

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

The SERVICE MODE dose not funtion if the clock has been set.

if so, unplug AC cord to set the clock to the nonclock setting mode.

To enter the Service Mode, press both set key and remote control key for more than 1 second.

Set Key	Remocon Key	Operations
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	6	POWER ON total hours is displayed on the screen. Refer to the "CONFIRMATION OF USING HOURS". Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
VOL. (-) MIN	7	Releasing of PROTECTION PASSWORD.
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

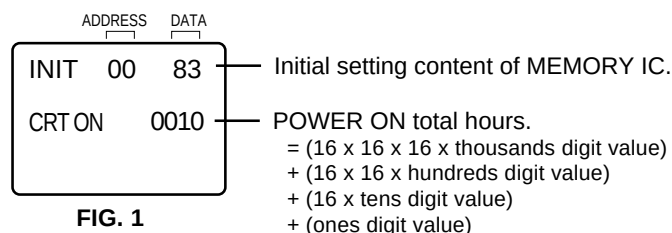
CONFIRMATION OF USING HOURS

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

NOTE: The confirmation of USING HOURS does not function if the clock has been set.

If so, unplug AC cord to set the clock to the nonclock setting mode.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second.
3. After the confirmation of using hours, turn off the power.



NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE:

- The confirmation of USING HOURS does not function if the clock has been set.
If so, unplug AC cord to set the clock to the nonclock setting mode.
- No need the setting for after INI F3.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
E0	-	-	-	-	0A	00	00	00	F4	94	60	D0	13	28	00	00
F0	00	00	00	00												

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 2 seconds.
ADDRESS and DATA should appear as FIG 1.
3. ADDRESS is now selected and should "blink". Using the SET + or - keys on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using SET + or - until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.
The unit will now have the correct DATA for the new MEMORY IC.

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

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

Prepare the following measurement tools for electrical adjustments.

1. Synchro Scope
2. Digital Voltmeter
3. Color Bar Generator

2. BASIC ADJUSTMENTS

On-Screen Display Adjustment

1. Unplug AC cord to set the clock to the nonclock setting mode. And then set the volume to minimum.
2. Press both VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 1 second to appear the adjustment mode on the screen as shown in **Fig. 2-1**.

NOTE

Use the Channel buttons **(1-8)** on the remote control to select the options shown in **Fig. 2-1**.
Press the Channel button **(0)** on the remote control to end the adjustments.

1. H/V
2. AKB
3. COLOR TEMP
4. PICTURE
5. OTHERS
6. TEST PATTERN
- 7.
8. (VOL TEST) 0. END

Fig. 2-1

2-1: RF AGC DELAY

1. Receive monoscope pattern.
2. Connect the digital voltmeter to **pin 5 of CP101**.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
4. Press the channel button **(2)** on the remote control to select "RF AGC RELAY".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is $1.4 \pm 0.05V$.

1. AGC AUTO
2. RF AGC DELAY
3. VIDEO LEVEL
4. FM LEVEL
5. OSD H
6. CUT OFF
- 7.
- 8.
0. RETURN

Fig. 2-2

2-2: VCO

1. Receive the color bar pattern.
2. Connect the digital voltmeter to **TP202**.
3. Adjust the **L204** until the digital voltmeter is $3.5 \pm 0.05V$.

2-3: CUT OFF

1. Place the set with Aging Test for more than 15 minutes.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
5. Press the channel button **(6)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-4: FOCUS

1. Using the remote control, set the brightness and contrast to normal position.
2. Receive the monoscope pattern.
3. Turn the Focus Volume fully counterclockwise once.
4. Adjust the **Focus Volume** until picture is distinct.

2-5: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustments.

Place the set with Aging Test for more than 10 minutes.

1. Receive the white 100% signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(2)** on the remote control to select "AKB". The **Fig. 2-3** appears on the display. Press the channel button **(2)** on the remote control to select the "R.BIAS".
4. Using the VOL. UP/DOWN on the remote control, adjust the R.BIAS.
5. Press the CH. UP/DOWN button on the remote control to select the "G.BIAS", "B.BIAS", "R.DRIVE", or "B.DRIVE".
6. Using the VOL. UP/DOWN button on the remote control, adjust the G.BIAS, B.BIAS, R.DRIVE or B.DRIVE.
7. Perform the above adjustments 7 and 8 until the white color is looked like a white.

ELECTRICAL ADJUSTMENTS

1. AKB AUTO
2. R. BIAS
3. G. BIAS
4. B. BIAS
5. R. DRIVE
6. G. DRIVE
7. B. DRIVE
- 8.
0. RETURN

Fig. 2-3

2-6: BRIGHTNESS

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(4)** on the remote control to select "PICTURE". The **Fig. 2-4** appears on the display.
4. Press the channel button **(1)** on the remote control to select "BRIGHT".
5. Press the VOL. UP/DOWN button on the remote control until the white 25% is starting to be visible.
6. Receive the monoscope pattern. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

1. BRIGHT
2. CONTRAST
3. COLOR
4. TINT
5. SHARPNESS
6. OSD CONT
- 7.
- 8.
0. RETURN

Fig. 2-4

2-7: COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP802**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(4)** on the remote control to select "PICTURE". The **Fig. 2-4** appears on the display.
5. Press the channel button **(3)** on the remote control to select "COLOR".
6. 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.
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 3.2 scales (85%) $\pm$ 5% for the white level. (**Refer to Fig. 2-5**)
8. Receive the color bar pattern. (Audio Video Input)
9. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustment 2~7.

