

MATSUI 1408R

Service Mode List

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

To enter the Service Mode, press both set key and remote control key for more than 2 seconds.

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.

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

ADDRESS	DATA	
INIT	00 83	Initial setting content of MEMORY IC.
CRTON	0010	POWER ON total hours. = (16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

FIG. 1

ADDRESS	INI 01	INI 02	INI 03	INI 04	INI 05	INI 06	INI 07	INI 08	INI 09	INI 0A	INI 0B	INI 0C	INI 0D	INI 0E	INI 0F	INI 10
DATA	1A	00	00	00	90	30	A0	30	51	02	00	00	00	00	00	00

Table 1

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: No need the setting for after INI 10.

- Enter DATA SET mode by setting VOLUME to minimum.
- 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.
- ADDRESS is now selected and should "blink".

Using the SET + or - keys on the remote, step through the ADDRESS until required AD-DRESS to be changed is reached.

- Press ENTER to select DATA. When DATA is selected, it will "blink".
- Again, step through the DATA using SET + or - until required DATA value has been se-lected.
- Pressing ENTER will take you back to ADDRESS for further selection if necessary.
- Repeat steps 4 to 7 until all data has been checked.
- 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.

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

CAUTION

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

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.

1-1: Prepare the following measurement tools for electrical adjustments.

- Synchro Scope
- Digital Voltmeter
- AFT Oscillator 39.5 MHz
- Color Bar Generator

2. BASIC ADJUSTMENTS

On-Screen Display Adjustment

In the condition of NO indication on the screen. Press both VOL. DOWN button on the set and the Channel button (9) on the remote control for more than 2 seconds 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.

- H/V
- AKB
- COLOR TEMP
- PICTURE
- OTHERS
- TEST PATTERN
-
- (VOL TEST) 0. END

Fig. 2-1

2-1: RF AGC DELAY

- Receive an 80dB monoscope pattern.
- Connect the digital voltmeter between the pin 5 of CP101 and the pin 1 (GND) of CP101. Activate the adjustment mode display of Fig. 2-1 and press the channel button (5) on the remote control.

- The Fig. 2-2 appears on the display.
- Press the channel button (2) on the remote control.
- Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is $2.45 \pm 0.05V$.

- AGC AUTO
- RF AGC DELAY
- VIDEO LEVEL
- FM LEVEL
- OSD H
- CUT OFF
-
0. RETURN

Fig. 2-2

2-2: VCO

- Connect the AFT adjustment oscillator (39.5 MHz) to W090 of the tuner pack.
- Connect the digital voltmeter to pin 47 of IC201.
- Adjust the L204 until the digital voltmeter is $3.6 \pm 0.05V$.

2-3: CUT OFF

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

2-4: FOCUS

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

2-5: WHITE BALANCE

NOTE:

- Adjust after performing adjustments in section 2-3.
- Receive the color bar pattern.
 - Activate the adjustment mode display of Fig. 2-1 and press the channel button (2) on the remote control. The Fig. 2-3 appears on the display.
 - Adjust the adjustment mode display of Fig. 2-3 until the white color is looked like a white.

- AKB AUTO
- R. BIAS
- G. BIAS
- B. BIAS
- R. DRIVE
- G. DRIVE
- B. DRIVE
-
0. RETURN

Fig. 2-3

2-6: BRIGHTNESS (TV)

- Receive the monoscope pattern. (RF Input)
- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 2-1 and press the channel button (4) on the remote control. The Fig. 2-4 appears on the display.
- Press the channel button (1) on the remote control.
- Press the VOL. UP/DOWN button on the remote control until the white 0% is starting to be visible.

- BRIGHT
- CONTRAST
- COLOR
- TINT
- SHARPNESS
- OSD CONT
-
0. RETURN

Fig. 2-4

2-7: BRIGHTNESS (AV)

- Receive the monoscope pattern. (Audio Video Input)
- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 2-1 and press the channel button (4) on the remote control. The Fig. 2-4 appears on the display.
- Press the channel button (1) on the remote control.
- Press the VOL. UP/DOWN button on the remote control until the white 0% is starting to be visible.

