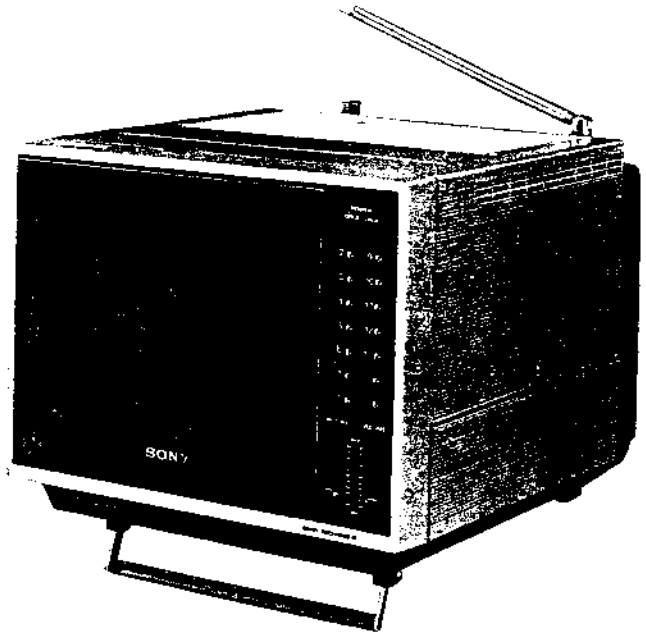
KV-8100
BP-81

US Model

Chassis No. SCC-284A-A

Original



TRINITRON® COLOR TV

SPECIFICATIONS

Television System:	American TV standards
Color System:	NTSC
Picture Tube:	20.3 cm, 8" (measured diagonally), 70° deflection TRINITRON system
Semiconductors:	54 transistors, 70 diodes, thermistor and 9 ICs
Antennas:	VHF/UHF: telescopic antenna 75 Ω external antenna jack
Channel Coverage:	VHF channels: 2 — 13 UHF channels: 14 — 83
Intermediate Frequencies:	Picture i-f carrier: 45.75 MHz Color subcarrier: 42.17 MHz Sound i-f carrier: 41.25 MHz
Sound System:	4.5 MHz intercarrier Output power: 900 mW (at 10 % harmonic distortion) Speaker: 10 cm (4 inches) dia, 32 Ω
Video System:	RGB cathode drive
Automatic Controls:	ABL (automatic brightness limiter) ACC (automatic color control) AFC (automatic frequency control) AFT (automatic fine tuning) AGC (automatic gain control) ANC (automatic noise canceller)
Anode Voltage:	17.2 kV at zero beam current
Power Requirements:	120 V ac, 12 V dc 24 V dc
Power Consumption:	49 W (max) AC, 40 W (average) DC (12 V) 33 W (average) DC (24 V) 33 W (average) BATT. (24 V)
Dimensions:	261 (w) x 236 (h) x 326.5 (d) mm 10¼ (w) x 9 ⅜ (h) x 12 ⅞ (d) inches
Net Weight:	8.8 kg (19 lb 3 oz)
Accessories Supplied:	Channel label Instruction manual Schematic diagram Power cord Antenna connector (EAC-4)

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECOME OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

SONY®
SERVICE MANUAL

SECTION 3
SETUP ADJUSTMENTS

The following adjustments should be made when a complete realignment is required or a new picture tube is installed.

Controls and switches should be set as follows:

PICTURE control } maximum
BRIGHT control } (fully clockwise)
AUTO and AFT switches ...ON

Make the following adjustments in the order given.

1. Beam Landing
2. Convergence
3. White Balance

Note: Test Equipment Required.
1. Color-bar-Pattern Generator
2. Degausser

3-1. BEAM LANDING

Preparation:

- Feed in the cross-hatch pattern
- Before starting, degauss the entire screen.

1. Loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Adjust purity magnet tabs as shown in Fig. 3-1.
4. Slide deflection yoke as far forward as it will go.
5. [illegible] leads Ⓡ and Ⓑ on the C board.
6. Adjust purity magnet tabs to center vertical green band as shown in Fig. 3-2.
7. Slide deflection yoke back for a uniform green screen.
8. Check red and blue rasters for uniformity by [illegible] steps 4, 5 and 6.
   To get a uniform red screen
   [illegible] Ⓡ and [illegible] Ⓖ and Ⓑ on the C board.
   To get a uniform blue screen.
   Connect lead Ⓑ and disconnect lead Ⓖ and Ⓡ on the C board.
   After these checks, connect the leads Ⓖ, Ⓡ and Ⓑ.
9. Tighten the deflection yoke screw.
10. Install the deflection yoke spacers.
11. Check if mislanding appears at corners a–d as shown in Fig. 3-3. If mislanding is observed, correct it as shown in Fig. 3-3.
12. Confirm that beam landing is correct when the receiver is faced in all directions.

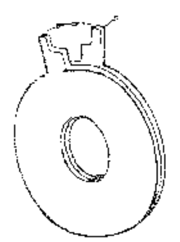


Fig. 3-1.

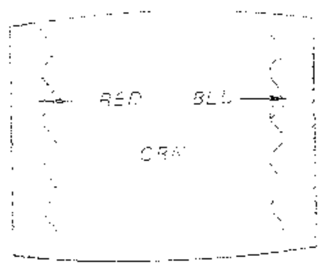


Fig. 3-2.

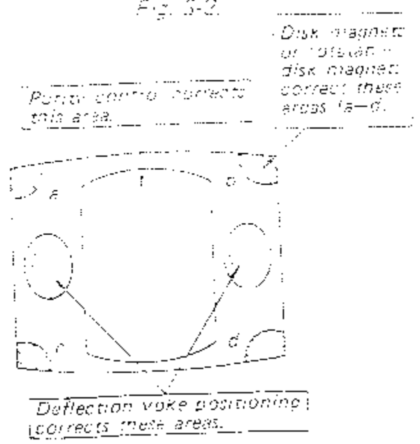


Fig. 3-3.

