



SERVICE MANUAL

RZ-3500

COMPUTERIZED STEREO RECEIVER

NOTICE

For servicing RZ-3500, please refer to service manual for the RZ-3000 with this manual, since most of the parts and circuits employed in RZ-3500 are in common with the RZ-3000. On the parts list, the changed parts are specified by "●" mark on top of the Parts No.

CAUTION

- Parts identified by the \triangle symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
- Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

NOTE

The symbols, UL, CSA, SEV, EU, SS, EG, UK and XX <EXPORT> on the parts list and the schematic diagram mean followings respectively.

UL.....Manufactured for U.S.A. market.
(Underwriters Laboratories approved model.)
CSA.....Manufactured for Canadian market.
SEV.....Manufactured for Swiss market.
EU.....Manufactured for European market.

SS.....Manufactured for Saudi Arabia market.
EG.....Manufactured for F.R. West Germany market.
UK.....Manufactured for United Kingdom market.
XX<EXPORT>.. Standard Version.
NON MARK.... Common Parts.

•SPECIFICATIONS

Audio section

Power output

Min. RMS, both channels driven, from 20 to 20,000 Hz with no more than 0.09% total harmonic distortion

50 watts per channel into 8 ohms

DIN

65 watts per channel into 8 ohms.

Total harmonic distortion less than 0.09% at or below rated min. RMS power output

Load impedance..... 4~16 ohms

Input sensitivity and impedance (1 kHz)

PHONO..... 2.5 mV/47 kohms

CD..... 200 mV/47 kohms

TAPE PLAY..... 150 mV/47 kohms

Frequency response (at 1 watt)

..... 10 to 70,000 Hz,
+1 dB, -3 dB

Signal to noise ratio (short-circuit, A-network)

PHONO..... 73 dB

CD, TAPE PLAY..... 90 dB

Controls

BASS..... ± 8 dB at 50 Hz

TREBLE..... ± 7 dB at 10 kHz

LOUDNESS..... +10 dB at 50 Hz

..... +6 dB at 10 kHz

(VOLUME: -30 dB position)

FM section

Tuning range..... 88 to 108 MHz

Usable sensitivity

Mono IHF..... 13.2 dBf (2.5 μ V: T-100)

50 dB quieting sensitivity

Stereo..... 40 dBf

Signal to noise ratio (at 65 dBf)

Stereo..... 70 dB

Distortion (at 65 dBf)

Stereo..... less than 0.3% at 1,000 Hz

Stereo separation..... 40 dB at 1,000 Hz

AM section

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

Usable sensitivity (Loop antenna)

..... 55 dB/m (562 μ V/m)

Signal to noise ratio..... 40 dB

Others

Power requirements..... 120/220/240V
50/60 Hz

For U.S.A. and Canada 120V (60 Hz)

Power consumption..... 280 watts 320 VA Rated
410 watts Maximum

Dimensions..... 430 mm (16-15/16") W

125 mm (4-15/16") H

335 mm (13-1/4") D

Weight..... 9.5 kg (20.9 lbs) net

10.9 kg (24.0 lbs) packed

Remote controller: RS-1070

Control system..... Infra-red ray pulse system

Power requirements..... DC 3V

Dimensions..... 60 mm (2-3/8") W

17 mm (11/16") H

121 mm (4-13/16") D

Weight..... 65 g (0.1 lbs)

including dry batteries

- * Design and specifications subject to changes without notice for improvements.
- * Due to local laws and regulations, this unit sold in some areas is not equipped with variable voltage selector.

1. PARTS LIST OF BOARD

Note

- Some printed circuit boards are not supplied assembled. To separate these in this service manual, the stock numbers are not indicated for these boards. However, stock numbers for individual parts are indicated.
- Since some capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors and resistors, which was issued on June 1987.
- Abbreviations in this service manual are as follows.

•Abbreviations List

C.R.	: Carbon Resistor
Ce.R.	: Cement Resistor
M.R.	: Metal Film Resistor
F.R.	: Fusing Resistor
N.I.R.	: Non-Inflammable Resistor
A.R.	: Array Resistor
C.C.	: Ceramic Capacitor
C.T.	: Ceramic Capacitor, Temperature Compensation
E.C.	: Electrolytic Capacitor
E.L.	: Low Leak Electrolytic Capacitor
E.B.	: Bi-Polar Electrolytic Capacitor
E.B.L.	: Low Leak Bi-Polar Electrolytic Capacitor
Ta.C.	: Tantalum Capacitor
F.C.	: Film Capacitor
M.P.	: Metalized Paper Capacitor
P.C.	: Polystyrene Capacitor
M.M.C.	: Metalized Mylar Capacitor
A.C.	: Array Capacitor
V.R.	: Variable Resistor
S.V.R.	: Semi Variable Resistor
SW.	: Switch

