

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^{+0.5}₋₃ 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^{+0.5}₋₁ 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)

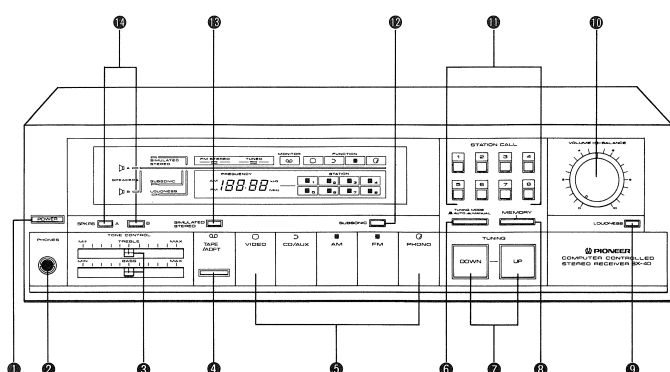
Furnished Parts

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 SPKRS 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 SPKRS (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.

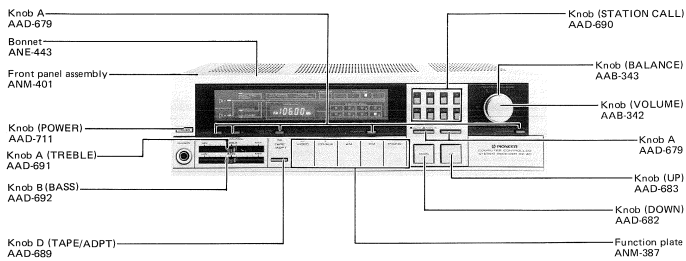
NOTE:

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.

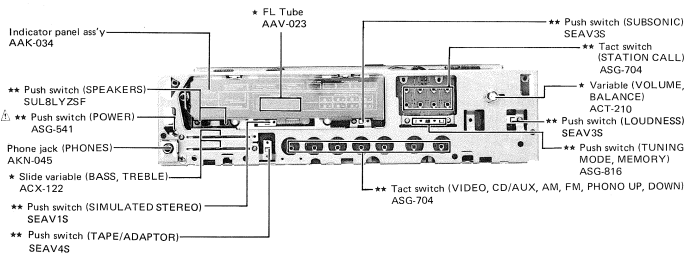
3. PARTS LOCATION

- NOTES:
- The  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.

