Adjust the screen control until voltage is 150VDC. (Refer to Fig. 2-6)

2-4: FOCUS

1. Receive the broadcasting signal.
2. Adjust the focus control until picture is distinct.

2-5: VERTICAL SIZE

1. Receive the crosshatch pattern from the colour b generator.
2. Adjust the bright and contrast controls until the crosshatch pattern is distinct.
3. Adjust VR401 until the centre of the crosshatch is square.
4. Receive broadcasting signal, then confirm picture is normal.

2-6: VERTICAL POSITION

1. Receive the colour bar pattern.
2. Using the remote control, set brightness and contrast to maximum position.
3. Adjust the VR402 until horizontal line of the colour bar comes to approximate centre of the CRT.

2-7: HORIZONTAL POSITION

1. Receive the colour bar pattern.
2. Using the remote control, set brightness and contrast to maximum position.
3. Adjust the VR403 until the colour width of both screen edges are equal.
4. Receive the broadcasting signal, then confirm picture is normal.

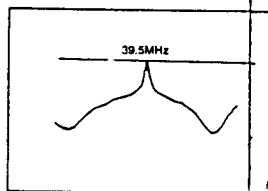
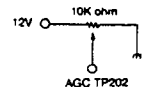
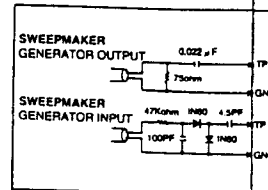
2-8: STEREO VCO

1. Apply DC 5V to the 17 pin of IC251.
2. Connect the 8.5MHz oscillator to the TP303.
3. Connect the circuit between 4pin of IC251 and GND.
4. Connect the 50V1 F between 13 pin of IC251 and GND.

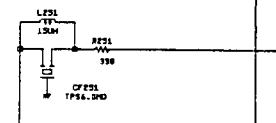
5. Connect the circuit as shown in Fig 2-7 of IC251.
6. Connect the frequency counter to the
7. Adjust VR251 so that the frequency is +/- 400MHz.
8. After adjustment disconnect the circuit Fig 2-7 and the short circuit between 4 and GND.

2-9: CONSTANT VOLTAGE

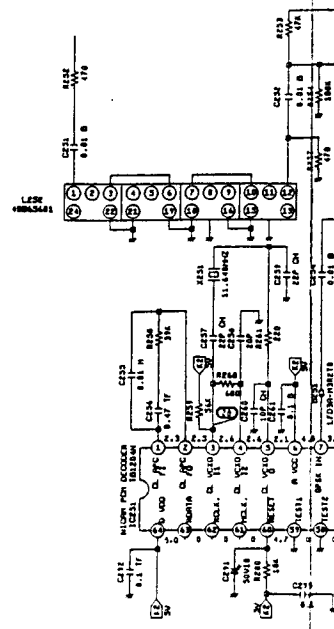
1. Receive the monochrome pattern.
2. Connect the digital voltmeter to TP501
3. Adjust the VR501 until the DC voltage is +/- 1V.



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THIS MANUAL IS
THE BEST THAT
IS AVAILABLE



2-2-B: AGC

Note: Adjust after performing adjustments in section 2-1.

In case of weak electric field.

1. Tune to a noisy channel.
2. Activate the adjustment mode display and press the 3 key.
3. Press the VOL. UP/DOWN key on the remote control until noise is at minimum.
4. Change the channel, confirm that the other channels are normal.

In case of strong electric field.

(Radio frequency interference can cause diagonal streaks to appear).

1. Activate the adjustment mode display and press the 3 key.
2. Press the VOL. UP/DOWN key on the remote control until diagonal streaks are at minimum.
3. If there is still a problem after pressing the VOL. UP/DOWN key on the remote control, install an attenuator to the antenna terminals, then repeat step 1.
4. Confirm that noise does not appear.
5. Change the channel, confirm that the other channels are normal.

2-2-C: CONTRAST

1. Receive the mazona pattern.
2. Activate the adjustment mode display and press the 4 key.
3. Press the VOL. UP/DOWN key on the remote control until the COLOUR minimum.
4. Activate the adjustment mode display and press the 5 key.
5. Connect the oscilloscope to TP601.
6. Press the VOL. UP/DOWN key on the remote control until the TP601 level is set to the 1.7 +/- 0.1 Vp-p. (Refer to fig. 2-4)

2-2-D: COLOUR

1. Receive the colour bar pattern.
2. Connect the oscilloscope to TP022.
3. Activate the adjustment mode display and press the 4 key.
4. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope. Press the VOL. UP/DOWN key on the remote control until the red colour level is adjusted to 75% for the white level. (Refer to Fig.2-5)

2-3 CUT OFF

1. Receive the colour bar pattern.
2. Using the remote control, set brightness and contrast to minimum position.
3. Connect the oscilloscope to TP024.
4. Adjust the screen control until voltage is 150VDC. (Refer to Fig. 2-6)

2-4: FOCUS

1. Receive the broadcasting signal.
2. Adjust the focus control until picture is distinct.

2-5: VERTICAL SIZE

1. Receive the crosshatch pattern from the colour bar generator.
2. Adjust the bright and contrast controls until the crosshatch pattern is distinct.
3. Adjust VR401 until the centre of the crosshatch is square.
4. Receive broadcasting signal, then confirm picture is normal.

2-6: VERTICAL POSITION

1. Receive the colour bar pattern.
2. Using the remote control, set brightness and contrast to maximum position.
3. Adjust the VR402 until horizontal line of the colour bar comes to approximate centre of the CRT.

2-7: HORIZONTAL POSITION

1. Receive the colour bar pattern.
2. Using the remote control, set brightness and contrast to maximum position.
3. Adjust the VR403 until the colour width of both screen edges are equal.
4. Receive the broadcasting signal, then confirm picture is normal.

2-8: STEREO VCO

1. Apply DC 5V to the 17 pin of IC251.
2. Connect the 6.5MHz oscillator to the TP303.
3. Connect the circuit between 4pin of IC251 and GND.
4. Connect the 50V1 F between 13 pin of IC251 and GND.

