SERVICE MANUAL

INTEGRATED AMPLIFIER

SANSUI AU-D55X

(Silver & Black Model)



Sansui

• SPECIFICATIONS

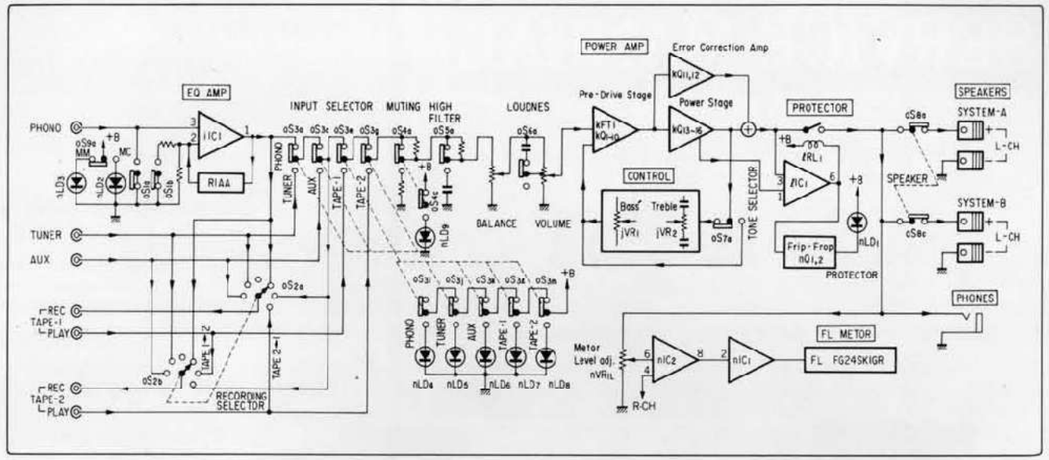
Power output
Min. RMS, both channels driven, from 20 to 20,000 Hz w
no more than 0.004% total harmonic distortion.
70 watts per channel into 8 ohms
Load impedance..... 8 ohms
Total harmonic distortion
..... less than 0.004% at or belo
rated min. RMS power outp
Intermodulation distortion
(60 Hz : 7 kHz = 4 : 1 SMPTE method)
..... less than 0.004% at rated
Frequency response (at 1 watt)
Overall (from AUX/DA)
..... DC to 300,000 Hz,
+0 dB, —3.0 dB
RIAA curve deviation (PHONO-MM, 20 Hz to 100 kH
..... +0.2 dB, —0.5 dB (REC OU
Damping factor (1 kHz, both channels driven)
..... 50 into 8 ohms
Input sensitivity and impedance (at 1 kHz)
PHONO-MC..... 250μV/100 ohms
(Max. input capability: 15 mV at 1 kHz, less tha
0.008% total harmonic distortion)
PHONO-MM..... 2.5 mV/47 kilohms
(Max. input capability: 150 mV at 1 kHz, less th
0.005% total harmonic distortion)
AUX/DA, TUNER, TAPE PLAY-1,2
..... 200 mV/47 kilohms
Output level (1,000 Hz)
TAPE REC-1,2..... 200 mV into 47 kilohms
Channel separation (1 kHz, at rated power output)
PHONO-MM..... 72 dB
AUX/DA, TUNER, TAPE PLAY-1,2
..... 80 dB
Signal to noise ration (short-circuit, A-network)
PHONO-MC..... 65 dB
PHONO-MM..... 85 dB
AUX/DA, TUNER, TAPE PLAY-1,2
..... 110 dB
Controls
BASS..... ±8 dB at 50 Hz
TREBLE..... ±8 dB at 10 kHz
LOUDNESS ..... +9 dB at 50 Hz
+5 dB at 10 kHz

Others

Power voltage..... 120/220/240 V (50/60 Hz)
For U.S.A. and Canada 120 V (60 Hz)
Power consumption..... 320 watts 380 VA Rated
530 watts Maximum
Dimensions..... 430 mm (16-15/16") W
112 mm (4-7/16") H
334 mm (13-3/16") D
Weight..... 7.7 kg (17.0 lbs.) net
8.7 kg (19.2 lbs.) packed

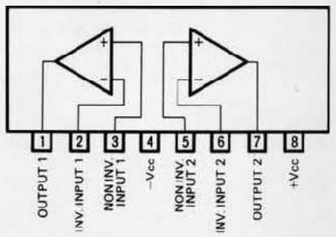
* **Design and specifications subject to change with notice for improvements.**

1. BLOCK DIAGRAM

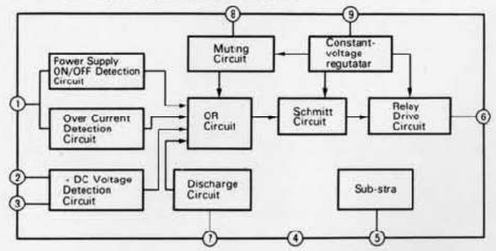


2. INTERIOR BLOCK DIAGRAM OF IC

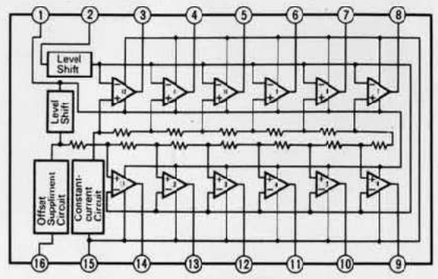
•M5220L (Audio Pre Amp. IC)



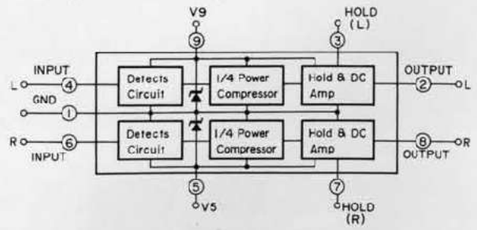
•TA7317P (Speaker Protector IC)



•HA12010 (FL Display Tube Drive IC)



•TA7318P (Meter Drive IC)



3. ADJUSTMENT (See Top View on page 9)

3-1. Driver Circuit Adjustment

Note: 1) Master Volume .... Minimum
2) Room Temperature ... 18°C ~ 28°C (65°F ~ 83°F)
3) Before turning ON power switch, set kVR1 on F-3975 to center position.
4) Before turning ON power switch, set kVR2 on F-3975 fully counterclockwise.