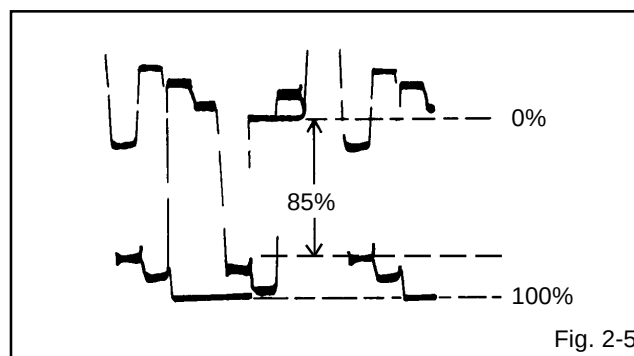


Fig. 2-5

2-8: CONTRAST

1. Receive the monoscope pattern.
2. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(4)** on the remote control to select "PICTURE". The **Fig. 2-4** appears on the display.
3. Press the channel button **(2)** on the remote control to select "CONTRAST".
4. Press the VOL. UP/DOWN button on the remote control until the bar step is set to the "24".

2-9: HORIZONTAL PHASE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-6** appears on the display.
4. Press the channel button **(1)** on the remote control to select "H. PHASE".
5. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left screen edges are equal.

1. H. PHASE
2. H. BLK
3. V. SIZE
4. V. POSI
5. V. LIN 50/60
6. V. SC 50/60
7. V. COMP
8. (H. FREQ)
0. RETURN

Fig. 2-6

2-10: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-6** appears on the display.
4. Press the channel button **(4)** on the remote control to select "V. POSI".
5. Press the VOL. UP/DOWN button on the remote control until the horizontal line of the monoscope comes to approximate center of the CRT.

ELECTRICAL ADJUSTMENTS

2-11: VERTICAL SIZE

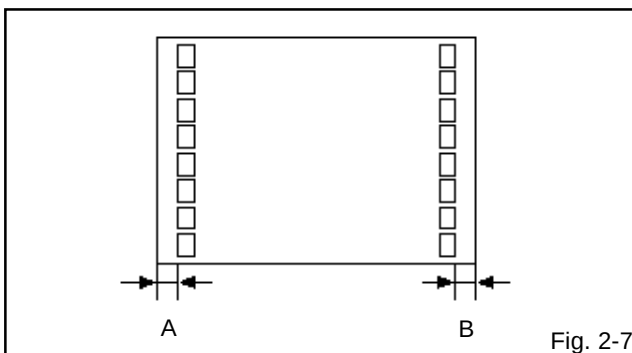
1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-6** appears on the display.
4. Press the channel button **(3)** on the remote control to select "V. SIZE".
5. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes $8 \pm 3\%$.

2-12: VERTICAL LINEALITY

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(1)** on the remote control to select "H/V". The **Fig. 2-6** appears on the display.
4. Press the channel button **(5)** on the remote control to select "V. LIN 50/60".
5. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.
6. Receive the monoscope pattern. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

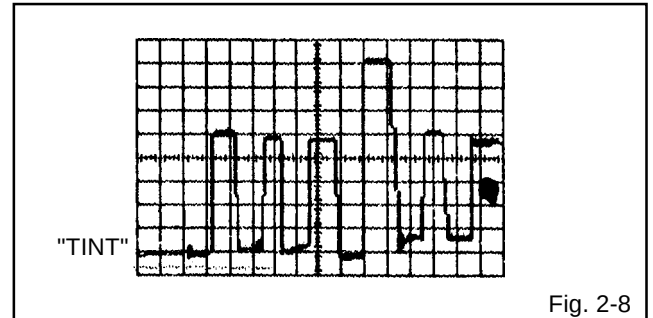
2-13: OSD HORIZONTAL

1. Using the remote control, set the brightness and contrast to normal position.
2. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(5)** on the remote control to select "OTHERS". The **Fig. 2-2** appears on the display.
3. Press the channel button **(5)** on the remote control to select "OSD H".
4. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum.
(Refer to Fig. 2-7)