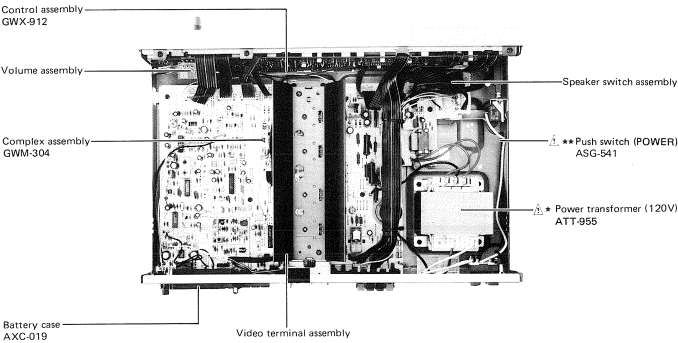
Front Panel View



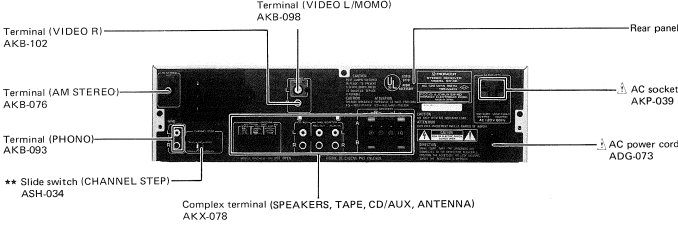
Front View



Top View



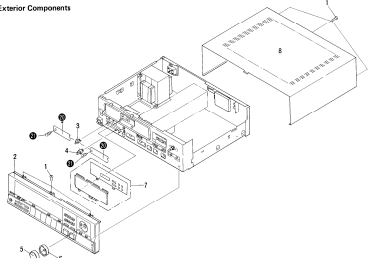
Rear View



4. EXPLODED VIEW AND PARTS LIST

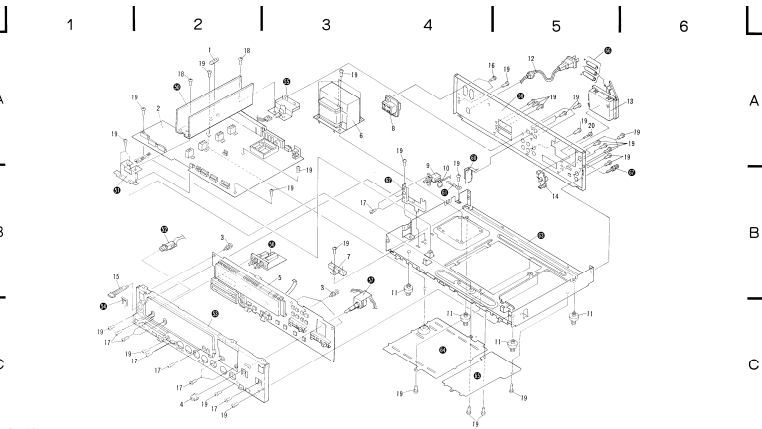
- NOTES:
- Parts without part number cannot be supplied.
 - The (*) mark listed on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 - For your Parts Stock Control, the fast-moving items are indicated 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.

Exterior Components



Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	BSZ2P08PZK	Screw (2 x 8)		6	AAB-343	Knob (BALANCE)
	2	ANM-001	Front panel assembly		7	AAB-358	Indicator panel Assy
	3	AAD-001	Knob A (TREBLE)		8	ANE-043	Bonnet
	4	AAB-002	Knob B (BASS)		20		Masking sheet
	5	AAB-342	Knob (VOLUME)		31		Sheet

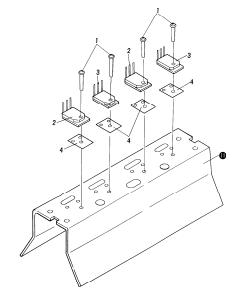


Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description	
Δ	**	1	ASE-123	Fuse (2.0A)	Δ	11	ADP-007	Bumper
		2	GSM-306	Complete assembly		12	ASD-073	AC power cord
		3	ASE-352	Nylon rivet		13	AKC-019	Battery case
		4	AAB-003	Nut		14	ASB-026	Terminal (AMP STEREO)
		5	GKS-012	Control assembly		15	AAD-111	Knob (POWER)
Δ	*	6	ATT-005	Power transformer (110V)		16	WTEZP08PZK	Screw (2 x 10)
		7	ACH-148	Wire wound resistor		17	VNEZP08PZK	Screw (2 x 6)
		8	APF-039	AC socket		18	WEDP08PZK	Screw (2 x 10)
Δ	**	9	ASG-041	Push switch (POWER)		19	BSZ2P08PZK	Screw (2 x 8)
		10	AGS-002	Ceramic capacitor				

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	20		Heat sink assembly		60		Video terminal assembly
	21		Heat sink holder		61		Wire holder
	22		Headphone jack assembly		62		Switch holder
	23		Front panel holder		63		Chassis
	24		Mounting plate		64		Bottom plate A
	25		Heat sink holder		65		Bottom plate B
	26		Speaker switch assembly		66		Battery
	27		Volume assembly		67		Terminal (SIGNAL)
	28		Rear panel				

Heat Sink Assembly

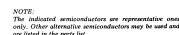


Parts List

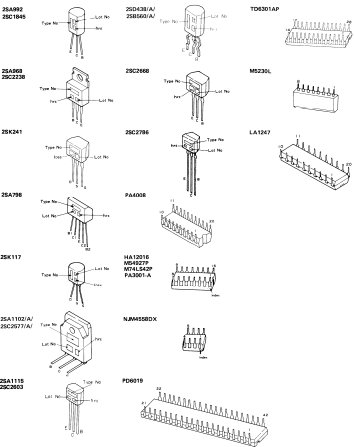
Mark	No.	Part No.	Description	
Δ	**	1	ABA-208	Screw
		2	25A1102(AI-O*) (25A1102(AI-P*))	Q3, Q4
Δ	**	3	28C2577(AI-O*) (28C2577(AI-P*))	Q1, Q2
			*The hole value of Q1, Q3 and Q2, Q4 must be the same.	
	4	AEC-81B	Insulating sheet	
	11		Heat sink	

