

3G

ONIDA

SERVICE MANUAL

COLOUR TELEVISION

14XS / 20XS / 21IQ

14TVE / 20TVE / 21TVE

21BLACK FGL (FTG)

BASIC CHASSIS

3G(UE-DLX)

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SPECIFICATIONS

- Type : Colour Television Receiver
- Receiving System : PAL - BG or
PAL - BG/I or
PAL - BG/H, SECAM - BG/DK/K1
NTSC Playback (IN AV MODE)
- Channel Coverage : VHF (Low) : Channel 2 to 4
VHF (High) : Channel 5 to 12
UHF : Channel 21 to 69
CATV (Middle): X-Z+2 S1-S10
CATV (Super) : S11-S20
CATV (Hyper) : S21-S41
- Aerial Input Impedance : 75 ohms unbalanced
- Power input
Rated Voltage : 230V AC, 50/60 Hz
- A/V Terminal connections
 - Line Input – Video : 1 Vp-p, 75 ohms (RCA Pin Jack)
 - Audio : 500 mV rms (-4dBs) High
impedance RCA Pin Jack
 - Line Output – Video : 1 Vp-p, 75 ohms (RCA Pin Jack)
 - Audio : 500 mV rms (-4 dBs) High
impedance RCA Pin Jack

	14TVE	14XS	14 Profile	20TVE	20XS	21TVE	20 Profile	21IQ	21 Profile	21FGL
• Power Consumption	70 W	65W	70W	80 W	80W	90 W	85 W	90W	90 W	95 W
• Picture Tube	14" (36 cm)	14" (36 cm)	14" (36 cm)	20" (51 cm)	20" (51 cm)	21" (53 cm)	20" (51 cm)	21" (53 cm)	21" (53cm)	21" (53cm)
• Audio output W PMPO	120	60	120	200	100	200	200	120	200	200
• Dimensions										
Width (mm)	390	365	373	547	506	553	504	553	632	596
Height (mm)	322	365	367	444	469	458	469	458	460	465
Depth (mm)	376	405	385	470	470	477	467	477	477	481
• Weight (Approx.)	11 kg	10kg	10kg	20 kg	19kg	23 kg	19 kg	23kg	23 kg	26 kg

- Accessories : Remote control,
AA size Dry cell battery x 2 Units

Design & specifications subject to change without notice

FEATURES:

14XS –

- **250 PROGRAMS**
- **60W PMPO**
- **DIGINET**
- **HALF MUTE**
- **BLACK STRETCH**
- **CHILD SAFE**
- **DIGITAL CLOCK**
- **ZAP**
- **MUSIC MODE**
- **GAMES**
- **MONO 2 SPK**

20XS –

- **250 PROGRAMS**
- **100W PMPO**
- **DIGINET**
- **HALF MUTE**
- **BLACK STRETCH**
- **CHILD SAFE**
- **DIGITAL CLOCK**
- **ZAP**
- **MUSIC MODE**
- **GAMES**
- **MONO 2 SPK**

21IQ –

- **250 PROGRAMS**
- **120W PMPO**
- **DIGINET**
- **HALF MUTE**
- **BLACK STRETCH**
- **CHILD SAFE**
- **DIGITAL CLOCK**
- **ZAP**
- **MUSIC MODE**
- **GAMES**
- **MONO 2 SPK**

14TVE –

- **250 PROGRAMS**
- **CHILD SAFE**
- **ZAP**
- **AUDIO STATUS MEMORY**
- **120 W PMPO**
- **CHANNEL LOCK**
- **MUSIC MODE**
- **DIGITAL EYE**
- **BASS / TREBLE / BALANCE**
- **GAMES**
- **STEREO PLAYBACK**

20TVE –

- **250 PROGRAMS**
- **CHILD SAFE**
- **ZAP**
- **AUDIO STATUS MEMORY**
- **200 W PMPO**
- **CHANNEL LOCK**
- **MUSIC MODE**
- **DIGITAL EYE**
- **BASS / TREBLE / BALANCE**
- **GAMES**
- **STEREO PLAYBACK**

21TVE –

- **250 PROGRAMS**
- **CHILD SAFE**
- **ZAP**
- **AUDIO STATUS MEMORY**
- **200 W PMPO**
- **CHANNEL LOCK**
- **MUSIC MODE**
- **DIGITAL EYE**
- **BASS / TREBLE / BALANCE**
- **GAMES**
- **STEREO PLAYBACK**