2-14: TINT

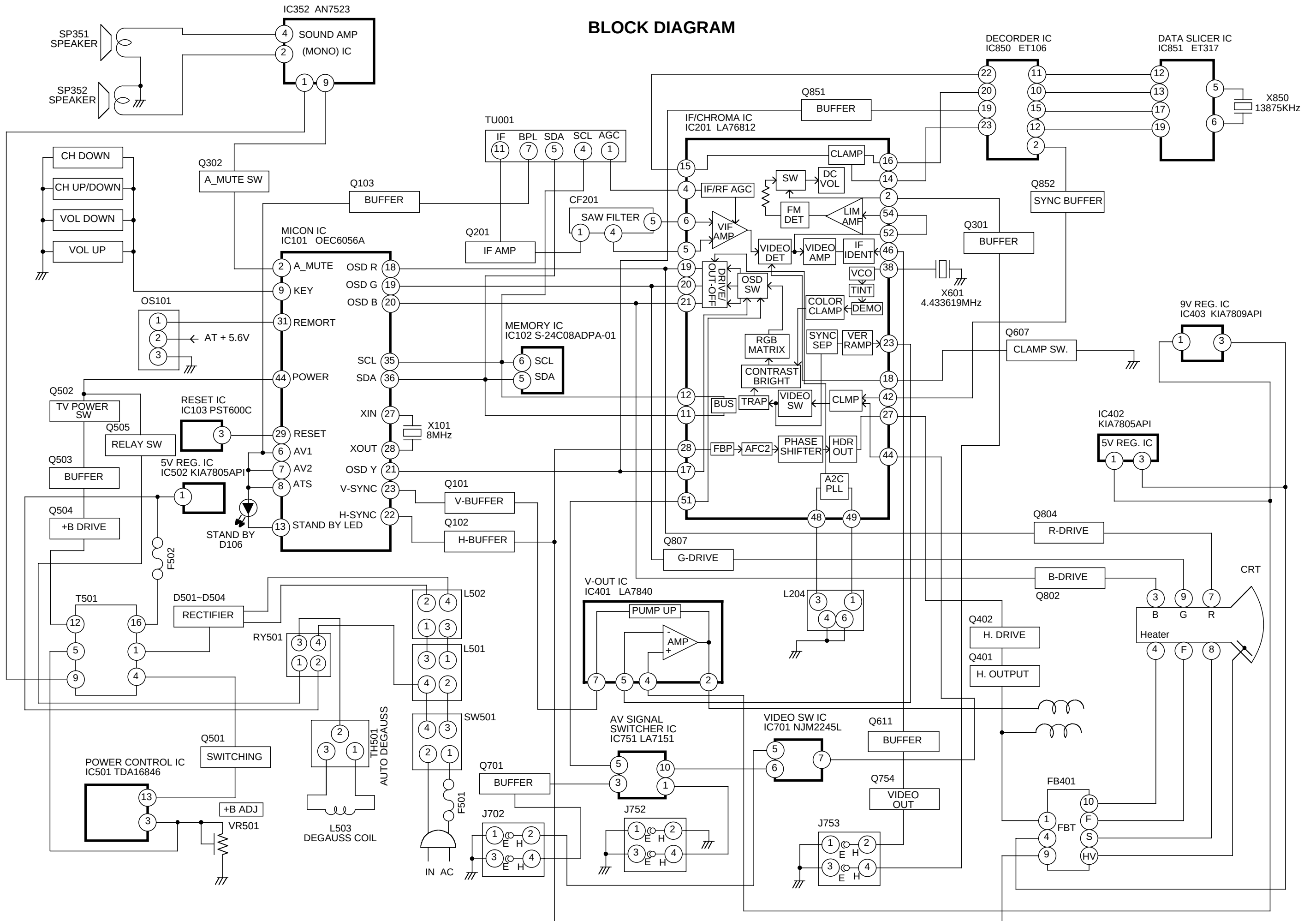
1. Receive the color bar pattern.(Audio Video Input)
2. Connect the oscilloscope to **TP801**.
3. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(4)** on the remote control to select "PICTURE". The **Fig. 2-4** appears on the display.
4. Press the channel button **(4)** on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the waveform becomes as shown in **Fig. 2-8**.