STEP	SUBJECT	MEASURE OUTPUT	ADJUST	ADJUST FOR	REAMRKS
1.	DC 0V Adj. L-CH	Speaker Terminal (L-ch)	kVR1, L-ch (F-3975)	DC 0V ± 5 mV	
2.	DC 0V Adj. R-CH	Speaker Terminal (R-ch)	kVR1, R-ch (F-3975)	DC 0V ± 5 mV	
3.	Bias Current Adj. L-CH	Between emitters of power transistors (kQ15 & kQ16) (Across kR39L)	kVR2, L-ch (F-3975) at 1 minute after turning the power ON.	DC 3.0 mV	Before adjustment, the temperature of the transistors and the radiator must be same as room temperature.
4.	Bias Current Adj. R-CH	Between emitters of power transistors (kQ15 & kQ16) (Across kR39R)	kVR2, R-ch (F-3975) at 1 minute after turning the power ON.	DC 3.0 mV	

3-2. PEAK POWER Indicator Level Adjustment

Note: Turn nVR1 on conductor side of F-3977 fully counterclockwise

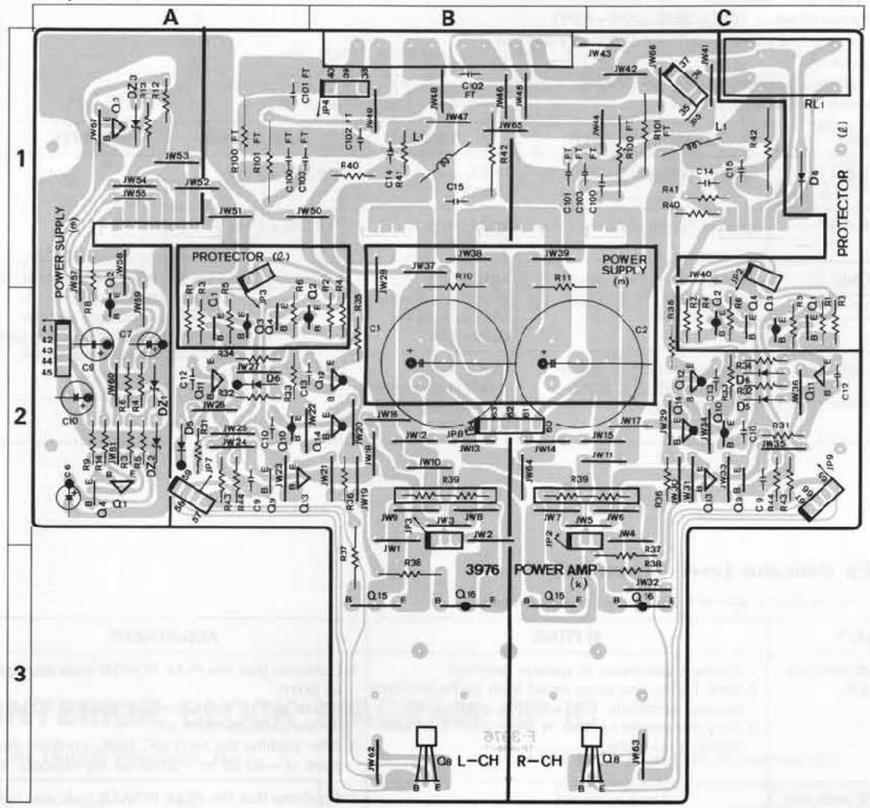
STEP	SUBJECT	SETTING	ADJUSTMENT
1.	PEAK POWER Indicator Level Adj. L-CH	1. Connect volt-meter at speaker terminal. 2. Feed 1 kHz sine-wave signal from audio oscillator to input terminals. L-ch and R-ch of the unit. 3. Turn the master volume to show 23.7 V on volt-meter at no-loaded.	1. Confirme that the PEAK POWER Indicator light at all point. 2. Adjust nVR1L, then confirme that the +2 dB point on the indicator turn off. 3. After pushing the MUTING knob, confirme that the point of —40 dB to —20 dB on the indicator stay on.
2.	PEAK POWER Indicator Level Adj. R-CH	Same as above	1. Confirme that the PEAK POWER Indicator lights at all point. 2. Adjust nVR1R, then confirme that the +2 dB point on the indicator turn off. 3. After pushing the MUTING knob, confirme that the point of —40 dB to —20 dB on the indicator stay on.

4. PARTS LOCATION & PARTS LIST

•Since some of capacitors and resistors are omitted from parts lists in this Service Manual, refer to the Common Parts List for capacitors & resistors, which was appended previously to Sansui Manual.