21BLACK FGL (FTG) –

- **FLAT SCREEN**
- **250 PROGRAMS**
- **CHILD SAFE**
- **ZAP**
- **AUDIO STATUS MEMORY**
- **200 W PMPO**
- **DIGINET**
- **CHANNEL LOCK**
- **MUSIC MODE**
- **DIGITAL EYE**
- **BASS / TREBLE / BALANCE**
- **GAMES**
- **DIGITAL CLOCK**

ADJUSTMENT MANUAL

3G (UE-DLX) CHASSIS

NO.	MODEL NAME
1.	14XS, 14TVE
2.	20XS, 20TVE
3.	21IQ, 21TVE
4.	21FLAT3G

NOTE :

- A) Digits specified for the various parameters (not specified as FIX) are closer to the values to be adjusted. The final adjustment should be as per the procedure specified.**
- B) Digits mentioned in the Service Menu should not be changed wherever 'Fix' is mentioned, elsewhere they are subject to change as per procedure specified.**

DATE	APPROVED BY	CHECKED BY	ISSUED
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ADJUSTMENT MANUAL

3G (UE-DLX) CHASSIS

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A d j u s t m e n t M a n u a l		
S e r v i c e m e n u	Adj.Process	
3G(UE-DLX)	M o d e l	ALL

[1] The following display comes on the screen by pressing DISPLAY key and VSM key at the same time.

FACTORY

SERVICE MODE

Then, press CURSOR UP OR DOWN key to be in Service menu. To select Service Menu parameters use CURSOR UP OR DOWN key and to adjust these parameters use CURSOR LEFT OR RIGHT key

H-LINE

- 1) To get H-line press VSM and DISPLAY Simultaneously.
- 2) Press CURSOR UP KEY to get R CUTOFF.
- 3) Press '0' to get H-line.
- 4) To come out of H-line again press '0'.

VSM PRESET

There are FOUR VSM PRESETS.(CARTOON,FILM/POP,NEWS,)

For the setting of individual VSM PRESETS

1. Press VSM and DISPLAY at the same time.
2. Press CURSOR DOWN key to get the Setting for the VSM PRESET.
3. Press CURSOR DOWN key for the selection of each parameter.
4. Use CURSOR LEFT/RIGHT key for their setting as per the table given below.
5. Press VSM Key for selection of VSM PRESETS.

VSM	BRI	CONT	COLR	SHRP	TINT
CARTOON	25	25	32	32	32
NEWS	32	60	39	48	32
SPORTS	25	50	30	42	32
FILM/POP	48	60	52	63	32
DIGITAL EYE					
STAGE1	15	25	26	32	32
STAGE2	17	35	32	32	32
STAGE3	20	40	32	32	32
STAGE4	25	50	32	32	32
STAGE5	32	55	32	32	32
SSM	BASS	TREBBLE			
CARTOON	08	08			
NEWS	12	08			
SPORTS	12	12			
FILM/POP	16	16			

Adjustment Manual		
Service menu	Adj.Process	
3G(UE-DLX)	Model	ALL
PARAMETER	CENTER VALUE'S	
R CUTOFF	75 *	
G CUTOFF	75 *	
B CUTOFF	75 *	
R DRIVE	43 *	
B DRIVE	43 *	
SUB CONTRAST	17 *	
SUB COLOR	0A *	
SUB BASS	10(FIX)	
SUB TREBLE	10(FIX)	
SUB BRIGHT	70 *	
SUB BASS	10FIX	
SUB TREBLE	10 FIX	
SUB TINT	15 *	
VERTICAL SIZE	33 *	
ZOOM SIZE	55 *	
VERTICAL POS	02 *	
H- CENTER 50	07 *	
H- CENTER 60	08 *	
RF AGC	56 *	
VCO	7F Fix	
D TRAP	00 Fix	
F TRAP	00 Fix	
HR	03 *	
CV	09 *	
DT PAL	07 Fix	
DT SECAM	05 Fix	
DT NTSC	05 Fix	
DT BW	07 Fix	
AV TINT	0F Fix	
AV SHARPNESS	0F Fix	
B,G	01 Fix	
I	01 Fix	
D,K,K1	01 Fix	
SECAM	01 Fix	
N3.58	01 Fix	
VIDEO GAIN	05 Fix	
BGPSW	01 Fix (00 FOR SECAM)	
BPF	01Fix	
STEREO	01FIX	
POWER BASS	00 FIX	
SURROUND	00FIX	
SOFT TONE	10 FIX	
GLOWING TONE	10 FIX	
SOUND CURVE	00 FIX	
DIGITAL EYE	01 FIX	
SPRITE	01 FIX	
WHITEBACK	00 Fix	

