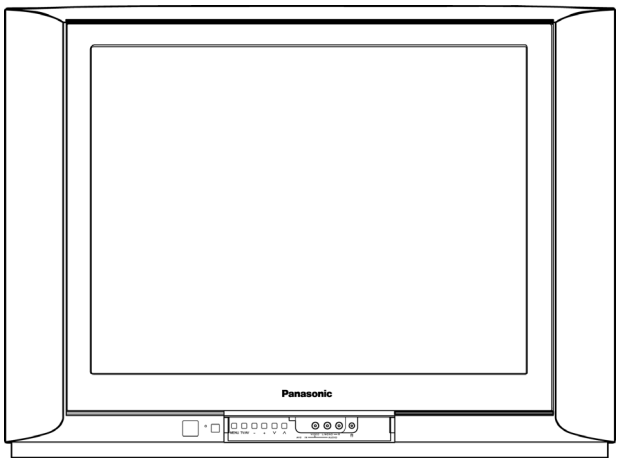
ORDER NO. MTV0701517CE

Service Manual

Colour Television



TC-21GX30P

GL1 Chassis

Specifications

Power Source :	AC AUTO 110-240V, 50/60 Hz
Power Consumption :	58W
Aerial Impedance :	75Ω unbalanced
	Coaxial type
Receiving System :	17 Systems
Receiving Channels :	
VHF	2-13(U.S.A Standard)
UHF	14-69(U.S.A Standard)
CATV	1-125(U.S.A Standard)
Audio Terminal :	
DVD	
Y	1.0 Vp-p, 75Ω
PB	0.7 Vp-p, 75Ω
PR	0.7 Vp-p, 75Ω
AV 1, 2	
Video In	1 Vp-p, 75Ω
Audio In	Approx. 0.5V, 47kΩ
Monitor Out	
Video Out	1 Vp-p, 75Ω
Audio Out	Approx. 0.5V, 1kΩ
High Voltage :	27.5kV ±1.5
	at zero beam current
Picture Tube :	A51LYZ395X65
	50.5cm (21 inches)
	Measured diagonally,
	90° deflection
Audio Output :	5W + 5w = 10W
Dimensions :	Height : 472 mm
	Width : 598 mm
	Depth : 479 mm
Mass :	22.5 kg (Net Wt.)

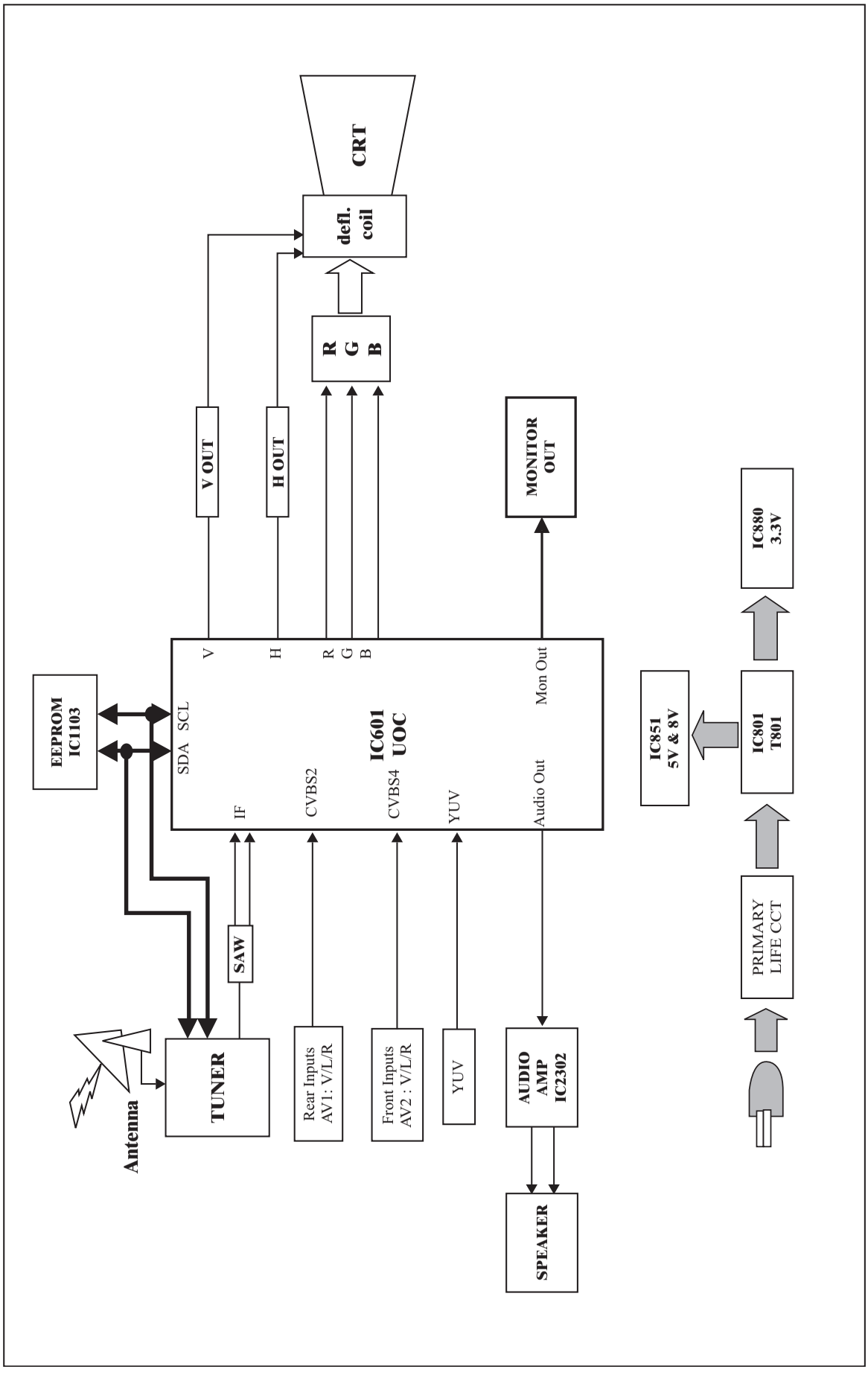
Specifications are subject to change without notice.
Mass and dimensions shown are approximate.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

