

# FD-20AEB

## SERVICE MANUAL



US Model  
AEP Model  
E Model

V35


WATCHMAN

### SPECIFICATIONS


TV standard	American TV standard CCIR TV standard British TV standard
Channel coverage	Refer to the chart on page 34.
Antenna	VHF/UHF telescopic antenna
Picture tube	5-cm (2-inch) picture measured diagonally
Speaker	Approx. 3 cm (1.2 inches) dia.
Output	Earphone/headphone jack (minijack) load impedance 8-300 ohms
Battery life	Watching TV at a normal sound level and normal temperatures, you can expect approx. 4 hours of continuous viewing with Sony Eveready AM3 or Eveready No. E91 alkaline batteries.
Power requirements	6 V dc: Batteries

US model:	four size AA alkaline batteries (IEC designation LR6)
AEP, E model:	four alkaline batteries IEC designation LR6 (size AA)
	BP-23 rechargeable battery pack (optional)
DC IN 6 V jack accepts:	
US model:	AC-129 WA ac power adaptor (optional) for use on 120 V ac, 60 Hz
AEP model:	The supplied ac power adaptor for use on 220 V ac, 50 Hz
E model:	The supplied ac power adaptor for use on 110, 120, 220 or 240 V ac, 50/60 Hz
	DCC-127 A car battery cord (optional) for use on 12 V car battery
Battery case (optional)	
US model:	EBP-6 for use on four size C alkaline batteries (IEC designation LR14)
AEP, E model:	EBP-6 for use on four alkaline batteries IEC designation LR14 (size C)
Dimensions	Approx. 83.8 × 167.9 × 39.7 mm (w/h/d) (3 1/8 × 6 5/8 × 1 5/8 inches) incl. projecting parts and controls Approx. 78 × 162.5 × 36 mm (w/h/d) (3 1/8 × 6 1/2 × 1 1/8 inches) not incl. projecting parts and controls
Weight	Approx. 510 g (1 lb 2 oz) incl. batteries Approx. 415 g (14.7 oz) not incl. batteries

#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS 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.

#### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE  SUR LES DIAGRAMMES SCHEMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.



FLAT BLACK AND WHITE TV

SONY®



**SAFETY CHECK-OUT (US MODEL)**

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any). Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

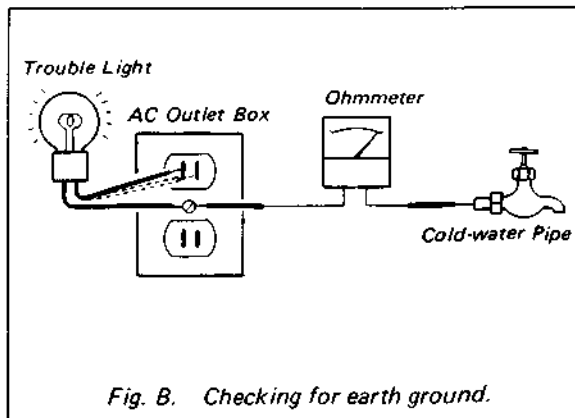
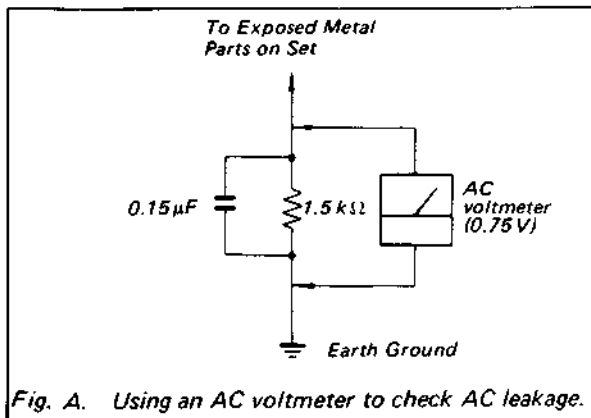
**LEAKAGE TEST**

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliampmeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

**HOW TO FIND A GOOD EARTH GROUND**

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60-100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)

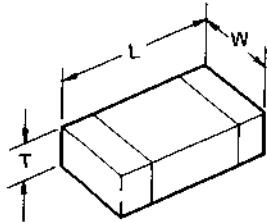


**Chip components**

Chip components include resistors, capacitors, transistors, diodes, coil and adjustable resistors.

In this section, the types of resistors, ceramic capacitors, transistors and diodes which are used most frequently will be described.

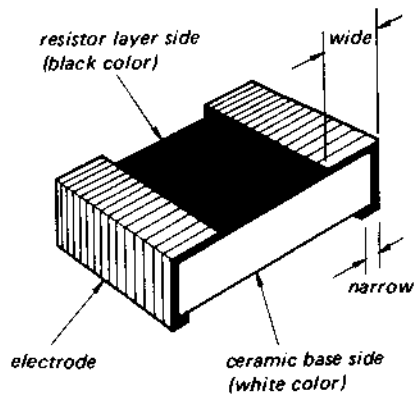
Dimension of transistors and capacitors



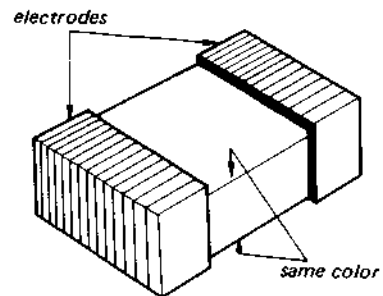
(Unit: mm)

Type	L	W	T
3216	3.2	1.6	0.45 ~ 0.6
2125	2.0	1.25	0.35 ~ 0.5

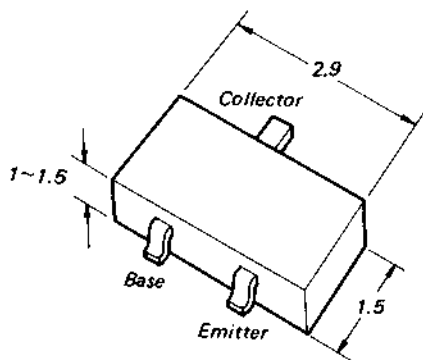
**Identification**



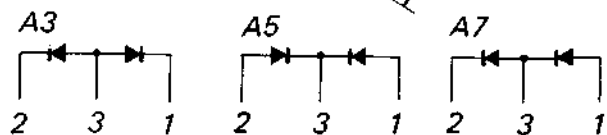
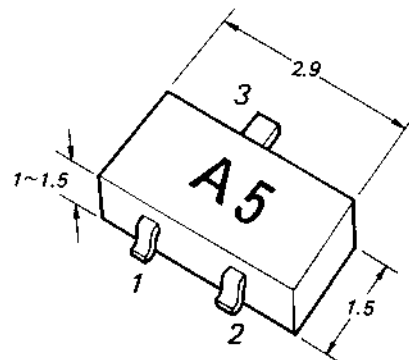
**Resistor**



**Laminated Ceramic Capacitor**



**Transistor**



**Diode**

## Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

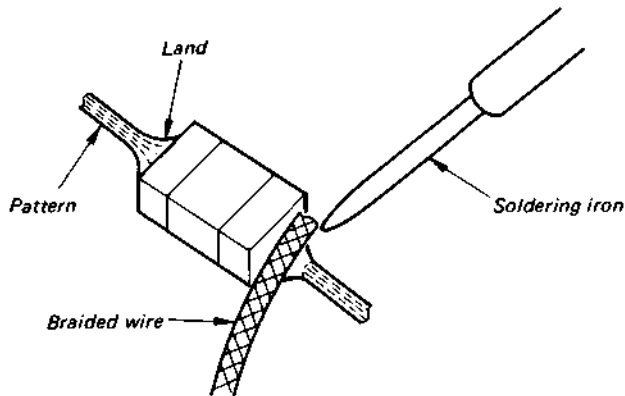
### Precautions for replacement.

1. Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.
2. Never re-use a disconnected chip component. Dispose of all old chip components.
3. To protect the chip component, heating time for attaching the component should be within 3 seconds.

### ○ Removing chip components

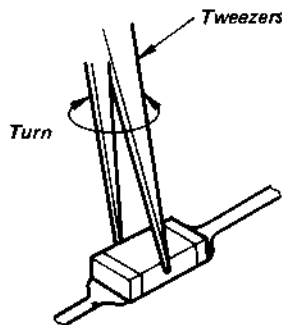
#### (1) Removing solder at electrode

Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



#### (2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off. Never re-use a disconnected chip component.



#### (3) Smoothing the soldered surface

After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

### ○ Connecting chip components

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

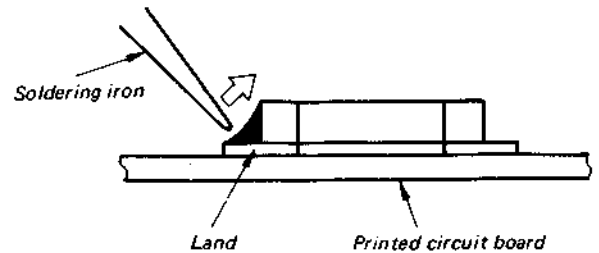
#### (1) Applying solder to land on one side

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.



#### (2) Speedy soldering

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



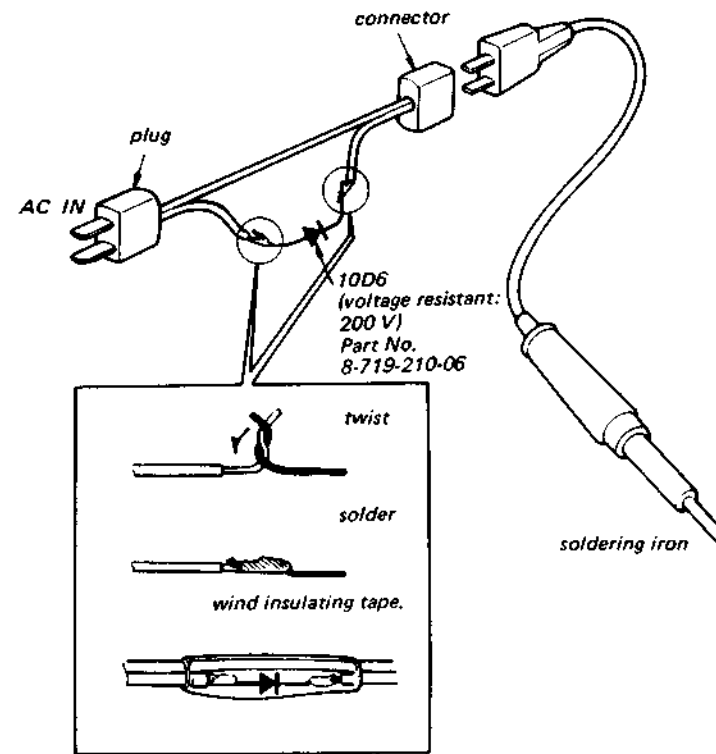
#### (3) Speedy soldering of electrode on the other side

Solder the electrode on the other side in the same way as in (2) above.

**Flexible Circuit Board Repairing**

1. Keep the temperature of the soldering iron at  $270^{\circ} \pm 10^{\circ}C$  during repairing. You can maintain the temperature of the soldering iron around  $270^{\circ}C$  by using the thermal controller as illustrated on the right.
2. Do not touch the soldering iron more than 4 seconds or 4 times on the same conductor of the circuit board.
3. Do not apply force on the conductor when soldering or unsoldering.

To make thermal controller of soldering iron

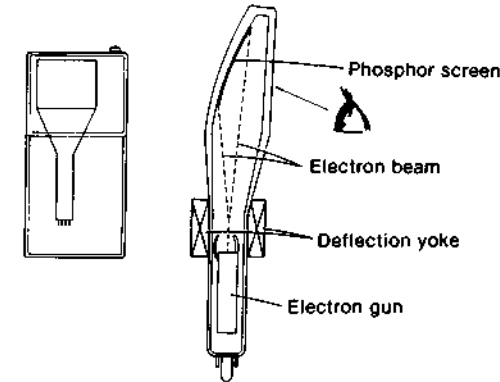


**Tip of soldering iron**



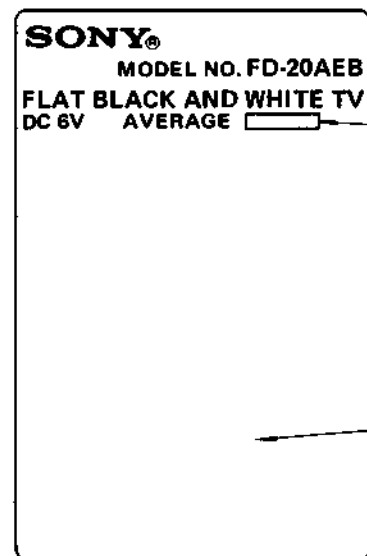
**FEATURES**

The FD-20AEB is a compact 2-inch B/W TV which employs Sony's innovative monochrome FD (flat display) tube. A recessed phosphor screen provides clear viewing even in bright viewing conditions.



- A special 3-system tuner allows the FD-20AEB to receive broadcasts in approximately 60% of all countries.
- Built-in thin speaker with samarium cobalt driver for high quality sound.
- Easy reference volume indicator.
- The built-in stand holds Watchman at correct angle for best tabletop viewing.
- Five auxiliary power source option: batteries, house current, rechargeable battery, battery case and 12V car battery.

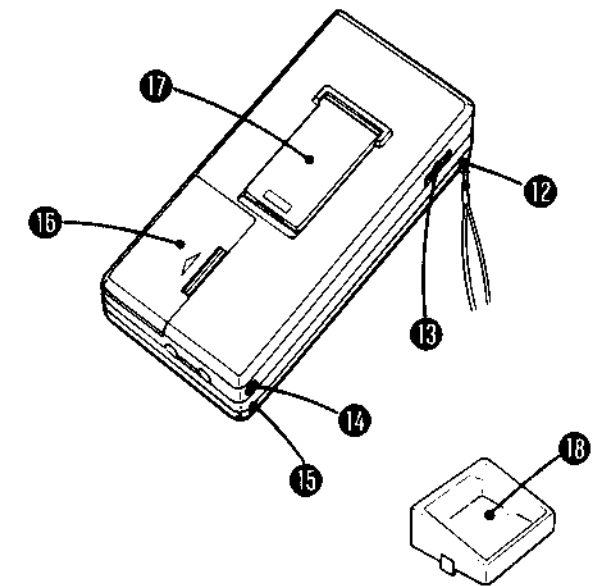
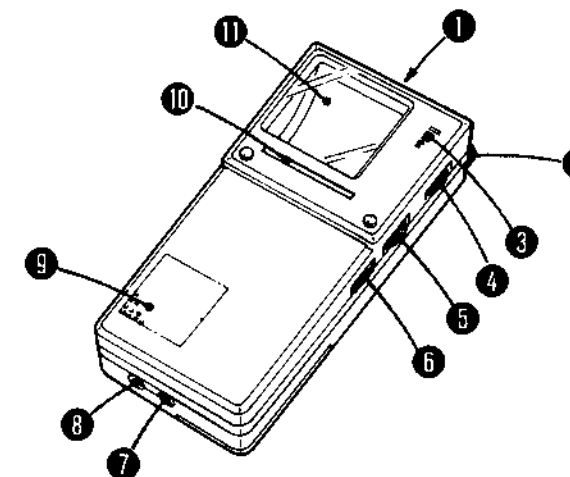
**MODEL IDENTIFICATION**  
- Specification Label -



US model : 2.1 W  
AEP, E model : 2.0 W

set	label color	letters
silver type	silver	black
black type	black	silver

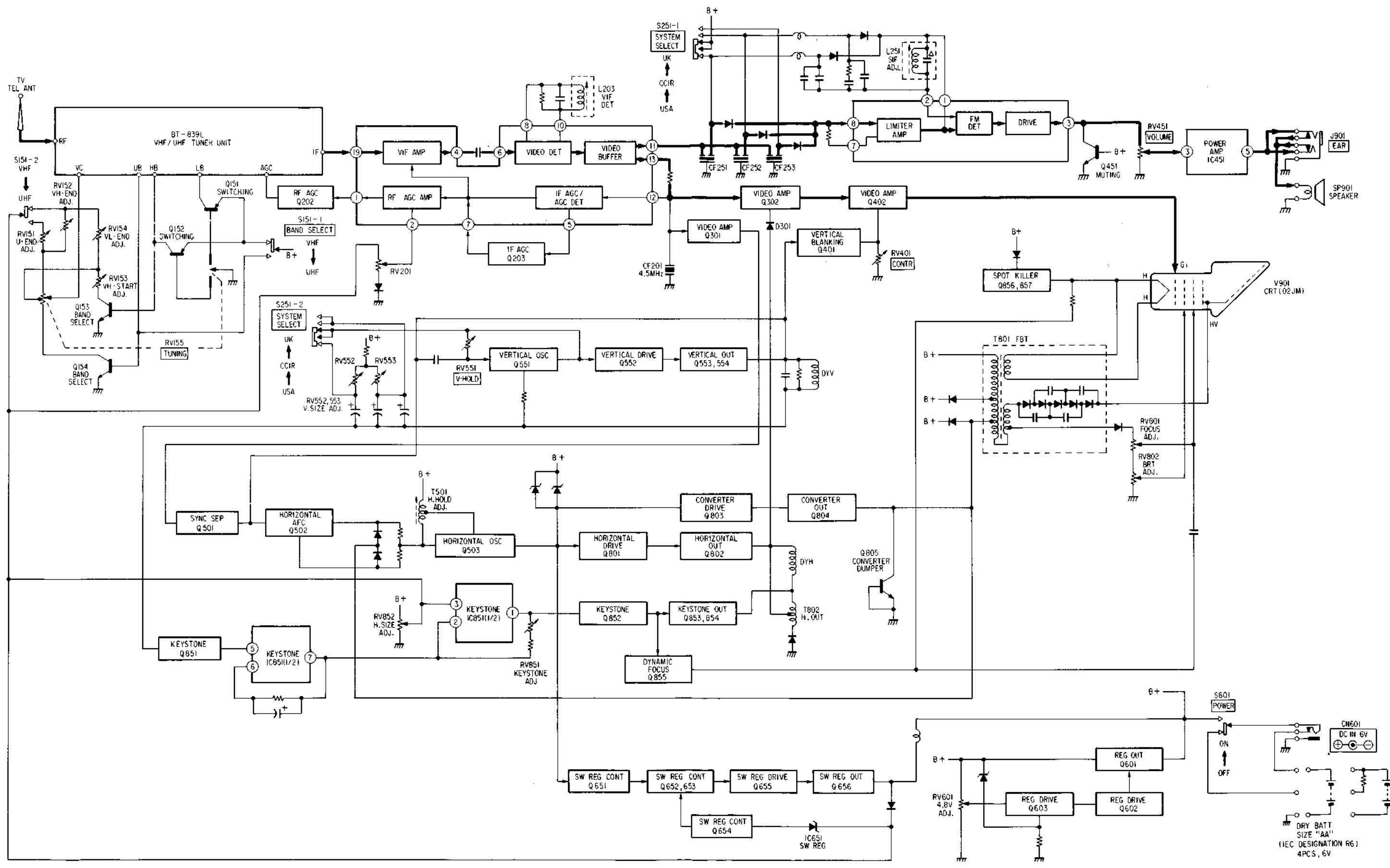
**PARTS IDENTIFICATION**



- 1 SYSTEM SELECT switch
- 2 Telescopic antenna
- 3 VOLUME indicator
- 4 VOLUME control
- 5 TUNING knob
- 6 POWER switch
- 7 CONTR (contrast) control
- 8 V (vertical) HOLD control
- 9 Speaker
- 10 Dial scale
- 11 Screen