C Board

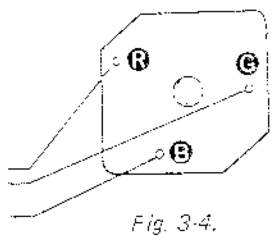


Fig. 3-4.

3-2. CONVERGENCE

Preparation:

- Before starting, perform FOCUS, H.SIZE, V.SIZE and V.LIN adjustments.
- Turn BRIGHT control fully counterclockwise, and set PICTURE control to mechanical center.
- Feed in the dot pattern.

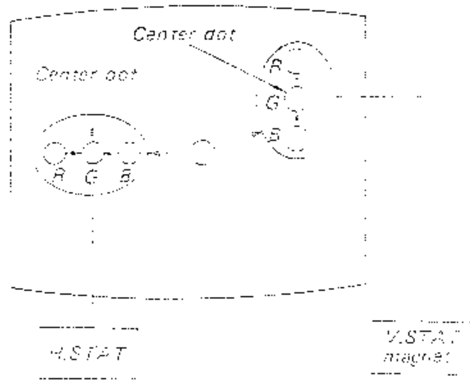
(1) Horizontal and Vertical Static Convergence

If blue dot does not coincide with red and green dots:

Move H.STAT magnet tabs (a) to correct insufficient H.static convergence.

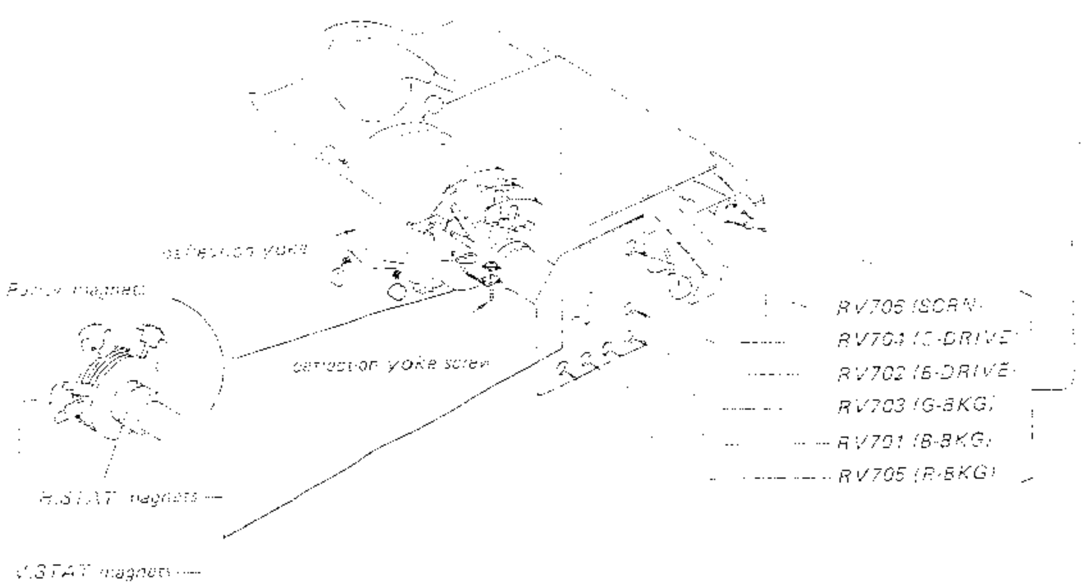
Move V.STAT magnet tabs (b) to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.



(2) Dynamic Convergence

Adjust H.STAT control so that green and blue [illegible] at center [illegible].



3-3. WHITE BALANCE

1. Turn COLOR, [illegible] and PICTURE controls fully counterclockwise.
2. Turn G. DRIVE (RV704) and B. DRIVE (RV702) fully clockwise.
3. Set R. BKG (RV705), G. BKG (RV703) and B. BKG (RV701) to mechanical center.
4. Turn SCRN (RV706) control slowly to obtain a faintly visible cross-hatch. Note the color that first becomes visible by turning SCRN control. Do not turn a BKG control for this color.
5. Adjust the other two BKG controls for best white balance (neutral gray) of the faint cross-hatch.
6. Turn BRIGHT and PICTURE controls fully clockwise. Observe the screen and adjust the DRIVE controls for best white balance.
7. Repeat Steps 1 through 6 several times.

SECTION 4
CIRCUIT ADJUSTMENTS

Note:

