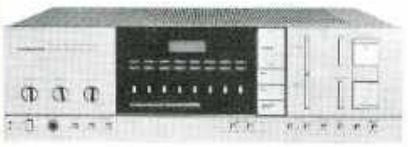
PIONEER

Service Manual

REPAIR & ADJUSTMENTS



ORDER NO.
ARP-018-0

COMPUTER CONTROLLED STEREO RECEIVER

SX-7

MODEL SX-7 COMES IN FOUR VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	AC 120V only	U.S.A. model
S	AC110V, 120V, 220V and 240V (Switchable)	General export model
S/G	AC110V, 120, 220V and 240V (Switchable)	U.S.Military model
KC	AC 120V only	Canada model

- **This service manual is applicable to the KU type. When repairing the KC, S and S/G types, please see the additional service manual (ARP-019).**
- **For the circuit description, please refer to the model SX-7 service manual (ARP-047).**
- **Ce manuel d'instruction se refère au mode de réglage, en français.**
- **Este manual de servicio trata del método de ajuste escrito en español.**

CONTENTS

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U.S. PIONEER ELECTRONICS CORPORATION 85 Oxford Drive, Moonachie, New Jersey 07074, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Luithagen-Haven 9, 2030 Antwerp, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia

1. SPECIFICATIONS

Amplifier Section

Continuous Average Power Output is 60 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.009% total harmonic distortion.**

Total Harmonic Distortion** (20 Hertz to 20,000 Hertz, 8 ohms, from AUX/VIDEO)
- continuous rated power output . No more than 0.009%
- 30 watts per channel power output . . . . . No more than 0.009%

Intermodulation Distortion** (50 Hertz : 7,000 Hertz = 4 : 1, 8 ohms, from AUX/VIDEO)
- continuous rated power output . No more than 0.009%

Damping Factor (20 Hertz to 20,000 Hertz, 8 ohms) 50

Input (Sensitivity/Impedance)
- PHONO MM . . . . . 2.5mV/150 kilohms
- PHONO MC . . . . . 0.25mV/50 kilohms
- TUNER, AUX/VIDEO TAPE PLAY 1, 2 . . . . . 150mV/50 kilohms

Phono Overload Level (T.H.D. 0.009%, 1,000Hz from REC OUT)
- PHONO 150mV

Output (Level/Impedance)
- TAPE REC 1, 2 . . . . . 150mV/2.2 kilohms

Frequency Response
- PHONO (RIAA Equalization) . . . . . 20Hz to 20,000Hz±0.3dB
- TUNER, AUX/VIDEO, TAPE PLAY 1, 2 . . . . . 5Hz to 100,000Hz $^{+0}_{-3}$dB

Tone Control
- BASS . . . . . ±8dB (100Hz)
- TREBLE . . . . . ±8dB (10kHz)

Filter
- SUBSONIC 15Hz (6dB/oct.)

Loudness Contour (Volume control set at –40dB position) . . . . . +6dB (100Hz), +3dB (10kHz)

Hum and Noise (IHF, short circuited A network)
- PHONO MM 80dB
- PHONO MC 67dB

Muting . . . . . –25dB

FM Tuner Section

Usable Sensitivity . Mono; 10.3dBf (IHF) (0.9μV, 75 ohms)

50dB Quieting Sensitivity . . . . . Mono; 15.7dBf (1.6μV, 75 ohms)
Stereo; 37dBf (19.5μV, 75 ohms)

Signal-to-Noise Ratio . . . . . Mono; 80dB (at 85dBf)
Stereo; 75dB (at 85dBf)

Distortion (at 65dBf)
- Mono 100Hz; 0.1%
  1kHz; 0.07%
  6kHz; 0.15%
- Stereo 100Hz; 0.2%
  1kHz; 0.1%
  6kHz; 0.25%

Capture Ratio 1dB

Alternate Channel Selectivity 400kHz; 80dB

Stereo Separation 1kHz; 45dB
30Hz to 15kHz; 35dB

Frequency Response . . . . . 20Hz to 15kHz ±0.5dB

Spurious Response Ratio 90dB

Image Response Ratio 80dB

IF Response Ratio 90dB

AM Suppression Ratio 55dB

Subcarrier Product Ratio 40dB

SCA Rejection ratio 60dB

Muting Threshold 29.3dBf (8μV)

Antenna Input . . 300 ohms balanced, 75 ohms unbalanced

AM Tuner Section

Sensitivity
- IHF, ferrite antenna 300μV/m
- IHF, external antenna 15μV

Selectivity 27dB

Signal-to-Noise Ratio 50dB

Image Response Ratio 40dB

IF Response Ratio 80dB

Antenna . . . . . Built-in ferrite loopstick antenna

Miscellaneous

Power Requirements . . . . . AC 120V, 60Hz

Power Consumption . . . . . 300W (UL), 350VA (CSA)

Dimensions . . . . . 420(W) x 130(H) x 370(D) mm
16-9/16(W) x 5-1/8(H) x 14-9/16(D) in

Weight (without package) . . . . . 9.6 kg (21 lb 3 oz)

Furnished Parts

FM T-type Antenna 1

Station Card 2

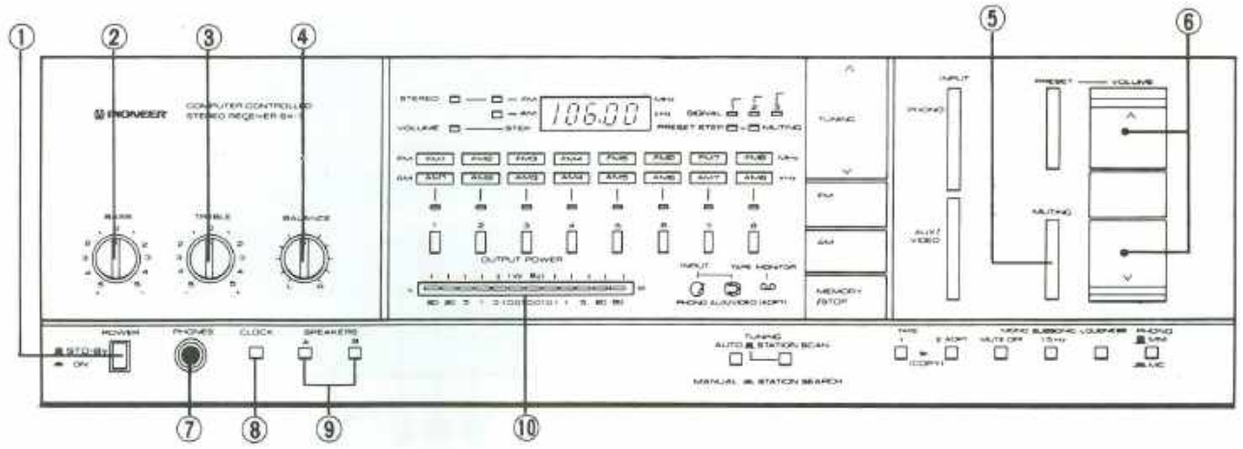
Operating Instructions 1

**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 design subject to possible modification without notice.

2. FRONT PANEL FACILITIES



① POWER switch (POWER ▲ STAND-BY ▲ ON)

When this switch is set to the ON (depressed) position, power is supplied to all the circuits. When set to the STAND-BY position, the power to the main circuits is cut off but still supplied to the clock. The clock continues to function until the power cord is disconnected.

NOTE:
Even when the power cord has been disconnected, the STATION CALL switch and PRESET VOLUME presetting information in the memory is preserved for about two weeks.
When the presetting information has been erased from the memory, follow the relevant instructions and proceed with presetting again.

② BASS CONTROL

Use this control to adjust the bass of the sound. When the control is moved to the right (+ direction), the bass is emphasized, and when it is moved to the left (− direction), the bass is attenuated.

③ TREBLE CONTROL

Use this control to adjust the treble of the sound. When the control is moved to the right (+ direction), the treble is emphasized, and when it is moved to the left (− direction), the treble is attenuated.

④ BALANCE CONTROL

Use the control to balance the volume of the left and right channels. If the sound appears to be louder on the right, it means that the volume of the right channel is higher. Turn the balance control to the left and adjust. Conversely, if the sound appears to be louder on the left, it means that the volume of the left channel is higher. Therefore, turn the balance control to the right and adjust.

⑤ MUTING SWITCH

Press this switch to attenuate the audio output indicated on the display by 25dB. There is no need to adjust the VOLUME level if you use this switch when turning down the audio output temporarily and when changing over records or tapes.

NOTE:
By adjusting the VOLUME switch in combination with the MUTING switch, it is possible to adjust the volume more finely across a very wide range.

⑥ VOLUME SWITCHES

Use these switches to adjust the output level to the speakers and headphones. Press the ∧ switch to increase the output level. Press the ∨ swich to attenuate the output level.

⑦ PHONES JACK

Plug the headphones plug into this jack when you want to listen through your stereo headphones.
Release both SPEAKERS switches if you want to listen to the sound through your headphones only.

⑧ CLOCK SWITCH

The time appears on the display when this switch is depressed. The display changes when a STATION CALL switch, a function switch or one of the volume switches is depressed. To adjust the time, keep this switch in the depressed position and adjust using the TUNING switch.

⑨ SPEAKERS SWITCHES

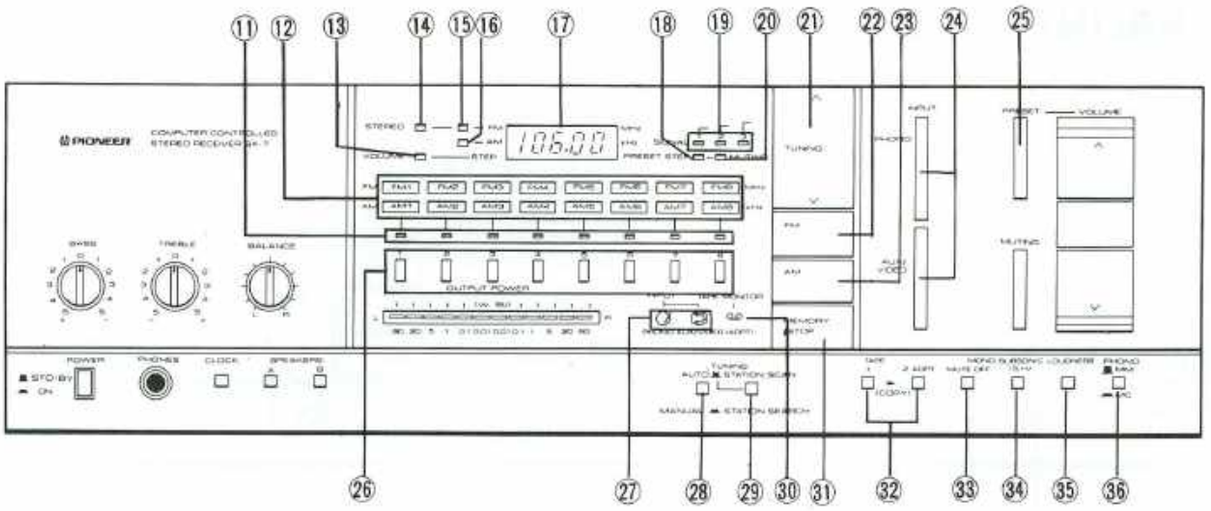
Depress the switch corresponding to the speakers connected to the SPEAKERS terminals (A or B) on the rear panel. "A" refers to the speakers which have been connected to the A SPEAKERS terminals on the rear panel while "B" refers to the speakers which have been connected to the B SPEAKERS terminals.

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

⑩ OUTPUT POWER METER

This meter allows you to read out the rated power level on the bar display when speakers with a nominal impedance of 8 ohms are connected to the SPEAKERS terminals.

(Continued to next page)



⑪ STATION INDICATORS

The indicator that corresponds to the STATION CALL switch which has been depressed lights.

NOTE:
When presetting a station, all eight indicators light in sequence for about 5 seconds.

⑫ STATION DISPLAY WINDOWS

Insert the frequency cards of the broadcasting stations which have been preset into the STATION CALL switches.

⑬ VOLUME STEP INDICATOR

This lights when the volume steps are indicated on the display.

⑭ FM STEREO INDICATOR

This lights when receiving an FM stereo program.

⑮ FM INDICATOR

⑯ AM INDICATOR

⑰ DISPLAY

This indicates the broadcasting frequency when a station has been tuned in; otherwise, it indicates the volume steps with the reproduction of the program source.

NOTE:
When the power is switched on, the volume step display blinks to indicate the volume level. After blinking, the volume step lights or the frequency is displayed.
When the power is switched off, the present time is displayed.

⑱ PRESET STEP INDICATOR

This lights when the sound reaches the preset volume level.

NOTE:
When presetting the volume level, the display blinks for about 5 seconds to indicate that the volume level may now be preset.

⑲ SIGNAL INDICATOR

This indicator lights in sequence from 1 to 3 during the tuning of an AM or FM broadcast in accordance with the strength of the signals being received. The optimum tuning point is where the maximum number of indicators lights.

⑳ MUTING INDICATOR

This lights when the MUTING switch is pressed.

㉑ TUNING SWITCH

This switch is used to tune in the station.
Depress the ∧ part to tune in a station with a higher frequency than that on the display; depress the ∨ part to tune in a station with a lower frequency.

NOTE:
For further details on the tuning, refer to the ㉘ AUTO/MANUAL SELECTOR.

㉒ FM SWITCH

Depress this switch for FM reception.

㉓ AM SWITCH

Depress this switch for AM reception.

㉔ INPUT SELECTOR

PHONO: Press this switch when playing a record on the turntable connected to the PHONO jacks.

AUX/VIDEO: Press this switch when listening to an audio component connected to the AUX/VIDEO jacks.

㉕ PRESET-VOLUME SWITCH

This is depressed when the volume level is to be set to the preset level (the PRESET STEP indicator lights). When presetting the volume level, depress the MEMORY/STOP switch with the volume level still indicated on the display, and then depress the PRESET-VOLUME switch.

㉖ STATION CALL SWITCHES

These are pressed to call out preset broadcasting stations and to preset the station.

To call out a station, first set the desired frequency band using the FM or AM switches and then press the desired switch.

㉗ INPUT INDICATORS

These light when the INPUT (PHONO or AUX/VIDEO) switch is pressed.

㉘ AUTO/MANUAL SELECTOR

This is used to select the reception mode.

AUTO (released position): Auto tuning is selected in accordance with the position selected by the STATION SCAN/STATION SEARCH selector on the right.

MANUAL (depressed position): For manual tuning

Depress the TUNING switch and tune in the station manually. Each time the TUNING switch is depressed, the frequency changes in 100kHz steps during FM reception and in 9kHz or 10kHz steps during AM reception in accordance with the position of the AM CHANNEL STEP switch. When the TUNING switch is kept depressed, the frequency is continuously scanned. Tuning stops when the upper or lower limit of the frequency band is reached.

㉙ STATION SCAN/STATION SEARCH SELECTOR

This is used to select the auto tuning mode when the AUTO/MANUAL selector switch on the left is at AUTO.

STATION SCAN: When the TUNING switch is depressed, the broadcasting stations start to be scanned and this procedure stops once a station has been picked up. The program of that station is heard for about 5 seconds. The tuning operation then resumes and sound is heard in the same way. Each of the stations is thus picked up in turn.

When the MEMORY/STOP switch is depressed once you hear the sound of the desired program, the tuning operation stops and the unit is set to the reception mode.

STATION SEARCH: When the TUNING switch is depressed, the broadcasting stations start to be scanned, but this operation stops once a station has been picked up and the unit is set to the reception mode. Depress the TUNING switch if the station picked up is not the one desired. The tuning operation now starts over again.

㉚ TAPE MONITOR INDICATOR

This lights when the TAPE (1 or 2/ADPT) switches are depressed.

㉛ MEMORY/STOP SWITCH

This switch is used to preset the broadcasting stations into the STATION CALL switches or to preset the desired volume level into the PRESET-VOLUME switch.

This switch is also used to stop the tuning operation during the STATION SEARCH or STATION SCAN functions.

㉜ TAPE SWITCHES

1: Depress this switch to monitor the recording or playback of a tape on the tape deck connected to the TAPE 1 jacks (REC and PLAY).

2/ADPT: This is depressed when using a tape deck or adaptor unit connected to the rear panel TAPE 2/ADAPTOR jacks.

NOTE:
Depress switch 1 and release switch 2/ADPT when dubbing a tape in the deck connected to the TAPE 1 jacks onto a tape in the deck connected to the TAPE 2/ADAPTOR jacks.

㉝ MONO MUTE OFF SWITCH

The sound is heard in mono when this switch is set to the depressed position. Normally, the switch is kept at the released position. During FM or AM reception, the noise is reduced and reception is made clear. When the station is distant and its signals are weak, depress the switch and tune in the station manually.

㉞ SUBSONIC SWITCH

The subsonic filter with the 15Hz cut-off frequency is actuated when this switch is depressed. This filter serves to attenuate the frequencies lower than 15Hz with a 6dB/oct. slope and, therefore, it can be used to suppress the ultra-low-range noise which is generated by record warp and other factors. This noise cannot actually be heard by the ear but it can cause cross modulation distortion and even speaker damage. Use this switch when required during record play.

㉟ LOUDNESS SWITCH

When listening to a performance with the VOLUME level is low, depress this switch and the bass and treble 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.

㊱ PHONO MM/MC SWITCH

This switch can be set to the position corresponding to the type of cartridge which you are using for record play.