5. Connect the circuit as shown in Fig.2-7 to the 14 pin of IC251.
6. Connect the frequency counter to the TPA.
7. Adjustment VR251 so that the frequency is 6.552MHz +/- 400MHz.
8. After adjustment disconnect the circuit as shown in Fig.2-7 and the short circuit between 4 pin of IC251 and GND.

2-9: CONSTANT VOLTAGE

1. Receive the monochrome pattern.
2. Connect the digital voltmeter to TP501.
3. Adjust the VR501 until the DC voltage at TP501 is 110 +/- 1V.

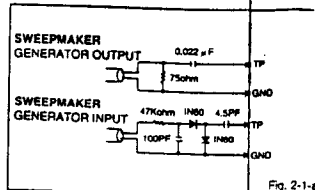


Fig. 2-1-a

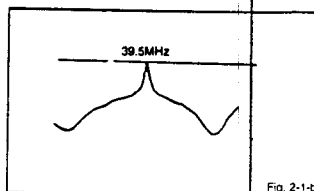
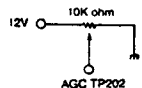


Fig. 2-1-b

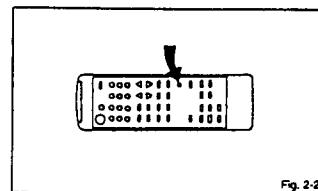


Fig. 2-2

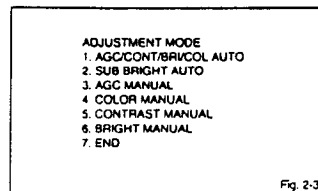


Fig. 2-3

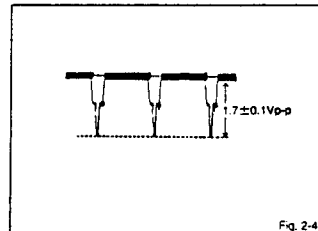
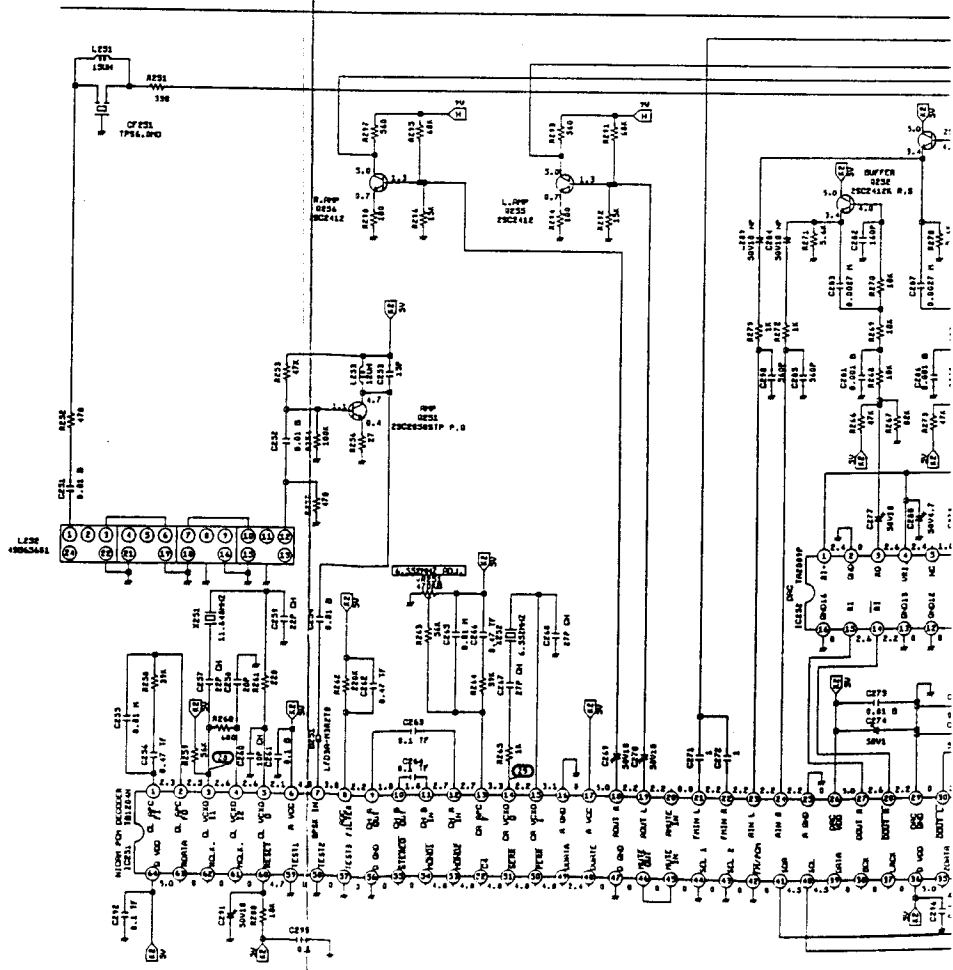


Fig. 2-4

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NICAM Diagram



the 14 pin
6.552MHz
shown in
of IC251

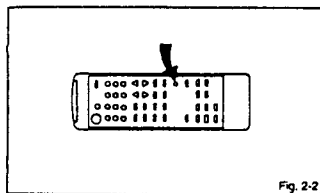


Fig. 2-2

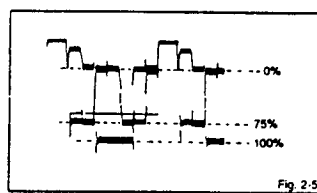


Fig. 2-5

- ADJUSTMENT MODE
1. AGC/CONT/BRI/COL AUTO
 2. SUB BRIGHT AUTO
 3. AGC MANUAL
 4. COLOR MANUAL
 5. CONTRAST MANUAL
 6. BRIGHT MANUAL
 7. END