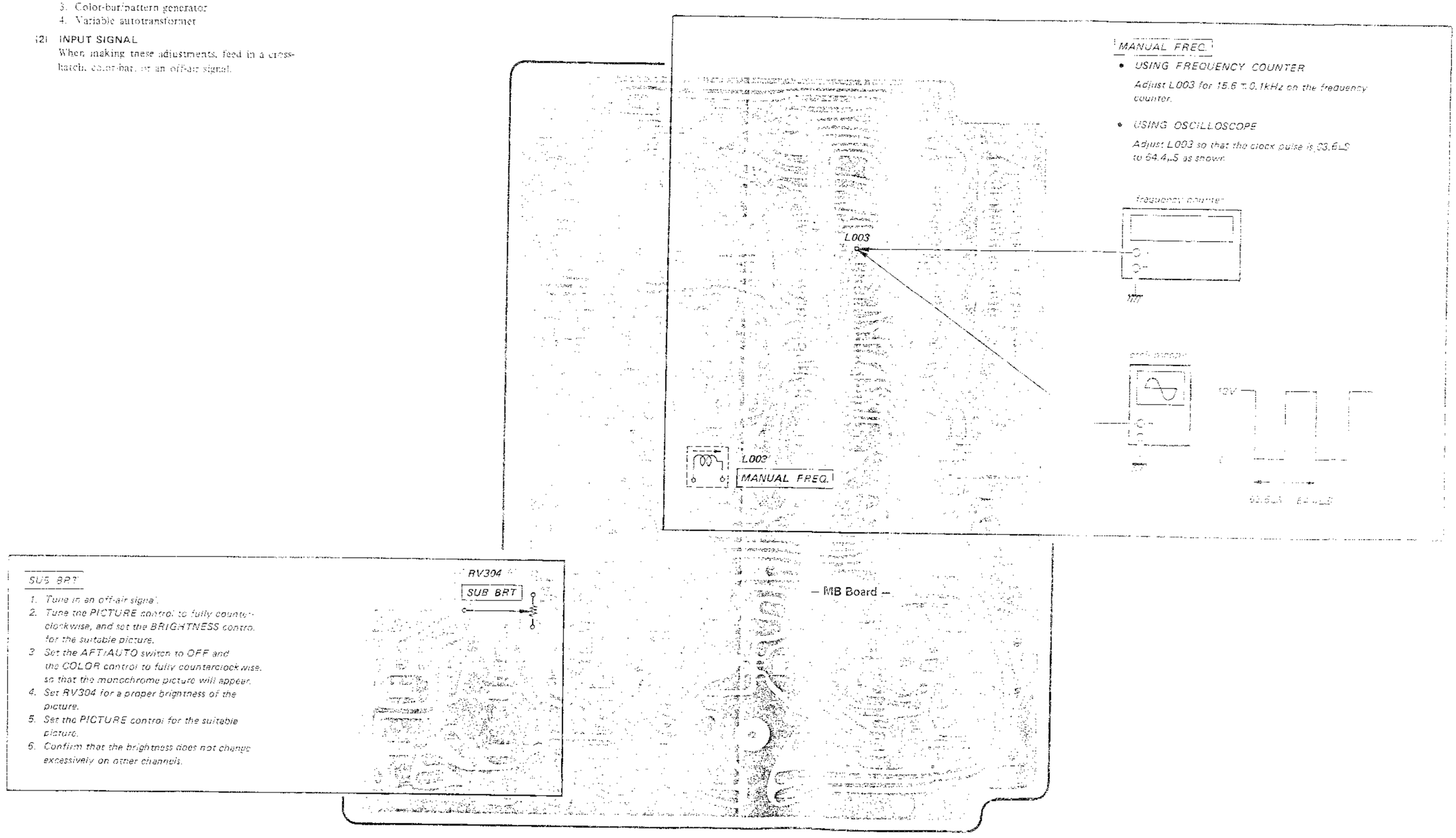
(1) TEST EQUIPMENT REQUIRED

1. Oscilloscope
2. Voltmeter (VOM)
3. Color-bar/pattern generator
4. Variable autotransformer

(2) INPUT SIGNAL

When making these adjustments, feed in a cross-hatch, color-bar, or an off-air signal.

4-1. MB BOARD ADJUSTMENTS



4-2. D BOARD ADJUSTMENTS

R532, R533 and R534 Adjustments

When replacing the following components make this adjustment.
C531, C534, C535, C536, D531, D532, D533, D534, Q531, Q532 R531, R532, R533, R534, R536, R538, R539, T504, T801 (marked ◪ on schematic diagram)

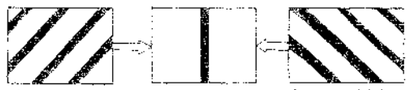
(Picture tube → cut off)

1. *Connect a regulated dc power supply to the minus side of C804 and supply 24.5 – 25.5V dc.*
2. *When the dc voltage is supplied, confirm that HV hold down circuit operates.*
3. *If the above steps is satisfied, select resistance values of R532, R533 and R534 and repeat above steps 1 through 3.*
4. *When the dc voltage supply 24.4 ± 0.1V dc, confirm that HV hold down circuit doesn't operate.*

R533 R532 R534

H. FREQ

1. *Tune in a strong off-air signal.*
2. *Adjust the PICTURE, BRIGHT and V. HOLD controls for the suitable and stable picture.*
3. *Connect a 10uF/50V electrolytic capacitor between the pin 1 of D7 connector and the ground.*
4. *Adjust T501 for the stable picture as shown.*



fo : too low *fo : suitable (fo = 15,734Hz)* *fo : too high*

5. *Confirm that the stable picture is obtained on other channels.*

D Board

T501
H. FREQ

10uF/50V

RV571
PIN. AMP

V. CENT

1. *When the picture is shifted above, solder V1.*
2. *When the picture is shifted below, solder V2.*
3. *When V1 and V2 are not soldered, picture positions between steps 1 and 2.*

V1
V2

H. CENT

Picture position is selected from four steps below.

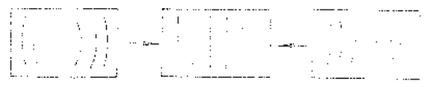
1. *Without solder jog.*
2. *To solder H1.*
3. *To solder H2.*
4. *To solder H3.*
5. *To solder H4.*

The picture move to right in order step 1 to 5.

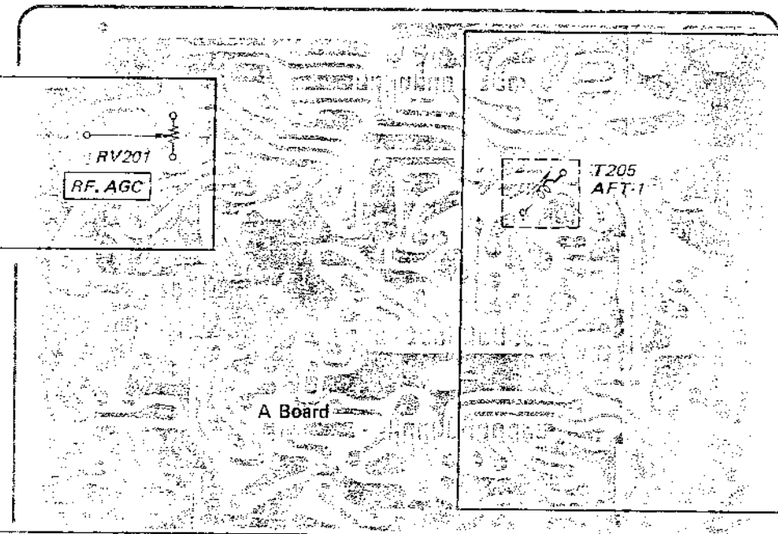
H4
H3
H2
H1

PINCUSHION AMP

Adjust RV571 to make vertical line, this grid shown below.



