MTG-XX01CN Publication A. Issue 1

SERVICE AND OPERATION MANUAL

MTG- XX01CN

OPEN FRAME CGA COLOR MONITORS

MTG-1901CN : 19INCH, FST
MTG-2901CN : 29INCH, FST

TOVIS®
Total Visual Appliance

Information in this publication current as of Jun, 2003.

Information subject to change as display technology advance.

This publication produced by TOVIS Engineering Division.

This monitor has been designed and manufactured to deliver high performance video. For continued peak Performance use safe operation, only high quality TOVIS replacement parts or their exact specified Equivalent When servicing.

SAFETY PRECAUTIONS AND WARNINGS

Service Warning

This display contains HIGH VOLTAGE capable of delivering LETHAL quantities of energy. Service should only be attempted by trained personnel familiar with the potential dangers inherent with voltage equipment.

Safety Related Component Warning

Certain components used in TOVIS color monitors are critical for safe operation of the display. These parts Number are marked by (⚠) in the parts list and on the schematic diagram it is essential that these Safety critical components be replaced only with exactly specified components to prevent the Possibility of excessive X-radiation emission, electrical shock, fire, or premature component failure.
Modifying the original design without written approval from TOVIS is expressly forbidden, will void the original Parts and labor warranty, and may result in creating a hazardous situation.

X-RADIATION WARNING

COMPONENTS WHICH MAY AFFECT POTENTIAL EXCESS EMISSION OF X-RADIATION IN THE HORIZONTAL DEFLECTION AND HIGH VOLTAGE CIRCUITS (INCLUDING THE PICTURE TUBE) ARE TO BE USE ONLY TYPE AND RATING OF REPLACEMENT COMPONENT AS SHOWN IN THE PARTS LIST.

1. The only potential source of X-radiation emission is the picture tube. When the high voltage and horizontal deflection circuits are operating correctly there is no possibility of excess X- radiation emission. NEVER attempt to modify these circuits.

2. Periodically check the high voltage with a reliably calibrated meter for values not in excess of Manufacturer's recommendations. See high voltage Shut-down Circuit, page 4, for further details.

CRT Warning

All picture tubes used in TOVIS monitors are equipped with an integral implosion protection system.
The picture Tube is, however, a highly evacuated component whose outside surfaces are subject to strong external forces. Care must be exercised so as not to bump or scratch the tube during installation or servicing as this may cause the tube to implode resulting in possible personal injury and property damage. Shatter-proof goggles must be worn by Individuals while handling the CRT or installing the display in the cabinet. Do not handle The CRT by the neck.

1. Always ensure the high voltage at the anode cap is fully discharged prior to handling or service.

2. Replace picture tube only with same type and number.

Product Safety and Service Guidelines

1. Service should be performed only after reading all of the warnings and precautions in this manual and as Labeled on the CRT and chassis.

2. Where a short circuit has occurred, replace all components that indicate evidence of overheating or poor Connection on all plastic connectors.

3. Inspect wiring for frayed leads and damaged insulation when service is required, observe original lead Dress is followed as from the factory, especially in the high voltage circuitry area.

4. All protective devices must be reinstalled per original design.

PERFORMANCE AND OPERATING DATA

1. Power Supply

Power Input: 100VAC ~ 254VAC, 50/60Hz
Fuse Rating: 250V, 50T 3.15A
Power Consumption:

Size	19"	29"
W(Max)	70	120

2. Signal Input

Video signals
Red, Green, Blue analog input
150Ω termination to ground
Level :0 to 2.4Vp-p
Polarity :Positive

Sync signals
Separate H/V sync input
10k termination to ground
Level : TTL level
Polarity: Positive or Negative

3.Horizontal Deflection

Scanning Frequency : Nominal (15-17.5kHz)
Retrace period : 〈11.5us

4.Vertical Deflection

Scanning Frequency : Nominal (50-65Hz)
Retrace period : 〈900us

5. Picture Tube

The Cathode Ray Tube shall be a LG Normal & Dyna-Flat or equivalent

Size	Dot Pitch	Phosphor	P/N
19 FST	0.82(H)mm	P22	A48QAD220X
29 FST	0.82~1.1(H)mm	P22	A68QBC230X

6. Pincushion

- 5% Maximum (All Brightness)