- 12 Loop for hand strap
- 13 BAND SELECT switch
- 14 DC IN 6V (external power input) jack
- 15 EAR (earphone) jack
- 16 Battery compartment
- 17 Stand
- 18 TV close-up viewer (supplied) (AEP, E model)

SECTION 1  
BLOCK DIAGRAM

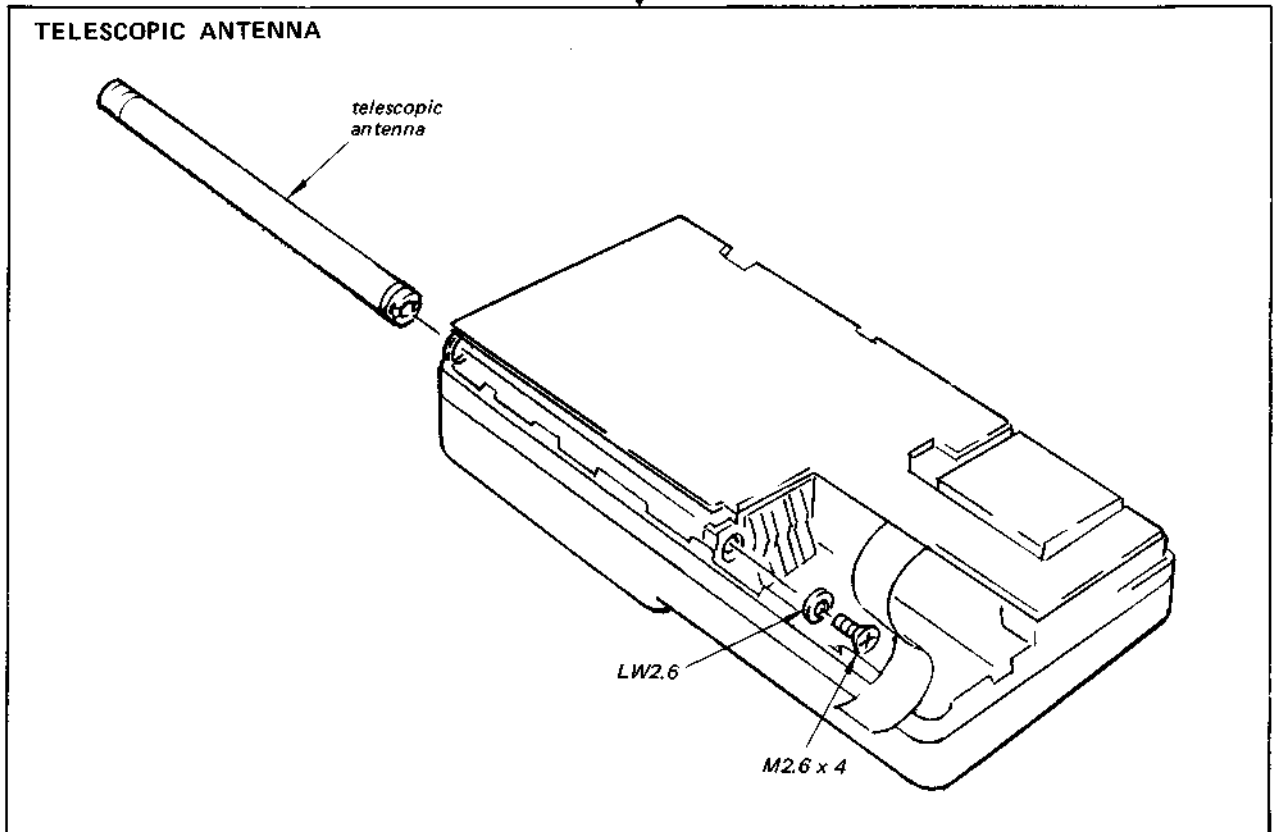
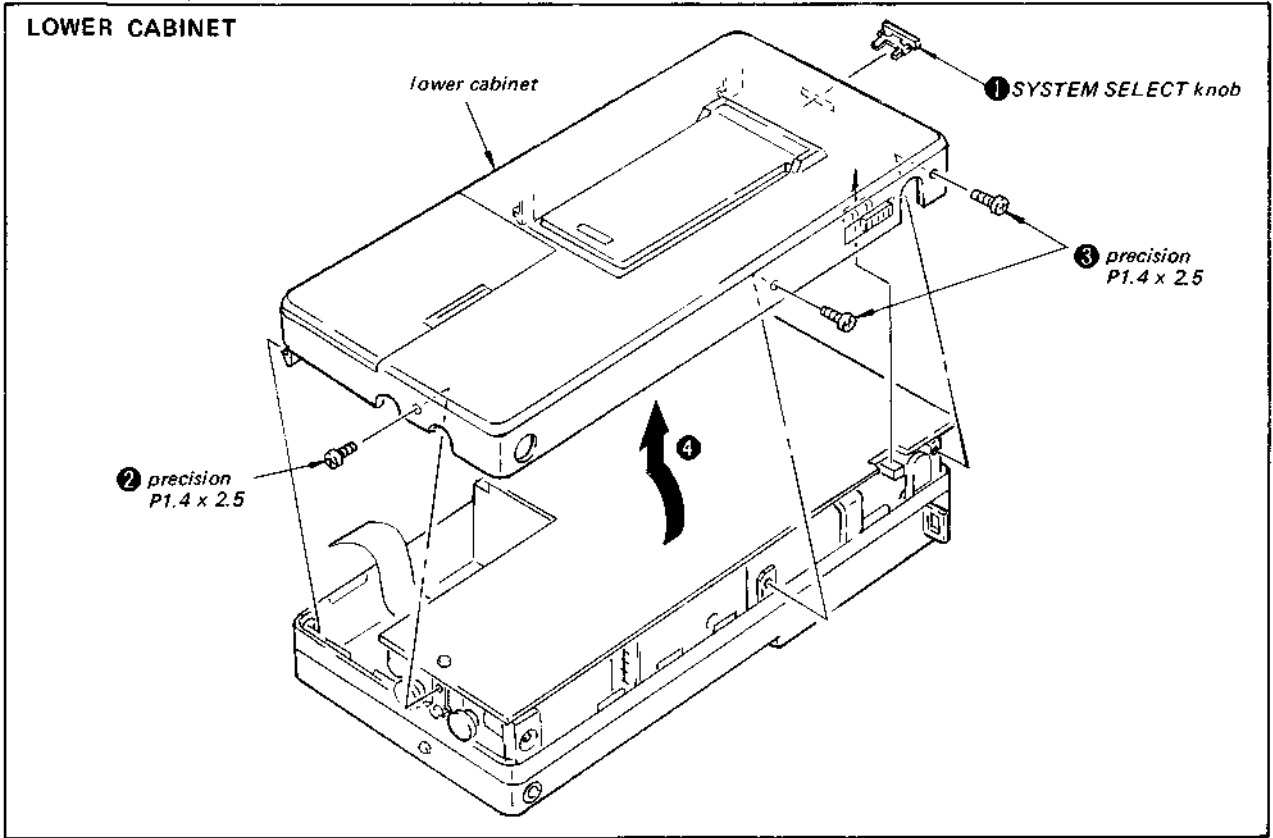


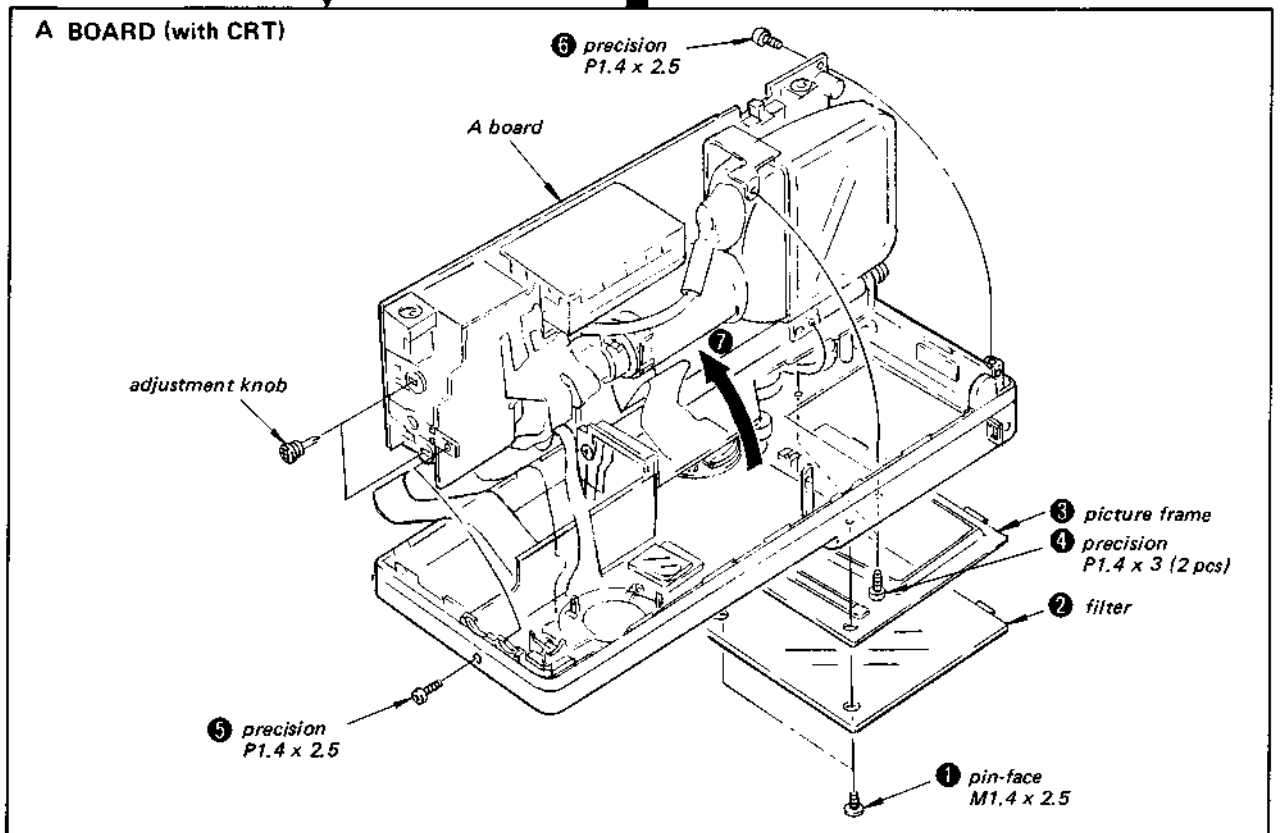
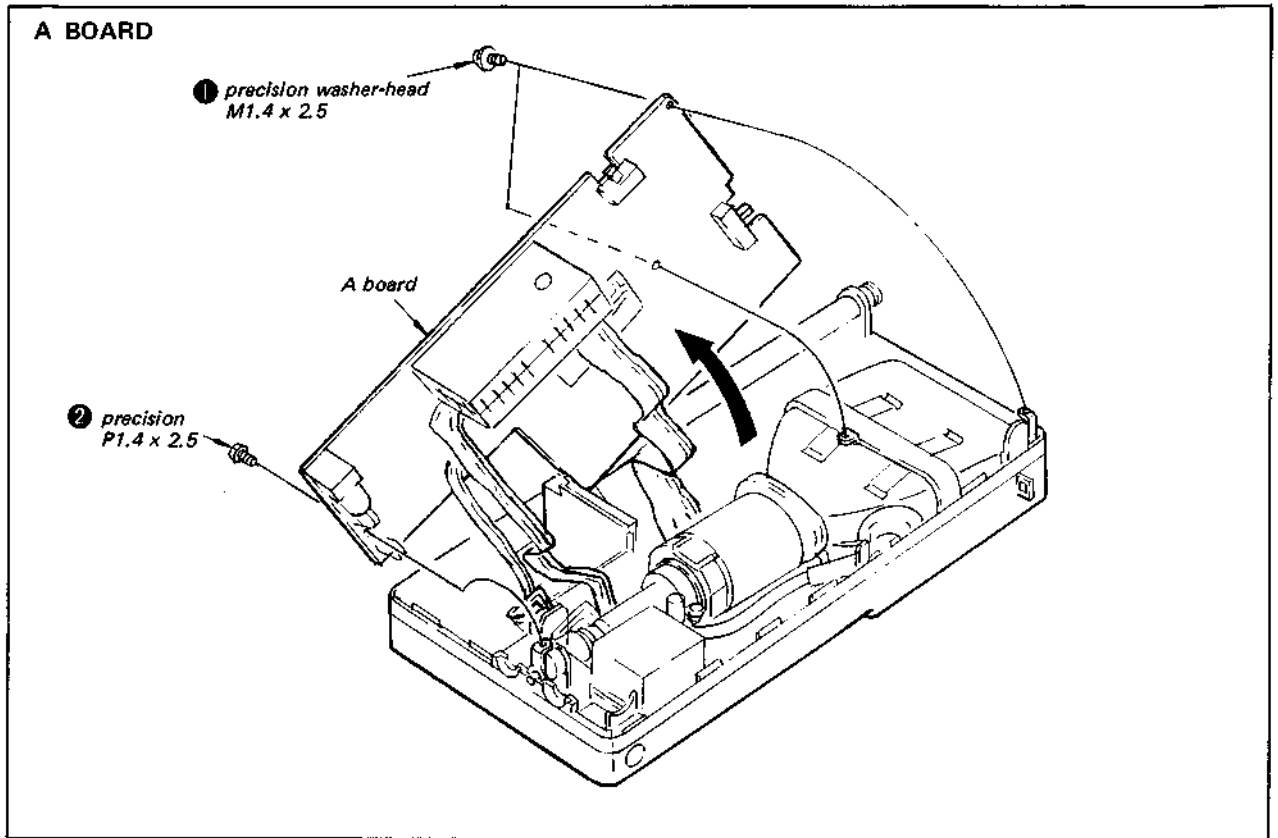
REC'D B  
B  
DC IN 6V  
DRY BATT  
SIZE "AA"  
11EC DESIGNATION R61  
4PCS, 6V

## SECTION 2 DISASSEMBLY

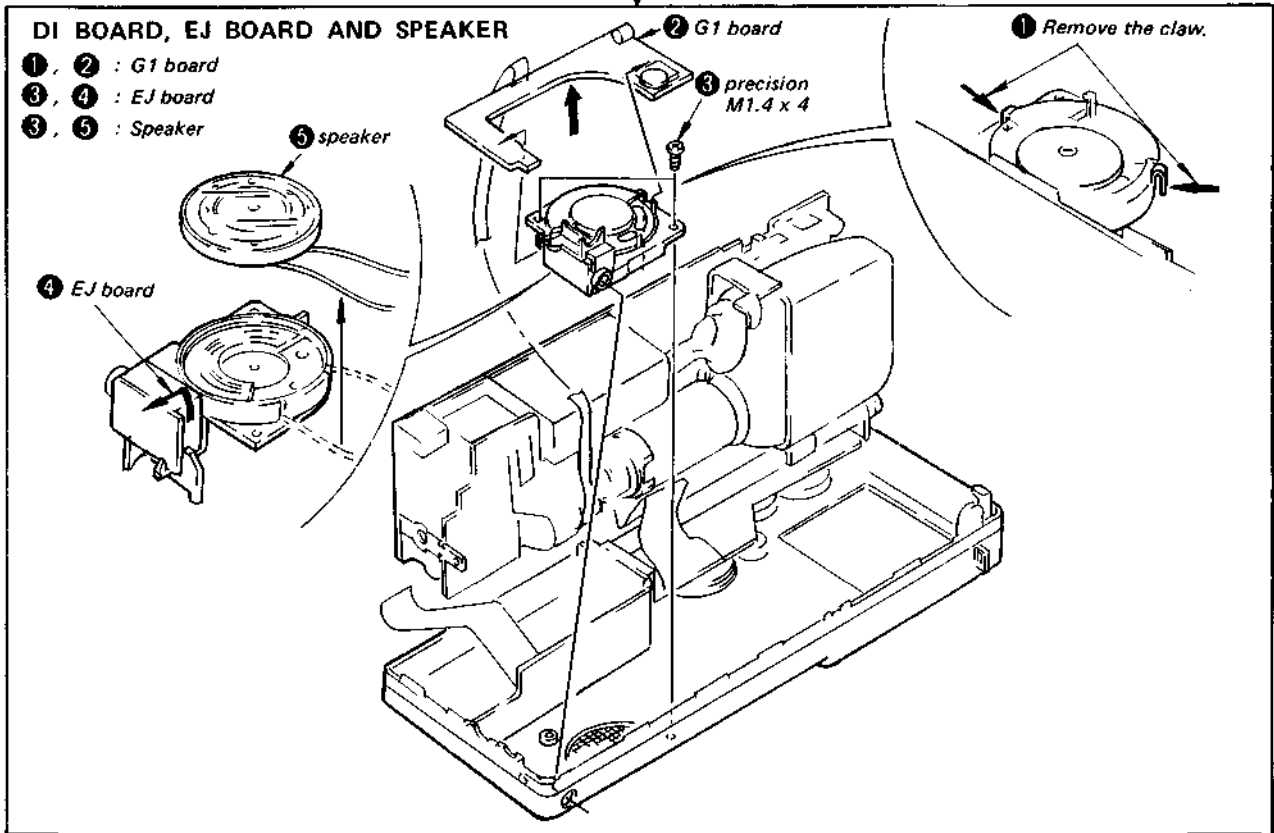
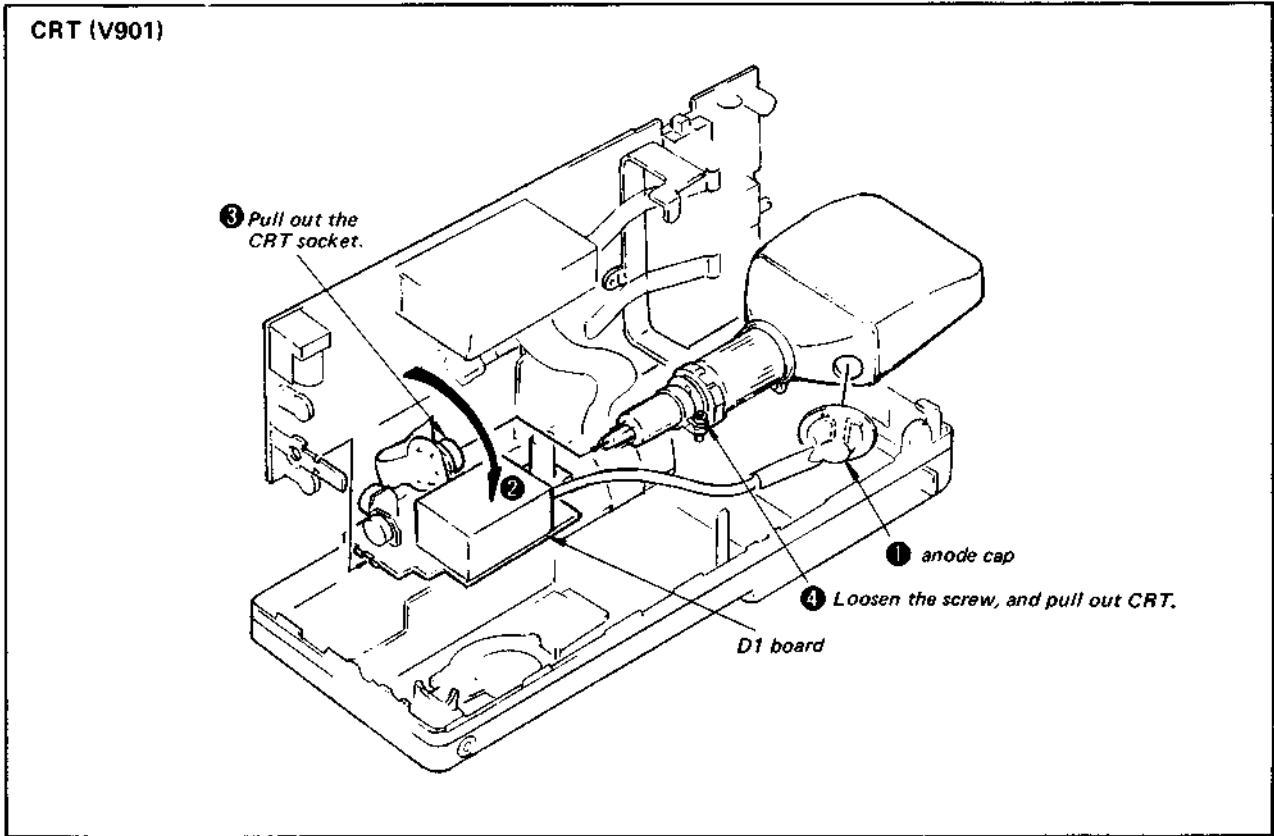
### 2-1. REMOVAL