4-3. A BOARD ADJUSTMENTS



RF AGC U-V

1. *Tune in an off-air signal.*
2. *Adjust RV201 so that snow noise and cross-modulation disappear from the picture.*

AFT

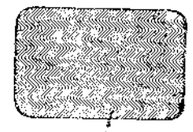
1. *Tune in an off-air signal.*
2. *Set the AUTO/AFT switch to OFF.*
3. *Set the PRESET switch (S081) to obtain 920kHz beat to press the TUNING UP (▶) switch (S083).*
4. *Press the TUNING DOWN (◀) switch (S084) to the point where the 920kHz beat just disappears.*
5. *Set the AUTO/AFT switch to ON. (The 920kHz beat will appear again.)*
6. *Set T205 to the point where the 920kHz beat just disappears.*

CHECK

1. *Set the AUTO/AFT switch to OFF.*
2. *Shift the tuning by pressing the TUNING UP (▶) or TUNING DOWN (◀) button and confirm that the suitable picture is obtained when AUTO/AFT switch is set ON.*

AFTER ADJUSTMENT

1. *Set the AFT/AUTO switch ON.*
2. *Press the TUNING UP (▶) or TUNING DOWN (◀) button.*



920kHz beat

SUB CONTRAST

1. *Tune in an off-air signal.*
2. *Set the PICTURE and BRIGHT controls to the suitable picture.*
3. *Set AUTO/AFT switch to OFF and turn the COLOR control to counterclockwise to obtain the monochrome picture.*
4. *Adjust RV308 for the suitable contrast picture.*
5. *Confirm that contrast does not change excessively on other channels.*

SIF

1. *Tune in an off-air signal.*
2. *Adjust T206 and T207 for maximum picture sound.*

F605 ADJUSTMENT

When replacing the following components, make the this adjust. D605, D602, C901, R604, R605, RV601, T901 (marked ▲ in schematic diagram).

PICTURE mode ..... cut off
INPUT ..... AC 130V
RV601 ..... fully clockwise

Confirm that the B+ voltage is less than 135.2V. If necessary, select the part marked ▣ to obtain specification.

COLOR SYNC

1. *Feed in a color-bar signal from the color-bar pattern generator.*
2. *Set the switch and controls as shown below.*
   AUTO/AFT switch ..... ON
   COLOR control ..... mechanical center
   HUE control ..... mechanical center
   PICTURE control ..... fully clockwise
3. *Connect a 27kΩ resistor between the pin 18 and 1 of IC301.*
4. *Connect a 10kΩ resistor between the cathode of D301 and the pin 1 of IC301.*
5. *Short circuit between the pin 16 and 17 of IC301 with a jumper.*
6. *Adjust CV301 to obtain the stable color picture.*
7. *Disconnect the 27kΩ and 10kΩ resistors and the jumper.*

ACC

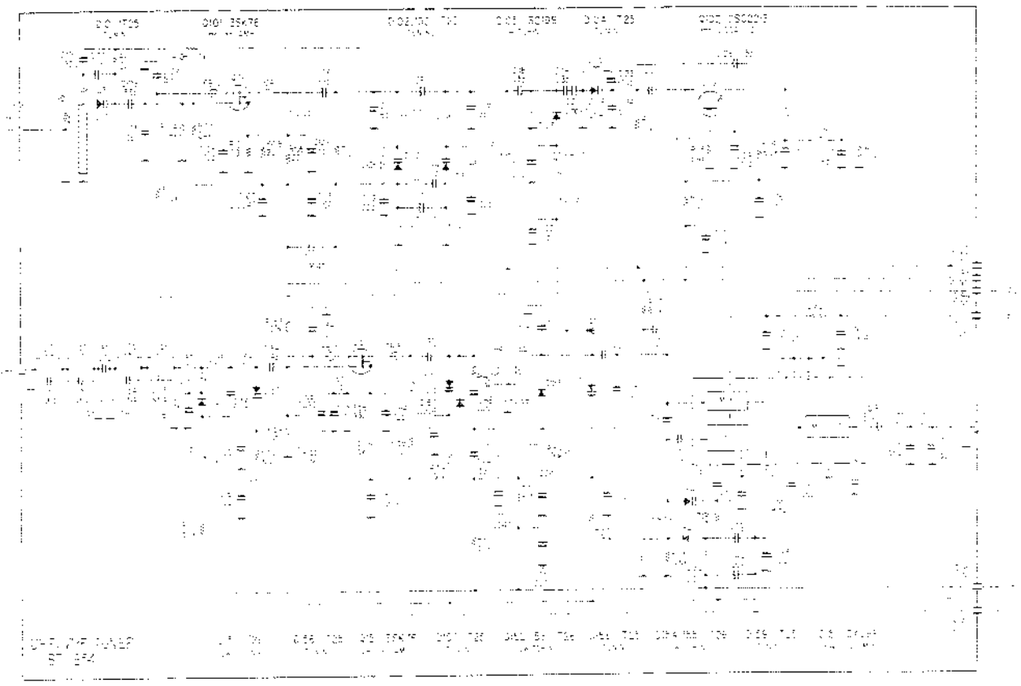
1. *Tune in a strong off-air signal.*
2. *Set the COLOR and HUE controls to the mechanical center.*
3. *Set the PICTURE and BRIGHT controls for the suitable picture.*
4. *Adjust RV307 for a proper color intensity.*
5. *Confirm the color intensity does not change to excessive color intensity on other channels.*