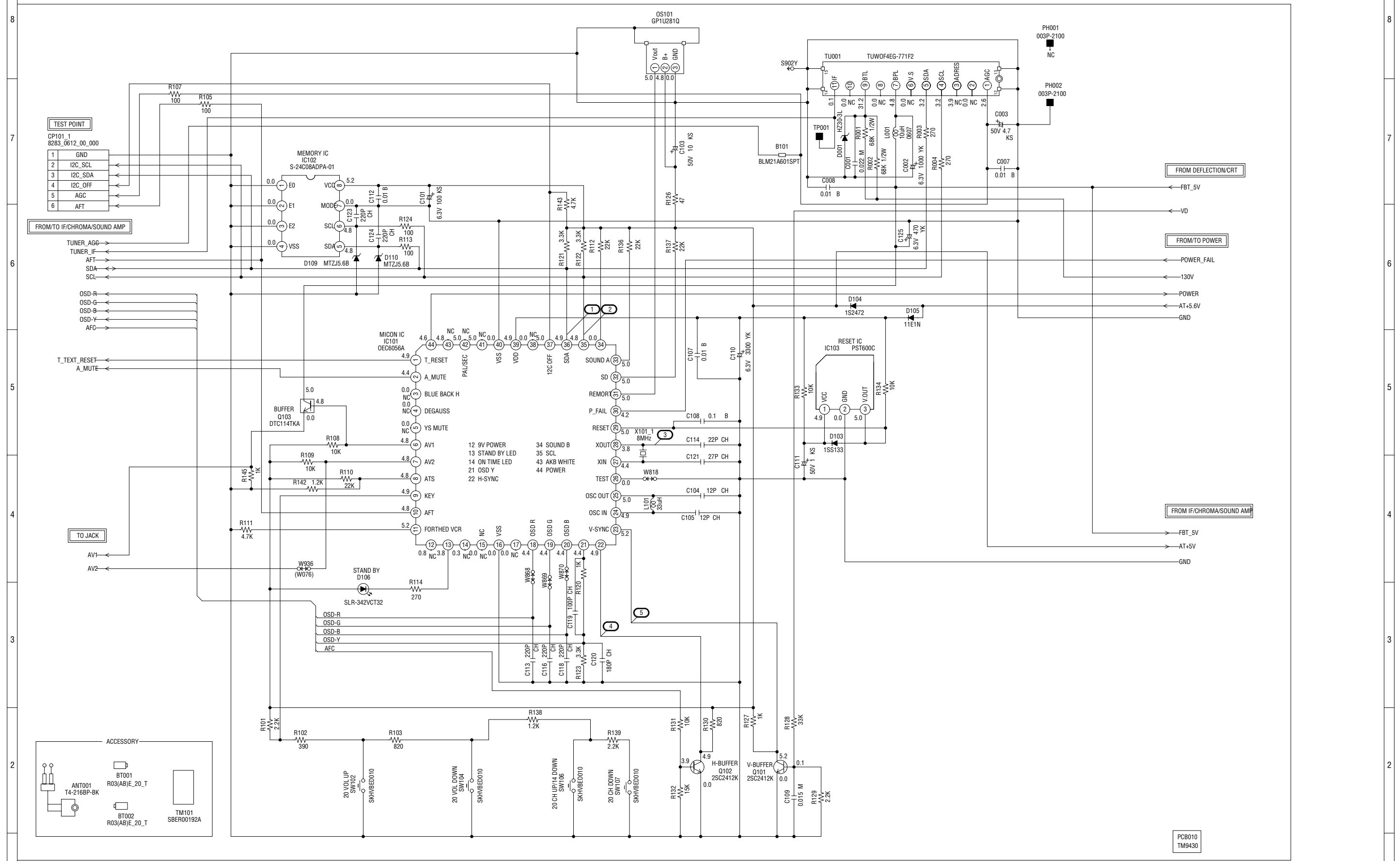
2-15: CONSTANT VOLTAGE

1. Using the remote control, set the brightness and contrast to normal position.
2. Connect the digital voltmeter to **TP501**.
3. Set condition is AV MODE without signal.
4. Adjust the **VR501** until the DC voltage is $135 \pm 1V$.

BLOCK DIAGRAM



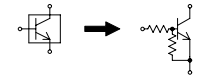
MICON/TUNER SCHEMATIC DIAGRAM (MAIN PCB)



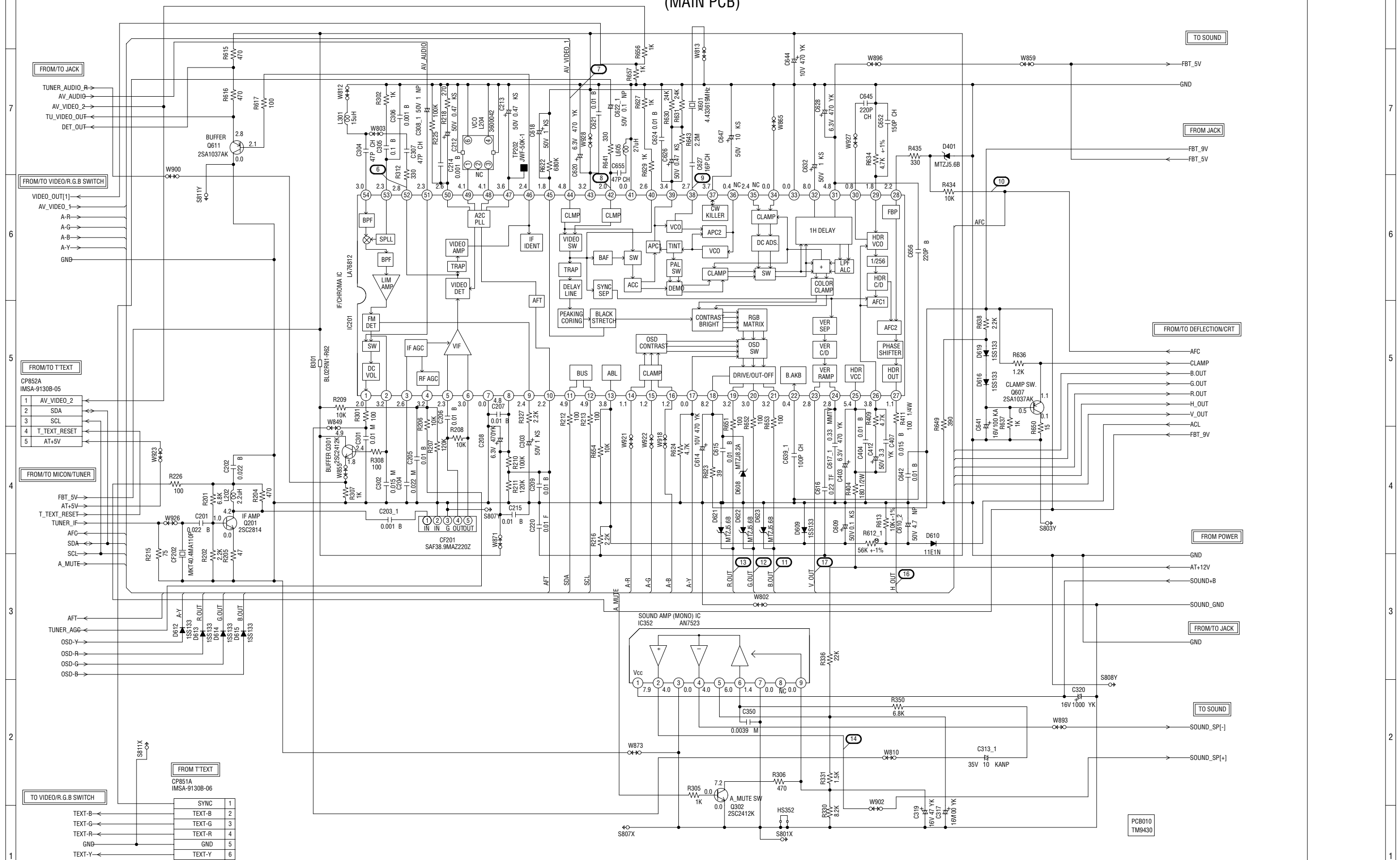
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: DIGITAL TRANSISTOR



