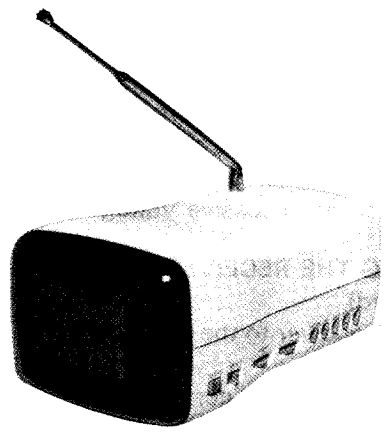
SHARP SERVICE MANUAL

S36U43LS36BK/



COLOR TELEVISION

Chassis No. C6L

MODELS 3LS36(BK)/(P)/(W)

CONTENTS

SHARP ELECTRONICS CORPORATION

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IMPORTANT SERVICE SAFETY PRECAUTION

■ Service work should be performed only by qualified service technicians who are thoroughly familiar with all of the following safety checks and servicing guidelines.

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect power source before servicing.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm Resistor in series with an insulated wire (such as a test probe) between the chassis and the anode lead. (Power Supply should be disconnected.)

1. Replace with tube of the same type number for continued safety.
2. Do not lift picture tube by the neck.
3. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential sources of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-ray radiations if the high voltage is adjusted as specified in the "high voltage check" instructions.
   It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter. The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value — no higher, Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and , also, under certain conditions, may produce radiation in excess of desirable levels.
4. When the high voltage circuit is operating properly there is no possibility of an X-radiation problem Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.

X-RADIATION AND HIGH VOLTAGE LIMITS (Continued)

5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver. Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

BEFORE RETURNING THE RECEIVER (Fire & Shock Hazard)

Before returning the receiver to the user, perform the following safety checks.

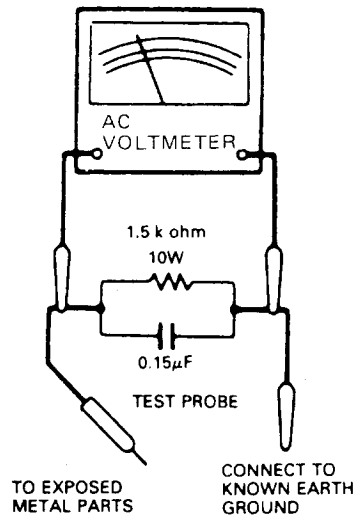
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating meterials, cabinet backs, adjustment and compártment covers or shields, isolation resistor-capacity networks, mechanical insulators etc.
3. To be sure that no shock harzard exists, check for leakage current in the following manner.

- Plug the AC line cord directly into a 120 volt AC outlet. (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5K ohm, 10 watt resistor paralleled by a 0.15μF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
- Use a AC voltmeter having with 5000 ohm per volt, or highter, sensitivity to measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon etc.) and measure the AC voltage drop across the resistor.

  All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these checks.)

  Any reading of 0.3 volt RMS (this corresponds to 0.2 milliamp. AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.

IMPORTANT SERVICE SAFETY PRECAUTION (Continued)



SAFETY NOTICE

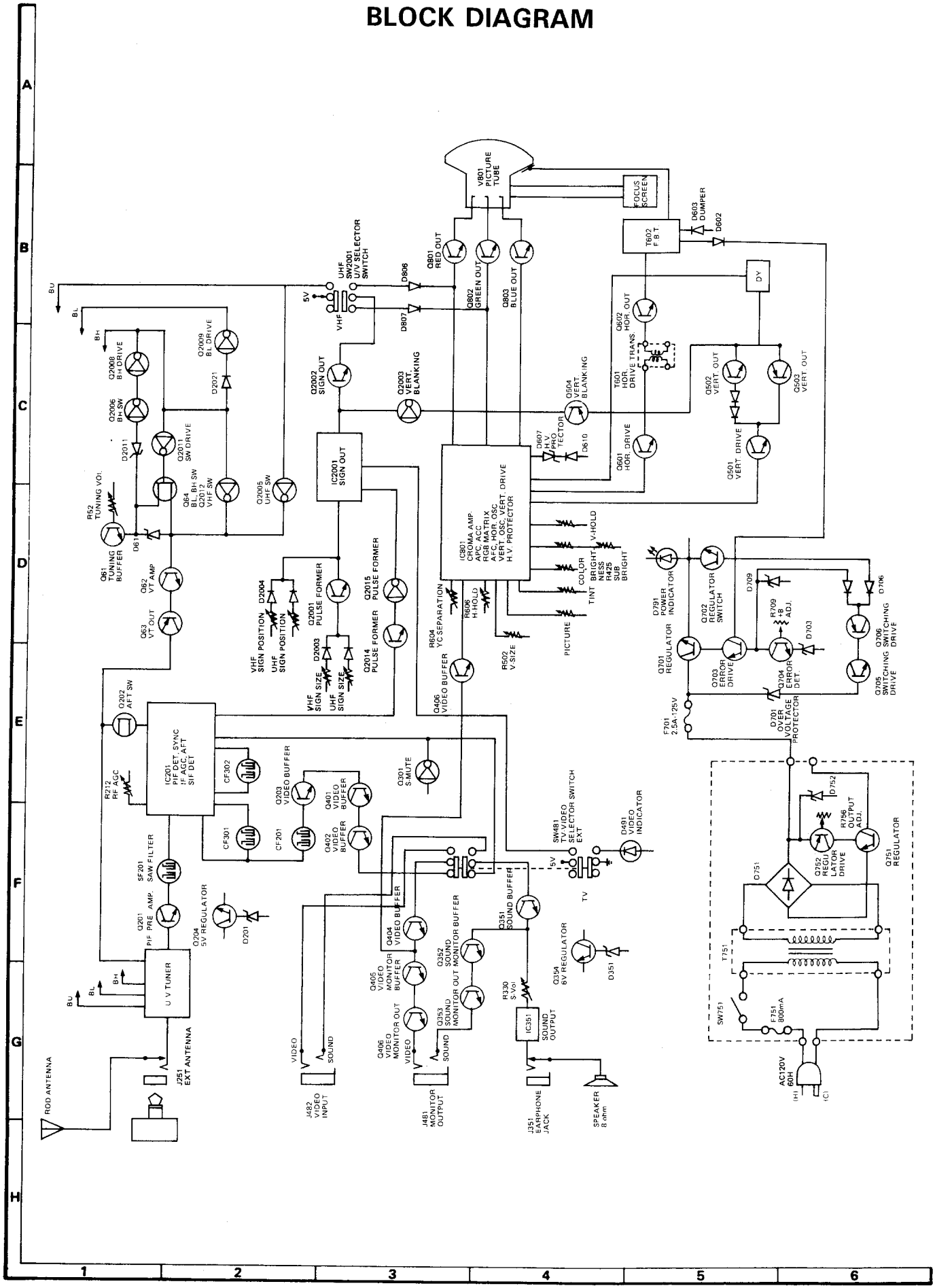
Many electrical and mechanical parts in television receivers have special safety-ralated characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are indentified by "⚠" and shaded areas in the Replacement Parts Lists and Schematic Diagrams. For continued protection, replacement parts must be indentical to those used in the original circuit. The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

ELECTRICAL SPECIFICATIONS

ANTENNA INPUT IMPEDANCE	75 ohm unbalanced
CONVERGENCE	Magnetic
FOCUS	Bi-Potential Electrostatic
AUDIO POWER OUTPUT RATING	0.2 Watt (at 10% distortion)
INTERMEDIATE FREQUENCIES	
Picture IF Carrier Frequency	45.75 MHz
Sound IF Carrier Frequency	41.25 MHz
Color Sub-Carrier Frequency	42.17 MHz (Nominal)
PICTURE SIZE	5.84 sq. in.
POWER INPUT	120 volts AC 60 Hz/12 volts DC
POWER RATING	28 watts AC/17 watts DC
SPEAKER SIZE	1.77"
VOICE COIL IMPEDANCE	8 ohm at 400 Hz
SWEEP DEFLECTION	Magnetic
TUNING RANGES	VHF-Channels 2 thru 13
	UHF-Channels 14 thru 19

BLOCK DIAGRAM



INSTALLATION AND SERVICE INSTRUCTIONS

CIRCUIT PROTECTION

The entire receiver is protected by a 800 mA fuse (F751), mounted in AC adapter, wired into one side of the AC line input and 2.5A fuse (F701), mounted on PWB-A, wired into one side of the DC line input.

X-RADIATION PROTECTION CIRCUIT TEST

When service has been performed on the horizontal deflection syste, high voltage system or B + system, the X-Radiation protection circuit must be tested for proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Check the voltage of test point KF. (It's voltage should be about 10V DC.)
4. Connect + 13V DC bias to test point KF. When this DC bias is connected, the operation of horizontal osc. must stop.
5. Remove + 13V DC bias from test point KF. (Then, the set operates with normal picture by turning the power switch off first and then turning it on.)
6. If the operation of horizontal osc. does not stop in step 4, the circuit must be repaired, rechecked and found satisfactory before the set is returned to the customer.

HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter to CRT anode.
2. Operate receiver for at least 15 minutes at 120V AC line, with strong air signal or test signal properly tuned in.
3. Set SW401 on PWB-A to "on" (push lock) position.
4. Rotate Screen control to minimum (CCW) end of its rotation.
5. The reading should be approximately 10kV at zero beam.
   If a correct reading cannot be obtained, check circuitry for malfunctioning components. Upon completion of voltage check, set SW401 to "off" position and readjust Screen control for proper operation as detailed in BLACK AND WHITE TRACKING procedure.

INSTALLATION AND SERVICE INSTRUCTIONS (Continued)

Each control of this models has been factory adjusted at the best point, but should the control be detuned or if the part(s) is replaced with the new one(s), perform the adjustments as described below.

Notes: • Rotational direction of each control on the PWB shown in the following descriptions is the direction viewed from the part loaded side of the PWB.
• Prior to the adjustment, be sure to warm up the unit for about 10 minutes.

Adjustment of RF-AGC Control

1. In the case of weak electric field (weak signal)
   (1) Select the channel whose signal produces significant noise. (The standard electric field intensity is set at 5dB.)
   (2) Rotate the RF-AGC control (R212) to the position where the noise is unnoticeable.
   (3) Select the other channel(s) and check that there appears no noise on screen.
2. In the case of strong electric field (strong signal) In this case, there may be an interference of cross-modulation to produce strip patterns on screen.
   (1) Rotate the RF-AGC control so that the stripe patterns are unnoticeable.
   (2) If the result is unsatisfactory with rotation of the RF-AGC control, attach an attenuator to the antenna board and again perform the adjustment (1) above.
   (3) Check that there appears no noise on screen.
   (4) Select the other channel and check that there is nothing abnormal.

Adjustment of Horizontal Sync Control

1. Reproduce a picture on screen.
2. Rotate the horizontal sync control (R606) so that there is produced the voltage of 3.2V at pin ⑨ of IC801.

Adjustment of Vertical Amplitude Control

1. Reproduce a picture on screen.
2. Rotate the vertical amplitude control (R502) so that the best amplitude is obtained.

Adjustment of +B Power Supply Circuit

1. Check that AC voltage is 120V.
2. Rotate the +10.7V control (R709) so that there is produced DC 10.7V between TP91 and earth.

Adjustment of Focus Control

1. Reproduce a picture on screen. For easier adjustment, it is recommended to select the channel which provides a rather still picture.
2. Set the picture control at the maximum position.
3. Adjust the focus control to obtain the best focus.
4. While varying the set position of the picture control, check that the focus remains best.

Adjustment of White Balance

1. Receive a black/white broadcast and adjust the control at the back of the unit to obtain the best picture: set the black level control at the center click position.
2. Rotate the screen control fully counterclockwise and each of the red, green and blue bias controls (R809, R813 and R817) also fully counterclockwise: at the time, set the red and blue drive controls at the center position.
3. Set the service switch (SW401) at ON position. As a result, each cathode is set to have the same voltage so that no picture signal is reproduced on screen.
4. Under the condition (3) above, there appears no raster on screen. Rotate the screen control clockwise until a dim raster of one pronounced color (red, green or blue) is obtained.
5. Rotate the other two color bias controls clockwise until a dim white raster is obtained.
6. Rotate the screen control counterclockwise to cut off the raster.
7. Set the service switch at OFF position and the picture control at the maximum position, and then adjust the red and blue drive controls (R810 and R818) so that the raster becomes white.
8. Repeat the steps (3) to (7) until no further adjustment is needed.
9. White rotating the picture control counterclockwise, check that the white balance remains good.

Note: As the drive control is rotated, the color bias will be deviated. Therefore, if the red drive control (R810), for example, is rotated in the direction which makes stronger the reproduced color, it is then needed to adjust the red bias control to make weaker that color.

Fine adjustment of Screen Control

1. Receive a black/white broadcast and adjust the control at the back of the unit to obtain the best picture: at the time, set the picture control at the maximum position.
2. Set the service switch (SW401) at ON position. As a result, no picture signal is reproduced and it is possible to make appear a raster on screen.
3. Rotate the screen control to the position where the raster is slightly visible.

4. Set the service switch at OFF position.

Notes: • If the screen control is rotated, it will disturb the white balance. So, it is needed to readjust the white balance after rotation of the screen control.
• Prior to this fine adjustment of the screen control, adjust the sub black level and white balance as mentioned before.

Convergence

The deflection coil used in this model is of pin cushionless type, and it is somewhat different the conventional deflection coils.