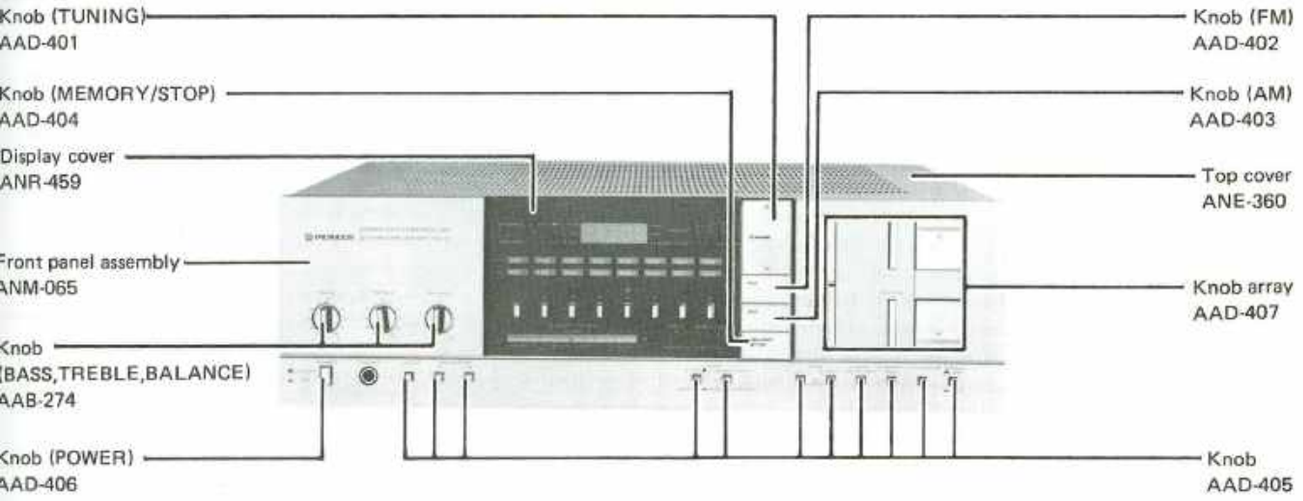
- MM: For moving magnet cartridges
- MC: For moving coil cartridges

3. PARTS LOCATION

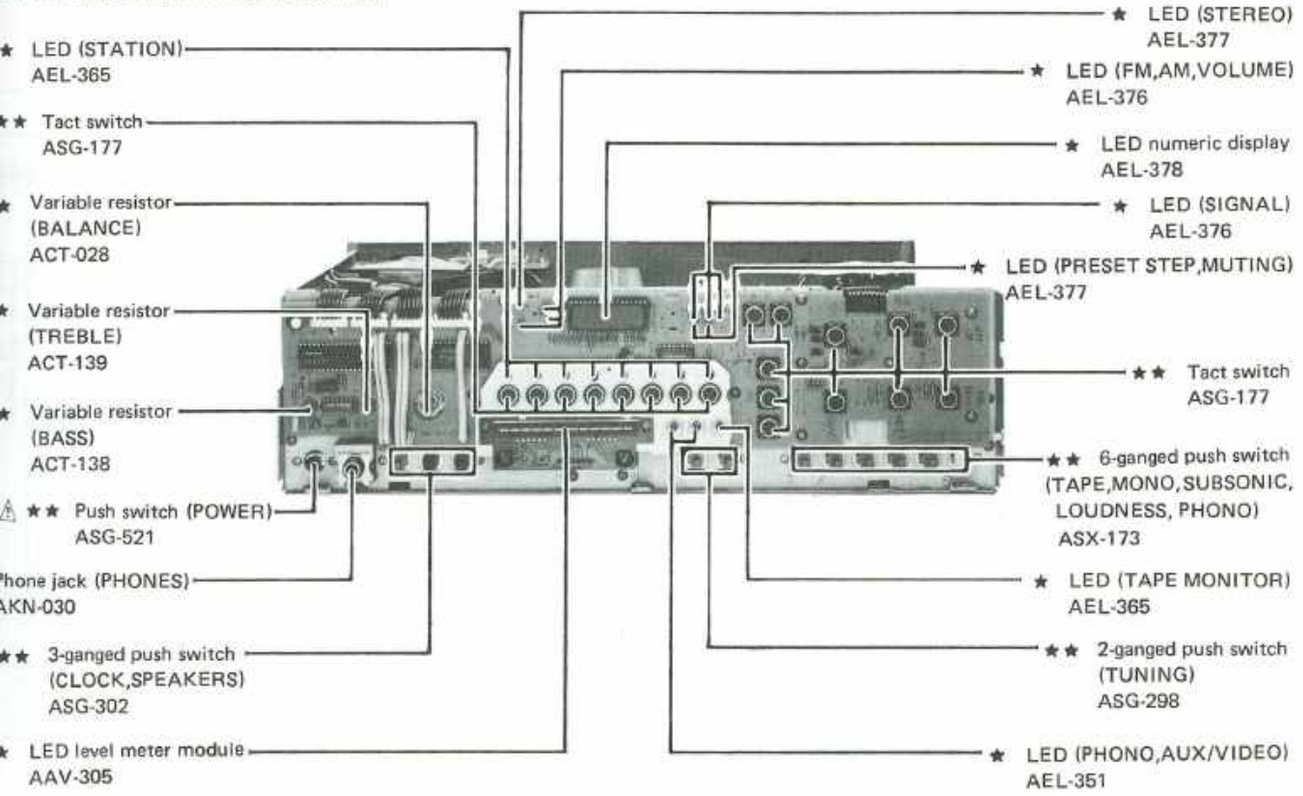
NOTES:

- *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

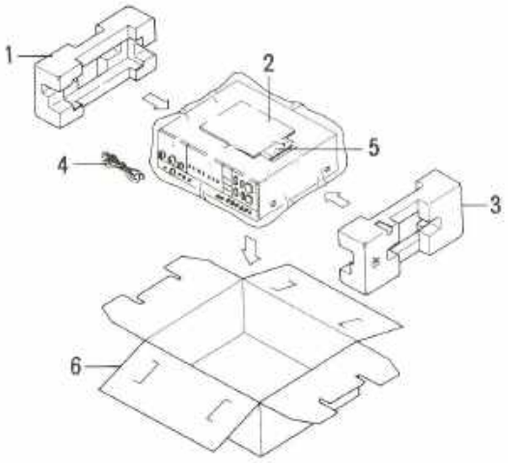


Front View with Panel Removed

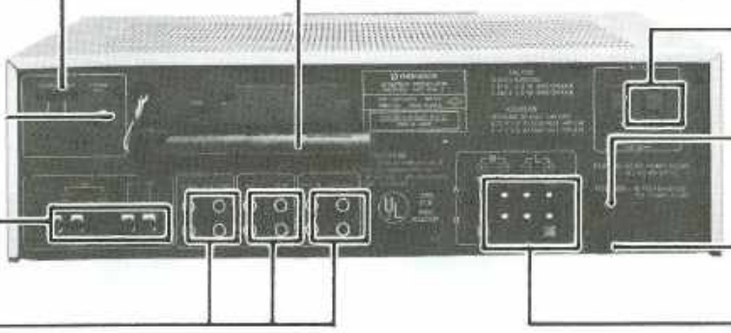


4. PACKING

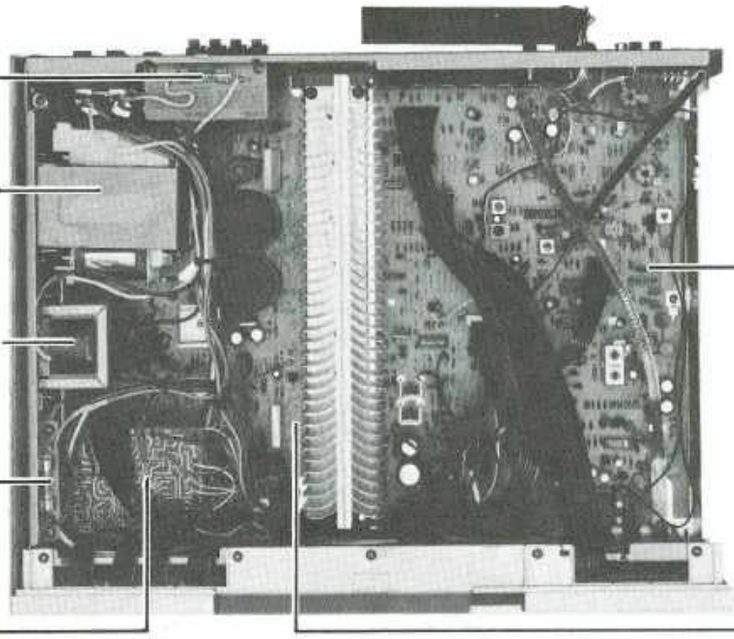
Mark	No.	Part No.	Description
	1.	AHA-300	Side pad L
	2.	ARB-442	Operating instructions
	3.	AHA-301	Side pad R
	4.	ADH-004	T-type FM antenna
	5.	AAN-028	Station card set
	6.	AHD-960	Packing case



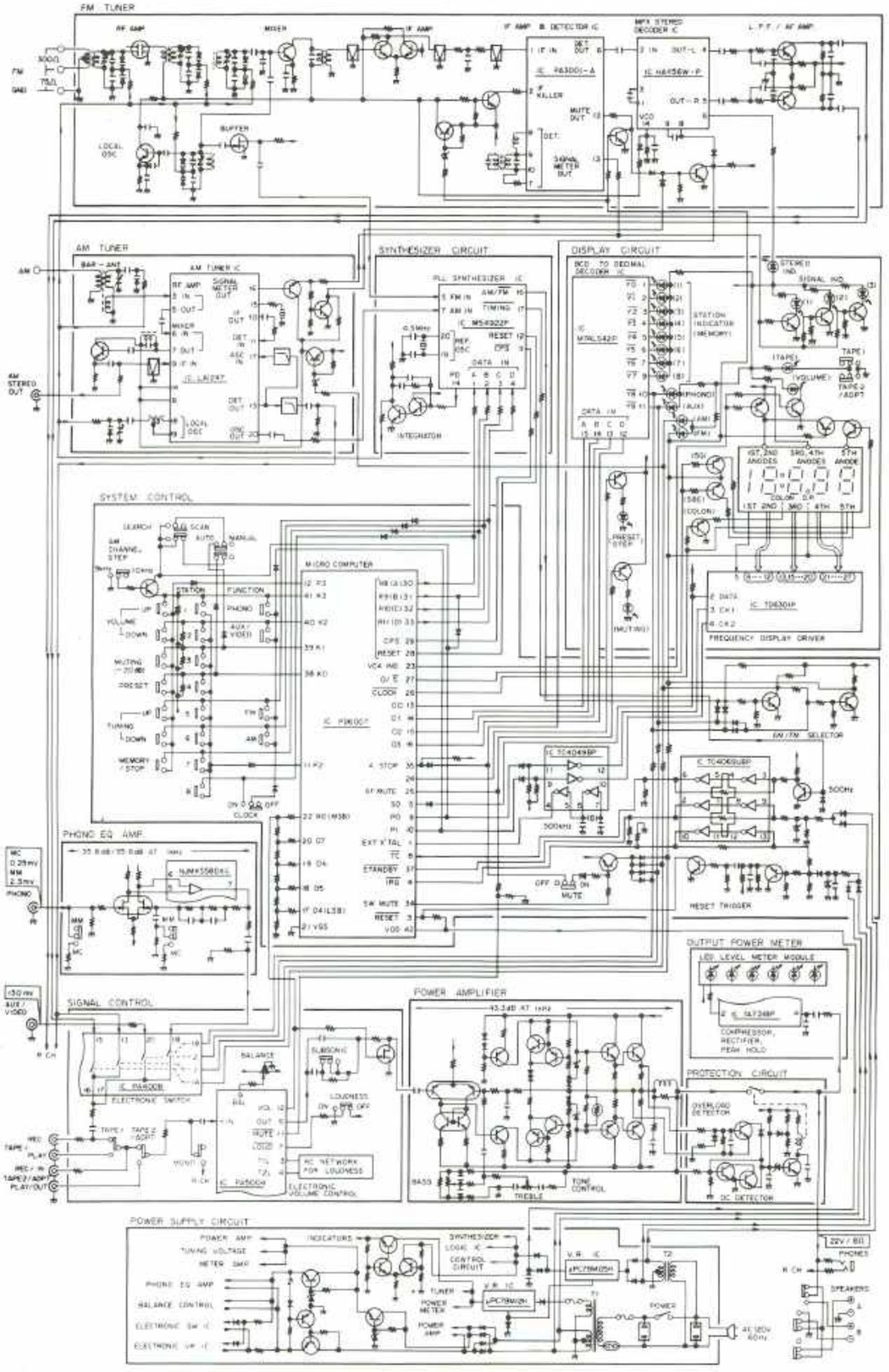
Rear Panel View



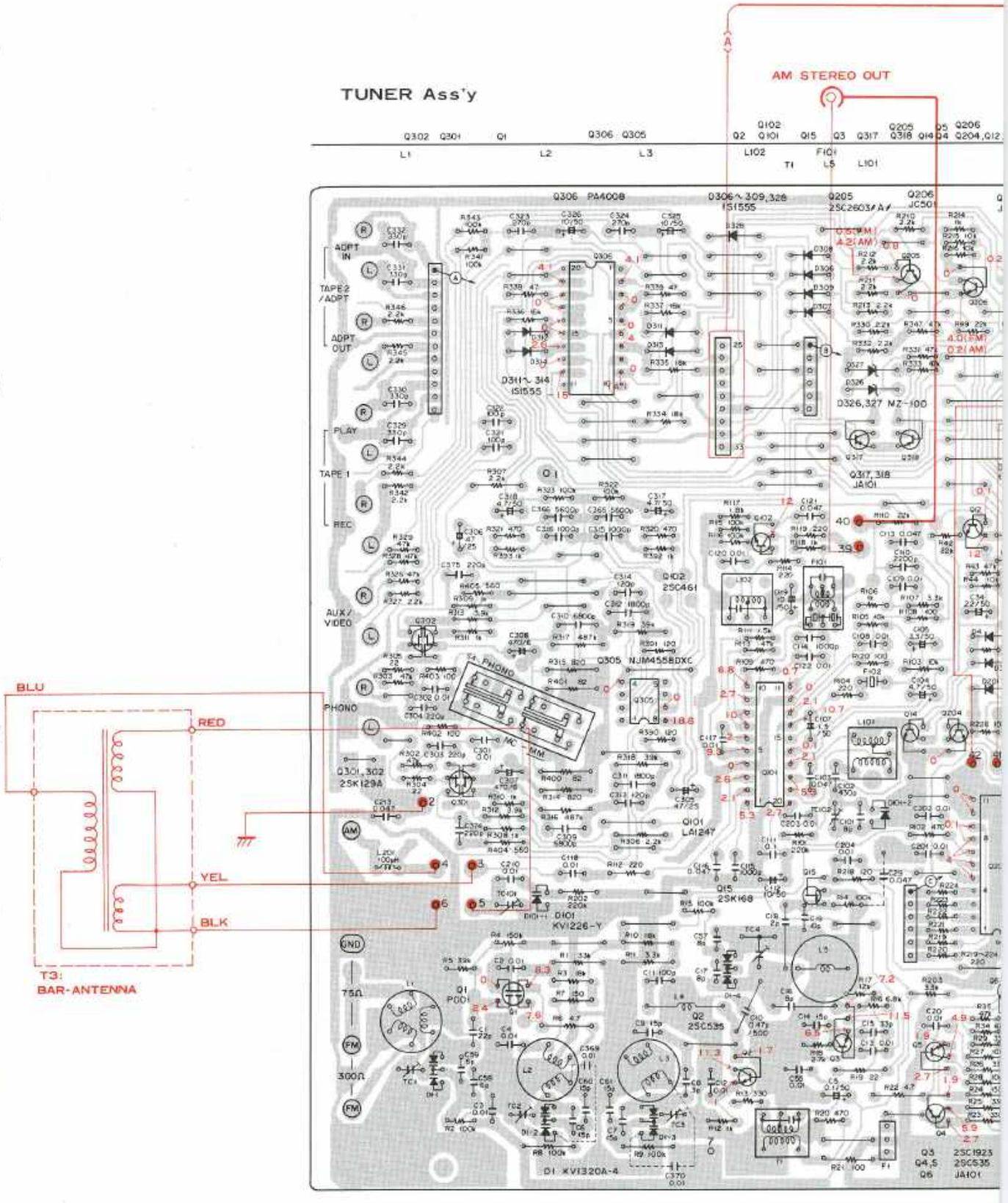
Top View

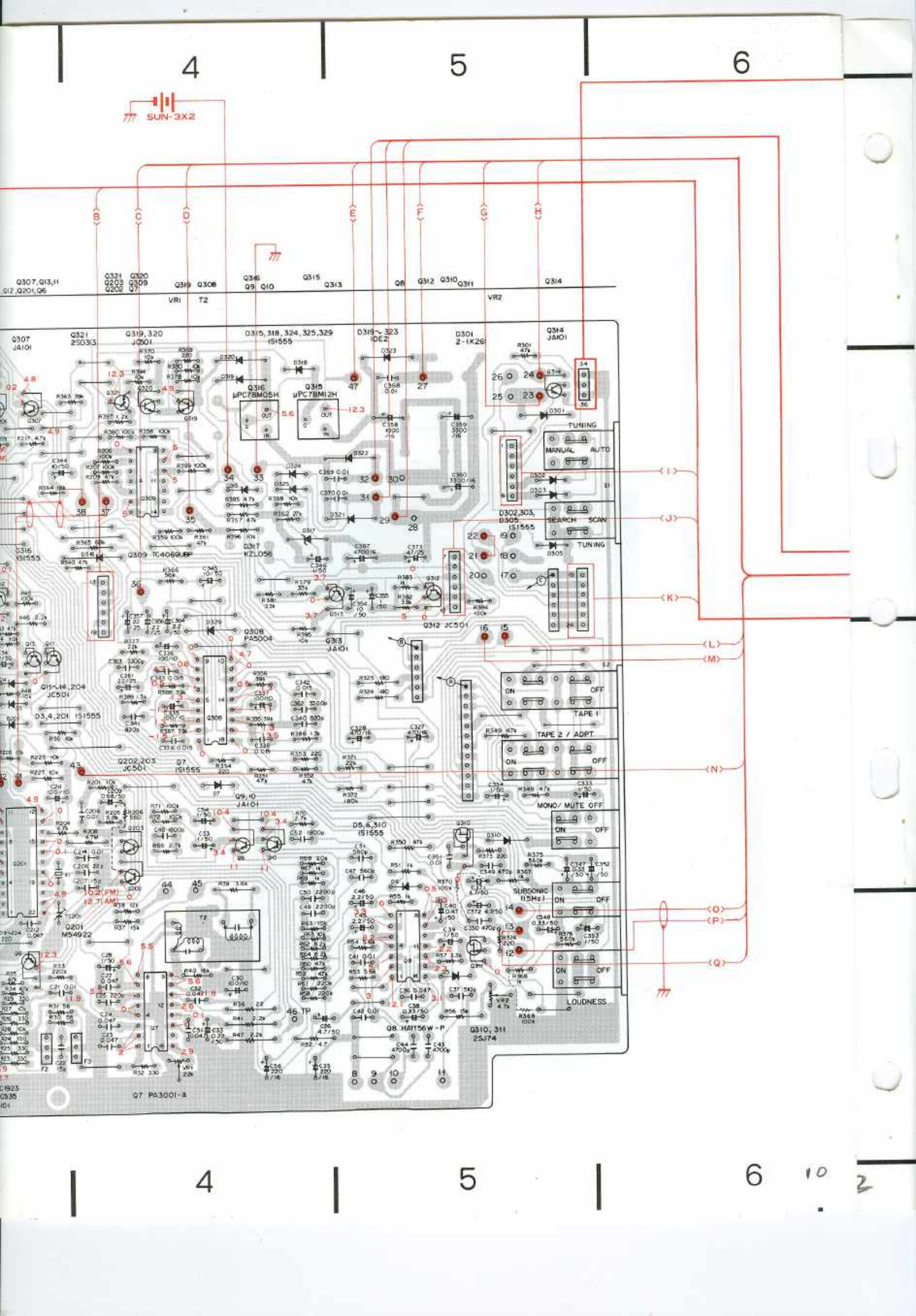


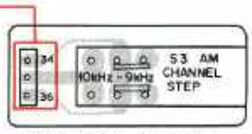
5. BLOCK DIAGRAM



6. P.C.BOARDS CONNECTION DIAGRAM

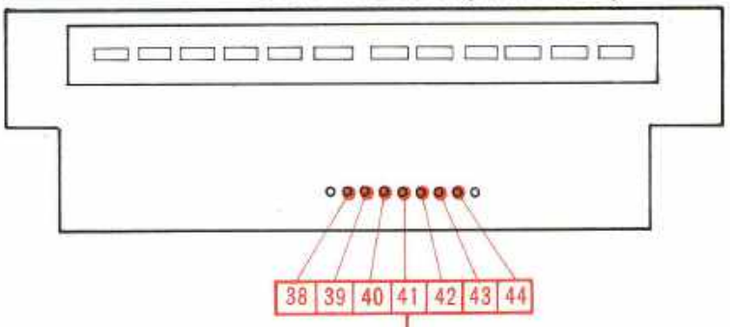



4
5
6
SUN-3X2
TUNING
MANUAL
AUTO
SEARCH
SCAN
TAPE 1
TAPE 2 / ADPT
MONO/ MUTE OFF
SUBSONIC (15Hz)
LOUDNESS
ON
OFF
Q307 JA101
Q321 2SD313
Q319, 320 JC501
D315, 318, 324, 325, 329 1S1555
D319~323 0E2
D301 2-1K261
Q314 JA101
Q316 μPC78M05H
Q315 μPC78M12H
Q309 TC4069UBF
D317 KZL056
Q306 PA5004
Q313 JA101
Q312 JC501
D302,303, D305 1S1555
Q308 PA3001-A
Q9,10 JA101
D5,6,310 1S1555
Q8 HA1156W-P
Q310, 311 2SJ74
Q201 M54922
Q202,203 JC501
D7 1S1555
D3,4,201 1S1555
Q11~18,204 JC501
VR1
VR2
T2
(I)
(J)
(K)
(L)
(M)
(N)
(O)
(P)
(Q)