1-1. F-6008 Main Board

<Stock No. 01117605 = EU, UK, EG, SEV>
<Stock No. 01117601 = XX, SS, UL, CSA>

Parts No.	Stock No.	Description
	49316500	FM Frontend Pack (XX, SS, UL, CSA)
	49316600	FM Frontend Pack (EU, UK, EG, SEV)
•Transistor		
dQ1	46834300	DTC144ES
dQ2	46393201	2SC2786
dQ3	46540801	2SC2878
or	46604301	2SC3327
dQ4~7	46834300	DTC144ES
dQ8	46834200	DTA144ES
dQ9	46367101	2SC2603
or	48058801	2SC1740S
dQ11	46834300	DTC144ES
•IC		
dIC1	48715100	LA1266
dIC2	48491000	LA3410A
dX01	83000200	Ceramic RESONATOR
•Diode		
dD1~10	46464100	ISS133
△ dR9	46402000	10Ω 1/2W N. I. R.
△ dR19	46402400	22Ω 1/2W N. I. R.
dC4~8	48426900	22000pF 25V C. C.
dC9	48103300	0.68μF 50V E. B.
dC11	48662600	100pF 50V C. C.
dC12, 13	48102400	4.7μF 25V E. B.
dC18	48663100	270pF 50V C. C.
dC27	● 48662600	100pF 50V C. C.
dC30	● 48426900	22000pF 25V C. C.
dCF1, 2	83000000	Ceramic Filter SFE10.7MS2 (XX, SS, UL, CSA)

Parts No.	Stock No.	Description
dCF1, 2	48064800	Ceramic Filter SFE10.7MS2 (EU, UK, EG, SEV)
dLP1	● 83030100	L. P. F. (EG)
or	● 83030101	L. P. F. (EG)
dL1	83043200	Inductor 100μH
dT1	83005900	FM IF Coil
dT2	83006000	FM IF Coil
dT3	● 48791700	Filter(EG)
dVR1	83007600	200kΩ S. V. R., SEPALATION
dVR2	83007600	200kΩ S. V. R., FM MUTE
•Transistor		
eQ2	46367001	2SA1115
or	48058601	2SA933S
eQ3	46367101	2SC2603
or	48058801	2SC1740S
•FET		
eFT2	46643501	2SK163-K2
or	46643502	2SK163-L1
or	46643601	2SK117-Y
or	46643602	2SK117-GR
•Diode		
eD1	46146300	Variable Capacitance, Diode KV1236Z2
eD2	46464100	ISS133
eC10~12	48426900	22000pF 25V C. C.
eC16	48426900	22000pF 25V C. C.
eC17	48666200	0.01μF 50V C. C.
eC20, 21	48426900	22000pF 25V C. C.
eC23	48663800	1000pF 50V C. C.
eC24	48103500	2.2μF 50V E. B.
eTC1, 2	46095700	Trimmer Capacitor 30pF
or	46162900	Trimmer Capacitor 30pF
eCF1	48865700	Ceramic Filter BFCFL-450
eL1	83020300	Coil 39mH
eT1	48528900	AM ANT Coil
eT2	83005700	AM OSC Coil
eT3	83013400	AM IF Coil
eVR1	83007500	100kΩ S. V. R., AM STOP
•IC		
fIC1	49317500	LC7218
fX01	83004400	Quartz Element
•Diode		
fD1	46464100	ISS133
fC3	● 48426900	22000pF 25V C. C.
fTC1	46095700	Trimmer Capacitor 30pF
or	46162900	Trimmer Capacitor 30pF
fL1	83042600	Inductor 10μH
•IC		
iIC1	46078900	M5218L
iC2	48663000	220pF 50V C. C.
iC100	● 48662600	100pF 50V C. C. (EG)
•Transistor		
kQ7	03067401	2SC1845
kQ12	49320301	2SC3854
kQ13	49320201	2SA1490
kR34, 35	● 83057500	0.22Ω 3W Ce. R.
kL2, 3	● 83020100	Inductor 0.82μH(EG)