Fig. 2-3

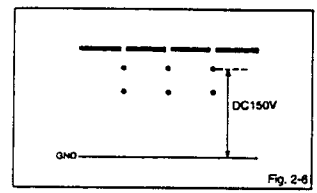


Fig. 2-6

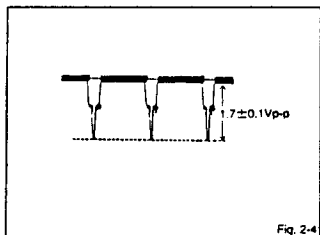


Fig. 2-4

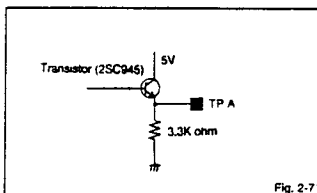
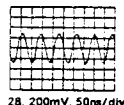


Fig. 2-7

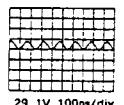
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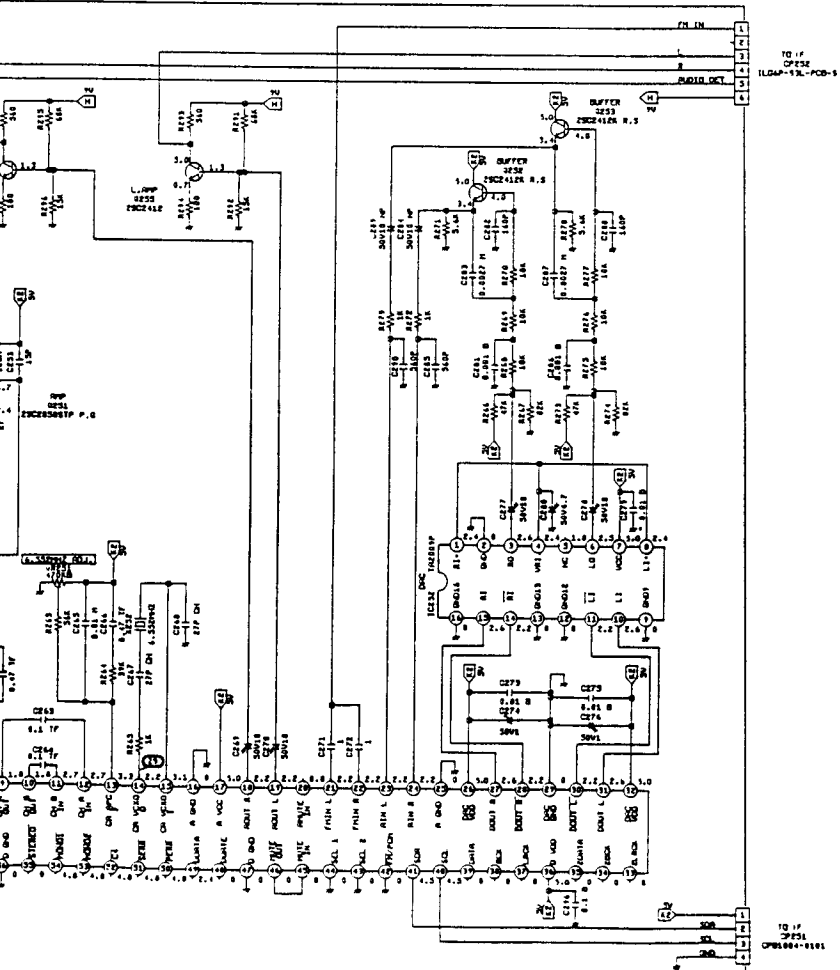
NICAM Diagram



28. 200mV, 50ns/div



29. 1V, 100ns/div



General Information

1993

CRT - A51AEZ90X01 (W)

Recommended Safety Parts

ITEM	PART NO.	DESCRIPTION
CS14	P2420A224M	CMP 0.22 UFAC250V
CS43,548	CA1B30KH3M	CC 2200 PF 400V AC
CD501	1206635802	Cord AC 1206635802
D501,502,		
D503	D2BTRM11C0	Diode Rectifier RM11C
D504		
D508	D28015DF60	Diode Silicon 15DF6
D511	D2BJ00RU4Z	Diode Rectifier RU4Z
D514	D2BT00R2M0	Diode Avalanche R2M V1
FB201	043221008P	Transformer Flyback 3221008
IC001	10M190574J	IC UPC574J-T
IC351	103SP44450	IC LA4445
IC401	0832002001	Micro Fuse CCV2.0
IC402	105SD84450	IC TA8445K
IC403	10X398M090	IC UPC78M09H
IC501,502	084E03R101	IC Protector PRF-3150
IC501	123S900600	IC STK730-060
IC503	103B98M060	IC L78M06SA
J801	066C130012	Socket CRT CVT3245-0521T
L502	029A000061	Coil Line Filter PLAC1021R0R01B1
L503	028H200015	Coil Degauss 8H200015
Q402	TDUF015550	Trans Silicon 2SD1555 (LB0EC E)
R019	R3U181123J	R.Metal Oxide 12k ohm 1W
R225	R61584221J	R.Fuse 220 ohm 1/4W
R362	R615U4121J	R.Fuse 120 ohm 1/4W
R419	R615U4390J	R.Fuse 39 ohm 1/4W
R433,434	R3U18A152J	R.Metal Oxide 1.5k ohm 2W
R438	R63582102J	R.Fuse 1k ohm 1/2W
R439	R615U2680J	R.Fuse 68 ohm 1/2W
R441	R63581R82J	R.Fuse 0.82 ohm 1W
R442	R6148A3R0J	R.Fuse 3.9 ohm 2W
R443	R635826R8J	R.Fuse 6.8 ohm 1/2W
R449,452	R3U18A822J	R.Metal oxide 8.2k ohm 2 W
R501	RSK2AE5R6K	R.Cement 5.6 ohm 7W
R505	R3U28BR82J	R.Metal Oxide 0.82 ohm 3W
R508	R3K18B473J	R.Metal Oxide 47k ohm 3W
R510	R635U4102J	R.Fuse 1k ohm 1/4W
R520	R0L101475J	RC 4.7M ohm 1W
R522	R3U18A150J	R.Metal Oxide 15 ohm 2W
R530	RSK2CD1R2K	R.Cement 1.2 ohm 5W
R545	R6148A100J	R.Fuse 10 ohm 2W
R802,805,		
R810	R3U18A103J	R.Metal Oxide 10k ohm 2W
R916	R615U4270J	R.Fuse 27 ohm 1/4W
SW501	0530105005	Switch Push ESB-90217S
TU001	0144S07020	Tuner UHF ENV-87878F1