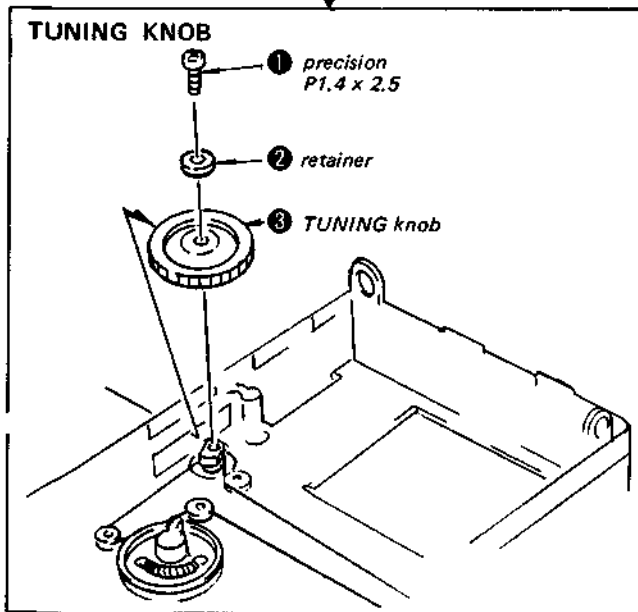
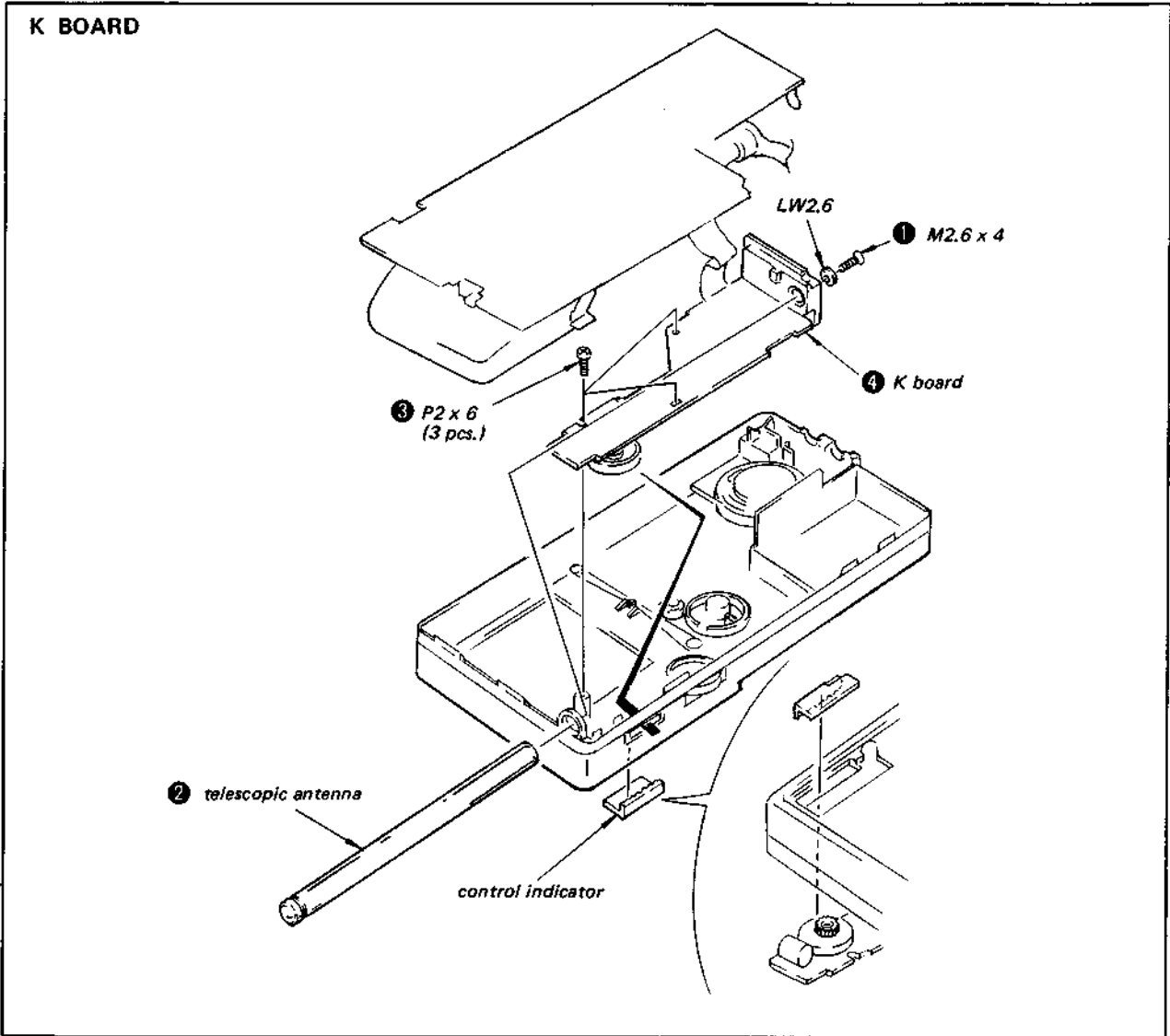
Note: Follow the disassembly procedure in the numerical order given.







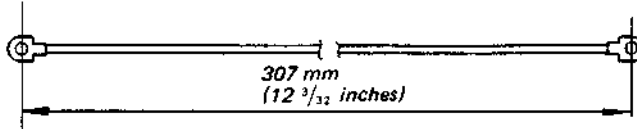




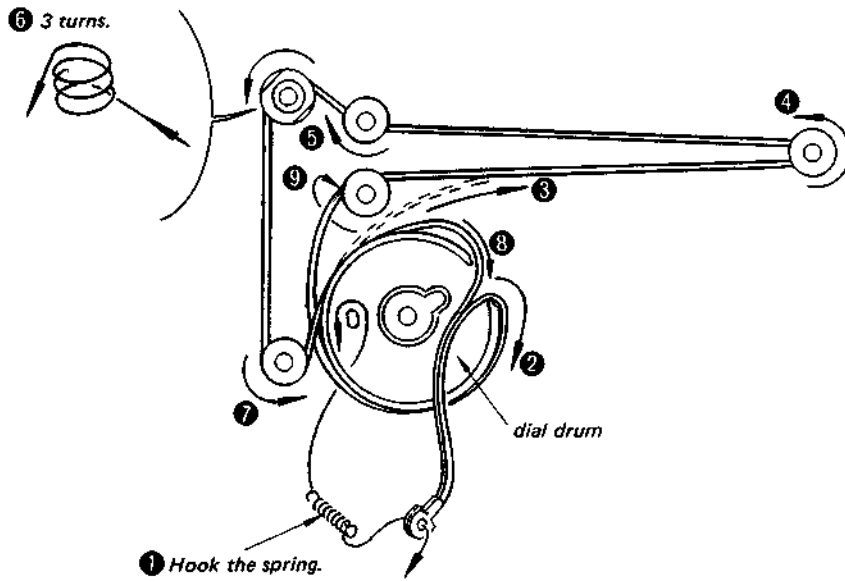
DIAL CORD STRINGING  
(See page 13)

**2-2. DIAL CORD STRINGING**

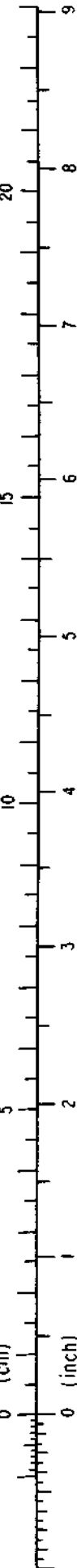
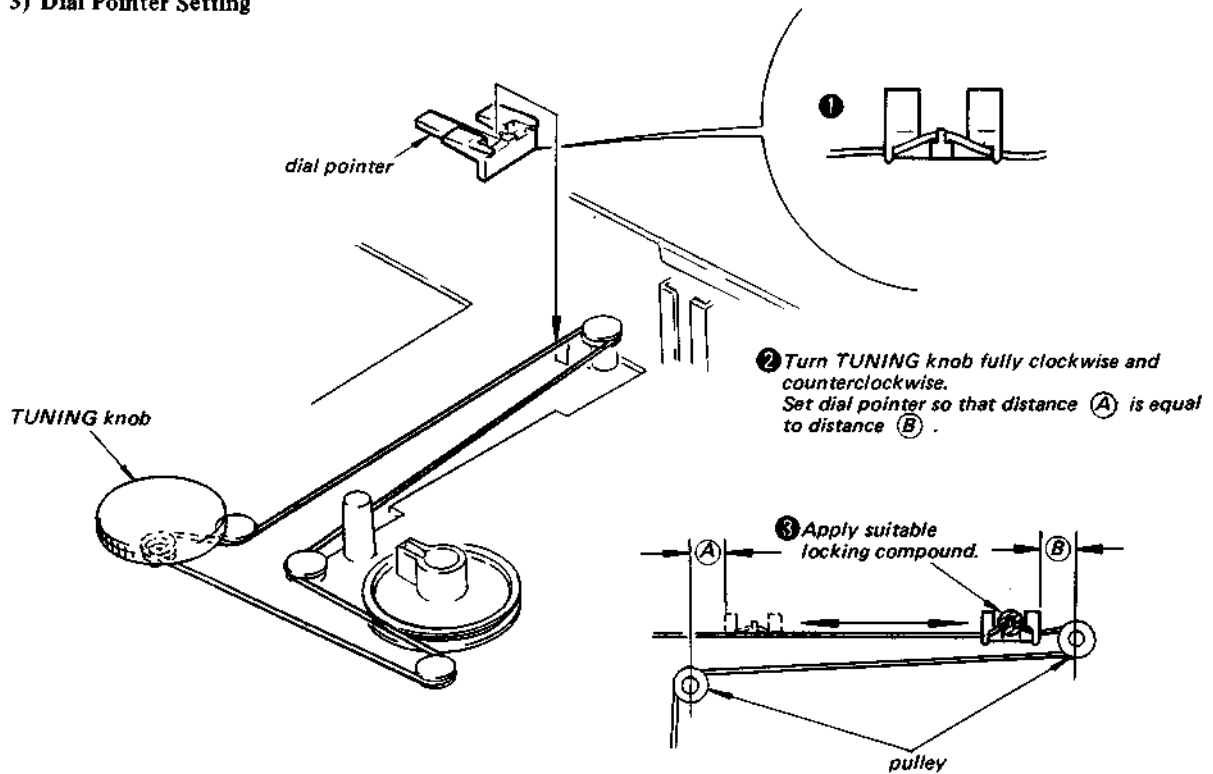
**1) Dial Cord Preparation**



**2) Dial Cord Stringing**



**3) Dial Pointer Setting**



**SECTION 3  
ADJUSTMENTS**

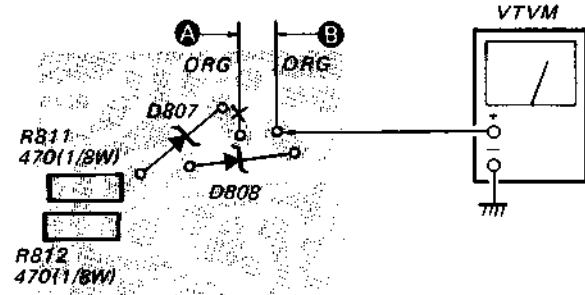
When repairing the following parts, make sure of the operation of high-voltage hold down circuit.

Repairing portion:

- Circuit around Q803
- D807, 808, R811, 812 replacement
- Circuit around Q601, 602

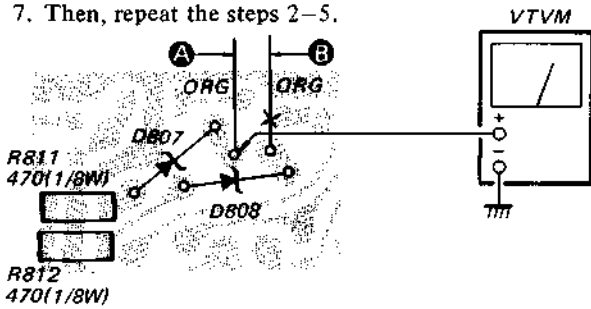
Procedure:

1. Unsolder the lead wire **A** of A board.
2. Supply the voltage from DC IN 6 V jack so that the VTVM reads 7.58 V.
3. Confirm that the raster appears at that time.
4. Supply the voltage from DC IN 6 V jack so that the VTVM reads 8.57 V.
5. Confirm that the raster disappears at that time.



6. Solder the lead wire **A** and unsolder the lead wire **B**.

7. Then, repeat the steps 2-5.



8. After confirming, solder the lead wire **B**.



1. Test Equipment Required

- regulated power supply
- color-bar/pattern generator
- frequency counter
- digital voltmeter
- VTVM

2. Input Signal

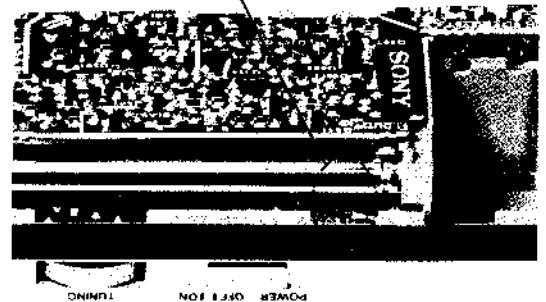
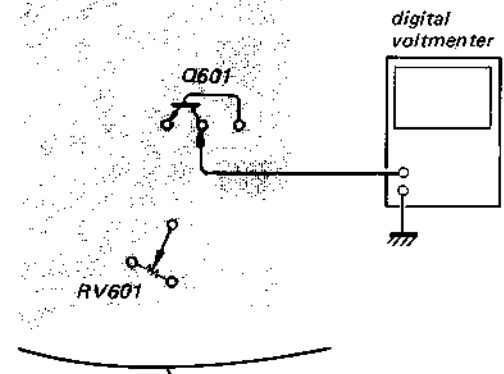
a cross-hatch, a color-bar or an off-air signal.

3. These adjustment should be performed with 6 V dc unless otherwise noted.

**4.8 V Adjustment**

Adjust RV601 for 4.8 V reading on digital voltmeter.