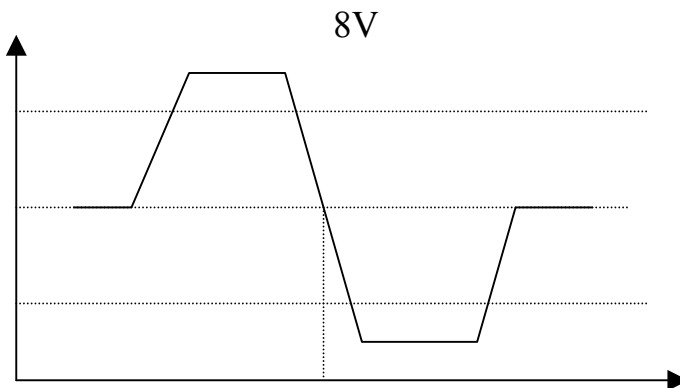
Adjustment Manual			I ² C
Item	VCO Adjustment	Adj.Process	2AL
	3G(UE-DLX)	Model	ALL
Measuring Equipment	* SG (Signal Generator) * Digital multimeter * CRO		
Preparation before Adj.			

Adjustment
Procedure

- 1) Switch ON the TV Set.
- 2) Select colour bar pattern {carrier frequency of 38.9MHz} from pattern generator.
- 3) Connect this signal to the input of Saw Filter(after disconnecting IF output of Tuner)
- 4) Connect Digital Multimeter to AFC out(pin no. 2 of VCD IC52771, IC201)
- 5) Adjust VCO coil in such a way that Digital Multimeter shows 4V(sudden change in voltage reading from 8V)
This voltage should be adjusted whenever there is sudden fall from 8V to 1V as shown

NOTE

- * use non-metallic adjustment tool (eg~ceramic) for adjustment.
- * Correct AFT voltage alignment can be confirmed by monitoring proper waveform at pin no. 38 of VCDIC 52771 IC no. 201./CRO can be also connected to Video OUT terminal.



Adjustment Manual			I ² C
Item	Low light Adjustment	Adj.Process	2AL
	3G(UE-DLX)	Model	ALL
Measuring Equipment			
Preparation before Adj.	* Warm up the receiver for more than 30 minutes.		

Adjustment
Procedure

- 1) Receive the monoscope pattern signal .
- 2) Select either **R CUTOFF** , **G CUTOFF** **B CUTOFF** in the Service menu.
- 4) Push 0 key on any mode to make a horizontal line.
- 5) Turn the screen knob (the Bottom of FBT) gradually from fully left to the right & search for the first appearing colour.
- 6) Adjust two colours except for the first colour which appears by the adjustment 5) to the white colour with the following 1~ 6 key.
- 7) Turn the screen knob so that a horizontal line appear slightly.
- 8) Change the normal screen by pushing 0 key again.
- 9) Receive the pedestal pattern signal
- 10) Readjust the Colour of the pattern to white colour by varying 1~ 6

A d j u s t m e n t M a n u a l			I ² C
Item	High light Adjustment	Adj.Process	2AL
	3G(UE-DLX)	M o d e l	ALL
Measuring Equipment	* Colour Analyzer		
Preparation before Adj.	* Warm up the receiver for more than 30 minutes. * The low light adjustment should be done in advance.		

Adjustment
Procedure

- 1) Receive the monoscope pattern signal .
- 2) Select **R-DRIVE** &/OR **B DRIVE** in the Service Menu.
- 3) Adjust **R-DRIVE** & **B-DRIVE** so that the white balance is at the directed value (Adjustment point “A”).
- 4) Check if the tracking of white balance from Low light till High light is good.

Model	Adjustment point A		
	Colour temperature	X	Y
ALL	9300° K	0.290	0.291

- 5) Receive the pedestal pattern signal .
- 6) Check if the white balance of low light is good. If the white balance of the low light is not good, adjust the low light again.
- 7) Receive the monoscope pattern signal. Repeat step (4) onwards till perfect white balance is achieved in low light and high light patterns.