1. Fit the deflection coil to the CRT and adjust so that they are placed horizontal to each other, then perform the color purity adjustment with the purity magnet.
   With this model, therefore, it is no need to perform the dynamic convergence (convergence of the three color fields at the edges of the CRT screen).
2. Perform the static convergence with the convergence magnet in the manner as usual.

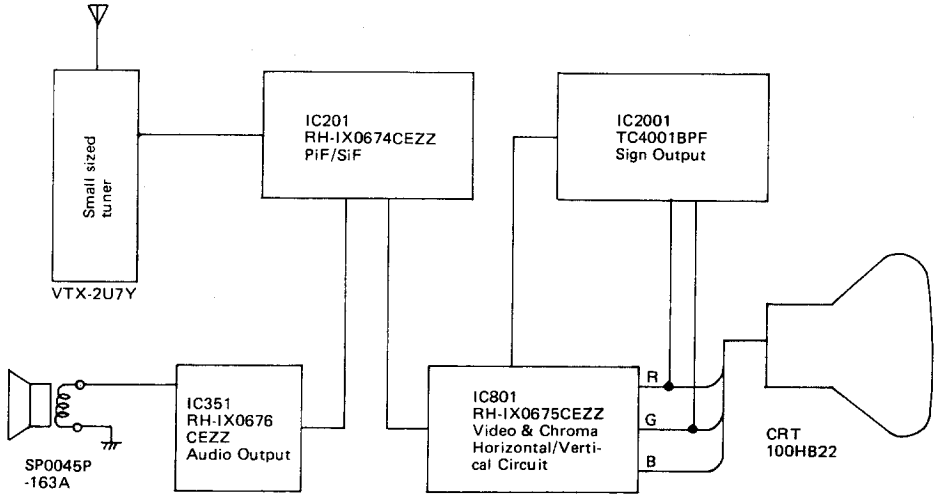
Caution: If you try to adjust the color purity at the center of raster by moving the purity magnet beyond the specified limit, the convergence will deteriorate. Be careful to avoid this.

Adjustment of Green Sign Position (R2046)

1. Receive a crosshatch pattern signal (with the specified local oscilation).
2. Connect an oscilloscope between pin (1) of IC2001 and earth.
3. In the AC range of oscilloscope, adjust the VHF amplitude control so that the output waveform is of 1.8 ± 0.05Vp-p. Then remove the probe of oscilloscope.
4. Adjust the VHF position control so that the bar sign comes to the figure "2" on screen.
5. Receive the signal of the channel 13 (with the specified local oscillation).
6. Check that the bar sign is positioned on the figure "13" on screen.

Adjustment of Red Sign Position (R2046)

1. Receive the signal of the channel 14 (with the specified local oscillation).
2. Connect an oscilloscope between pin (1) of IC2001 and earth.
3. In the AC range of oscilloscope, adjust the UHF amplitude control so that the output waveform is of 1.7 ± 0.5 Vp-p.
4. Adjust the UHF position control so that the sign bar comes to the figure "14" on screen.
5. Receive the signal of channel 69 (with the specified local oscillation).
6. Check that the sign bar is positioned on the figure "69" screen.



Tuner (VTX-2U7)

The tuner we have recently developed is amply equipped with small chip parts which enable production of the light-in-weight unit because of its dimensional reduction and contribute to lower power consumption.

The small chip parts are effectively installed on the tuner through the high-density mounting technique of our own, and the chassis structure is so designed as to allow high mass-productability.

In addition to those advantages, miniaturization of UHF circuit, which has so far been thought hard to realize, is now realized through development of the pseudo strip line and reduction of the number of circuitry parts. Furthermore, this microelectronic tuner (VTX-2U7) features lowered power consumption compared with the conventional ones: the VTX-2U7 operates on the power supply voltage of 4.5V with current consumption of 10 to 14 mA, while the conventional tuner operates on the power supply voltage of 12V with current consumption of 40 to 50 mA.

PIF/SIF IC (RH-IX0674CEZZ)

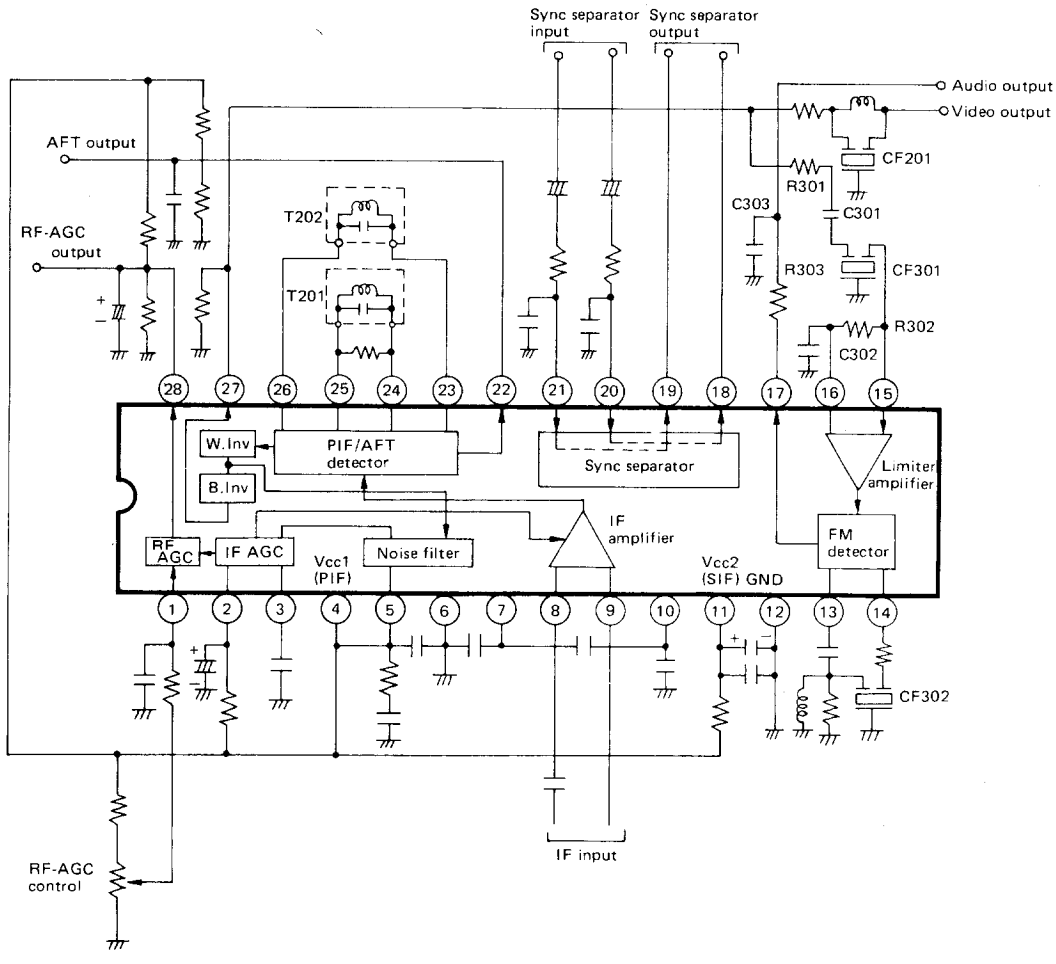
Features of this IC

1. Single chip dealing with both PIF and SIF signals.
2. Lower power consumption (about 150mW) with power supply voltage of $V_{CC} = 5V$ and current consumption of 20 to 40mA.
3. Built-in sync separator circuit (2 circuits).
4. Miniaturization thanks to use of (28) pin mini flat package.
5. No need of adjustment of the audio detector circuit thanks to use of a ceramic discriminator.

Operation

IF signal coming out of the tuner is applied in a differential way to pins (8) and (9) of the PIF/SIF IC. Then it is subjected to the low level detection and black/white noise clamping, and goes out of pin (27) ; the signal available at this pin (27) is the composite video signal which is mixed with the SIF signal (4.5 MHz). The video signal and SIF signal are then sent to the respective ceramic filters where they are separated from each other. Included in this IC are AFT circuit and AGC circuit, and the AGC circuit detects the sync peak value of the signal which has passed through the noise filter: this detection is controlled by the time constant connected to pin (2).

The SIF signal entering pin (15) is sent to the limiter amplifier where its amplitude-modulated component due to the video signal is removed, and it is fed to the FM detector circuit. The FM detector circuit is of FM guadrature type and it requires no adjustment because it includes a ceramic discriminator (CF302).
There is generated the audio signal at pin (17) after it has passed through the deemphasis low pass filter made of R303 and C303.
The composite video signal is applied to pins (20) and (21) (both pins kept in positive polarity) of the sync separator circuit and goes out of pins (18) and (19) ; pin (18) has the positive polarity and pin (19) the negative polarity.



UHF/VHF Switch Circuit

In VHF mode

The tuning voltage which has experienced an impedance conversion at Q61 is detected by D2011. As a result, the collector of Q2009 becomes High level when the unit is in low-channel reception, while the collector of Q2008 does so when the unit is in high-channel reception. During the low-channel reception since Q2011 is turned off, the gate voltage is applied to the gate of Q64 so that there is a shortcircuit between its drain and source. Accordingly, there is produced a voltage at the emitter of Q61 and it goes out of the point (A) as the tuning voltage. During the high-channel reception, High level signal is applied to the base of Q2011 so that there is an open circuit between and source of Q64. As a result, there is a voltage drop at D61 and the resultant voltage is subjected to voltage division by R61 and R2020 and goes out of the point (A) .

In UHF mode

A shortcircuit is caused between the drain and source of Q64 and the tuning voltage is subjected to a voltage division by R61 and R2025 and goes out of the point (A) .

Sign Display Circuit

Circuitry Description

Sign pulse generator circuit

The pulse coming from the collector of the horizontal output transistor is applied to Q2001, and there is generated a sawtooth wave at the collector of Q2001 and after passing through C2002, the wave is DC biased by the tuning voltage.

Then the sawtooth wave is sent to pins (1) and (2) of IC2001 where it is transformed into a square wave to go out of pin (10) . The square wave is then subjected to a differentiation by C2003 and the resistor (connected to pin (5)) and is applied to pin (5) . Finally when pins (5) and (6) are both at Low level, pin (4) becomes High level and there is generated the sign display pulse.

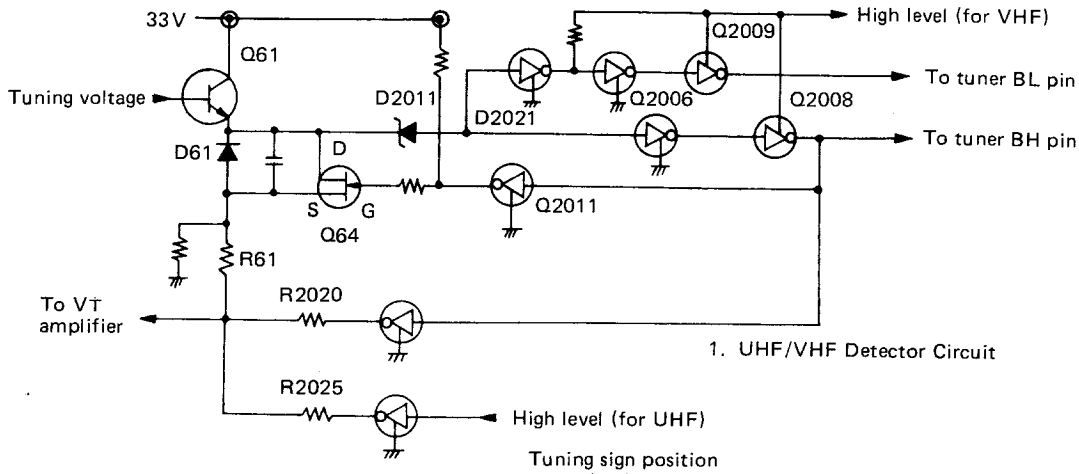
Tuning detector circuit

The signal coming from the sync separator circuit (IC201) is applied to Q2014 where its phase is inverted. Then this signal is NAND operated with the pulse coming from the horizontal output transistor and the resultant signal is sent to the collector of Q2015. Finally there is cause the voltage at each of pins (12) and (13) of IC2001, and this voltage depends on the charge time constant of R2034, R2035 and R2036 and C2007, and on the discharge time constant of R2035 and C2007.

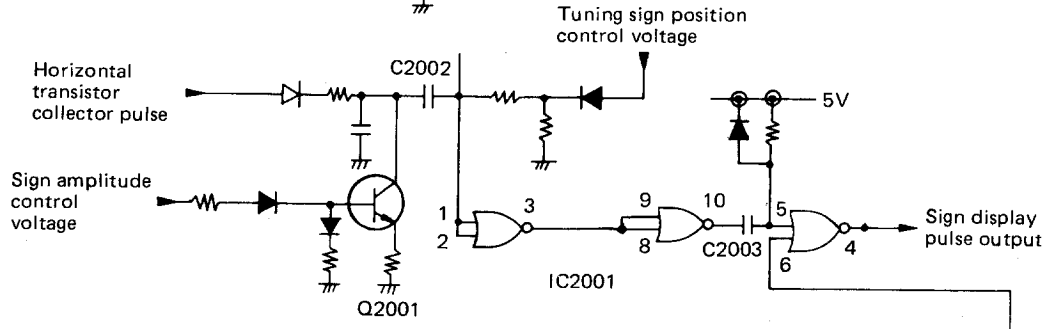
When the unit is tuning in TV signal:

The signal available at the collector of Q2015 is kept at High level for longer than the period specified by the discharge time constant, and therefore, Low-level signal is applied to pins (12) and (13) of IC2001. Then there is caused High-level signal at pin (11) and about 3 seconds later, it will be sent to pin (16) to erase the sign display on screen: this time lag is decided by R2039, R2038 and C2008.