<F-6008>

Parts No.	Stock No.	Description
•Transistor		
IQ1	48863701	2SC2857
or	48863901	2SC1473
or	48061801	2SC3244
IQ2	46367001	2SA1115
or	48058601	2SA933S
•Diode		
ID1	46464100	1SS133
•Zener Diode		
IDZ2	48551900	MTZ4.7CT-77
IF1	83049100	Fuse 5A
•Transistor		
mQ1	48581701	2SD438
mQ2	03083901	2SD313HP
mQ3	46367101	2SC2603
or	48058801	2SC1740S
mQ4, 5	48064001	2SA1284
mQ10	48581701	2SD438
mQ50	03083901	2SD313HP
mQ51, 52	46367101	2SC2603
or	48058801	2SC1740S
mQ60	48061801	2SC3244
•FET		
mFT50	46643601	2SK117-YR
or	46643701	2SK246-GR
or	46643502	2SK163-L1
•Diode		
mD1~4	● 83049400	1N4003
mD5	83002100	KBU4D
mD50	83020200	DF04M
mD51	● 83049400	1N4003
•Zener Diode		
mDZ1	48552700	MTZ6.2BT-77
mDZ2, 3	48555200	MTZ13BT-77
or	48555300	MTZ13CT-77
mDZ4	48552100	MTZ5.1BT-77
or	48552200	MTZ5.1CT-77
mDZ5	48558000	MTZ30BT-77
or	48558100	MTZ30CT-77
or	49516800	MTZJ30B
or	49516900	MTZJ30C
mDZ6	48556100	MTZ18BT-77
mDZ7	48552700	MTZ6.2BT-77
mDZ50	48555300	MTZ13CT-77
△ mR1	46242100	56Ω 1W N. I. R.
△ mR4	46623700	33Ω 2W N. I. R.
△ mR23	46402900	56Ω 1W N. I. R.
△ mR50	● 46623900	47Ω 2W N. I. R. (UL, CSA, SEV, EU, SS, EG, UK)
△ mR60	46402400	22Ω 1W N. I. R.
△ mR70	● 46680900	4.7Ω 1/4W F. R. (CSA)
△ mR100	46401600	4.7Ω 1/2W N. I. R.
△ mR101	46402000	10Ω 1/2W N. I. R.
mC8, 9	49338700	5600μF 63V E. C.
mC10, 11	08680400	0.01μF 500V C. C.
mRL1	48982000	Relay.
•Transistor		
oQ1	46540801	2SC2878
or	46604301	2SC3327
oQ2	46367101	2SC2603
or	48058801	2SC1740S
oQ3	46834200	DTA144ES
oQ21	48229400	DTA114TS
•IC		
oIC1	49312200	TC9163N
oIC2	46147700	M5218L
•Diode		
oD20	83000100	1N4148

Parts No.	Stock No.	Description
•Zener Diode		
oDZ21	48554300	MTZ10C
or	48554400	MTZ10D
or	48554500	MTZ11A
oC1	48660200	47pF 50V C. C. (XX, SS, UL, CSA, EU, UK, SEV)
●	48662600	100pF 50V C. C. (EG)
oC2	48659400	22pF 50V C. C. (XX, SS, UL, CSA, EU, UK, SEV)
●	48663000	220pF 50V C. C. (EG)
oC3	48660200	47pF 50V C. C. (XX, SS, UL, CSA, EU, UK, SEV)
●	48662600	100pF 50V C. C. (EG)
oC4	48659400	22pF 50V C. C. (XX, SS, UL, CSA, EU, UK, SEV)
●	48662600	100pF 50V C. C. (EG)
oC5	48663000	220pF 50V C. C. (XX, SS, UL, CSA, EU, UK, SEV)
●	48662600	100pF 50V C. C. (EG)
oS30	83045800	Slide SW., (XX, SS)
△ pC1	46425800	0.01μF 400V C. C.
△ or	46943200	0.01μF 400V C. C.
△ pF1	83021900	Fuse 3A (XX, SS)
△ ●	83022100	Fuse 5A (UL, CSA)
△	83024000	Fuse 3.15A (EU, EG, SEV, UK)
△ pF2	83021900	Fuse 3A (XX, SS)
	83012600	Mini Jack, SYSTEM CONTROL
	48528400	2P Terminal, PHONO
	48528300	6P Terminal, TAPE1/CD
	48528200	4P Terminal, TAPE2
	48987400	2P Pin Jack, VCR/VDP
	49299700	Antenna 4P Terminal (XX, SS, UL, CSA)
	49320400	Antenna 2P Terminal (EU, EG, SEV, UK)
	46947500	Speaker 8P Terminal

1-2. F-6007 Power Amp. Board

<Stock No. 01122401>

Parts No.	Stock No.	Description
•Transistor		
kQ1	46367001	2SA1115
or	46392001	2SA1175
kQ2	48577701	2SA1349
kQ3, 4	46728301	2SC2705
or	48113001	2SC2229
kQ5	03064001	2SC1904
or	46128101	2SC2911
kQ6	03007901	2SA899
or	46128001	2SA1209
kQ8	48061801	2SC3244
kQ9	48064001	2SA1284
kQ10	49318301	2SC3421
or	49318501	2SC2590
kQ11	49318201	2SA1358
or	49318401	2SA1110
•Diode		
kD1	46464100	1SS133
kVR1	● 48078400	470Ω S. V. R., BIAS
△ kR11	46404400	1kΩ 1/2W N. I. R.
△ kR12	46403400	150Ω 1/2W N. I. R.
△ kR18	46405300	5.6kΩ 1/2W N. I. R.
△ kR19	46402700	39Ω 1/2W N. I. R.
△ kR20	46403400	150Ω 1/2W N. I. R.
△ kR21	46404400	1kΩ 1/2W N. I. R.
△ kR23, 24	46402600	33Ω 1/2W N. I. R.
△ kR29	46404400	1kΩ 1/2W N. I. R.
△ kR30	46403300	120Ω 1/2W N. I. R.
△ kR31	46404400	1kΩ 1/2W N. I. R.
△ kR32, 33	46401600	4.7Ω 1/2W N. I. R.