A d j u s t m e n t M a n u a l			I ² C
Item	Bright Adjustment	Adj.Process	2AL
	3G(UE-DLX)	M o d e l	ALL
Measuring Equipment			
Preparation before Adj.	* Warm up the receiver for more than 30 minutes. * The low light & high light adjustment should be done in advance.		

- Adjustment Procedure
- 1) Receive the Black pedestal pattern signal .
 - 2) Select **Sub Bright** in the Service Menu.
 - 3) Adjust the **Sub Bright** so that the point of below table gradation value does not shine.

Model	Adj.Point
14/20/21"	0%

Note :

While entering in Service Menu ,by default it takes the values of VSM cartoon, hence the above parameter is adjusted with respect to cartoon condition.

Adjustment Manual			I ² C
Item	Contrast Adjustment	Adj.Process	2AL
	3G(UE-DLX)	Model	ALL
Measuring Equipment	* Oscilloscope		
Preparation before Adj.	* Warm up the receiver for more than 30 minutes.		

Adjustment
Procedure

- 1) Receive the Black pedestal pattern signal.
- 2) Connect the probe of the oscilloscope to green cathode.
- 3) Select **Sub Contrast** in the Service Menu.
- 4) Adjust it so that the value between the dot line & white peak of the signal waveform as mentioned below to be the directed voltage as mentioned in the Table below.

Model	Adj.Point
14"	70V
20/21"	80V

Note :

While entering in Service Menu ,by default it takes the values of VSM-cartoon,hence the above parameter is adjusted with respect to cartoon condition.

A d j u s t m e n t M a n u a l			I ² C
Item	Colour Adjustment (PAL)	Adj.Process	2AL
	3G(UE-DLX)	M o d e l	ALL
Measuring Equipment	* Oscilloscope		
Preparation before Adj.	* Warm up the receiver for more than 30 minutes. * Adjust the PICTURE MODE to [DYNAMIC] mode.		

Adjustment

- 1) Receive the PAL colour bar pattern signal .
- 2) Connect the probe of the oscilloscope to green cathode.
- 3) Select **Sub color** in the Service Menu.
- 4) Adjust the **Sub color** so that the value between the white peak & blue as per below table.

Model	Adj.Point
14/20/21"	+3V

Note: While entering in the SERVICE MENU by default it takes the value of VSM cartoon, hence the above parameter is adjusted with respect to cartoon condition.

A d j u s t m e n t M a n u a l			I ² C
Item	Colour Tint Adjustment (NTSC3.58,NTSC4.43)	Adj.Process	2AL
	3G(UE-DLX)	M o d e l	ALL
Measuring Equipment	* Oscilloscope		
Preparation before Adj.	* Warm up the receiver for more than 30 minutes. * Adjust the PICTURE MODE to [DYNAMIC] mode.		

- Adjustment Procedure
- 1) Connect the NTSC Video Colour bar pattern signal (White 75%) to Video input Terminal.
 - 2) Connect the probe of the oscilloscope to BLUE CATHODE.
 - 3) Adjust the **Sub Tint** so that the value between the white peak and Magenta is as per the table shown below.

Model	Adj.point (TINT)
14/20/21''	+5V

Note: While entering in the SERVICE MENU by default it takes the value of VSM cartoon ,hence the above parameter is adjusted with respect to cartoon condition.

A d j u s t m e n t M a n u a l			I ² C
Item	Focus Adjustment	Adj.Process	2AL
	3G(UE-DLX)	M o d e l	ALL
Measuring Equipment			
Preparation before Adj.	* Adjustment of Brightness & Contrast should be done in advance.		

Adjustment
Procedure

- 1) Receive the monoscope pattern signal .
Turn the focus control knob clockwise and anticlockwise (on FBT) watching the screen & adjust it so as to get good, clear and Focused picture.

A d j u s t m e n t M a n u a l			
Item	Vertical Size Adj.	Adj.Process	2AL
	3G(UE-DLX)	M o d e l	ALL
Measuring Equipment			
Preparation before Adj.			

Adjustment

- 1) Receive the monoscope pattern signal.

Procedure

- 2) Select **Vertical Size** in the Service menu.
Adjust **Vertical Size** by varying cursor left/right keys to get 92% of picture size.
- 3) When both up & down lines are located within the 88% ~ 96% range of the standard lines on the monoscope pattern signal, it is OK.