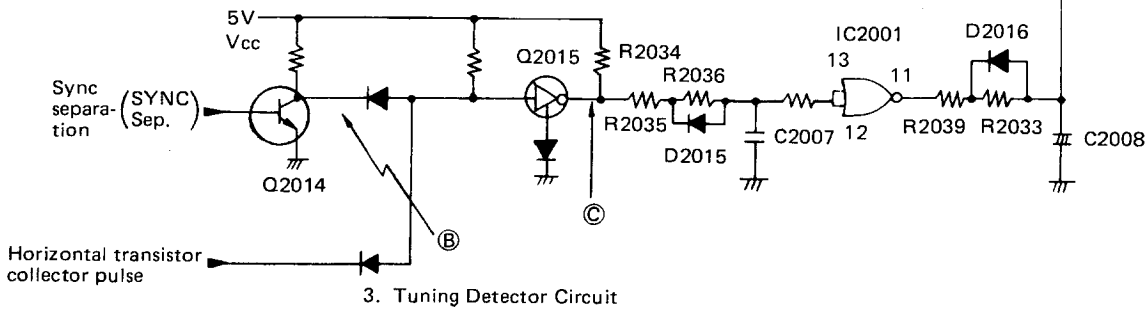
When the unit is not tuning in TV signal:
On the contrary to the above case, there is caused Low-level signal at pin (11) and under control by the discharge time constant of R2039 and C2008, it is sent to pin (6) to make appear the sign display on screen.



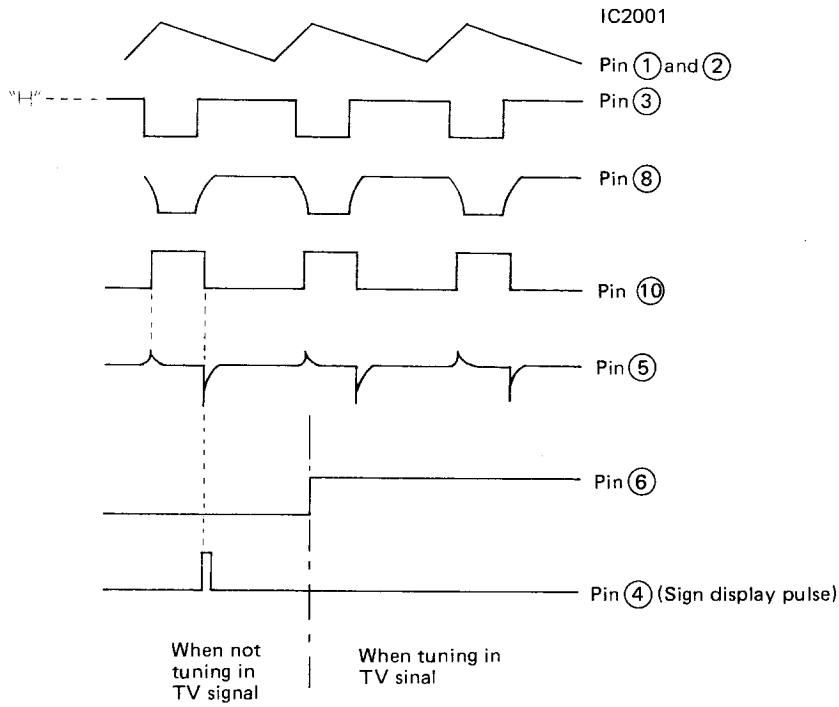
1. UHF/VHF Detector Circuit



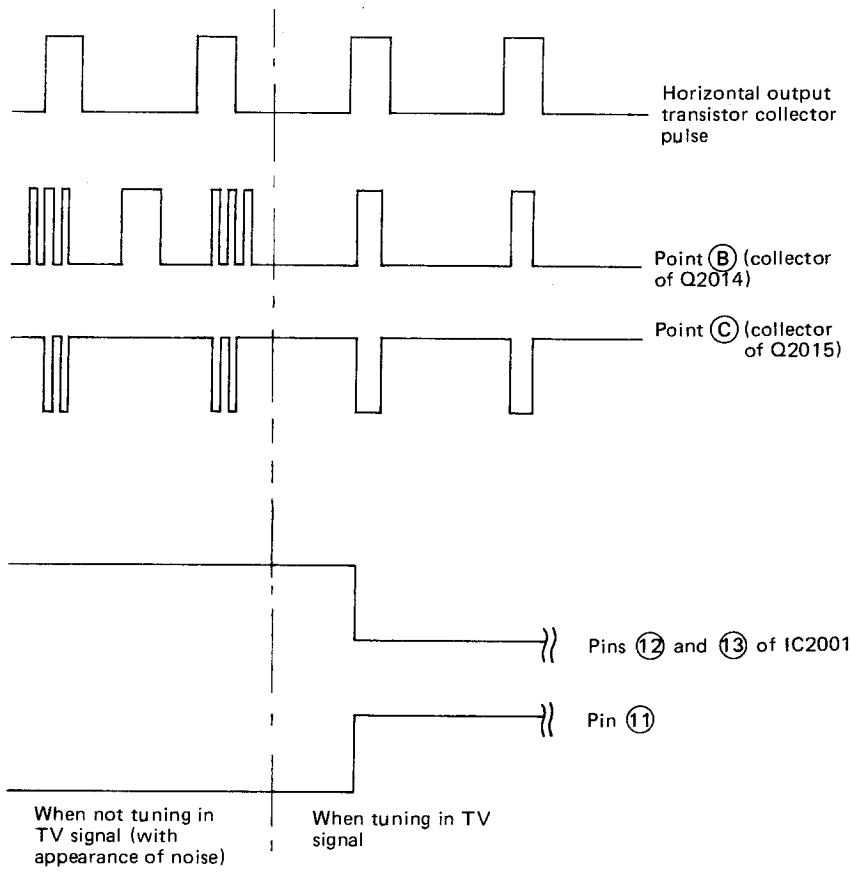
2. Sign Pulse Generator Circuit



3. Tuning Detector Circuit



Waveform of Sign Display Pulse



Waveform of Tuning Detection Signal

RH-IX0675CEZZ

This IC includes video circuit, chroma circuit, sync separator circuit and vertical/horizontal drive circuit.

Circuitry description

Y/C separation filter

The video signal and chroma signal are separated from each other inside the IC and the current available at pin (1) controls the separation frequency.

Video muting

When there is caused more than 3V at pin (21), the video muting is carried out: in this model, this function is used for blanking of the channel sign display.

X-ray protector

When the voltage of pin (10) exceeds that of pin (5), the horizontal output, red output, green output and blue output are cut off. The voltage of pin (5) is the reference voltage which is set at 7.6V.

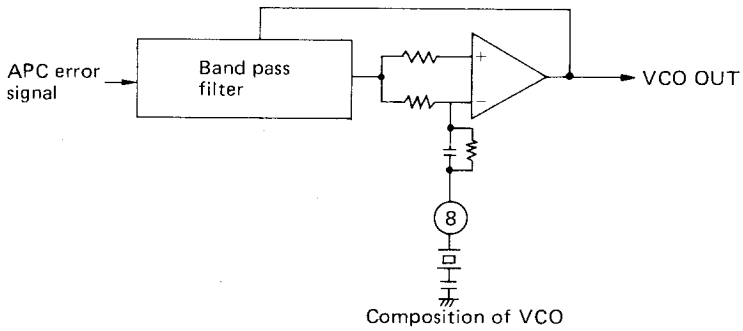
3.58 MHz VCO

The VCO is composed of a differential amplifier and band pass filter. APC error signal is applied to the band pass filer so that its phase characteristic is changed accordingly to perform APC operation. The frequency oscillation is stopped if a probe is bronght into pin (8).

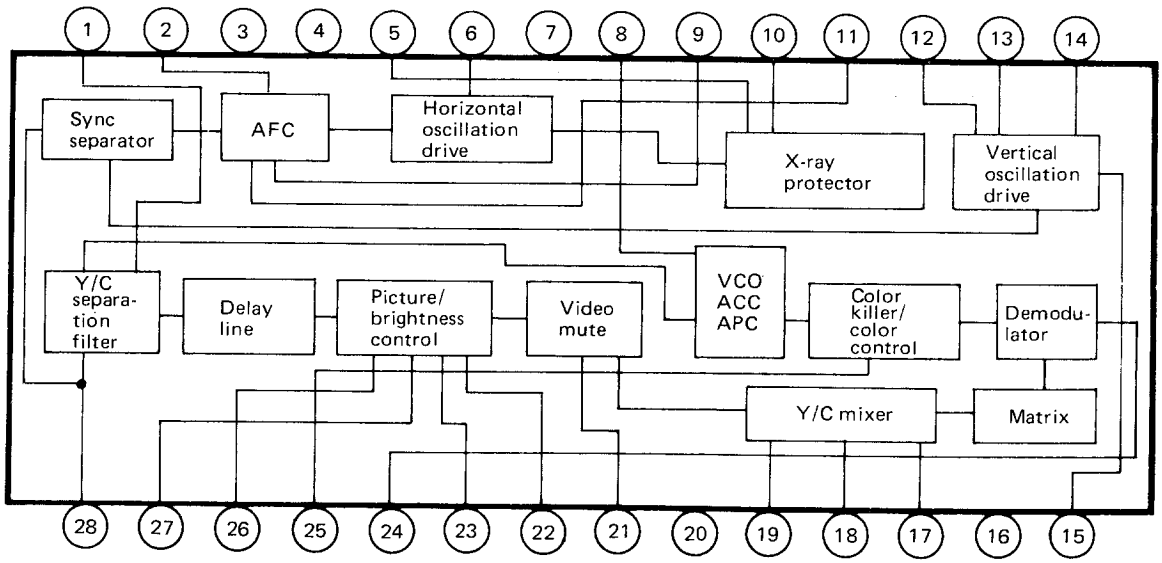
Supply voltage V_{CC}

With this IC, there are two supply voltages available at pin (4) (V_{CC}-1) and pin (20) (V_{CC}-2). V_{CC}-1 is used to activate the video/chorma signal processing section and vertical drive circuit, and V_{CC}-2 is used to activate the other sections.

V_{CC}-1 is stabilized at 9V through operation of the shunt regulator inside the IC.



Composition of VCO



Function of each pin of RH-IX0675CEZZ

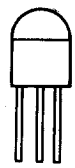
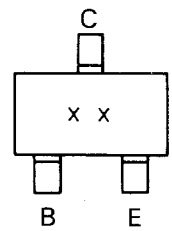
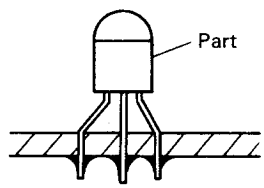
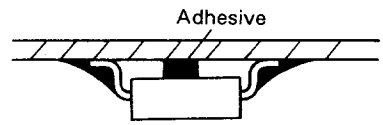
1	Y/C separation filter control	15	Vertical NF input
2	Horizontal sync control	16	GND-1
3	Horizontal sync separation output	17	Blue output
4	V_{CC}-1	18	Green output
5	X-ray protector	19	Red output
6	Horizontal drive output	20	V_{CC}-2
7	GND-2	21	Video mute
8	Crystal oscillation	22	Black peak hold
9	Horizontal AFC output	23	Brightness control
10	X-ray protector	24	Tint control
11	Flyback pulse input	25	Contrast control
12	Vertical sync control	26	Picture control
13	Vertical drive output	27	Sharpness control
14	Vertical amplitude control	28	Video input

INFORMATION ABOUT SMALL CHIP PARTS

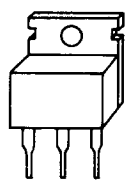
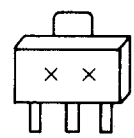
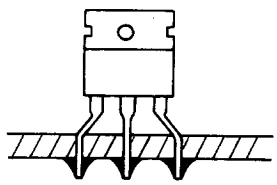
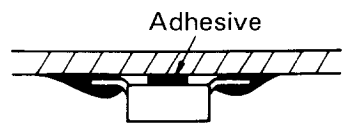
The 3LS36 series color television we have released this time uses those circuit boards amply equipped with small chip parts, which have so far been used only in some circuit.
In future small chip parts are expected to be used more and more; but they require no special servicing techniques, and we thick they can be serviced in the same manner as ordinary parts. Hereunder are given the details of small chip parts and their servicing procedures.

Difference of Small Chip Parts (or Leadless Parts) againts Ordinary Parts (with Leads)

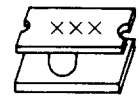
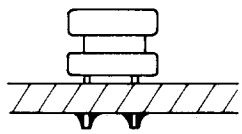
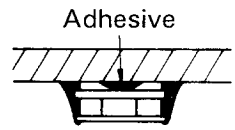
1. Chip Transistor

Item	Ordinary transistor	Chip transistor
Part No. (14-digit code)	VS2SCXXXX.. (A)	Same as left
Appearance	 ECB	 C X X B E
Attachment on PWB	 Part Affix to the rear of the PWB.	 Adhesive Adhesive Affix to the copper foil surface of the PWB.