1-3. F-6003 Input Selector Board

<Stock No. 01117201>

Parts No.	Stock No.	Description
nLD1	48841100	SEL3210S, POWER STANDBY
•IC		
oIC3	48525000	BX1407
or ●	49324500	SBX1483-52
•Diode		
oD1~10	46464100	ISS133
oS1	● 83049900	Push SW., 1
oS2	● 83049900	Push SW., 2
oS3	● 83049900	Push SW., 3
oS4	● 83049900	Push SW., 4
oS5	● 83049900	Push SW., 5
oS6	● 83049900	Push SW., 6
oS7	● 83049900	Push SW., 7
oS8	● 83049900	Push SW., 8
oS9	● 83049900	Push SW., 9
oS10	● 83049900	Push SW., 0
oS11	● 83049900	Push SW., ^
oS12	● 83049900	Push SW., √
oS13	● 83049900	Push SW., CHARA
oS14	● 83049900	Push SW., CLEAR
oS15	● 83049900	Push SW., MONO
oS16	● 83049900	Push SW., ENT
oS17	● 83049900	Push SW., F DIRECT
oS18	● 83049900	Push SW., P SCAN
oS19	● 83049900	Push SW., BAND
oS20	● 83049900	Push SW., AUTO/H
oS22	● 83049900	Push SW., POWER
oS23	● 83049900	Push SW., PHONO
oS24	● 83049900	Push SW., CD
oS25	● 83049900	Push SW., TU
oS26	● 83049900	Push SW., TA
oS27	● 83049900	Push SW., V1
oS28	● 83049900	Push SW., V2
•Transistor		
sQ1, 2	46367101	2SC2603
sQ2	48058801	2SC1740S
sQ3	46367101	2SC2603
or	48058801	2SC1740S
sQ4~6	46719900	DTC124ES
sQ7	46367101	2SC2603
or	48058801	2SC1740S
sQ9	46834300	DTC144ES
•IC		
sIC1	49346400	TMP47C870N-4612
sX01	48241600	Ceramic OSC Element KBR 4.0MS
•Diode		
sD1~6	46464100	ISS133
sFL1	49317100	FL Display Tube CP3023GR
sR10, 11	49346000	10kΩ X7 A. R.
sC4	48388400	4700 μF 6.3V E. C.

1-4. F-6004 Speaker Switch Board

Parts No.	Stock No.	Description
△ kR39, 40	46402000	10Ω 1/2W N. I. R.
△ kR41	46242800	220Ω 1W N. I. R.
kL1	83020100	Inductor
oS31	83045900	Push SW., SPEAKERS
	46579600	Jack, PHONE

1-5. F-6009 Voltage Selector Board (SEV only)

Parts No.	Stock No.	Description
pF3	83023500	Fuse 1A

1-6. F-6010 Volume Motor Drive Board

Parts No.	Stock No.	Description
•IC		
jIC2	07233100	BA6109
•Zener Diode		
jDZ1	48552200	MTZ5.1C
jC15	48666200	0.01 μF 50V C. C.
jVR1	48977500	150kΩ (B)V. R., Master VR with Motor

1-7. F-6011 Tone Control Board

Parts No.	Stock No.	Description
•IC		
jIC1	46673800	M5218P
jC2	48660200	47pF 50V C. C.
jC3	48102000	10 μF 16V E. B.
jC5	48102900	0.15 μF 50V E. B.
jC9	48663700	820pF 50V C. C.
jC10	48665900	5600pF 50V C. C.
jC17	● 48663000	220pF 50V C. C.
jVR2	83012800	50kΩ (C)V. R., BASS
jVR3	83012800	50kΩ (C)V. R., TREBLE
jVR4	83013000	250kΩ V. R., BALANCE
jVR5	83046000	150kΩ (B)V. R., LOUDNESS

