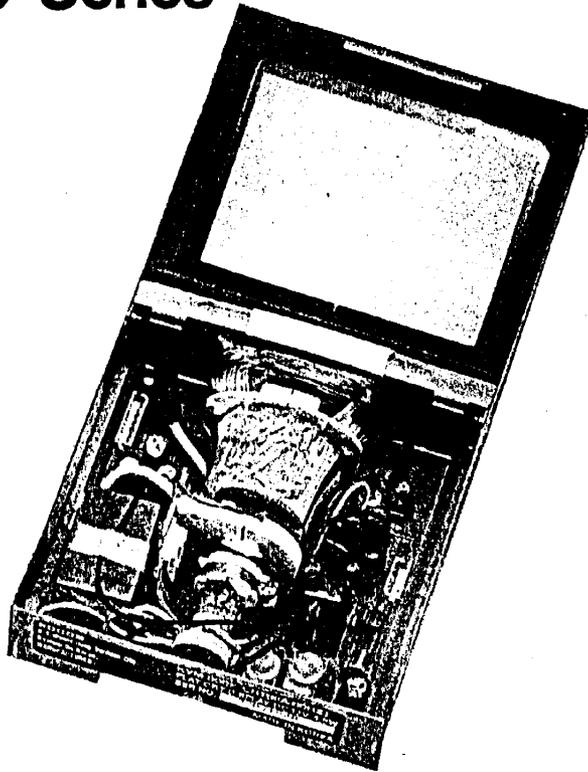


Monitor Module Series

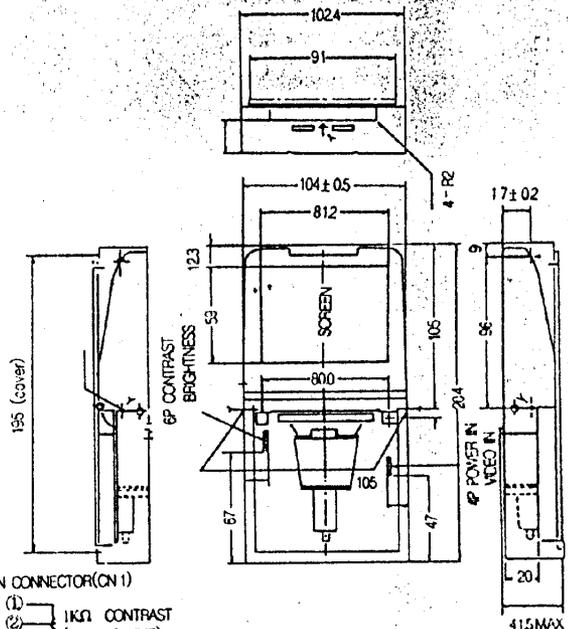
500F CRT(EIA OR CCIR)

Size : W104×H204×D41mm



- Compact and lightness camera P.C.B module
- Low power consumption in the circuit
- Low illumination
 - High resolution
 - Internal synchronisation
- Best quality image
- Maintenance free

DIMENSION



6PIN CONNECTOR(CN 1)

- ① 1KΩ CONTRAST
- ② (SEMI VOLUME)
- ③ 50KΩ BRIGHTNESS
- ④ (SEMI VOLUME)

- ① +12V Video
 - ② POWER SUPPLY GND
 - ③ VIDEO GND
 - ④ VIDEO +12V
- Power Supply Gnd

SPECIFICATION

Principal Specifications of the 4-inch Flat CRT Display Unit	
CRT	4-inch flat CRT 04JM Screen size W81×H59, Diagonal 101mm Horizontal resolution 450TV
Frequency	CCIR H : 15.625kHz, V : 50Hz EIA H : 15.735kHz, V : 60Hz
Input Signal	Composite video signal 1 Vp-p, 75Ω
Input Terminal	Signal/Power supply : 4 Pin Connector
Power Input	12V DC, 375mA Max
Power Consumption	4.5W
External Control	Contrast and brightness
Weight	650gr
External Dimensions	W104×H204×D41mm
Principal Specifications of the 4-inch Flat CRT(04JM)	
Size	T30×D191×W100mm
Neck Diameter	13φ
Effective Screen Area	W81×H59, Diagonal 101mm
Brightness	Over 100nits
Resolution	450TV
Deflection System	Electromagnetic
Fluorescent Material	P45 white
Use	Portable TV, TV door phone, etc.
Features	Thin, low power consumption and high resolution

* Please note that this equipment is subject to change without notice for improvements in specifications and appearance.