Interchangeable Safety Parts

ITEM	BASE PART NO.	DESCRIPTION	REPLACEMENT PART NO	DESCRIPTION
R510	R635U4102J	1K OHM 1/4	R615U4102J	1K OHM 1/4

Note:

The above parts may be substituted for parts indicated in the electrical safety parts list (with the same ref no). These parts share the same electrical characteristics and other elements for common usage. Either part may be used in this unit.

MATRIX

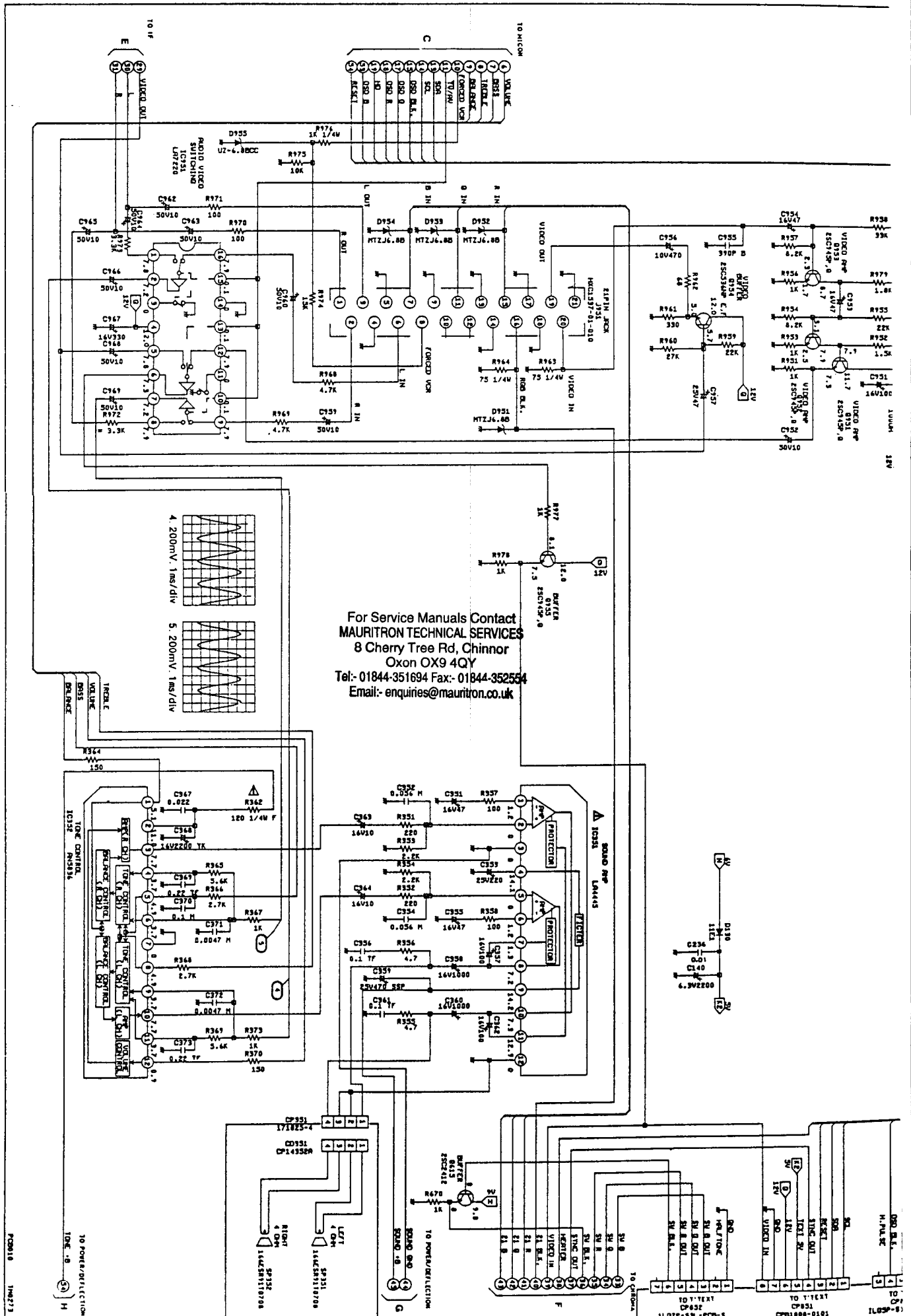
Item

See Model

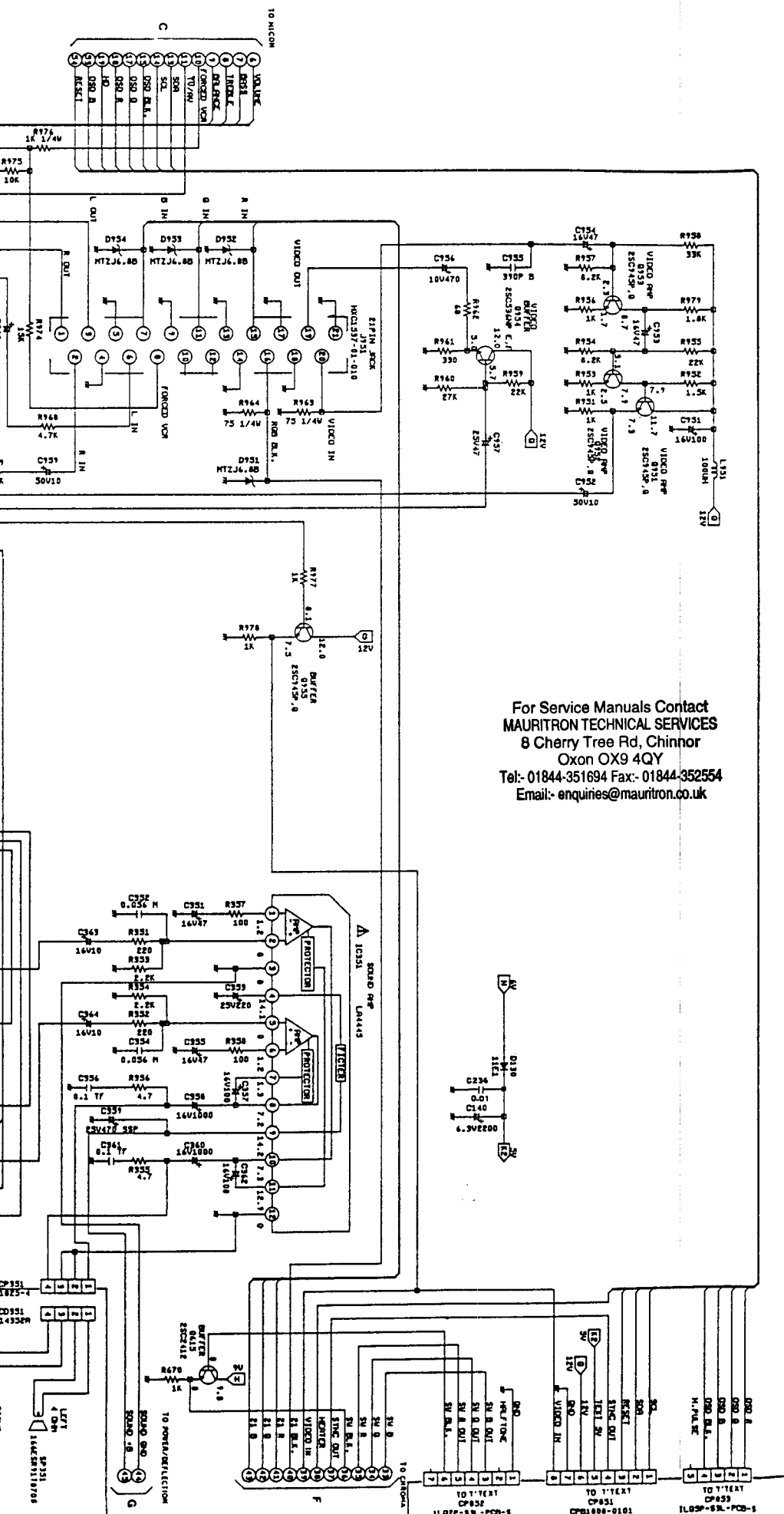
Deflection Diagram - Part

Matsui 2092T

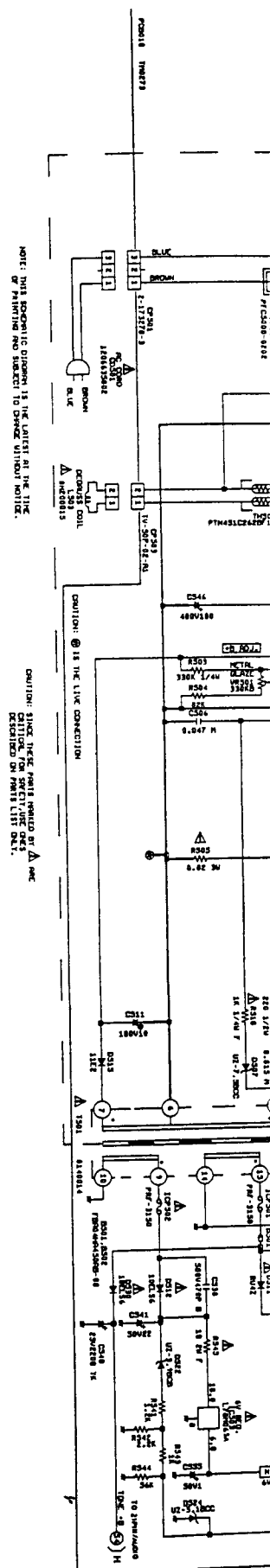