**[K BOARD]**



SECTION 4  
DIAGRAMS

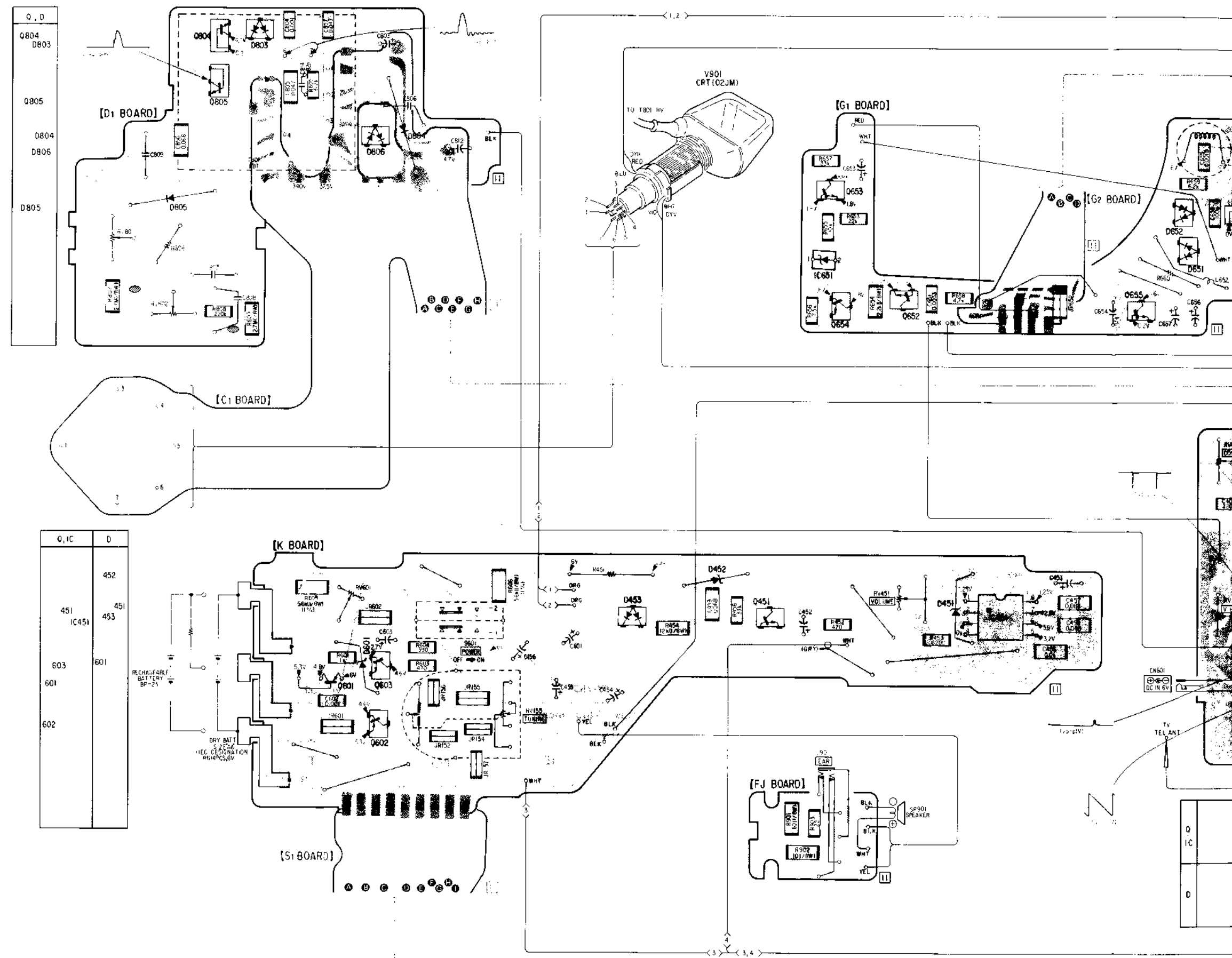
FD-20AEB FD-20AEB

1 2 3 4 5 6 7 8 9 10 11 12 13

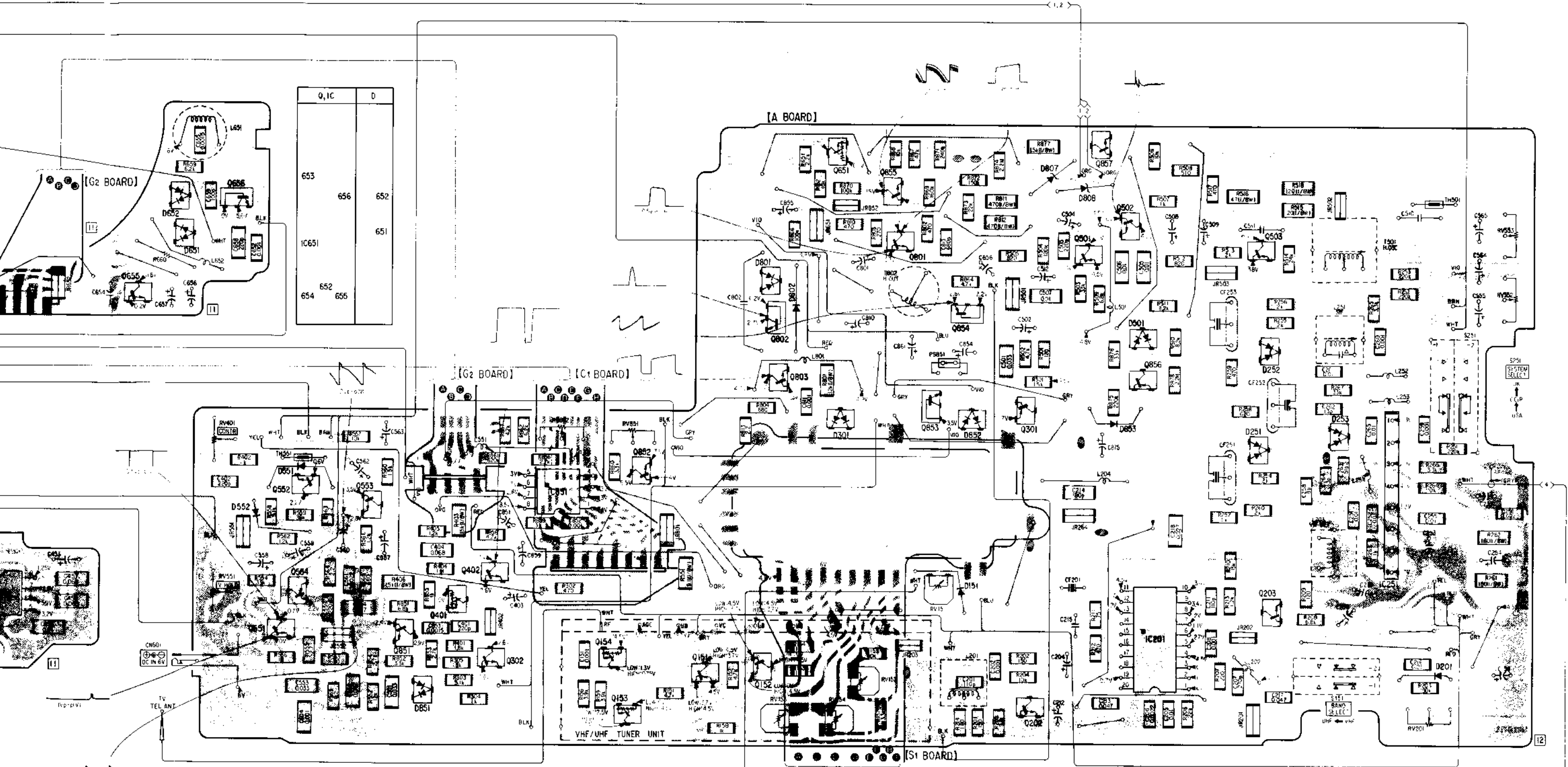
4-1. MOUNTING DIAGRAM  
— Conductor Side —

• Refer to page 26 for semiconductor lead layouts.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J



- Note:**
- ○ — parts extracted from the component side.
  - — parts extracted from the conductor side.
  - ■ — part mounted on the conductor side.
  - — flexible pattern.
  - ■ — B + pattern



Q	552	553	551	401	402	IC851	852	151	802	651	855	857	502	503	IC251	Q
IC	554		851	302			154	151	803		801	853	854	301	856	IC
D	551								152			202	807	808	501	D
	552	551	851						801	802	301	151	852	853	501	
														252	253	
														251		
															201	

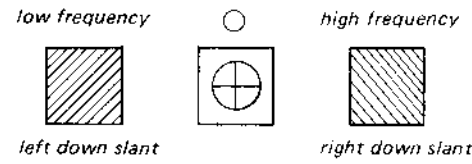
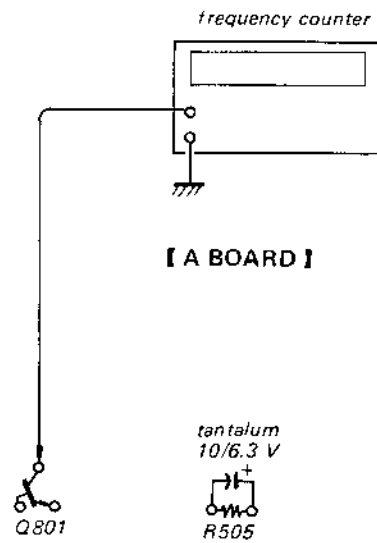
**Horizontal Frequency (H-HOLD) Adjustment**

When using frequency counter:

1. Connect a 10  $\mu$ F 6.3 V tantalum capacitor in parallel with R505.
2. Adjust T501 for 15.67 - 15.69 kHz reading on frequency counter.

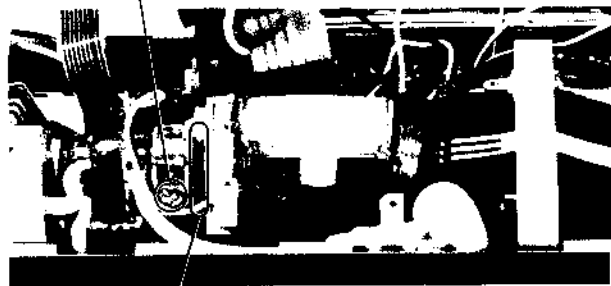
When using an off-the-air signal:

1. Connect a 10  $\mu$ F 6.3 V tantalum capacitor in parallel with R505.
2. Tune in an off-the-air signal.
3. Adjust T501 for the optimum picture.



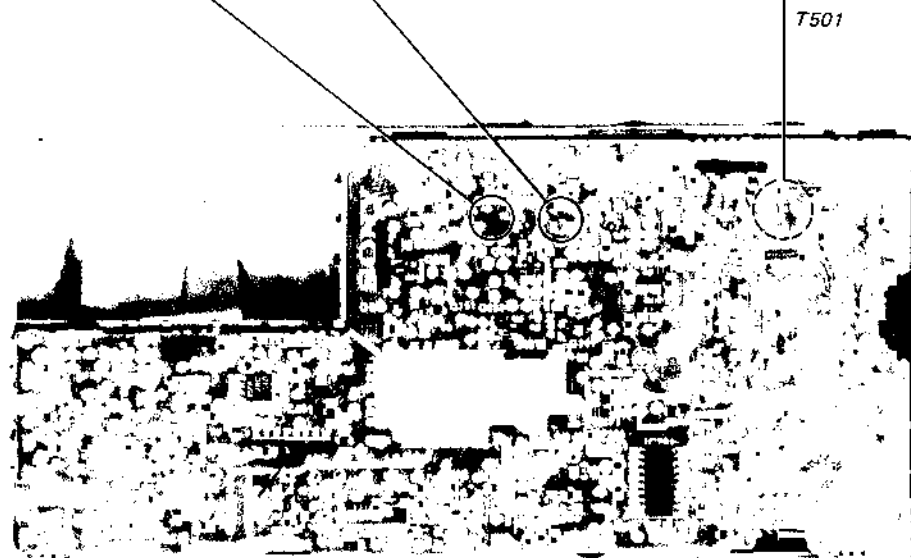
**Horizontal Alignment Adjustment**

1. Loosen the adjustment screw.
2. Tune in an off-the-air signal adjust deflection yoke for optimum picture.
3. Tighten the screw after the adjustment.



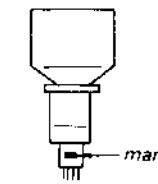
**Centering Adjustment**

1. Turn the socket of CRT toward the north.
2. Tune in an off-the-air signal.
3. Adjust the centering magnet so that the picture is in the center.



**BRT Adjustment**

1. Bridge the pattern according to the mark on the neck of the CRT.

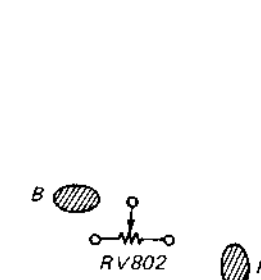


CRT	A board	D1 board
red	R	R
green or no mark	R	B
blue	B	B

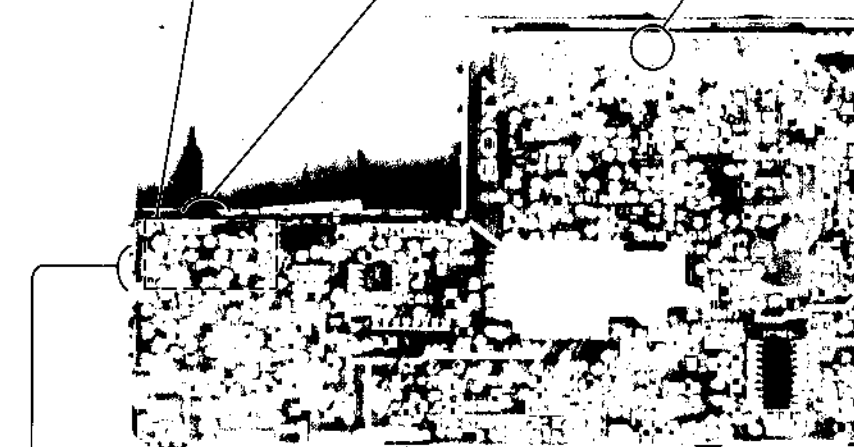
2. Connect VTVM across R874 and adjust RV802 for 10.2 - 10.8 V reading on VTVM.

**[ D1 BOARD ]**

**[ A BOARD ]**



RV802



RV801

**Focus Adjustment**

1. Set the power supply voltage 4.5 V.
2. Tune in an off-the-air signal.
3. Adjust RV801 for the best focus at the center of the picture.

k on the

board

RV802

[A BOARD]

B R R874

VTVM

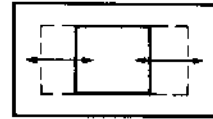
RV802



center of

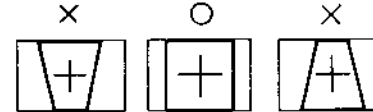
**Horizontal Amplitude (H-SIZE) Adjustment**

1. Tune in an off-the-air signal.
2. Adjust RV852 for the best horizontal amplitude.



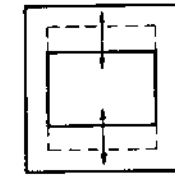
**Keystone Correction (KEYST) Adjustment**

1. Tune in an off-the-air signal.
2. Adjust RV851 for the optimum picture.



**Vertical Amplitude (V-SIZE) Adjustment**

1. Set the SYSTEM SELECT switch to CCIR or UK.
2. Tune in an off-the-air signal.
3. Adjust RV553 for the best vertical amplitude.
4. Set the SYSTEM SELECT switch to USA.
5. Tune in an off-the-air signal.
6. Adjust RV552 for the best vertical amplitude.