SECTION 5
DIAGRAMS

5-2. VHF AND UHF TUNER SCHEMATIC DIAGRAMS

– VHF/UHF Tuner –

(BT-854)

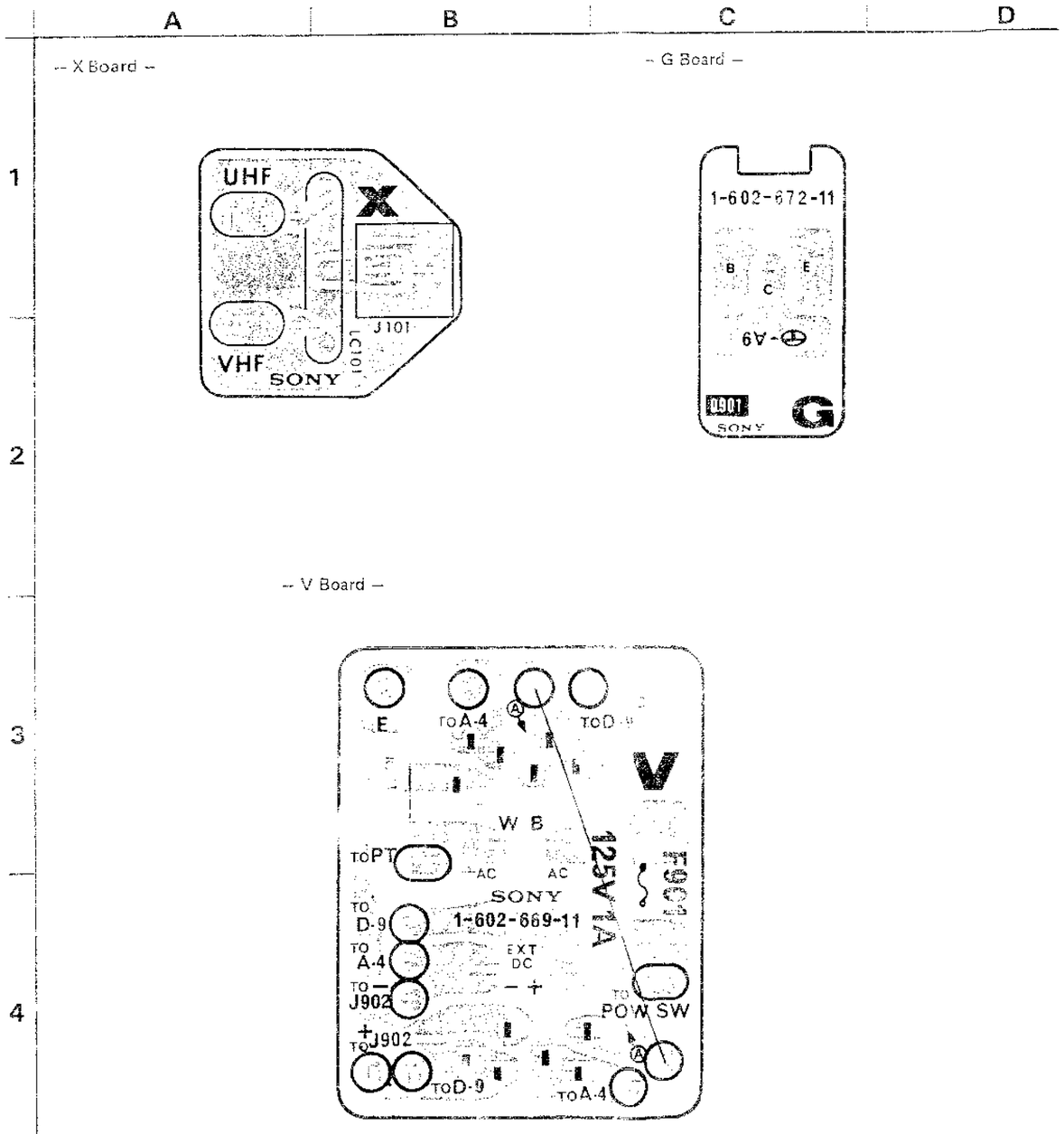


* Tuner reference numbers are not included in the Electrical Parts List.

X [ANT TERMINAL] **G** [22V REG.] **V** [AC IN / DC IN]