(MAIN PCB)

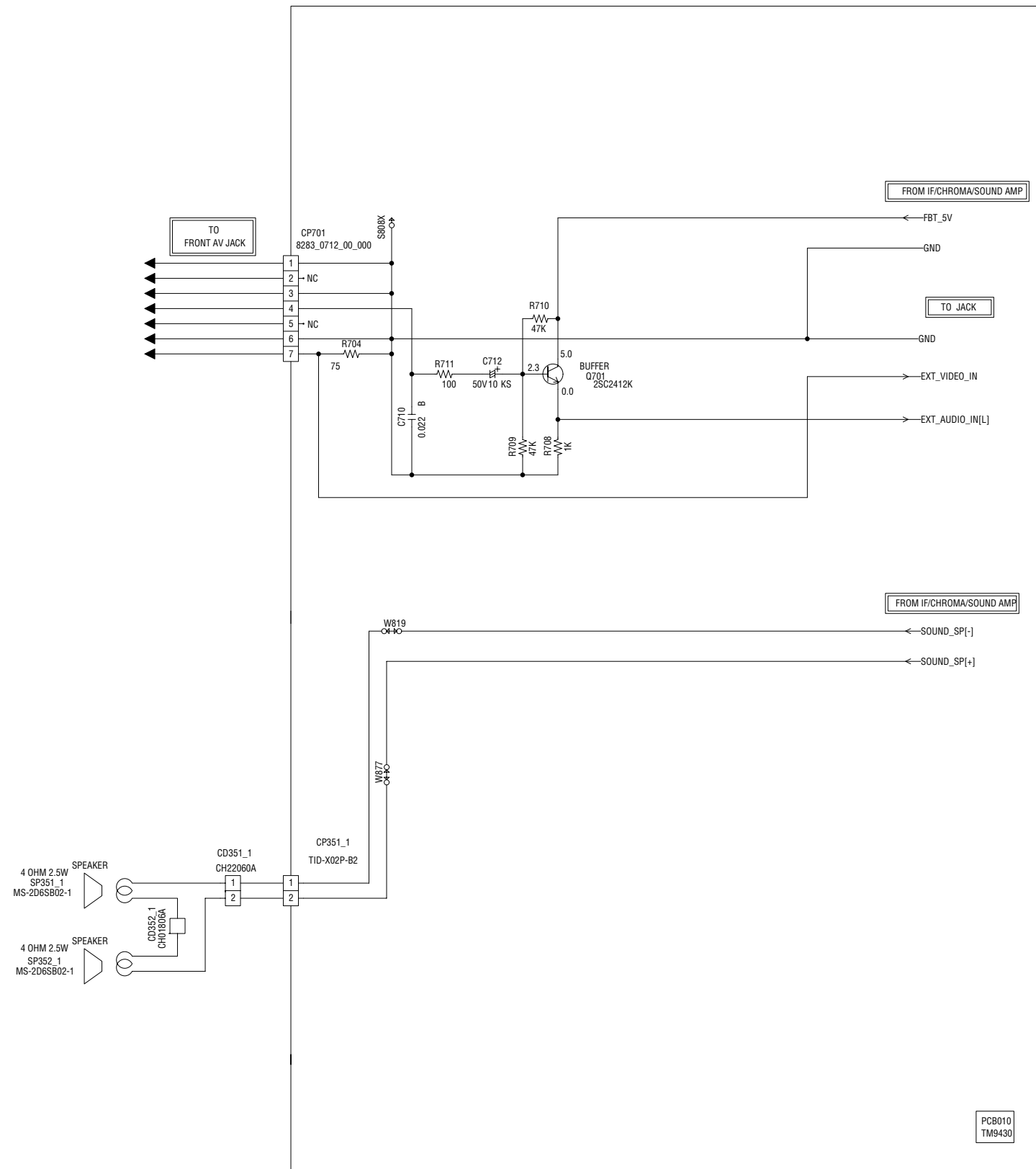


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

SOUND SCHEMATIC DIAGRAM

(MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

**POWER SCHEMATIC DIAGRAM
(MAIN PCB)**

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 4A 250V(F501), 1A 250V(F502) AND 2A 125V (ICP501)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCENDIE N'UTILISER QUE DES FUSIBLES DE MEME TYPE, 1A 250V(F502) ET 2A 125V (ICP501)

CAUTION: ICP501 ARE MANUFACTURED BY LITTELFUSE INC., TYPE 251.