1.5. GL1 Chassis Block Diagram



GL1
TC-21GX30
CIBIRAMA
Acapulco
*IC1103
*IC601
TDA21400NDW
*IC2302
AN17820B
AUDIO AMP
*IC851
*IC880
*IC451
AN15525A
*IC802
*IC801A
STRW6754
Q520
Q580
Q581
Q400
El circuito OCP se activa por Q520 que tiene la función de monitor es del tipo PNP que en condiciones normales mantiene un estado bajo en su colector este nivel llega a la base de Q580 que es el receptor el cual provocara una inversión de fase es decir si llega a su base un nivel bajo entonces en su colector tenemos un nivel alto, el pulso del colector se aplicara a la base de Q581 que denominamos monitor final de pulsos, este también realiza una inversión de fases es decir si le llega un nivel alto a la base en su colector marcara un nivel bajo que finalmente llegara al pin 22 de IC601 mediante este pin IC601 esta programado para interpretar que mientras llegue un nivel bajo no habrá falla en la fuente de b+ y los circuitos que depende de esa fuente, pero, si llega a un nivel alto provocara un estado de protección de dicho tv
La unidad una vez, apretando el encendido, prendia y por 4 segundos se iba en shutdown, quedando parpadeando el led en rojo en intervalos de cada 5 segundos, se supone que esto es cuando pin 22 del micro IC601 ha detectado sobrevoltaje (AF-EHT).
Q400 juega un papel importante aqui, un sobrevoltaje o deficiencia en los 5 vdc o 3.3vdc, dispara los transistores Q580 y Q581, asi que Q400 fue reemplazo estaba abierto de base a emisor.
Recuerden! en el colector del Q581 debe haber 0v, cuando la unidad trabaja bien. Cualquier anomalia como he mencionado, altera este voltaje excitando el micro y apaga la unidad yendose a "proteccion".
AF-EHT 0v
alto
bajo
5v solo cuando enciende
3.3v siempre
Checar este tambien
11v
140v
13v
AJ-AVR
Primero que todo,el voltaje de stand-by debe estar presente, en reg. IC880 debe regular todo el tiempo en stand-by pin 4 a 3.3vdc que basicamente suministra al micro para su funcion.
El reg. IC851 (igual circuito al anterior), regula a 5vdc unicamente cuando la unidad enciende, a la vez este IC es monitoreado directo del pin 73 (AJ-AVR) al pin 1 (CTRL) del mismo IC851.
D846 y D847 son zener de igual valor 8.2vdc 1 watt. El B+ esta presente 141vdc unicamente cuando la unidad esta encendida o pretende encender; por 3-4 seg. en stand-by hay aproximadamente 15vdc.
C818
1uf
50v
filamento
215v
DEFLECTION YOKE
MONITOR-OUT

2 Service Hints

2.1. Service Position for E-Board

1. Remove the back cover.
2. Stand the TV set as shown in Fig. 2.
3. Remove the A-Board from the TV set by pulling the main board out as shown in Figure 2.

