ADJUSTMENT INSTRUCTION

These instructions are applied to only NC-5AA chassis.

Notes

1.So this is a hot chassis, you must be careful, and be caution not to touch 1st and 2nd concurrently.
2.Adjustment must be done in the correct order.
3.Power supply of a SET which is adjusted is 100~240V A.C./50~60Hz.
4.The receiver must be operated for about 30 minutes proir to the adjustment.

CONTENTS

1. VCO and AFT Adjustment

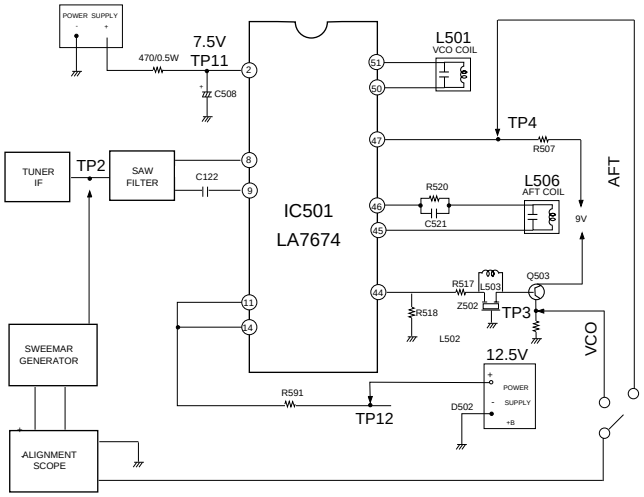
This Adjustment must be applied only to PCB Assy.

1.1. Necessary Instruments

1) Sweamer Generator : can sweep 35MHz~55MHz(over 120dBu)
2) PLUG in Unit : With PIF(45.75MHz), SIF(41.25MHz) Marker
3) Alignment Scope : X-Y mode, 10mV~20V Variable
4) D.C. Power Supply : 0~12V Variable
5) D.C. Power Supply : 13.5V±0.2V (over 300mA)
6) Digital Multimeter

1.2. Preliminary Steps

1) Connect the output of Sweamer Generator like <Fig 1>. Here, set the output of Sweamer Gen. to 100±5dBu.



<Figure 1>

2) Connect H.Scope and Pulse output of Sweamer Generator to H.Input and Marker input of Alignment Scope, respectively.
3) Apply AGC Voltage(D.C.) to TP11 of IC201.(7.5±0.05V)
4) Apply B+ of IC201 to TP12 of R591.(12.0±0.1V)
5) Set VR526(AGC Adjustment) to mechanical center.

1.3. Adjustment

A. VCO

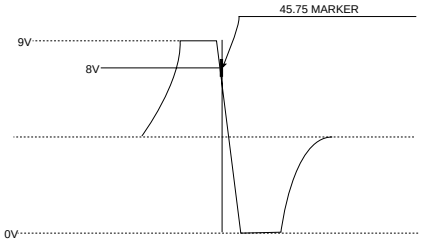
1) Set the vertical range of Alignment Scope to 1V/DIV and CAL position, and, by applying D.C. 0~9V, do DC Calibration to place D.C 4.5V point of waveform to center of Screen.
2) Connect the Input terminal of Alignment Scope to TP3(Video Detection Output), and set Vertical Variable Switch to CAL position.
3) Apply AGC Voltage to TP11 of IC201 through 470§ to be 7.5±0.05V
4) Adjust L501 so that BEAT appears on 45.75MHz Marker like <Fig 2> If not, adjust again after attenuating output 10 ~20dBu.

45.75MHz
(Turn L105 so that the position of Beat is same with 45.75MHz Marker)

<Figure 2>

B. AFT

1) Connect the Input of Alignment Scope to TP4 with keeping DC voltage of 2pin of IC201.
2) Keep the output of Sweamer Generator 100±5dBu.
3) Adjust L506 so that waveform of Alignment Scope to be that of <Fig 3>.
4) Adjust Vertical Volume of Alignment Scope to place DC level of waveform to center (4.5V) and 45.75MHz Marker to 7.5V¡ 0.5V.