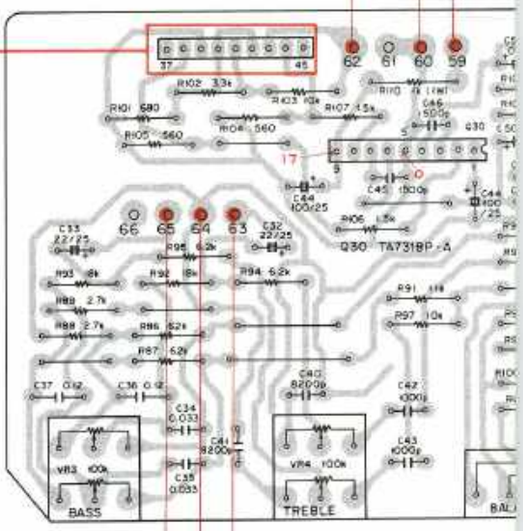


SWITCH Ass'y

LEVEL METER MODULE(AAV-305)

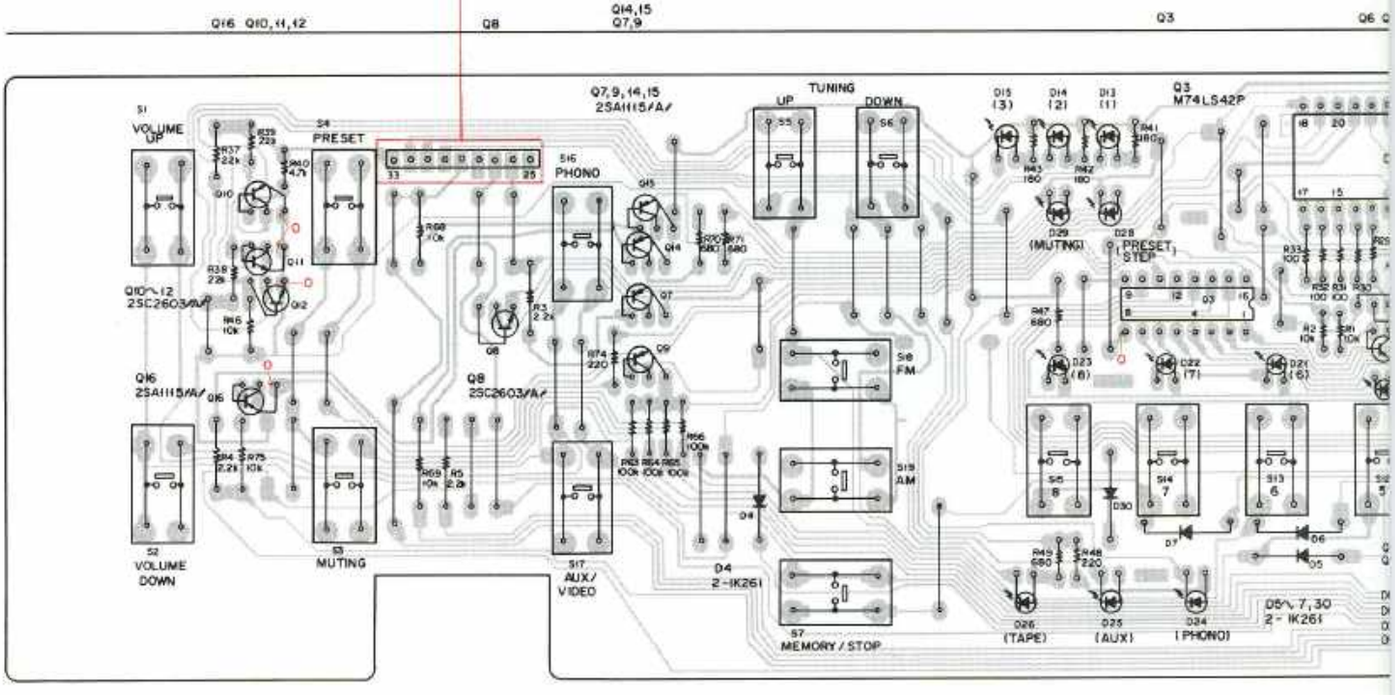


TONE CONTROL Ass'y
(GWG-160)



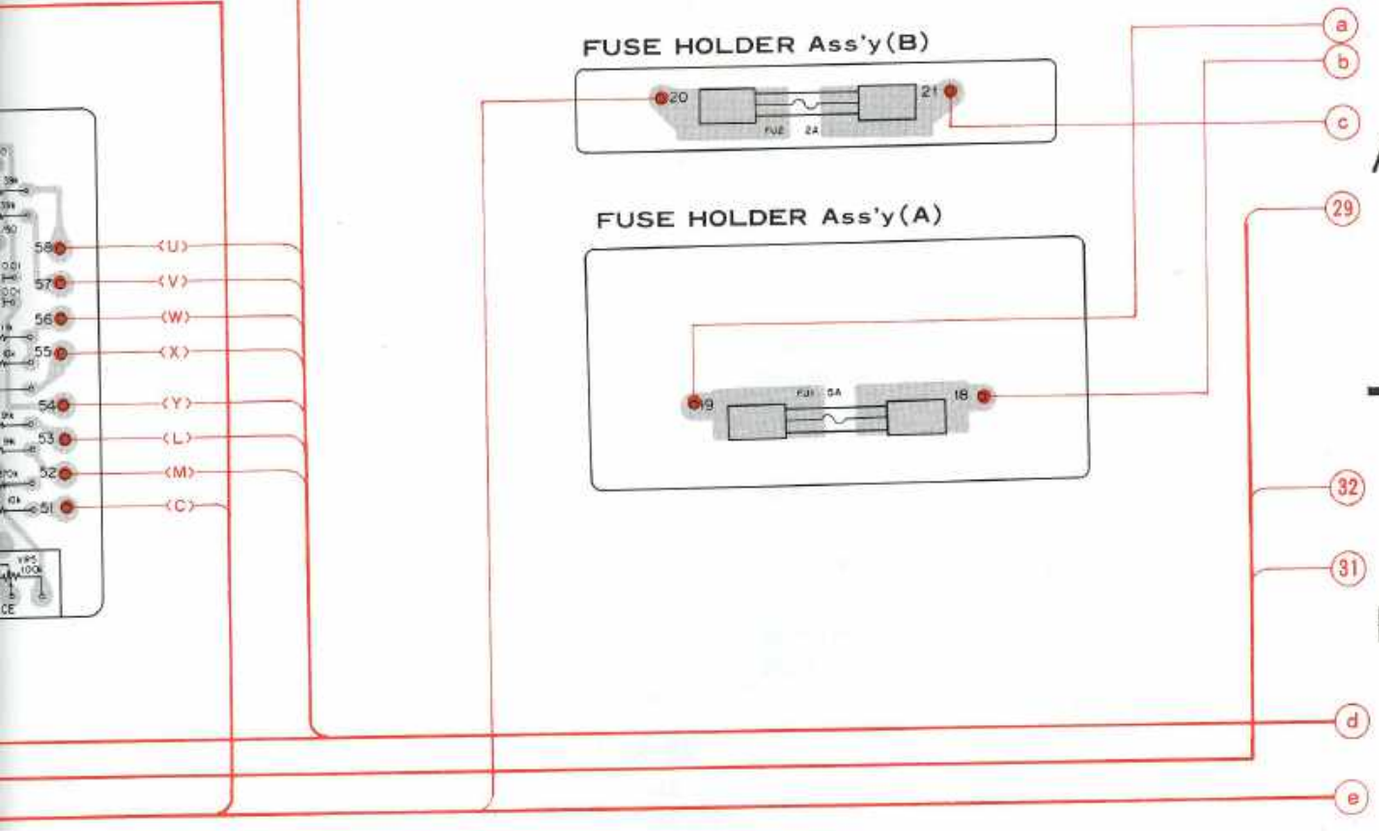
A

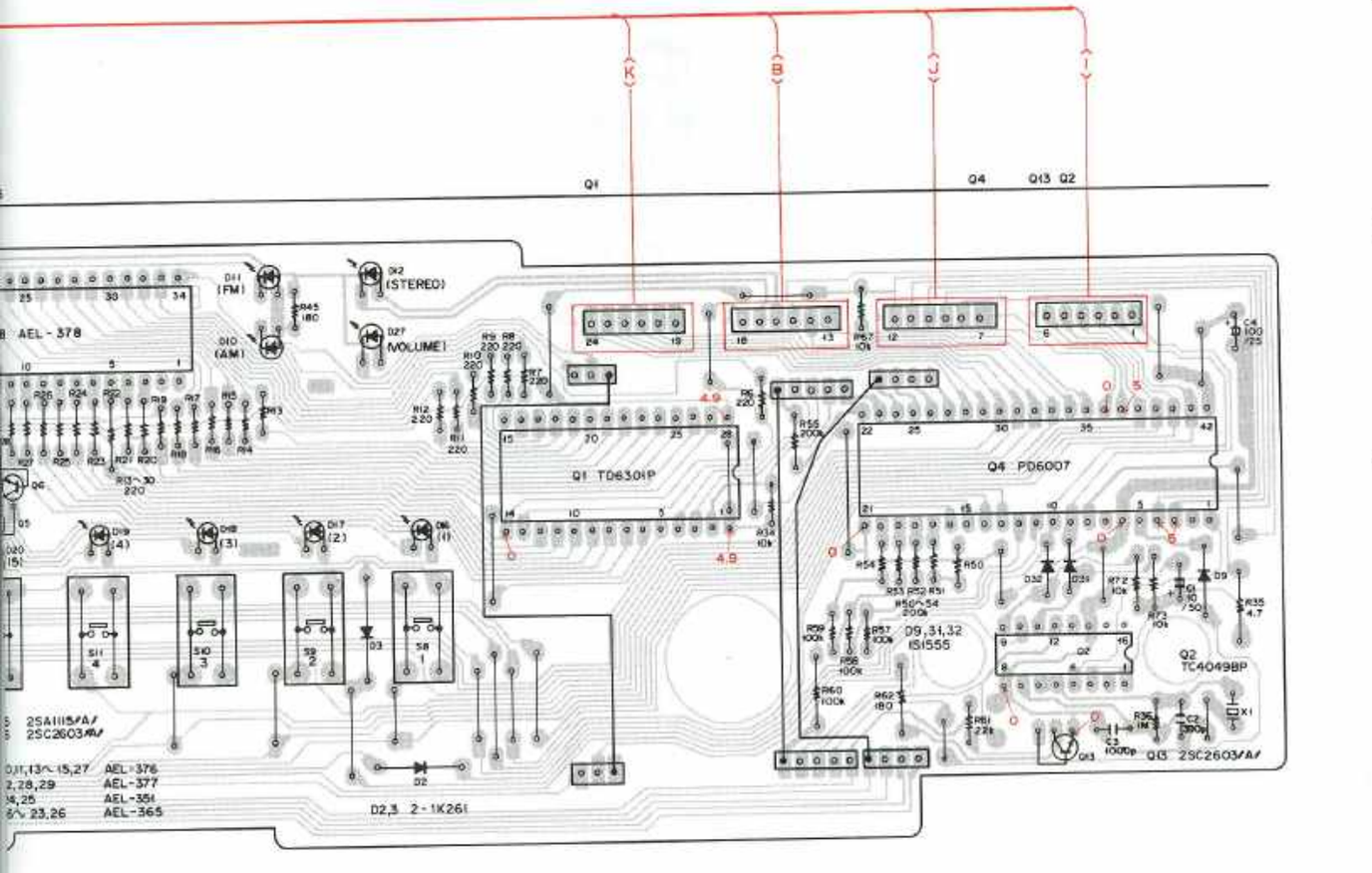
CONTROL Ass'y(AWX-223)