2-8: COLOR (TV)

- Receive the monoscope pattern. (RF Input)
- Connect the synchro scope to TP022.
- Using the remote control, set the brightness, contrast, color and tint to normal position.
- Activate the adjustment mode display of Fig. 2-1 and press the channel button (4) on the remote control. The Fig. 2-4 appears on the display.
- Press the channel button (3) on the remote control.
- Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% an 0% is set to 5 scales on the screen of the oscilloscope.
- Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 80% of the white level. (Refer to Fig. 2-5)

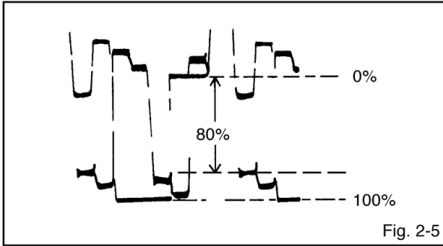


Fig. 2-5

2-9: COLOR (AV)

- Receive the monoscope pattern. (Audio Video Input)
- Connect the synchro scope to TP022.
- Using the remote control, set the brightness, contrast, color and tint to normal position.
- Activate the adjustment mode display of Fig. 2-1 and press the channel button (4) on the remote control. The Fig. 2-4 appears on the display.
- Press the channel button (3) on the remote control.
- Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 5 scales on the screen of the oscilloscope.
- Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 80% of the white level. (Refer to Fig. 2-5)

2-10: CONTRAST

- Receive the monoscope pattern.
- Activate the adjustment mode display of Fig. 2-1 and press the channel button (4) on the remote control. The Fig. 2-4 appears on the display.
- Press the channel button (2) on the remote control.
- Press the VOL. UP/DOWN button on the remote control until the bar step is set to the "0".

2-11: SHARPNESS

- Receive the monoscope pattern.
- Activate the adjustment mode display of Fig. 2-1 and press the channel button (4) on the remote control. The Fig. 2-4 appears on the display.
- Press the channel button (5) on the remote control.
- Press the VOL. UP/DOWN button on the remote control until the bar step is set to the "0".

2-12: HORIZONTAL PHASE

- Receive the monoscope pattern.
- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 2-1 and press the channel button (1) on the remote control. The Fig. 2-6 appears on the display.
- Press the channel button (1) on the remote control.
- Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

- H. PHASE
- H. BLK
- V. SIZE
- V. POSI
- V. LIN 50/60
- V. SC 50/60
- V. COMP
- (H. FREQ) 0. RETURN

Fig. 2-6

2-13: VERTICAL POSITION

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

2-14: VERTICAL SIZE

- Receive the crosshatch pattern.
- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 2-1 and press the channel button (1) on the remote control. The Fig. 2-6 appears on the display.
- Press the channel button (3) on the remote control.
- Press the VOL. UP/DOWN button on the remote control until the center of crosshatch is square.

2-15: VERTICAL LINEALITY 50

- Receive the monoscope pattern.
- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 2-1 and press the channel button (1) on the remote control. The Fig. 2-6 appears on the display.
- Press the channel button (5) on the remote control.
- Press the VOL. UP/DOWN button on the remote control until the bar step is set to the "18".

2-16: VERTICAL LINEALITY 60

- Receive the monoscope pattern (NTSC Signal).
- Using the remote control, set the brightness and contrast to normal position.
- Activate the adjustment mode display of Fig. 2-1 and press the channel button (1) on the remote control. The Fig. 2-6 appears on the display.