4-1. F-3976 Driver Amp. & Power Supply Circuit Board (Stock No. 00731301)

Component Side



Parts List

Parts No.	Stock No.	Description
•Transistor		
kQ8	03068301	2SC2320
	or 07194801	2SC1815
kQ9	03085201	2SD438
kQ10	03033601	2SB560MP
kQ11	07206401	2SD600K
kQ12	07206301	2SB631K
kQ13	03086101	2SD357
kQ14	03034401	2SB527
kQ15	03068101	2SC2581NLB
kQ16	03011401	2SA1106NLB
kR31	46229400	220Ω 1/2W N.I.R.
kR33	46229400	220Ω 1/2W N.I.R.
kR34	46228400	33Ω 1/2W N.I.R.
kR35	46228400	33Ω 1/2W N.I.R.
kR36	46229100	120Ω 1/2W N.I.R.
kR39	46184100	0.22Ω x 2 5W Ce.R.
kR40	46227800	10Ω 1/2W N.I.R.
kR41	46229500	270Ω 1/2W N.I.R.
kR42	00190600	4.7Ω 2W N.I.R.
kR100	00190600	4.7Ω 2W N.I.R.
kR101	00190600	4.7Ω 2W N.I.R.
kC14	46283000	0.012μF 50V F.C.
kC15	46284100	0.1μF 50V F.C.
kL1	46027200	Inductor 1μH

Parts No.	Stock No.	Description
•Transistor		
IQ1	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
IQ2	46367201	2SA1048
	or 46367001	2SA1115
	or 46392001	2SA1175
IQ3	46367201	2SA1048
	or 46367001	2SA1115
	or 46392001	2SA1175
IQ4	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
•Diode		
ID6	03117700	10E-2
IL1	46254900	Relay
•Transistor		
mQ1	03083902	2SD313AL
mQ2	03033601	2SB560MP
mQ4	46367301	2SC2458
•Zener Diode		
mDZ1	46115600	05Z22-X
mDZ2	46115600	05Z22-X
mDZ3	03178800	RD12E-B

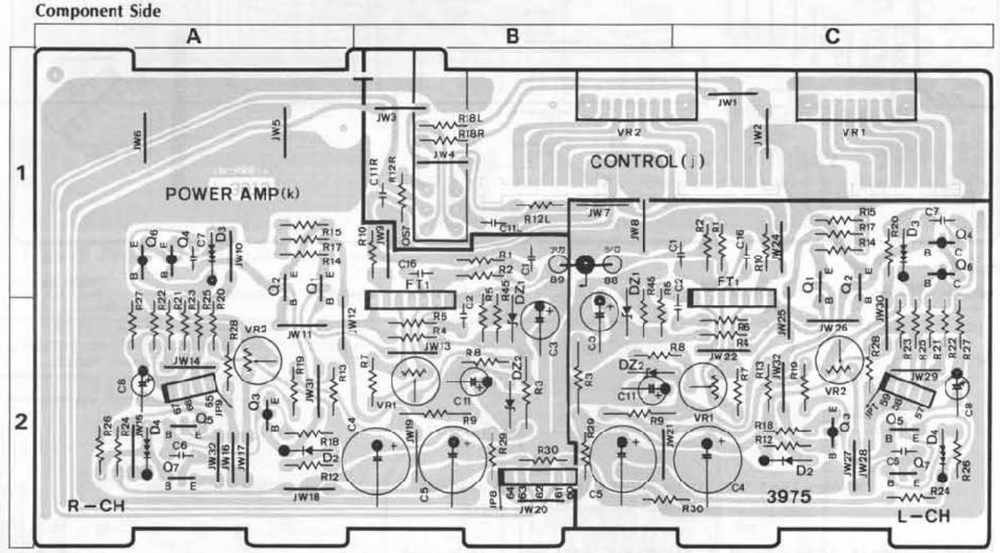
Parts List <F-3976>

Parts No.	Stock No.	Description
mR8	46229500	270Ω 1/2W N.I.R.
mR9	46229500	270Ω 1/2W N.I.R.
mR10	46251600	8.2kΩ 1W N.I.R.
mR11	46251600	8.2kΩ 1W N.I.R.
mR12	46229300	180Ω 1/2W N.I.R.
mR13	46230800	3.3kΩ 1/2W N.I.R.
mR14	46228600	47Ω 1/2W N.I.R.

Parts No.	Stock No.	Description
mC1	46506900	10000μF 63V E.L.
mC2	46506900	10000μF 63V E.L.
	46364100	8P Push Terminal Board, SPEAKER

4-2. F-3975 Differential Amp. Circuit Board (Stock No. 00731201)

Component Side



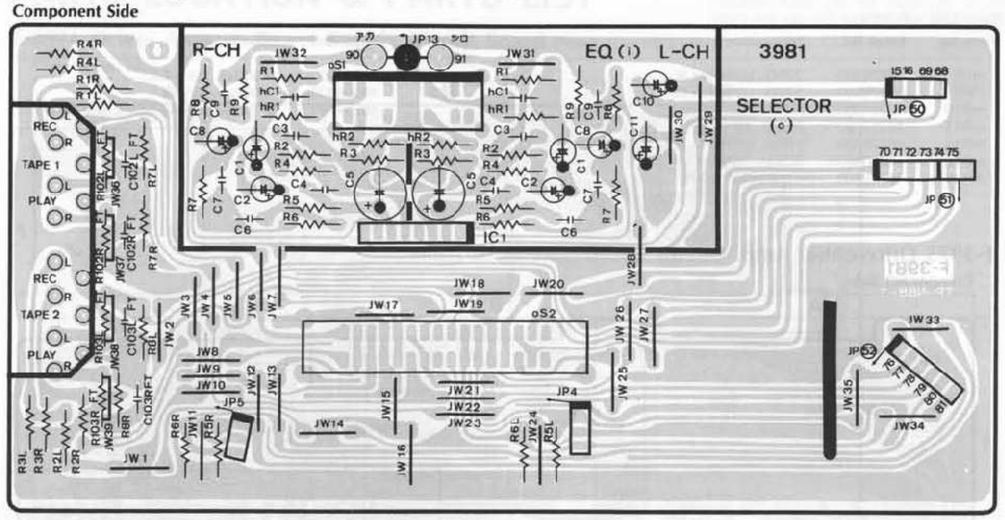
Parts List

Parts No.	Stock No.	Description
jVR1	46159800	50kΩ (C) x 2 V.R., BASS
jVR2	46159800	50kΩ (C) x 2 V.R., TREBLE
•Transistor		
kQ1	03067401	2SC1845
	or 07299101	2SC2240
kQ2	03067401	2SC1845
	or 07299101	2SC2240
kQ3	03010901	2SA992
	or 07299001	2SA970
kQ4	03010901	2SA992
	or 07299001	2SA970
kQ5	03067401	2SC1845
	or 07299101	2SC2240
kQ6	03007901	2SA899
kQ7	03064001	2SC1904
•FET		
kFT1	07110000	μPA68H-L
•Diode		
kD2	03117600	1S2473