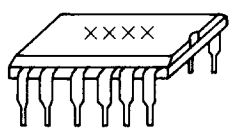
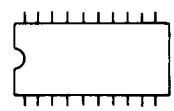
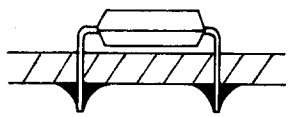
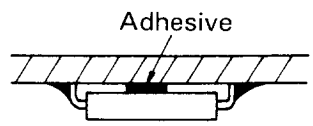
2. Mini Power Transistor

Item	Ordinary transistor	Mini power transistor
Part. No. (14-digit code)	VS2SCXXXX//1E VS2S(B)	Same as left
Appearance		 X X
Attachment on PWB		 Adhesive

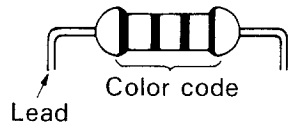
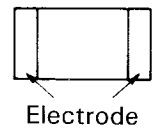
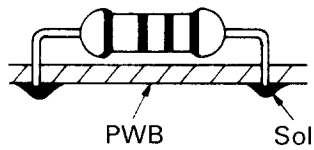
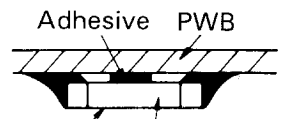
3. Chip Coil (Inductance)

Item	Ordinary coil	Chip coil
Part No. (14-digit code)	VP-XXXXXX0000	VP-ALXXXX0000
Appearance		
Attachment on PWB		

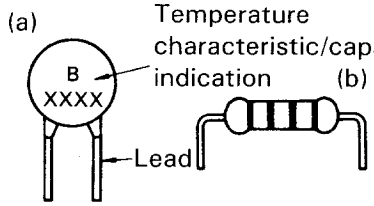
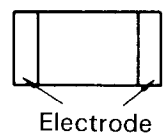
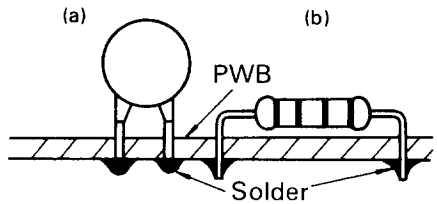
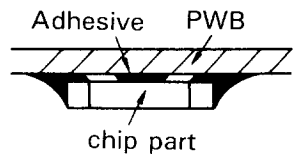
4. Flat Package IC

Item	Ordinary IC	Flat package IC
Part No. (14-digit code)	RH-IXXXXXCEZZ	Same as left
Appearance		
Attachment on PWB		

5. Square Chip Resistor

Item	Ordinary resistor	Square chip resistor
Part No. (14-digit code)	VRD-SA2BBXXXJ	VRS-TV1JDXXXJ (2125 type)
Appearance		
Attachment on PWB	 Affix to the front of the PWB.	 Affix to the copper foil surface of the PWB.

6. Square Clip Capacitor

Item	Ordinary capacitor	Square chip capacitor
Part No. (14-digit code)	VCKYPB1HBXXXK VCCSAT1HLXXXK VCKYAT1HBXXXK (1E/)	VCKYTV1HFXXXZ (B) (K) VCCCTV1HHXXXJ
Appearance		
Attachment on PWB	 Affix to the front of the PWB.	 Affix to the copper foil surface of the PWB.

Ref. No.	Part No.	★	Description
TRANSISTORS			
Q61, 62, 203, 2001, 2002, 2014	VS2SC2712Y/-1	J	2SC2712(Y)
Q63	VS2SA1162Y/-1	J	2SA1162(Y)
Q64, 202	VS2SK209Y//-1	J	2SK209
Q201	VS2SC2735//1E	J	2SC2735
Q204	VS2SD1619T/-1	J	2SD1619(T)
Q301, 2003, 2005, 2006, 2011, 2012, 2015	VS2SC3398//-1	J	2SC3398
Q2008, 2009	VS2SA1344//-1	J	2SA1344
PACKAGED CIRCUIT			
M201	RMPTC0133CEZZ	J	1k x 2, 330, 470 Resistor
COILS			
L201	VP-RFR47K0000	J	0.47μH
L202	VP-RFR68K0000	J	0.68μH
L204	VP-AL100KR73Y	J	10μH
L205	VP-XF4R7K0000	J	4.7μH
CERAMIC FILTERS AND S.A.W. FILTER			
CF201	RFiLC0013CEZZ	J	Ceramic Filter
CF301	RFiLC0128CEZZ	J	Ceramic Filter
CF302	RFiLC0066CEZZ	J	Ceramic Filter
SF201	RFiLC0004GEZZ	J	Surface Acoustic Wave Filter
TRANSFORMERS			
T201, 202	RTRNi0463CEZZ	J	Picture Defection A.F.T.
CONTROLS			
R212	RVR-M7158TAZZ	J	10k(B) RF-AGC
R2046	RVR-B5283CEZZ	J	10k(B) VHF Sign Position Control
			UHF Sign Position Control
			VHF Sign Size Control
			UHF Sign Size Control
CAPACITORS			
C207	VCE9EM1HW225M	J	2.2 50V Electrolytic (N.P.)
C210, 2011	RC-EZ0150TAZZ	J	100 6.3V Electrolytic
C213	VCSATA1VE225K	J	2.2 35V Tantalum
C223, 232	RC-EZ0151TAZZ	J	220 6.3V Electrolytic
RESISTOR			
⚠R230	VRS-VV3AB560J	J	56 1W Oxide Film
MISCELLANEOUS PART			
J201, 251	QSöCJ0109CEZZ	J	RF Input

PWB-C DUNTK4510DE01

Ref. No.	Part No.	★	Description
CAPACITOR			
⚠C851	RC-KZ0016CEZZ	J	0.01 1.6kV Disc
MISCELLANEOUS PARTS			
⚠SG851, ⚠852, ⚠853	QSPGC0011CEZZ	J	Spark Gap

PWB-D DUNTK4511DE01(BK) DUNTK4511DE02(P) DUNTK4511DE03(W)

Ref. No.	Part No.	★	Description
CONTROL			
⚠R330/ SW701	RVR-A9006CEZZ	J	10k(A) Sound Volume Control and Power Switch

PWB-E DUNTK4512DE01

Ref. No.	Part No.	★	Description
COIL			
▲⚠L601	RCiLZ0503CEZZ	J	Linerity Coil
CAPACITOR			
▲⚠C620	RC-EZ0035CEZZ	J	6.8 25V Electrolytic (N.P.)

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description
	QTANZ0410CEKA	J	Antenna Terminal Board
	VSP0045P-168A	J	Speaker 8 ohms
▲⚠	UADP-0038CEKA	J	AC-Adapter (3LS36(BK))
▲⚠	UADP-0038CEKB	J	AC-Adapter (3LS36(P))
▲⚠	UADP-0038CEKC	J	AC-Adapter (3LS36(W))

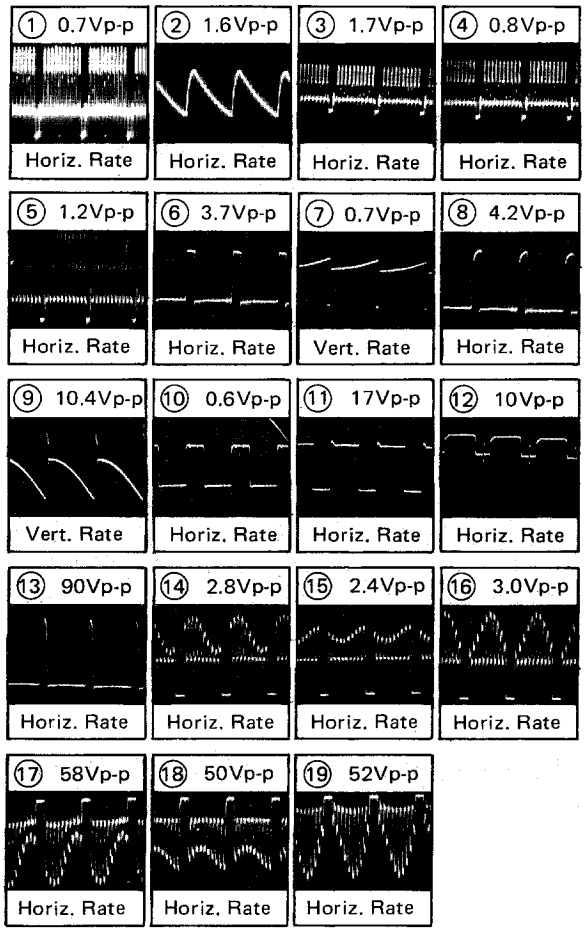
AC ADAPTER

Ref. No.	Part No.	★	Description
TRANSISTORS			
⚠Q751	VS2SD1271B/1E	J	2SD1271
⚠Q752	VS2SA1015Y/1E	J	2SA1015(Y)

SCHEMATIC DIAGRAMS AND WAVEFORMS

WAVEFORM MEASUREMENT CONDITIONS:

1. *Photographs taken on a standard gated rainbow color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. ⊂ *indicates wave form check points (See chart, waveforms are measured from point indicated to chassis ground.)*



NOTE

1. *The unit of resistance "ohm" is omitted (K-1000 ohms M-1 Meg ohm).*
2. *All resistors are 1/8 watt, unless othewise noted.*
3. *All capacitors are μF, unless otherwise noted P-μμF.*
4. *(G) indicates ±2% tolerance may be used.*

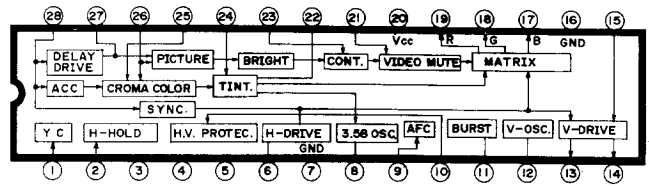
VOLTAGE MEASUREMENT CONDITIONS:

1. *All DC voltages are measured with VTVM connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltage measured with 1000μV B & W or color Signal.*

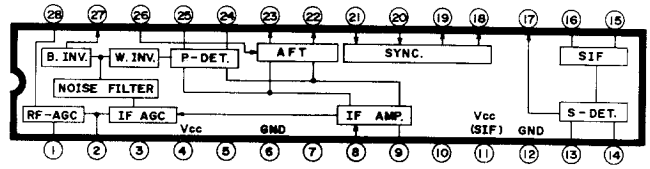
⚠ AND SHADED COMPONENTS = SAFETY RELATED PARTS, ▲ MARK = X-RAY RELATED PARTS.

This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

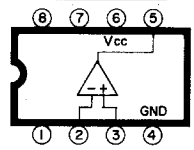
IC801



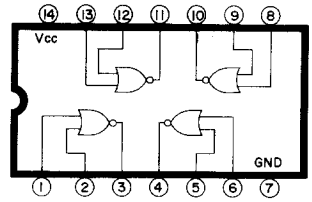
IC201



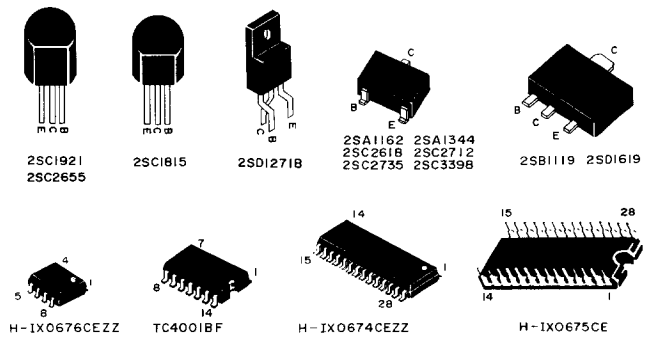
IC351



IC2001



SOLID STATE DEVICE BASE DIAGRAM



REPLACEMENT PARTS LIST

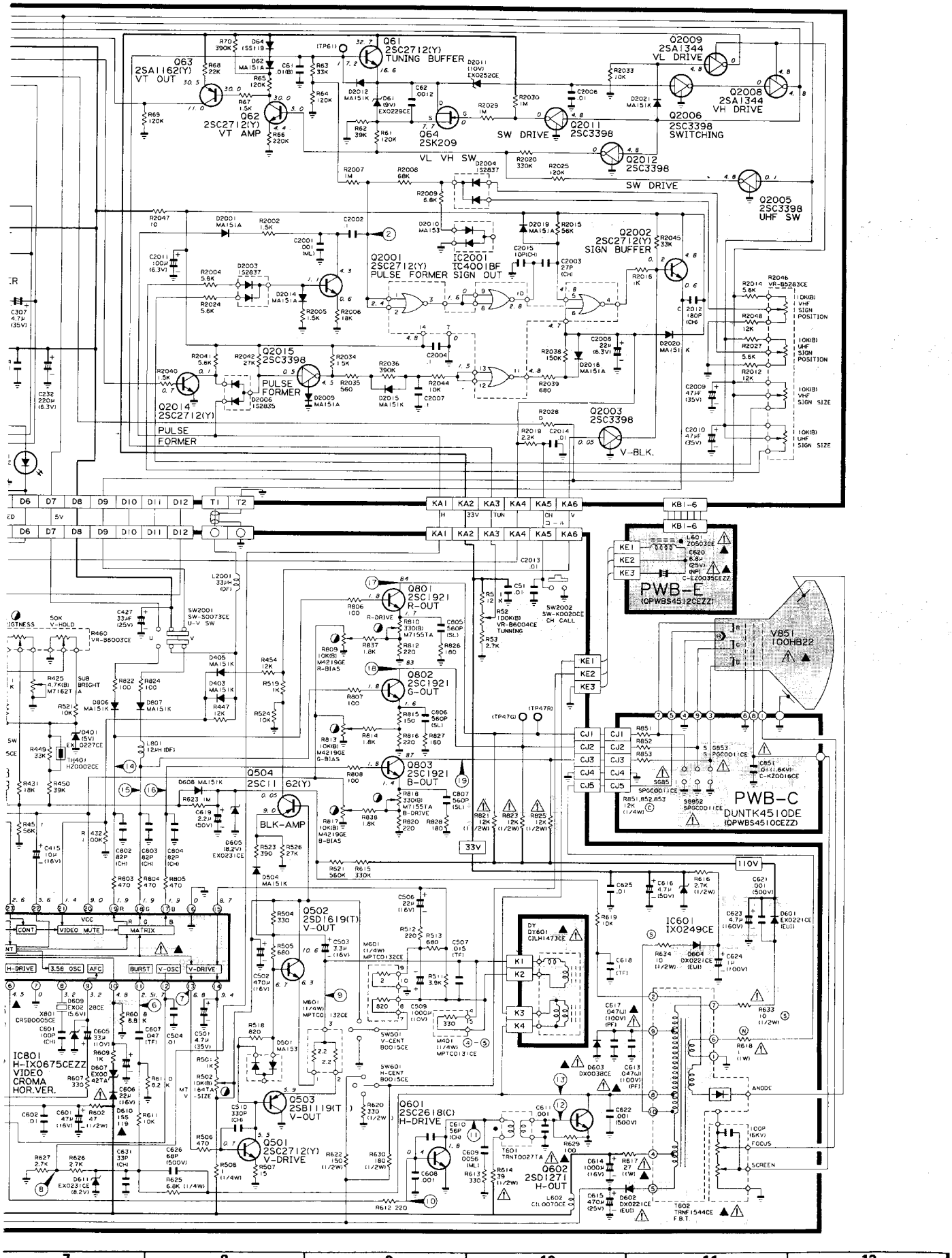
SAFETY NOTE — Components marked with a (⚠) have specical characteristics important to safety. Before replacing any of these components, read carefully the SAFETY NOTICE on page 3 of the Service Manual. Components marked with an (▲) are related to X-Ray Protection circuit.