RV852

RV851

RV553

RV552

L251

**SIF Adjustment**

1. Tune in an off-the-air signal.
2. Adjust L251 for maximum and clearest sound.

RV153

RV154

RV152

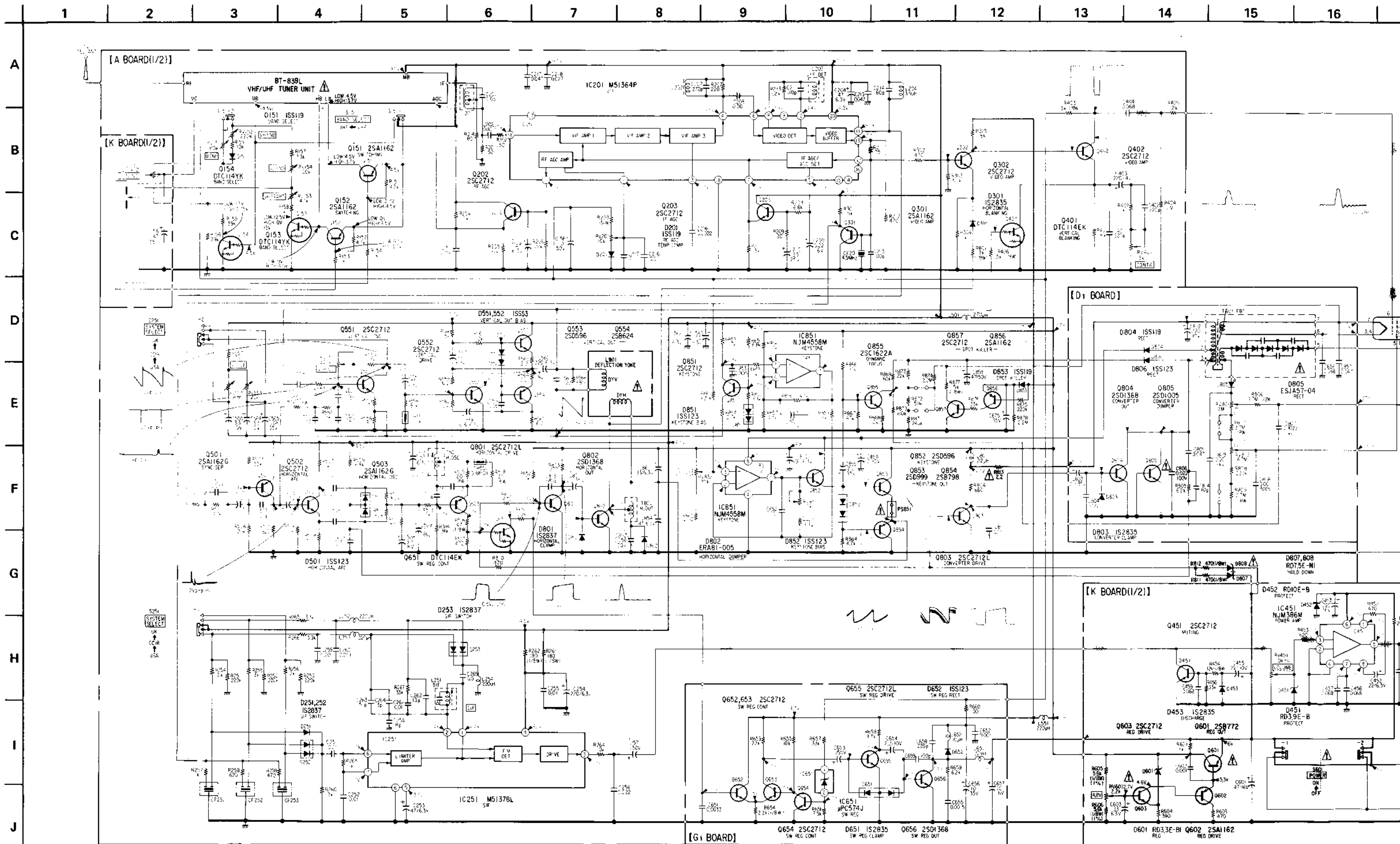
RV151

**Channel Display Adjustment**

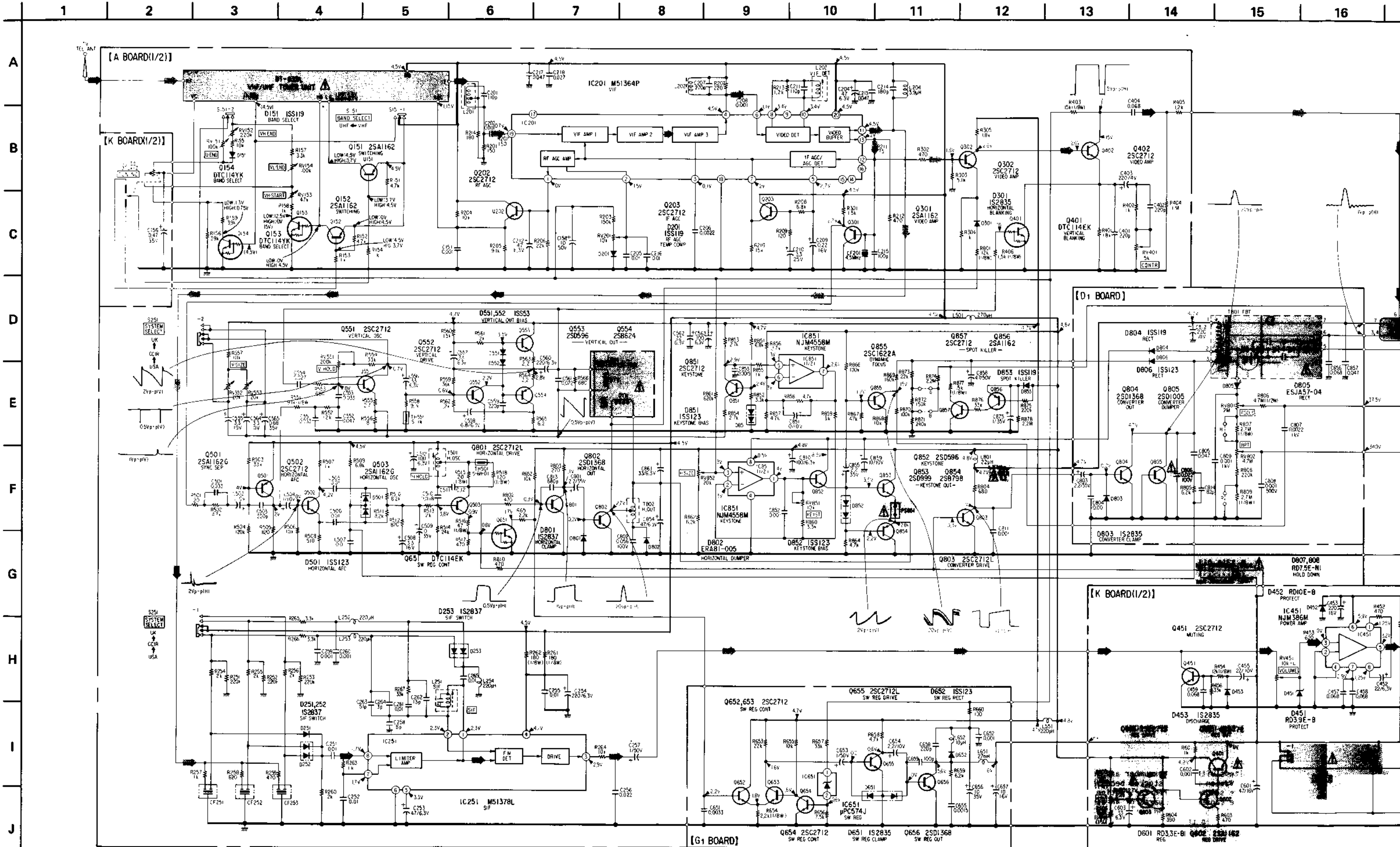
- |   |   |   |
|---|---|---|
| <ol style="list-style-type: none"> <li>1. Set the BAND SELECT switch to VHF.</li> <li>2. Tune the set to the VHF channel 2 TV signal.</li> <li>3. Set the dial pointer to the letter "2" on dial scale.</li> <li>4. Turn the TUNING knob, set the dial pointer to the letter "6" on dial scale.</li> <li>5. Adjust RV154 for the optimum picture.<br/>..... (VL-END)</li> </ol> | <ol style="list-style-type: none"> <li>6. Set the BAND SELECT switch to UHF.</li> <li>7. Turn the TUNING knob, set the dial pointer to the letter "83" or "70" on dial scale.</li> <li>8. Adjust RV151 for the optimum picture.<br/>..... (U-END)</li> <li>9. Tune the set to the UHF channel 30 or 60 TV signal, and confirm that the difference between the dial scale and dial pointer is within <math>\pm 3</math> channels.</li> </ol> | <ol style="list-style-type: none"> <li>10. Set the BAND SELECT switch to VHF.</li> <li>11. Turn the TUNING knob, set the dial pointer to the letter "7" on dial scale.</li> <li>12. Adjust RV153 for the optimum picture.<br/>..... (VII-START)</li> <li>13. Turn the TUNING knob, set the dial pointer to the letter "12" on dial scale.</li> <li>14. Adjust RV152 for the optimum picture.<br/>..... (VH-END)</li> <li>15. After the adjustment, lock the dial cord and dial pointer with suitable locking compound.</li> </ol> |
|---|---|---|



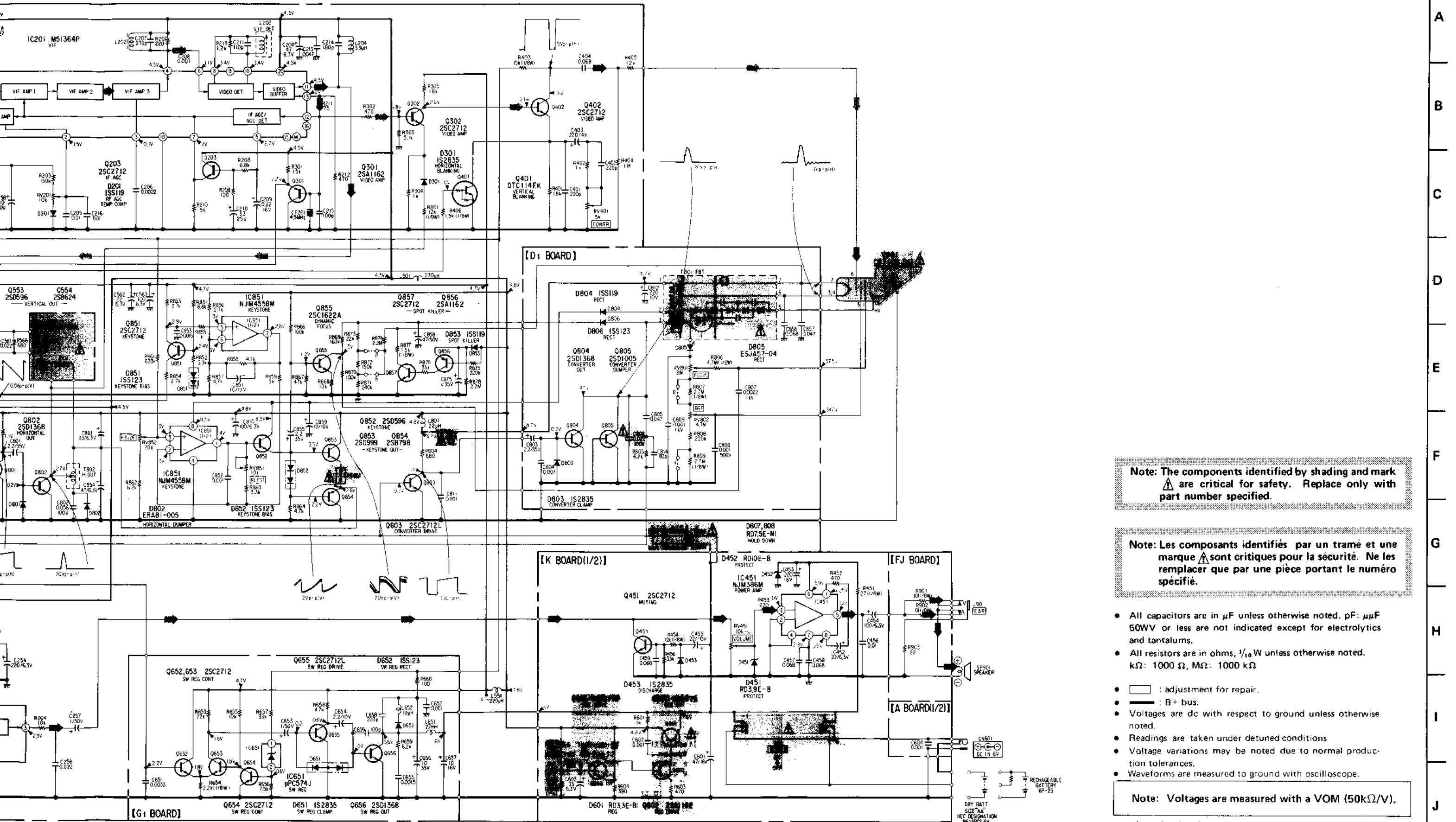
4-2. SCHEMATIC DIAGRAM



4-2. SCHEMATIC DIAGRAM



7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23



Note: The components identified by shading and mark  $\triangle$  are critical for safety. Replace only with part number specified.

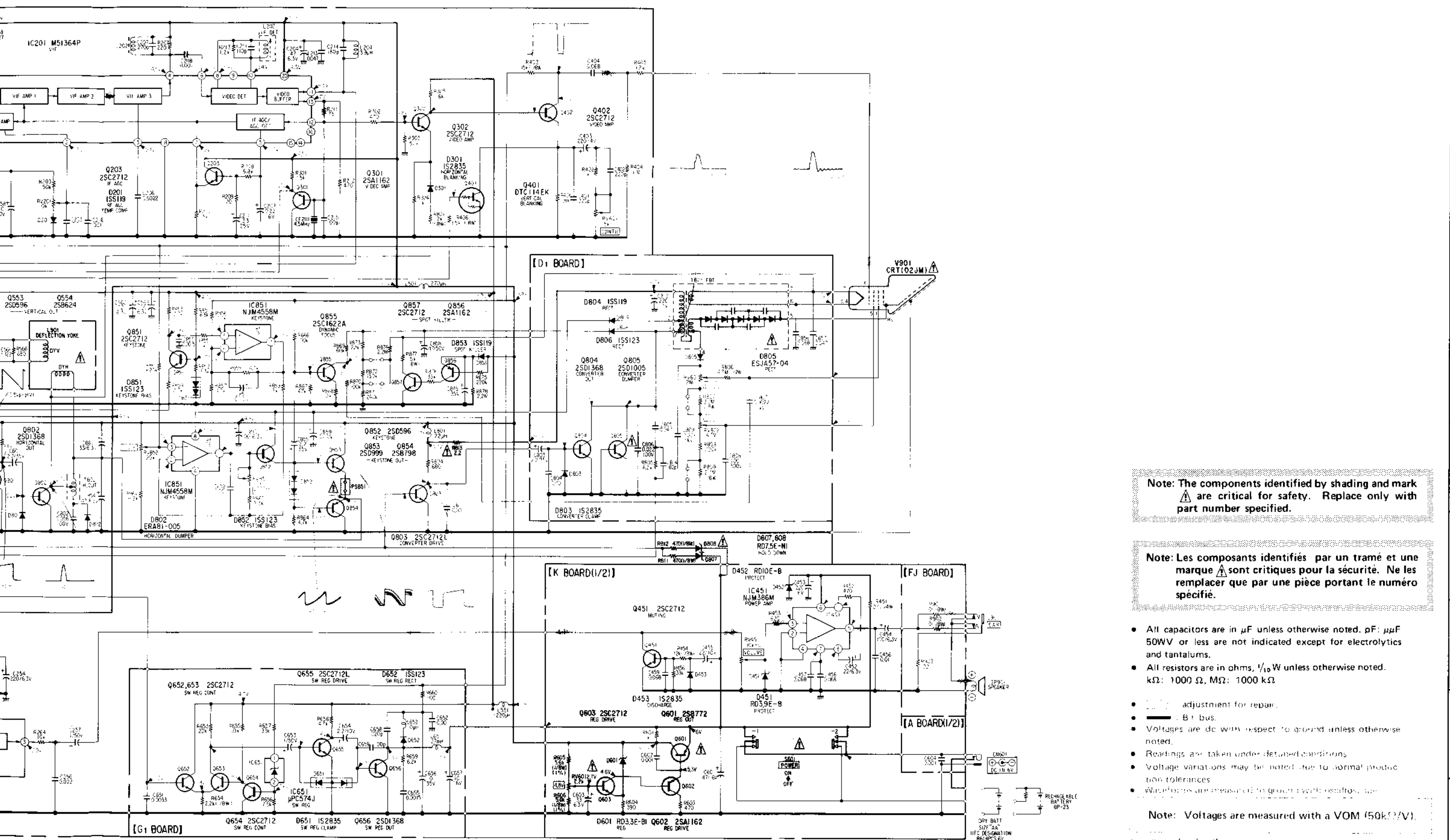
Note: Les composants identifiés par un trame et une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- All capacitors are in  $\mu$ F unless otherwise noted. pF:  $\mu$ F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms,  $\frac{1}{16}$  W unless otherwise noted. k $\Omega$ : 1000  $\Omega$ , M $\Omega$ : 1000 k $\Omega$
- $\square$  : adjustment for repair.
- — : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under detuned conditions
- Voltage variations may be noted due to normal production tolerances.
- Waveforms are measured to ground with oscilloscope.

Note: Voltages are measured with a VOM (50k $\Omega$ /V).

•  $\bullet$  : signal path.

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23



Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{pF}$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms,  $\frac{1}{10}\text{W}$  unless otherwise noted.  $\text{k}\Omega$ : 1000  $\Omega$ ,  $\text{M}\Omega$ : 1000  $\text{k}\Omega$
- adjustment for repair.
- B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under detailed conditions.
- Voltage variations may be noted due to normal production tolerances.
- Waveforms are measured to ground with oscilloscope.

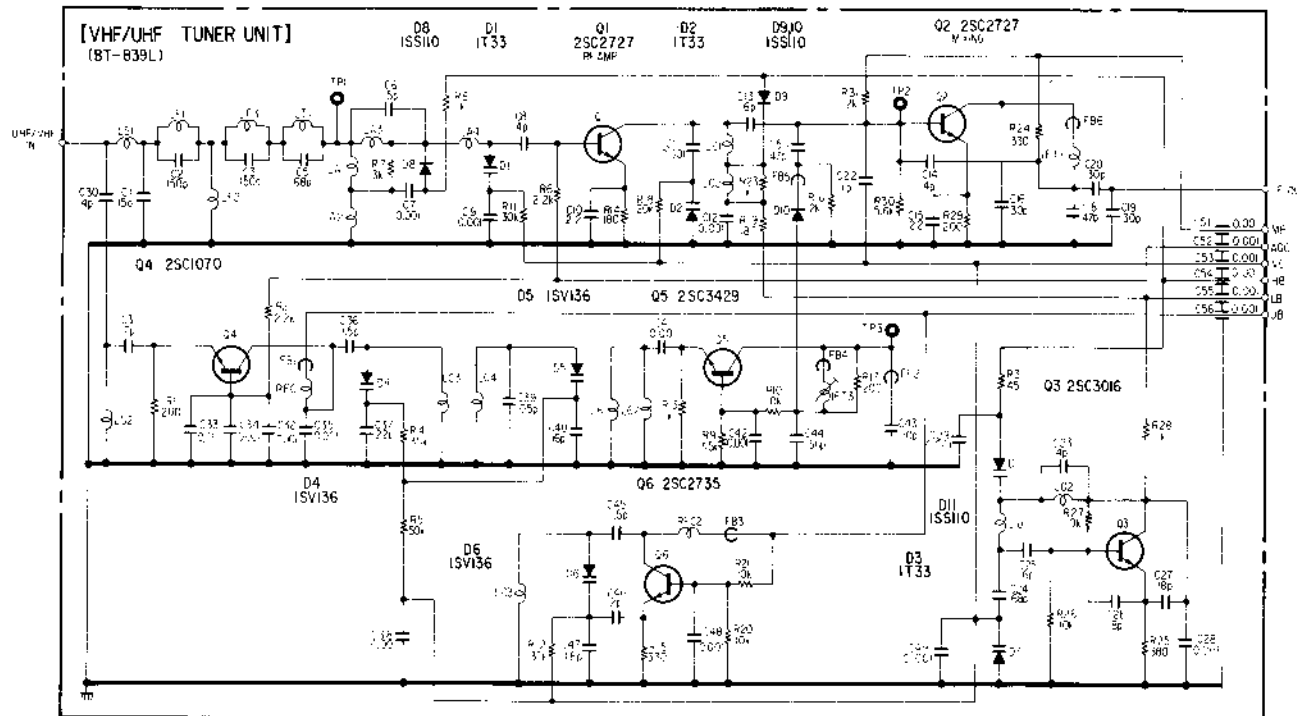
Note: Voltages are measured with a VOM (50k $\Omega$ /V).

• signal path.