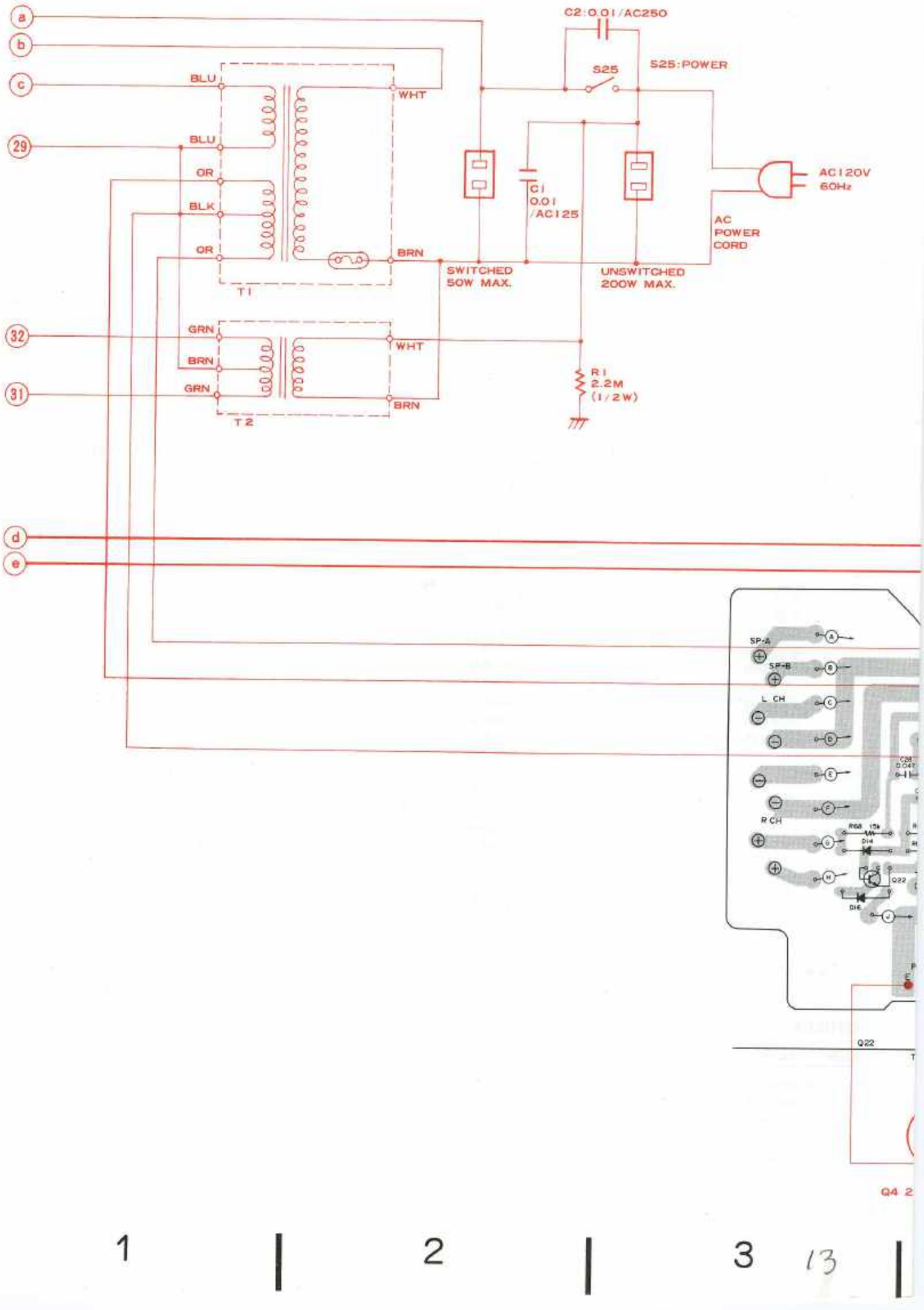


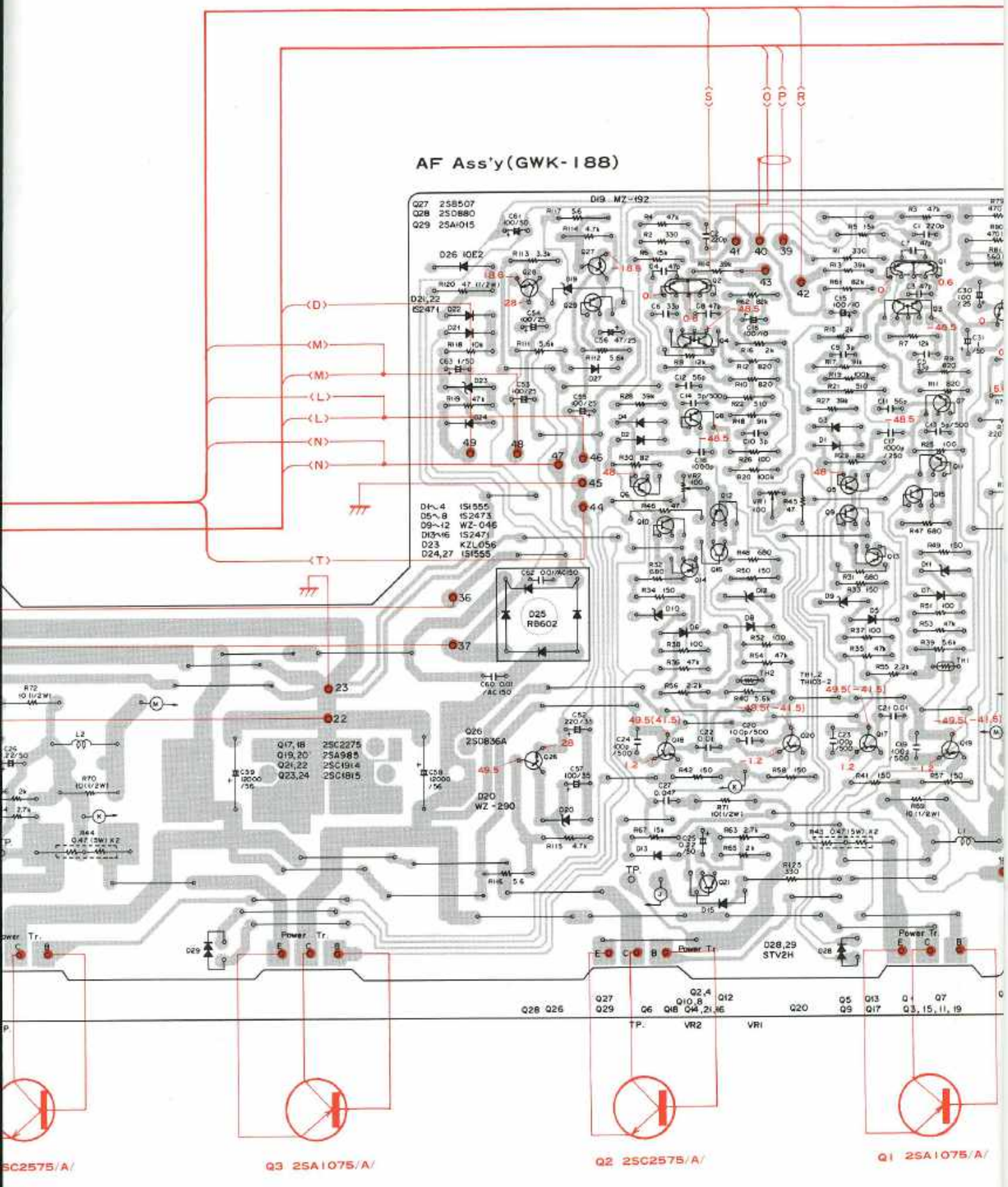
FUSE HOLDER Ass'y(B)

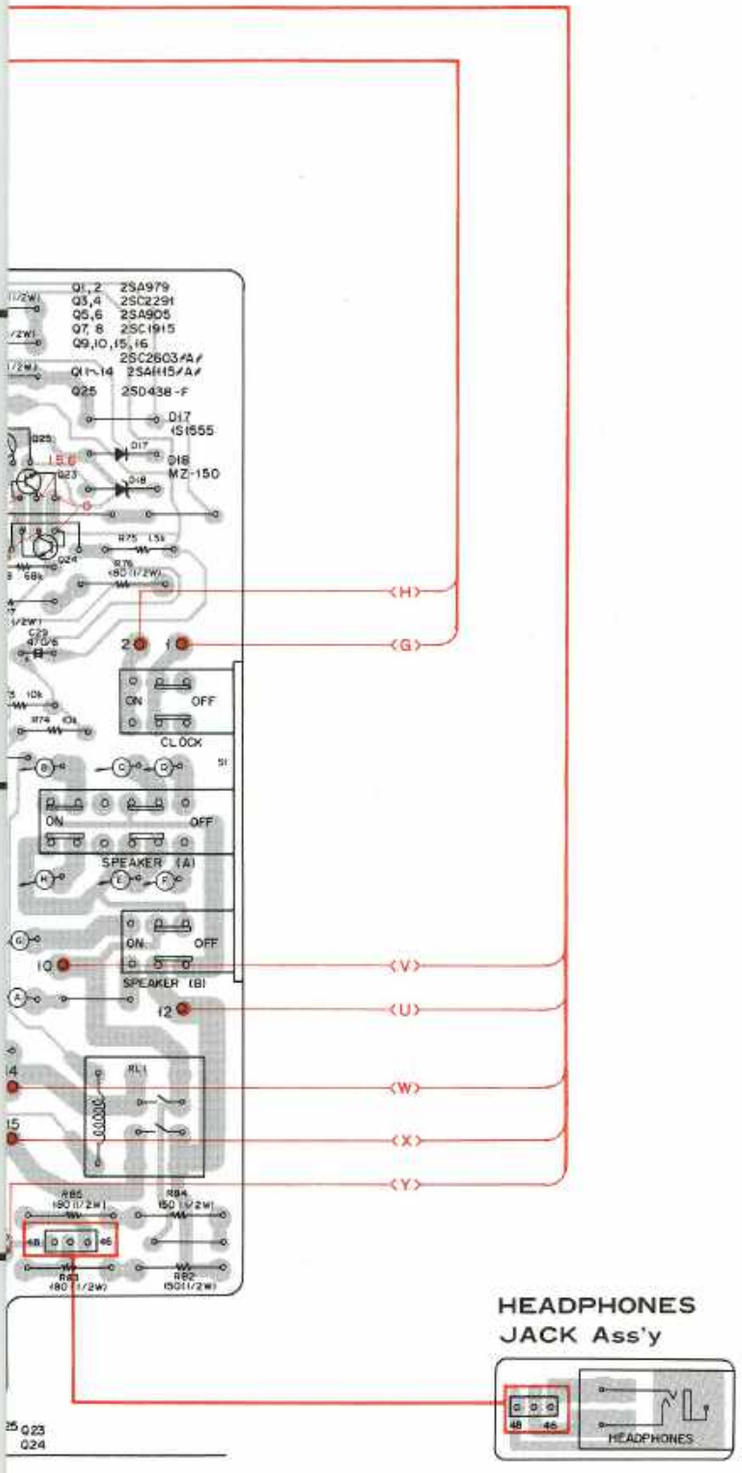
FUSE HOLDER Ass'y(A)





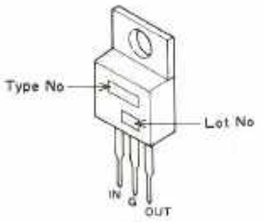

a
b
c
29
32
31
d
e
BLU
BLU
OR
BLK
OR
WHT
BRN
T1
GRN
BRN
GRN
WHT
BRN
T2
C2:0.01/AC250
S25
S25:POWER
C1
0.01
/AC125
AC120V
60Hz
AC
POWER
CORD
SWITCHED
50W MAX.
UNSWITCHED
200W MAX.
R1
2.2M
(1/2W)
SP-A
SP-B
L CH
R CH
Q22
Q4 2


AF Ass'y(GWK-188)
Q27 2SB507
Q28 2SD880
Q29 2SA1015
D26 10E2
D21,22 1S2471
D1~4 1S1555
D5~8 1S2473
D9~12 WZ-046
D13~16 1S2471
D23 KZL056
D24,27 1S1555
D25 RB602
Q17,18 2SC2275
Q19,20 2SA985
Q21,22 2SC1914
Q23,24 2SC1815
Q26 2SD836A
D20 WZ-290
D28,29 STV2H
Power Tr.
Q28 Q26
Q27 Q29
Q6 Q8
Q4,21,16
Q10,8
Q2,4
Q12
Q20
Q5 Q9
Q13 Q17
Q1 Q3,15,11,19
TP.
VR2
VR1
Q3 2SA1075/A/
Q2 2SC2575/A/
Q1 2SA1075/A/

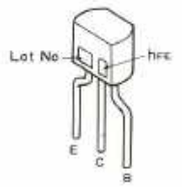


External Appearance of Transistor

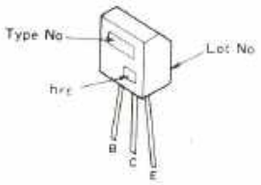
μPC78M12H
μPC78M05H



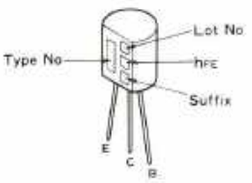
2SA1115/A/
2SC2603/A/



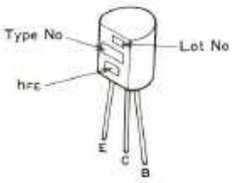
2SC535
2SC461



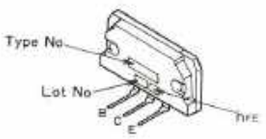
2SA733A
2SC945A



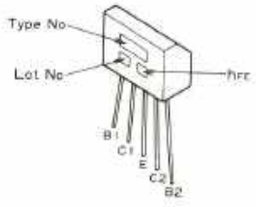
2SC1923



2SA1075/A/
2SC2525/A/

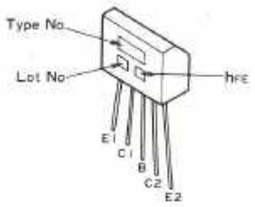


2SA979

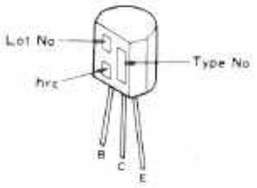


s and ICs

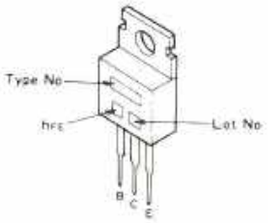
2SC2291



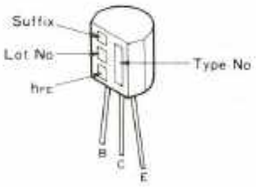
2SA905
2SC1915



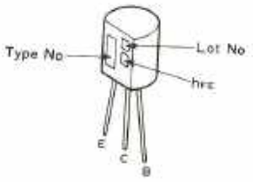
2SC2238
2SA968
2SB834
2SD880
2SD313
2SD836A



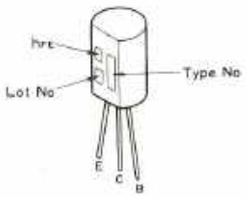
2SC1914A



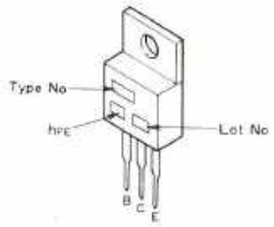
2SC1815
2SA1015



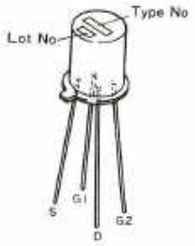
2SC1384



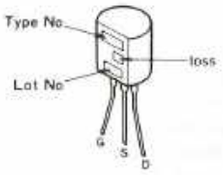
2SB507
2SA985
2SC2275



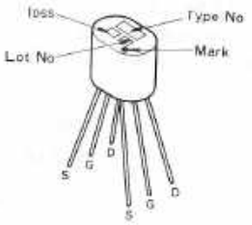
P001



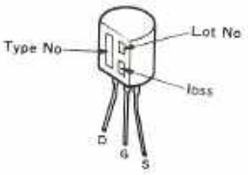
2SK168



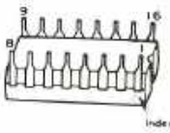
2SK129A



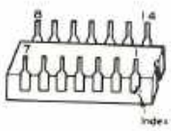
2SJ74



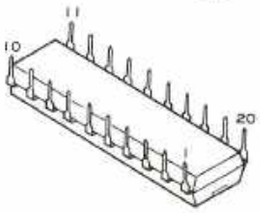
PA3001-A
TC4049BP
M74LS42P



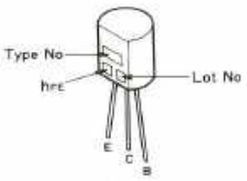
HA1156W-P
TC4069UBP



LA1247



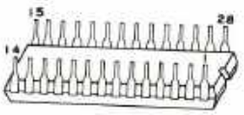
JA101
JC501



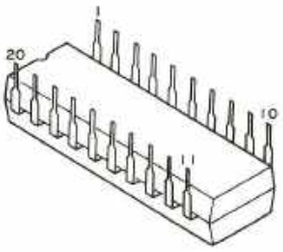
NJM4558DXC
μPC4558C-P

TA7318P-A

TD6301P

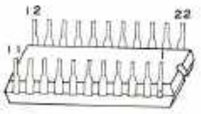


PA4008

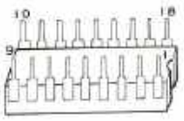


PD6007

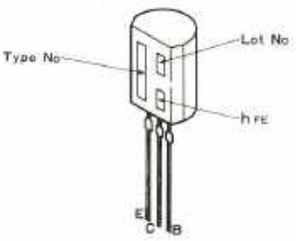
M54922P



PA5004



2SD438



A B C D

7. ELECTRICAL PARTS LIST

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	*56 × 10¹*	*561 .....*	*RD¼PS 5 6 1 J*
47kΩ	*47 × 10³*	*473 .....*	*RD¼PS 4 7 3 J*
0.5Ω	*0R5 .....*		*RN2H 0 R 5 K*
1Ω	*010 .....*		*RS1P 0 1 0 K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621 ....*	*RN¼SR 5 6 2 1 F*

- *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.

Miscellaneous Parts

CAPACITORS

Mark	Part No.	Symbol & Description	
⚠	ACG-017	C1	Ceramic (0.01/AC125V)
⚠	ACG-001	C2	Ceramic (0.01/AC250V)

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
⚠ ★★	2SA1075/A/-B (2SA1075/A/-G) (2SA1075/A/-X)	Q1,Q3
⚠ ★★	2SC2525/A/-B (2SC2525/A/-G) (2SC2525/A/-X)	Q2,Q4

hfe of these transistors (Q1–Q4) should have the same value.

★	AAV-305	LED level meter module

P.C. BOARD ASSEMBLIES

Mark	Part No.	Symbol & Description
	GWK-188	AF assembly
	GWG-160	Tone control assembly
	AWX-223	Control assembly
	AWE-114*	Tuner assembly

* The tuner assembly (AWE-114) is composed of Tuner assembly and Switch assembly.

OTHERS

Mark	Part No.	Symbol & Description	
⚠ ★	ATT-842	T1	Power transformer
⚠ ★	ATT-847	T2	Power transformer
	ATB-631	T3	Bar-antenna assembly
⚠ ★★	AEK-108	FU1	Fuse (5A)
⚠ ★★	AEK-103	FU2	Fuse (2A)
⚠ ★★	ASG-521	S25	Push switch (POWER)
⚠	ACN-029	R1	Carbon composition resistor (2.2M/½W)
⚠	ADG-052	AC power cord	
⚠	AKP-039	AC socket (AC OUTLETS)	
	AKB-076	Terminal (AM STEREO OUT)	

AF Assembly (GWK-188)

CAPACITORS

Mark	Part No.	Symbol & Description	
	ACG-019	C60,C62	Ceramic (0.01/AC150V)
	ACH-212	C58,C59	Electrolytic (12000/56V)
	CEA R22M 50L	C25,C26	
	CEA 010M 50L	C31,C63	
	CEA 101M 10L	C15,C16	
	CEA 101M 25L	C30,C53–C55	
	CEA 101M 35L	C57	
	CEA 221M 35L	C52	
	CEA 471M 6L	C29	
	CEA 101M 50L	C61	
	CEA 470M 25L	C56	
	CCDSL 101K 500	C19,C21,C23,C24	
	CCDSL 030C 50	C9,C10	
	CCDSL 330J 50	C5,C6	
	CCDSL 470J 50	C3,C4,C7,C8	
	CCDSL 560J 50	C11,C12	
	CCDSL 050D 50	C13,C14	
	CCDSL 221J 50	C1,C2	
	CQMA 103K 50	C21,C22	
	CQMA 473K 50	C27,C28	
	CQMA 102K 250	C17,C18	

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description	
★	C92-063	VR1,VR2	Semi-fixed (100-B)
⚠	ACN-114	R43,R44	Wire wound (0.47+0.47/5W+5W)
	RD½PS □□□J	R76,R77,R79–R85	
⚠	RD½PSF □□□J	R69–R72,R120	
⚠	RD¼PMF □□□J	R25, R26, R29–R34, R41, R42, R47–R50, R56, R58, R63, R64, R116, R117,R125	
	RD¼PM □□□J	R1–R22, R27, R28, R35–R40, R45, R46, R51–R56, R61–R68, R73–R75, R78, R111–R115, R118, R119	

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	2SA979	Q1,Q2
★★	2SC2291	Q3,Q4
★★	2SA905	Q5,Q6
★★	2SC1915	Q7,Q8
★★	2SC2603/A/-E (2SC2603/A/-F)	Q9,Q10,Q15,Q16
★★	2SA1115/A/-E (2SA1115/A/-F)	Q11–Q14

hfe of these transistors (Q9–Q16) should have the same value.

★★	2SC2275-O (2SC2275-R) (2SC2238-O) (2SC2238-Y)	Q17,Q18
★★	2SA985-O (2SA985-R) (2SA968-O) (2SA968-Y)	Q19,Q20

hfe of these transistors (Q17–Q20) should have the same value.