BX-40



SX-40

External Appearances of Transistors and IC's



7. ELECTRICAL PARTS LIST

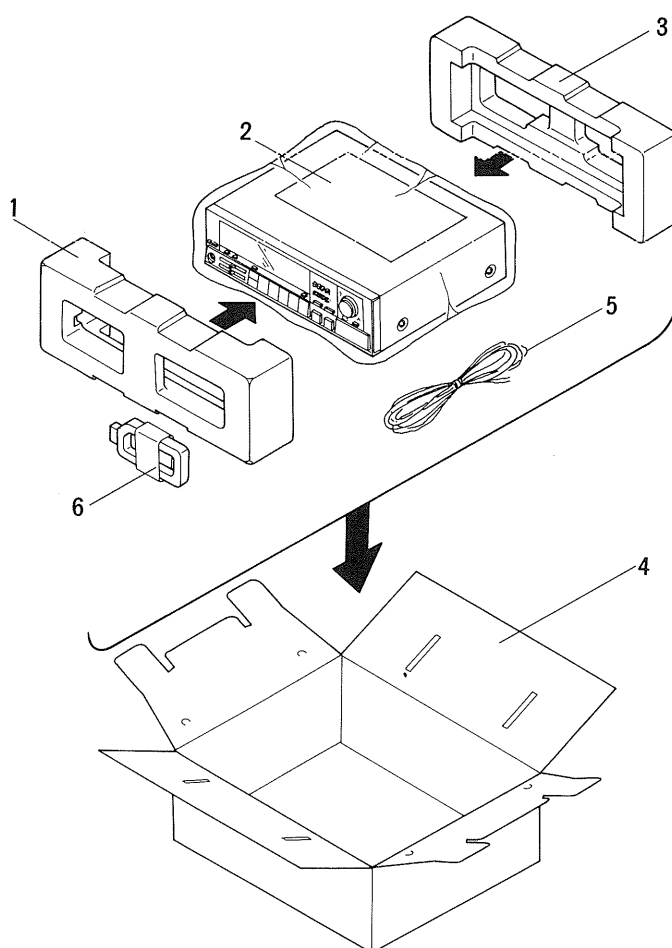
NOTES:
• When ordering resistors, first convert resistance value into code form as shown in the following examples:
Ex. 1 When there are 3 effective digits (two digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J, K, etc. and K=10%)
560Ω 56 × 10⁰ 561 ... RESISTOR (560 J)
47kΩ 47 × 10³ 473 ... RESISTOR (47K J)
0.52Ω 052 ... RESISTOR (520 J)
1kΩ 100 ... RESISTOR (100 J)
Ex. 2 When there are 2 effective digits (such as 10k precision metal film resistors)
10kΩ 10 × 10³ 1021 ... RESISTOR (10K J)
• The mark found on some component parts indicate the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
• For your Parts Check Control, the last missing items are indicated with the marks: * and #.
** GENERALLY MOVES FASTER THAN *
This classification shall be obtained by each distributor because it depends on model number, temperature, humidity, etc.