FLAT CRT DISPLAY

(MODEL: 500F CRT)

1. SPECIFICATIONS

1). PRINCIPLE SPECIFICATIONS OF THE 4-INCH FLAT CRT DISPLAYS UNIT

- CRT : 4-INCH FLAT CRT
- SCREEN SIZE W81 * H59, DIAGONAL 101MM
- RESOLUTION : HORIZONTAL RESOLUTION 450TV
- FREQUENCY : HORIZONTAL 15.734 MHz (RIA) OR 15.625 MHz (CCIR)
- VERTICAL 60Hz (RIA) OR 50Hz (CCIR)
- INPUT SIGNAL : COMPOSITE VIDEO SIGNAL 1VP-P, 75 Ω R301, OPBN 5K Ω (1 MHz)
- INPUT TERMINAL : 4PIN CONNECTOR (SIGNAL, POWER)
- POWER INPUT : DC 12V
- POWER CONSUMPTION : 4.5W MAX
- EXTERNAL CONTROL : CONTRAST AND BRIGHTNESS
- WEIGHT : 650G
- EXTERNAL DIMENSIONS : W104 * H204 * D41MM

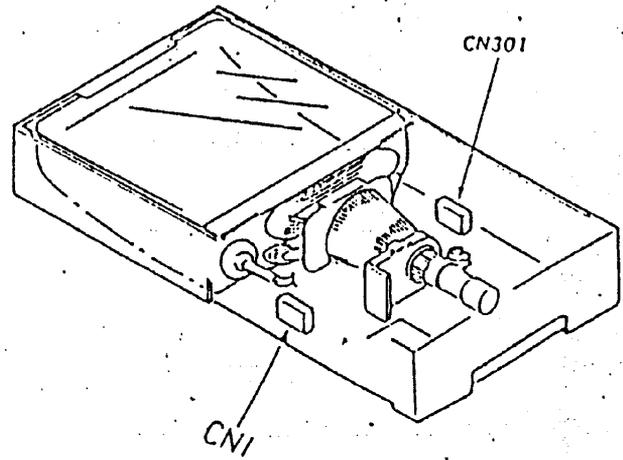
2). PRINCIPAL SPECIFICATIONS OF THE 4-INCH FLAT CRT

- SIZE : T30 * D191 * W100MM
- NBCK DIAMETER : 13 ϕ
- EFFECTIVE SCREEN AREA : W81 * H59, DIAGONAL 101MM
- BRIGHTNESS : OVBR 100NITS
- RESOLUTION : 450TV
- DEPLETION SYSTEM : ELECTROMAGNETIC
- FLUORESCENT MATERIAL : P45 WHITE
- USE : PORTABLE TV, TV DOOR PHONE...
- FEATURES : THIN, LOWER POWER CONSUMPTION AND HIGH RESOLUTION

2. HOOKING UP THE CONNECTOR

1). PIN ARRANGEMENT OF THE CONNECTOR

- CN301 (1) +12V
- (2) POWER SUPPLY GND
- (3) VIDEO GND
- (4) VIDEO
- CN1 (1) CONTRAST 1
- (2) CONTRAST 2
- (3) CONTRAST 3
- (4) BRIGHTNESS 1
- (5) BRIGHTNESS 2
- (6) BRIGHTNESS 3



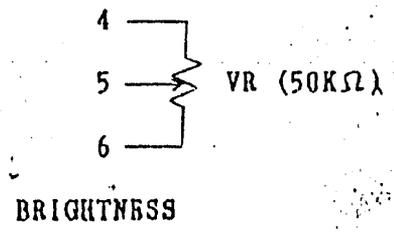
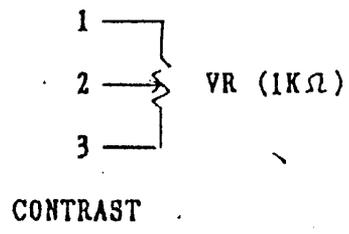
2). SUPPLYING POWER