1-8. F-6012 VOLUME LED Board

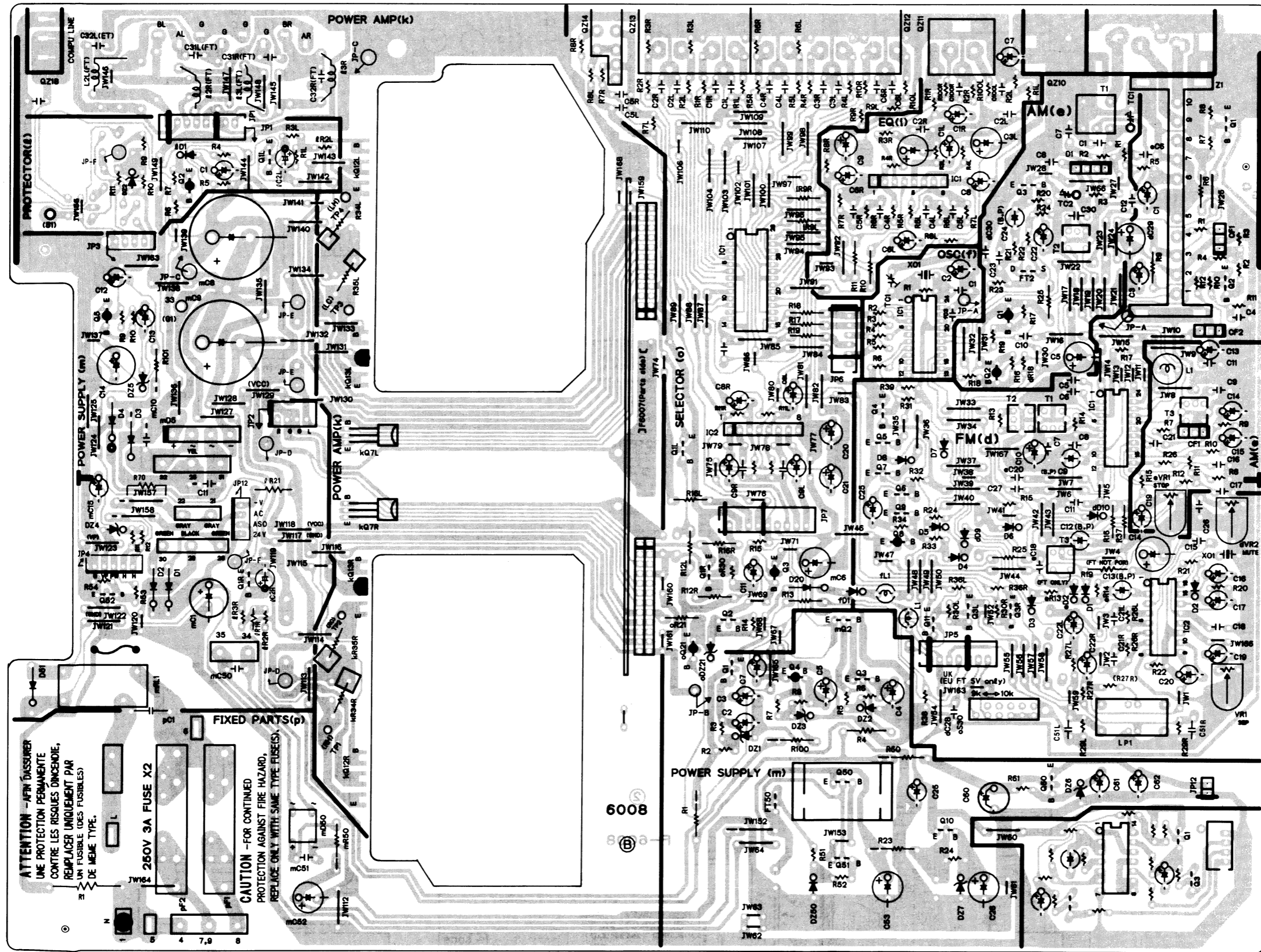
Parts No.	Stock No.	Description
•LED		
nLD2	● 48841100	SEL3210SCD, VOLUME

1-9. F-6448 Protector Board <Stock No. 01243801>

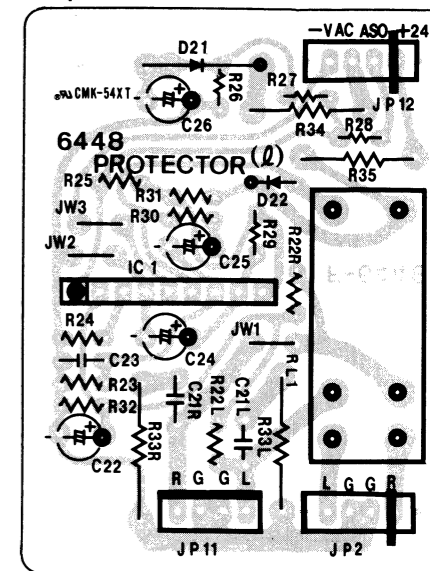
Parts No.	Stock No.	Description
•IC		
iIC1	● 46207600	TA7317P
•Diode		
iD21	● 83005000	1N4002
iD22	● 46464100	ISS133
iC23	● 48663400	470pF 50V C. C.
iRL1	● 48183100	Relay