Miscellaneous P.C. BOARD ASSEMBLIES			Complex Assembly (GWM-304) SEMICONDUCTORS		
Mark	Part No.	Symbol & Description	Mark	Part No.	Symbol & Description
	0800-004	Resistor assembly		A-1-PA001-A	Q1
	0800-012	Control assembly		A-1-PA010-B	Q2
	0800-013	Non assembly		A-1-PA020-P	Q3
	0800-014	Non assembly		A-1-PA030-A	Q001
	0800-015	Non assembly		A-1-PA040-B	Q002
	0800-016	Non assembly		A-1-PA050-A	Q003
	0800-017	Non assembly		A-1-PA060-B	Q004
	0800-018	Non assembly		A-1-PA070-A	Q005
	0800-019	Non assembly		A-1-PA080-B	Q006
	0800-020	Non assembly		A-1-PA090-A	Q007
	0800-021	Non assembly		A-1-PA100-B	Q008
	0800-022	Non assembly		A-1-PA110-A	Q009
	0800-023	Non assembly		A-1-PA120-B	Q010
	0800-024	Non assembly		A-1-PA130-A	Q011
	0800-025	Non assembly		A-1-PA140-B	Q012
	0800-026	Non assembly		A-1-PA150-A	Q013
	0800-027	Non assembly		A-1-PA160-B	Q014
	0800-028	Non assembly		A-1-PA170-A	Q015
	0800-029	Non assembly		A-1-PA180-B	Q016
	0800-030	Non assembly		A-1-PA190-A	Q017
	0800-031	Non assembly		A-1-PA200-B	Q018
	0800-032	Non assembly		A-1-PA210-A	Q019
	0800-033	Non assembly		A-1-PA220-B	Q020
	0800-034	Non assembly		A-1-PA230-A	Q021
	0800-035	Non assembly		A-1-PA240-B	Q022
	0800-036	Non assembly		A-1-PA250-A	Q023
	0800-037	Non assembly		A-1-PA260-B	Q024
	0800-038	Non assembly		A-1-PA270-A	Q025
	0800-039	Non assembly		A-1-PA280-B	Q026
	0800-040	Non assembly		A-1-PA290-A	Q027
	0800-041	Non assembly		A-1-PA300-B	Q028
	0800-042	Non assembly		A-1-PA310-A	Q029
	0800-043	Non assembly		A-1-PA320-B	Q030
	0800-044	Non assembly		A-1-PA330-A	Q031
	0800-045	Non assembly		A-1-PA340-B	Q032
	0800-046	Non assembly		A-1-PA350-A	Q033
	0800-047	Non assembly		A-1-PA360-B	Q034
	0800-048	Non assembly		A-1-PA370-A	Q035
	0800-049	Non assembly		A-1-PA380-B	Q036
	0800-050	Non assembly		A-1-PA390-A	Q037
	0800-051	Non assembly		A-1-PA400-B	Q038
	0800-052	Non assembly		A-1-PA410-A	Q039
	0800-053	Non assembly		A-1-PA420-B	Q040
	0800-054	Non assembly		A-1-PA430-A	Q041
	0800-055	Non assembly		A-1-PA440-B	Q042
	0800-056	Non assembly		A-1-PA450-A	Q043
	0800-057	Non assembly		A-1-PA460-B	Q044
	0800-058	Non assembly		A-1-PA470-A	Q045
	0800-059	Non assembly		A-1-PA480-B	Q046
	0800-060	Non assembly		A-1-PA490-A	Q047
	0800-061	Non assembly		A-1-PA500-B	Q048
	0800-062	Non assembly		A-1-PA510-A	Q049
	0800-063	Non assembly		A-1-PA520-B	Q050
	0800-064	Non assembly		A-1-PA530-A	Q051
	0800-065	Non assembly		A-1-PA540-B	Q052
	0800-066	Non assembly		A-1-PA550-A	Q053
	0800-067	Non assembly		A-1-PA560-B	Q054
	0800-068	Non assembly		A-1-PA570-A	Q055
	0800-069	Non assembly		A-1-PA580-B	Q056
	0800-070	Non assembly		A-1-PA590-A	Q057
	0800-071	Non assembly		A-1-PA600-B	Q058
	0800-072	Non assembly		A-1-PA610-A	Q059
	0800-073	Non assembly		A-1-PA620-B	Q060
	0800-074	Non assembly		A-1-PA630-A	Q061
	0800-075	Non assembly		A-1-PA640-B	Q062
	0800-076	Non assembly		A-1-PA650-A	Q063
	0800-077	Non assembly		A-1-PA660-B	Q064
	0800-078	Non assembly		A-1-PA670-A	Q065
	0800-079	Non assembly		A-1-PA680-B	Q066
	0800-080	Non assembly		A-1-PA690-A	Q067
	0800-081	Non assembly		A-1-PA700-B	Q068
	0800-082	Non assembly		A-1-PA710-A	Q069
	0800-083	Non assembly		A-1-PA720-B	Q070
	0800-084	Non assembly		A-1-PA730-A	Q071
