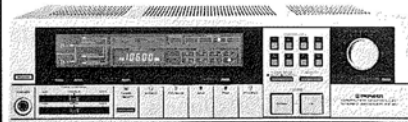


PIONEER®

# Service Manual

REPAIR & ADJUSTMENTS



ORDER NO.  
ARP-295-0

AM/FM STEREO RECEIVER

# SX-40 KU

MODEL SX-40 COMES IN FOUR VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	AC120V only	U.S.A. model
KC	AC120V only	Canada model
S	AC110V, 120V, 220V, 240V (switchable)	General export model
YP	AC240V only	Australia model

- This service manual is applicable to the KU type.  
For servicing of the other types, please refer to the additional service manual.
- For the circuit description, please refer to the SX-60, SX-50, SX-40 service manual (ARP-393-0).
- Ce manuel d'instruction se réfère au mode de réglage, en français.
- Este manual de servicio trata del método de ajuste escrito en español.

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# 1. SPECIFICATIONS

## Amplifier Section

Continuous Average Power Output is 38 watts\* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.02% total harmonic distortion.

Intermodulation Distortion (50 Hertz; 7,000 Hertz = 4:1,8 ohms, from AUX)

continuous rated power output . . . No more than 0.02% Input (Sensitivity/Impedance)

PHONO MM . . . . . 2.5mV/50kilohms  
CD/AUX, VIDEO, TAPE PLAY/ADAPTOR IN

. . . . . 150mV/50kilohms

Phono Overload Level (T.H.D. 0.1% 1,000Hz) . REC OUT

PHONO MM . . . . . 130mV

Output (Level/Impedance)

TAPE REC/ADAPTOR OUT . . . . 150mV/2.2kilohms

Frequency Response

PHONO (RIAA Equalization) . . . . . 20Hz to 20,000Hz  
±0.5dB

CD/AUX, VIDEO, TAPE PLAY/ADAPTOR IN  
. . . . . 5Hz to 100,000Hz<sup>+0.5</sup><sub>-3</sub> dB

Tone Control

BASS . . . . . ±8dB (100Hz)

TREBLE . . . . . ±8dB (10kHz)

Loudness Contour (Volume control set at -40dB position)

. . . . . +6dB (100Hz)

Filter

SUBSONIC . . . . . 20Hz (6dB/oct)

Hum and Noise (IHF, short circuited, A network)

PHONO MM . . . . . 70dB

CD/AUX, VIDEO, TAPE PLAY/ADAPTOR IN . . 95dB

## FM Tuner Section

Frequency range . . . . . 88MHz to 108MHz

Usable Sensitivity . . . . . 10.8dBf, IHF (0.95µV/75ohms)

50dB Quieting Sensitivity

MONO . . . . . 17.3dBf, IHF (2µV/75ohms)

STEREO . . . . . 37.5dBf, IHF (20µV/75ohms)

Signal-to-Noise Ratio

MONO . . . . . 79dB (at 60dBf)

STEREO . . . . . 75dB (at 80dBf)

Distortion (at 65dBf)

MONO 100Hz . . . . . 0.1%

1kHz . . . . . 0.1%

6kHz . . . . . 0.25%

STEREO 100Hz . . . . . 0.2%

1kHz . . . . . 0.15%

6kHz . . . . . 0.4%

Capture Ratio . . . . . 1.0dB

Alternate Channel Selectivity . . . . . 400kHz; 65dB

Stereo Separation . . . . . 1kHz; 45dB

30Hz to 15kHz; 35dB

Frequency Response . . . . . 20Hz to 15kHz<sup>+0.5</sup><sub>-1</sub> dB

Spurious Response Ratio . . . . . 70dB

Image Response Ratio . . . . . 50dB

AUTO TUNING threshold . . . . . 29.3dBf (8µV/75ohms)

Antenna Input . . . 300ohms balanced, 75ohms unbalanced

## AM Tuner Section

Frequency range . . . . . 530kHz to 1,600kHz

Sensitivity (IHF, Loop antenna) . . . . . 220µV/m

(IHF, EXT. antenna) . . . . . 10µV

Selectivity . . . . . 60dB

Signal-to-Noise Ratio . . . . . 50dB

Antenna . . . . . High sensitivity Loop Antenna

## Miscellaneous

Power Requirements . . . . . AC 120V, 60Hz  
YP model; a.c. 240 volts ~, 50/60Hz

Power Consumption . . . . . 195W

Dimensions . . . . . 420(W) x 120(H) x 311(D) mm

16-9/16(W) x 4-3/4(H) x 12-1/4(D) in

Weight (without package) . . . . . 6.5kg (14lb 5oz)

## Furnished Parts

FM T-type Antenna . . . . . 1

AM Loop Antenna . . . . . 1

Operating Instructions . . . . . 1

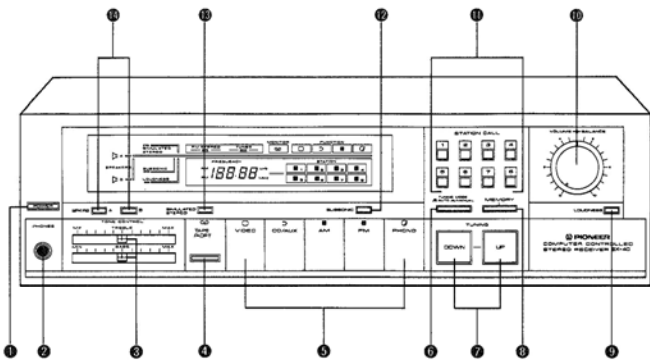
\* Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier.