★★	2SC1914A	Q21,Q22
★★	2SC1815 (2SC2603/A/)	Q23,Q24
★★	2SD438-F (2SC1384)	Q25
★★	2SD836A	Q26
★★	2SA1015 (2SA1115/A/)	Q29
★★	2SB507 (2SB834)	Q27
★★	2SD880 (2SD313)	Q28
★	1S1555 (1S2473)	D1–D4,D17,D24,D27
★	1S2473	D5–D8
★	1S2471	D13–D16,D21,D22
★	WZ-046 (MZ-047)	D9–D12
★	KZL056	D23
★	MZ-150	D18
★	MZ-192 (WZ-192)	D19
★	WZ-290	D20
★	10E2 (SIB01-02)	D26
★	RB602	D25
★	STV2H-O	D28,D29
	TH103–2	Th1,Th2

OTHERS

Mark	Part No.	Symbol & Description
★★	ASG-302	S1 Push switch (CLOCK,SPEAKERS)
★★	ASR-033	RL1 Relay
	AKE-103	Terminal(SPEAKERS)
	ABA-258	Screw

Headphones Jack Assembly

Mark	Part No.	Symbol & Description
	AKN-030	Phone jack (PHONES)

Tone Control Assembly (GWG-160)

CAPACITORS

Mark	Part No.	Symbol & Description
	CEA 0R1M 50L	C50,C51
	CEA R47M 50L	C47
	CEA 220M 25L	C32,C33
	CEA 101M 25L	C44
	CQMA 102J 50	C42,C43
	CQMA 822J 50	C40,C41
	CQMA 333J 50	C34,C35
	CQMA 124J 50	C36,C37
	CKDYB 152K 50	C45,C46
	CKDYF 103Z 50	C48,C49

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
★	ACT-138	VR3 Variable (BASS)
★	ACT-139	VR4 Variable (TREBLE)
★	ACT-028	VR5 Variable (BALANCE)
	RS1P □□□J	R110
	RD¼PM □□□J	R86–R109,R121

SEMICONDUCTOR

Mark	Part No.	Symbol & Description
★★	TA7318P-A	Q30

Switch Assembly

Mark	Part No.	Symbol & Description
★★	ASH-015	S3 Slide switch (AM CHANNEL STEP)

Tuner Assembly

CAPACITORS

Mark	Part No.	Symbol & Description
	CEA 0R1M 50L	C5
	CEA R22M 50L	C33
	CEANL R33M 50	C38,C347,C348
	CEA 1R5M 50L	C107
	CEANL R47M 50	C40
	CEA 010M 50L	C28,C53,C54,C346,C355
	CEANL R68M 50	C209
	CEANL 010M 50	C39,C333,C334,C352,C353
	CEA 2R2M 50L	C45,C46,C364
	CEA 3R3M 50L	C105
	CEANL 4R7M 50	C317,C318,C371,C372
	CEA 4R7M 50L	C26,C104
	CEANL 100M 50L	C325,C326
	CEA 100M 50L	C112,C119,C344,C345,C354

Mark	Part No.	Symbol & Description
	CEA 220M 25L	C34,C356,C357,C361
	CEA 470M 25L	C305,C306,C373
	CEA 101M 10L	C30,C211,C335–C337
	CEA 221M 16L	C35,C56
	CEA 471M 6L	C307,C308
	CEA 471M 16L	C327,C328
	CEA 102M 25L	C358
	CEA 332M 16L	C359,C360
	CEA 472M 6L	C367
	CCDCH 020C 50	C18
	CCDCH 030C 50	C8
	CCDRH 060D 50	C58,C59
	CCDTH 080D 50	C16,C17,C57,C101
	CCDSL 121J 50	C313,C314
	CCDCH 100D 50	C19
	CCDCH 150J 50	C9,C207
	CCDRH 150J 50	C6,C7,C14,C60,C61
	CCDRH 330J 50	C15
	CCDCH 220J 50	C206
	CCDSL 221J 50	C303,C304
	CCDSL 150J 50	C22
	CCDSL 101J 50	C11,C321,C322
	CCDSL 220J 50	C1
	CCDSL 221J 50	C25,C374,C375
	CCDSL 271J 50	C323,C324
	CKDYB 561K 50	C47,C51
	CKDYB 102K 50	C114,C115
	CKDYB 182K 50	C48,C52
	CKDYB 222K 50	C49,C50,C110
	CKDYB 331K 50	C329–C332
	CKDYB 471K 50	C349,C350
	CKDYB 821K 50	C340,C341
	CKDYB 332K 50	C362,C363
	CKDYF 103Z 50	C2–C4, C12, C13, C20, C21, C55 C108, C109, C117, C118, C120, C122, C201–C204, C208, C210, C319,C320,C351
	CKDYF 473Z 50	C23, C24, C27, C29, C31, C32, C36, C103,C116,C121,C212,C213
	CKDYX 104M 25	C111,C205
	ACG-019	C368–C370 Ceramic(0.01/AC150V)
	CGB R47K 500	C10
	CQSA 431J 50	C102
	CQSA 511J 50	C37
	CQMA 562K 50	C365,C366
	CQMA 153K 50	C338,C339,C342,C343
	CQMA 473K 50	C113
	CQMA 103J 50	C41,C42,C214
	CQMA 472K 50	C43,C44
	CQMA 182J 50	C311,C312
	CQMA 682J 50	C309,C310
	CQMA 103J 50	C301,C302
	CQMA 102K 50	C315,C316

Mark	Part No.	Symbol & Description	
	ACM-014	TC1–TC3	Ceramic trimmer
	ACM-006	TC4	Ceramic trimmer
	ACM-015	TC101,TC102	Ceramic trimmer
	ACM-017	TC201	Ceramic trimmer

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol &Description	
★	ACP-056	VR1	Semi-fixed(22k–B)
★	C92-051	VR2	Semi-fixed (4.7k-B)
	RD1/4PMF □□□J	R19, R22, R36, R52, R324, R325	
	RN1/4PQ □□□□F	R39, R56, R314, R315, R318, R319, R400, R401	
	RD1/4PM □□□J	R1, R6, R8–R11, R21, R41, R47, R208, R228, R306, R307, R335, R349, R350, R406, R407	
	RN1/2PQ □□□□F	R316,R317	
	RD1/8PM □□□J	R2–R5, R7, R12–R18, R20, R23–R35, R37, R38, R40, R42–R46, R48–R51, R53, R55, R57–R72, R101–R120, R201–R207, R209–R227, R301–R305, R308–R313, R320–R323, R326–R334, R336–R348,R351–R373,R375–R405	
	RD1/4VM □□□J	R374	

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	JA101 (2SA733A) (2SA1115/A/)	Q6, Q9, Q10, Q307, Q313, Q314 Q317,Q318
★★	2SC461	Q102
★★	2SC535	Q2,Q4,Q5
★★	2SC1923	Q3
★★	JC501 (2SC945A) (2SC2603/A/)	Q11–Q14, Q202–Q204,Q206,Q312, Q319,Q210
★★	P001	Q1
★★	2SJ74-BL* (2SJ74-V*)	Q310,Q311

* IDSS of Q310 and Q311 should have the same value.

★★	2SK129A	Q301,Q302
★★	2SC2603/A/-F	Q205
★★	2SD313 (2SD880)	Q321
★★	2SK168	Q15
★★	LA1247	Q101
★★	HA1156W-P	Q8
★★	PA3001-A	Q7
★★	PA4008	Q306
★★	M54922	Q201
★★	PA5004	Q308
★★	NJM4558DXC (μPC4558C-P)	Q305

Mark	Part No.	Symbol & Description
★★	μPC78M05H	Q316
★★	μPC78M12H	Q315
★★	TC4069UBP	Q309
★	MZ-100 (WZ-100)	D326,D327
★	2-1K261	D301
★	10E2 (SIB01-02)	D319-D323
★	1S1555 (1S2473)	D3-D7,D201, D302, D303, D305–D316, D318, D324,D325,D328,D329
★	KV1320A-4	D1
★	KV1226-Y	D101

* KV1320A-4 consists of four twin vari-cap diodes with the indentical characteristics.

* KV1226-Y consists of two vari-cap diodes with indentical characteristics.

COILS AND FILTERS

Mark	Part No.	Symbol & Description	
	ATC-141	L1	FM ANT. coil
	ATC-142	L2	FM RF coil
	ATC-114	L3	FM RF coil
	ATH-049	L4	RF choke coil
	ATC-115	L5	FM osc. coil
	ATB-067	L101	AM osc. coil
	ATB-068	L102	AM IF coil
	T24-030	L201	Inductor
	ATE-039	T1	FM IF transformer
	ATE-043	T2	FM det. transformer
	ATF-107	F1-F3	FM ceramic filter
	ATF-121	F101	AM ceramic filter
★	ATF-125	F102	Ceramic resonator

SWITCHES

Mark	Part No.	Symbol & Description	
★★	ASG-298	S1	2-ganged push switch (AUTO/MANUAL, SCAN/SEARCH)
★★	ASX-173	S2	6-ganged push switch (TAPE,MONO,SUBSONIC, LOUDNESS) (MM/MC-remote)
★★	ASX-175	S4	Remote slide switch (MM/MC)

OTHERS

Mark	Part No.	Symbol & Description
★	ASS-016	X1 Crystal resonator
	AKA-017	Terminal (ANTENNA)
	AKB-078	Terminal (INPUT,TAPE 1, TYPE 2/ADAPTOR)
	VBZ30P060FMC	Screw 3×6

Control Assembly (AWX-223)

CAPACITORS

Mark	Part No.	Symbol & Description
	CEA 100M 50L	C1
	CKDYB 391K 50	C2
	CKDYB 102K 50	C3
	CEA 101M 25L	C4

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	RD1/8PM □□□J	R1, R2, R6–R21, R23–R29, R32–R43, R45, R46, R48–R55, R57–R59, R61, R63–R67, R70–R74
	RD1/4PM □□□J	R3–R5, R22, R30, R31, R47, R60, R62, R68, R69, R75
	RD1/4PMF □□□J	R35

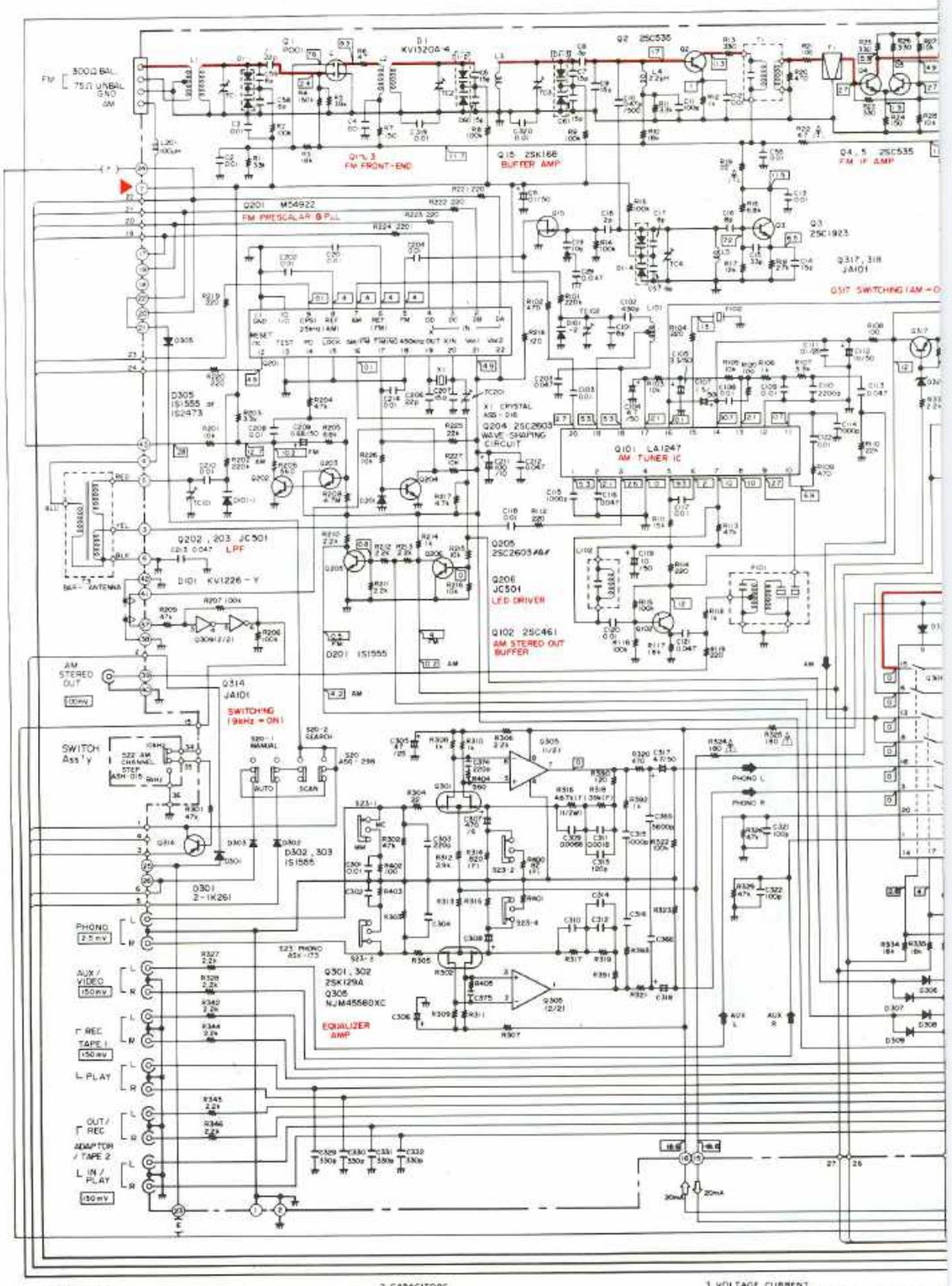
SEMICONDUCTORS

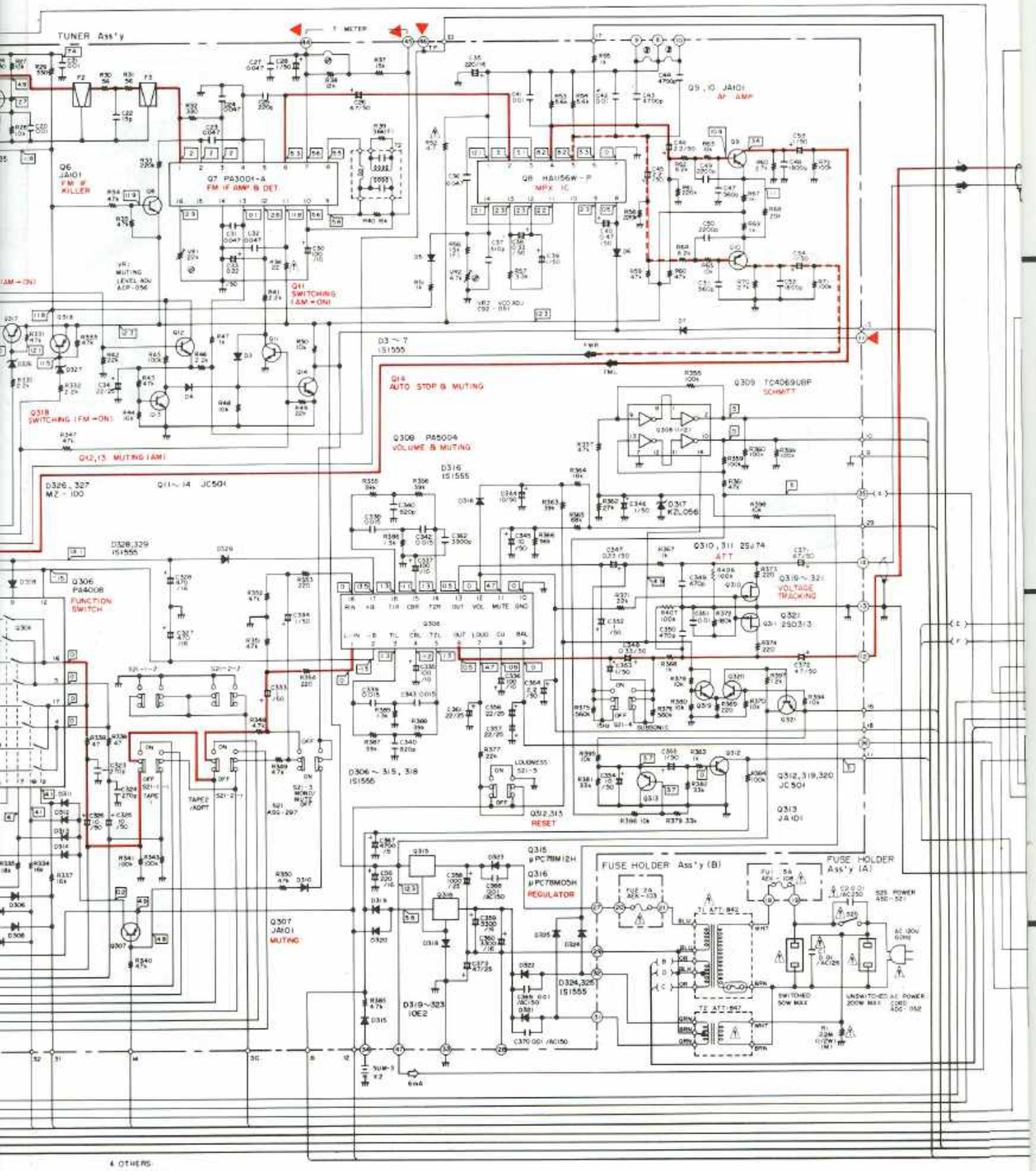
Mark	Part No.	Symbol & Description	
★★	TD6301P	Q1	
★★	TD4049BP	Q2	
★★	M74LS42P	Q3	
★★	PD6007	Q4	
★★	2SA1115/A/	Q5,Q7,Q14,Q15	
★★	2SC2603/A/	Q6,Q8,Q10–Q13	
★★	2SA1115/A/-F	Q9,Q16	
★	2-1K261	D2-D7,D30	
★	AEL-378	D8	LED numeric display
★	1S1555 (1S2473)	D9,D31,D32	
★	AEL-376	D10,D11,D13–D15,D27	LED(Green)
★	AEL-377	D12,D28,D29	LED (Red)
★	AEL-365	D16–D23,D26	LED (Red)
★	AEL-351	D24,D35	LED (Green)

OTHERS

Mark	Part No.	Symbol & Description	
★	ASS-017	X1	Ceramic resonator
★★	ASG-177	S1–S19	Tact switch