	0800-085	Non assembly		A-1-PA740-B	Q072
	0800-086	Non assembly		A-1-PA750-A	Q073
	0800-087	Non assembly		A-1-PA760-B	Q074
	0800-088	Non assembly		A-1-PA770-A	Q075
	0800-089	Non assembly		A-1-PA780-B	Q076
	0800-090	Non assembly		A-1-PA790-A	Q077
	0800-091	Non assembly		A-1-PA800-B	Q078
	0800-092	Non assembly		A-1-PA810-A	Q079
	0800-093	Non assembly		A-1-PA820-B	Q080
	0800-094	Non assembly		A-1-PA830-A	Q081
	0800-095	Non assembly		A-1-PA840-B	Q082
	0800-096	Non assembly		A-1-PA850-A	Q083
	0800-097	Non assembly		A-1-PA860-B	Q084
	0800-098	Non assembly		A-1-PA870-A	Q085
	0800-099	Non assembly		A-1-PA880-B	Q086
	0800-100	Non assembly		A-1-PA890-A	Q087
	0800-101	Non assembly		A-1-PA900-B	Q088
	0800-102	Non assembly		A-1-PA910-A	Q089
	0800-103	Non assembly		A-1-PA920-B	Q090
	0800-104	Non assembly		A-1-PA930-A	Q091
	0800-105	Non assembly		A-1-PA940-B	Q092
	0800-106	Non assembly		A-1-PA950-A	Q093
	0800-107	Non assembly		A-1-PA960-B	Q094
	0800-108	Non assembly		A-1-PA970-A	Q095
	0800-109	Non assembly		A-1-PA980-B	Q096
	0800-110	Non assembly		A-1-PA990-A	Q097
	0800-111	Non assembly		A-1-PA1000-B	Q098
	0800-112	Non assembly		A-1-PA1010-A	Q099
	0800-113	Non assembly		A-1-PA1020-B	Q100
	0800-114	Non assembly		A-1-PA1030-A	Q101
	0800-115	Non assembly		A-1-PA1040-B	Q102
	0800-116	Non assembly		A-1-PA1050-A	Q103
	0800-117	Non assembly		A-1-PA1060-B	Q104
	0800-118	Non assembly		A-1-PA1070-A	Q105
	0800-119	Non assembly		A-1-PA1080-B	Q106
	0800-120	Non assembly		A-1-PA1090-A	Q107
	0800-121	Non assembly		A-1-PA1100-B	Q108
	0800-122	Non assembly		A-1-PA1110-A	Q109
	0800-123	Non assembly		A-1-PA1120-B	Q110
	0800-124	Non assembly		A-1-PA1130-A	Q111
	0800-125	Non assembly		A-1-PA1140-B	Q112
	0800-126	Non assembly		A-1-PA1150-A	Q113
	0800-127	Non assembly		A-1-PA1160-B	Q114
	0800-128	Non assembly		A-1-PA1170-A	Q115
	0800-129	Non assembly		A-1-PA1180-B	Q116
	0800-130	Non assembly		A-1-PA1190-A	Q117
	0800-131	Non assembly		A-1-PA1200-B	Q118
	0800-132	Non assembly		A-1-PA1210-A	Q119
	0800-133	Non assembly		A-1-PA1220-B	Q120
	0800-134	Non assembly		A-1-PA1230-A	Q121
	0800-135	Non assembly		A-1-PA1240-B	Q122
	0800-136	Non assembly		A-1-PA1250-A	Q123
	0800-137	Non assembly		A-1-PA1260-B	Q124
	0800-138	Non assembly		A-1-PA1270-A	Q125
	0800-139	Non assembly		A-1-PA1280-B	Q126
	0800-140	Non assembly		A-1-PA1290-A	Q127
	0800-141	Non assembly		A-1-PA1300-B	Q128
	0800-142	Non assembly		A-1-PA1310-A	Q129
	0800-143	Non assembly		A-1-PA1320-B	Q130
	0800-144	Non assembly		A-1-PA1330-A	Q131
	0800-145	Non assembly		A-1-PA1340-B	Q132
	0800-146	Non assembly		A-1-PA1350-A	Q133
	0800-147	Non assembly		A-1-PA1360-B	Q134
	0800-148	Non assembly		A-1-PA1370-A	Q135
	0800-149	Non assembly		A-1-PA1380-B	Q136
	0800-150	Non assembly		A-1-PA1390-A	Q137
	0800-151	Non assembly		A-1-PA1400-B	Q138
	0800-152	Non assembly		A-1-PA1410-A	Q139
	0800-153	Non assembly		A-1-PA1420-B	Q140
	0800-154	Non assembly		A-1-PA1430-A	Q141
	0800-155	Non assembly		A-1-PA1440-B	Q142
	0800-156	Non assembly		A-1-PA1450-A	Q143
	0800-157	Non assembly		A-1-PA1460-B	Q144
	0800-158	Non assembly		A-1-PA1470-A	Q145
	0800-159	Non assembly		A-1-PA1480-B	Q146
	0800-160	Non assembly		A-1-PA1490-A	Q147