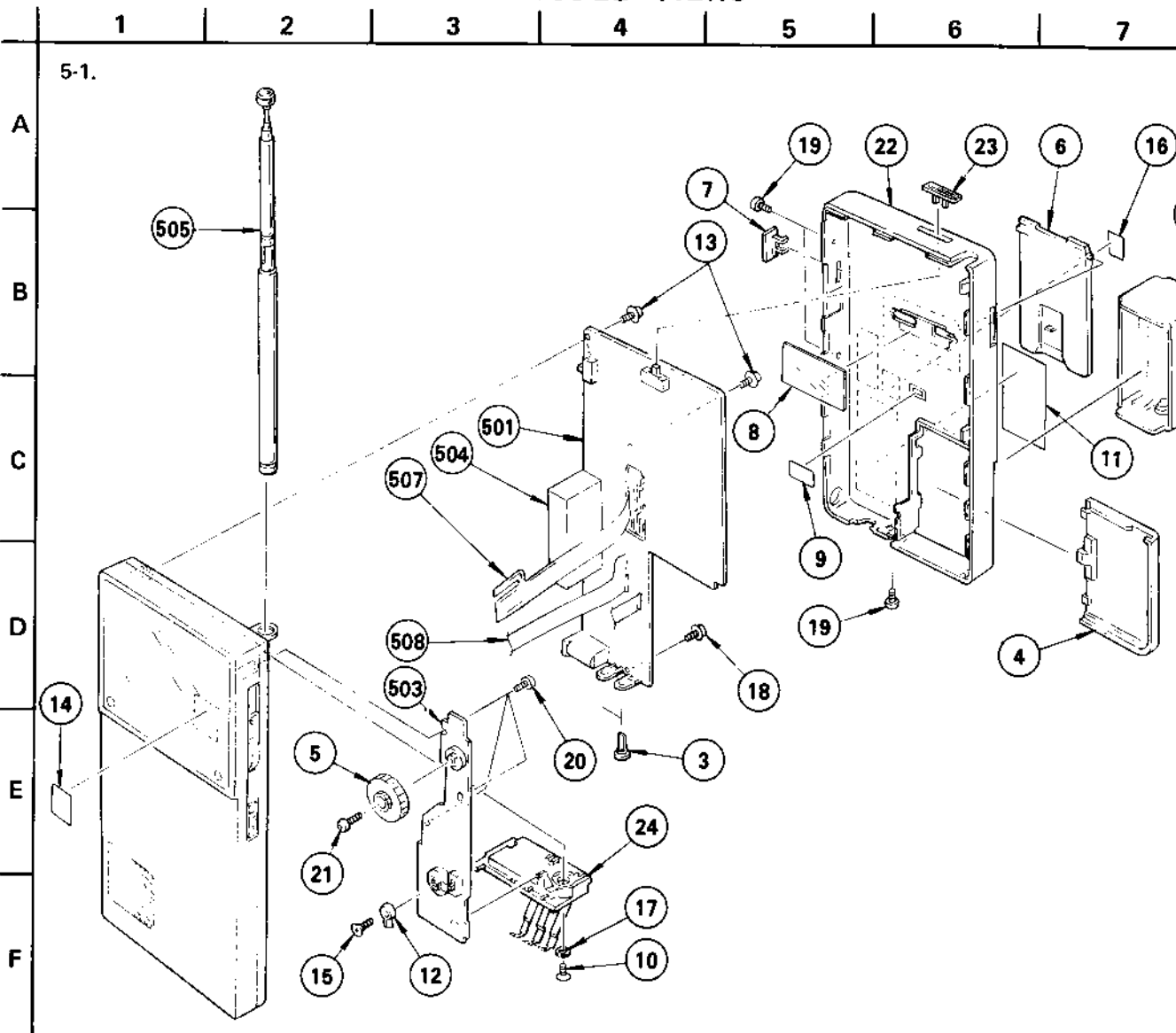
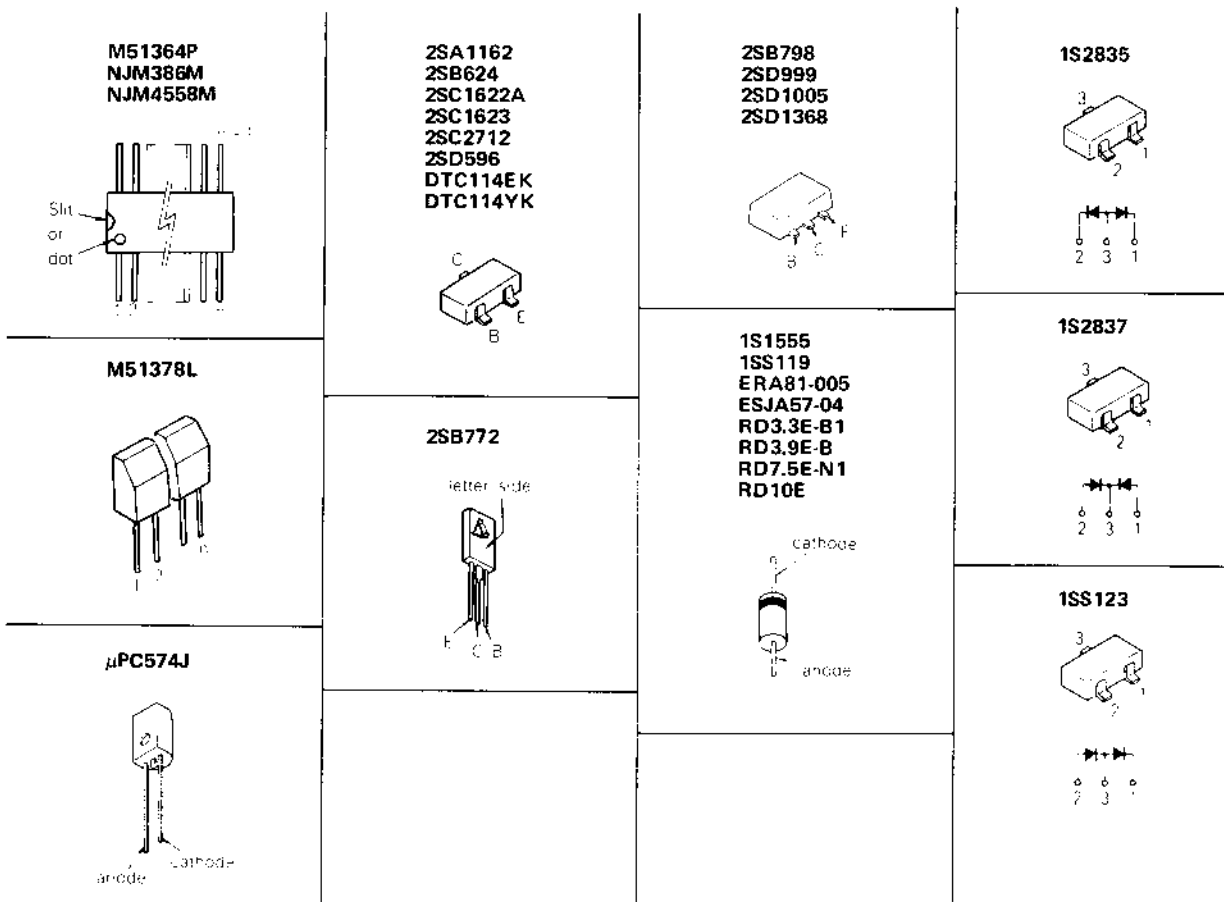
EXPLODED VIEWS

4-3. VHF/UHF TUNER UNIT SCHEMATIC DIAGRAM

• BT-839L



• Semiconductor Lead Layouts

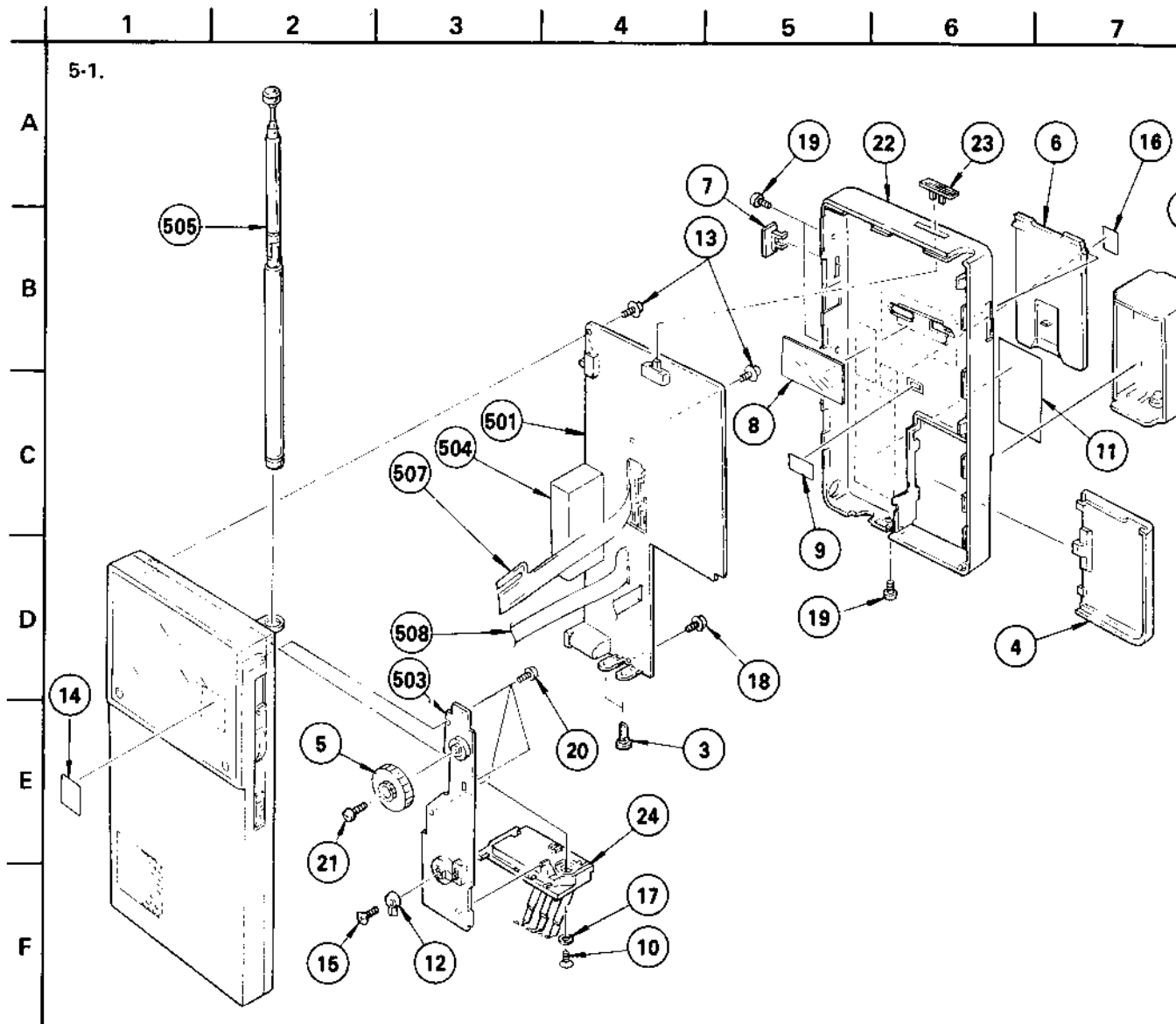


No.	Part No.	Description	No.	Part No.	Description
1	X-3314-011-0	HOLDER ASSY, BATTERY	12	3-319-103-01	JOINT, TUNING
2	.....		13	3-703-502-21	SCREW (M1.4X2.5), WASHER-HEAD, PRECISION
3	3-314-022-00	{SILVER}...KNOB, ADJUSTMENT (V HOLD, CONTR)	14	3-703-710-01	STICKER, SONY SYMBOL (12)
3	3-314-022-11	{BLACK}...KNOB, ADJUSTMENT (V HOLD, CONTR)	15	3-880-990-00	SCREW (M1.7X3), FLAT, (+) SPECIAL
4	3-314-023-31	{SILVER}...LID, BATTERY CASE	16	4-310-379-00	{AEP}...LABEL, NEMKO
4	3-314-023-11	{BLACK}...LID, BATTERY CASE	17	7-623-421-07	LW 2.6, TYPE B
5	3-314-026-00	{SILVER}...KNOB, CONTROL (VOLUME)	18	7-627-850-17	SCREW, PRECISION +P 1.4X2.5
5	3-314-026-11	{BLACK}...KNOB, CONTROL (VOLUME)	19	7-627-850-17	{SILVER}...SCREW, PRECISION +P 1.4X2.5
6	3-314-029-03	{SILVER}...STAND	19	7-627-850-18	{BLACK}...SCREW, PRECISION +P 1.4X2.5
6	3-314-029-13	{BLACK}...STAND	20	7-685-104-14	SCREW +P 2X6 TYPE2 NON-SLIT
7	3-314-039-00	{SILVER}...KNOB (B), SLIDE (BAND SELECT)	21	7-685-773-04	+PTT 1.7X4
7	3-314-039-11	{BLACK}...KNOB (B), SLIDE (BAND SELECT)	22	3-314-033-41	{SILVER}...CABINET (LOWER)
8	*3-314-065-00	SHEET (A), PROTECTION	22	3-314-033-51	{BLACK}...CABINET (LOWER)
9	3-314-066-00	SHEET (B), PROTECTION	23	3-314-087-01	{SILVER}...KNOB (SYSTEM SELECT)
10	7-621-775-10	SCREW +B 2.6X4	23	3-314-087-11	{BLACK}...KNOB (SYSTEM SELECT)
11	3-314-081-01	{US}.....LABEL, MODEL NUMBER	24	X-3314-013-1	{SILVER}...PIECE SUB ASSY, CONTACT
11	3-314-082-01	{AEP:SILVER,E}...LABEL, MODEL NUMBER	24	X-3314-039-1	{BLACK}...PIECE SUB ASSY, CONTACT
11	3-314-082-11	{AEP:BLACK}.....LABEL, MODEL NUMBER			

NOTE:  
 • Items with no part number and no description are not stocked because they are seldom required for routine service.  
 • The construction parts of an assembled part are indicated with a collation number in the remark column.  
 • Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

SECTION 5  
EXPLODED VIEWS

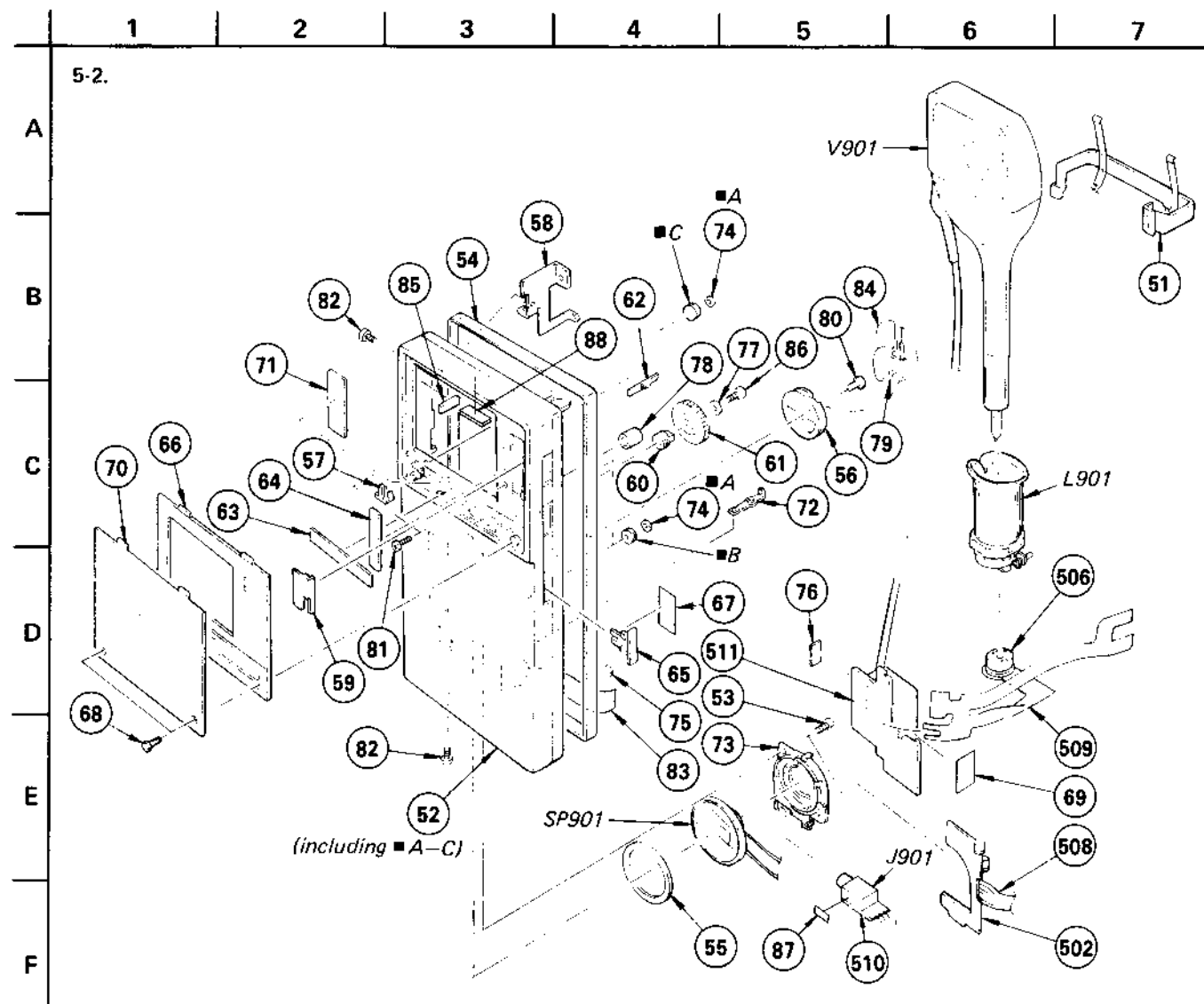
FD-20AEB FD-20AEB



No.	Part No.	Description	No.	Part No.	Description
1	X-3314-011-0	HOLDER ASSY, BATTERY	12	3-319-103-01	JOINT, TUNING
2			13	3-703-502-21	SCREW (M1.4X2.5), WASHER-HEAD, PRECISION
3	3-314-022-00	{SILVER}...KNOB, ADJUSTMENT (V HOLD, CONTR)	14	3-703-710-01	STICKER, SONY SYMBOL (12)
3	3-314-022-11	{BLACK}...KNOB, ADJUSTMENT (V HOLD, CONTR)	15	3-880-990-00	SCREW (M1.7X3), FLAT, (+) SPECIAL
4	3-314-023-31	{SILVER}...LID, BATTERY CASE	16	4-310-379-00	{AEP}...LABEL, NEMKO
4	3-314-023-11	{BLACK}...LID, BATTERY CASE	17	7-623-421-07	LW 2.6, TYPE B
5	3-314-026-00	{SILVER}...KNOB, CONTROL (VOLUME)	18	7-627-850-17	SCREW, PRECISION +P 1.4X2.5
5	3-314-026-11	{BLACK}...KNOB, CONTROL (VOLUME)	19	7-627-850-17	{SILVER}...SCREW, PRECISION +P 1.4X2.5
6	3-314-029-03	{SILVER}...STAND	19	7-627-850-18	{BLACK}...SCREW, PRECISION +P 1.4X2.5
6	3-314-029-13	{BLACK}...STAND	20	7-685-104-14	SCREW +P 2X6 TYPE2 NON-SLIT
7	3-314-039-00	{SILVER}...KNOB (B), SLIDE (BAND SELECT)	21	7-685-773-04	+PTT 1.7X4
7	3-314-039-11	{BLACK}...KNOB (B), SLIDE (BAND SELECT)	22	3-314-033-41	{SILVER}...CABINET (LOWER)
8	*3-314-065-00	SHEET (A), PROTECTION	22	3-314-033-51	{BLACK}...CABINET (LOWER)
9	3-314-066-00	SHEET (B), PROTECTION	23	3-314-087-01	{SILVER}...KNOB (SYSTEM SELECT)
10	7-621-775-10	SCREW +B 2.6X4	23	3-314-087-11	{BLACK}...KNOB (SYSTEM SELECT)
11	3-314-081-01	{US}.....LABEL, MODEL NUMBER	24	X-3314-013-1	{SILVER}...PIECE SUB ASSY, CONTACT
11	3-314-082-01	{AEP:SILVER,E}...LABEL, MODEL NUMBER	24	X-3314-039-1	{BLACK}...PIECE SUB ASSY, CONTACT
11	3-314-082-11	{AEP:BLACK}.....LABEL, MODEL NUMBER			