\*\* Measured by Audio Spectrum Analyzer.

**NOTE:**

Specifications and the design subject to possible modifications without notice due to improvements.

## 2. FRONT PANEL FACILITIES



### 1 POWER SWITCH

Power is supplied to the unit when this switch is depressed. To turn off the power, release the switch.

### 2 PHONES JACK

Plug the headphones into this jack when you want to listen to a performance alone.  
 ● When listening through the headphones alone, set both SPKR'S SWITCHES A and B to OFF.

### 3 TONE CONTROL

This control is used to adjust the tone quality.  
**BASS** . . . Use this control to adjust the bass of the sound.

When the control is moved from the central position towards "MIN", the bass is attenuated and when it is moved towards "MAX", the bass is emphasised.

**TREBLE** . . . Use this control to adjust the treble of the sound.

When the control is moved from the central position towards "MIN", the treble is attenuated and when it is moved towards "MAX", the treble is emphasised.

### 4 TAPE MONITOR SWITCH

Use this switch when playing back tapes or monitoring a recording.

**TAPE/ADPT** . . . Press when performing with a tape deck or other adaptor connected to the TAPE/ADPT jacks on the rear panel.

### 5 FUNCTION SWITCHES

**VIDEO SWITCH:**  
Press this switch when listening to a video unit such as a VCR or laser disc player.

**CD/AUX SWITCH:**  
Press this switch when listening to a compact disc player (CD player) or TV tuner connected to the CD/AUX jacks on the rear panel.

**AM SWITCH:**  
Press this switch for AM reception.

**FM SWITCH:**  
Press this switch for FM reception.

**PHONO SWITCH:**  
Press this switch when listening to a record on a turntable connected to the PHONO jacks on the rear panel.

### 6 TUNING MODE SWITCH

This switch is used to select either AUTO search or MANUAL tuning.

**■ AUTO (released position):**  
When the TUNING switch is depressed. The broadcasting stations are automatically scanned. Once a station has been found, the scanner stops at that frequency. To listen to another station, depress the TUNING switch once again and the procedure is repeated. The procedure stops as soon as another station is found.

**■ MANUAL (depressed position):**  
For normal manual tuning.  
Depress the TUNING switch and tune in to the desired station manually.

#### NOTES:

- If the broadcasting station is distant and its signals weak, you may not be able to find the station with AUTO tuning. In such an event, tune in to the desired station using MANUAL mode (■ depressed position).
- If the AUTO mode stops frequently when trying to tune into an AM broadcast because of city interference or weak nighttime stations, tune in using the MANUAL mode (■ depressed position).

### 7 TUNING SWITCHES

These are used to select the broadcasting station. During MANUAL tuning, if the TUNING switch is depressed once, the frequency changes one step at a time. If the TUNING switch is kept depressed, the frequency changes continuously.

#### NOTE:

If you have connected an outdoor AM antenna, during AUTO SEARCH tuning, the AUTO SEARCH mechanism may stop near to, but not directly on, the frequency of stations with very powerful broadcasting waves.

### 8 MEMORY SWITCH

This switch is used to preset the broadcasting stations into the STATION CALL switches.

When this switch is depressed, the STATION CALL indicators light up from 1 to 8 in sequence. To preset the station, press the STATION CALL switch when the indicator lights up.

### 9 LOUDNESS SWITCH

When listening to a performance when the VOLUME level is low, depress this switch and the bass will be accentuated.

When the volume is low, the human ear finds it harder to hear the bass and treble than when the volume is high. The LOUDNESS switch is thus designed to compensate for this deficiency.

### 10 VOLUME/BALANCE CONTROL

The inside knob is the VOLUME control and the outside knob is the BALANCE control.

#### VOLUME:

This control is used to adjust the volume of the speakers and headphones. To increase the output level, turn the knob slowly clockwise (↻).

#### BALANCE:

This control is used to balance the volume of the left and right channels. If the sound appears to be weaker from the right speaker, turn the BALANCE control clockwise (↻). If the sound is weaker from the left speaker, turn the control counter-clockwise (↺).

#### NOTE:

When operating the VOLUME control, be careful not to turn the BALANCE control at the same time.

### 11 STATION CALL SWITCHES

Once the broadcasting stations are preset to these STATION CALL switches, the desired station can be received merely by pressing the appropriate switch, without having to operate the TUNING switch each time.

### 12 SUBSONIC SWITCH

When this switch is depressed, the subsonic filter operates. The filter attenuates frequencies lower than 20Hz by 6dB/Oct and can be used to suppress the ultra low range noise generated by record warp and other factors. This noise cannot actually be heard by the ear, but it can cause intermodulation distortion and even damage to the speaker systems. Use therefore as required.

### 13 SIMULATED STEREO SWITCH

This turns monaural signals into simulated stereo sound. Use this when you wish to experience the sense of stereo presence with AM broadcasts, VCR or other monaural signal sources.

#### NOTE:

This function can also be used with stereo sources, but it will result in a different sound from the normal stereo sound.

### 14 SPKR'S (Speakers) SWITCHES

Depress the switch corresponding to the speakers connected to the SPEAKERS terminals (A and B) on the rear panel. "A" refers to the speakers which have been connected to the A SPEAKERS terminals, while "B" refers to the speakers which have been connected to the B SPEAKERS terminals.