2. PARTS LOCATION ON BOARD

2-1. F-6008 Main Board
Component Side

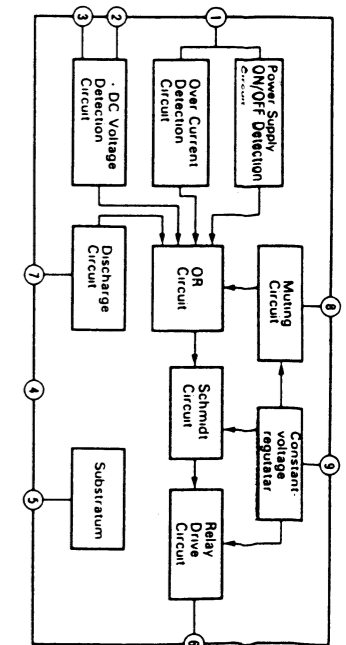


2-2. F-6448 Protector Board
Component Side



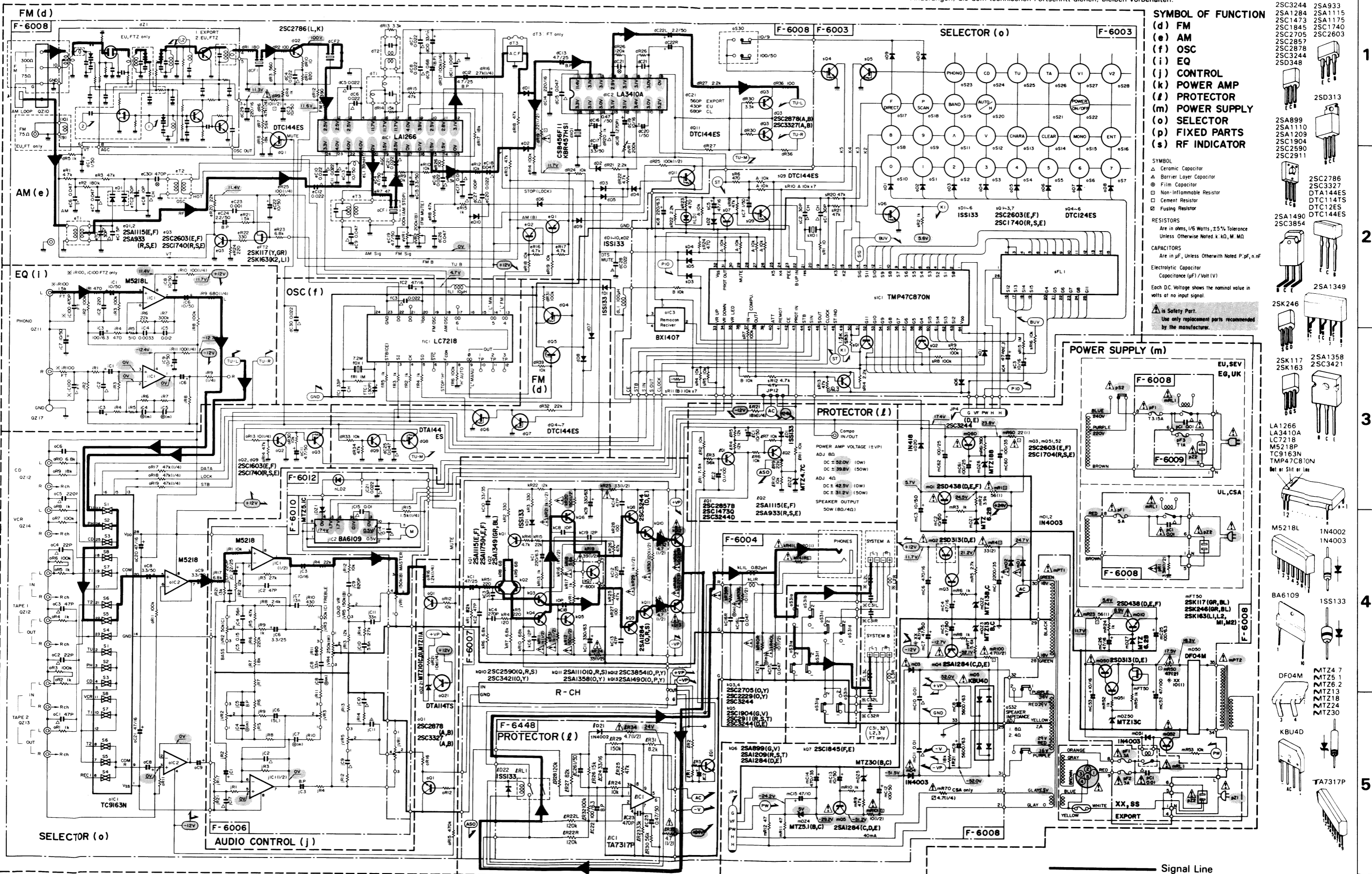
3. INTERIOR BLOCK DIAGRAM OF IC

• TA7317P (Protector)



4. SCHEMATIC DIAGRAM

Design and specifications subject to change without notice for improvement.
 La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



- SYMBOL OF FUNCTION**
- (d) FM
 - (e) AM
 - (f) OSC
 - (i) EQ
 - (j) CONTROL
 - (k) POWER AMP
 - (l) PROTECTOR
 - (m) POWER SUPPLY
 - (o) SELECTOR
 - (p) FIXED PARTS
 - (s) RF INDICATOR

- RESISTORS**
 Are in ohms, 1/8 Watts, ±5% Tolerance
 Unless Otherwise Noted: k, M, MΩ
- CAPACITORS**
 Are in μF, Unless Otherwise Noted: p, pF, n, nF
- Electrolytic Capacitor**
 Capacitance (μF) / Volt (V)
- Each DC Voltage shows the nominal value in volts of no input signal.
- is Safety Part.**
 Use only replacement parts recommended by the manufacturer.