Recommended Safety Parts

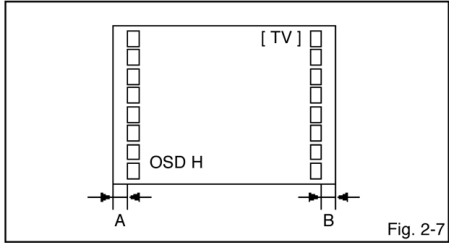
Item	Part No.	Description
R408	R6558A1R5J	R, FUSE
R429	R655812R7J	R, FUSE
R448	R5Y2CD822J	R, CEMENT
R501	R002T2155J	RC
R502	R3X181R33J	R, METAL
R503	R5Y2CE5R6J	R, CEMENT
R504	R615U4681J	R, FUSE
R513	R3X28B224J	R, METAL
R516	R3X28B150J	R, METAL OXIDE
R524	R3X28B3R3J	R, METAL
	R3K28B3R3J	R, METAL
R803	R3X18A153J	R, METAL OXIDE
	R3U18A153J	R, METAL
R805	R3X18A153J	R, METAL OXIDE
	R3U18A153J	R, METAL
R807	R3X18A153J	R, METAL OXIDE
	R3U18A153J	R, METAL
C501	P2222B224K	CMP
C506	C0JBB07H3K	CC
C507	C0JBB07H3K	CC
C525	CB3930MH3M	CC
D407	D28T10ELS6	DIODE, RECTIFIER
D410	D28T10ELS6	DIODE, RECTIFIER
D501	D2BTRM11C0	DIODE, RECTIFIER
D502	D2BTRM11C0	DIODE, RECTIFIER
D503	D2BTRM11C0	DIODE, RECTIFIER
D504	D2BTRM11C0	DIODE, RECTIFIER
D510	D28I15DF60	DIODE, SILICON
D511	D28T10ELS6	DIODE, RECTIFIER
IC401	I03SD78400	IC
IC402	I1KA978050	IC
IC501	I2BT056520	IC
IC502	I1KA978050	IC
Q401	TDUQ025990	TRANSISTOR, SILICON
Q402	TC3T022710	TRANSISTOR, SILICON
Q503	TA3T1371A0	TRANSISTOR, SILICON
Q504	TCWQ4160E0	TRANSISTOR, SILICON
Q801	TC3T034680	TRANSISTOR, SILICON
Q802	TC3T034680	TRANSISTOR, SILICON
Q803	TC3T034680	TRANSISTOR, SILICON
L501	029K000001	COIL, LINE FILTER
L502	029A000002	COIL, LINE FILTER AC
L503	028R140027	COIL, DEGAUSS
T501	048135032W	TRANSFORMER, SWITCH
J801	066X120014	SOCKET, CRT
SW501	0530205002	SWITCH
CD501	1206635818	CORD, AC
F501	0808T04002	FUSE
F502	0808T01002	FUSE
FB401	043214029F	TRANSFORMER, FLYBACK
V801	098P140479	CRT

Adjustments Cont'd

- 4. Press the channel button (5) on the remote control.
- 5. Press the VOL. UP/DOWN button on the remote control until the bar step is set to the "18".

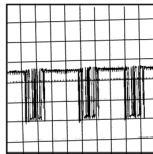
2-17: OSD HORIZONTAL

- 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. The Fig. 2-2 appears on the display.
- 3. Press the channel button (5) on the remote control.
- 4. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum.