Parts No.	Stock No.	Description
•Varistor		
kD3	03401700	MV103
kD4	03401700	MV103
•Zener Diode		
kDZ1	46115100	05Z18-Y
	or 46115000	05Z18-X
kDZ2	46115700	05Z22-Y
	or 46115600	05Z22-X
kR3	00179800	1.2kΩ 1W N.I.R.
kR9	46230500	1.8kΩ 1/2W N.I.R.
kR12	46230100	820Ω 1/2W N.I.R.
kR13	46230100	820Ω 1/2W N.I.R.
kR18	46230100	820Ω 1/2W N.I.R.
kR19	46230100	820Ω 1/2W N.I.R.
kR29	46228800	68Ω 1/2W N.I.R.
kR30	46228800	68Ω 1/2W N.I.R.
kVR1	10350100	100Ω (B) S.V.R., DC 0V adj.
kVR2	10350500	470Ω (B) S.V.R., bias adj.
oS7	11319501	Push SW., TONE SELECTOR

4-3. F-3981 EQ. Amp. Circuit Board (Stock No. 00731801)

Component Side



Parts List

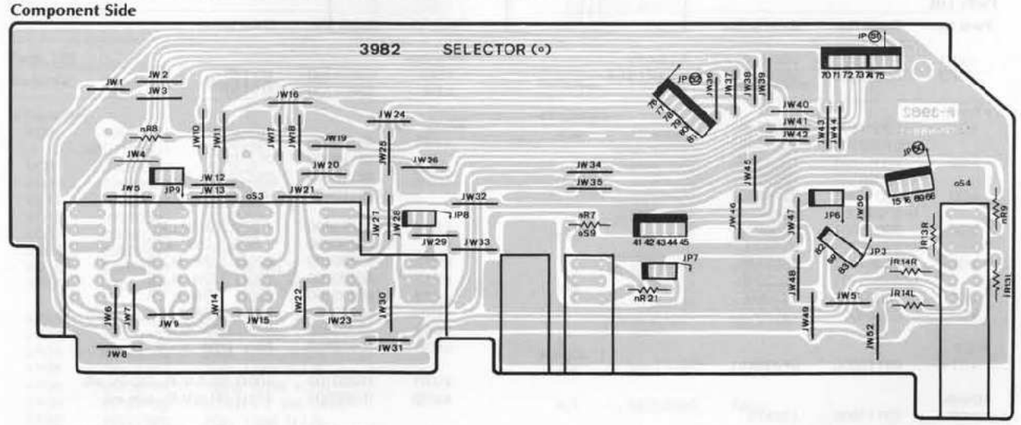
Parts No.	Stock No.	Description
hC1	46075400	150pF 125V P.C.
•IC		
iIC1	46288800	M5220L
iC3	46075200	100pF 125V P.C.

Parts No.	Stock No.	Description
oS1	46548300	Slide SW., MC & MM SELECTOR
oS2	07200200	Slide SW., RECORDING SELECTOR
	46371500	4P Input Terminal Board, TAPE-1, TAPE-2

•Note: The F-3982 circuit board is not supplied as the assembled. However, individual parts on the circuit boards are provided by order.

4-4. F-3982 INPUT SELECTOR & MUTING SW. Circuit Board

Component Side



Parts List

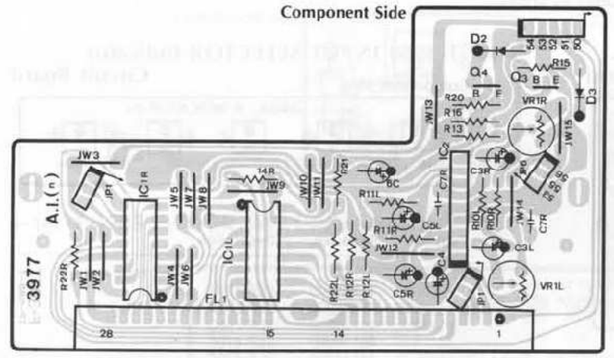
Parts No.	Stock No.	Description
nR7	46230100	820Ω 1/2W N.I.R.
nR8	46230000	680Ω 1/2W N.I.R.
nR9	46230000	680Ω 1/2W N.I.R.
nR21	46229200	150Ω 1/2W N.I.R.