5-2. MOUNTING DIAGRAMS

– Conductor Side –

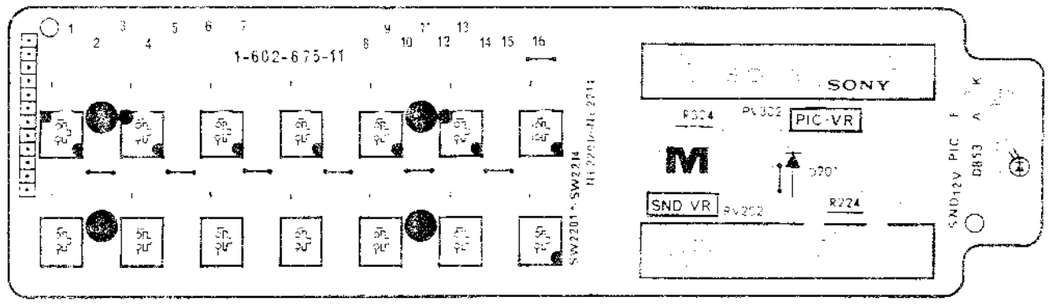


SCC-284A-A **KV-8100** **KV-8100** SCC-284A-A

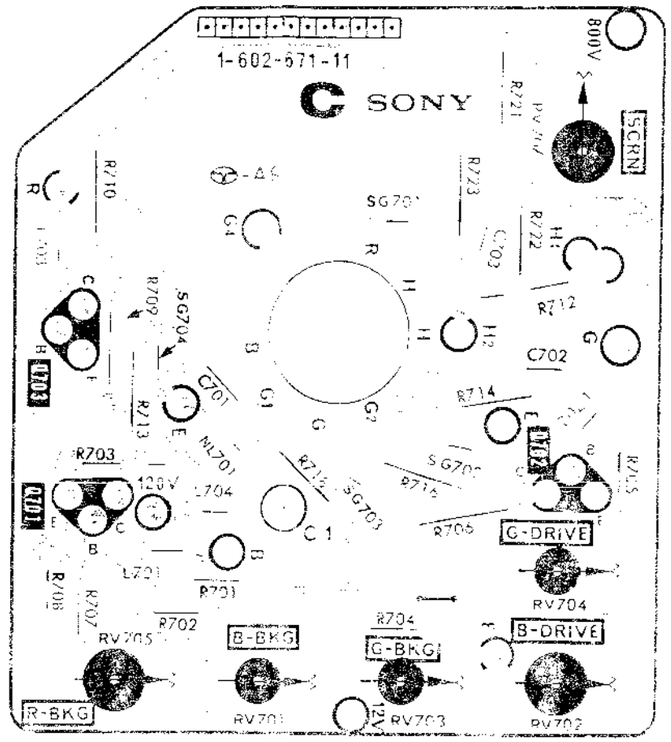
[CHANNEL SELECT / PICTURE SOUND CONT.] **M** **C** [R, G, B, OUT] **S** [TUNER, ACTIVE FILTER]

A B C D

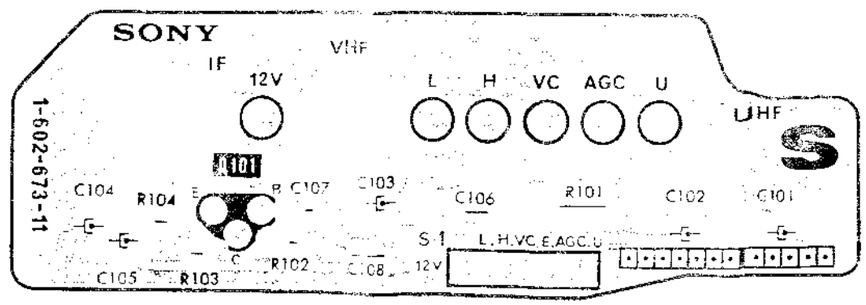
— M Board —



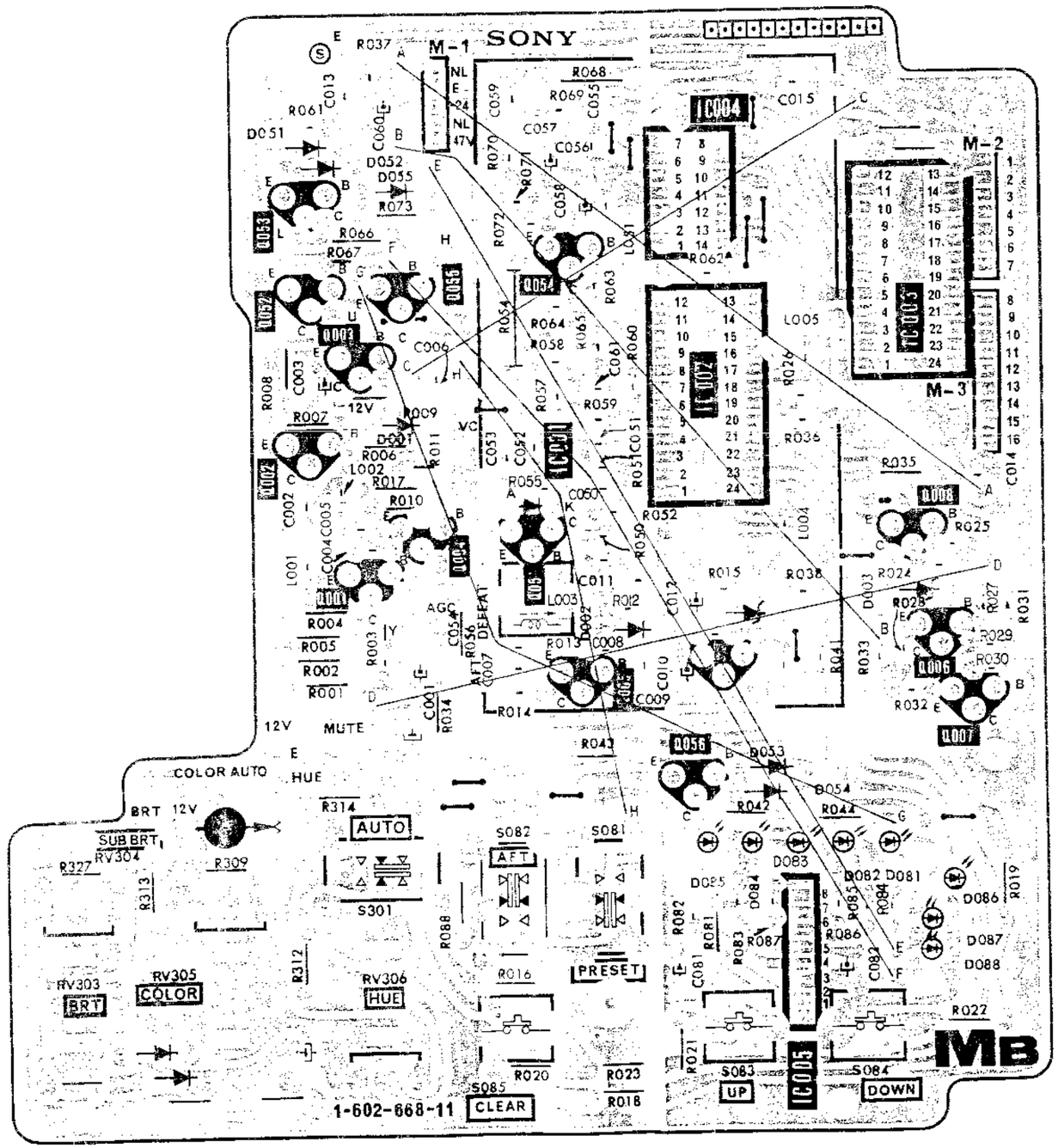
— C Board —



— S Board —



– MB Board –



Q, IC	D	ADJ
IC004	051 052 055 053	
054		
IC003		
052 055		
003		
IC002		
	001	
002		
IC001		
051 008 004 001		
	003	
006	002	
008		
007		
056	053 054	
	085 084 082	RV304
	088	RV303
	087	RV305
	086	
		RV306