THE 500F CRT OPERATES BY APPLYING 12+1.0V DC BETWEEN PINS (1) +12 AND (2) GND OF CN 301

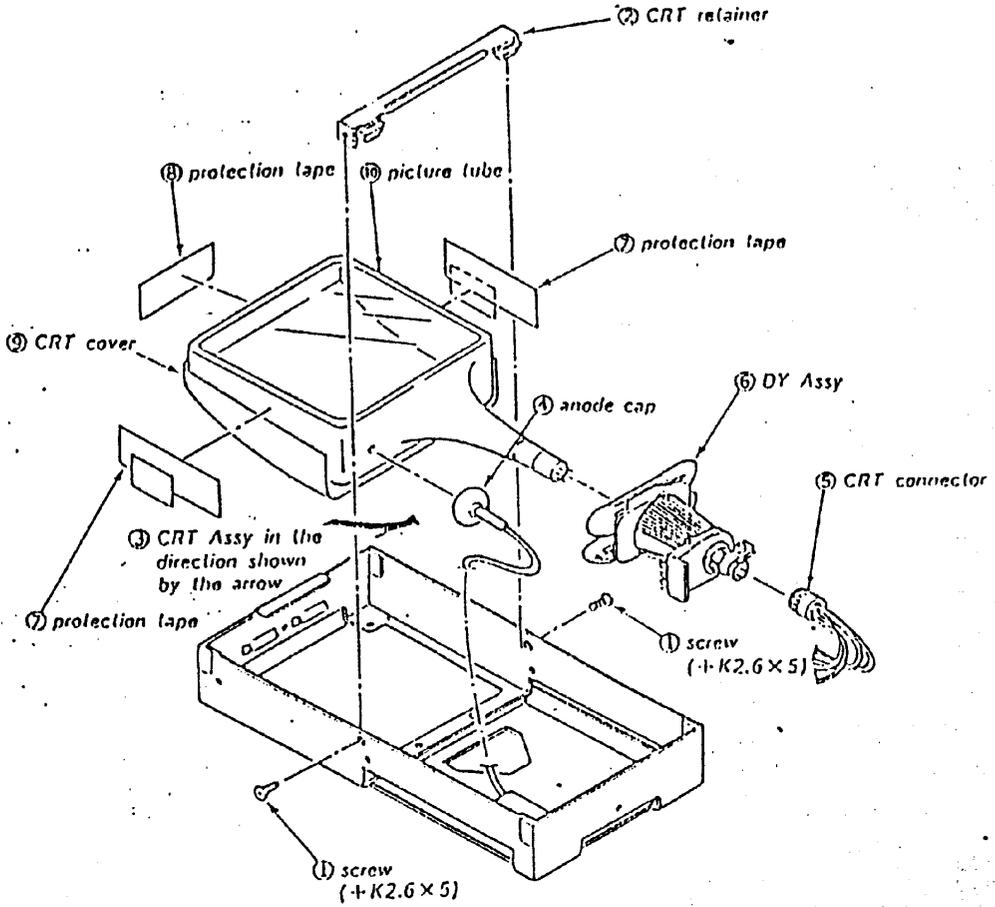
3). VIDEO INPUT

INPUT THE VIDEO SIGNAL TO (3) GND AND (4) VIDEO OF CONNECTOR CN301

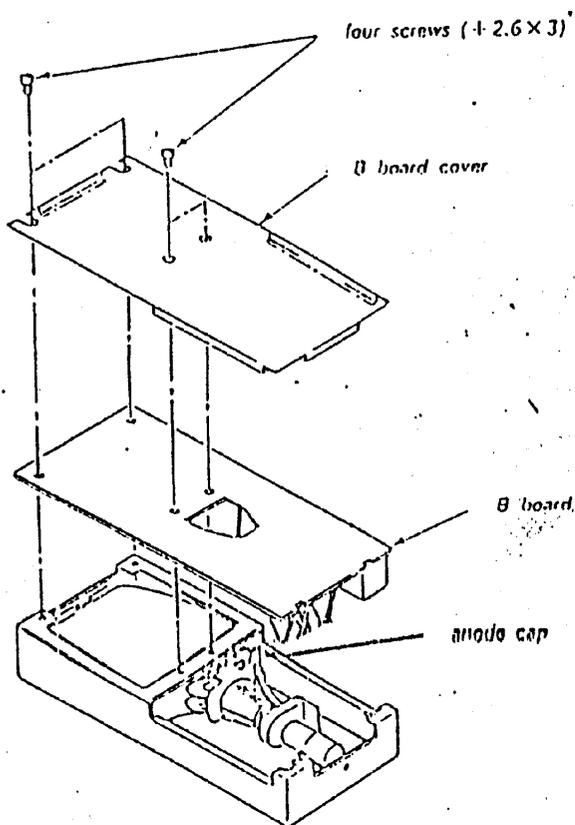
4). EXTENER CONTROL OF CONTRAST AND BRIGHTNESS (CN1)