Parts No.	Stock No.	Description
oS3	46162200	Push SW., INPUT SELECTOR
oS4	46161900	Push SW., MUTING
oS9	46548100	Push SW., MC & MM Indicator

AU-D55X

4-5. F-3977 F.L Meter Circuit Board (Stock No. 00731401)

Component Side

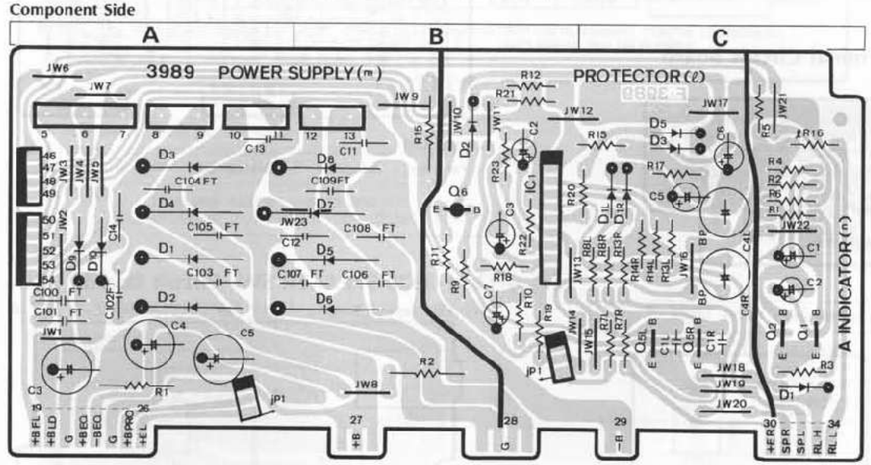


Parts List

Parts No.	Stock No.	Description
•Transistor		
nQ3	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
nQ4	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
•IC		
nIC1	46254700	HA12010
nIC2	03610000	TA7318P
•Diode		
nD2	03117600	1S2473
nD3	03117600	1S2473
nFL1	46526600	FL. Display Tube FG24SK1GR
nR14	46230600	2.2kΩ 1/2W N.I.R.
nR17	46248900	47Ω 1W N.I.R.
nR18	46248900	47Ω 1W N.I.R.
nVR1	10351100	4.7kΩ (B) S.V.R., meter level adj.

4-6. F-3989 Protector Circuit Board (Stock No. 00732601)

Component Side



Parts List

Parts No.	Stock No.	Description
•Transistor		
IQ5	03067401	2SC1845
IQ6	03010901	2SA992
•IC		
IIC1	46207600	TA7317P
•Diode		
ID1	03117600	1S2473
ID2	03117600	1S2473
ID3	03117600	1S2473
ID5	03117600	1S2473
IC4	08460200	220μF 6.3V E.B.

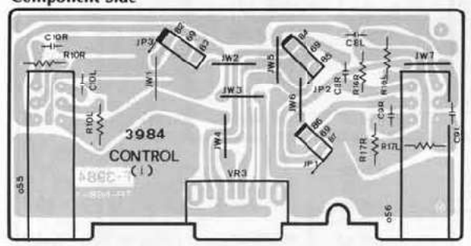
Parts No.	Stock No.	Description
•Diode		
mD1	03115300	30D2
mD2	03115300	30D2
mD3	03115300	30D2
mD4	03115300	30D2
mD5	03115300	30D2
mD6	03115300	30D2
mD7	03115300	30D2
mD8	03115300	30D2
mD9	03117700	10E-2
mD10	03117700	10E-2
mR1	46249500	150Ω 1W N.I.R.
mR15	00191900	82Ω 2W N.I.R.
mC11	08680400	0.01μF 500V C.C.
mC12	08680400	0.01μF 500V C.C.

Parts No.	Stock No.	Description
mC13	08680400	0.01μF 500V C.C.
mC14	08680400	0.01μF 500V C.C.
•Transistor		
nQ1	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
	or 46391902	2SC2785
nQ2	46367301	2SC2458
	or 46367101	2SC2603
	or 46391901	2SC2785
•Diode		
nD1	03117600	1S2473
nLA1	46438300	Pilot Lamp 12V 0.1A

•Note: The circuit boards, F-3984, F-3980, F-3983, F-3988, F-3726, F-3978, F-3979, F-3985, F-3986 & F-3987 are not supplied as the assembled. However, the individual parts on the circuit boards are provided by orders.

4-7. F-3984 HIGH FILTER, LOUDNESS SW. & BALANCE V.R. Circuit Board

Component Side

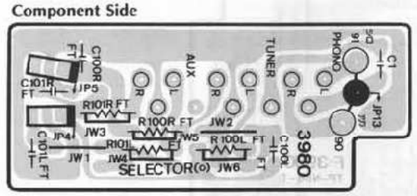


Parts List

Parts No.	Stock No.	Description
jC8	46137400	330pF 50V C.C.
jVR3	46097500	250kΩ (MN) V.R., BALANCE
oS5	11319501	Push SW., HIGH FILTER
oS6	11319501	Push SW., LOUDNESS

4-8. F-3980 Input Terminal Circuit Board

Component Side

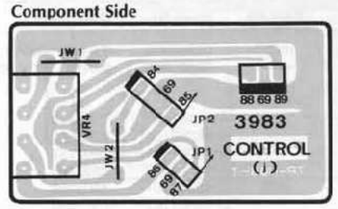


Parts List

Parts No.	Stock No.	Description
oC100	46140000	470pF 50V C.C.
oC101	46140000	470pF 50V C.C.
	46546800	6P Input Terminal Board, PHONO/TUNER/AUX

4-9. F-3983 VOLUME Circuit Board

Component Side

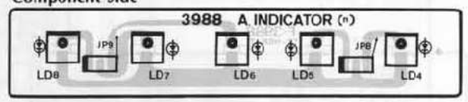


Parts List

Parts No.	Stock No.	Description
jVR4	46159900	150kΩ (B) x 2 V.R., VOLUME

4-10. F-3988 INPUT SELECTOR Indicator Circuit Board

Component Side

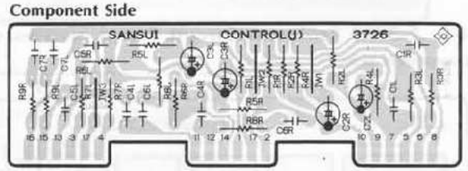


Parts List

Parts No.	Stock No.	Description
•LED		
nLD4	46173900	SLP-270C
nLD5	46173900	SLP-270C
nLD6	46173900	SLP-270C
nLD7	46174000	SLP-470C
nLD8	46174000	SLP-470C
nLD9	46174000	SLP-470C