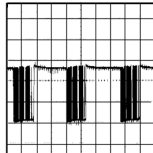


Waveforms

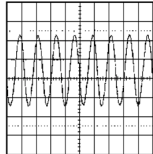
MICON/TUNER



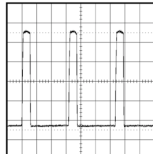
① 2V 500μs/div



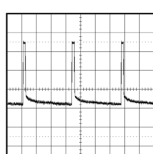
② 2V 500μs/div



③ 1V 0.1μs/div

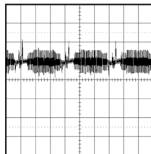


④ 200mV 20μs/div

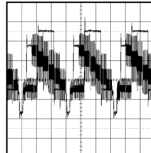


⑤ 200mV 5ms/div

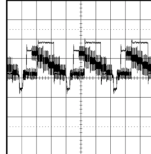
CHROMA/SOUND AMP



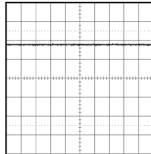
⑥ 0.5V 20μs/div



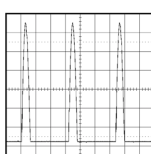
⑦ 0.5V 20μs/div



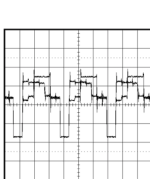
⑧ 0.5V 20μs/div



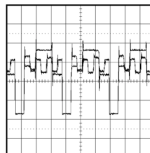
⑨ 1V 0.5ms/div



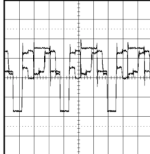
⑩ 20V 20μs/div



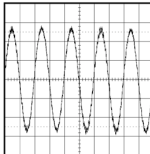
⑪ 1V 20μs/div



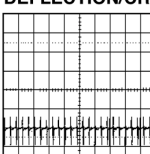
⑫ 1V 20μs/div



⑬ 1V 20μs/div

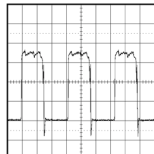


⑭ 200mV 0.5ms/div

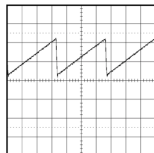


⑮ 20V 5ms/div

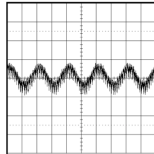
CHROMA/SOUND AMP



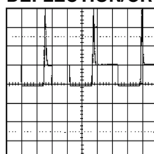
⑯ 200mV 20μs/div



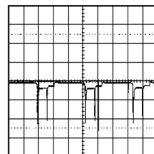
⑰ 0.5V 5ms/div



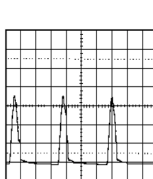
⑱ 50mV 0.5ms/div



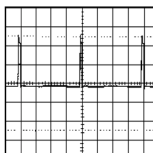
⑲ 50V 20μs/div



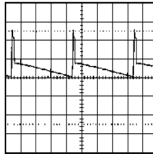
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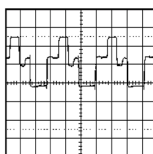
㉑ 200V 20μs/div