1). PICTURE TUBE REMOVE



2). B BOARD REMOVE



4. SET UP ADJUSTMENT

1). MEASURING INSTRUMENT USED

- DIGITAL MULTIMETER
- PATTERN GENERATOR
- STABILIZE DC POWER SUPPLY
- FREQUENCY COUNTER

2). INPUT SIGNAL

- CROSSHATCH SIGNAL
- MONOSCOPE SIGNAL
- BROADCAST SIGNAL

3). CAUTION WHEN ADJUSTING

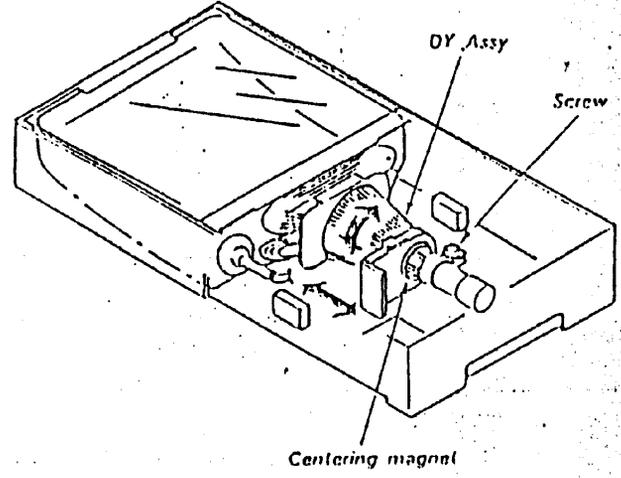
WHEN ADJUSTING OR CHECKING THE SCREEN, PLACE THE SET ON A LEVEL SURFACE WITH THE TOP FACING EAST