21 Pin/Audio Diagram



21 Pin/Audio Diagram



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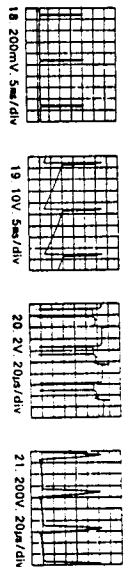
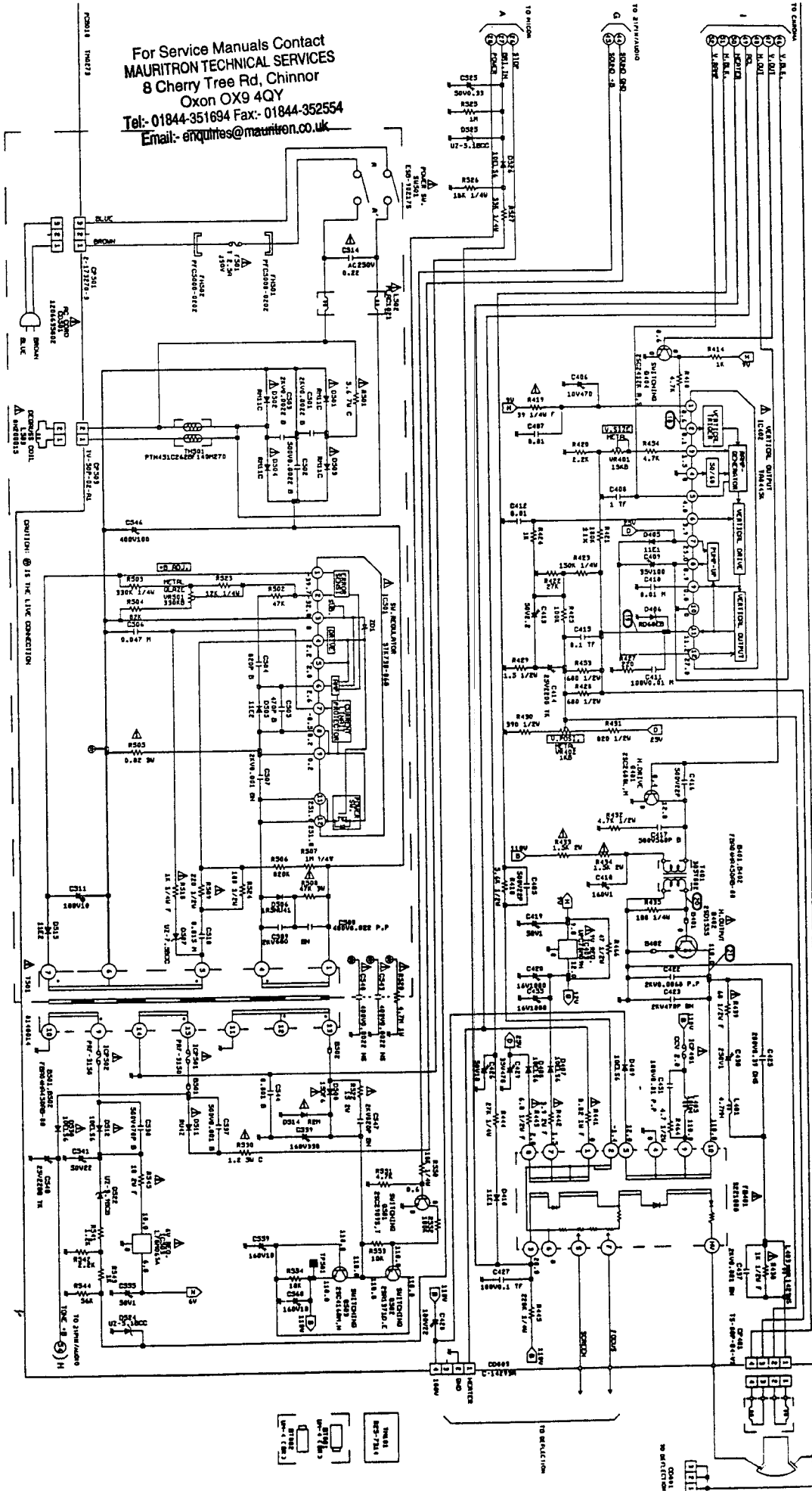
CAUTION: SINCE THESE PARTS MARKED BY Δ ARE CRITICAL FOR SAFETY, USE ONLY THOSE DESCRIBED ON PARTS LIST ONLY.