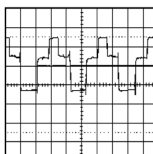
㉒ 10V 5ms/div



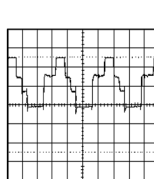
㉓ 20V 5ms/div



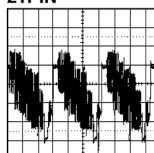
㉔ 50KV 20μs/div



㉕ 50KV 20μs/div

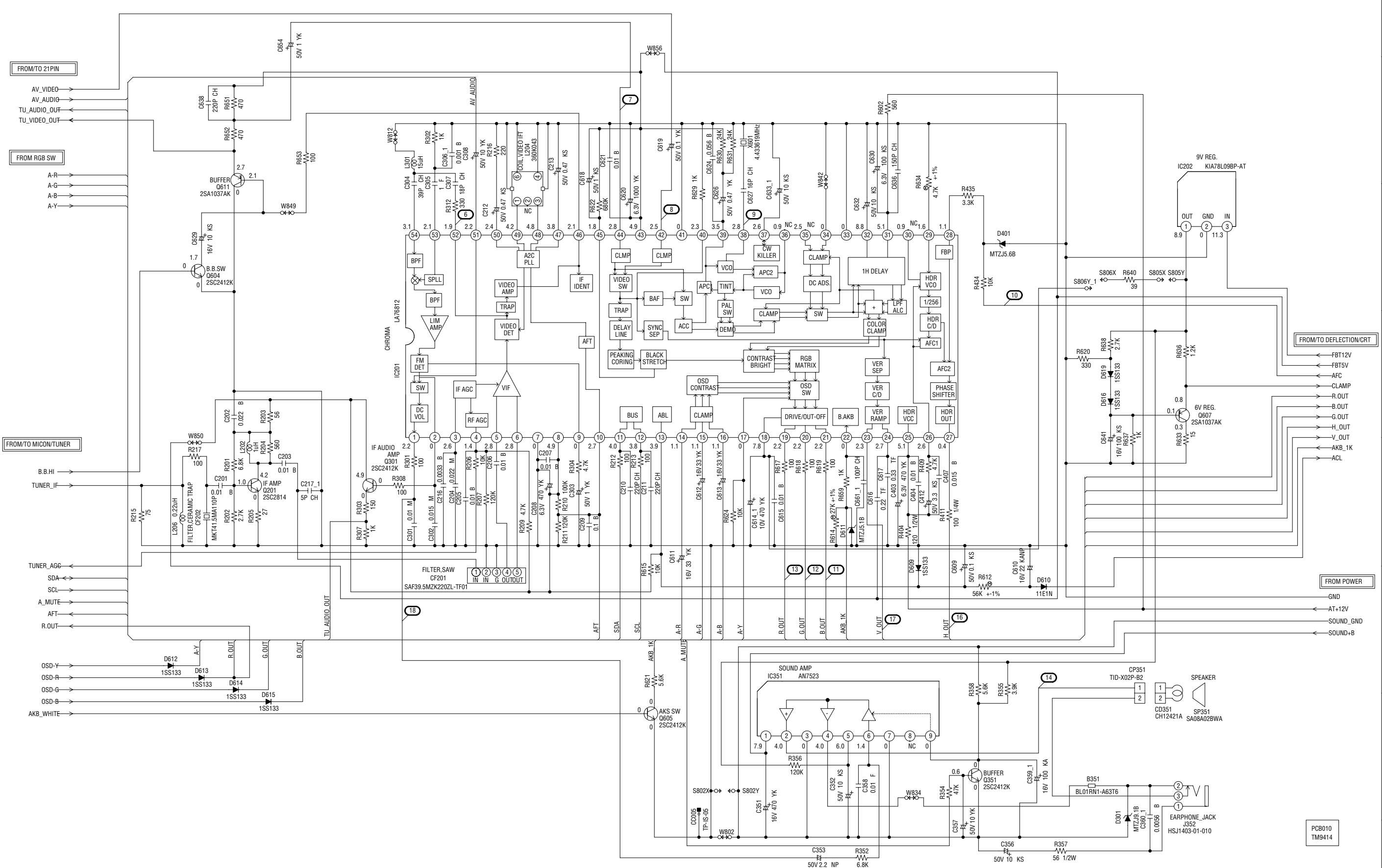


㉖ 50KV 20μs/div



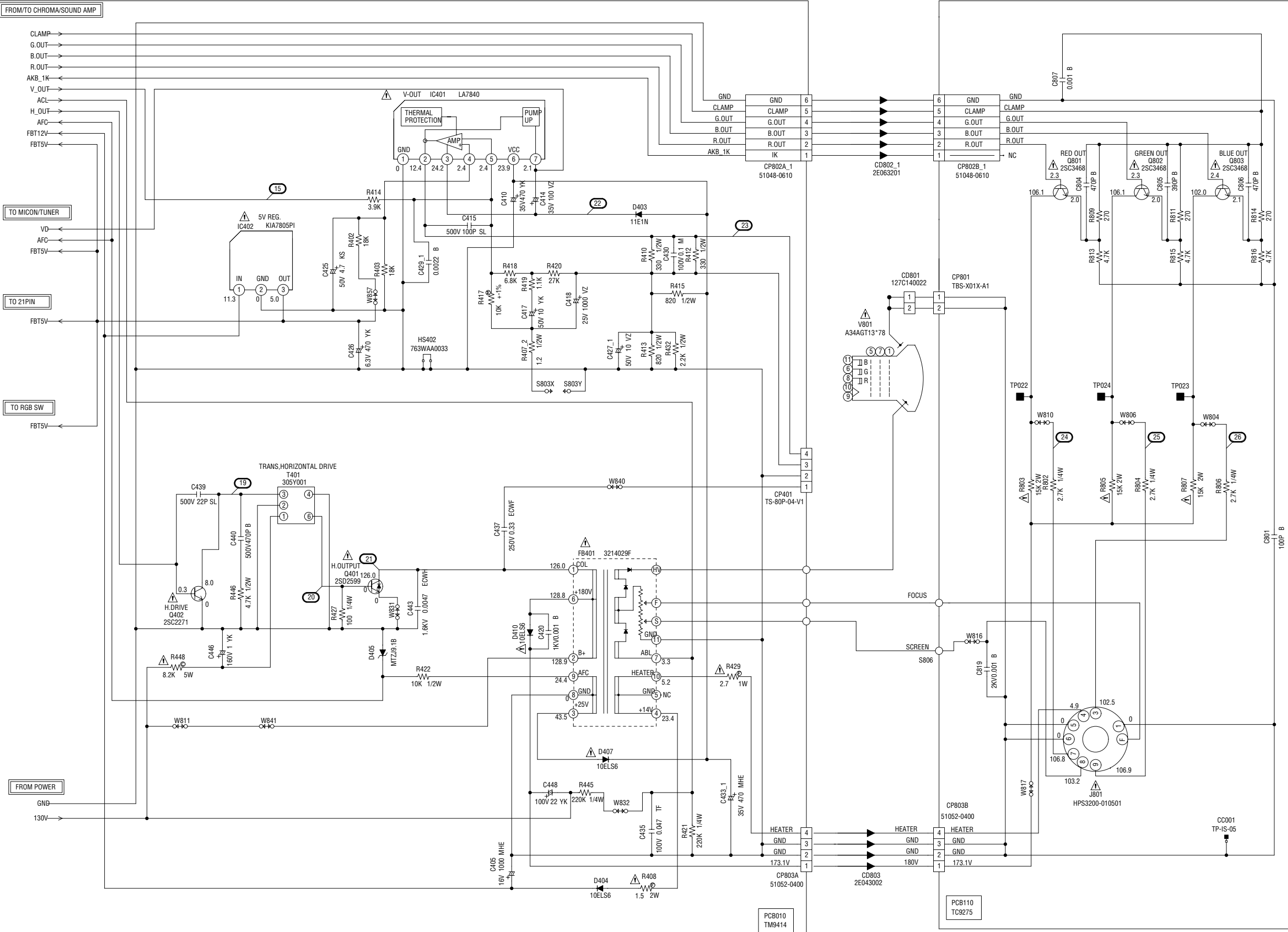
㉗ 200mV 20μs/div

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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.



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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 AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