Q, IC | D | ADJ

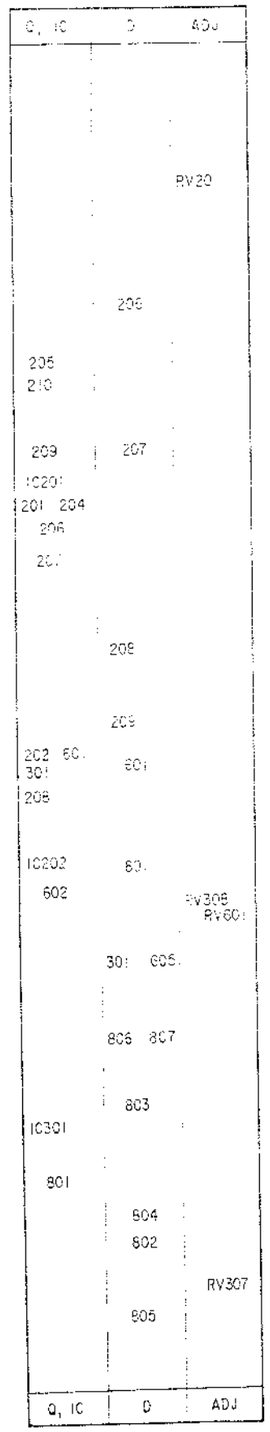
SCC-284A-A **KV-8100** **KV-3100** SCC-284A-A

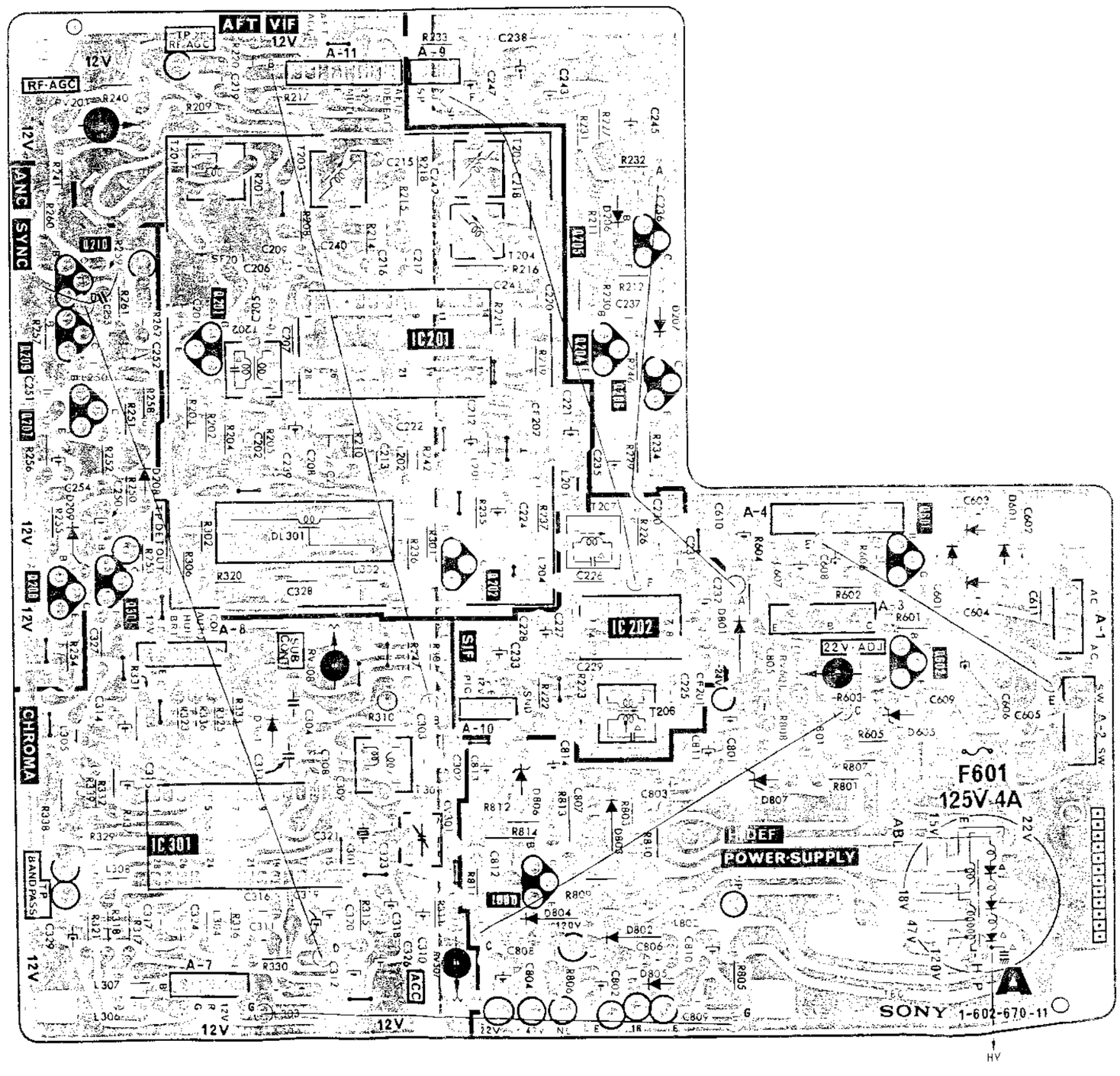
A A (VIF, SIF CHROMA, Y AMP, SYNC SEP, POWER SUPPLY)