Adjustment Manual			I ² C
Item	Vertical Centering	Adj.Process	2AL
	3G(UE-DLX)	Model	ALL
Measuring Equipment			
Preparation before Adj.			

Adjustment
Procedure

- 1) Receive the monoscope pattern signal.
- 2) Select **Vertical Pos.** option in the Service menu Adjust **Vertical Pos** using cursor left/right in such a way that the centre of monoscope to be the nearest position of CRT centre line.

A d j u s t m e n t M a n u a l			I ² C
Item	Horizontal Centering	Adj.Process	2AL
	3G(UE-DLX)	M o d e l	ALL
Measuring Equipment			
Preparation before Adj.			

Adjustment
Procedure

- 1) Receive the monoscope pattern signal.
- 2) Select **H-Center 50** in Service Menu.
- 3) Adjust it so that H & H' becomes equal as shown below . There is a separate H-centering for AV mode(50 Hz) also.The same can be adjusted in AV mode also.
- 4) Connect the monoscope pattern signal (60Hz) to Video input terminal.
- 5) Select **H-Center 60** in Service Menu adjust it so that H & H' becomes equal as shown below.

Adjustment Manual			I ² C
Item	RFAGC Adjustment	Adj.Process	2AL
	3G(UE-DLX)	Model	ALL
Measuring Equipment	Multimeter		
Preparation before Adj.			

Adjustment
Procedure

Method 1

- 1) Switch ON the TV set
- 2) Apply RF Input to tuner and select color bar pattern.
- 3) For Philips 5V tuner , input signal should be 60dbuV For Samsung 5V tuner input signal should be 70dbuV
- 4) Connect the multimeter to TP.AGC on main board near tuner
- 5) Adjust RFAGC till the voltage is 4Vdc

Method 2

- 1) Receive the PAL colour bar pattern signal (Input level is 75dB μ V term)
- 2) Adjust **RF AGC** so that Noise is min, on picture or VIDEO OUT.
- 3) Receive the PAL halfcolour bar pattern signal (Input level is 80dB μ V term)
- 4) Make sure that there is no beat on the picture.

Adjustment Manual			
Item	High Voltage Confirmation	Adj.Process	2AL
	3G(UE-DLX)	Model	ALL
Measuring Equipment	* High Voltage meter		
Preparation before Adj.	* Warm up the set sufficiently before adjustment.		