TEST POINT

CP101
W-D2506#01

1	GND
2	I2C SCL
3	I2C SDA
4	I2C OFF
5	AGC
6	R.OUT

R107 100

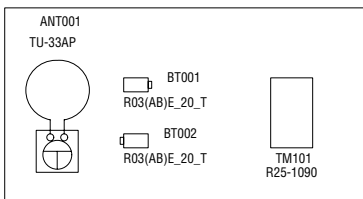
FROM/TO CHROMA/SOUND AMP

R.OUT
TUNER_AGC
TUNER_IF
TUNERSV
SDA
SCL
AKB_WHITE
OSD-R
OSD-G
OSD-B
OSD-Y

A_MUTE
B.B.HI
AFT

FROM 21PIN

FOR_VCR



VOL DOWN
SW104
SKHYBED010

VOL UP
SW102
SKHYBED010

CH DOWN
SW107
SKHYBED010

CH UP
SW106
SKHYBED010

H-BUFFER
Q102
2SC2412K

V-BUFFER
Q101
2SC2412K

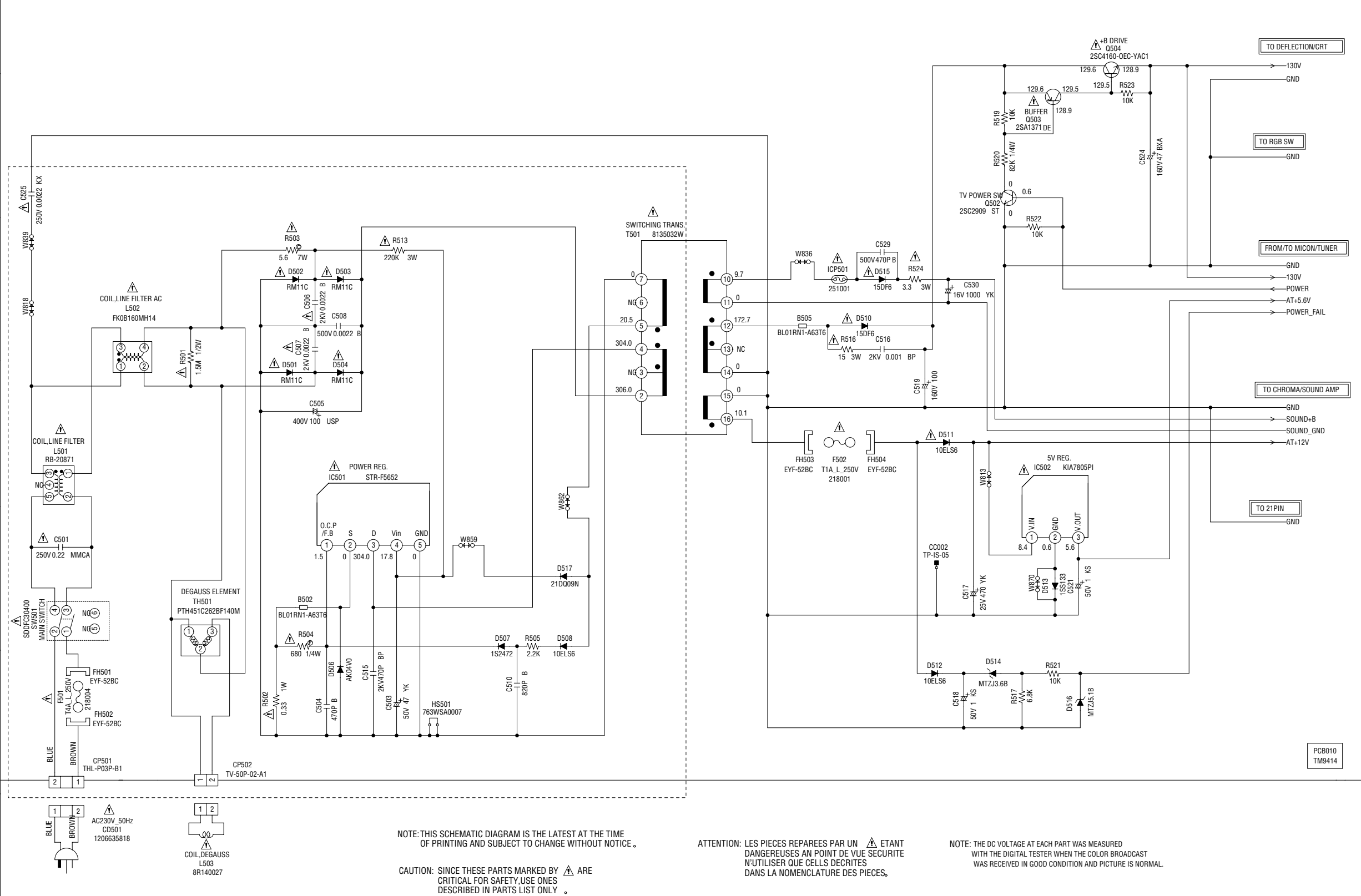
MEMORY
IC199
M24C04-BN6