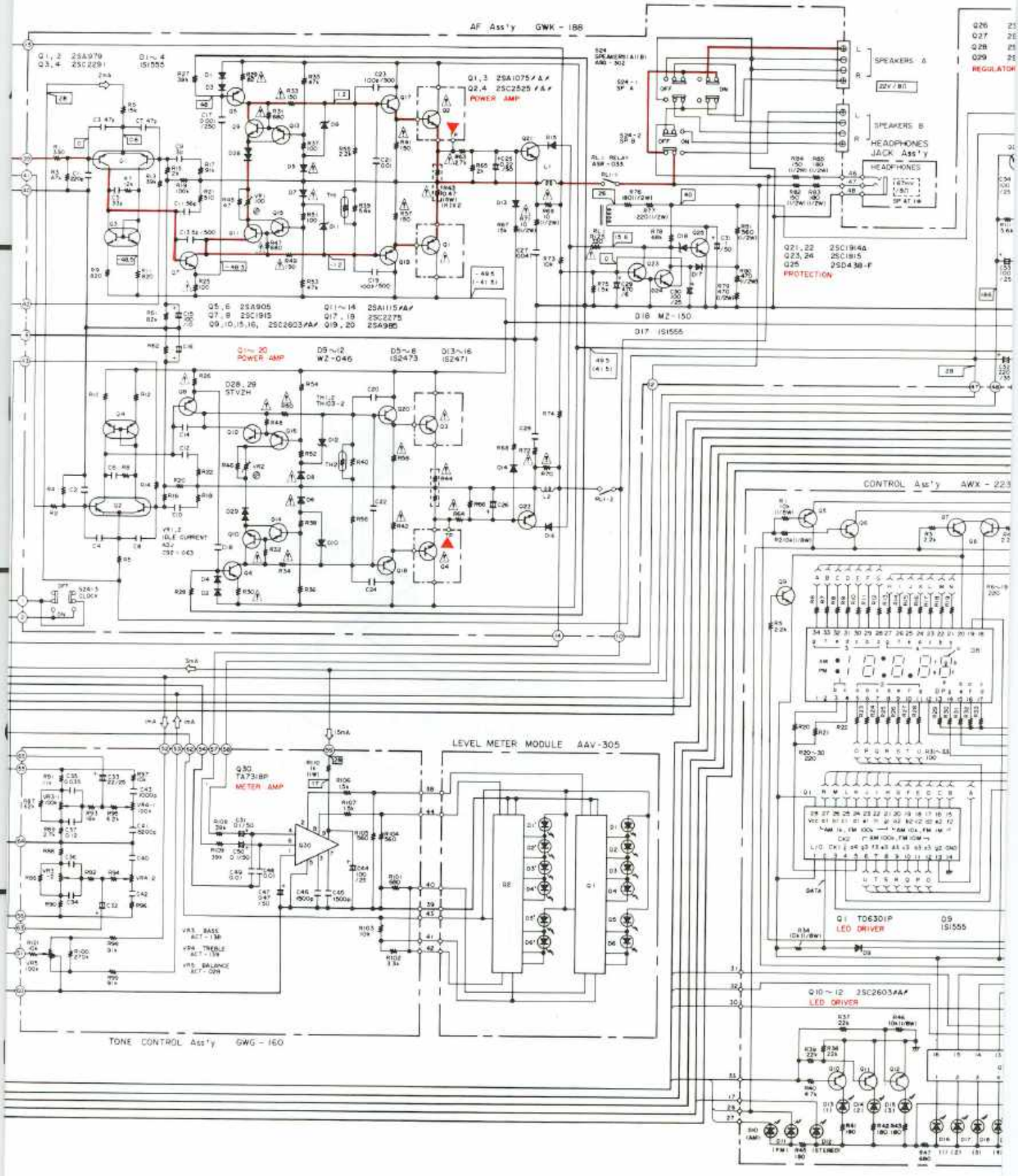
8. SCHEMATIC DIAGRAM





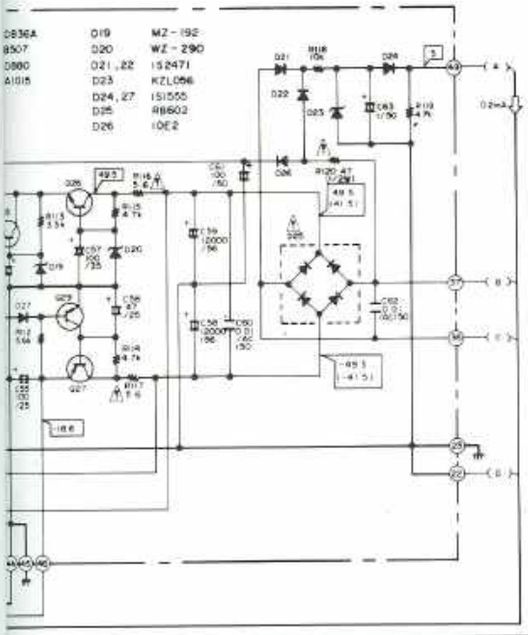
4. OTHERS
➡ Signal route
Ⓐ Adjusting point
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.


AF Ass'y GWK - 188
Q1, 2 2SA979
Q3, 4 2SC2291
D1~4 1SI555
Q1, 3 2SA1075/A/A
Q2, 4 2SC2525/A/A
POWER AMP
SPEAKERS A
SPEAKERS B
HEADPHONES JACK Ass'y
HEADPHONES
Q21, 22 2SC1914A
Q23, 24 2SC1815
Q25 2SD438-F
PROTECTION
Q5, 6 2SA905
Q7, 8 2SC1815
Q9, 10, 15, 16, 2SC2603/A/A
Q11~14 2SA1115/A/A
Q17, 18 2SC2275
Q19, 20 2SA986
Q18 MZ-150
D17 1SI555
Q1~20 POWER AMP
D9~12 WZ-046
D5~8 1S2473
D13~16 1S2471
D28, 29 STV2H
CONTROL Ass'y AWX - 223
LEVEL METER MODULE AAV-305
Q30 TA7318P
METER AMP
Q1 T0630IP
LED DRIVER
D9 1SI555
Q10~12 2SC2603/A/A
LED DRIVER
TONE CONTROL Ass'y GWG - 160

10 11 12

NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.

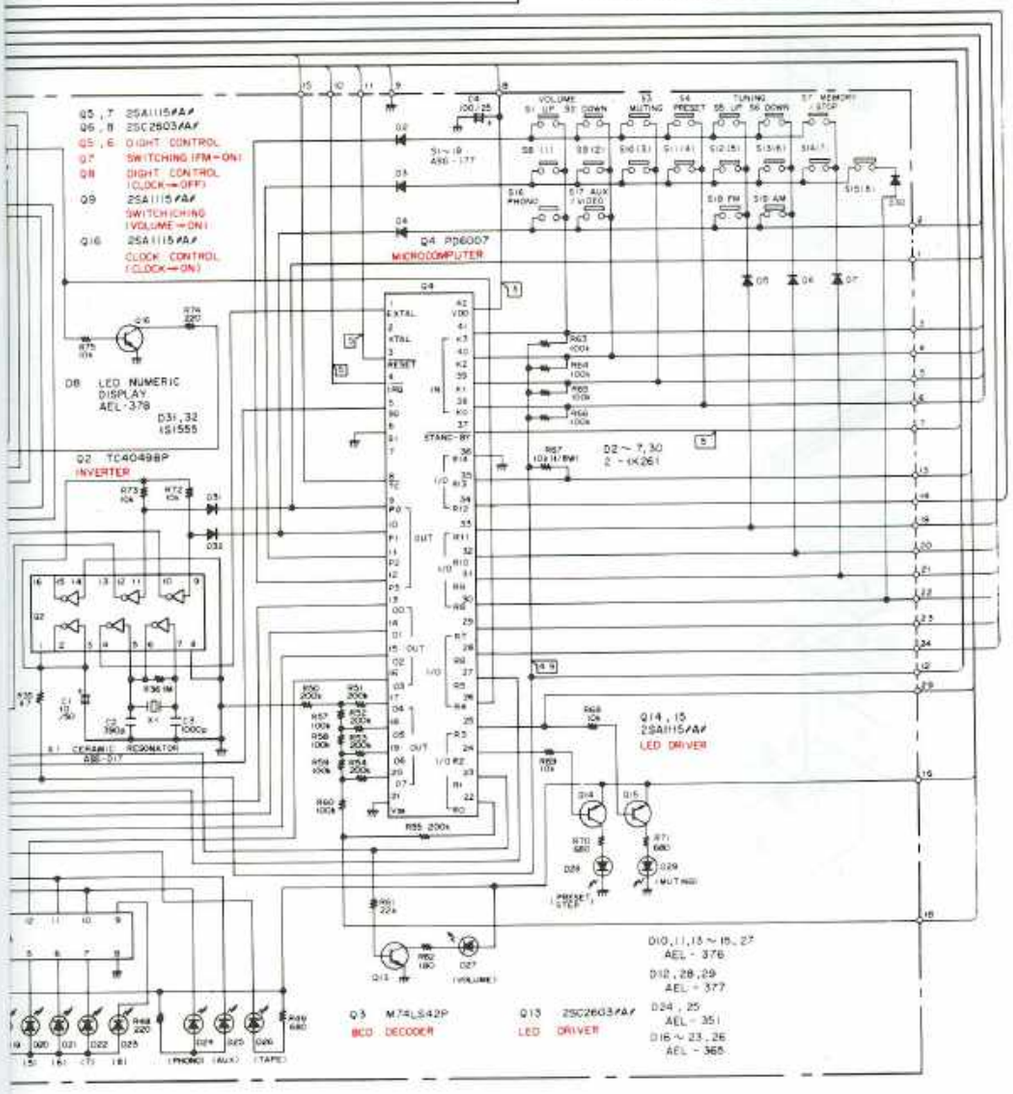


D836A	D19	MZ-152
B507	D20	WZ-290
D860	D21,22	1S2471
A1015	D23	RZL056
	D24,27	1S1555
	D25	RB602
	D26	10E2

SWITCHES

S1	VOLUME (UP)	ON	–	OFF
S2	VOLUME (DOWN)	ON	–	OFF
S3	MUTING	ON	–	OFF
S4	PRESET	ON	–	OFF
S5	TUNING (UP)	ON	–	OFF
S6	TUNING (DOWN)	ON	–	OFF
S7	MEMORY/STOP	ON	–	OFF
S8	STATION CALL (1)	ON	–	OFF
S9	STATION CALL (2)	ON	–	OFF
S10	STATION CALL (3)	ON	–	OFF
S11	STATION CALL (4)	ON	–	OFF
S12	STATION CALL (5)	ON	–	OFF
S13	STATION CALL (6)	ON	–	OFF
S14	STATION CALL (7)	ON	–	OFF
S15	STATION CALL (8)	ON	–	OFF
S16	INPUT (PHONO)	ON	–	OFF
S17	INPUT (AUX/VIDEO)	ON	–	OFF
S18	FM	ON	–	OFF
S19	AM	ON	–	OFF
S20-1	TUNING	AUTO	–	MANUAL
S20-2	TUNING	STATION SCAN	–	STATION SEARCH
S21-1	TAPE 1	ON	–	OFF
S21-2	TAPE 2/ADPT	ON	–	OFF
S21-3	MONO/MUTE OFF	AUTO/ON	–	MONO/OFF
S21-4	SUBSONIC (15Hz)	ON	–	OFF
S21-5	LOUDNESS	ON	–	OFF
S22	AM CHANNEL STEP	9KHz	–	10KHz
S23	PHONO	MC	–	MM
S24-1	SPEAKERS (A)	ON	–	OFF
S24-2	SPEAKERS (B)	ON	–	OFF
S24-3	CLOCK	ON	–	OFF
S25	POWER	ON	–	OFF

The underlined indicates the switch position.