- CENTERING MAGNET ADJUSTMENT

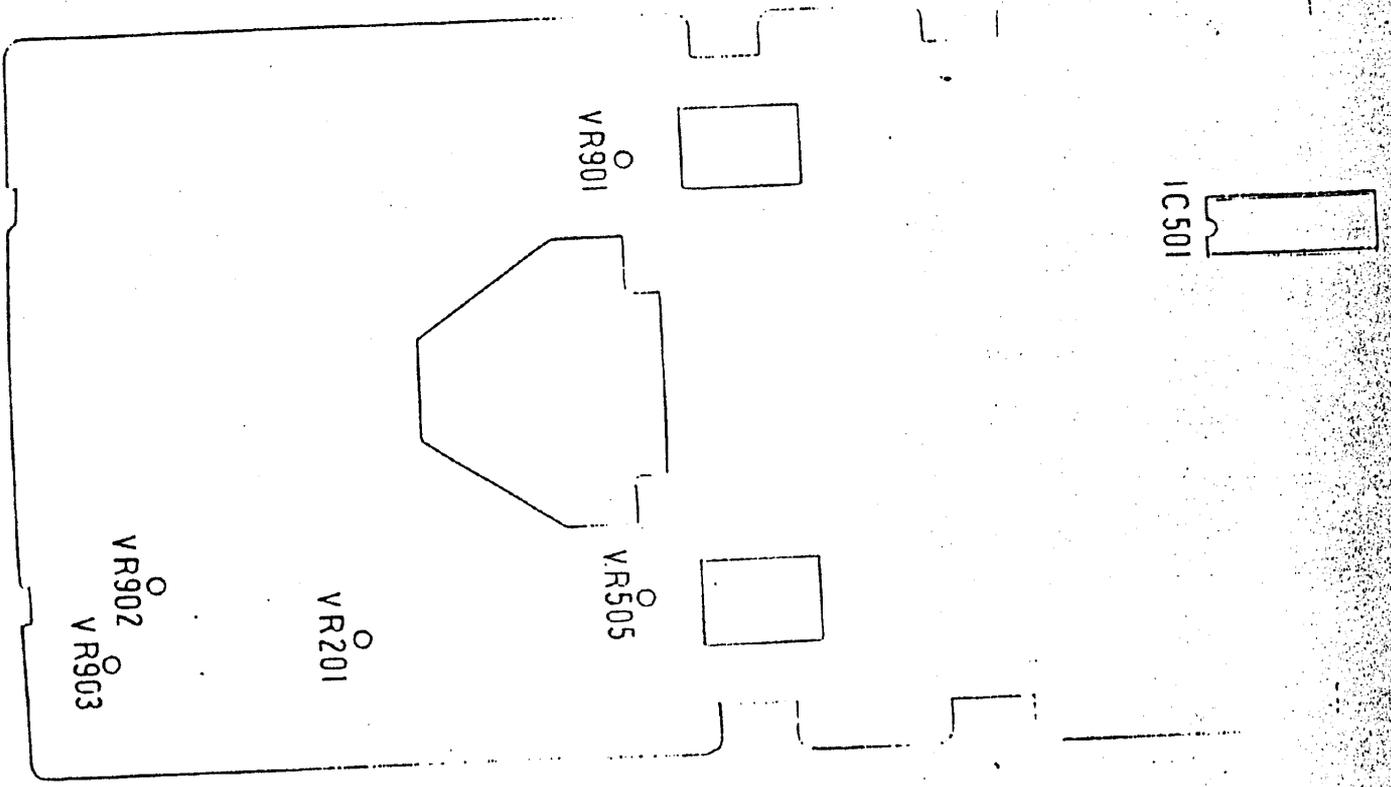
- : RECEIVE AN IMAGE FROM THE VIDEO INPUT
- : SET BOTH CONTRAST AND BRIGHT CONTROLS TO MAXIMUM.
- : ADJUST THE MAGNET SO THAT SHIFT THE BOTTOM 0.5 FRAMES TO THE CENTER OF THE SCREEN

- DY INCLINE ADJUSTMENT

- : RECEIVE AN IMAGE FROM THE VIDEO INPUT
- : SET BOTH CONTRAST AND BRIGHT CONTROLS TO MAXIMUM
- : ADJUST DY SO THE PICTURE IS STRAIGHT AND SECURE THE SCREW



ADJUSTMENT



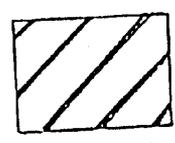
COMPONENT SIDE

1). VR 201 (+10V ADJUSTMENT).

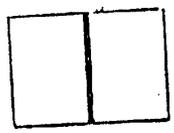
- CONNECT THE DIGITER MULTIMETER TO THE COLLECTOR OF Q201
- ADJUST VR 201 SO THAT THE VOLTAGE IS $10.0 \pm 0.05V$ DC

2). VR 501 (HORIZONTAL. FREQUENCY ADJUSTMENT)

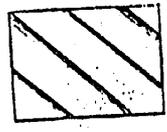
- RECEIVE AN IMAGE FROM THE VIDEO INPUT
- CONNECT THE PIN 16 AND 4 OF IC 501 WITH $10 \mu F/100V$ ELECTICAL CAPACITOR
- CONNECT THE FREQUENCY COUNTER TO THE PIN 3 OF IC 501
- ADJUST VR 501 SO THAT THE FREQUENCY WILL BE OPTIMUM AS SHOWN BELOW



TOO LOW



SUITABLE



TOO HIGH

- DISCONNECT THE CAPACITOR

3). VR 502 (VERTICAL HOLD ADJUSTMENT)

- RECEIVE AN IMAGE FROM THE VIDEO INPUT
- CONNECT THE FREQUENCY COUNTER TO THE PIN 7 OR PIN 10 OF IC 501
- ADJUST VR 502 SO THAT THE FREQUENCY WILL BE OPTIMUM AS SHOWN BELOW
: 55.0 + 1.0KHZ

4). VR 503 (VERTICAL SIZE ADJUSTMENT)