Power/Deflection Diagram

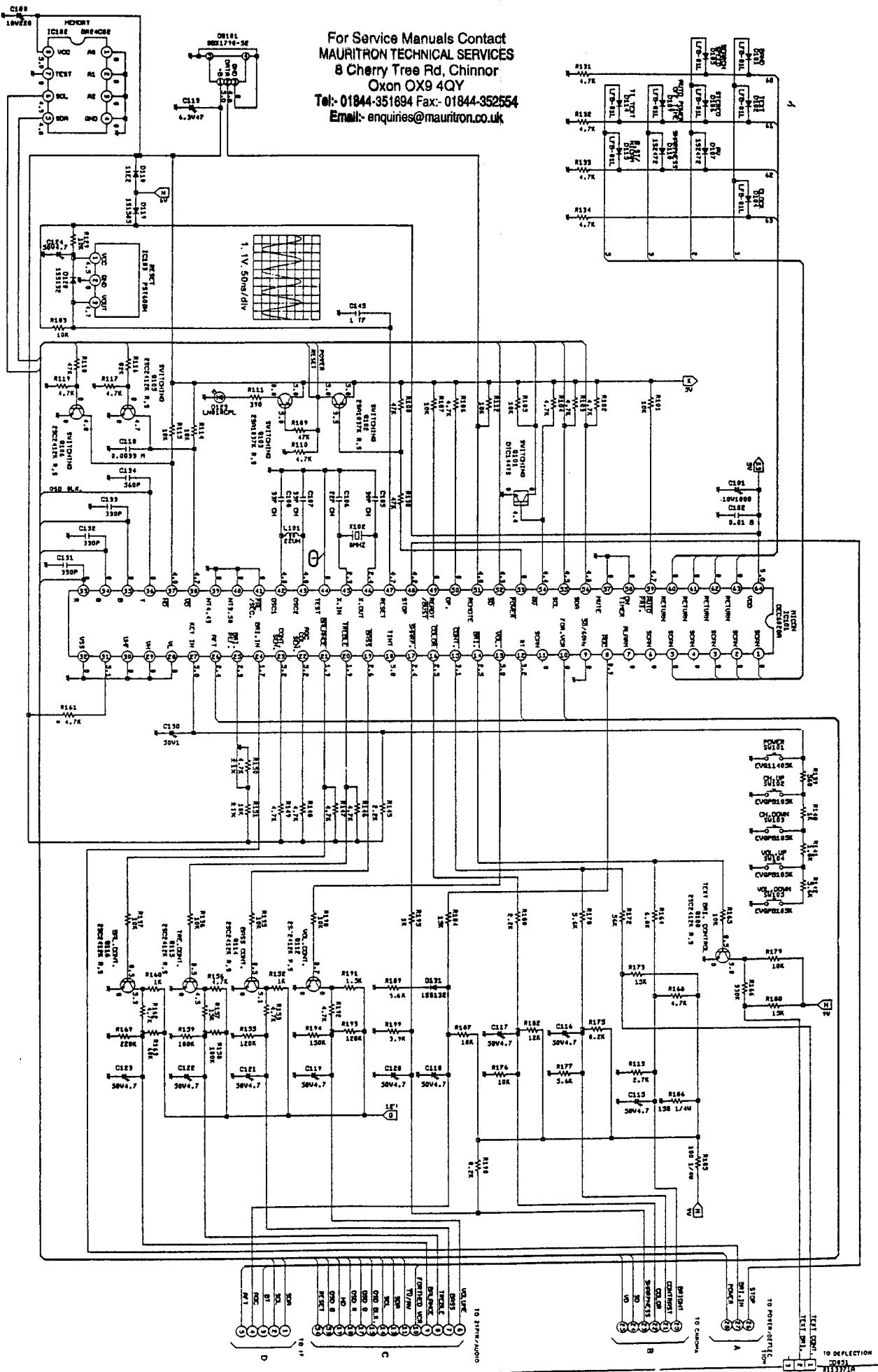
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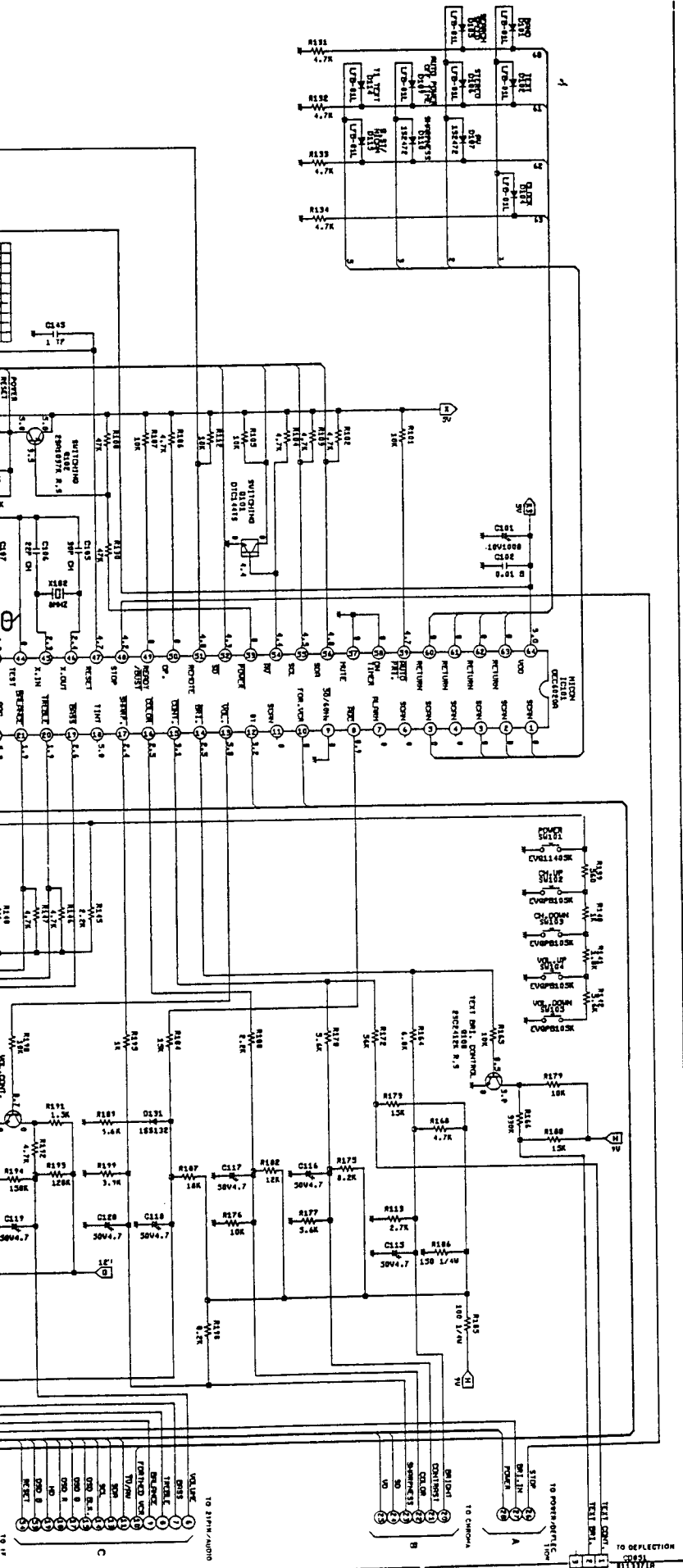