A A

B B

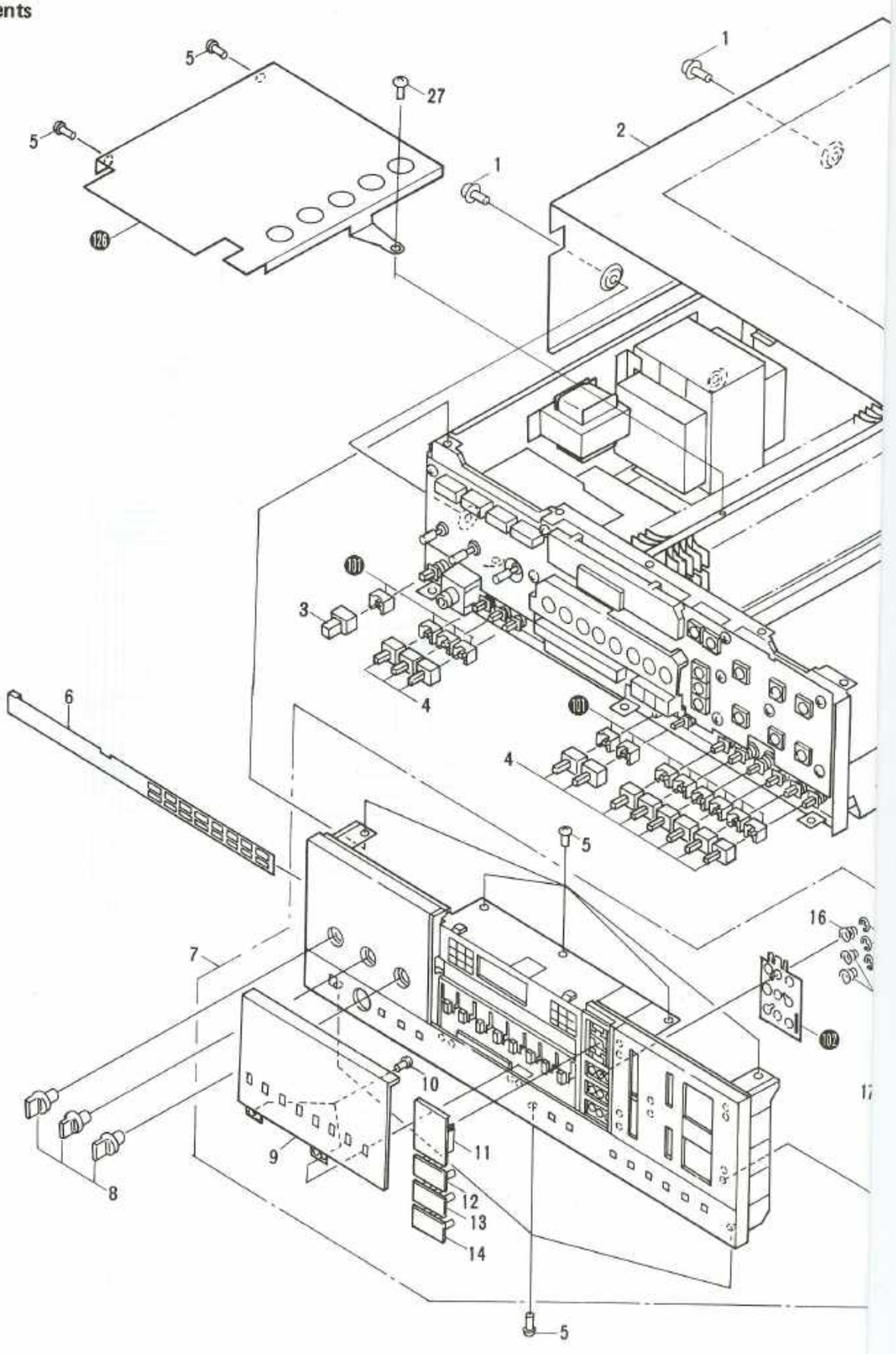
C C

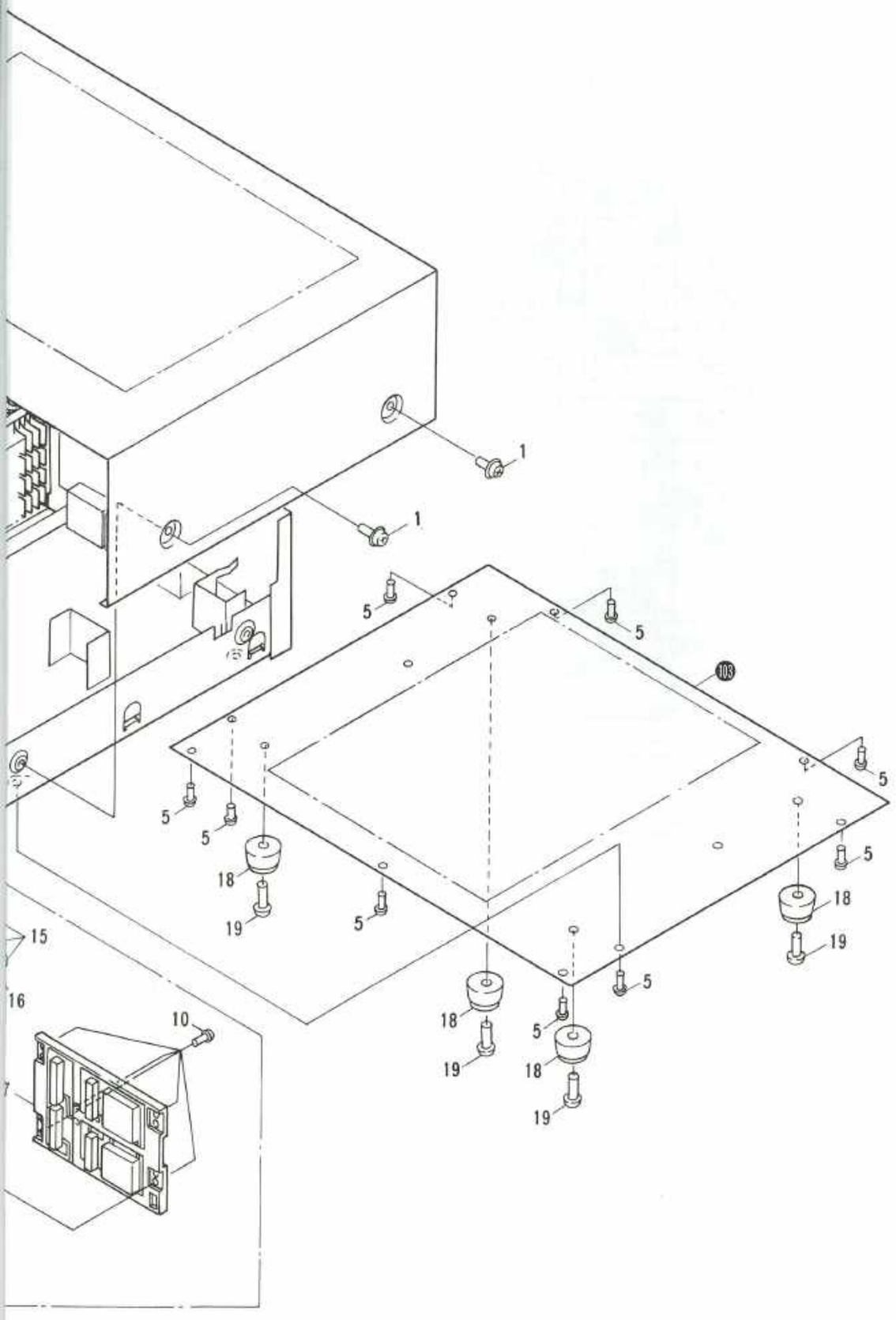
D D

10 11 12

9. EXPLODED VIEW

Exterior Components

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1
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103
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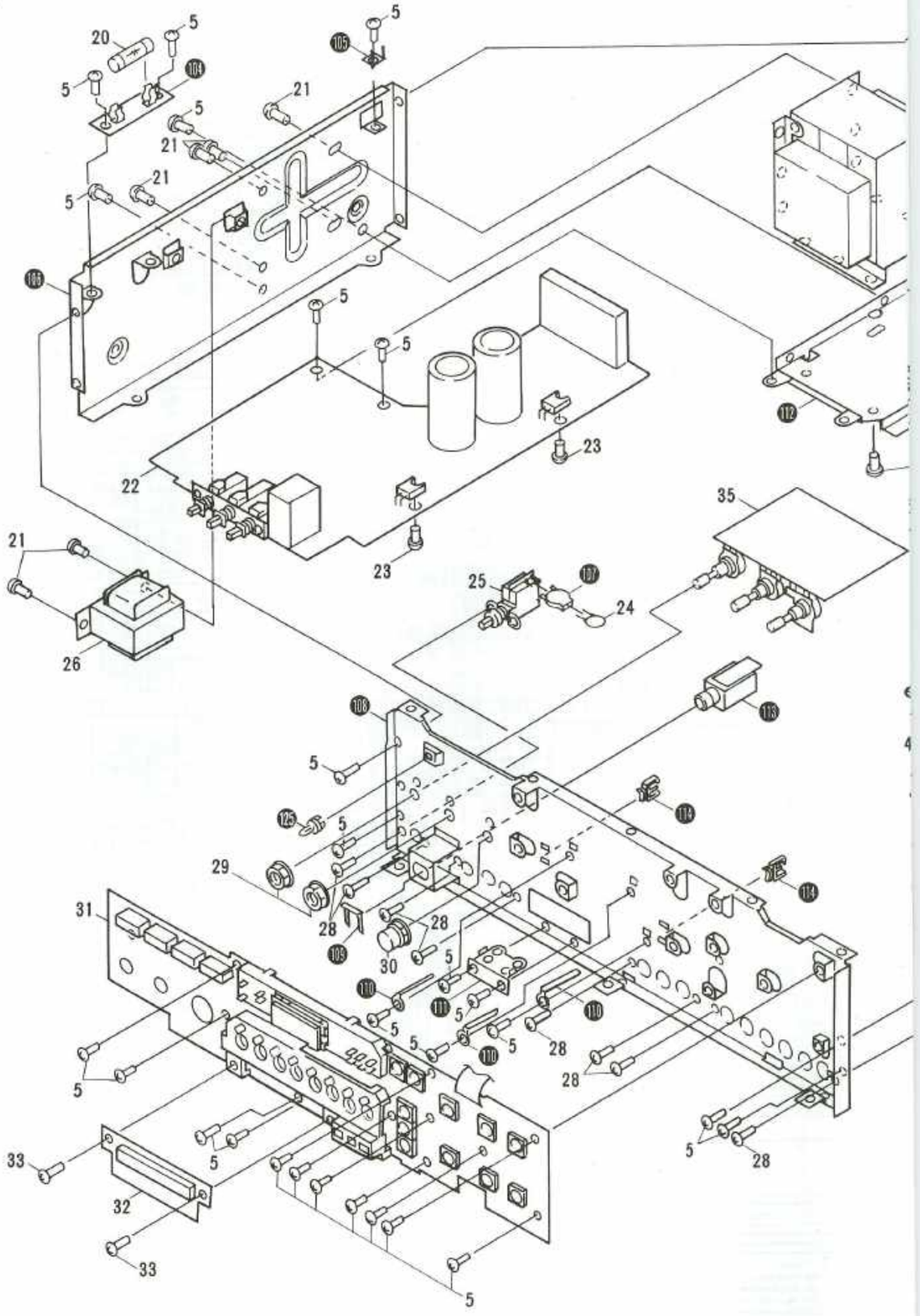
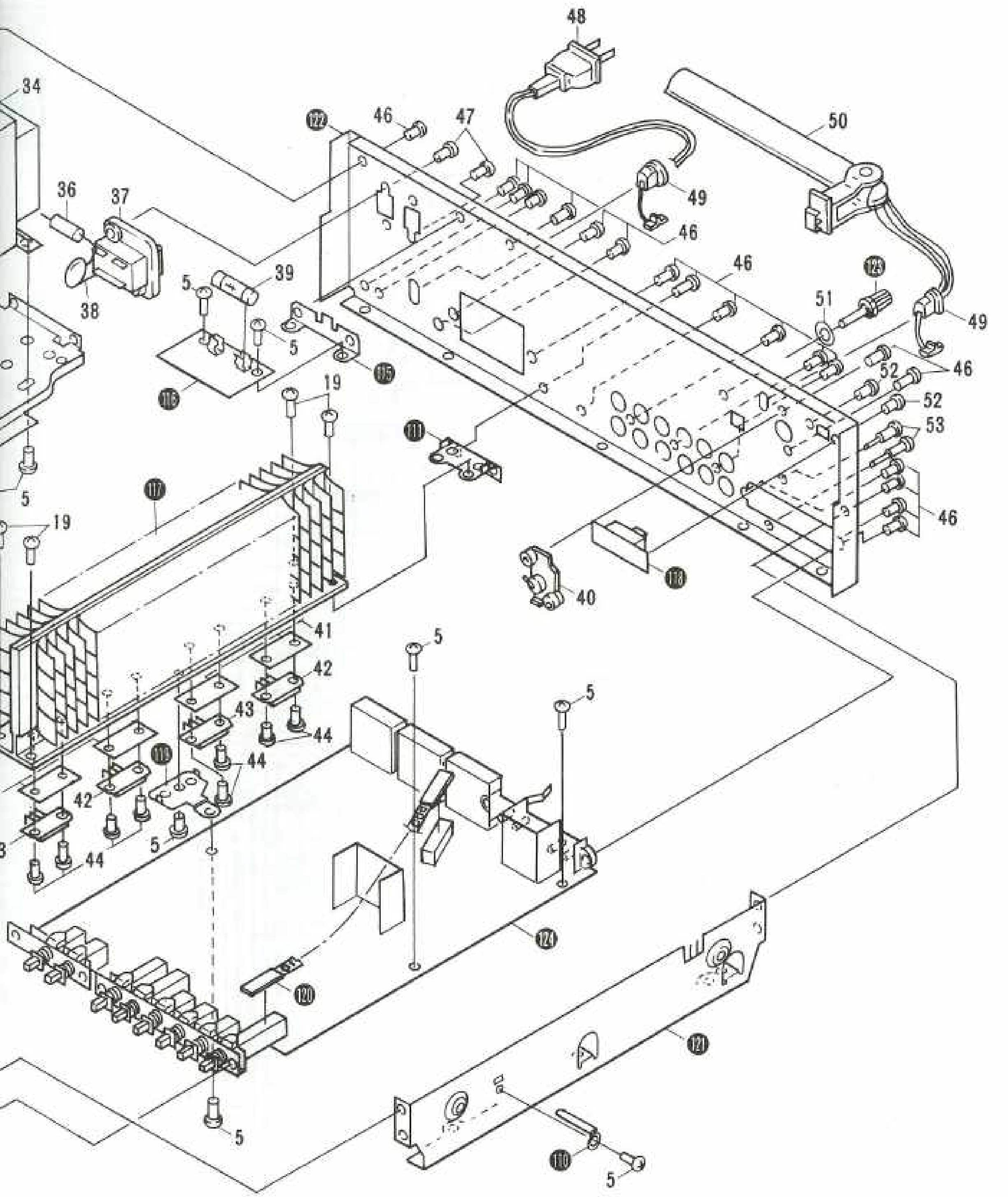
Interior Components





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119
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44
42
5
44
124
120
121
5
110
5

A

B

C

D

Parts List of Exploded View

NOTES:

- *Parts without part number cannot be supplied.*
- *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.

Mark	No.	Part No.	Description
	1.	ABA-193	Screw
	2.	ANE-360	Top cover
	3.	AAD-406	Knob (POWER)
	4.	AAD-405	Knob
	5.	VBZ30P060FMC	Screw 3X6
	6.	ANR-450	Slider assembly
	7.	ANM-065	Front panel assembly
	8.	AAB-274	Knob
	9.	ANR-459	Display cover
	10.	BBZ26P050FMC	Screw 2.6X5
	11.	AAD-401	Knob (TUNING)
	12.	AAD-402	Knob (FM)
	13.	AAD-403	Knob (AM)
	14.	AAD-404	Knob (MEMORY/STOP)
	15.	ABE-072	CS-type washer
	16.	ABH-088	Coiled spring
	17.	AAD-407	Knob array
	18.	AEC-083	Foot assembly
	19.	VTZ40P100FMC	Screw 4X10
⚠ ★★	20.	AEK-103	Fuse (2A, FU2)
	21.	BMZ40P080FZB	Screw 4X8
	22.	GWK-188	AF assembly
	23.	ABA-234	Screw 3X12
⚠	24.	ACG-001	Ceramic capacitor
⚠ ★★	25.	ASG-521	Push switch (POWER)
⚠ ★	26.	ATT-847	Power transformer (T2)
	27.	ABA-252	Screw 3X8
	28.	VMZ30P060FMC	Screw 3X6
	29.	ABN-048	Washerfaced nut
	30.	ABN-028	Union nut
	31.	AWX-223	Control assembly
★	32.	AAV-305	LED level meter module
	33.	BBZ30P060FZK	Screw 3X6
	34.	ATT-842	Power transformer (T1)
	35.	GWG-160	Tone control assembly
⚠	36.	ACN-029	Carbon composition resistor
⚠	37.	AKP-039	AC socket (AC OUTLETS)
⚠	38.	ACG-017	Ceramic capacitor
⚠ ★★	39.	AEK-108	Fuse (5A, FU1)
	40.	AKB-076	Terminal (AM STEREO OUT)
	41.	AEC-488	Mica wafer
⚠ ★★	42.	2SC2525/A/—B, or G, or X* (Q2,Q4)	
⚠ ★★	43.	2SA1075/A/—B, or G, or X* (Q1, Q3)	
	44.	ABA-258	Screw
	45.	. . . . .	

* hfe of these transistors (Q1—Q4) should have the same value.

Mark	No.	Part No.	Description
	46.	BBT30P080FZK	Screw 3X8
	47.	MTZ30P100FZK	Screw 3X10
⚠	48.	ADG-052	AC power cord
	49.	AEC-327	Strain relief
	50.	ATB-631	Bar-antenna assembly
	51.	WA35F100N080	Washer
	52.	PMZ30P060FZB	Screw 3X6
	53.	ABA-176	Terminal screw
	54.		
	55.		
	101.		Flexible joint
	102.		Grounding plate
	103.		Bottom plate
	104.		Fuse holder assembly B
	105.		Ground terminal 2-P
	106.		Side frame L
	107.		Insulation cover
	108.		Panel stay
	109.		Stopper
	110.		Cord fixer
	111.		Heat sink holder
	112.		Transformer frame
	113.		Headphones jack assembly
	114.		Wire saddle
	115.		P.C.board holder A
	116.		Fuse holder assembly A
	117.		Heat sink
	118.		Switch assembly **
	119.		P.C.board holder B
	120.		Remote belt
	121.		Side frame R
	122.		Rear panel
	123.		Terminal (GND)
	124.		Tuner assembly**
	125.		P.C board holder
	126.		Shield plate

** 118,124 AWE-114 Tuner assembly

10. ADJUSTMENTS

Idle Current Adjustment

- Turn VR1 (L) and VR2 (R) fully around in the counter-clockwise.
- Without any load or input signal, turn POWER switch ON and let stand for 10 minutes.
- Set the SPEAKERS A switch to the ON position.

Adjustment Point	Prescribed value	Measuring terminal
VR1 (L)	30mV±15mV	Between terminal TP-L (+) and SPEAKERS A (L) terminal on the rear panel.
VR2 (R)	30mV±15mV	Between terminal TP-R (+) and SPEAKERS A (R) terminal on the rear panel.

FM Tuner

- Connect the FM signal generator (FM SG) to the FM ANTENNA 300Ω terminal through a 300Ω dummy antenna.
- Set the AUTO/MANUAL switch to the MANUAL position, the FM (FUNCTION) switch to the ON position and the MODE MONO (MUTE OFF) switch to the MONO (MUTE OFF) position.

(*1) Tune the FM SG to the SX-7.

(*2) Connect the FM multiplex stereo signal generator to the FM SG external modulator terminal. Set the modulation to Main 1kHz/L+R/±67.5kHz deviation, Pilot 19kHz/±7.5kHz deviation.

Step	FM SG (400Hz, ±75kHz deviation) Frequency	Level	SX-7 Frequency dipslay	Adjustment point	Adjustment procedure
1	No signal		87.5MHz	L5	7.2V DC between terminal no.7 and ground.
2.	No signal		108.0MHz	TC4	24V DC between terminal no.7 and ground.
3.	Repeat steps 1 and 2 until both specifications are correct.				
4.	90.0MHz (*1)	60dB	90.0MHz	L1,L2,L3	Adjust until DC voltage between terminal no.46 and ground is maximum.
5	106.0MHz (*1)	60dB	106.0MHz	TC1,TC2,TC3	
6	Repeat steps 4 and 5 until maximum sensitivity is attained.				
7	98.0MHz (*1)	60dB	98.0MHz	T1	Adjust until DC voltage between terminal no.46 and ground is maximum.
8	98.000MHz**	60dB	98.0MHz	T2 (CENTER)	0V DC between terminal no.44 and no.45.
9	98.000MHz**	60dB	98.0MHz	T2 (DIST)	Adjust until distortion at TAPE 1 REC terminal is minimum.
10	Repeat steps 8 and 9 until both requirement are satisfied.				
11	Set the MODE MONO switch to the STEREO position.				
12	98.0MHz (*1)	60dB (not modulation)	98.0MHz	VR2	Adjust signal at terminal no.11 to 19kHz (±100Hz).
13	98.0MHz (*1) Set to stereo modulation (*2)	60dB	98.0MHz	T1 (within ±90°)	Adjust until distortion at TAPE 1 REC L or R terminal is minimum.
14	98.0MHz (*1) Set to stereo modulation (*2)	31dB	98.0MHz	VR1	Obtain a position just prior to activation of the muting circuit and light up the STEREO indicator.

**Frequency must be accurate.

AM Tuner

- Connect the AM signal generator (AM SG) to the AM ANTENNA terminal through a 10kΩ resistor.
- Set the AM (FUNCTION) switch to the ON position and AM CHANNEL STEP switch (on the rear panel) to 10kHz position.

(*3) Tune the AM SG to the SX-7.

Step	AM SG (400Hz, 30% modulation)		SX-7 Frequency dipslay	Adjustment point	Adjustment procedure
	Frequency	Level			
1	No signal		520kHz	L101	2V DC between terminal no.7 and ground.
2	No signal		1620kHz	TC102	25V DC between terminal no.7 and ground.
3	Repeat steps 1 and 2 until both specifications are correct.				
4	600kHz (*3)	40dB	600kHz	Bar antenna	Adjust until DC voltage between terminal no.46 and ground is maximum.
5	1400kHz (*3)	40dB	1400kHz	TC101	
6	Repeat steps 4 and 5 until maximum sensitivity is attained				

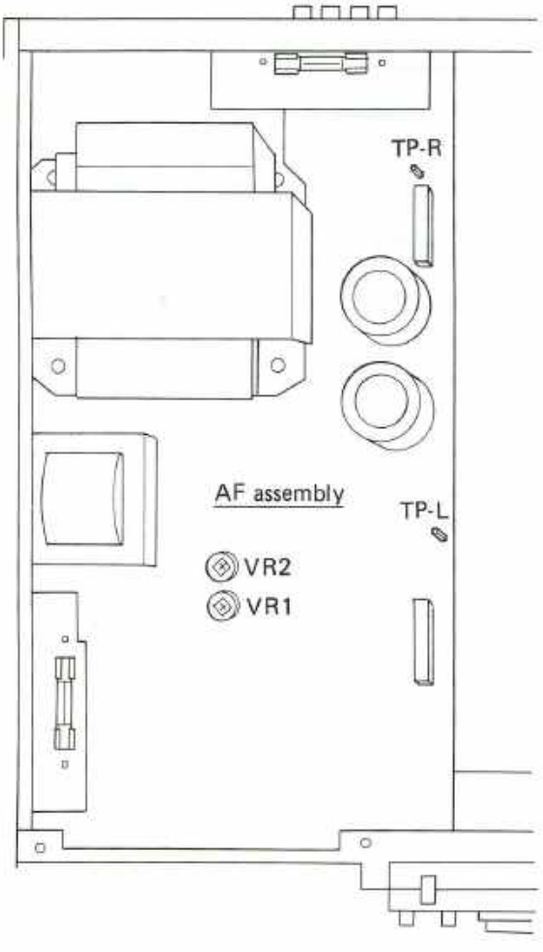

Fig. 10-1 Idle current adjustment

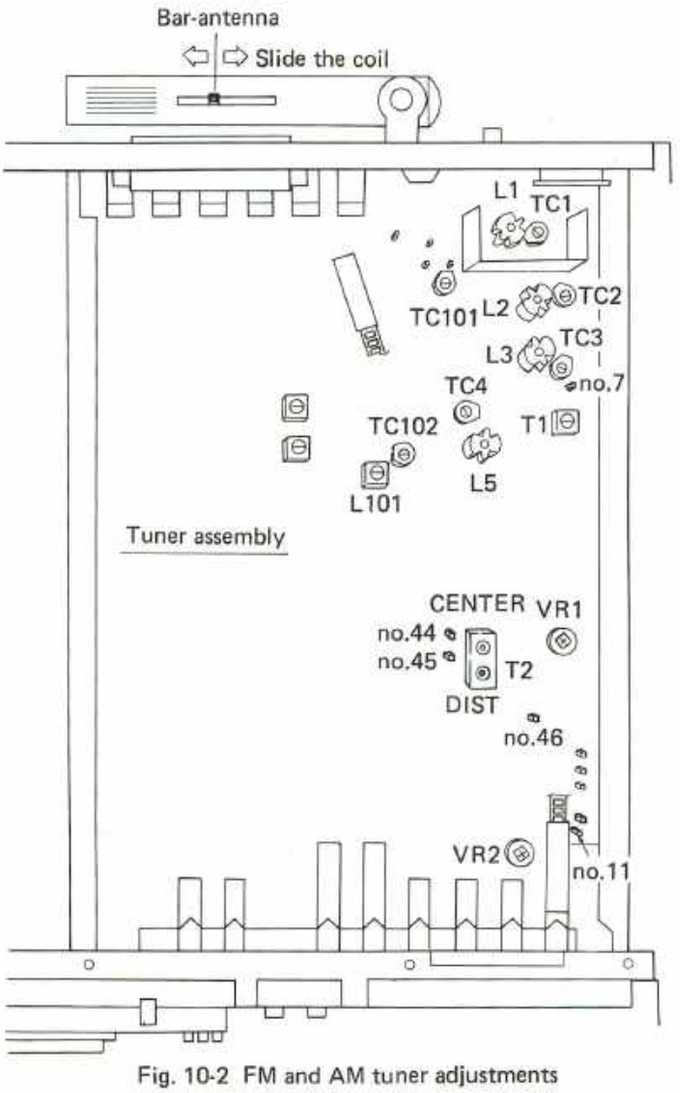

Fig. 10-2 FM and AM tuner adjustments

10. RÉGLAGE

Réglage du courant dewatté

- Tourner VR1 (gauche) et VR2 (droit) complètement dans le sens contraire des aiguilles d'une montre.
- Régler l'interrupteur général sur ON sans appliquer de charge (POWER) ou de signal d'entrée et laisser en position d'attente pendant 10 minutes.
- Régler le sélecteur d'enceintes A (SPEAKERS) sur la position ON.