TO DEFLECTION/CRT

FROM/TO MICON/TUNER

TO IF/CHROMA/SOUND AMP

**PCB010
TM9430**

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

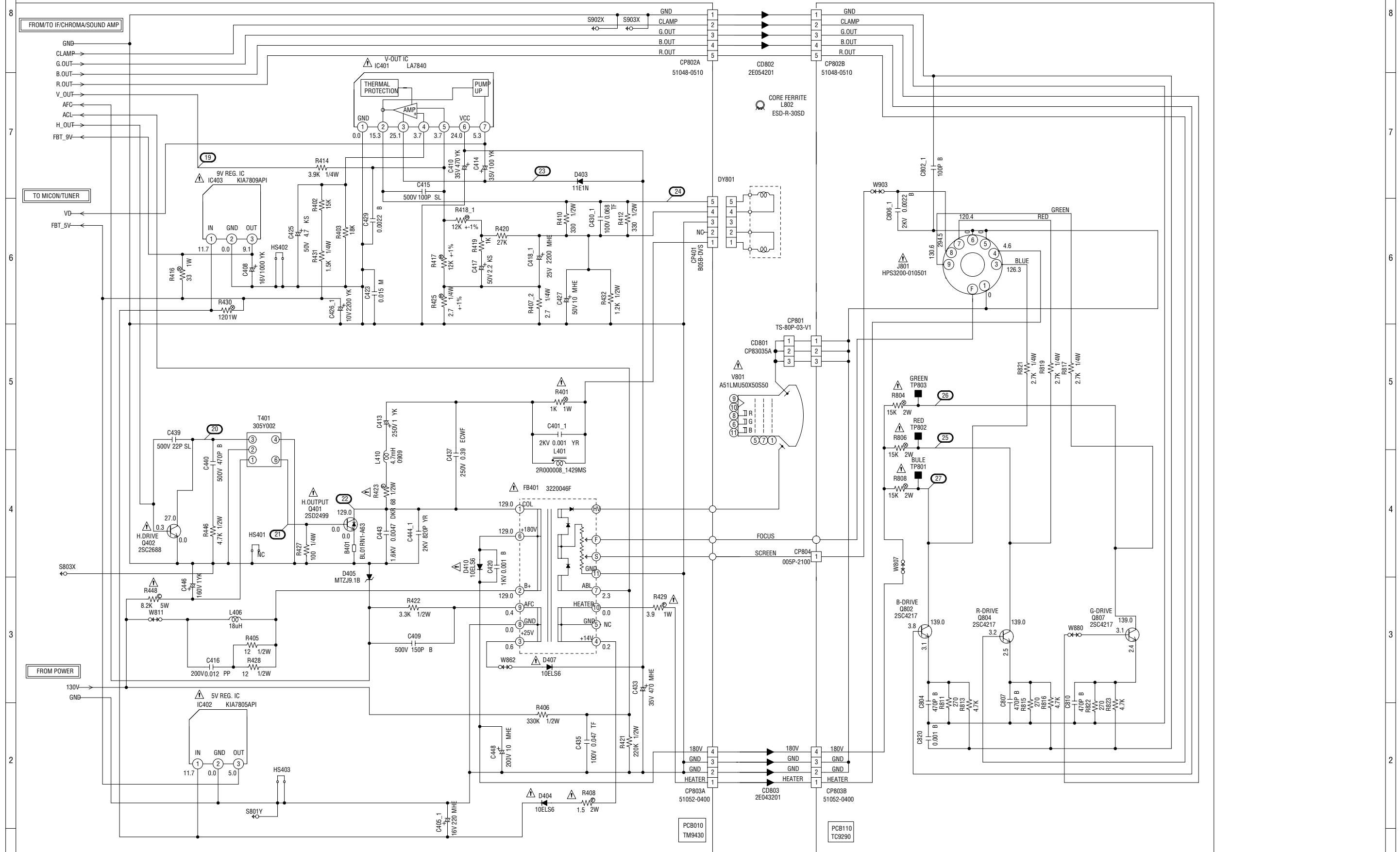
ATTENTION: LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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DEFLECTION/CRT SCHEMATIC DIAGRAM (MAIN PCB)