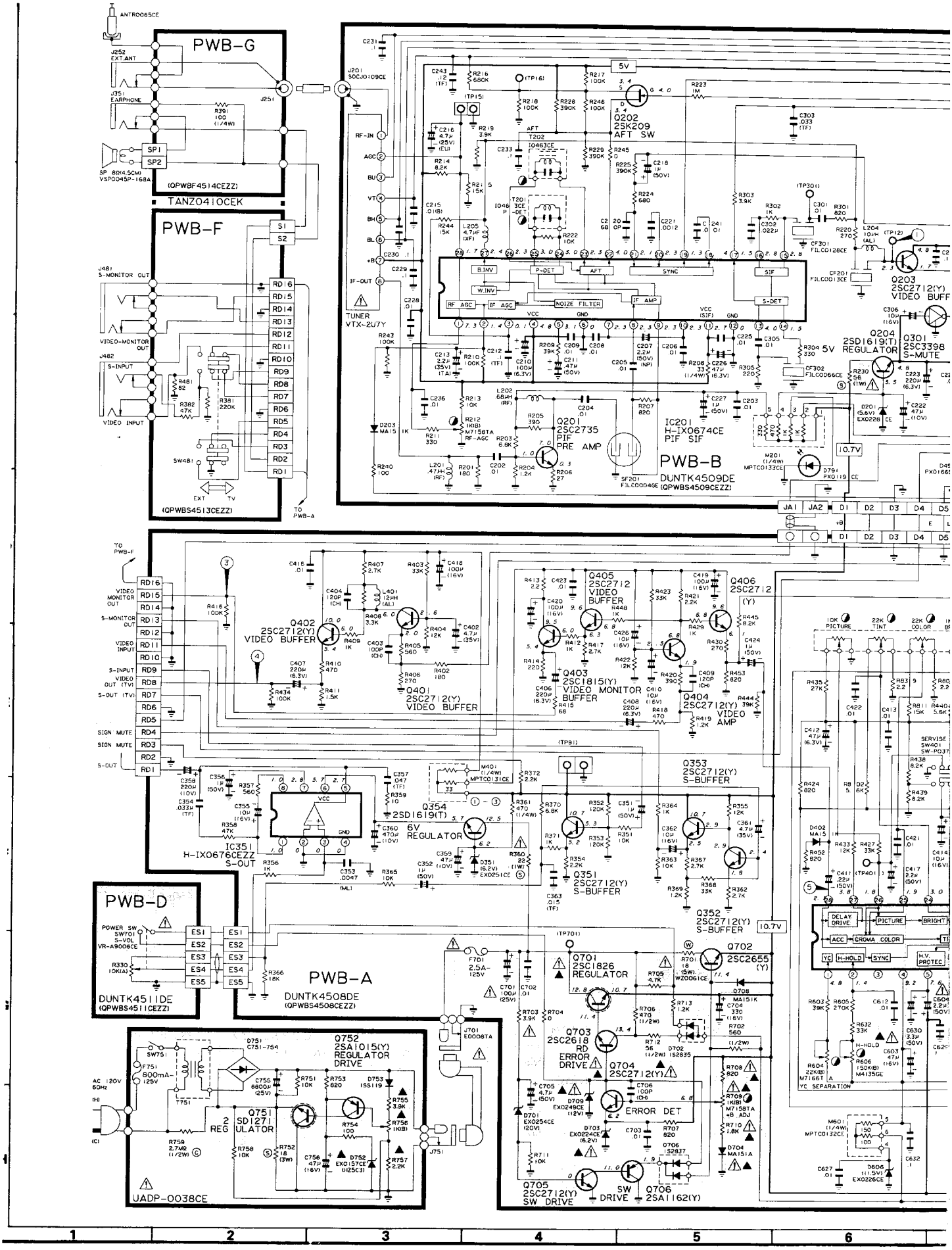
HOW TO ORDER REPLACEMENT PARTS — To have your order filled promptly and correctly, please furnish the following information:
1. MODEL NO. 2. PART NO. 3. DESCRIPTION

Contact your nearest SHARP Parts Distributor to order.
For location of SHARP Parts Distributor, Please call Toll-Free; 800-447-4700 (In Hawaii and Alaska, please contact local SHARP dealer).

★ MARK: SPARE PARTS-DELIVERY SECTION

Ref. No.	Part No.	★	Description
PICTURE TUBE			
▲⚠ V851	VB100HB22/ / *S	J	CRT
▲⚠ DY601	RCi LH1473CEZZ	J	Deflection Yoke
PRINTED WIRING BOARD ASSEMBLIES (NOT REPLACEMENT ITEM)			
PWB-A	DUNTK4508DE01	—	Mother Unit (BK)
PWB-A	DUNTK4508DE02	—	Mother Unit (P)
PWB-A	DUNTK4508DE03	—	Mother Unit (W)
PWB-B	DUNTK4509DE01	—	Sub Unit
PWB-C	DUNTK4510DE01	—	CRT Soket Unit
PWB-D	DUNTK4511DE01	—	Power Switch Unit (BK)
PWB-D	DUNTK4511DE02	—	Power Switch Unit (P)
PWB-D	DUNTK4511DE03	—	Power Switch Unit (W)
PWB-E	DUNTK4512DE01	—	Horizontal Linearity Correction Unit
PWB-A DUNTK4508DE01(BK) DUNTK4508DE02(P) DUNTK4508DE03(W)			
TUNER			
NOTE: THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.			
⚠	VTUVTX-2U7Y/ /	J	Tuner-VHF/UHF
INTEGRATED CIRCUITS			
IC351	RH-iX0676CEZZ	J	
IC601	RH-iX0249CEZZ	J	
▲⚠ IC801	RH-iX0675CEZZ	J	
TRANSISTORS			
Q351 – 353, 401, 402, 404 – 406, 501, ▲⚠ 704, ⚠ 705	VS2SC2712Y/-1	J	2SC2712(Y)
Q354, 502	VS2SD1619T/-1	J	2SD1619(T)
Q403	VS2SC1815YW1E	J	2SC1815(Y)
Q503	VS2SB1119T/-1	J	2SB1119(T)
Q504, ⚠ 706	VS2SA1162Y/-1	J	2SC1162(Y)
Q601	VS2SC2618RC1E	J	2SC2618(C)
▲⚠ Q602	VS2SD1271B/1E	J	2SD1271
▲⚠ Q701	VS2SC1826-Y1A	J	2SC1826
⚠ Q702	VS2SC2655Y/-1	J	2SC2655(Y)
▲⚠ Q703	VS2SC2618RD1E	J	2SC2618
Q801 – 803	VS2SC1921/ /1E	J	2SC1921
DIODES			
D351	RH-EX0251CEZZ	J	Zener Diode
D401	RH-EX0227CEZZ	J	Zener Diode
D402, 403, 405, 504, 608, ⚠ 708, 806, 807	VHDMA151K/ /-1	J	
D501	VHDMA153/ / /-1	J	
⚠ D601, ⚠ 603	RH-DX0221CEZZ	J	
⚠ D602	RH-DX0038CEZZ	J	
D605, 611	RH-EX0231CEZZ	J	Zener Diode
D606	RH-EX0226CEZZ	J	Zener Diode
⚠ D607	RH-EX0042TAZZ	J	Zener Diode
D609	RH-EX0228CEZZ	J	Zener Diode
▲⚠ D610	VHD1SS119/ /-1	J	1SS119
⚠ D701	RH-EX0254CEZZ	J	Zener Diode
⚠ D702	VHD1S2835/ /1E	J	
▲⚠ D703	RH-EX0224CEZZ	J	Zener Diode
▲⚠ D704	VHDMA151A/ /1E	J	
⚠ D706	VHD1S2837/ /1E	J	
⚠ D709	RH-EX0249CEZZ	J	Zener Diode
TH401	RH-HZ0002CEZZ	J	Thermistor
PACKAGED CIRCUITS			
M401	RMPTC0131CEZZ	J	Packaged Resistor
M601	RMPTC0132CEZZ	J	Packaged Resistor
X801	RCRSB0005CEZZ	J	Crystal Osc.
COILS			
L401	VP-AL120KR81Y	J	12μH
L602	RCi LP0070CEZZ	J	Ripple filter
L801	VP-DF120K0000	J	12μH
L2001	VP-DF330K0000	J	33μH
TRANSFORMERS			
T601	RTRNT0027TAZZ	J	Horizontal Drive Transformer
▲⚠ T602	RTRNF1544CEZZ	J	Flyback Transformer


Q63 2SA1162(Y) VT OUT
Q62 2SC2712(Y) VT AMP
Q61 2SC2712(Y) TUNING BUFFER
Q64 2SK209 VL VH SW
Q2011 2SC3398 SW DRIVE
Q2009 2SA1344 VL DRIVE
Q2008 2SA1344 VH DRIVE
Q2006 2SC3398 SWITCHING
Q2012 2SC3398 SW DRIVE
Q2005 2SC3398 UHF SW
Q2002 2SC2712(Y) SIGN BUFFER
Q2001 2SC2712(Y) PULSE FORMER
IC2001 TC4001BF SIGN OUT
Q2015 2SC3398 PULSE FORMER
Q2014 2SC2712(Y) PULSE FORMER
Q2003 2SC3398 V-BLK.
PWB-E (QPWBS4512CEZZ)
PWB-C DUNTK4510DE (QPWBS4510CEZZ)
V851 100HB22
Q801 2SC1921 R-OUT
Q802 2SC1921 G-OUT
Q803 2SC1921 B-OUT
Q504 2SC1162(Y) BLK-AMP
Q502 2SD1619(T) V-OUT
Q503 2SB1119(T) V-OUT
Q501 2SC2712(Y) V-DRIVE
Q601 2SC2618(C) H-DRIVE
Q602 2SD1271 H-OUT
IC801 H-IX0675CEZZ VIDEO CROMA HOR.VER.
IC601 IX0249CE
T601 TRNT0027TA
T602 TRNF1544CE F.B.T
L602 CILO070CE
X801 CRSB0005CE
SW2001 SW-S0073CE U-V SW
SW2002 SW-K0020CE CH. CALL
SW501 V-CENT B0015CE
SW601 H-CENT B0015CE
D611 EX0231CE (8.2V)
D609 EX02 28CE (5.6V)
D605 (8.2V) EX0231CE
D607 EX00 42TA
D610 155 119
D608 MA151K
D609 MA153
D611 EX0231CE (8.2V)
D2011 (10V) EX0252CE
D2012 MA151K
D51 (9V) EX0229CE
D2004 1S2837
D2001 MA151A
D2003 1S2837
D2014 MA151A
D2006 1S2835
D2009 MA151A
D2010 MA153
D2018 MA151A
D2015 MA151K
D2016 MA151A
D2020 MA151K
D2021 MA151K
D601 EX0221CE (EU)
D602 DX0221CE (EU)
D603 DX0038CE
D604 DX0221CE (EU)
DY DY601 CILH1473CE
TH401 HZ0002CE
L801 12μH (DF)
L2001 33μH (DF)
L601 Z0503CE
KA1 KA2 KA3 KA4 KA5 KA6
KB1-6
KE1 KE2 KE3
CJ1 CJ2 CJ3 CJ4 CJ5
D6 D7 D8 D9 D10 D11 D12
T1 T2
5V
33V
110V
TUN
CH
H
V
VCC
CONT
VIDEO MUTE
MATRIX
H-DRIVE
3.58 OSC
AFC
BURST
V-OSC
V-DRIVE
ANODE
FOCUS
SCREEN
HOLD
V-HOLD
BRIGHT
SUB BRIGHT
R-DRIVE
R-BIAS
G-DRIVE
G-BIAS
B-DRIVE
B-BIAS
TUNING
CH. CALL
PULSE FORMER
VHF SIGN POSITION
UHF SIGN POSITION
VHF SIGN SIZE
UHF SIGN SIZE