Point de réglage	Valeur prescrite	Borne de mesure
VR1 (gauche)	30mV±15mV	Entre la borne d'épreuve point - gauche (TP-L) (+) et la borne SPEAKERS A (gauche) sur le panneau arrère.
VR2 (droit)	30mV±15mV	Entre la borne d'épreuve point - droit (TP-R) (+) et la borne SPEAKERS A (droit) sur le panneau arrière.

Tuner FM

- Raccorder le générateur de signaux (FM SG) sur la borne de l'antenne FM (FM ANTENNA) 300Ω par l'intermédiaire d'une antenne factice 300Ω.
- Régler le commutateur AUTO/MANUAL sur la position MANUAL, le commutateur FM (FUNCTION) sur la position ON et le commutateur MODE MONO (MUTE OFF) sur la position MONO (MUTE OFF).

(*1) Accorder le générateur de signaux FM sur SX-7.

(*2) Raccorder le générateur de signaux FM stéréo multiplex sur la borne du modulateur externe FM SG. Régler la modulation sur déviation principale 1kHz / gauche+droit (L+R) / ±67,5kHz, déviation de synchronisation 19kHz / ±7,5kHz.

Phase	FM SG (400Hz, ±75kHz déviation)		Affichage de fréquence SX-7	Point de réglage	Procédure de réglage
	Fréquence	Niveau			
1	Pas de signal		87,5MHz	L5	7.2V CC entre la borne n° 7 et la borne de terre.
2	Pas de signal		108,0MHz	TC4	24V CC entre la borne n° 7 et la borne de terre.
3	Répéter les phases 1 et 2 afin d'obtenir les deux caractéristiques correctes.				
4	90,0MHz (*1)	60dB	90,0MHz	L1, L2, L3	Régler afin d'obtenir la tension CC maximum entre la borne n° 46 et la borne de terre.
5	106,0MHz (*1)	60dB	106,0MHz	TC1. TC2, TC3	
6	Répéter les phases 4 et 5 afin d'obtenir la sensibilité maximum.				
7	98,0MHz (*1)	60dB	98,0MHz	T1	Régler afin d'obtenir la tension CC maximum entre la borne n° 46 et la borne de terre.
8	98,000MHz**	60dB	98,0MHz	T2 (CENTRE)	0V CC entre la borne n° 44 et la borne n° 45.
9	98,000MHz**	60dB	98,0MHz	T2 (DIST)	Régler afin d'obtenir la distorsion minimum à la borne TAPE 1 REC.
10	Répéter les phases 8 et 9 afin d'obtenir les deux conditions requises.				
11	Régler le commutateur MODE MONO sur la position STEREO.				
12	98,0MHz (*1)	60dB (pas de modulation)	98,0MHz	VR2	Régler le signal à la borne n° 11 sur 19kHz (±100Hz).
13	98,0MHz (*1) Régler sur modulation stéréo (*2)	60dB	98,0MHz	T1 (entre ±90°)	Régler afin d'obtenir la distorsion minimum à la borne TAPE 1 REC L ou R.
14	98,0MHz (*1) Régler sur modulation stéreo (*2)	31dB	98,0MHz	VR1	Régler sur la position précédant l'excitation du circuit d'atténuation el allumant l'indicateur STEREO.

**La fréquence doit être précise.

Tuner AM

- Raccorder le générateur de signaux AM (AM SG) sur la borne d'antenne AM (AM ANTENNA) par l'intermédiaire d'un résisteur de 10KΩ.
- Régler le commutateur AM (FUNCTION) sur la position ON et le commutateur AM CHANNEL STEP (situé sur le panneau arrière) sur la position 10kHz.

(*3) Accorder le générateur de signaux AM SG sur SX-7.

Phase	AM SG (400Hz, 30% modulation)		Affichage de fréquence SX-7	Point de réglage	Procédure de réglage
	Fréquence	Niveau			
1	Pas de signal		520kHz	L101	2V CC entre la borne nº 7 et la borne de terre.
2	Pas de signal		1620kHz	TC102	25V CC entre la borne nº 7 et la borne de terre.
3	Répéter les phases I et 2 afin d'obtenir les deux caractéristiques correctes.				
4	600kHz (*3)	40dB	600kHz	Antenne -tige	Régler afin d'obtenir la tension CC maximum entre la borne nº 46 et la borne de terre.
5	1400kHz (*3)	40dB	1400kHz	TC101	
6	Répéter les phases 4 et 5 afin d'obtenir la sensibilité maximum.				

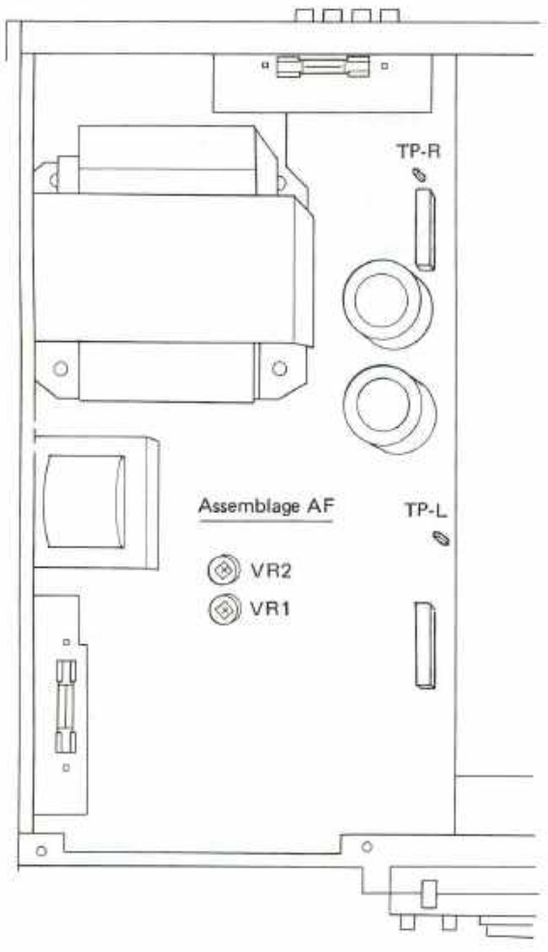

Fig. 10-1 Réglage du courant dewatté

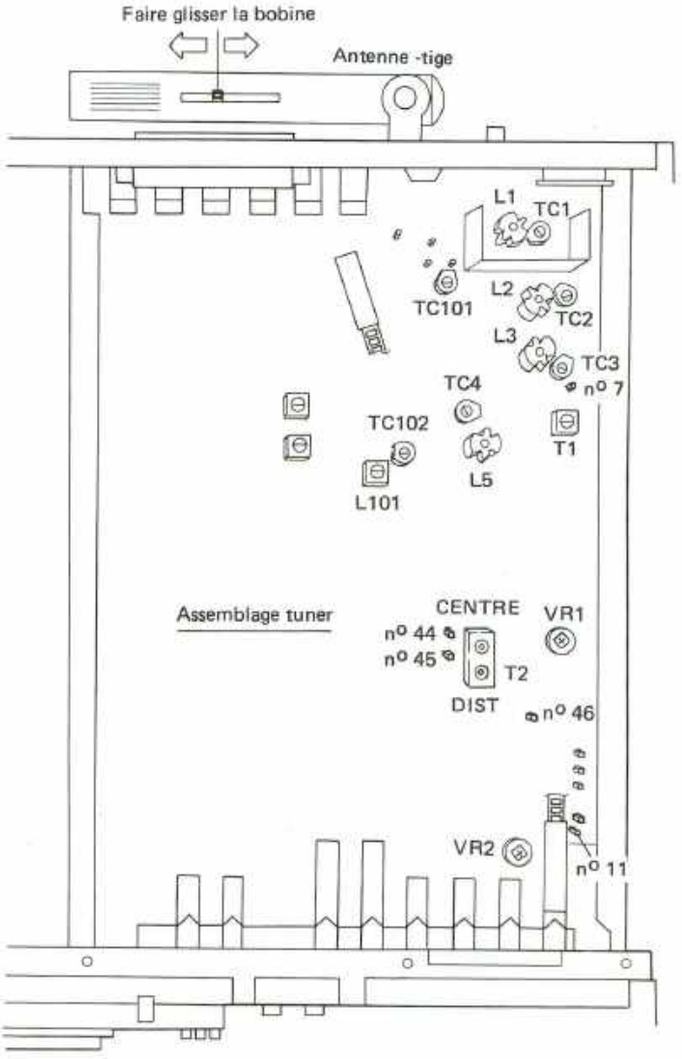

Fig. 10-2 Réglage du tuner FM/AM

10. AJUSTE

Ajuste de la corriente devatiada

- Girar completamente VR1 (izq.) y VR2 (der.) hacia la izquierda.
- Sin ninguna carga ni señal de entrada, poner el interruptor de la alimentación (POWER) en la posición ON y dejarlo así durante 10 minutos.
- Poner el selector A de altavoces (SPEAKERS) en la posición ON.

Punto de ajuste	Valor prescrito	Terminal de medición
VR1 (izq.)	30mV±15mV	Entre el terminal de prueba de punto - izq. (TP-L) (+) y el terminal SPEAKERS A (izq.) del panel posterior.
VR2 (der.)	30mV±15mV	Entre el terminal de prueba de punto - der. (TP-R) (+) y el terminal SPEAKERS A (der.) del panel posterior.

Sintonizador de FM

- Conectar el generador de señales de FM (FM SG) al terminal FM ANTENNA 300Ω a través de una antena ficticia de 300ohmios.
- Conectar el selector AUTO/MANUAL en la posición MANUAL, el selector de función de FM en la posición ON y el de modo de MONO (MUTE OFF) en la posición MONO (MUTE OFF).

(*1) Sintonizar el FM SG con el SX-7.

(*2) Conectar un generador de señales estereofónicas de FM multiplex al terminal modulador exterior del FM SG. Ajustar la modulación a Principal 1kHz / Izq. + Der. (L+R) / ±67,5kHz de desviación; Piloto 19kHz / ±7,5kHz de desviación.

Paso	FM SG (400Hz, ±75kHz desviación)		Frecuencímetro del SX-7	Punto de ajuste	Procedimientos de ajuste
	Frecuencia	Nivel			
1	Sin señal		87,5MHz	L5	7.2V CC entre el terminal no. 7 y masa.
2	Sin señal		108,0MHz	TC4	24V CC entre el terminal no. 7 y masa.
3	Repetir los pasos 1 y 2 hasta que ambas especificaciones sean correctas.				
4	90,0MHz (*1)	60dB	90,0MHz	L1, L2, L3	Ajustar hasta que la tensión de CC entre el terminal no. 46 y masa sea la máxima.
5	106,0MHz (*1)	60dB	106,0MHz	TC1 TC2, TC3	
6	Repetir los pasos 4 y 5 hasta lograrse la máxima sensibilidad.				
7	98,0MHz (*1)	60dB	98,0MHz	T1	Ajustar hasta que la tensión de CC entre el terminal no. 46 y masa sea la máxima.
8	98,000MHz**	60dB	98,0MHz	T2 (CENTER)	0V CC entre el terminal no. 44 y el no. 45.
9	98,000MHz**	60dB	98,0MHz	T2 (DIST)	Ajustar hasta que la distorsión en el terminal TAPE 1 REC sea la mínima.
10	Repetir los pasos 8 y 9 hasta que se satisfagan ambos requisitos.				
11	Poner el selector MODE MONO en la posición STEREO.				
12	98,0MHz (*1)	60dB (sin modulación)	98,0MHz	VR2	Ajustar la señal en el terminal no. 11 a 19kHz (±100Hz).
13	98,0MHz (*1) Ajustar a modulación estereofónica (*2)	60dB	98,0MHz	T1 (dentro de ±90°)	Ajustar hasta que la distorsión en el terminal TAPE 1 REC L o R sea la mínima.
14	98,0MHz (*1) Ajustar a modulación estereofónica (*2)	31dB	98,0MHz	VR1	Obtener una posición anterior a la activación del circuito de silenciamiento y antes de que se ilumine el indicador STEREO.

**La frecuencia tiene que ser precisa.

Sintonizador de AM

- Conectar el generador de señales de AM (AM SG) al terminal AM ANTENNA a través de un resistor de 10Kohmios.
- Poner el selector de función de AM en la posición ON y el de AM CHANNEL STEP (del panel posterior) en la posición de 10kHz.

(*3) Sintonizar el AM SG con el SX-7.

Paso	AM SG (400Hz, 30% modulación)		Frecuencímetro del SX-7	Punto de ajuste	Procedimientos de ajuste
	Frecuencia	Nivel			
1	Sin señal		520kHz	L101	2V CC entre el terminal no. 7 y masa.
2	Sin señal		1620kHz	TC102	25V CC entre el terminal no. 7 y masa.
3	Repetir los pasos 1 y 2 hasta que ambas especificaciones sean correctas.				
4	600kHz (*3)	40dB	600kHz	Antena de barra	Ajustar hasta que la tensión de CC entre el terminal no. 46 y masa sea la máxima.
5	1400kHz (*3)	40dB	1400kHz	TC101	
6	Repetir los pasos 4 y 5 hasta logarse la máxima sensibilidad.				

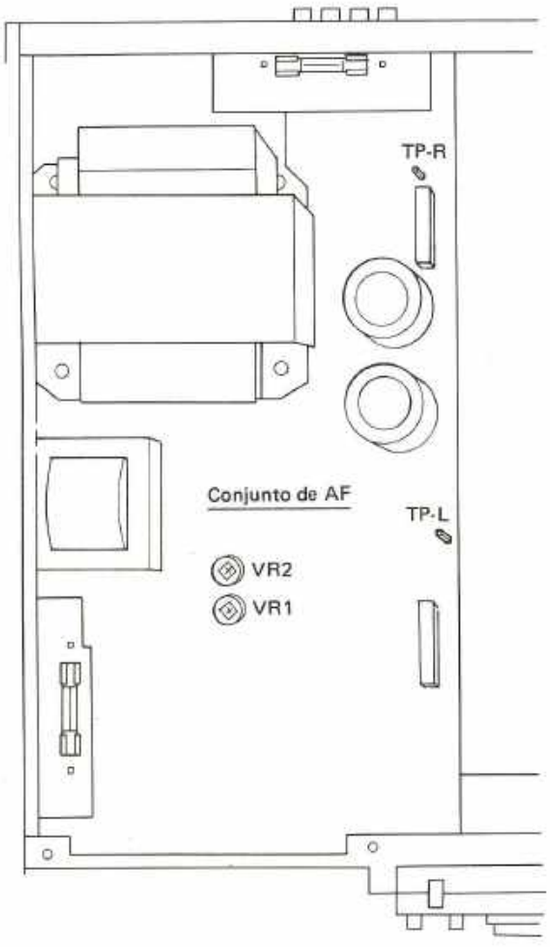

Fig. 10-1 Ajuste de la corriente desvatada

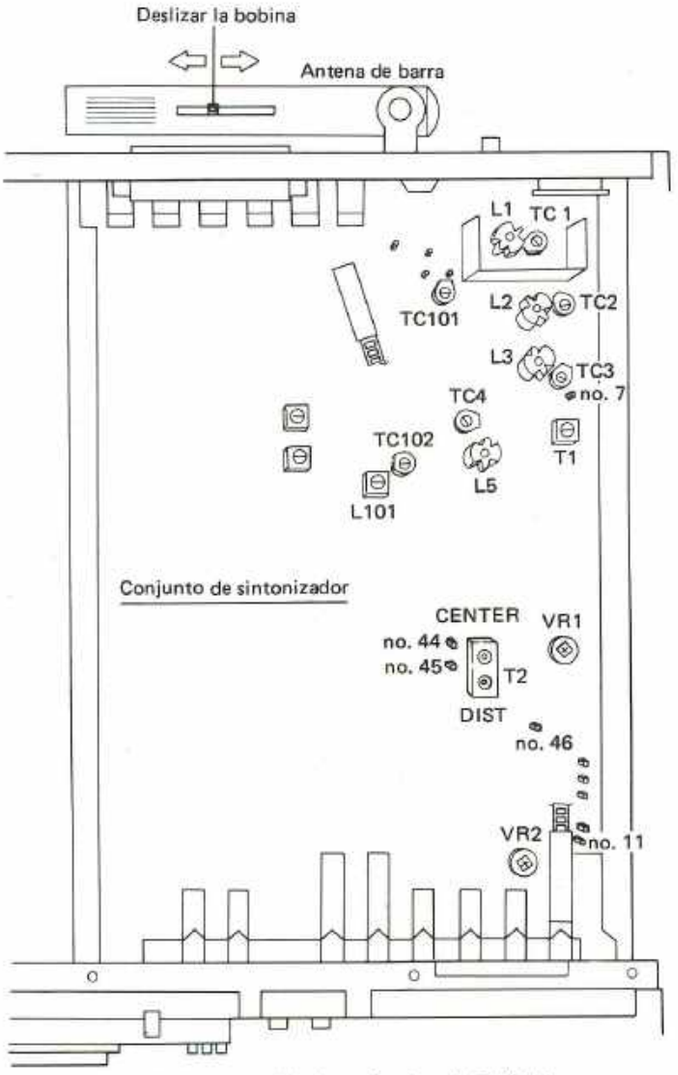

Fig. 10-2 Ajuste del sintonizador de FM/AM