<Figure 3>

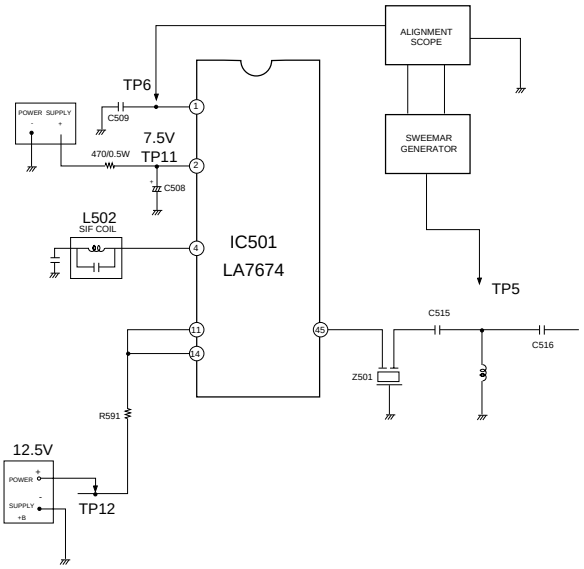
2. SIF Adjustment

2.1. Necessary Instruments

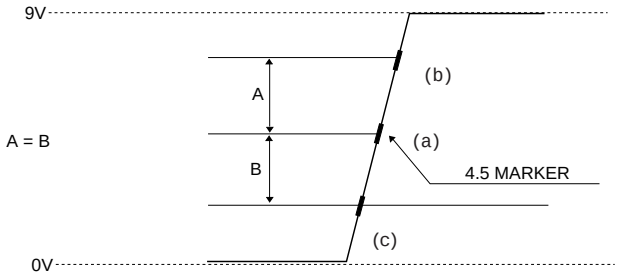
1) Sweamer Generator : can sweep 3~6MHz
2) Plug In Unit : with 4.5MHz Marker
3) Alignment Scope : X-Y mode(can measurable 10mV~ 20Vp-p)
4) DC Power Supply : 13.5V, over 300mA
5) DC Power Supply : 0~12V variable

2.2. Adjustment

1) Connect Sweamer Generator and Alignment Scope the same method of VIF adjustment.
2) Connect the output of Sweamer Generator to TP5 like <Fig 4 >.
3) Connect the Input of Alignment Scope to TP6.
4) Apply AGC voltage of IC201 to TP11(7.5±0.05V).
5) Apply B+ of IC201 to TP12.
6) Adjust L502 S-shaped waveform of Alignment Scope to be that of <Fig 5>.
   Adjust (A=B)
   Because 4.5MHz Marker doesn't with horizontal line, apply (a) marker(4.5MHz) to be the center of (b), (c)Markers.