#### NOTE:

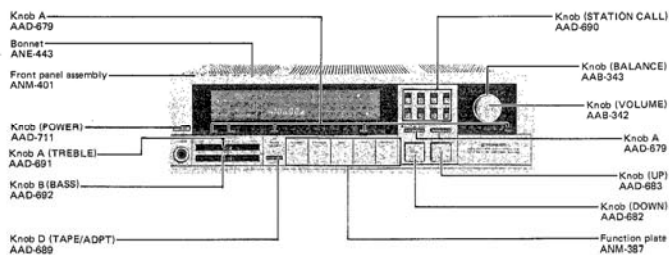
No sound will be heard through the speakers when both A and B switches are depressed if only one set of speakers has been connected to either A or B SPEAKERS terminals.

### 3. PARTS LOCATION

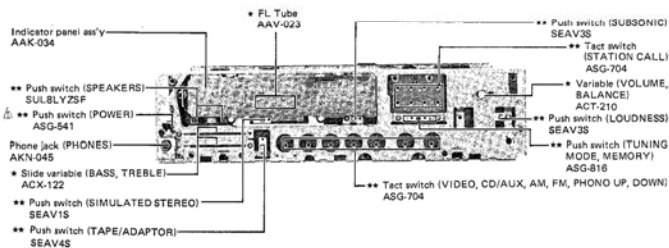
**NOTES:**

- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks \*\* and \*.
- \*\* **GENERALLY MOVES FASTER THAN \***
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

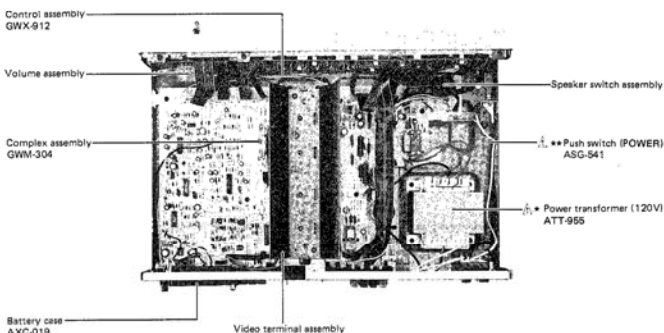
**Front Panel View**



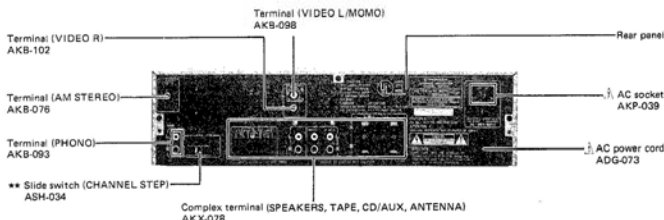
**Front View**



**Top View**



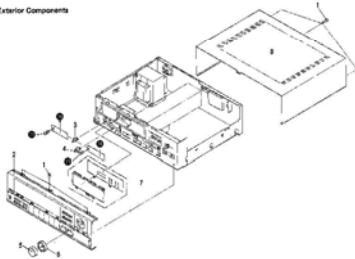
**Rear View**



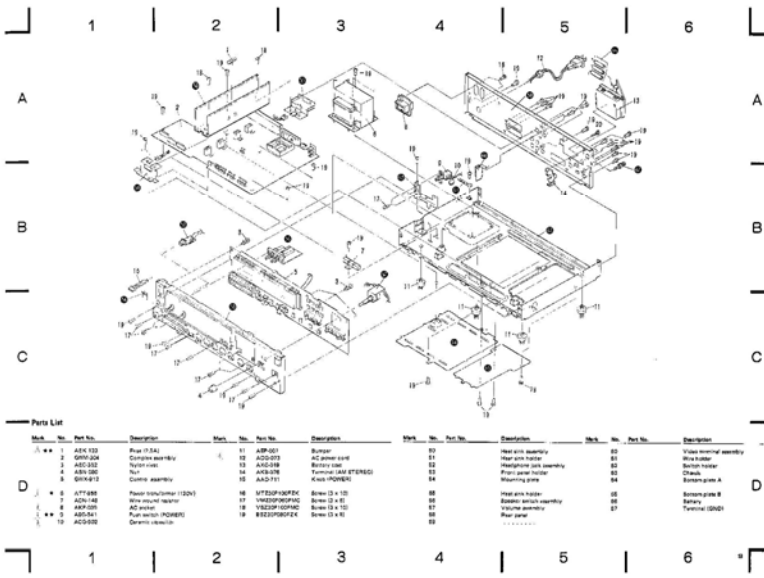
#### 4. EXPLODED VIEW AND PARTS LIST

- NOTES:**
- Parts without part number cannot be supplied.
  - The **▲** mark placed on some components items indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical specification.
  - For the **▲** parts, please contact the local service items are indicated with the words **▲** and **▲**.
  - **▲** **REPLACEMENT PARTS LISTED**
  - This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

#### Exterior Components

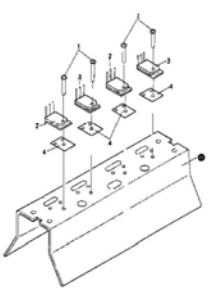


Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
▲	1	AA3-001	Knob (BALANCE)	▲	1	AA3-001	Knob (BALANCE)
▲	2	AA3-002	Front panel assembly	▲	2	AA3-002	Front panel assembly
▲	3	AA3-003	Knob (TUNING)	▲	3	AA3-003	Knob (TUNING)
▲	4	AA3-004	Knob (FM/AM)	▲	4	AA3-004	Knob (FM/AM)
▲	5	AA3-005	Knob (VOLUME)	▲	5	AA3-005	Knob (VOLUME)