A B C D E F G

1 2 3 4 5

— A Board —





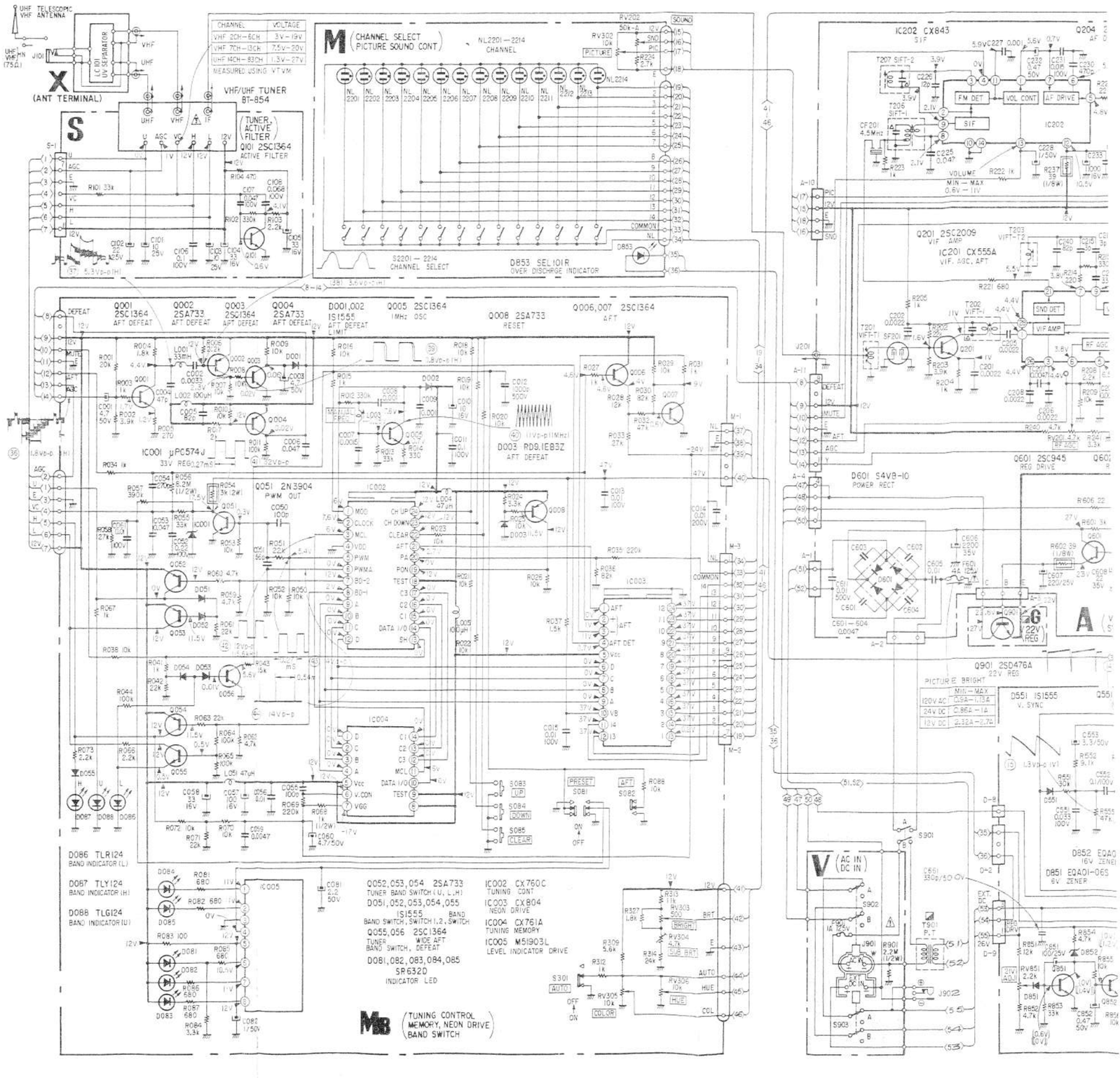
5-3. SCHEMATIC DIAGRAM

Note:

- All capacitors are in μF unless otherwise noted. 50WV or less are not indicated except for electrolytics. pF : μμF
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- : nonflammable resistor.
- : internal component.
- : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by ⊠ in this manual have been carefully factory selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪ mark the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ◪ and repeat the adjustment until the specified value is achieved. (Refer to R532, R533, R534 adjustment on page 13.)
  (Refer to R605 adjustment on page 16.)

Part replaced (◪)	Adjustment
C531, C534, C535, D531 D532, D533, D534, Q531 Q532, R531, R532, R533 R534, R536, R538, R539 T504, T801	R532, R533, R534 adjustment
D605, Q602, Q901, R604 R605, RV601, T901	R605 adjustment

- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a 20,000-ohm-per-volt VOM.
- Voltage variations may be noted due to normal production tolerances.
- : adjustment for repair.
- Readings are taken with a color-bar signal input.
- Voltages on the MB board are taken with set selected to CH-1 and high band.
- Voltages on the D board are taken with the condition below.
- ( ) : with external power supply (DC 24V) connected.
- : with external power supply (DC 12V) connected.
- [ ] : with rechargeable battery pack (DC 24V) connected.
- 〖 〗 : with rechargeable battery (DC 21V) connected.
- Waveforms (21) – (25) are taken with external power supply (DC 12V) connected.
- If the point marked ◆ is touched with the VOM probe, B+ voltage will not be supplied to the set.



D E F G H I J K L