Adjustment

Procedure DON'T SWITCH ON THE TV SET. / SWITCH OFF THE SET

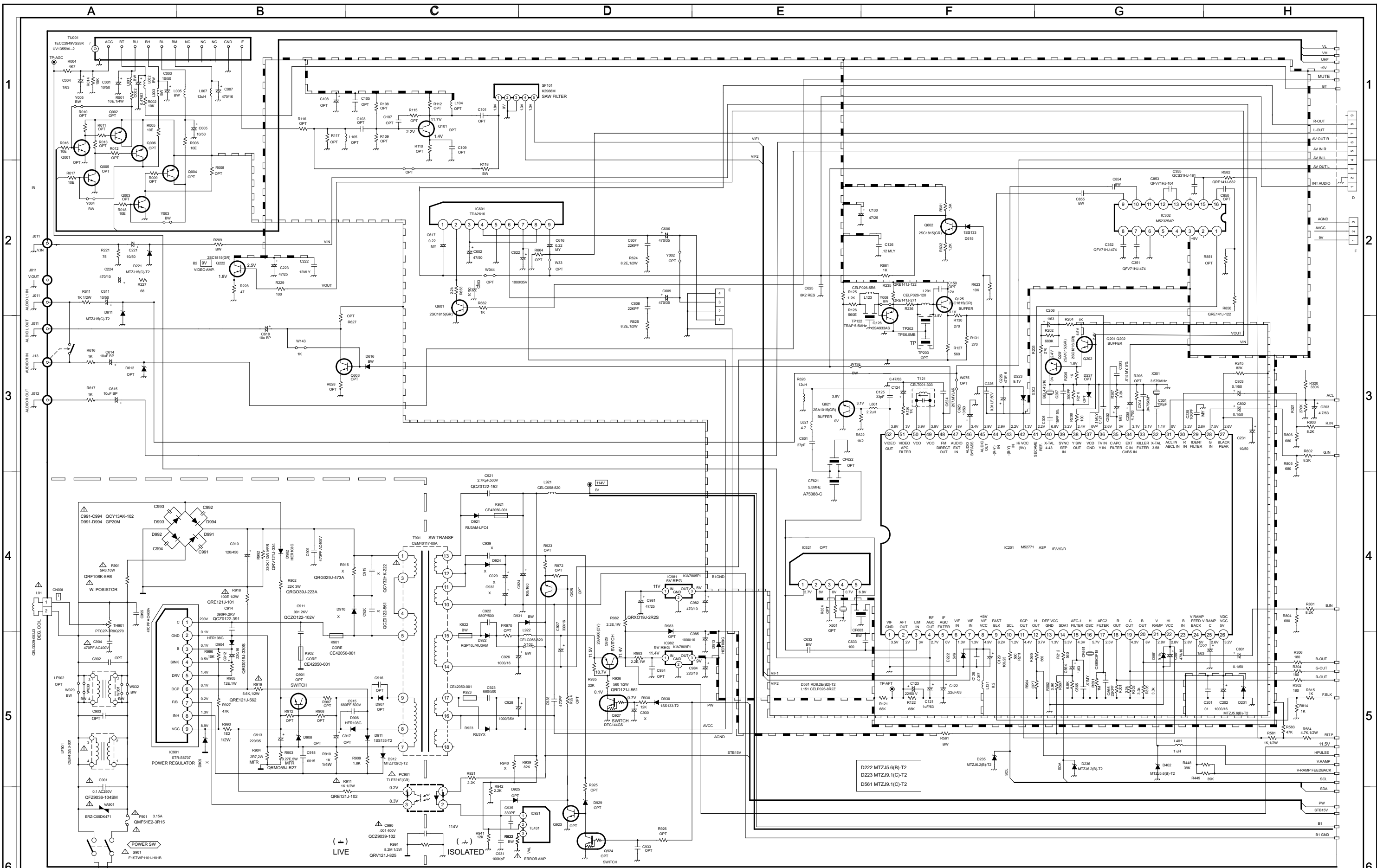
- 1) Connect the earth clip of the high voltmeter to the chassis.
- 2) Connect the probe of High Voltage meter to the anode of the CRT.
- 3) Switch ON the Set & receive the monoscope signal and check for the High Voltage meter reading is as per the table given below.

MODEL	LOWER LIMIT	STANDARD	UPPER LIMIT
14"	22KV	23KV	24KV
20"	25 KV	26 KV	28 KV

- 4) Disconnect the probe side first & next the earth side.