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



No.	Part No.	Description	No.	Part No.	Description
51	*X-3314-002-0	HOLDER ASSY, B TUBE	69	*3-314-056-00	INSULATOR
52	X-3314-034-1	{SILVER}...CABINET (UPPER) ASSY	70	3-314-061-00	FILTER
52	X-3314-033-1	{BLACK}...CABINET (UPPER) ASSY	71	3-314-062-00	LABEL, CAUTION, SERVICE
53	3-309-597-31	SCREW (M1.4X4), TAPPING, PRECISION	72	*3-319-104-01	PLATE (A), NUT
54	3-314-002-00	STRIP, ORNAMENTAL	73	3-319-110-01	HOLDER, SPEAKER
55	3-314-005-11	CUSHION, SPEAKER	74	3-489-108-00	WASHER 1.6, NYLON
56	3-314-007-00	DRUM, DIAL	75	3-527-126-00	MARK, BATTERY CASE
57	3-314-008-00	POINTER, DIAL	76	3-527-213-00	LABEL, SERIAL NUMBER
58	3-314-010-00	BRACKET, STRAP	77	3-569-403-00	RETAINER
59	*3-314-011-00	INDICATOR, CONTROL	78	*3-576-954-00	RETAINER, SOLENOID
60	3-314-012-00	SHAFT, DIAL	79	4-875-562-00	SPRING, TENSION
61	3-314-013-00	{SILVER}...KNOB (TUNING)	80	7-625-712-20	RIVET 2X4
61	3-314-013-11	{BLACK}...KNOB (TUNING)	81	7-627-850-27	SCREW, PRECISION +P 1.4X3
62	*3-314-017-00	PLATE (B), NUT	82	7-627-850-97	{SILVER}...SCREW, PRECISION +P 1.4X2.2
63	3-314-018-00	SHEET (A), ORNAMENTAL	82	7-627-850-98	{BLACK}...SCREW, PRECISION +P 1.4X2.2
64	3-314-019-00	SHEET (B), ORNAMENTAL	83	9-911-816-02	CLOTH, DRAWER, BATTERY
65	3-314-027-00	{SILVER}...KNOB (A), SLIDE (POWER)	84	9-911-825-32	STRING DIAL 0.3DIA
65	3-314-027-11	{BLACK}...KNOB (A), SLIDE (POWER)	85	9-911-844-XX	RUBBER, BRAKE (t=2)
66	3-314-028-21	FRAME, PICTURE	86	7-627-850-17	SCREW, PRECISION +P 1.4X2.5
67	3-314-050-00	LABEL, CAUTION, POWER	87	3-831-441-XX	CUSHION (t=0.5)
68	3-314-055-00	SCREW (M1.4X2.5), PIN-FACE	88	9-911-863-XX	SPACER, HOLDER, LAMP

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

## SECTION 6 ELECTRICAL PARTS LIST

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	*A-3015-261-A	PC BOARD ASSY, A			
502	*A-3015-262-A	PC BOARD ASSY, G1			
503	*A-3015-269-A	MOUNT ASSY, K			
504	<del>A-1-463-533-11</del>	<del>TUNING COIL (P#70091)</del>			
505	1-501-278-00	ANTENNA, TELESCOPIC			
506	1-526-736-00	SOCKET, CRT			
507	1-612-238-11	PC BOARD, S			
508	1-612-239-11	PC BOARD, G2			
509	1-612-241-11	PC BOARD, C			
510	*1-612-599-11	PC BOARD, EJ			
511	*1-612-603-11	PC BOARD, D1			
C151	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C156	1-131-345-00	TANTALUM 0.47MF	20%	35V	
C158	1-124-261-00	ELECT 10MF	20%	50V	
C201	1-163-118-00	CERAMIC CHIP 110PF	5%	50V	
C202	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C204	1-131-387-00	TANTALUM 47MF	20%	6.3V	
C205	1-163-031-00	CERAMIC CHIP 0.01MF		50V	
C206	1-163-027-00	CERAMIC CHIP 0.0022MF		50V	
C207	1-163-127-00	CERAMIC CHIP 270PF	5%	50V	
C208	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C209	1-131-453-00	TANTALUM 0.22MF	20%	16V	
C210	1-131-356-00	TANTALUM 3.3MF	20%	25V	
C211	1-163-118-00	CERAMIC CHIP 110PF	5%	50V	
C212	1-124-224-00	ELECT 47MF	20%	6.3V	
C213	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V	
C214	1-163-187-00	CERAMIC CHIP 180PF	5%	50V	
C215	1-102-975-00	CERAMIC 100PF	10%	50V	
C216	1-163-031-00	CERAMIC CHIP 0.01MF		50V	
C217	1-163-031-00	CERAMIC CHIP 0.01MF		50V	
C218	1-163-064-00	CERAMIC CHIP 0.027MF	10%	50V	
C251	1-163-031-00	CERAMIC CHIP 0.01MF		50V	
C252	1-163-031-00	CERAMIC CHIP 0.01MF		50V	
C253	1-124-224-00	ELECT 47MF	20%	6.3V	
C254	1-124-140-00	ELECT 220MF	20%	6.3V	
C255	1-163-031-00	CERAMIC CHIP 0.01MF		50V	
C256	1-163-033-00	CERAMIC CHIP 0.022MF		50V	
C257	1-124-255-00	ELECT 1MF	20%	50V	
C258	1-163-351-00	CERAMIC CHIP 8PF		50V	
C259	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C260	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C261	1-163-031-00	CERAMIC CHIP 0.01MF		50V	
C262	1-163-096-00	CERAMIC CHIP 13PF	5%	50V	
C263	1-163-110-00	CERAMIC CHIP 51PF	5%	50V	
C264	1-163-086-00	CERAMIC CHIP 3PF		50V	

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C265	1-163-031-00	CERAMIC CHIP 0.01MF		50V	
C401	1-163-125-00	CERAMIC CHIP 220PF	5%	50V	
C402	1-163-125-00	CERAMIC CHIP 220PF	5%	50V	
C403	1-124-413-00	ELECT 220MF	20%	4V	
C404	1-163-076-00	CERAMIC CHIP 0.068MF		50V	
C452	1-123-618-00	ELECT 22MF	20%	6.3V	
C453	1-124-144-00	ELECT 220MF	20%	16V	
C454	1-124-225-00	ELECT 100MF	20%	6.3V	
C455	1-124-228-41	ELECT 22MF	20%	10V	
C456	1-163-059-00	CERAMIC CHIP 0.01MF	10%	50V	
C457	1-163-076-00	CERAMIC CHIP 0.068MF		50V	
C458	1-163-076-00	CERAMIC CHIP 0.068MF		50V	
C459	1-163-076-00	CERAMIC CHIP 0.068MF		50V	
C501	1-163-074-00	CERAMIC CHIP 0.033MF		50V	
C502	1-131-418-00	TANTALUM 1MF	20%	10V	
C503	1-163-125-00	CERAMIC CHIP 220PF	5%	50V	
C504	1-131-418-00	TANTALUM 1MF	20%	10V	
C505	1-163-059-00	CERAMIC CHIP 0.01MF	10%	50V	
C506	1-163-059-00	CERAMIC CHIP 0.01MF	10%	50V	
C507	1-163-059-00	CERAMIC CHIP 0.01MF	10%	50V	
C508	1-131-417-00	TANTALUM 3.3MF	20%	16V	
C509	1-131-402-00	TANTALUM 0.1MF	20%	35V	
C510	1-108-585-00	MYLAR 0.018MF	5%	50V	
C511	1-130-496-00	MYLAR 0.12MF	5%	50V	
C512	1-123-661-00	ELECT 100MF	20%	6.3V	
C551	1-163-074-00	CERAMIC CHIP 0.033MF		50V	
C552	1-163-075-00	CERAMIC CHIP 0.047MF		50V	
C553	1-163-074-00	CERAMIC CHIP 0.033MF		50V	
C554	1-163-064-00	CERAMIC CHIP 0.027MF	10%	50V	
C555	1-131-501-00	TANTALUM 3.3MF	10%	10V	
C556	1-124-229-00	ELECT 33MF	20%	6.3V	
C557	1-131-386-00	TANTALUM 33MF	20%	6.3V	
C558	1-131-423-00	TANTALUM 6.8MF	20%	6.3V	
C559	1-163-125-00	CERAMIC CHIP 220PF	5%	50V	
C560	1-124-140-00	ELECT 220MF	20%	6.3V	
C561	1-163-033-00	CERAMIC CHIP 0.022MF		50V	
C562	1-131-385-00	TANTALUM 22MF	20%	6.3V	
C563	1-124-225-00	ELECT 100MF	20%	6.3V	
C564	1-131-501-00	TANTALUM 3.3MF	10%	10V	
C565	1-131-346-00	TANTALUM 0.68MF	10%	35V	
C601	1-124-236-00	ELECT 47MF	20%	16V	
C602	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	
C603	1-124-229-00	ELECT 33MF	20%	6.3V	
C604	1-163-205-00	CERAMIC CHIP 0.001MF	5%	50V	
C651	1-163-015-00	CERAMIC CHIP 0.003MF	10%	50V	
C652	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V	

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF:µF, PF:µµF.

RESISTORS

• All resistors are in ohms.

• F : nonflammable

COILS

• MMH : mH, UH : µH

SEMICONDUCTORS

In each case, U : µ, for example:  
 UA...: µA..., UPA...: µPA..., UPC...: µPC,  
 UPD...: µPD...

The components identified by shading and mark are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

## ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C653	1-124-255-00	ELECT	1MF	20%	50V
C654	1-131-419-00	TANTALUM	2.2MF	20%	10V
C655	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C656	1-124-247-00	ELECT	10MF	20%	35V
C657	1-124-233-00	ELECT	10MF	20%	16V
C658	1-163-189-00	CERAMIC CHIP	220PF	5%	50V
C659	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C801	1-131-349-00	TANTALUM	2.2MF	20%	35V
C802	1-106-214-00	MYLAR	0.056MF	5%	100V
C803	1-131-349-00	TANTALUM	2.2MF	20%	35V
C804	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C805	1-163-075-00	CERAMIC CHIP	0.047MF		50V
C807	1-162-147-00	CERAMIC	0.0022MF	5%	100V
C808	1-102-038-00	CERAMIC	0.001MF	99%	500V
C809	1-162-146-00	CERAMIC	0.001MF		1KV
C810	1-124-225-00	ELECT	100MF	20%	6.3V
C811	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C812	1-124-361-00	ELECT	220MF	20%	10V
C813	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C814	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C851	1-131-377-00	TANTALUM	10MF	20%	10V
C852	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C853	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C854	1-131-387-00	TANTALUM	47MF	20%	6.3V
C855	1-131-349-00	TANTALUM	2.2MF	20%	35V
C856	1-163-076-00	CERAMIC CHIP	0.068MF		50V
C857	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C858	1-123-619-00	ELECT	4.7MF	20%	50V
C859	1-131-377-00	TANTALUM	10MF	20%	10V
C861	1-131-386-00	TANTALUM	33MF	20%	6.3V
C875	1-131-347-00	TANTALUM	1MF	20%	35V
CF201	1-409-370-00	TRAP, CERAMIC	4.5MHZ		
CF251	1-567-115-00	FILTER, CERAMIC			
CF252	1-567-099-00	FILTER, CERAMIC			
CF253	1-567-100-00	FILTER, CERAMIC			
CN601	1-507-563-00	DC JACK (DC IN 6V)			
D151	8-719-911-19	DIODE 1S5119			
D201	8-719-911-19	DIODE 1S5119			
D251	8-719-100-05	DIODE 1S2837			
D252	8-719-100-05	DIODE 1S2837			
D253	8-719-100-05	DIODE 1S2837			
D301	8-719-100-03	DIODE 1S2835			
D451	8-719-139-07	DIODE RD3.9E-B			
D452	8-719-110-07	DIODE RD10E			
D453	8-719-100-03	DIODE 1S2835			

## ELECTRICAL PARTS

Ref.No.	Part No.	Description			
D501	8-719-101-23	DIODE 1S5123			
D551	8-719-815-55	DIODE 1S1555			
D552	8-719-815-55	DIODE 1S1555			
D601	8-719-100-03	DIODE 1S2835			
D651	8-719-100-03	DIODE 1S2835			
D652	8-719-101-23	DIODE 1S5123			
D801	8-719-100-05	DIODE 1S2837			
D802	8-719-908-06	DIODE ERA81-005			
D803	8-719-100-03	DIODE 1S2835			
D804	8-719-911-19	DIODE 1S5119			
D805	8-719-903-28	DIODE ESJA57-04			
D806	8-719-101-23	DIODE 1S5123			
D851	8-719-101-23	DIODE 1S5123			
D852	8-719-101-23	DIODE 1S5123			
D853	8-719-911-19	DIODE 1S5119			
IC201	8-759-600-13	IC M51364P			
IC251	8-759-600-46	IC M51378L			
IC451	8-759-700-50	IC NJM386M			
IC651	8-759-157-40	IC UPC574J			
IC851	8-759-700-43	IC NJM4558M			
J901	1-507-838-00	JACK (EAR)			
JR151	1-216-295-00	METAL CHIP	0	5%	1/10W
JR152	1-216-295-00	METAL CHIP	0	5%	1/10W
JR154	1-216-295-00	METAL CHIP	0	5%	1/10W
JR155	1-216-296-00	METAL CHIP	0	5%	1/8W
JR156	1-216-295-00	METAL CHIP	0	5%	1/10W
JR201	1-216-296-00	METAL CHIP	0	5%	1/8W
JR202	1-216-295-00	METAL CHIP	0	5%	1/10W
JR203	1-216-295-00	METAL CHIP	0	5%	1/10W
JR204	1-216-296-00	METAL CHIP	0	5%	1/8W
JR402	1-216-295-00	METAL CHIP	0	5%	1/10W
JR501	1-216-296-00	METAL CHIP	0	5%	1/8W
JR502	1-216-295-00	METAL CHIP	0	5%	1/10W
JR503	1-216-296-00	METAL CHIP	0	5%	1/8W
JR551	1-216-296-00	METAL CHIP	0	5%	1/8W
JR552	1-216-296-00	METAL CHIP	0	5%	1/8W
JR601	1-216-296-00	METAL CHIP	0	5%	1/8W
JR602	1-216-296-00	METAL CHIP	0	5%	1/8W
JR651	1-216-296-00	METAL CHIP	0	5%	1/8W
JR652	1-216-296-00	METAL CHIP	0	5%	1/8W
JR801	1-216-296-00	METAL CHIP	0	5%	1/8W
JR852	1-216-295-00	METAL CHIP	0	5%	1/10W

### NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

### CAPACITORS:

MF:  $\mu$ F, PF:  $\mu$ PF.

### RESISTORS

All resistors are in ohms.

F: nonflammable

### COILS

MMH: mH, UH:  $\mu$ H

### SEMICONDUCTORS

In each case, U:  $\mu$ , for example:

UA...:  $\mu$ A..., UPA...:  $\mu$ PA..., UPC...:  $\mu$ PC,

UPD...:  $\mu$ PD...

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



ELECTRICAL PARTS

Ref.No.	Part No.	Description
L201	1-459-530-11	COIL (WITH CORE)
L202	1-459-462-00	COIL (WITH CORE)
L203	1-404-446-00	COIL, VIF DEFECTOR
L204	1-408-558-00	MICRO INDUCTOR 3.9UH
L251	1-404-451-00	COIL, SIF
L252	1-408-579-00	MICRO INDUCTOR 220UH
L253	1-408-579-00	MICRO INDUCTOR 220UH
L254	1-408-579-00	MICRO INDUCTOR 220UH
L501	1-408-134-00	MICRO INDUCTOR 270UH
L551	1-408-088-00	MICRO INDUCTOR 220UH
L651	1-410-078-11	MICRO INDUCTOR 2.7MMH
L652	1-408-563-00	MICRO INDUCTOR 10UH
L801	1-408-121-00	MICRO INDUCTOR 22UH
L901 A	1-451-229-00	DEFLECTION YOKE
PS851A	1-532-605-00	LINK IC
Q151	8-729-216-22	TRANSISTOR 2SA1162
Q152	8-729-216-22	TRANSISTOR 2SA1162
Q153	8-729-900-52	TRANSISTOR DTC114YK
Q154	8-729-900-52	TRANSISTOR DTC114YK
Q202	8-729-100-66	TRANSISTOR 2SC1623
Q203	8-729-100-66	TRANSISTOR 2SC1623
Q301	8-729-216-22	TRANSISTOR 2SA1162
Q302	8-729-100-66	TRANSISTOR 2SC1623
Q401	8-729-900-53	TRANSISTOR DTC114EK
Q402	8-729-100-66	TRANSISTOR 2SC1623
Q451	8-729-100-66	TRANSISTOR 2SC1623
Q501	8-729-216-22	TRANSISTOR 2SA1162
Q502	8-729-100-66	TRANSISTOR 2SC1623
Q503	8-729-216-22	TRANSISTOR 2SA1162
Q551	8-729-100-66	TRANSISTOR 2SC1623
Q552	8-729-100-66	TRANSISTOR 2SC1623
Q553	8-729-159-64	TRANSISTOR 2SD596
Q554	8-729-102-44	TRANSISTOR 2SB624
Q601 A	8-729-177-23	TRANSISTOR 2SD272
Q602 A	8-729-216-22	TRANSISTOR 2SA1162
Q603 A	8-729-100-66	TRANSISTOR 2SC1623
Q651	8-729-900-53	TRANSISTOR DTC114EK
Q652	8-729-100-66	TRANSISTOR 2SC1623
Q653	8-729-100-66	TRANSISTOR 2SC1623
Q654	8-729-100-66	TRANSISTOR 2SC1623
Q655	8-729-271-23	TRANSISTOR 2SC2712
Q656	8-729-301-25	TRANSISTOR 2SD1368
Q801	8-729-271-23	TRANSISTOR 2SC2712
Q802	8-729-301-25	TRANSISTOR 2SD1368
Q803	8-729-271-23	TRANSISTOR 2SC2712