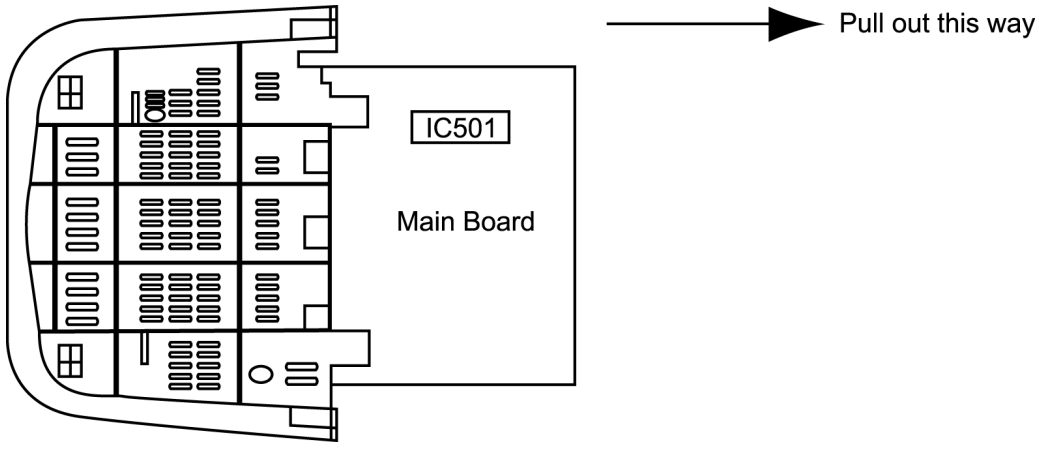
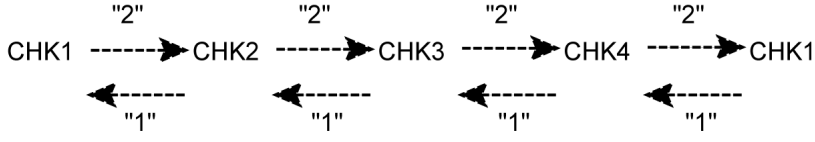