- 2SC3244
- 2SA1284
- 2SC1473
- 2SC1845
- 2SC2705
- 2SC2857
- 2SC2878
- 2SC3244
- 2SD348
- 2SA933
- 2SA1115
- 2SA1175
- 2SC1740
- 2SC2603

- 2SC2786
- DTA144ES
- DTC114TS
- DTC12ES
- DTC144ES

- 2SA1490
- 2SC3854

- 2SA1349
- 2SK246

- 2SK117
- 2SK163

- 2SA1358
- 2SC3421

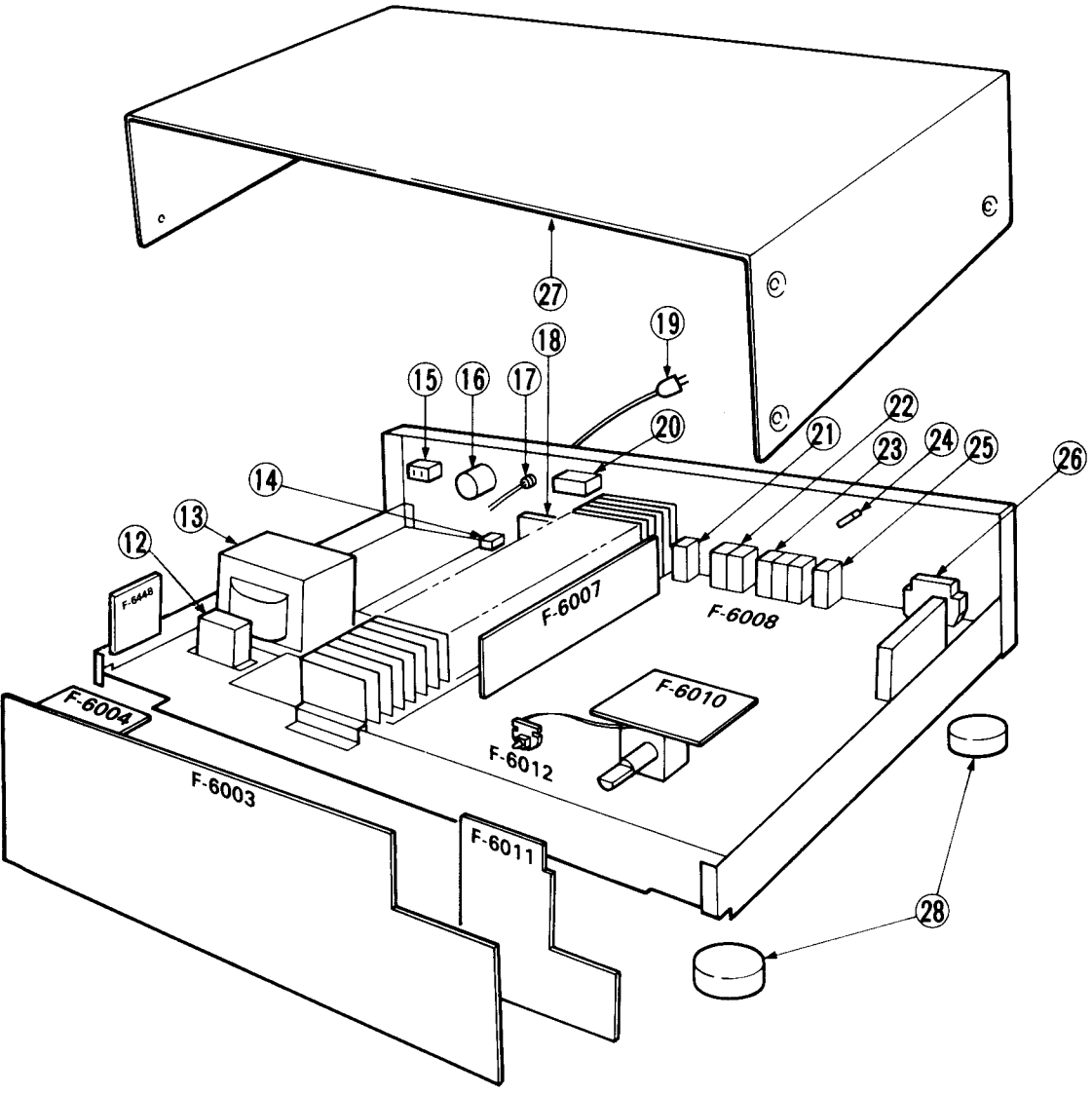
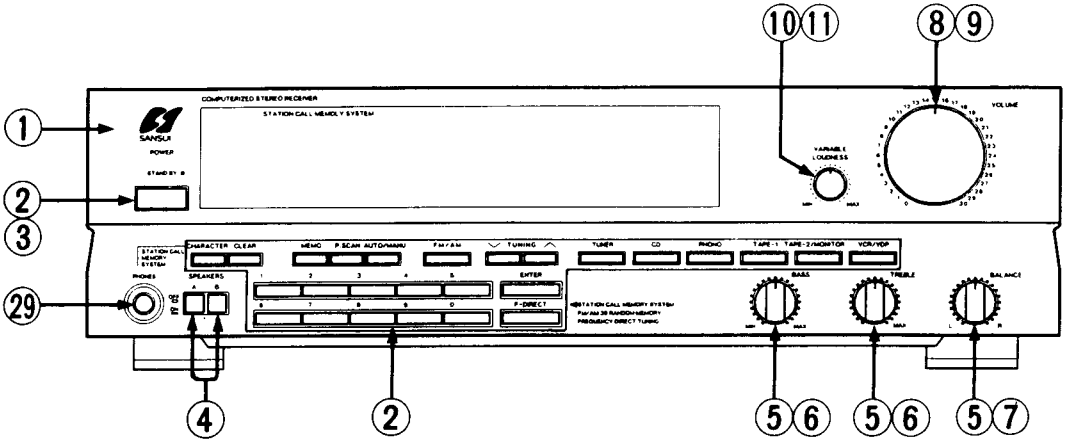
- LA1266
- LA3410A
- LC7218
- M5218P
- TC9163N
- TMP47C810N