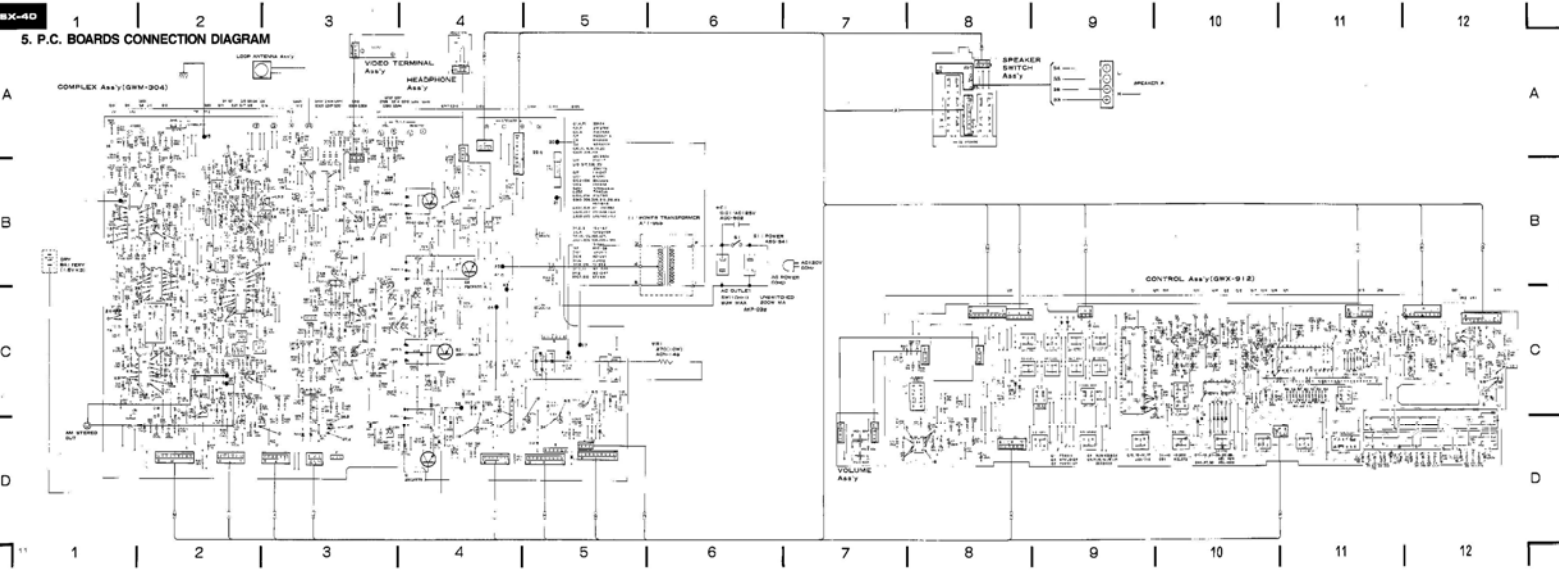
Mark	No.	Part No.	Description	Mark	No.	Part No.	Description	Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
▲	1	AA3-001	Knob (BALANCE)	▲	11	AA3-011	Bracket	▲	11	AA3-011	Bracket	▲	11	AA3-011	Bracket
▲	2	AA3-002	Front panel assembly	▲	12	AA3-012	AC power cord	▲	12	AA3-012	AC power cord	▲	12	AA3-012	AC power cord
▲	3	AA3-003	Knob (TUNING)	▲	13	AA3-013	Bracket	▲	13	AA3-013	Bracket	▲	13	AA3-013	Bracket
▲	4	AA3-004	Knob (FM/AM)	▲	14	AA3-014	Terminal block (TERMINAL)	▲	14	AA3-014	Terminal block (TERMINAL)	▲	14	AA3-014	Terminal block (TERMINAL)
▲	5	AA3-005	Knob (VOLUME)	▲	15	AA3-015	Knob (POWER)	▲	15	AA3-015	Knob (POWER)	▲	15	AA3-015	Knob (POWER)
▲	6	AA3-006	Power transformer (120V)	▲	16	AA3-016	Screw (3 x 10)	▲	16	AA3-016	Screw (3 x 10)	▲	16	AA3-016	Screw (3 x 10)
▲	7	AA3-007	Power supply section	▲	17	AA3-017	Screw (2 x 8)	▲	17	AA3-017	Screw (2 x 8)	▲	17	AA3-017	Screw (2 x 8)
▲	8	AA3-008	AC motor	▲	18	AA3-018	Screw (3 x 10)	▲	18	AA3-018	Screw (3 x 10)	▲	18	AA3-018	Screw (3 x 10)
▲	9	AA3-009	Power section (POWER)	▲	19	AA3-019	Screw (3 x 10)	▲	19	AA3-019	Screw (3 x 10)	▲	19	AA3-019	Screw (3 x 10)
▲	10	AA3-010	Dynamic speaker												