<Figure 4>



<Figure 5>

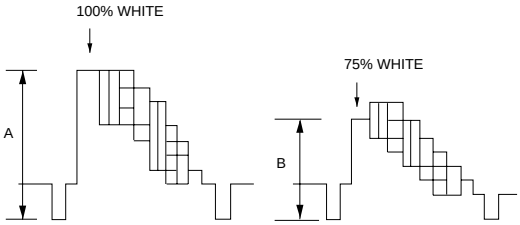
3. Composite Video Signal Adjustment

3.1.Necessary Instructions

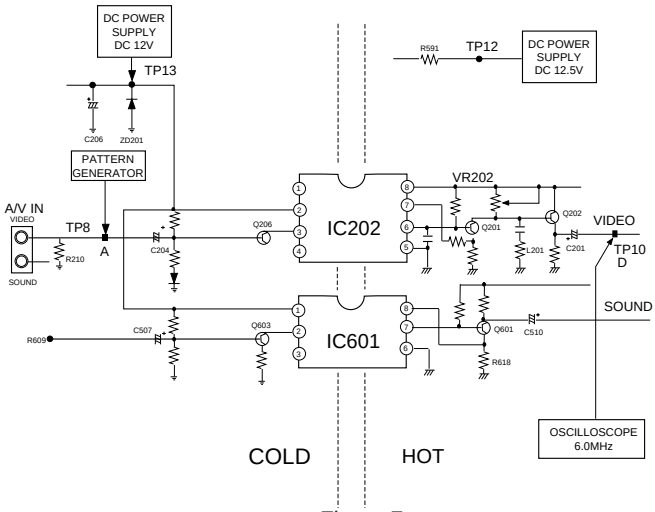
1) Pattern Generator : PM5518(PHILIPS) or Equivalents
   7 Step Color Bar Pattern with 75§ out
2) Oscilloscope : VP-5650A or Equivalents
   can measure over 1.0Vp-p
   Vertical Freq. : over 4MHz
3) DC Power Supply : 12.2±0.2V/400mA 2EA

3.2. Preliminary Steps

1) Connect the output of Pattern Generator to TP8 like <Fig 7>.
   Where, the output of Pattern Generator is 1.0Vp-p.(Point position "A")
2) Connect DC Power Supply to TP12 and TP13.
   Where, devide Ground of TP12 and TP13(HOT/COLD).
3) Connect probe to TP10(point "D").



<Figure 6>



<Figure 7>

3.3 Adjustment

Adjust VR202 to get Luminance signal(Color Bar) level like below. (Refer to <Fig 6>)

1) White 100% modulated 1.78±0.1Vp-p
2) White 75% modulated 1.46±0.1Vp-p

4. Automatic Gain Control(AGC) Adjustment

4.1Turn on a SET and receive Digital Pattern of 65¡ 1dB through 75§ Ant. terminal.
4.2 Connect DMM(Digital Multi-Meter) to J27.
4.3 Adjust VR101 to read 5.7±0.05V of DMM.
(Where, you can set proper AGC voltage according to signal condition.)

5. Purity and Convergence Adjustment

This adjustment should be made when a complete re-alignment is required or a new picture tube is installed.

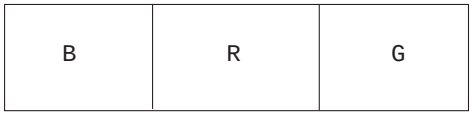
5.1 Purity Adjustment

5.1.1 Necessary instruments and Preliminary steps

1) Pattern Generator : 216/1 or Equivalents
2) Degauss CPT and Cabinet with Degaussing coil.
3) Maximize Contrast level.
4) Pre-adjust the DY.

5.1.2 Adjustment

1) Receive Raster signal(Red).
2) Push the DY to get Picture like <Fig 8>.
3) Adjust 2-pole magnet to place RED center of screen orthogonally.



<Figure 8>

4) Pre-fix 2-pole magnet after adjustment with Lock Ring.
5) Pull the DY back slowly to get uniformly RED picture and fix it.

5.2 Convergence Adjustment

5.2.1 Necessary Instruments

1) Pattern Generator : 216/1 or Equivalents
2) Degaussing coil

5.2.2 Preliminary Steps

1) Do this adjustment after operating the SET more than 30 minutes.
2) Degauss CPT and Cabinet with Degaussing coil.
3) Receive Cross hatch pattern.
4) Adjust Contrast and Bright properly.
5) Untighten half-fixed Magnet Assy lock ring