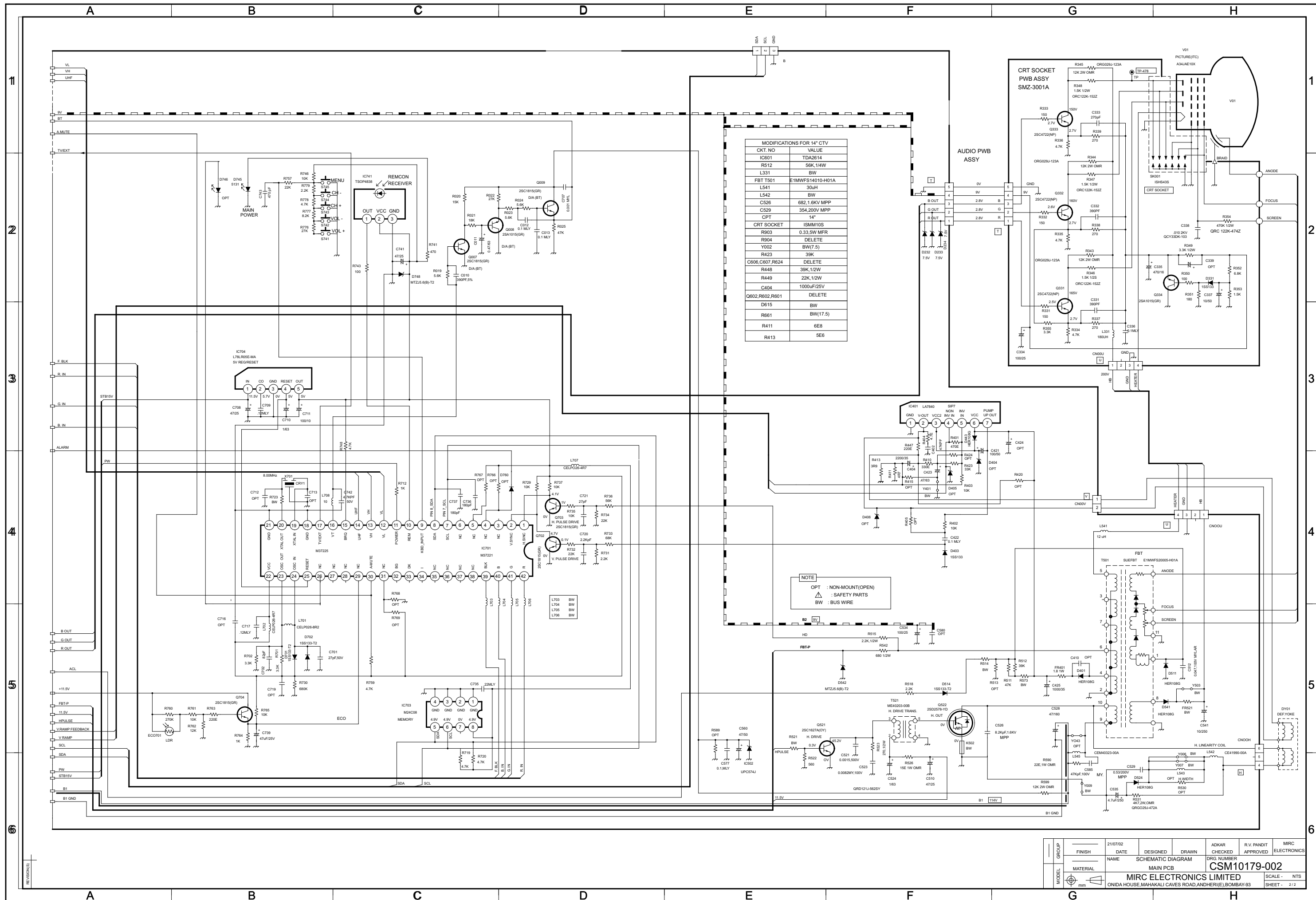
NOTE : Electrostatic type of the high voltmeter should be used as the measuring apparatus.

However when a high voltmeter with 1000M Ω input resistance is used, the value should be read 0.3kV lower than the measured value.