#### Heat Sink Assembly

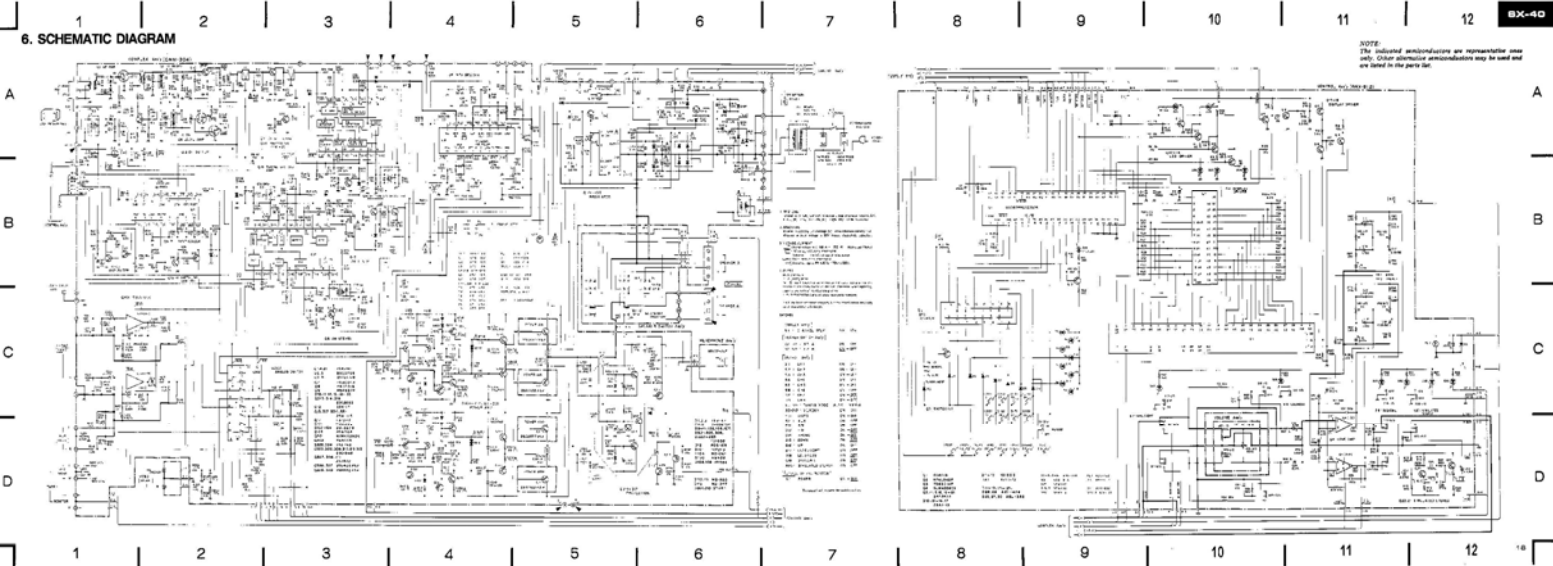


Mark	No.	Part No.	Description
▲	1	AA3-021	Bracket
▲	2	AA3-022	Heat sink assembly
▲	3	AA3-023	Bracket (TERMINAL)
▲	4	AA3-024	Bracket (POWER)
▲	5	AA3-025	Bracket (SPEAKER)

### 5. P.C. BOARDS CONNECTION DIAGRAM



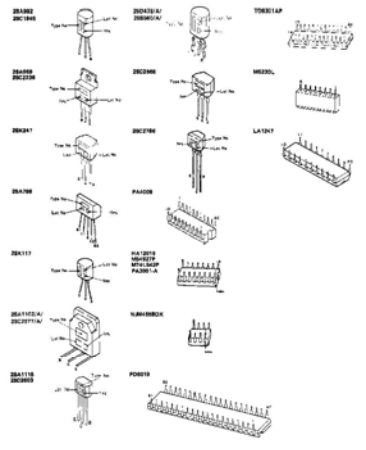
6. SCHEMATIC DIAGRAM



NOTE:  
The indicated amendments are representative only.  
Other alternative amendments may be used and  
are listed in the para list.

A  
B  
C  
D

External Appearances of Transistors and IC's



7. ELECTRICAL PARTS LIST

Table with columns: Part No., Symbol & Description, Mark, Part No., Symbol & Description. Includes sections for MICROLEAKAGE, COMPLEX ASSEMBLY (GWM-304), SEMICONDUCTORS, MISCELLANEOUS, P.C. BOARD ASSEMBLIES, OTHERS, CAPACITORS, and RESISTORS.

Table with columns: Mark, Part No., Symbol & Description, Mark, Part No., Symbol & Description. Includes sections for SWITCHES, COILS AND TRANSFORMERS, and CAPACITORS.

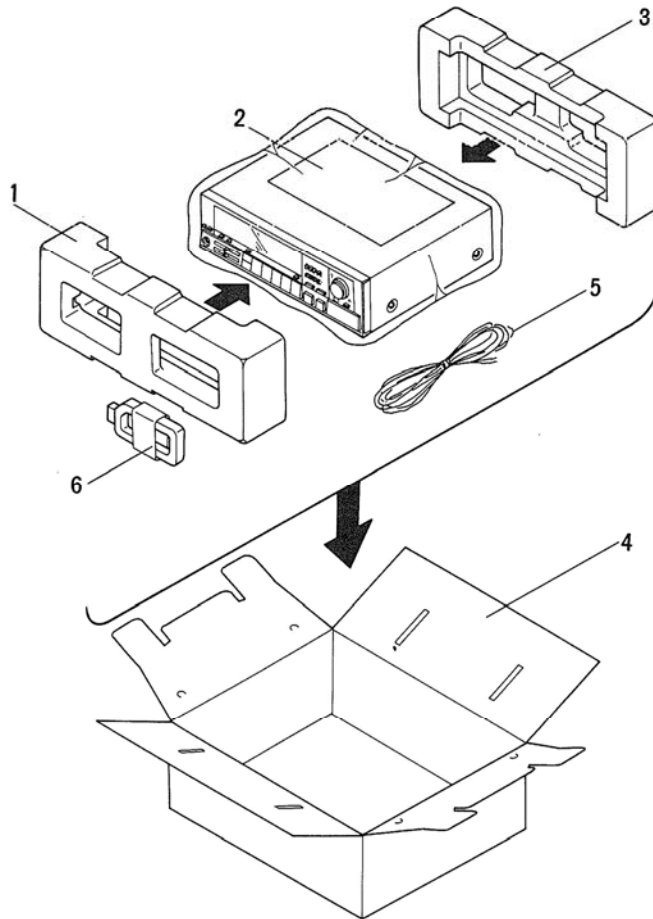
Table with columns: Mark, Part No., Symbol & Description, Mark, Part No., Symbol & Description. Includes sections for SWITCHES, CAPACITORS, SPEAKER SWITCH ASSEMBLY, HEADPHONE JACK ASSEMBLY, VIDEO TERMINAL ASSEMBLY, RESISTORS, CONTROL ASSEMBLY (GWM-812), SEMICONDUCTORS, and OTHERS.