PWB-G
PWB-F
PWB-B
PWB-D
PWB-A
TANZ0410CEK
(QPWBF4514CEZZ)
(QPWBS4513CEZZ)
DUNTK4509DE
(QPWBS4509CEZZ)
DUNTK4511DE
(QPWBS4511CEZZ)
DUNTK4508DE
(QPWBS4508CEZZ)
UADP-0038CE
TUNER VTX-2U7Y
IC201 H-IX0674CE PIF SIF
IC351 H-IX0676CEZZ S-OUT
Q0202 2SK209 AFT SW
Q0203 2SC2712(Y) VIDEO BUFF
Q0204 2SD1619(T) REGULATOR
Q0301 2SC3398 S-MUTE
Q0201 2SC2735 PIF PRE AMP
Q0402 2SC2712(Y) VIDEO BUFFER
Q0401 2SC2712(Y) VIDEO BUFFER
Q0405 2SC2712 VIDEO BUFFER
Q0403 2SC1815(Y) VIDEO MONITOR BUFFER
Q0406 2SC2712 (Y)
Q0404 2SC2712(Y) VIDEO AMP
Q0353 2SC2712(Y) S-BUFFER
Q0351 2SC2712(Y) S-BUFFER
Q0352 2SC2712(Y) S-BUFFER
Q0354 2SD1619(T) 6V REGULATOR
Q0701 2SC1826 REGULATOR
Q0702 2SC2655 (Y)
Q0703 2SC2618 RD ERROR DRIVE
Q0704 2SC2712(Y)
Q0705 2SC2712(Y) SW DRIVE
Q0706 2SA1162(Y)
Q0751 SD1271 REGULATOR
Q0752 2SA1015(Y) REGULATOR DRIVE
10.7V
5V
6V

Ref. No.	Part No.	★	Description
CONTROLS			
R52	RVR-B6004CEZZ	J	100k(B) Turning Control
R425	RVR-M7162TAZZ	J	4.7k(B) Sub Brightness Control
R460	RVR-B6003CEZZ	J	10k(B) Picture Control 22k(B) Tint Control 22k(B) Color Control 1k(B) Brightness Control 50k(B) V-Hold Control
R502	RVR-M7164TAZZ	J	10k(B) Vertical Size Control
R604	RVR-M7166TAZZ	J	22k(B) Y/C Separation Control
R606	RVR-M4135GEZZ	J	150k(B) Horizontal Hold Control
▲⚠R709	RVR-M7158TAZZ	J	1k(B) +B Control
R809, 813, 817	RVR-M4219GEZZ	J	10k(B) Red Bias Control Green Bias Control Blue Bias Control
R810	RVR-M7155TAZZ	J	330(B) Red Drive Control
R818	RVR-M7155TAZZ	J	330(B) Blue Drive Control
CAPACITORS			
C358	VCEADG1AW227M	J	220 10V Electrolytic
C360	VCEAGA1AW477M	J	470 10V Electrolytic
C406 | 408	RC-EZ0151TAZZ	J	220 6.3V Electrolytic
C418 | 420	RC-EZ0110TAZZ	J	100 16V Electrolytic
C502	VCEAGA1CW477M	J	470 16V Electrolytic
C509	VCEAGA1AW108M	J	1000 10V Electrolytic
C603	VCEAEM1CW476M	J	47 16V Electrolytic
▲⚠C604	VCEAEU1HW225M	J	2.2 50V Electrolytic
⚠C606	VCEAEU1CW106M	J	22 16V Electrolytic
▲⚠C613, ▲⚠ 617	VCQPSB2AA473J	J	0.047 100V Polypro
⚠C614	VCEAGA1CW108M	J	1000 16V Electrolytic
⚠C615	VCEAGA1EW477M	J	470 25V Electrolytic
C621, ▲⚠ 622	VCKYPA2HB102K	J	0.001 500V Ceramic
C623	VCEAAA2CW475M	J	4.7 160V Electrolytic
C624	VCEAAA2AW105M	J	1 100V Electrolytic
C626	VCCSPA2HL680K	J	68p 500V Ceramic
⚠C630	VCEAEG1HW335M	J	3.3 50V Electrolytic
⚠C701	VCEAGA1VW107M	J	100 25V Electrolytic
⚠C705	VCEAEG1HW475M	J	4.7 50V Electrolytic
RESISTORS			
⚠R360	VRS-VV3AB220J	J	22 1W Oxide Film
⚠R608	VRS-TV1JD682J	J	6.8k 1/16W Ceramic Trick Film Micro Chip
⚠R614	VRD-RA2HD390J	J	39 1/2W Carbon
▲⚠R617	VRN-RV3ABR27J	J	0.27 1W Metal Coating
⚠R618	VRN-RV3AB1R0J	J	1 1W Metal Coating
⚠R633, ⚠ 634	VRS-SV2HB100J	J	10 1/2W Oxide Film
⚠R701	RR-WZ0061CEZZ	J	18 5W Cement
⚠R702	VRD-RA2HD561J	J	560 1/2W Carbon
⚠R703	VRS-TV1JD392J	J	3.9k 1/16W Caramic Trick Film Micro Chip
⚠R705	VRS-TV1JD472J	J	4.7k 1/16W Ceramic Trick Film Micro Chip
⚠R706	VRD-RA2HD471J	J	470 1/2W Carbon
⚠R707, ▲⚠ 708	VRS-TV1JD821J	J	820 1/16W Ceramic Trick Film Micro Chip
▲⚠R710	VRS-TV1JD182J	J	1.8k 1/16W Ceramic Trick Film Micro Chip
⚠R711	VRS-TV1JD103J	J	10k 1/16W Ceramic Trick Film Micro Chip
⚠R712	VRD-RA2HD560J	J	56 1/2W Carbon
⚠R713	VRS-TV1JD122J	J	1.2k 1/16W Ceramic Trick Film Micro Chip
⚠R821, ⚠ 822, ⚠ 823	VRD-RA2HD123J	J	12k 1/2W Carbon
SWITCHES			
SW401	QSW-P0375CEZZ	J	Service Switch
SW501, 601	QSW-B0015CEZZ	J	Vertical Center Position Switch Horizontal Center Position Switch
SW2001	QSW-S0073CEZZ	J	UHF/VHF Switch
SW2002	QSW-K0020CEZZ	J	Channel Selection Switch
MISCELLANEOUS PARTS			
⚠F701	QFS-B2521GEZZ	J	Fuse—2.5A 125V AC
	QFSHD1002CEZZ	J	Holder—F701 (2 pcs Used)
⚠J701	QJAKE0008TAZZ	J	Regulated Voltage Input
PWB-B DUNTK4509DE01			
INTEGRATED CIRCUITS			
IC201	RH-iX0674CEZZ	J	
IC2001	VHiTC4001BF-1	J	
DIODES			
D61	RH-EX0229CEZZ	J	Zener Diode
D62, 2001, 2009, 2014, 2016, 2019	VHDMA151A/ /1E	J	
D64	VHD1SS119/ /-1	J	
D201	RH-EX0228CEZZ	J	Zener Diode
D203, 2012, 2020, 2021	VHDMA151K/ /-1	J	
D491	RH-PX0166CEZZ	J	
D791	RH-PX0119CEZZ	J	
D2003, 2004	VHD1S2837/ /1E	J	
D2006	VHD1S2835/ /1E	J	
D2011	RH-EX0252CEZZ	J	Zener Diode

4. Zener diode

62•	RH-EX0224CEZZ	911	RH-EX0229CEZZ
121	RH-EX0226CEZZ	202	RH-EX0254CEZZ
512	RH-EX0227CEZZ	822	RH-EX0231CEZZ
561	RH-EX0228CEZZ	123	RH-EX0249CEZZ
		623	RH-EX0251CEZZ
		103	RH-EX0252CEZZ

5. Coil

101	VP-AL100KR73Y	120	VP-AL120KR81Y

6. Resistor

VRS-TV1JD///J

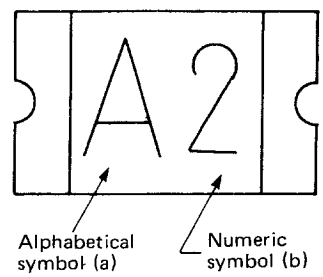
7. Square chip resistor and square chip capacitor

- Designation:
  Such symbols (a) and (b) as shown here are used in combination to designate the nominal resistance or capacitance of each square chip resistor or capacitor.

Note: The designation by the alphabetical symbols (A to Y) shown below applies not only the E-24 series models but also to the E-12 series models.

- **Meaning of the alphabetical symbols**

E-24 series models	
Nominal value	Symbol
1.0	A
1.1	B
1.2	C
1.3	D
1.5	E
1.6	F
1.8	G
2.0	H
2.2	J
2.4	K
2.7	L
3.0	M
3.3	N
3.6	P
3.9	Q
4.3	R
4.7	S
5.1	T
5.6	U
6.2	V
6.8	W
7.5	X
8.2	Y
9.1	Z



Method of Marking Chip Parts

The method of marking chip parts is not yet unified among manufacturers, so it is different from manufacturer to manufacturer.

At present each manufacturer uses the following marking method for principal parts, however.

Identification of Chip Parts

1. Transistor

Designation	Part Code	Designation	Part Code
SY	VS2SA1162Y/-1	RC	VS2SC2618RC1E
EL	VS2SA1344//-1	JC	VS2SC2735//1E
LY	VS2SC2712Y/-1	EY	VS2SC3398//-1
RD	VS2SC2618RD1E	XY	VS2SK209Y//-1

2. Mini power transistor

BB⊢	VS2SB1119T/-1
DB⊢	VS2SD1619T/-1

3. Diode

Designation	Part Code	Designation	Part Code
MA	VHDMA151A//1E	A3	VHD1S2835//1E
MH	VHDMA151K//-1	A5	VHD1S2837//1E
MC	VHDMA153///-1		

- **Meaning of the numeric symbols**

Symbol	Nominal value
0	$10^0\Omega$
1	$10^1\Omega$
2	$10^2\Omega$
3	$10^3\Omega$
4	$10^4\Omega$
5	$10^5\Omega$
6	$10^6\Omega$

Reference

Nominal value	Symbol	Nominal value	Symbol
2.5	a	6.0	m
3.5	b	7.0	n
4.0	d	8.0	t
4.5	e	9.0	y
5.0	f		

(∴ fo = 5.0 x 10° = 5pF)

* If the part is given the symbol mark "A2" as shown above, its rating becomes as follows:

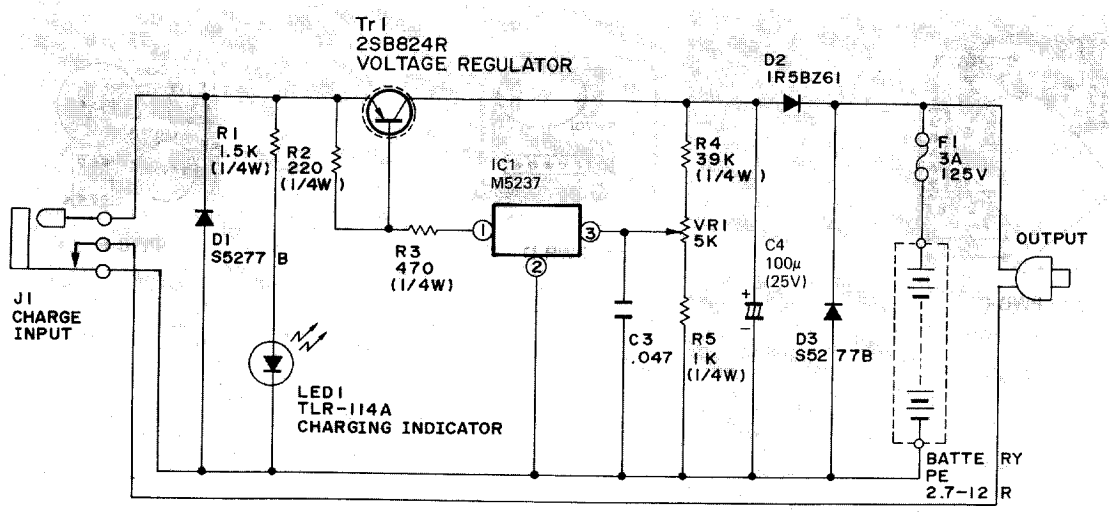
A : 1.0 [J : 2.2]
2 : 10^2 [4 : 10^4]

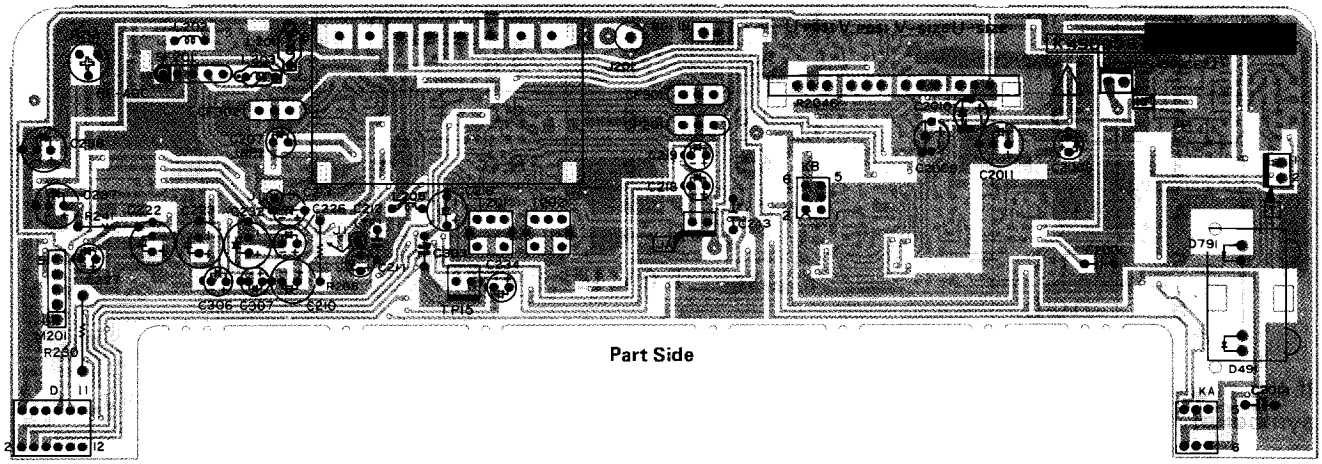
A2 = 1.0 x 10^2ohms = 100ohms
(∴ J4 = 2.2 x 10^4pF = 0.022μF)

In addition to the above designation, the following designation is going to be employed from the midway of production.