Fig. 2

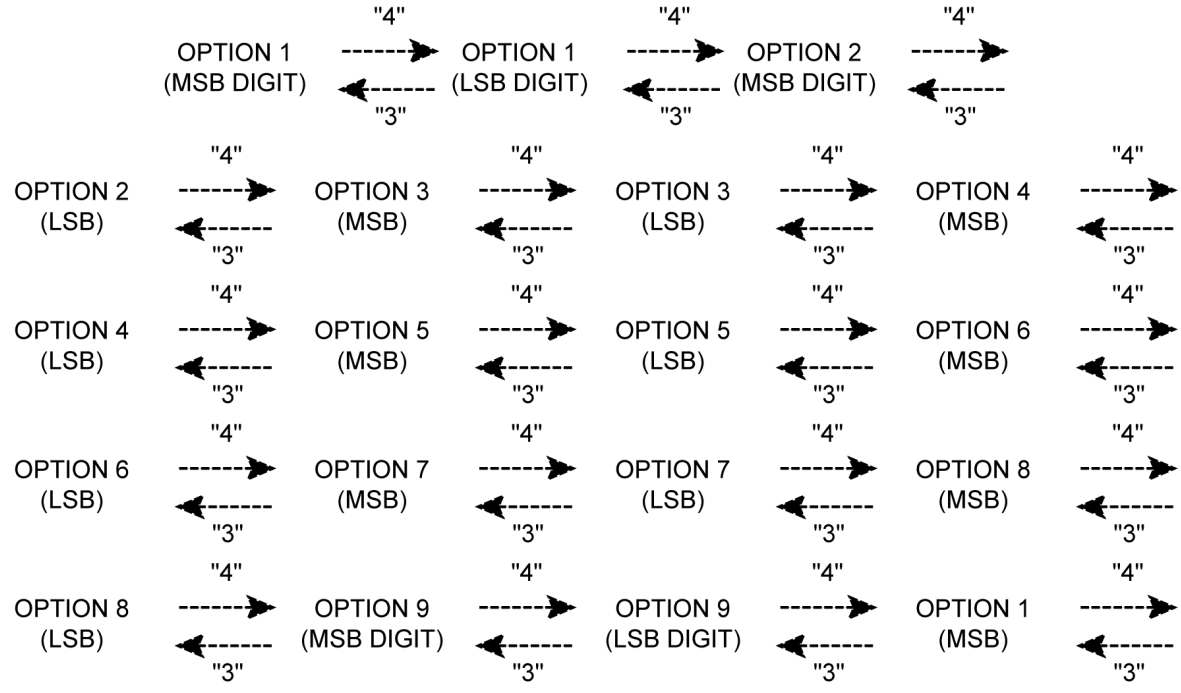
2.2. Factory Mode Adjustment

1. Adjustment.
   a. Set Timer ON (30 minutes)
      Press remote's RECALL & panel's vol down key simultaneously to select service mode.
   b. CHK should appear on right side of TV screen.
      After few seconds CHK 1 should appear on right side of TV screen.

      NOTE :
      To move from CHK 1 to CHK 2 mode, etc, please follow below rotation:-



   c. CHK 1
      Press digit key "4" to move option mode forward.
      Press digit key "3" to move option backward.
      The function rotation will be as follows :-

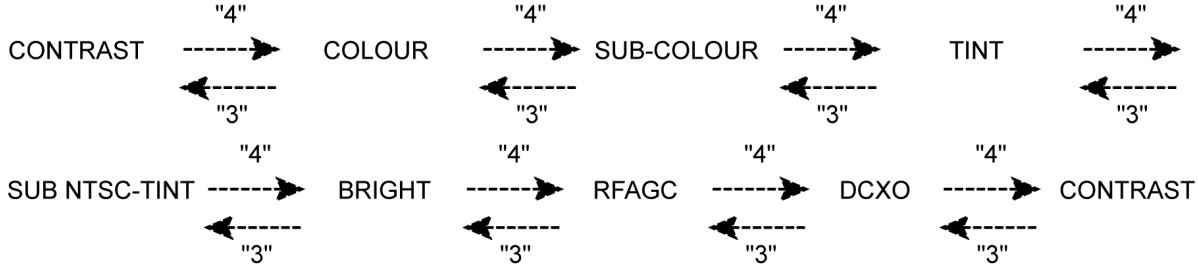


d. After selecting the required option mode press Vol up / Vol down to adjust correct option. OSD will change to RED colour. Press digit “0” to memorize data.

e. CHK2

Press digit key “2” to move forward to CHK2.

The function rotation will be as follows:-



f. Press digit key “4” to move forward from Colour ------> Sub-Colour, etc.

Press digit key “3” to move backward from Sub-Colour ------> Colour, etc.

g. Press volume up / volume down to adjust setting.

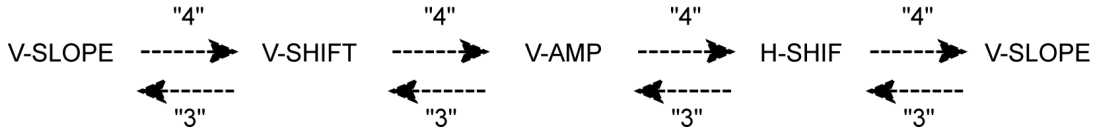
h. Press digit key “5” to make the AKB OFF (Blue OSD) - first time.

Press digit key “5” to make the AKB On (White OSD) - second time.

i. CHK3

Press digit key “2” to move forward to CHK 3.