# 8. PACKING

## Parts List

Mark	No.	Part No.	Description
	1	AHA-348	Front pad
	2	ARB-564	Operating instructions (English)
	3	AHA-349	Rear pad
	4	AHE-208	Packing case
	5	ADH-005	FM antenna
	6	ATB-086	Loop antenna



## 9. ADJUSTMENT

### FM Tuner Section

- Connect the FM SG to FM 300Ω antenna terminal through a 300Ω dummy antenna.
- Set FUNCTION to FM, and TUNING MODE to MANUAL.

Step	FM SG (400Hz, ± 75kHz dev.)		SX-40 frequency display	Adjustment point	Adjustment procedure
	Frequency	Level			
1	No signal		108.00MHz	—	Confirm that DC voltage between TP12 and ground is $8.7 \pm 2V$
2			87.50MHz	—	Confirm that DC voltage between TP12 and ground is $3.4 \pm 1.5V$
3	98.000MHz*	60dB	98.00MHz	T1, L3	Adjust until DC voltage between TP11 and ground is maximum
4				T3 (CENTER)	Adjust until DC voltage between TP8 and TP9 is 0V.
5				T3 (DIST)	Minimize the distortion at REC terminal
6	Repeat steps 4, 5 until requirements are satisfied.				

\* Frequency must be accurate

### FM MPX Section

- Connect the FM multiplex stereo signal generator to the FM SG external modulation terminal.
- Set the output of the FM SG to 98.000MHz (with modulation mode set to external) and tune SX-40 to the frequency (98.00MHz).

Step	FM MPX SG		Adjustment point	Adjustment procedure
	MODULATION	LEVEL		
1	No modulation	60dB	VR1	Adjust signal at TP1 to 76kHz
2	Main (1kHz, L + R, ± 67.5kHz dev.) Pilot (19kHz, ± 7.5kHz dev.)	86 dB	T1 within ± 90°	Minimize the distortion at REC terminal
3	—	below 30dB	—	Confirm that STEREO ind. is not illuminated

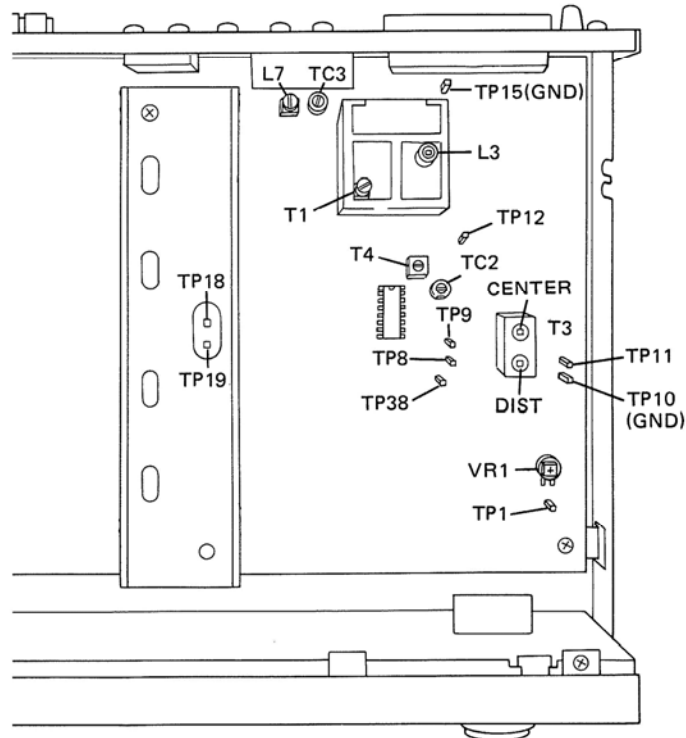
**AM Tuner Section**

- Set FUNCTION to AM, TUNING MODE to MANUAL position, CHANNEL STEP to 9kHz position.

Step	AM SG (400 Hz, 30% MOD.)		SX-40 frequency display	Adjustment point	Adjustment procedure
	Frequency	Level			
1	No signal		522kHz	T4	Adjust until DC voltage between TP12 and ground is $1.2 \pm 0.1V$
2			1620kHz	TC2	Adjust until DC voltage between TP12 and ground is $10V \pm 0.2V$
3	Repeat steps 1 and 2 until the required voltage is attained				
4	522kHz	60dB	522kHz	L7	Adjust until voltage between TP38 and ground is maximum.
5	1620kHz	60dB	1620kHz	TC3	
6	Repeat steps 4 and 5 until maximum voltage is attained.				

**Amplifier Section**

1. Turn the VOLUME to minimum.
2. Confirm that DC voltage between TP19 and SPEAKERS A L ⊕ terminal is between 4.4mV and 41.8mV.
3. Confirm that DC voltage between TP18 and SPEAKERS A R ⊕ terminal is between 4.4mV and 41.8mV.