MAIN PWB ASS'Y

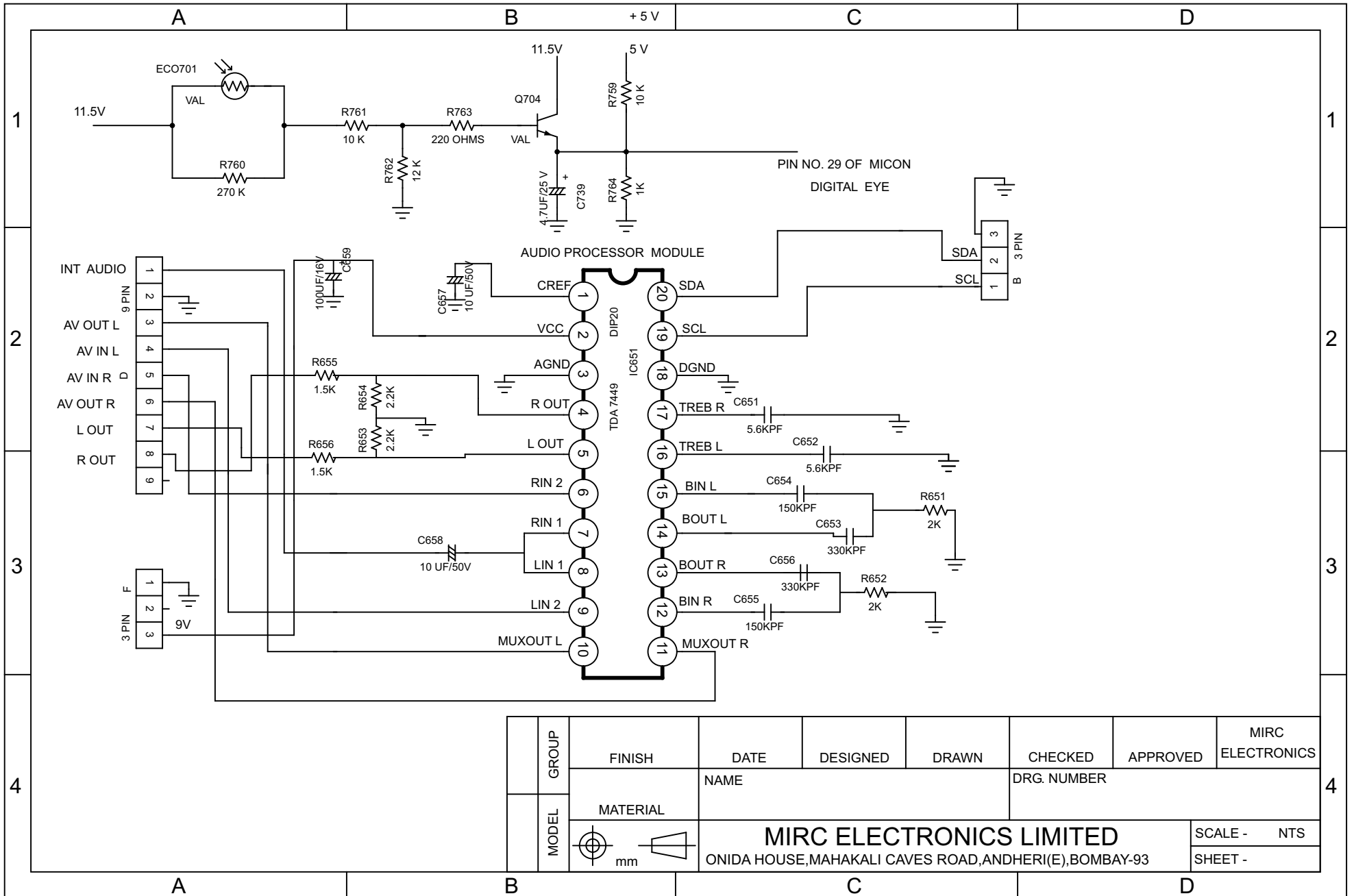
GROUP	FINISH	DATE	DESIGNED	DRAWN	ADKAR	R.V.PANDIT	MIRC
		21/07/02			CHECKED	APPROVED	ELECTRONICS
			NAME SCHEMATIC DIAGRAM		DRG NUMBER		
			MATERIAL MAIN PCB		CSM10		
MIRC ELECTRONICS LIMITED							SCALE - NTS
ONIDA HOUSE, MAHAKALI CAVES ROAD, ANDHERIE (E), BOMBAY-93							SHEET - 1/2




CKT. NO	VALUE
IC601	TDA2614
R512	56K,1/4W
L331	BW
FBT T501	E1MWFS14010-H01A
L541	30uH
L542	BW
C526	682.16KV MPP
C529	354.200V MPP
CPT	14"
CRT SOCKET	ISMM10S
R903	0.33.5W MFR
R904	DELETE
Y002	BW(7.5)
R423	39K
C606,C607,R624	DELETE
R448	39K,1/2W
R449	22K,1/2W
C404	1000uF/25V
Q602,R602,R601	DELETE
D615	BW
R661	BW(17.5)
R411	6E8
R413	5E6

NOTE
 OPT : NON-MOUNT(OPEN)
 Δ : SAFETY PARTS
 BW : BUS WIRE

GROUP	FINISH	21/07/02	DESIGNED	DRAWN	ADKAR	R.V. PANDIT	MIRC
MODEL	NAME	SCHEMATIC DIAGRAM	DRG. NUMBER	C5M10179-002	CHECKED	APPROVED	ELECTRONICS
	MATERIAL	MAIN PCB					
	MIRC ELECTRONICS LIMITED						SCALE - NTS
	ONIDA HOUSE, MAHAKALI CAVES ROAD, ANDHERI(E), BOMBAY-93						SHEET - 2/2



GROUP	FINISH	DATE	DESIGNED	DRAWN	CHECKED	APPROVED	MIRC ELECTRONICS
	NAME					DRG. NUMBER	
MODEL	MATERIAL						SCALE - NTS
 MIRC ELECTRONICS LIMITED ONIDA HOUSE, MAHAKALI CAVES ROAD, ANDHERI(E), BOMBAY-93							SHEET -

* - - THIS CIRCUIT DIAGRAM PAGE IS APPLICABLE FOR STEREO MODELS ONLY



**14XS/20XS/21IQ
14TVE/20TVE/21TVE
21BLACK FGL (FTG)**