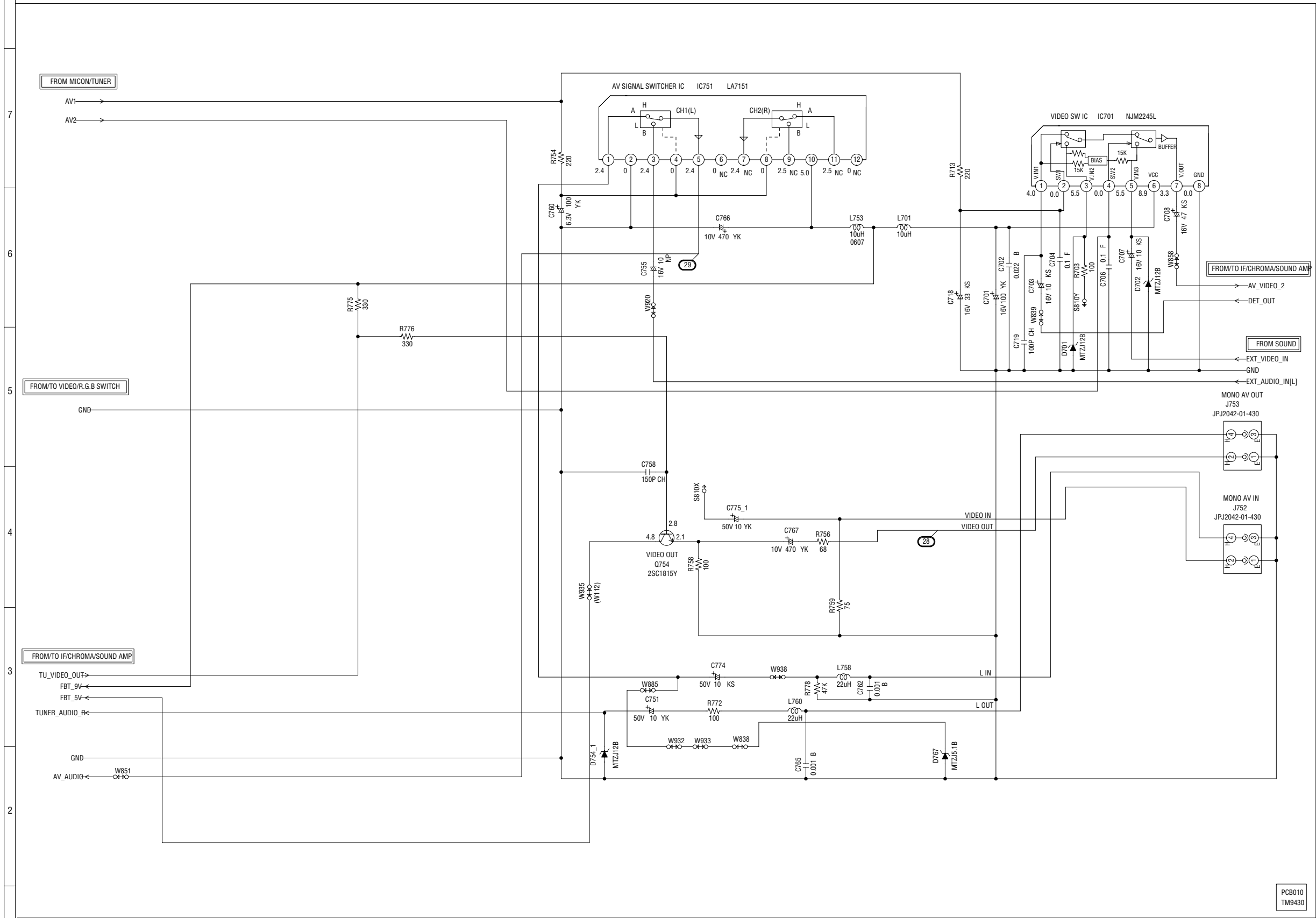
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

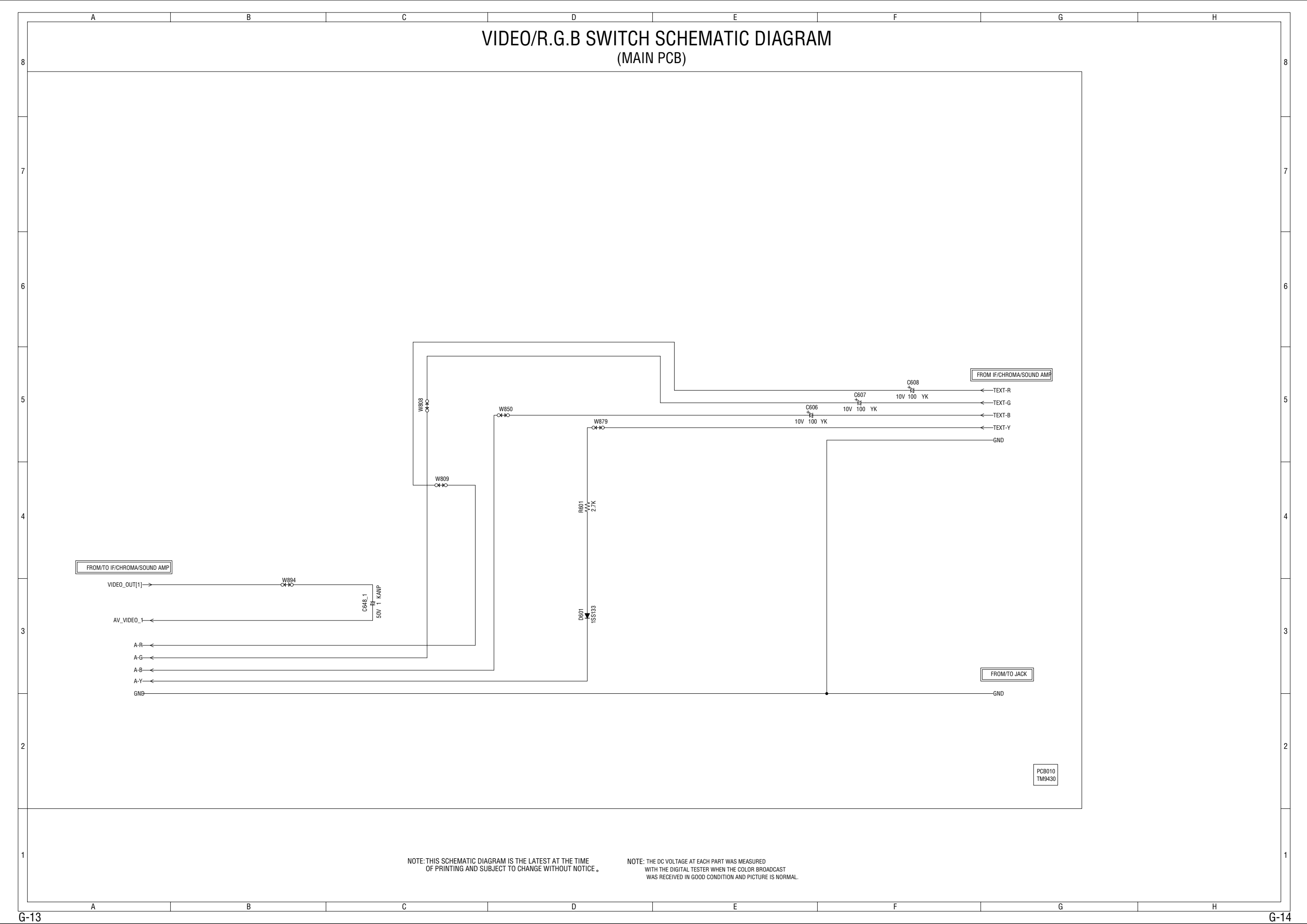
JACK SCHEMATIC DIAGRAM
(MAIN PCB)