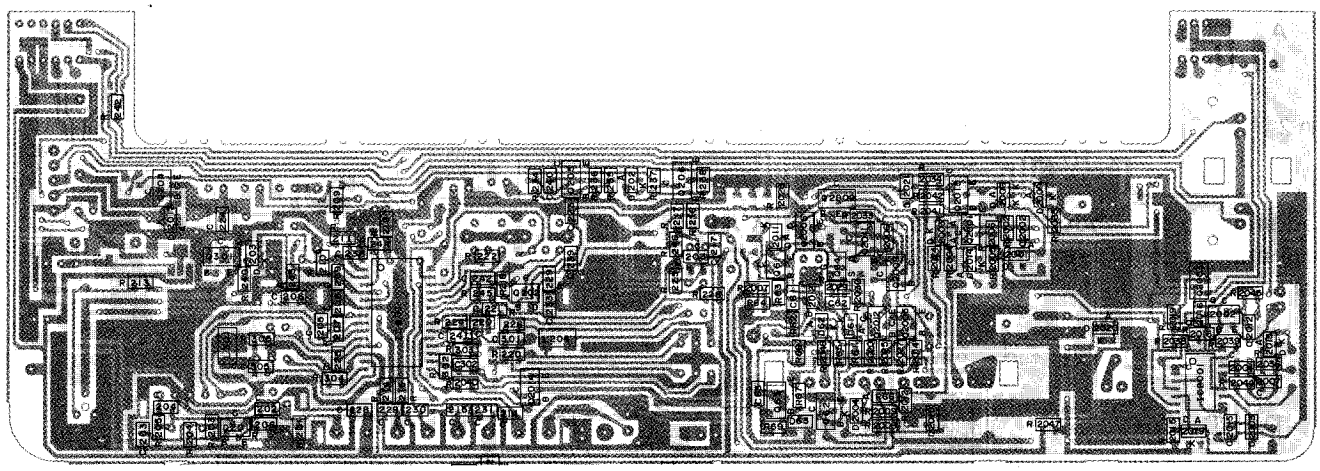
	Present designation		New designation	
VRS-TV1JD***J	C4	→	123	(Gray letters in black ground)
VRS-TQ2BD***J	123	→	123	(Gray letters in black ground)