7. MTBF

- 20,000 Hours Minimum

8. Leakage Current

To chassis ground, at 220VAC, 50Hz (Line/Neutral in common)
0. 195mA Maximum

9. High Pot

Line/Neutral in common to secondary/chassis,
1500VAC 60Hz for 1 second
- 2.0mA Maximum, No Breakdown

10. Implosion Protection

- Provided by band and mounting lugs

11. Magnetic Shielding

- Internal

12. X-Radiation

- 0.50mR/hr Maximum

13. Non-Linearity

Using a vertical and horizontal symmetrical cross hatch pattern to equation for non-linearity will be
Non-linearity (%) = ((largest grid minus the smallest grid) Divided by (largest grid plus the smallest grid)) times 100.
- 10% maximum

14.Picture Size Regulation

Static Regulation: 2%
Dynamic Regulation: 1.5%

15.Geometric Distortion

It is acceptable that pincushion, trapezoid, parallelogram, barrel distortion, out of orthogonality and various waves can appear all together .If the data area parameter remains within the limits of
- 2%

16. Temperature

- Operating: 0° ~ 50°C
- Storage: -10°C ~ 75°C
- Humidity: 10% ~ 90%(Non-condensing)

17. Degaussing

Automatic at power-up

18. High Voltage

This color monitor shall employ an X-radiation shut-down protection with internal circulitry.
19" : 25KV
29" : 27KV

19. WARRANTY

Manufacturer warranty 2 years parts and labor.
(Except on C.R.T)

OPERATING INSTRUTIONS

1.Apply line AC,90V-264V, in your locality to the monitor through W801.

2.Apply signal source to the monitor through W301.

3.Set up user adjustable controls

All controls are preset at the factory for optimum performance. If adjustment is necessary to suit program material, most adjustments can be made using only the controls on the remove VR PCB. Other controls in the monitor should be adjusted only if those controls have been tampered with or if major repairs were necessary on the monitor.

CONTROLS

1. Remote VR PCB

Contrast, VR720
Brightness, VR721
H-Position, VR722
H-Size, VR723
V-Size, VR724
V-Position, VR725

2. Main PCB

Horizontal OSC, VR301
V-HOLD, VR303
V-LIN, VR302
S.P.C VR401

3. Flyback Transformer

Focus Adjustment
Screen Adjustment

4. NECK PCB

Red Cut-off, VR552
Red Gain, VR551
Green Cut-off, VR555
Green Gain, VR553
Blue Cut-off, VR554
Blue Gain, VR556.

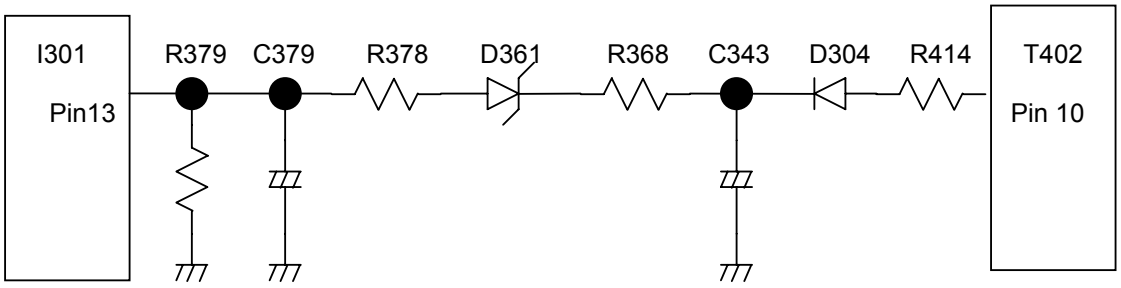
These controls in main, neck PCB and fly-back transformer have been preset and sealed at the factory and should not require further attention

HIGH VOLTAGE SHUT-DOWN CIRCUIT

The chassis of this monitor has been designed to emit a minimum of soft X-radiation, in accordance with US DHHS rules 21 CFR, subchapter. A high voltage shut-down circuit, as shown below, guarantees horizontal oscillation shut-down should the high voltage exceed designed picture tube maximums.

DO NOT ATTEMPT TO MODIFY THIS CIRCUIT.

A fly back pulse is generated at pin (10) of the fly back transformer.
After the pulse converted to DC through rectifying circuit D304 & C343, it is input to I301 pin (13) through the divider network register R378 & R379.
Normally cathode voltage of D361 is below 24V, it is not operated but in case of excess voltage it has to be shut-down.



SERVICE NOTICS