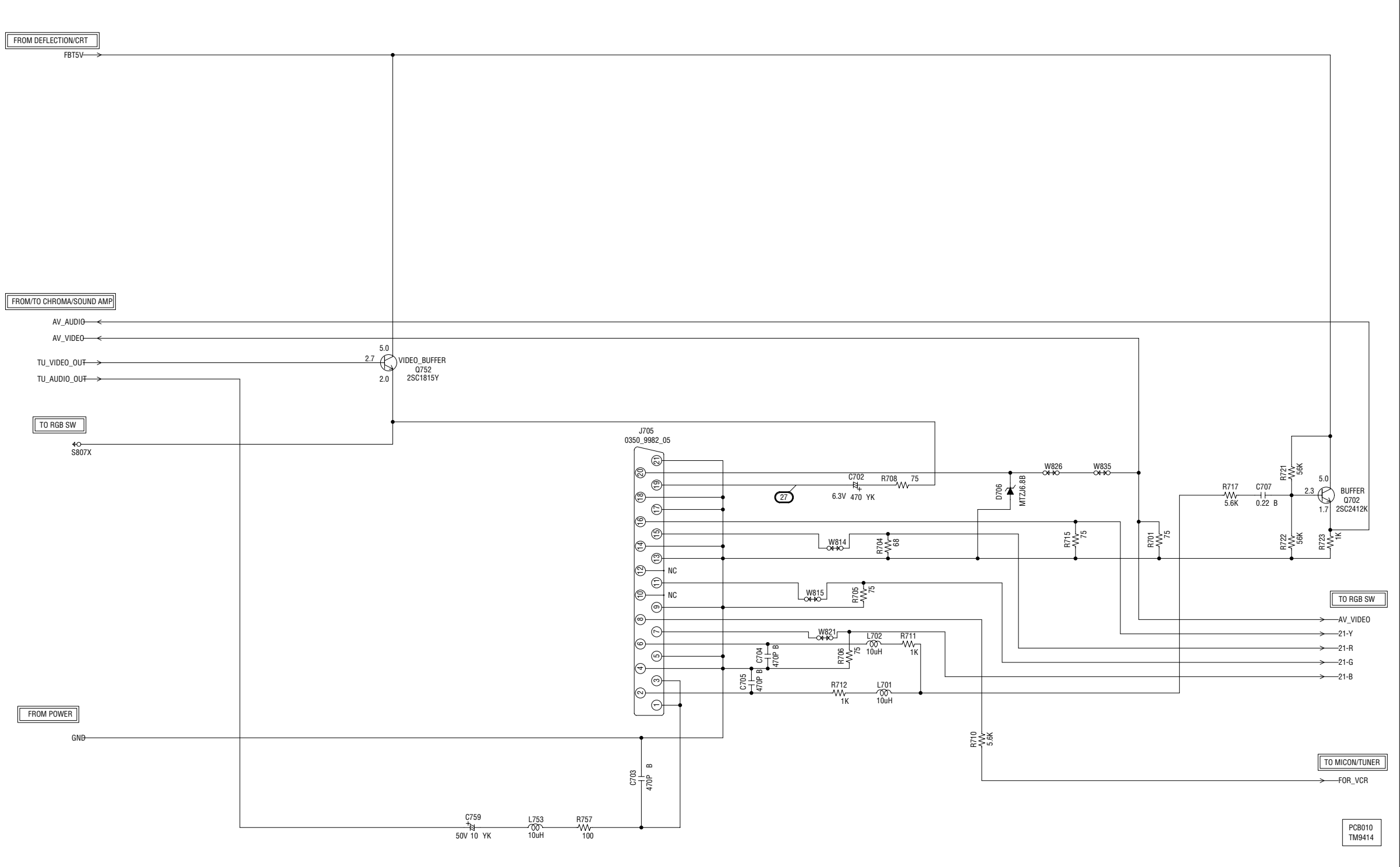
RESET
IC103
PST600H

PCB010
TM9414

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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





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FROM DEFLECTION/CRT

FBT5V

FROM 21PIN

S807Y

R639

100

FROM/TO CHROMA/SOUND AMP

A-G

A-R

A-B

A-Y

FROM 21PIN

21-R

21-G

21-B

21-Y

FROM POWER

GND

W807

W824

W822

D618

1SS133

SWITCHING
0602
2SC2412K

SWITCHING
0603
2SC2412K

R627

10K

R632

10K

R635

1K

W863

W864

W865