Schematic Diagram of Battery Unit



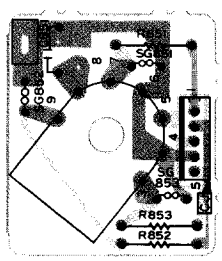


Part Side

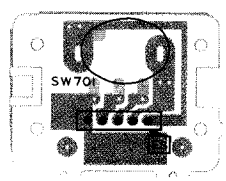


Solder Side

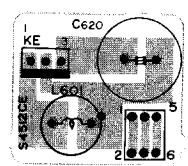
PWB-B



PWB-C

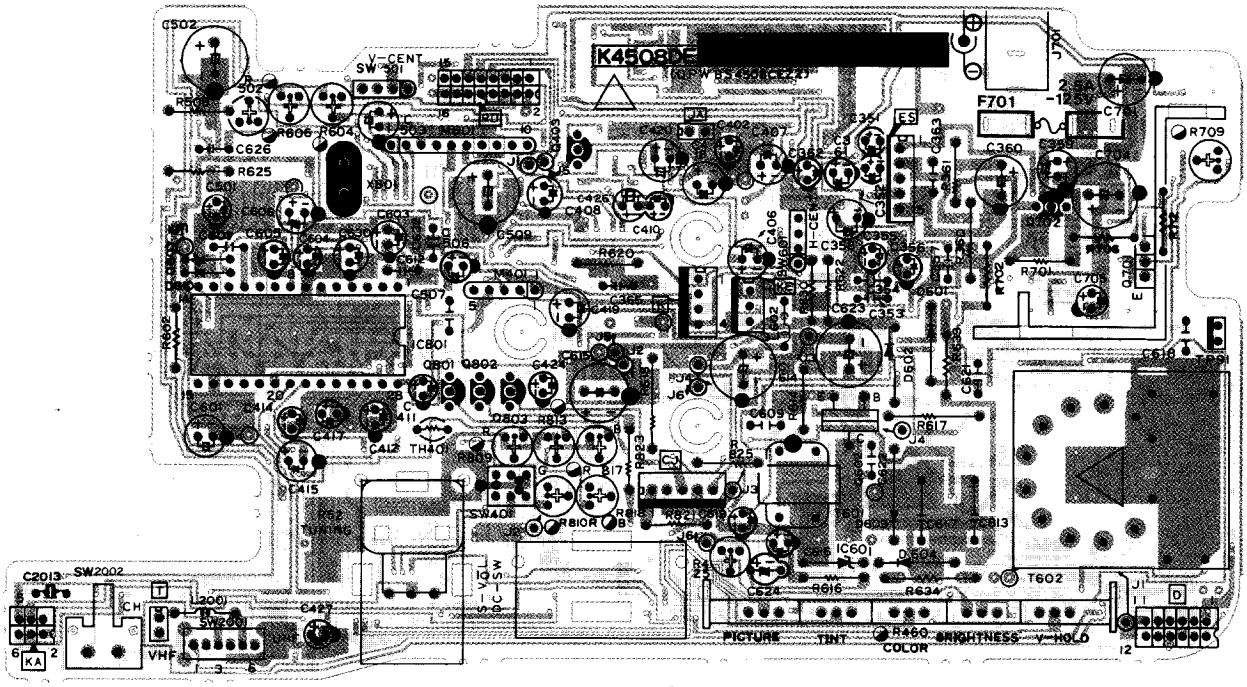


PWB-D

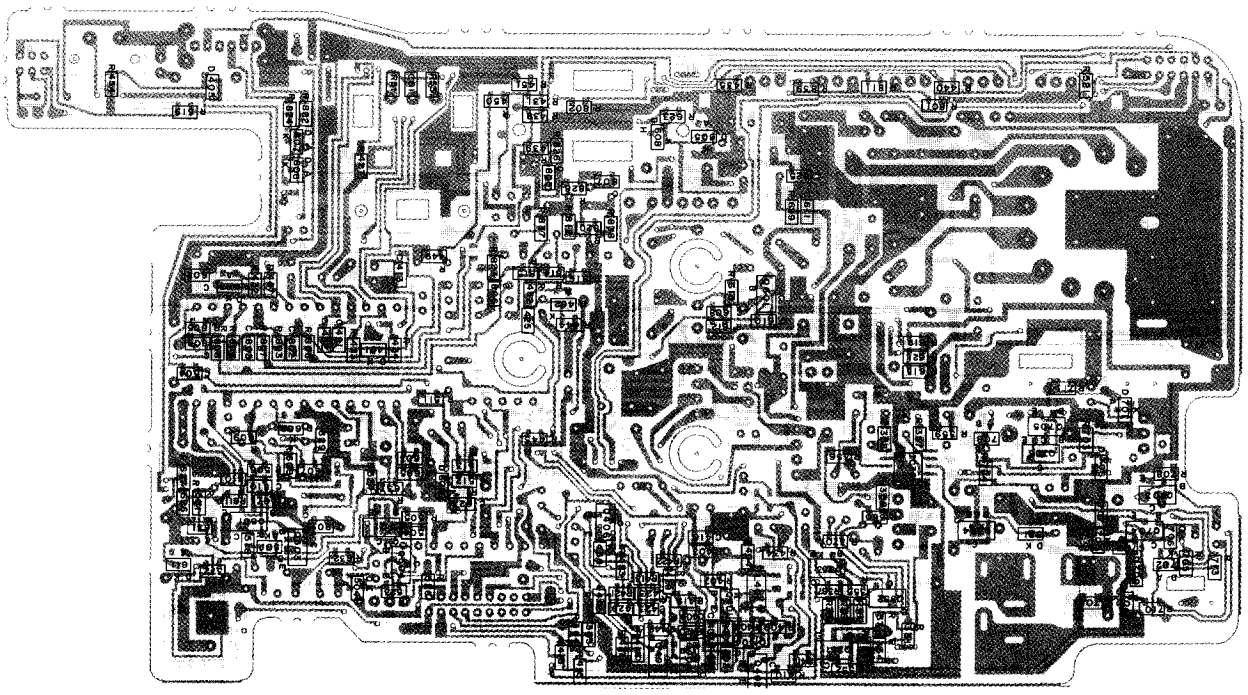


PWB-E

PRINTED WIRING BOARD ASSEMBLIES



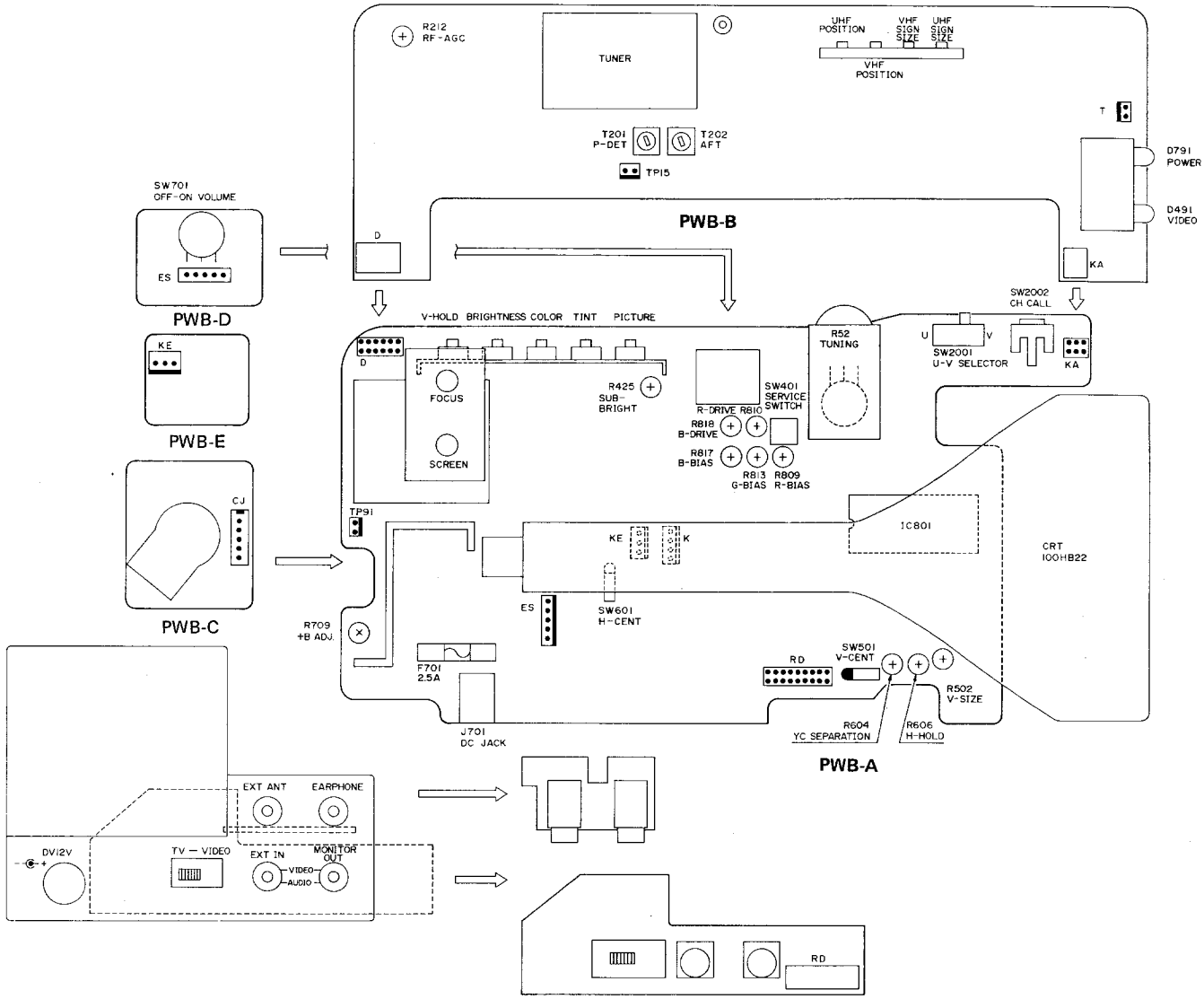
Part Side



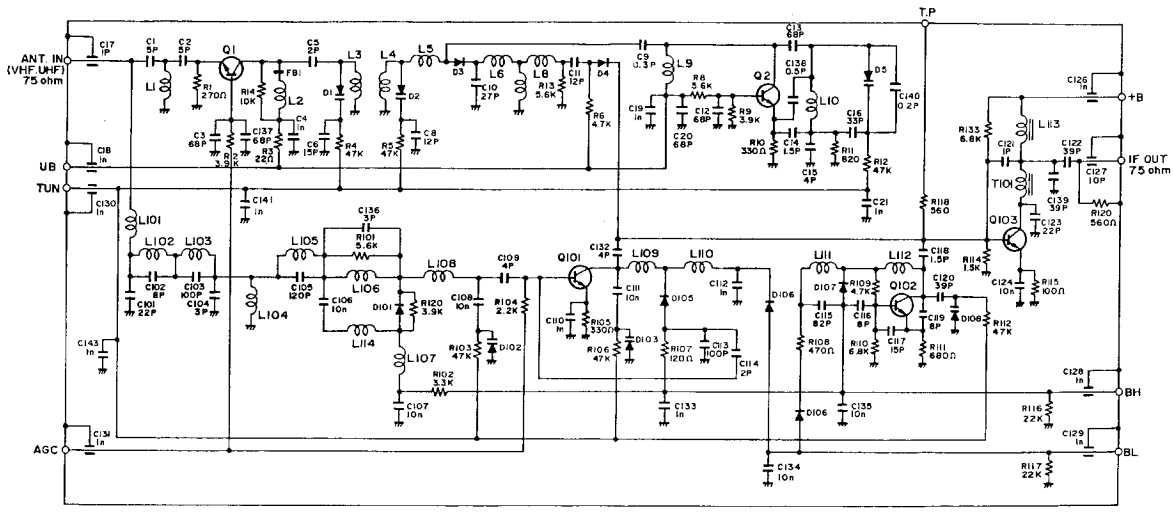
Solder Side

PWB-A

CHASSIS LAYOUT



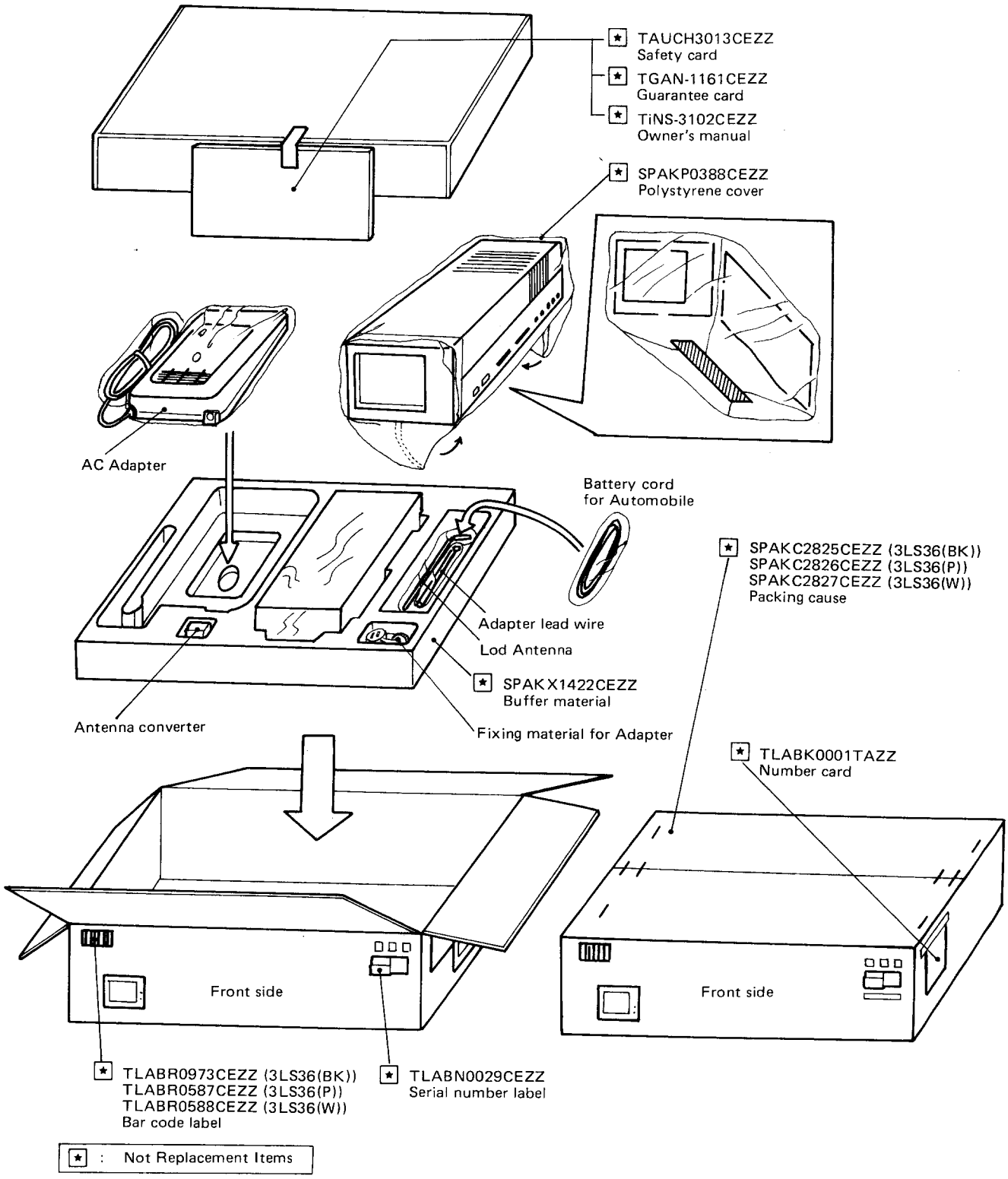
Schematic Diagram of Tuner (VTUVTX-2U7Y//)



PACKING OF THE SET

- **Setting position of the knobs**

Power switch	OFF position	Picture control	Maximum position
Brightness control	Center position	Color control	Best position
TV/VIDEO switch	TV position	Tint control	Best position
VHF/UHF switch	VHF position	Channel selection	2 CH
Vertical hold control	Best position		



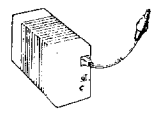
★ : Not Replacement Items

Ref. No.	Part No.	★	Description
RECHARGEABLE BATTERY [BT336 (Option)]			
⚠IC1	95T650M5237L	J	IC (M5237L)
⚠TR1	95T6102SB824R	J	Transistor (2SB824R)
⚠D1,	RH-DX0110CEZZ		Diode (S52778)
⚠ 3			
⚠D2	RH-DX0063TAZZ	J	Diode (1R5BZ61)
⚠LED1	95T614TLR114A0	J	LED
⚠C3	95T63010504730	J	0.047 50V Polyester Film
⚠C4	95T63000251072	J	100 25V Electrolytic

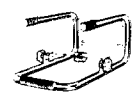
Ref. No.	Part No.	★	Description
⚠R1	VRD-RT2EE152J	J	1.5k 1/4W Carbon
⚠R2	VRD-RT2EE221J	J	220 1/4W Carbon
⚠R3	VRD-RT2EE471J	J	470 1/4W Carbon
⚠R4	VRD-RT2EE393J	J	39k 1/4W Carbon
⚠R5	VRD-RT2EE102J	J	1k 1/4W Carbon
⚠F1	95T53225000300	J	Fuse, 3A 125V
	95T53102050000	J	Fuse Holder
⚠	95T55320130001	J	Changing Input Terminal
	95T96120320200	J	Output Cord
	95T22020320000	J	Case
	95T22120320000	J	Bottom Plate

Optional Accessories

AV CABLE
IT-36



RECHARGEABLE
BATTERY
BT336

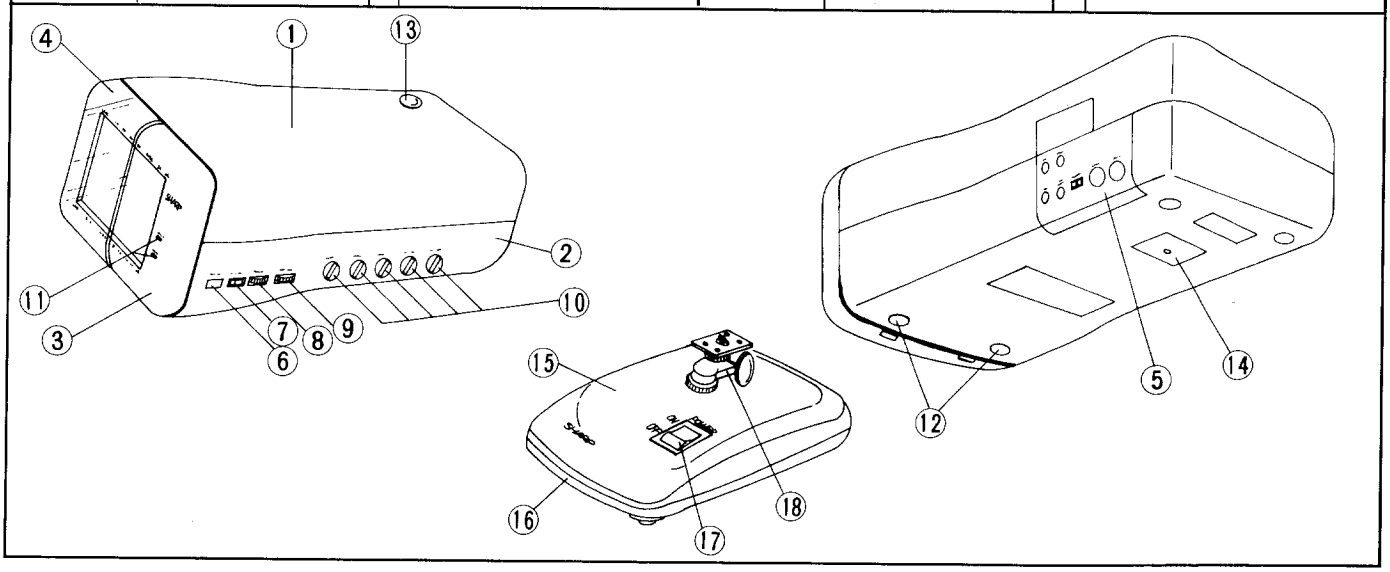


HAND
CARRIER
AN36HC

The optional accessories are available at nearest SHARP dealer.

Ref. No.	Part No.	★	Description
DIODES			
⚠D751	95KUBB0048AZ	J	Diode
▲⚠D752	RH-EX0157CEZZ	J	Zener Diode
▲⚠D753	VHD1SS119//-1	J	1SS119
TRANSFORMER			
⚠T751	95K816020008	J	Power Transformer
CONTROL			
▲⚠R756	RVR-B4937CEZZ	J	1k(B) Adapter Output Control
CAPACITORS			
▲⚠C751 | ⚠754	95KUGCF103BR	J	0.01 50V Ceramic
⚠C755	95KUGAD682BL	J	6800 25V Electrolytic
⚠C756	VCEAEM1CW476M	J	47 16V Electrolytic
RESISTORS			
⚠R751, ⚠758	VRD-RA2EE103J	J	10k 1/4W Carbon
⚠R752	VRS-VV3AB180J	J	18 3W Metal Coating
⚠R753	VRD-RA2EE331J	J	330 1/4W Carbon
⚠R754	VRD-RA2EE101J	J	100 1/4W Carbon
▲⚠R755	VRD-RA2EE182J	J	1.8k 1/4W Carbon
▲⚠R757	VRD-RA2EE222J	J	2.2k 1/4W Carbon
⚠R759	VRC-UA2HG275K	J	2.7M 1/2W Solid
SWITCH			
⚠SW751	QSW-C0022CEZZ	J	Power Switch
MICELLANOUS PARTS			
⚠F751	95KPiC0140ZZ	J	Fuse—800mA 125V AC
⚠J751	QJAKE0008TAZZ	J	Regulated Voltage Input
⚠	95KEHS0217ZZ	J	AC Line Cord

Ref. No.	Part No.	★	Description
CABINET PARTS			
1	CCABB1625CEK1	J	Cabinet Complete, Top (3LS36(BK))
1	CCABB1625CEK2	J	Cabinet Complete, Top (3LS36(P))
1	CCABB1625CEK3	J	Cabinet Complete, Top (3LS36(W))
1-1	Not Available		Cabinet, Top
2	CCABA1598CEK1	J	Cabinet Complete, Bottom (3LS36(BK))
2	CCABA1598CEK2	J	Cabinet Complete, Bottom (3LS36(P))
2	CCABA1598CEK3	J	Cabinet Complete, Bottom (3LS36(W))
2-1	Not Available		Cabinet, Bottom
3	GWAKP1279CEKA	J	Cabinet, Front
4	GCöVA1200CEKA	J	Cover, Front
5	QTANZ0410CEKA	J	Antenna Terminal Plate
6	JBTN-1319CEKA	J	Button, Channel Call
7	JKNBZ1063CEKA	J	Button, UHF/VHF Switching
8	JKNBZ1064CEKA	J	Knob, Power On-Off/Volume
9	CVR-B6004CEK1	J	Knob, Tuning
10	JKLBZ1065CEKA	J	Button, Five Array Volume
11	GCöVA1201CEKA	J	Indication Plate (for LED)
12	GLEGG9009CEZZ	J	Leg
13	LHLDA1010CEKA	J	Antenna Holder
14	LX-NZ3076CESA	J	Fixing Nut
15	95KMBA00101K	J	Adapter Cabinet, Top (3LS36(BK))
15	95KMBA00102K	J	Adapter Cabinet, Top (3LS36(P))
15	95KMBA00103K	J	Adapter Cabinet, Top (3LS36(W))
16	95KMBC00163K	J	Adapter Cabinet, Bottom (3LS36(BK))
16	95KMBC00164K	J	Adapter Cabinet, Bottom (3LS36(P))
16	95KMBC00165K	J	Adapter Cabinet, Bottom (3LS36(W))
17	QSW-C0022CEZZ	J	Power Switch
18	95KLRZ0420ZZ	J	Fixing Base for TV



3LS36(BK)/(P)/(W)

SHARP

T5412-S
Printed in Japan
FK,KY