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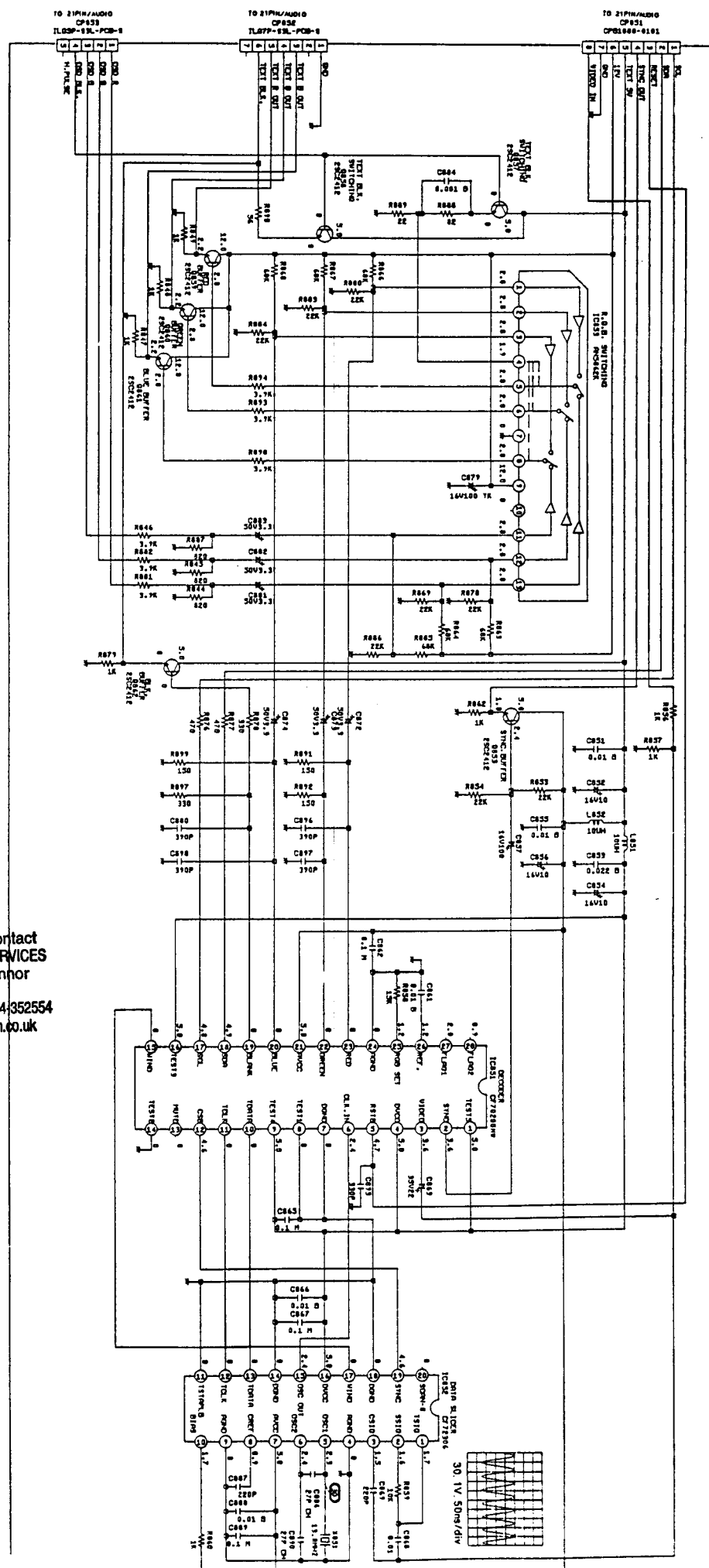


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Micon Diagram

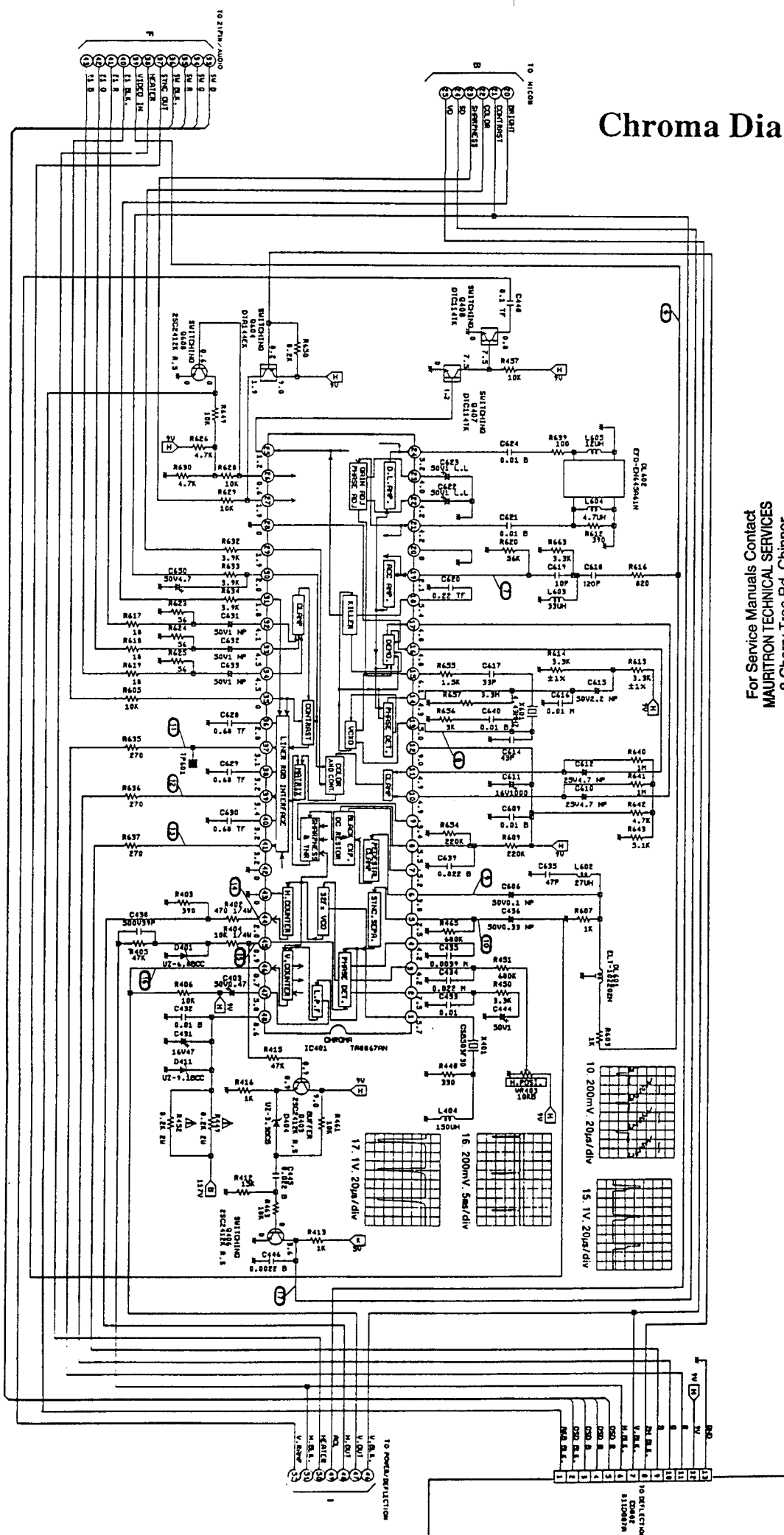


Teletext Diagram



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Chroma Diagram



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Waveform