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q804	8-729-301-25	TRANSISTOR 2SD1368
Q805	8-729-103-72	TRANSISTOR 2SD1005
Q851	8-729-100-66	TRANSISTOR 2SC1623
Q852	8-729-159-64	TRANSISTOR 2SD596
Q853	8-729-199-92	TRANSISTOR 2SD999
Q854	8-729-101-07	TRANSISTOR 2SB798
Q855	8-729-103-16	TRANSISTOR 2SC1622A
Q856	8-729-216-22	TRANSISTOR 2SA1162
Q857	8-729-100-66	TRANSISTOR 2SC1623
R151	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R152	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R153	1-216-049-00	METAL CHIP 1K 5% 1/10W
R154	1-216-049-00	METAL CHIP 1K 5% 1/10W
R155	1-216-073-00	METAL CHIP 10K 5% 1/10W
R156	1-216-063-00	METAL CHIP 3.9K 5% 1/10W
R157	1-216-061-00	METAL CHIP 3.3K 5% 1/10W
R158	1-216-049-00	METAL CHIP 1K 5% 1/10W
R159	1-216-063-00	METAL CHIP 3.9K 5% 1/10W
R201	1-216-029-00	METAL CHIP 150 5% 1/10W
R202	1-216-029-00	METAL CHIP 150 5% 1/10W
R203	1-216-101-00	METAL CHIP 150K 5% 1/10W
R204	1-216-073-00	METAL CHIP 10K 5% 1/10W
R205	1-216-072-00	METAL CHIP 9.1K 5% 1/10W
R206	1-216-081-00	METAL CHIP 22K 5% 1/10W
R207	1-216-033-00	METAL CHIP 220 5% 1/10W
R208	1-216-069-00	METAL CHIP 6.8K 5% 1/10W
R209	1-216-027-00	METAL CHIP 120 5% 1/10W
R210	1-216-077-00	METAL CHIP 15K 5% 1/10W
R211	1-216-022-00	METAL CHIP 75 5% 1/10W
R212	1-216-041-00	METAL CHIP 470 5% 1/10W
R213	1-216-051-00	METAL CHIP 1.2K 5% 1/10W
R214	1-216-031-00	METAL CHIP 180 5% 1/10W
R251	1-216-105-00	METAL CHIP 220K 5% 1/10W
R252	1-216-105-00	METAL CHIP 220K 5% 1/10W
R253	1-216-105-00	METAL CHIP 220K 5% 1/10W
R254	1-216-056-00	METAL CHIP 2K 5% 1/10W
R255	1-216-056-00	METAL CHIP 2K 5% 1/10W
R256	1-216-056-00	METAL CHIP 2K 5% 1/10W
R257	1-216-049-00	METAL CHIP 1K 5% 1/10W
R258	1-216-044-00	METAL CHIP 620 5% 1/10W
R259	1-216-041-00	METAL CHIP 470 5% 1/10W
R260	1-216-056-00	METAL CHIP 2K 5% 1/10W
R261	1-216-180-00	METAL CHIP 180 5% 1/8W
R262	1-216-180-00	METAL CHIP 180 5% 1/8W
R263	1-216-049-00	METAL CHIP 1K 5% 1/10W

NOTE:

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- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF:µF, PF:µµF.

RESISTORS

All resistors are in ohms.


F : nonflammable


COILS

MMH : mH, UH : µH

SEMICONDUCTORS

In each case, U : µ, for example:  
 UA.... : µA...., UPA.... : µPA...., UPC.... : µPC....  
 UPD.... : µPD....

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R264	1-216-073-00	METAL CHIP	10K	5%	1/10W
R265	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R266	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R267	1-216-085-00	METAL CHIP	33K	5%	1/10W
R301	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R302	1-216-041-00	METAL CHIP	470	5%	1/10W
R303	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R304	1-216-049-00	METAL CHIP	1K	5%	1/10W
R305	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R401	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R402	1-216-049-00	METAL CHIP	1K	5%	1/10W
R403	1-216-226-00	METAL CHIP	15K	5%	1/8W
R404	1-216-121-00	METAL CHIP	1M	5%	1/10W
R405	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R406	1-216-202-00	METAL CHIP	1.5K	5%	1/8W
R451	1-247-093-00	CARBON	27	5%	1/4W
R452	1-216-041-00	METAL CHIP	470	5%	1/10W
R453	1-216-044-00	METAL CHIP	620	5%	1/10W
R454	1-216-224-00	METAL CHIP	12K	5%	1/8W
R456	1-216-085-00	METAL CHIP	33K	5%	1/10W
R501	1-216-027-00	METAL CHIP	120	5%	1/10W
R502	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R503	1-216-085-00	METAL CHIP	33K	5%	1/10W
R504	1-216-099-00	METAL CHIP	120K	5%	1/10W
R505	1-216-047-00	METAL CHIP	820	5%	1/10W
R506	1-216-073-00	METAL CHIP	10K	5%	1/10W
R507	1-216-049-00	METAL CHIP	1K	5%	1/10W
R508	1-216-042-00	METAL CHIP	510	5%	1/10W
R509	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R510	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R511	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R512	1-216-047-00	METAL CHIP	820	5%	1/10W
R513	1-216-056-00	METAL CHIP	2K	5%	1/10W
R514	1-216-082-00	METAL CHIP	24K	5%	1/10W
R515	1-216-157-91	METAL CHIP	20	5%	1/8W
R516	1-216-166-00	METAL CHIP	47	5%	1/8W
R517	1-216-041-00	METAL CHIP	470	5%	1/10W
R518	1-216-176-00	METAL CHIP	120	5%	1/8W
R551	1-216-221-00	METAL CHIP	9.1K	5%	1/8W
R552	1-216-075-00	METAL CHIP	12K	5%	1/10W
R553	1-216-045-00	METAL CHIP	680	5%	1/10W
R554	1-216-085-00	METAL CHIP	33K	5%	1/10W
R555	1-216-302-00	METAL CHIP	2.7	5%	1/10W
R556	1-216-007-00	METAL CHIP	18	5%	1/10W
R557	1-216-073-00	METAL CHIP	10K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R558	1-216-072-00	METAL CHIP	9.1K	5%	1/10W
R559	1-216-086-00	METAL CHIP	36K	5%	1/10W
R560	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R561	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R562	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R563	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R564	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R565	1-216-310-00	METAL CHIP	6.2	5%	1/10W
R566	1-216-045-00	METAL CHIP	680	5%	1/10W
R601	1-216-049-00	METAL CHIP	1K	5%	1/10W
R603	1-216-041-00	METAL CHIP	470	5%	1/10W
R604	1-216-039-00	METAL CHIP	390	5%	1/10W
<del>R605 A</del>	<del>1-216-322-00</del>	<del>CARBON CHIP</del>	<del>4.7K</del>	<del>5%</del>	<del>1/10W</del>
<del>R606 A</del>	<del>1-216-322-00</del>	<del>CARBON CHIP</del>	<del>5.6K</del>	<del>5%</del>	<del>1/10W</del>
R651	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R652	1-216-073-00	METAL CHIP	10K	5%	1/10W
R653	1-216-081-00	METAL CHIP	22K	5%	1/10W
R654	1-216-206-00	METAL CHIP	2.2K	5%	1/8W
R655	1-216-073-00	METAL CHIP	10K	5%	1/10W
R656	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R657	1-216-085-00	METAL CHIP	33K	5%	1/10W
R658	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R659	1-216-068-00	METAL CHIP	6.2K	5%	1/10W
R660	1-247-807-00	CARBON	100	5%	1/6W
R801	1-216-224-00	METAL CHIP	12K	5%	1/8W
R802	1-216-041-00	METAL CHIP	470	5%	1/10W
R803	1-216-035-00	METAL CHIP	270	5%	1/10W
R804	1-216-045-00	METAL CHIP	680	5%	1/10W
R805	1-216-068-00	METAL CHIP	6.2K	5%	1/10W
R806	1-202-727-00	SOLID	4.7M	10%	1/2W
R807	1-216-280-00	METAL CHIP	2.7M	5%	1/8W
R808	1-216-105-00	METAL CHIP	220K	5%	1/10W
R809	1-216-280-00	METAL CHIP	2.7M	5%	1/8W
R810	1-216-041-00	METAL CHIP	470	5%	1/10W
<del>R811 A</del>	<del>1-216-190-00</del>	<del>METAL CHIP</del>	<del>470</del>	<del>5%</del>	<del>1/10W</del>
<del>R812 A</del>	<del>1-216-190-00</del>	<del>METAL CHIP</del>	<del>470</del>	<del>5%</del>	<del>1/10W</del>
<del>R813 A</del>	<del>1-216-290-00</del>	<del>METAL CHIP</del>	<del>2.2</del>	<del>5%</del>	<del>1/10W</del>
R851	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R852	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R853	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R854	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R855	1-216-049-00	METAL CHIP	1K	5%	1/10W
R856	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R857	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R858	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

**NOTE:**

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- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

**CAPACITORS:**

MF:µF, PF:µµF.

**RESISTORS**

- All resistors are in ohms.
- F : nonflammable

**COILS**

MMH : mH, UH : µH

**SEMICONDUCTORS**

In each case, U : µ, for example:  
 UA...: µA..., UPA...: µPA..., UPC...: µPC,  
 UPD...: µPD...

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R859	1-216-060-00	METAL CHIP 3K 5% 1/10W
R860	1-216-061-00	METAL CHIP 3.3K 5% 1/10W
R861	1-216-116-00	METAL CHIP 620K 5% 1/10W
R862	1-216-068-00	METAL CHIP 6.2K 5% 1/10W
R864	1-216-065-00	METAL CHIP 4.7K 5% 1/10W
R866	1-216-097-00	METAL CHIP 100K 5% 1/10W
R867	1-216-089-00	METAL CHIP 47K 5% 1/10W
R868	1-216-073-00	METAL CHIP 10K 5% 1/10W
R869	1-216-102-00	METAL CHIP 160K 5% 1/10W
R870	1-216-097-00	METAL CHIP 100K 5% 1/10W
R871	1-216-106-00	METAL CHIP 240K 5% 1/10W
R872	1-216-101-00	METAL CHIP 150K 5% 1/10W
R873	1-216-081-00	METAL CHIP 22K 5% 1/10W
R874	1-216-129-00	METAL CHIP 2.2M 5% 1/10W
R875	1-216-105-00	METAL CHIP 220K 5% 1/10W
R876	1-216-085-00	METAL CHIP 33K 5% 1/10W
R877	1-216-202-00	METAL CHIP 1.5K 5% 1/8W
R878	1-216-129-00	METAL CHIP 2.2M 5% 1/10W
R901	1-216-150-00	METAL CHIP 10 5% 1/8W
R902	1-216-150-00	METAL CHIP 10 5% 1/8W
R903	1-216-009-00	METAL CHIP 22 5% 1/10W
RV151	1-230-428-11	RES, ADJ, METAL GLAZE 100K
RV152	1-230-429-11	RES, ADJ, METAL GLAZE 220K
RV153	1-230-427-11	RES, ADJ, METAL GLAZE 47K
RV154	1-230-428-11	RES, ADJ, METAL GLAZE 100K
RV155	1-230-397-11	RES, VAR, CARBON (WITH SW) 200K(TUNING)
RV201	1-230-035-00	RES, ADJ, CARBON 10K
RV401	1-226-430-00	RES, ADJ, CARBON 5K (CONTR)
RV451	1-228-898-00	RES, VAR, CARBON 10K (VOLUME)
RV551	1-226-435-00	RES, ADJ, CARBON 200K (V HOLD)
RV552	1-230-036-00	RES, ADJ, CARBON 20K
RV553	1-230-036-00	RES, ADJ, CARBON 20K
RV801	1-228-573-00	RES, ADJ, CARBON 2M
RV802	1-230-241-00	RES, ADJ, CARBON 4.7M
RV851	1-230-035-00	RES, ADJ, CARBON 10K
RV852	1-230-036-00	RES, ADJ, CARBON 20K
S151	1-554-123-00	SWITCH, SLIDE (BAND SELECT)
S251	1-554-061-00	SWITCH, SLIDE (SYSTEM SELECT)
SP901	1-503-267-21	SPEAKER (030F013)

ELECTRICAL PARTS

Ref.No.	Part No.	Description
T501	1-406-051-00	COIL, HORIZONTAL OSC
T801	1-439-330-11	TRANSFORMER ASSY, FLYBACK
T802	1-439-313-00	TRANSFORMER, HORIZONTAL OUTPUT
TH501	1-800-193-00	THERMISTOR S-68-01
TH551	1-800-198-XX	THERMISTOR S-1K
VA01	1-735-951-01	CRT (082M)
ACCESSORY & PACKING MATERIAL		
Part No.	Description	
3-14-452-11	(AEP)...AC POWER ADAPTOR AC-120E	
3-314-035-00	CUSHION	
3-314-036-00	SPACER, FOR SET	
3-314-040-00	SLEEVE, ACCESSORY, FOR CARRYING CASE	
3-314-074-01	(AEP,E)...SPACER, FOR CARTON	
3-314-077-01	(AEP,E)...SHEET, PROTECTION, FOR AC ADAPTOR AND VIEWER	
3-314-080-01	STRAP	
3-314-088-01	(US).....INDIVIDUAL CARTON	
3-314-090-01	(AEP,E)...INDIVIDUAL CARTON	
3-314-092-01	(AEP,E)...CASE, ACCESSORY, FOR VIEWER	
3-314-093-01	(AEP)...SLEEVE, AC ADAPTOR	
3-314-094-01	(E).....SLEEVE, AC ADAPTOR	
3-314-095-01	(AEP:SLIVER,E)...CASE, CARRYING	
3-314-095-11	(AEP:BLACK).....CASE, CARRYING	
3-319-119-01	(US).....CASE, CARRYING	
3-701-308-00	(AEP:BLACK)...LABEL, PRODUCT COLOR	
3-701-309-00	(AEP:SILVER)...LABEL, PRODUCT COLOR	
3-773-948-11	(E).....MANUAL, INSTRUCTION	
3-773-948-41	(AEP)...MANUAL, INSTRUCTION	
3-773-948-21	(US).....MANUAL, INSTRUCTION	
3-795-748-21	(US).....SAFETY INSTRUCTIONS, HEADPHONE	
3-881-410-00	BAG, PROTECTION, FOR SET	
4-491-213-22	(US).....INSTRUCTION	
A-3803-037-A	(AEP,E)...VIEWER, TV CLOSE-UP, VCV-20	

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF:µF, PF:µµF.

RESISTORS

All resistors are in ohms.

F : nonflammable

COILS

MMH : mH, UH : µH

SEMICONDUCTORS

In each case, U : µ, for example:

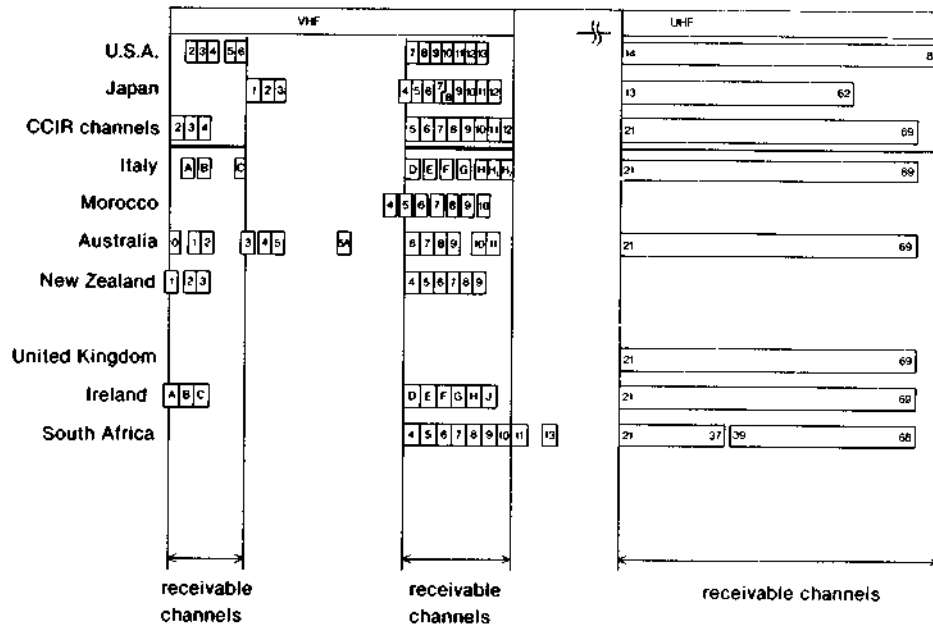
UA...: µA..., UPA...: µPA..., UPC...: µPC,

UPD...: µPD...

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

### CHANNEL COVERAGE CHART



### TV SYSTEM SELECTION CHART

Select the correct position of the SYSTEM SELECT switch for each country or area.

Country/Area	SYSTEM SELECT	Country/Area	SYSTEM SELECT	Country/Area	SYSTEM SELECT
<b>Europe</b>		<b>Africa</b>		<b>America</b>	
Albania	CCIR	Algeria	CCIR	Brazil	USA
Austria	CCIR	Egypt	CCIR	Canada	USA
Belgium	CCIR	Libya	CCIR	Chile	USA
Denmark	CCIR	Morocco *	CCIR	Columbia	USA
Finland	CCIR	Nigeria	CCIR	Costa Rica	USA
West Germany	CCIR	South Africa *	UK	Cuba	USA
Gibraltar	CCIR	Swaziland	CCIR	Dominican Republic	USA
Greece	CCIR	Tunisia	CCIR	Ecuador	USA
The Netherlands	CCIR	Zambia	CCIR	Guatemala	USA
Iceland	CCIR	Zimbabwe	CCIR	Mexico	USA
Ireland *	UK	<b>Asia</b>		Panama	USA
Italy	CCIR	Bangladesh	CCIR	Peru	USA
Norway	CCIR	Hong Kong	CCIR/UK	Puerto Rico	USA
Portugal	CCIR	India	CCIR	U.S.A.	USA
Spain	CCIR	Indonesia	CCIR	Venezuela	USA
Sweden	CCIR	Japan *	USA	<b>Oceania</b>	
Switzerland	CCIR	South Korea	USA	American Samoa	USA
United Kingdom (only UHF receivable)	UK	Malaysia	CCIR	Australia *	CCIR
Yugoslavia	CCIR	Sabah, Sarawak	CCIR	Guam	USA
<b>Middle and Near East</b>		Pakistan	CCIR	Hawaii	USA
Iraq	CCIR	Philippines	USA	Johnstone	USA
Israel	CCIR	Singapore	CCIR	Midway	USA
Oman	CCIR	Sri Lanka	CCIR	New Zealand *	CCIR
Saudi Arabia	CCIR	Taiwan	USA		
Syria	CCIR	Thailand	CCIR		
Turkey	CCIR				
United Arab Emirates	CCIR				

\* Some channels cannot be received in countries marked with \* See the channel coverage chart.