**Adjusting Points**

## 9. RÉGLAGE

### Partie syntonisation FM

- Relier le générateur de signal FM sur la borne 300 ohms de l'antenne FM en intercalant une antenne fictive de 300 ohms.
- Placer le commutateur FUNCTION sur la position FM, et le mode de syntonisation (TUNING MODE) sur manual (MANUAL).

Phase	FM SG (400Hz, $\pm 75$ kHz de déviation)		Affichage fréquence SX-40	Point de réglage	Méthode de réglage
	Fréquence	Niveau			
1	Pas de signal		108,00MHz	—	S'assurer que la tension CC entre TP12 et la terre est de $8,7 \pm 2V$ .
2			87,50MHz	—	S'assurer que la tension CC entre TP12 et la terre est de $3,4 \pm 1,5V$ .
3	98,000MHz*	60dB	98,000MHz	T1, L3	Continuer à régler jusqu'à ce que la tension entre TP11 et la terre soit maximale.
4				T3 (CENTER)	Continuer à régler jusqu'à ce que la tension CC entre TP8 et TP9 soit de 0V.
5				T3 (DIST)	Réduire la distortion au minimum au niveau de la borne REC.
6	Recommencer 4~5 jusqu'à ce que les spécifications soient remplies.				

\* La fréquence doit être précise

### Partie FM MULTIPLEX

- Brancher le générateur de signal multiplex FM stéréo sur la borne de modulation externe du modulateur de signal FM.
- Régler la sortie du générateur de signal FM sur 98,000MHz (le mode de modulation étant sur externe), et régler le SX-40 sur la fréquence 98,000MHz.

Phase	FM MPX SG		Point de réglage	Méthode de réglage
	MODULATION	NIVEAU		
1	Pas de modulation	60dB	VR1	Régler le signal au niveau du TP1 sur 76kHz.
2	Principal (1kHz, D+G, déviation de $\pm 67,5$ kHz) Pilote (19kHz, déviation de $\pm 7,5$ kHz)	86dB	T1 entre $\pm 90^\circ$	Réduire la distortion au minimum au niveau de la borne REC.
3	—	inférieur à 30dB	—	S'assurer que le témoin STEREO n'est pas allumé.

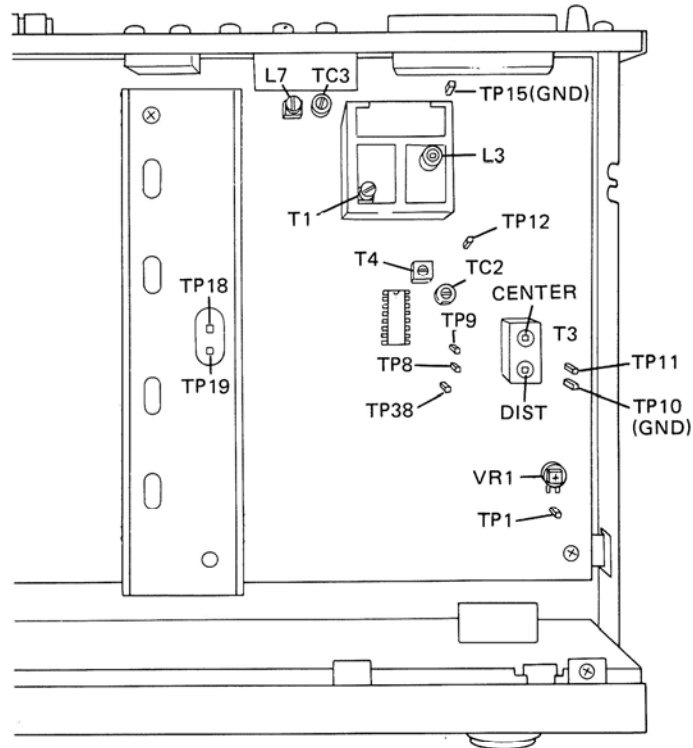
**Partie syntonisation AM**

- Placer le commutateur FUNCTION sur AM, le mode de syntonisation sur manuel (MANUAL), et le sélecteur de canal (CHANNEL STEP) sur la position 9kHz.

Phase	AM SG (400Hz, modulation de 30%)		Affichage fréquence SX-40	Point de réglage	Méthode de réglage
	Fréquence	Niveau			
1	Pas de signal		522kHz	T4	Continuer à régler jusqu'à ce que la tension CC entre TP12 et la terre soit de $1,2 \pm 0,1V$ .
2			1620kHz	TC2	
3	Recommencer 1 et 2 jusqu'à ce que la tension voulue soit atteinte.				
4	522kHz	60dB	522kHz	L7	Continuer à régler jusqu'à ce que la tension entre TP38 et la terre soit maximale.
5	1620kHz	60dB	1620kHz	TC3	
6	Recommencer 4 et 5 jusqu'à ce que la tension maximale soit atteinte.				

**Partie amplificatrice**

1. Régler la volume (VOLUME) au minimum.
2. S'assurer que la tension CC entre TP19 et la borne ⊕ gauche (L) du haut-parleur A se situe entre 4,4mV et 41,8mV.
3. S'assurer que la tension CC entre TP18 et la borne ⊕ droite (R) du haut-parleur A se situe entre 4,4mV et 41,8mV.



Points de réglage

## 9. AJUSTE

### Sección del sintonizador de FM

- Conectar el generador de señales de FM (FM SG) al terminal de antena de FM de 300 ohmios a través de una antena ficticia de 300 ohmios.
- Poner el selector FUNCTION en FM y el de TUNING MODE en la posición MANUAL.