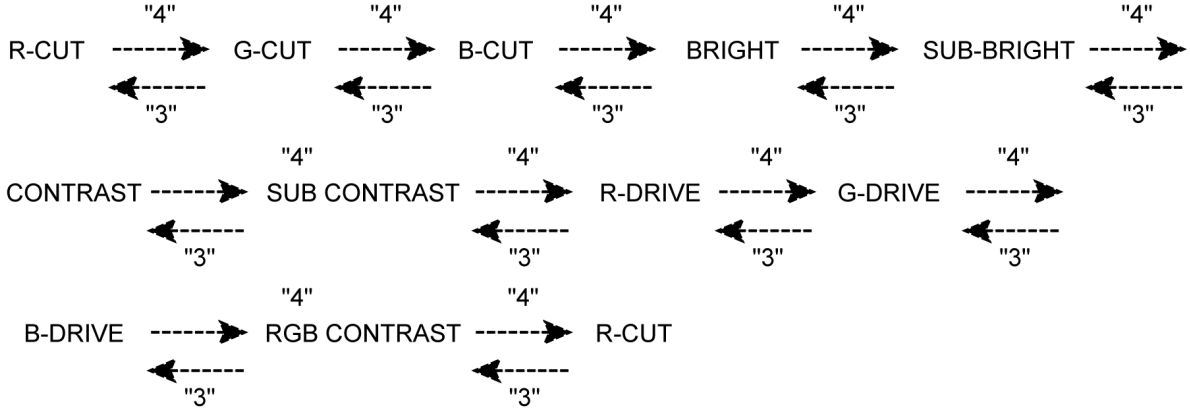
The function rotation will be as follows:-



j. Press digit key “4” to move forward from V-SLOPE ------> V-SHIFT
Press digit key “3” to move backward from V-SHIFT ------> V-SLOPE

k. Press volume up / volume down to adjust required setting.

l. CHK4
Press digit key “2” to move forward to CHK 4.
The function rotation will be as follows:-



m. Press digit key “4” to move forward from R-CUT ------> G-CUT
Press digit key “3” to move backward from G-CUT ------> R-CUT

n. After selecting the required mode, press volume up / volume down to adjust required setting.

o. Press digit key “5” to make the AKB OFF and H-Line mode - first time.
Press digit key “5” to make the AKB ON and Normal picture - second time.

p. After finish adjustment, press Power ON / OFF button on remote control to go to normal TV mode.

2. HOW TO CHANGE CHANNEL BY I2C BUS CONTROLLER

a. Short FA1 and FA2

b. Select Slave address ‘70H’, Sub-address ‘43H’ for RF AGC.

* Example :

Slave Address = 70H’, Sub-Address = 43H’

Data = 80H’ = Center

2.3. Adjustment for White Balance

Preparation:

1. Receive the white balance pattern and aging should have been performed over 30 minutes.
2. Set the picture menu to DYNAMIC NORMAL.
3. Degausse the CRT face.
4. Fix the CRT colour analyzer receiver unit to CRT face.

Adjustment of Low Light.

1. Adjustment Sub Bright, so that Y = 6.3 ± 1.0 nit.
2. Adjustment R-CUT OFF, so that X = 0.233 ± 0.015 nit.
3. Adjustment G-CUT OFF, so that Y = 0.235 ± 0.015 nit.

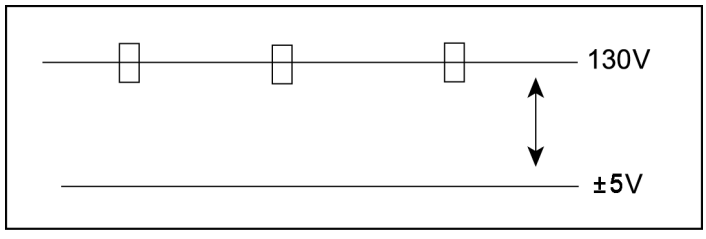
Adjustment of High Light

1. Adjustment Sub Bright, so that Y = 150 nit.
2. Adjustment R-Drive, so that X = 0.262 ± 0.010 nit.
3. Adjustment G-Drive, so that Y = 0.264 ± 0.010 nit.

2.4. Adjustment for CRT CUT OFF

Preparation:

1. Connect the oscilloscope probe to TPL5.
2. Screen VR min.
3. Set the data Sub Bright, Bright.
4. In service Mode at “Bright” dac press [5] in factory mode to enter vertical line and adjust by volume down or up button.
5. Adjust “Screen VR” until 1-H Line appears.