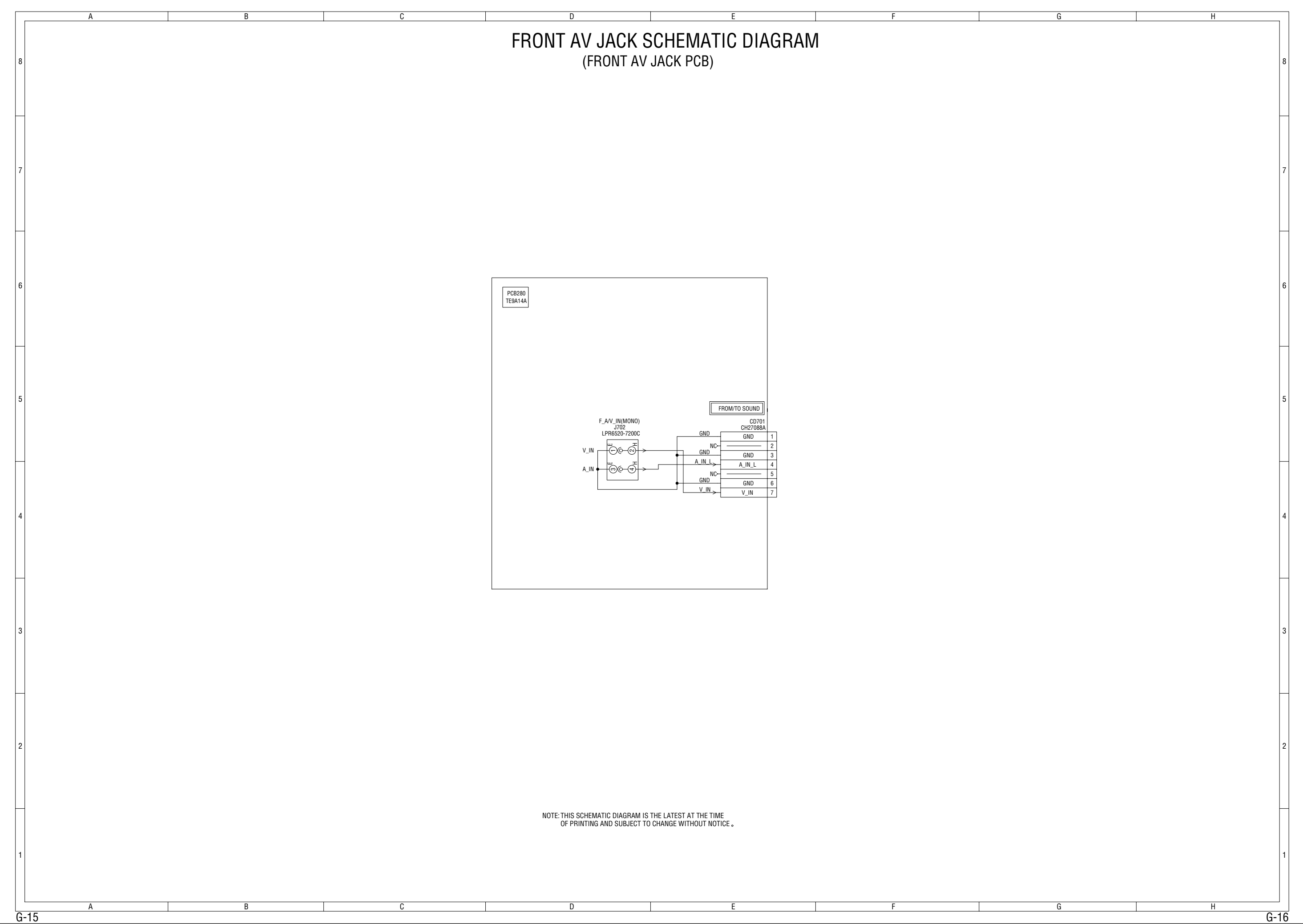


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

PCB010
TM9430





T'TEXT SCHEMATIC DIAGRAM (T'TEXT PCB)

TO IF/CHROMA/SOUND AMP

CP851B (CP851A)
IMSA-9130S-06L
1 SYNC
2 TEXT-B
3 TEXT-G
4 TEXT-R
5 GND
6 TEXT-Y

FROM/TO IF/CHROMA/SOUND AMP

CP852B (CP852A)
IMSA-9130S-05L
1 AV_VIDEO_2
2 SDA
3 SCL
4 T_TEXT_RESET
5 AT+5V

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

PCB150
TE9A15