Paso	FM SG (400Hz, $\pm 75$ kHz de desv.)		Frecuencí- metro del SX-40	Punto de ajuste	Procedimientos de ajuste
	Frecuencia	Nivel			
1	Sin señal		108,00MHz	—	Confirmar que la tensión de CC entre TP12 y masa sea de $8,7 \pm 2V$ .
2			87,50MHz	—	Confirmar que la tensión de CC entre TP12 y masa sea de $3,4 \pm 1,5V$ .
3	98,000MHz*	60dB	98,00MHz	T1, L3	Ajustar hasta que la tensión de CC entre TP11 y masa sea la máxima.
4				T3 (CENTER)	Ajustar hasta que la tensión de CC entre TP8 y TP9 sea de 0V.
5				T3 (DIST)	Minimizar la distorsión en el terminal REC.
6	Repetir los pasos 4 al 5 hasta que se satisfagan los requisitos.				

\* La frecuencia debe ser precisa.

### Sección de multiplex de FM (FM MPX)

- Conectar un generador de señales estereofónicas de multiplex de FM al terminal de modulación exterior del FM SG.
- Ajustar la salida del FM SG a 98,000MHz (con el modo de modulación ajustado al exterior y sintonizar el SX-40 a la frecuencia (98,000MHz).

Paso	FM MPX SG		Punto de ajuste	Procedimientos de ajuste
	MODULACION	NIVEL		
1	Sin modulación	60dB	VR1	Ajustar la señal en TP1 a 76kHz.
2	Principal (1kHz, L+R, $\pm 67,5$ kHz de desv.) Piloto (19kHz, $\pm 7,5$ kHz de desv.)	86 dB	T1 dentro de $\pm 90^\circ$	Minimizar la distorsión en el terminal REC.
3	—	por debajo de 30dB	—	Confirmar que el indicador STEREO no esté iluminado.

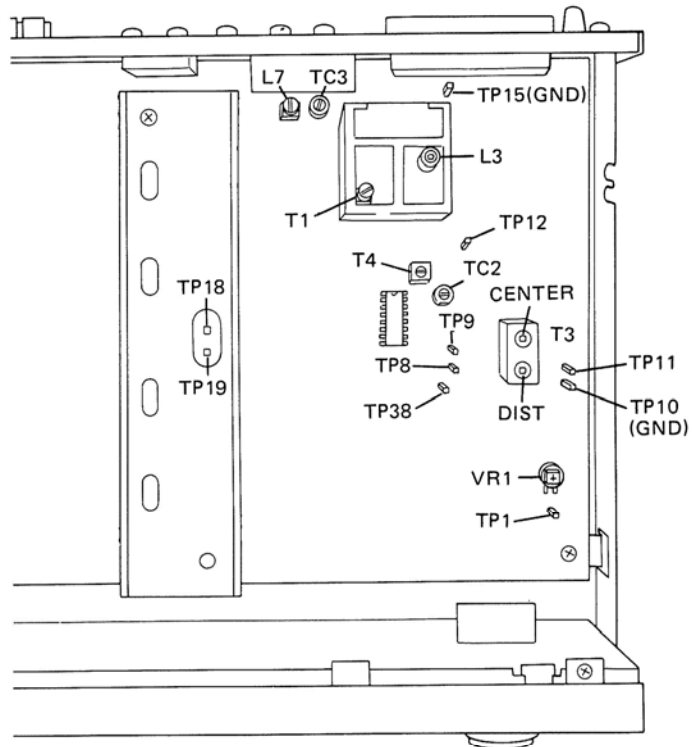
**Sección del sintonizador de AM**

- Poner el selector FUNCTION en AM, el de TUNING MODE en MANUAL y el de CHANNEL STEP en la posición de 9kHz.

Paso	AM SG (400Hz, 30% de mod.)		Frecuencí- metro del SX-40	Punto de ajuste	Procedimientos de ajuste
	Frecuencia	Nivel			
1	Sin señal		522kHz	T4	Ajustar hasta que la tensión de CC entre TP12 y masa sea de $1,2 \pm 0,1V$ .
2			1620kHz	TC2	Ajustar hasta que la tensión de CC entre TP12 y masa sea de $10V \pm 0,2V$ .
3	Repetir los pasos 1 y 2 hasta que se obtenga la tensión requerida.				
4	522kHz	60dB	522kHz	L7	Ajustar hasta que la tensión entre TP38 y masa sea la máxima.
5	1620kHz	60dB	1620kHz	TC3	
6	Repetir los pasos 4 y 5 hasta obtenerse la tensión máxima.				

**Sección del amplificador**

1. Girar el control VOLUME a la posición mínima.
2. Confirmar que la tensión de CC entre los terminales TP19 y SPEAKERS A L ⊕ sea de 4,4mV a 41,8mV.
3. Confirmar que la tensión de CC entre los terminales TP18 y SPEAKERS A R ⊕ sea de 4,4mV a 41,8mV.



Puntos de ajuste

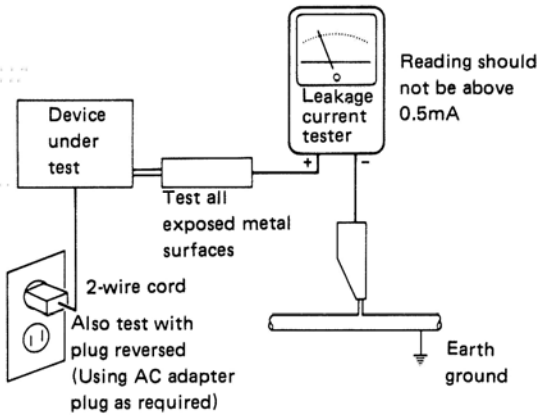
# 10. SAFETY INFORMATION

## 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

### LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

## 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\Delta$  on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.