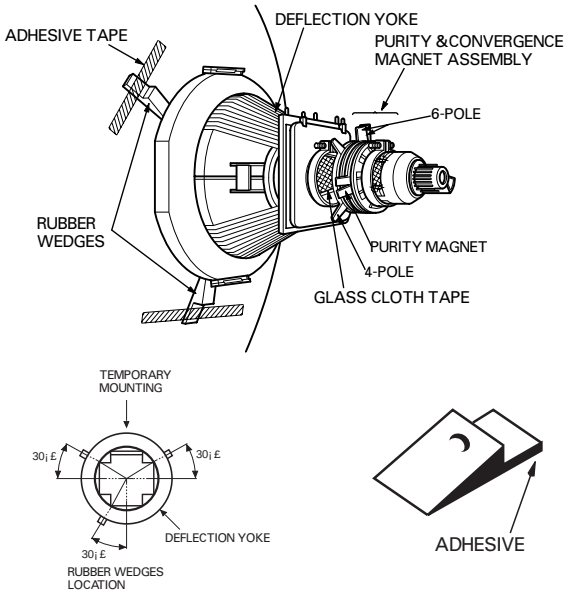
5.2.3 Adjustment

A. Center(Static) Convergence Adjustment

1) Unify Red and Blue vertical lines at center of screen by varying the angle of two tabs of 4-pole magnet.
2) Rotate tab with sustaining the angle of item 1) and unify Red and Blue vertical lines at center of screen.
3) Unify Red,Blue and Green vertical lines by adjusting two tab2 of 6-pole magnet.
4) Rotate tab with sustaining the angle of item 3) and unify Red,Blue and Green vertical lines.
5) To get more detail adjustment repeat 1),2) with remembering changes of Red,Blue and Green.
6) Fix magnet assy lock ring.

B. Dynamic Convergence Adjustment

1) Prepare bonded rubber wedge.
2) Adhere rubber wedge to “A” part halfly.
(Don’t remove paper of bonding part.)
3) Move the DY every direction to get best convergence in every corner.
4) Adhere rubber wedge to bottom of CPT.(Refer <Fig 9>).
5) After checking the locatons of 3 wedges and check Convergence.
6) Paint white lacquer on DY fixing nut and magnet.



<Figure 9>

6. White Balance

6.1 White Balance Adjustment

6.1.1 Necessary Instrument

1) White BAlance Meter

6.1.2 Preliminary Steps

1) Do this adjustment after operating the SET more than 30 minutes.
2) Receive Standard White pattern.
3) Adjust under “APC ON” condition.
4) Turn Screen VR CCW.
5) Set Red driver(VR571) and Blue driver(VR572) to mechanical center.
6) Set Red Bias(VR574) ,Blue Bias(VR575) and Green Bias(VR573) to 1/3 point to Clock-wise from full CCW.
7) Set SVC SW to “SVC” to get Horizontal line.

6.1.3 Adjustment

1) Turn screen VR slowly to see first horizontal line on screen
2) Make horizontal line white with 2 Bias VRs which aren’t displayed in 1).
3) Vary screen VR to get very dim horizontal line.
4) Set SVC SW to “Normal” position.
5) Receive adjustment signal-White in upper and Black in Lower.
6) Vary Red driver(VR571) and Blue driver(VR572) to get White screen in White.
7) Vary Bias and Drivers to get the best screen in White and Black.
8) Check adjustment condition with White Balance Meter.
9) Refer below for Adjustment

Color Temperature	X	Y
10,000K	0.281	0.288

High Light : 40fl
Low Right : 4fl

7. Focus Adjustment

1) Receive Digital pattern.
2) Set screen conditon to “APC ON”.
3) Turn Focus VR to get the best condition in center and every corner.

8. Sub-Bright Adjustment

1) Receive Digital pattern.
2) Do this adjustment after operating the SET more than 30 minutes.
3) After selecting Sub-mode with SVC Remocon and vary to distinguish 4 and 5 step of Gray scale.

9. Vertical Size Adjustment

1) Receive Digital pattern and set screen conditon to “APC ON”.
2) Vary Vertical Size adjustment VR(VR301) to reach inner circle of large circle to edge of frame.