2.5. Adjustment Procedure

2.5.1. +B Voltage

Item / preparation

1. Operate the TV set.
2. Set control as follows :

   Brightness ..... minimum

   Contrast ..... minimum

Adjustment procedure

1. Confirm the DC voltage at the indicated test points, as follows :

   TPA 10 : 141 ± 1.5V

   TPA 12 : 3.3 ± 0.5V

   TPA 09 : 5 ± 1V

2.5.2. High Voltage

Item / preparation

1. Receive the crosshatch pattern.
2. Set to 0 Beam.

   Screen VR ..... minimum

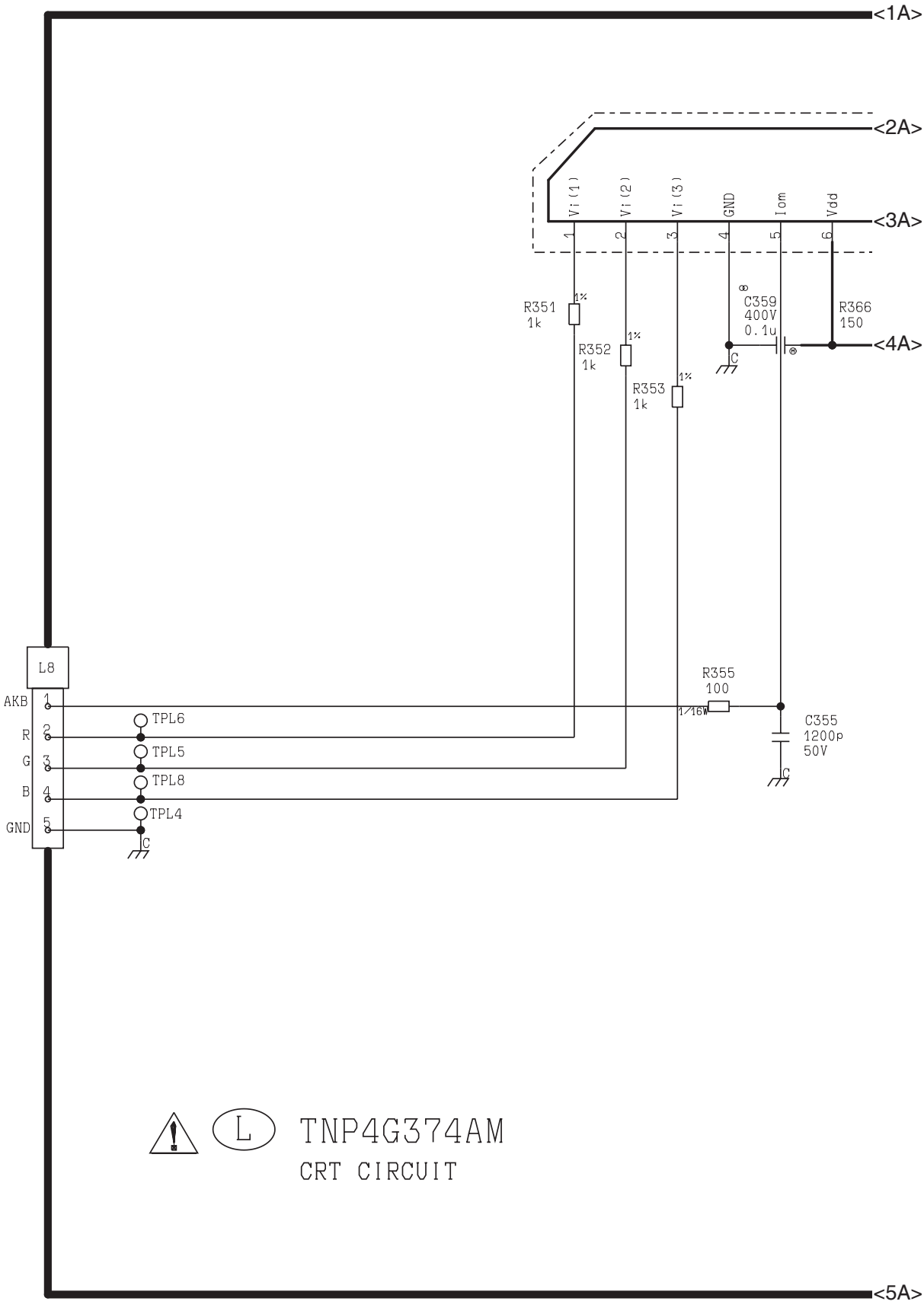
   Contrast ..... minimum

Adjustment procedure

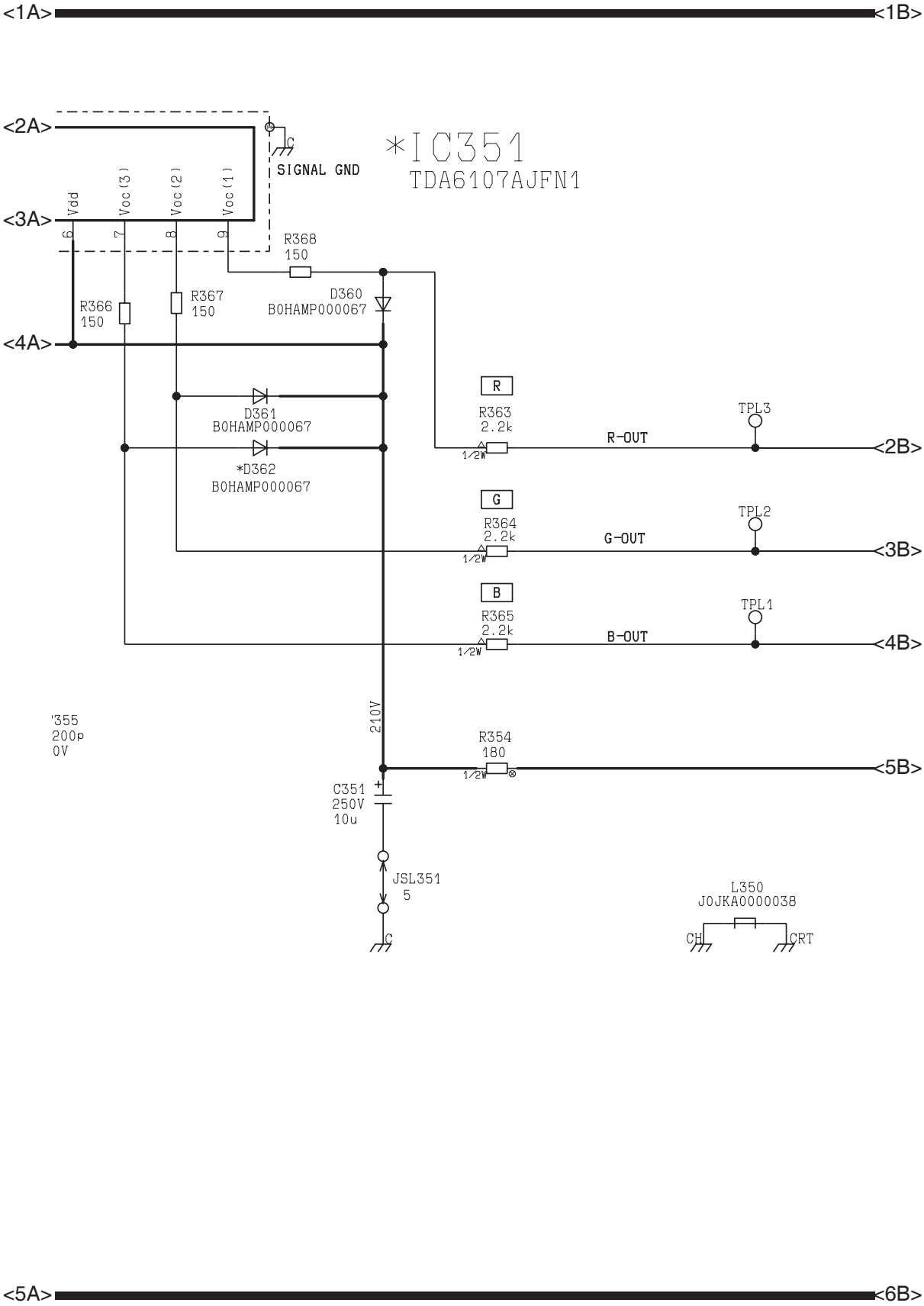
1. Connect a DC voltage meter to TPA 10 and confirm the +B voltage is 141.0 ± 1.5V.
2. Connect a high frequency voltmeter to heater and confirm that voltage reads 6.3 ± 0.24 (VRMS).
3. Normalize the brightness and contrast.

4.2. L Board

4.2.1. L Board (1/3)



4.2.2. L Board (2/3)



4.2.3. L Board (3/3)