4-11. F-3726 Tone Control Circuit Board

Component Side

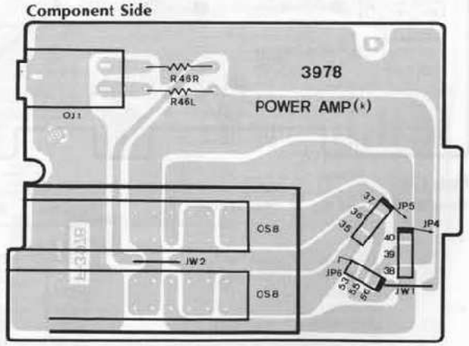


Parts List

Parts No.	Stock No.	Description
jC2	46561700	0.22μF 50V E.BL.

4-12. F-3978 SPEAKER SW. Circuit Board

Component Side

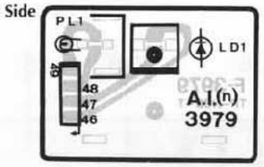


Parts List

Parts No.	Stock No.	Description
kR46	00181200	220Ω 1W N.I.R.
oS8	46548000	Push SW., SPEAKER
oJ1	46579600	PHONES Jack

4-13. F-3979 POWER Indicator Circuit Board

Component Side

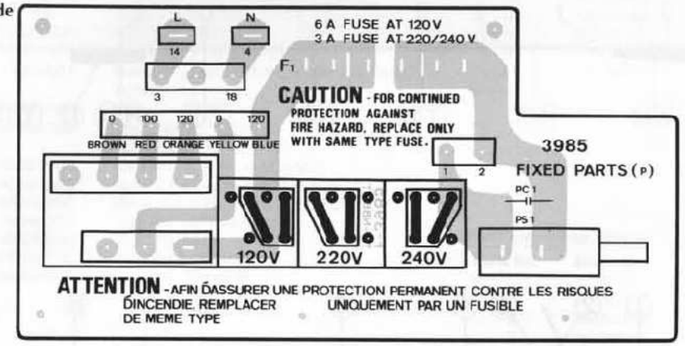


Parts List

Parts No.	Stock No.	Description
	07581900	1P LED Holder
•LED		
nLD1	46169300	SEL-1210S

4-14. F-3985 POWER SW. Circuit Board

Component Side



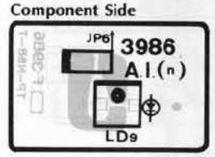
Parts List

Parts No.	Stock No.	Description
pC1	45425800	0.01μF 400V C.C.
pF1	07189200	Fuse 6.0A 250V (120V)
	or 07188800	Fuse 3.0A 250V (220V/240V)

Parts No.	Stock No.	Description
pS1	46546900	Push SW., POWER

4-15. F-3986 MUTING Indicator Circuit Board

Component Side

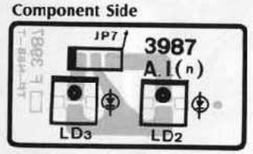


Parts List

Parts No.	Stock No.	Description
	07581900	LED Holder

4-16. F-3987 MC/MM Indicator Circuit Board

Component Side



Parts List

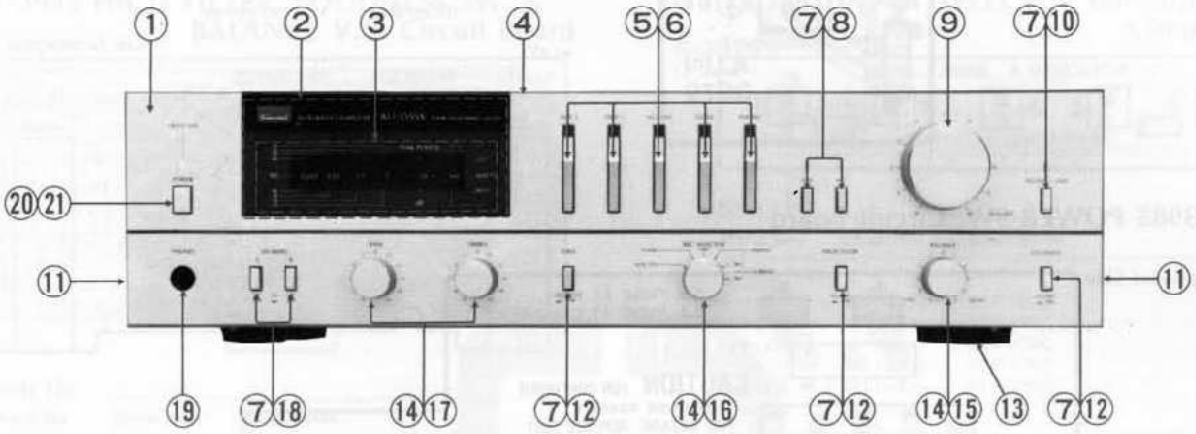
Parts No.	Stock No.	Description
	07581900	1P LED Holder
•LED		
nLD2	46173900	SLP-270C
nLD3	46169300	SEL-1210S