	0800-161	Non assembly		A-1-PA1500-B	Q148
	0800-162	Non assembly		A-1-PA1510-A	Q149
	0800-163	Non assembly		A-1-PA1520-B	Q150
	0800-164	Non assembly		A-1-PA1530-A	Q151
	0800-165	Non assembly		A-1-PA1540-B	Q152
	0800-166	Non assembly		A-1-PA1550-A	Q153
	0800-167	Non assembly		A-1-PA1560-B	Q154
	0800-168	Non assembly		A-1-PA1570-A	Q155
	0800-169	Non assembly		A-1-PA1580-B	Q156
	0800-170	Non assembly		A-1-PA1590-A	Q157
	0800-171	Non assembly		A-1-PA1600-B	Q158
	0800-172	Non assembly		A-1-PA1610-A	Q159
	0800-173	Non assembly		A-1-PA1620-B	Q160
	0800-174	Non assembly		A-1-PA1630-A	Q161
	0800-175	Non assembly		A-1-PA1640-B	Q162
	0800-176	Non assembly		A-1-PA1650-A	Q163
	0800-177	Non assembly		A-1-PA1660-B	Q164
	0800-178	Non assembly		A-1-PA1670-A	Q165
	0800-179	Non assembly		A-1-PA1680-B	Q166
	0800-180	Non assembly		A-1-PA1690-A	Q167
	0800-181	Non assembly		A-1-PA1700-B	Q168
	0800-182	Non assembly		A-1-PA1710-A	Q169
	0800-183	Non assembly		A-1-PA1720-B	Q170
	0800-184	Non assembly		A-1-PA1730-A	Q171
	0800-185	Non assembly		A-1-PA1740-B	Q172
	0800-186	Non assembly		A-1-PA1750-A	Q173
	0800-187	Non assembly		A-1-PA1760-B	Q174
	0800-188	Non assembly		A-1-PA1770-A	Q175
	0800-189	Non assembly		A-1-PA1780-B	Q176
	0800-190	Non assembly		A-1-PA1790-A	Q177
	0800-191	Non assembly		A-1-PA1800-B	Q178
	0800-192	Non assembly		A-1-PA1810-A	Q179
	0800-193	Non assembly		A-1-PA1820-B	Q180
	0800-194	Non assembly		A-1-PA1830-A	Q181
	0800-195	Non assembly		A-1-PA1840-B	Q182
	0800-196	Non assembly		A-1-PA1850-A	Q183
	0800-197	Non assembly		A-1-PA1860-B	Q184
	0800-198	Non assembly		A-1-PA1870-A	Q185
	0800-199	Non assembly		A-1-PA1880-B	Q186
	0800-200	Non assembly		A-1-PA1890-A	Q187
	0800-201	Non assembly		A-1-PA1900-B	Q188
	0800-202	Non assembly		A-1-PA1910-A	Q189
	0800-203	Non assembly		A-1-PA1920-B	Q190
	0800-204	Non assembly		A-1-PA1930-A	Q191
	0800-205	Non assembly		A-1-PA1940-B	Q192
	0800-206	Non assembly		A-1-PA1950-A	Q193
	0800-207	Non assembly		A-1-PA1960-B	Q194
	0800-208	Non assembly		A-1-PA1970-A	Q195
	0800-209	Non assembly		A-1-PA1980-B	Q196
	0800-210	Non assembly		A-1-PA1990-A	Q197
	0800-211	Non assembly		A-1-PA2000-B	Q198
	0800-212	Non assembly		A-1-PA2010-A	Q199
	0800-213	Non assembly		A-1-PA2020-B	Q200
	0800-214	Non assembly		A-1-PA2030-A	Q201
	0800-215	Non assembly		A-1-PA2040-B	Q202
	0800-216	Non assembly		A-1-PA2050-A	Q203
	0800-217	Non assembly		A-1-PA2060-B	Q204
	0800-218	Non assembly		A-1-PA2070-A	Q205
	0800-219	Non assembly		A-1-PA2080-B	Q206
	0800-220	Non assembly		A-1-PA2090-A	Q207
	0800-221	Non assembly		A-1-PA2100-B	Q208
	0800-222	Non assembly		A-1-PA2110-A	Q209
	0800-223	Non assembly		A-1-PA2120-B	Q210
	0800-224	Non assembly		A-1-PA2130-A	Q211
	0800-225	Non assembly		A-1-PA2140-B	Q212
	0800-226	Non assembly		A-1-PA2150-A	Q213
	0800-227	Non assembly		A-1-PA2160-B	Q214
	0800-228	Non assembly		A-1-PA2170-A	Q215
	0800-229	Non assembly		A-1-PA2180-B	Q216
	0800-230	Non assembly		A-1-PA2190-A	Q217
	0800-231	Non assembly		A-1-PA2200-B	Q218
	0800-232	Non assembly		A-1-PA2210-A	Q219
	0800-233	Non assembly		A-1-PA2220-B	Q220
	0800-234	Non assembly		A-1-PA2230-A	Q221
	0800-235	Non assembly		A-1-PA2240-B	Q222
	0800-236				