- RECEIVE AN IMAGE FROM THE VIDEO INPUT
- ADJUST VR 503 FOR A BEST VERTICAL SIZE PICTURE

5). VR 504 (KEYSTONE ADJUSTMENT)

- RECEIVE AN IMAGE FROM THE VIDEO INPUT
- ADJUST VR 504 SO THAT VERTICAL LINES ON THE LEFT AND RIGHT OF THE SCREEN ARE VERTICAL AS SHOWN BELOW

6). VR 505 (HORIZONTAL SIZE ADJUSTMENT)

- RECEIVE AN IMAGE FROM THE VIDEO INPUT
- ADJUST VR 505 FOR A BEST HORIZONTAL SIZE PICTURE

7). VR 901, VR 903 (SUB BRIGHT, SCREEN ADJUSTMENT)

- RECEIVE AN IMAGE FROM THE VIDEO INPUT
- SET THE CONTRAST AND BRIGHT CONTROL TO MAXIMUM
- TURN THE VR 903 TO MAXIMUM AND ADJUST VR 901 SO THAT I IS 27 A

8). VR 902 (FOCUS ADJUSTMENT)

- RECEIVE AN IMAGE FROM THE VIDEO INPUT
- SET THE CONTRAST AND BRIGHT CONTROL TO MAXIMUM
- ADJUST VR 902 SO THAT THE CENTER OF THE SCREEN IS IN FOCUS

8. Q. A. REPORT

SECTION	TEST POINT	TEST EQUIPMENT
THE SIZE OF SCREEN	LET EACH ONE SECTION OF LEFT, RIGHT, UPPER AND BELOW SCREEN HAVE ONE ROOM ON THE PATTEN	CHECK THE PATTERN AFTER SETTING THE BUTTON S/W TO MONO SCOPE
FOCUS	CTRAY LABEL FROM ALL DIRECTIONS HAVE TO BE CLEAR ENOUGH AND ALL NUMBERS HAVE TO BE RECOGNIZABLE IN I-CHART	CHECK THE PATTEN AFTER SETTING THE BUTTON S/W TO MONO SCOPE
BRIGHT OPERATION	BRIGHTNESS HAVE TO BE OVER 100 LUX IN HIGH POSITION OF VOLUMES S/W	ON THE PATTERN, CHECK THE BRIGHTNESS BY CONTROLLING BRIGHT VR. BEFORE THIS, PUT CONTRAST VR TO HIGH POSITION
CONTRAST OPERATION	WHEN THE CONTRAST VR. IS CONTROLLED, THE RATE OF CONTRAST HAVE TO BE RESPONDED ACCORDINGLY. AND SCREEN STOP SHOULD NOT BE HAPPENDED	SET TO MONO SCOPE POSITION IN DIGITAL PATTERN GENERATION AND CHECK THE CTRAY PATTERN
CLEARNESS	THE FOCUS OF CENTER HAVE TO BE CLEAR AND THE STANDARD OF THE SIDE IS TO BE OVER 60% OF CENTER	ON THE PATTERN, CONTROL THE KNOB TO THE OPTIMAL SCREEN CONDITION AND CHECK THE CLEARNESS OF THE CENTER OF THE PATTERN.
LINEARITY	HORIZONTAL : LESS 25% VERTICAL : LESS 15%	SET TO CROSS HATCH S/W IN DIGITAL PATTERN GENERATION. AND CHECK THE LINEARITY OF THE SCREEN

9. Q. C STANDARD

SECTION	TEST POINT	STANDARD	REMARK
MONITOR	CONTRAST VR. OPERATION	ACCORDING TO THE CHANGES OF CONTRAST VR. THE SCREEN HAVE TO BE CHANGED ACCORDINGLY. ABRUPT NOISE AND SCREEN STOP SHOULD NOT BE HAPPENED	
	BRIGHT VR. OPERATION	BRIGHTNESS HAVE TO BE CHANGED IN ORDER	
	SCREEN SIZE	ON THE PATTERN, ONE ROW FROM EACH EXTERN SIDE LEFT ITS ROOM	
	LINEARITY	VERTICAL LESS 15% HORIZONTAL LESS 25%	
	OPREATION	DC 12V + 1.2V	