•Abbreviations

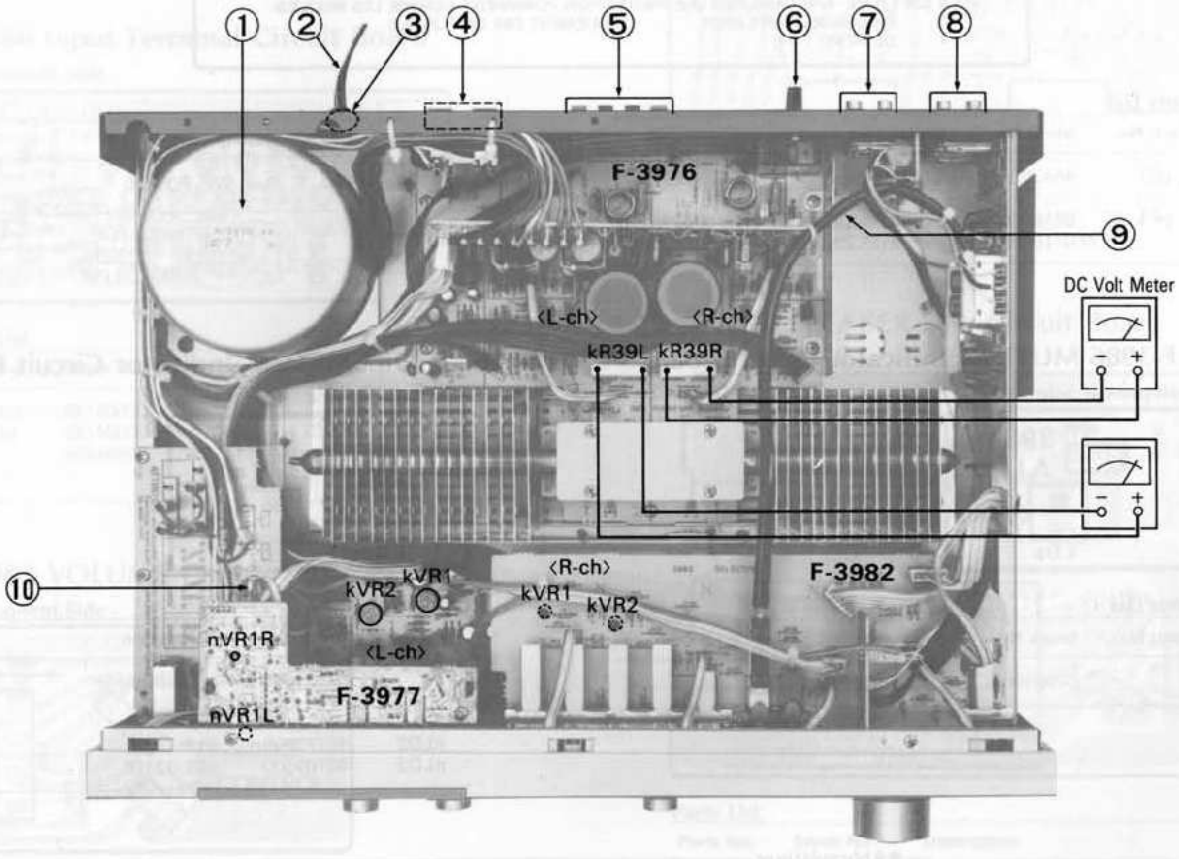
C.R.	: Carbon Resistor	E.B.	: Bi-Polar Electrolytic Capacitor
S.R.	: Solic Resistor	E.BL.	: Low Leak Bi-Polar Electrolytic Capacitor
Ce.R.	: Cement Resistor		
M.R.	: Metal Film Resistor	Ta.C.	: Tantalum Capacitor
F.R.	: Fusing Resistor	F.C.	: Film Capacitor
N.I.R.	: Non-Inflammable Resistor	M.P.	: Metalized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