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

Step	FM SG (400 Hz, ± 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 ± 2V
2			87.50MHz	——	Confirm that DC voltage between TP12 and ground is 3.4 ± 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, $\pm$ 67.5 kHz dev.) Pilot (19kHz, $\pm$ 7.5kHz dev.)	86 dB	T1 within $\pm 90^\circ$	Minimize the distortion at REC terminal
3	—	below 30dB	—	Confirm that STEREO ind. is not illuminated

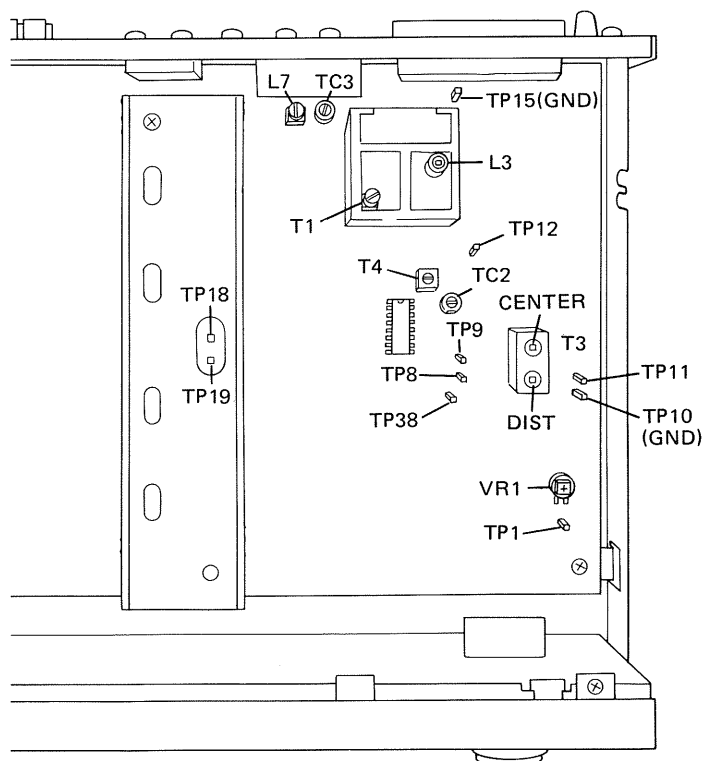
AM Tuner Section

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

Step	AM SG (400Hz, 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 ± 0.1V
2			1620kHz	TC2	Adjust until DC voltage between TP12 and ground is 10V ± 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

- Turn the VOLUME to minimum.
- Confirm that DC voltage between TP19 and SPEAKERS A L $\oplus$ terminal is between 4.4mV and 41.8mV.
- Confirm that DC voltage between TP18 and SPEAKERS A R $\oplus$ 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, ±75kHz 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 ±2V.
2			87,50MHz	—	S'assurer que la tension CC entre TP12 et la terre est de 3,4 ±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.