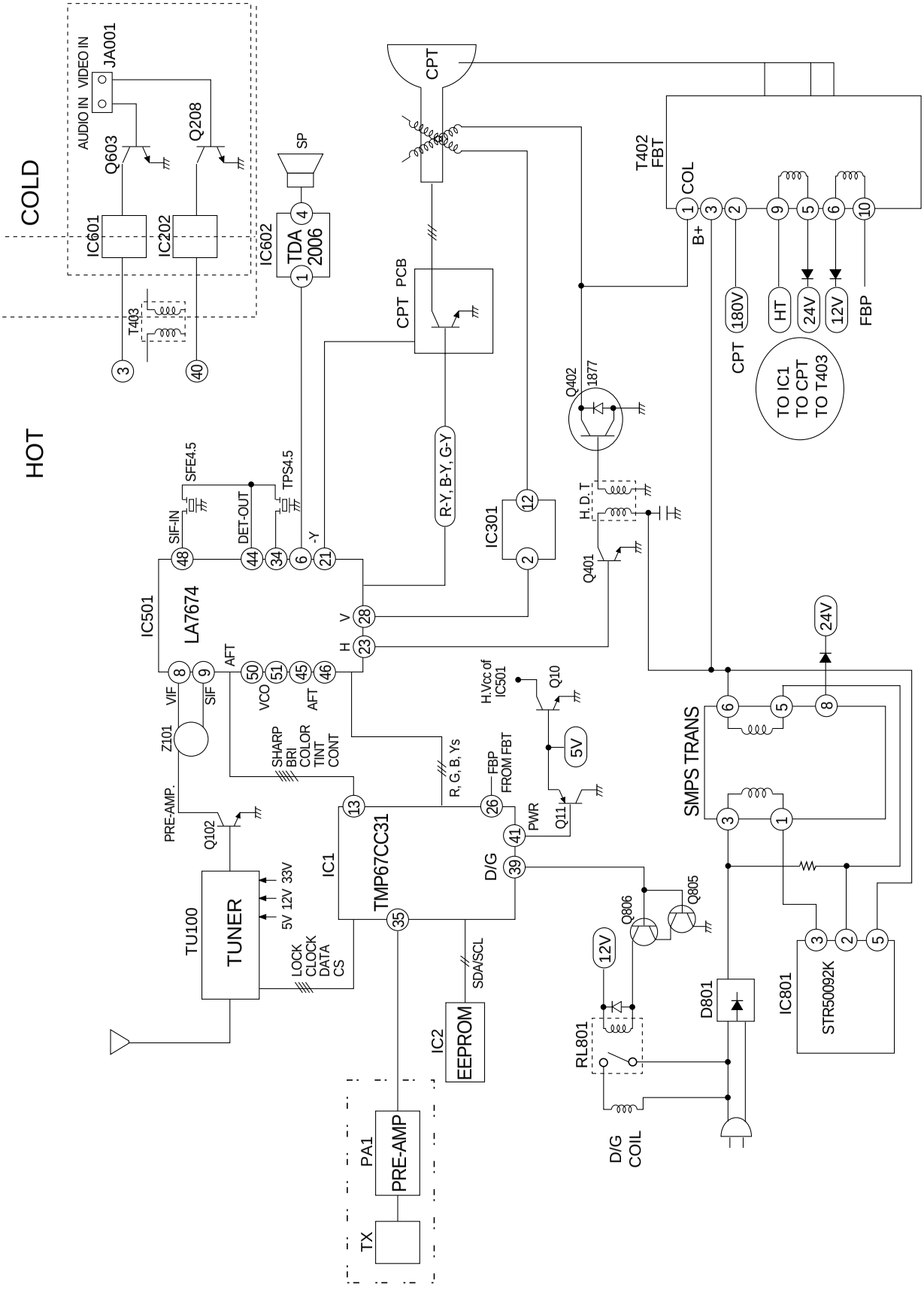
10. Vertical Center Adjustment

1) Receive Digital pattern and set screen condition to “APC ON”.
2) Adjust the center of screen with SVC SW(SW301) to place center.

11. Horizontal Center Adjustment

1) Receive Digital pattern and set screen condition to “APC ON”.
2) Adjust the center of screen with VR505 to place center.

BLOCK DIAGRM



NC-5AA SCHEMETIC DIAGRAM