5. OTHER PARTS

5-1. Front View



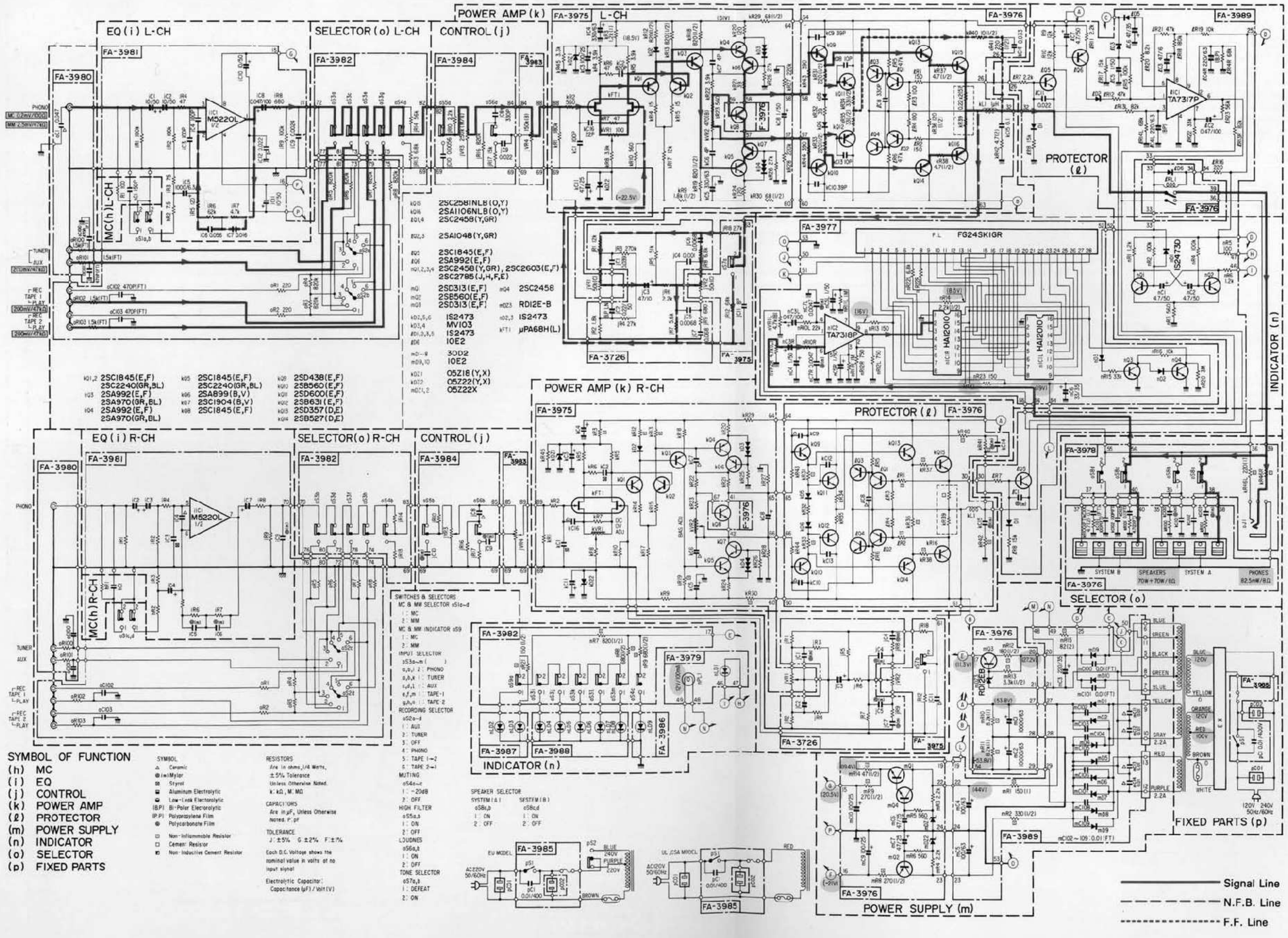
5-2. Top View

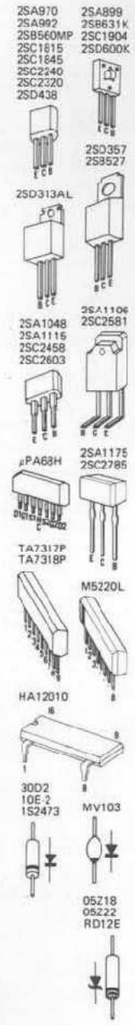


to be continued page 11 ►

6. SCHEMATIC DIAGRAM

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





Parts List <Front View>

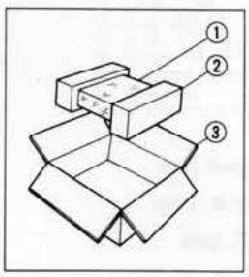
Parts No.	Stock No.	Description
<Silver Model>		
1	47153200	Front Panel Ass'y
2	47152500	Scale Plate Ass'y
3	46526600	F.L. Display Tube
4	07812000	Bonnet
5	07809300	Push Knob, PHONO, TUNER, AUX/DA, TAPE-1, TAPE-2
6	46162200	Push SW., Input Selector
7	07809500	Push Knob, MM, MC, MUTING, LOUDNESS TONE, HIGH FILTER, SPEAKERS
8	46548100	Push SW., MM/MC Selector
9	07808900	Knob with Hex Socket Setscrew M3 x 5, VOLUME
10	46161900	Push SW., MUTING
11	07201100	Screw M4 x 10, Bonnet
12	11319501	Push SW., LOUDNESS, HIGH FILTER, TONE
13	07822700	Leg
14	07808700	Knob, BASS, TREBLE, REC SELECTOR, BALANCE
15	46097500	250kΩ x 2, V.R., BALANCE
16	46161500	Rotary Flex with Flexible Wire
17	46159800	50kΩ x 2 V.R., BASS, TREBLE
18	46548000	Push SW., SPEAKERS
19	46579600	Jack, PHONES
20	07809700	Push Knob, POWER
21	46546900	Push SW., POWER
<Black Model>		
1	47153300	Front Panel Ass'y
2	47152600	Scale Plate Ass'y
3	46526600	F.L. Display Tube
4	07812100	Bonnet
5	07809400	Push Knob, PHONO, TUNER, AUX/DA, TAPE-1, TAPE-2
6	46162200	Push SW., Input Selector
7	07809600	Push Knob, MM, MC, MUTING, LOUDNESS, TONE, HIGH FILTER, SPEAKERS
8	46548100	Push SW., MM/MC Selector
9	07809000	Knob with Hex Socket Setscrew M3 x 5, VOLUME
10	46161900	Push SW., MUTING
11	00462600	Screw, M4 x 10, Bonnet
12	11319501	Push SW., LOUDNESS, HIGH FILTER, TONE
13	07822700	Leg
14	07808800	Knob, BASS, TREBLE, REC SELECTOR, BALANCE
15	46097500	250kΩ x 2 V.R., BALANCE
16	46161500	Rotary Flex with Flexible Wire
17	46159800	50kΩ x 2 V.R., BASS, TREBLE
18	46548000	Push SW., SPEAKERS
19	46579600	Jack, PHONES
20	07809800	Push Knob, POWER
21	46546900	Push SW., POWER

Parts List <Top View>

Parts No.	Stock No.	Description
1	15010701	Power Transformer
2	38004700	Power Supply Cord
3	39106000	Strain Relief
4	46399400	AC OUTLETS
5	46364100	8P Push Terminal Board, SPEAKER
6	22301500	Ground Terminal
7	46546800	6P Input Terminal Board, PHONO/TUNER/AUX/DA
8	46371500	4P Terminal Board, TAPE-1, TAPE-2
9	46548200	Flexible Wire, MM/MC Selector
10	07189200	Fuse 6.0A 250 V (120 V)
	07188800	Fuse 3.0A 250 V (220/240 V)

7. PACKING LIST

Parts No.	Stock No.	Description
1	91167820	Vinyl Bag
2	07811900	Styrofoam Packing
3	47153000	Carton Case (Silver Model)
	47152900	Carton Case (Black Model)



8. ACCESSORY LIST

	Stock No.	Description
	46525900	Operating Instruction

Sansui

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