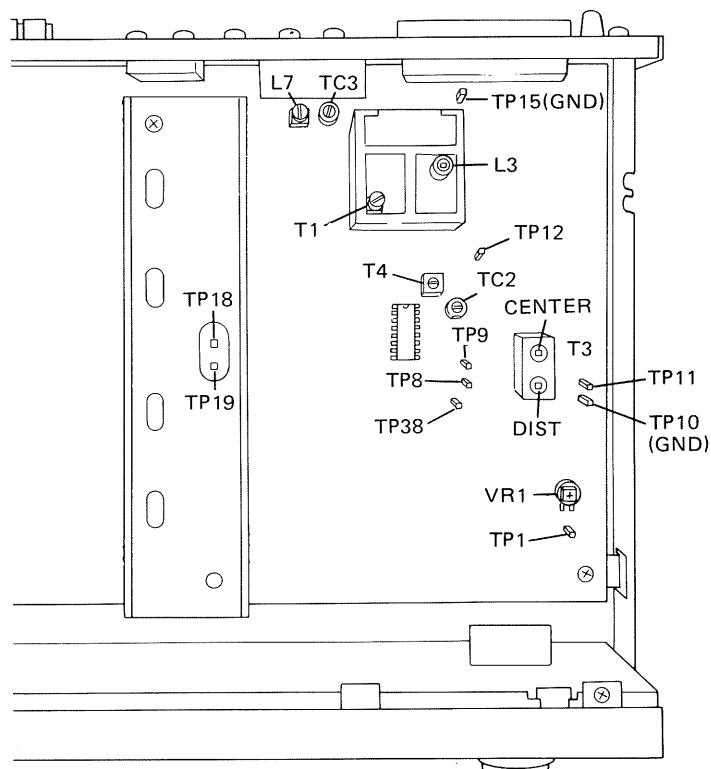
Partie syntonisation AM

- 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 ±0,1V.
2			1620kHz	TC2	Continuer à régler jusqu'à ce que la tension CC entre TP12 et la terre soit de 10V ±0,2V.
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, ±75kHz de desv.)		Frecuenci- 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 ±2V.
2			87,50MHz	—	Confirmar que la tensión de CC entre TP12 y masa sea de 3,4 ±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.)	86dB	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.

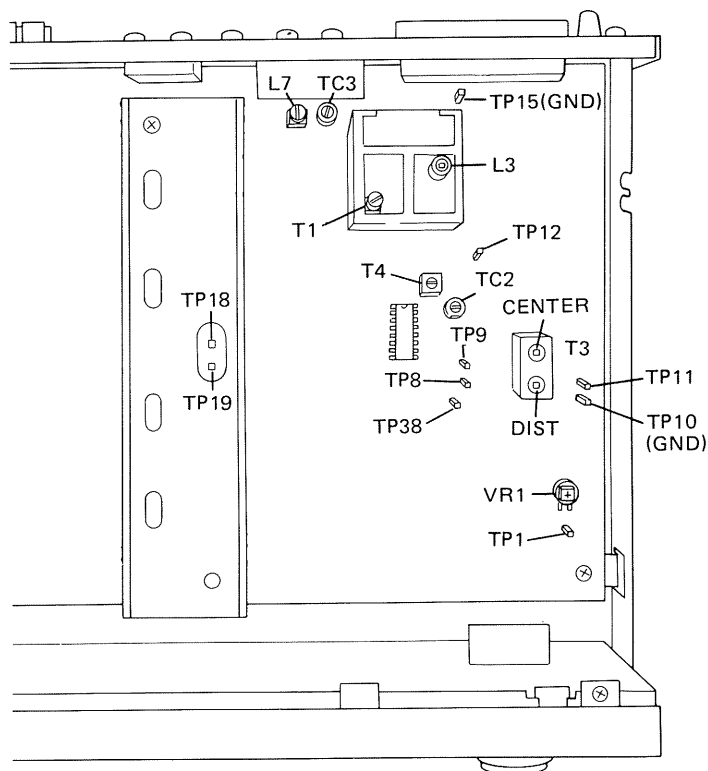
Sección del sintonizador de AM

- 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.)		Frecuenci- 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 ±0,1V.
2			1620kHz	TC2	Ajustar hasta que la tensión de CC entre TP12 y masa sea de 10V ±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 $\oplus$ sea de 4,4mV a 41,8mV.
3. Confirmar que la tensión de CC entre los terminales TP18 y SPEAKERS A R $\oplus$ sea de 4,4mV a 41,8mV.



Puntos de ajuste

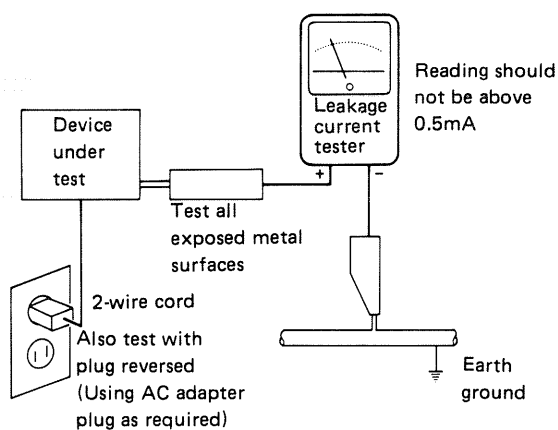
10. SAFETY INFORMATION

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 Δ 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.