- M5218L
- BA6109

- DF04M
- KBU4D

- TA7317P

5. EXPLODED VIEW OF SET & PARTS LIST



RZ-3500

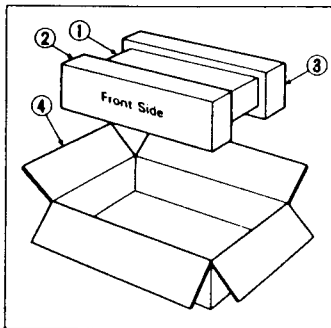
Parts List

Parts No.	Stock No.	Description
1	58892000	Front Panel Ass'y
2	83003000	Push Switch
3	84580000	Knob, SPEAKERS
4	83045900	Push Switch, SPEAKERS
5	84580100	Knob, BASS•TREBLE•BALANCE
6	83012800	Tone Control VR., 50kΩ
7	83013000	Balance VR., 250kΩ
8	84599900	knob, Master Volume
9	48977500	Master VR., 150kΩ
10	48580200	knob, LOUDNESS
11	83046000	LOUDNESS VR., 150kΩ
△ 12	83046401	Power Transformer, MPT2 (XX, SS)
△	83046402	Power Transformer, MPT2 (UL, CSA)
△	83046405	Power Transformer, MPT2 (EU, EG, SEV, UK)
△ 13	83046309	Power Transformer, MPT1 (XX, SS)
△	83046302	Power Transformer, MPT1 (UL)
△	● 83046303	Power Transformer, MPT1 (CSA)
△	83046305	Power Transformer, MPT1 (EU, EG, SEV, UK)
14	83012600	System Control Jack
△ 15	83002500	AC Outlet (EU, EG, SEV)
△	83004100	AC Outlet (XX, SS)
△	83002200	AC Outlet (UL, CSA)
△	● 46364800	AC Outlet (UK)

Parts No.	Stock No.	Description
△ 16	48175200	Voltage Selector (XX, SS)
△	07204700	Voltage Selector Switch (EU, EG, SEV, UK)
17	39106000	Strain Lierief(XX)
	48913500	Strain Lierief(SS, EU, EG, SEV, UK)
	39104900	Strain Lierief(UL, CSA)
18	46947500	8P Speaker Terminal
△ 19	83000400	Power Supply Cord (XX)
△	83000500	Power Supply Cord (CSA)
△	83003600	Power Supply Cord (UL)
△	83034900	Power Supply Cord (SS)
△	83000600	Power Supply Cord (EU, EG, SEV)
△	● 83041600	Power Supply Cord (UK)
20	49543000	Speaker Impedance Switch
21	48987400	2P VCR/VDP Terminal
22	48528200	4P TAPE2 Terminal
23	48528300	6P TAPE1/CD Terminal
24	84528300	Ground Terminal
25	48528400	2P PHONO Terminal
26	49299700	4P Antenna Terminal (XX, UL, CSA, SS)
	49320400	2P Antenna Terminal (EU, EG, SEV, UK)
27	84578510	Bonnet
28	● 84586400	Foot
29	46579600	Head Phone Jack

6. PACKING LIST

Parts No.	Stock No.	Description
1	47859600	Vinyl Bag
2	84582400	Styrofoam Packing, Front Side
3	84584600	Styrofoam Packing, Rear Side
4	● 84637900	Carton Case
	● 47428000	Polyethylene sheet



7. ACCESSORY LIST

Stock No.	Description
● 84456800	Operating Instruction (*E•F•S)
● 84456900	Operating Instruction (*G•I•Sw)
46051700	Antenna Wire
84529800	Antenna Holder
48489800	Antenna Plug
83041000	AM Loop Antenna
	Dry Battery, UM-4
49299510	Remote Controller, RS-1070

*Note:

E•F•S: English•French and Spanish Version
G•I•Sw: German•Italian and Swedish Version



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(SM2-183)

Printed in Japan (1990.06.P) <Stock No. 36552700>