SERVICE MANUAL

C-2

STEREO PRE-AMPLIFIER

SINCE 1887 YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

ASM-41 ① 19 ⓔ Printed in Japan. 6·76

CONTENTS

SPECIFICATIONS

INPUT SENSITIVITY IMPEDANCE/MAX. INPUT CAP

PHONO 1, 2	2mV/47KΩ	/1KHz: 300mV 20Hz: 30mV
PHONO 3 (MC)	50μV/10Ω	/1KHz: 7.5mV 20Hz: 0.75mV 20KHz: 30mV
TUNER, AUX	120mV/47K Ω /20V	

OUTPUT LEVEL/IMPEDANCE/MAX. OUTPUT LEVEL

PRE OUT 1, 2	775mV/400Ω /10V
REC OUT A, B	120mV/660Ω /18V

FREQUENCY CHARACTERISTICS

PHONO 1, 2, 3	30Hz~15KHz, 0± 0.2dB (DEVIATION FROM RIAA)
TUNER, AUX	5Hz~100KHz, 0^{+1}_{-3}dB
TAPE A, B	5Hz~100KHz, 0^{+1}_{-3}dB

TONE CONTROL CHARACTERISTICS

BASS	350Hz, 0 ± 0.5, ±1, ±1.5, ±2dB (at 50Hz)
TREBLE	3.5KHz, ±3, ±5, ±6, ±8, 10dB (at 20KHz) Note: Completely flat at 0 set setting

SUBSONIC FILTER CHARACTERISTICS

fc = 15Hz . . . . . –12dB/oct

NOISE LEVEL, S/N.

PHONO 1, 2 (IHF A NETWORK)	85dB (at INPUT 2mV)
PHONO 3 (MC) (IHF A NETWORK)	70dB (at INPUT 50μV)
TUNER, AUX (IHF A NETWORK)	100dB
TAPE A, B (IHF A NETWORK)	100dB
RESIDUAL NOISE	–∞ dBm

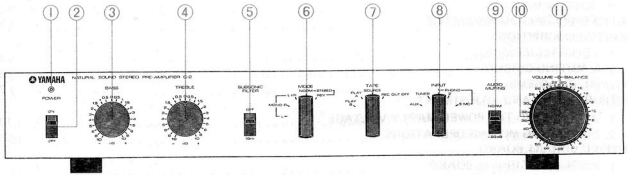
DISTORTION

PHONO 1, 2 (at VR MAX/7.75V)	Less than 0.003% (20Hz~20KHz)
(at VR –30dB/775mV)	Less than 0.003% (20H~20KHz)
PHONO 3 (MC) (at VR MAX/7.75V)	Less than 0.02% (20Hz~20KHz)
(at VR –30dB/775mV)	Less than 0.05% (20Hz~20KHz)
TUNER, AUX (at VR MAX/7.75V)	Less than 0.003% (20Hz~20KHz)
TAPE A, B (at VR –30dB/775mV)	Less than 0.003% (20Hz~20KHz)

OTHERS

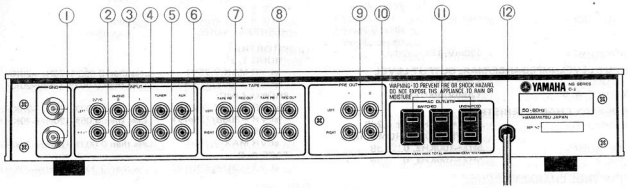
AUDIO MUTING	–20dB
SEMICONDUCTORS USED	FET Modul x 4 Transistor x 61 IC x 2 FET x 2 DIODE x 23 ZENOR DIODE x 7
POWER CONSUMPTION	25W
AC OUTLET (US & CANADIAN MODELS)	SWITCHED : 100W MAX UNSWITCHED: 400W MAX
DIMENSIONS	W: 435 x H: 72 x D: 320
WEIGHT	7.8Kg

1.FRONT PANEL



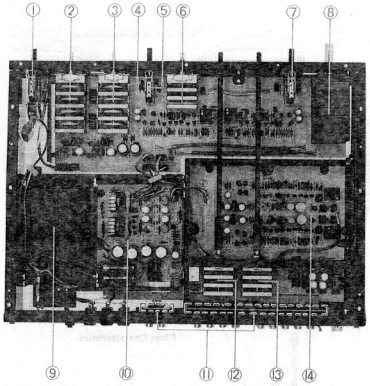
① POWER INDICATOR
② POWER SWITCH
③ TONE CONTROL (BASS)
④ TONE CONTROL (TREBLE)
⑤ SUBSONIC FILTER SWITCH
⑥ MODE SELECTOR SWITCH
⑦ TAPE SELECTOR SWITCH
⑧ INPUT SELECTOR SWITCH
⑨ AUDIO MUTING SWITCH
⑩ BALANCE CONTROL
⑪ VOLUME CONTROL

2.REAR PANEL



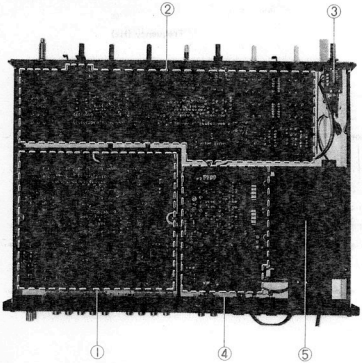
① GROUND TERMINAL
② PHONO 3/MC INPUT JACKS
③ PHONO 2 INPUT JACKS
④ PHONO 1 INPUT JACKS
⑤ TUNER INPUT JACKS
⑥ AUX INPUT JACKS
⑦ TAPE A PB / REC JACKS
⑧ TAPE B PB / REC JACKS
⑨ PRE OUT 1 JACKS
⑩ PRE OUT 2 JACKS
⑪ AC OUTLETS
⑫ AC CORD

3.TOP VIEW

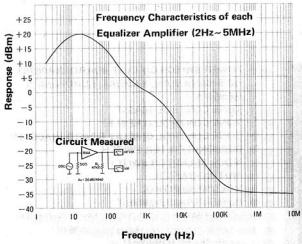


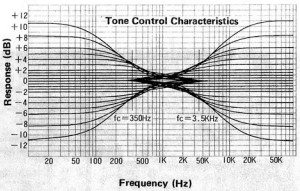
1. POWER SWITCH CIRCUIT BOARD (NA06783: US & CANADIAN, NA06784: EUROPEAN & GENERAL)
2. TONE CONTROL (BASS)
3. TONE CONTROL (TREBLE)
4. TONE CONTROL CIRCUIT BOARD (NA06781)
5. SUBSONIC FILTER SWITCH
6. MODE SELECTOR SWITCH
7. MUTING SWITCH
8. VOLUME CONTROL
9. POWER TRANSFORMER
10. POWER SUPPLY CIRCUIT BOARD (NA06785)
11. PIN JACK CIRCUIT BOARD (NA06782)
12. TAPE SELECTOR SWITCH
13. INPUT SELECTOR SWITCH
14. EQUALIZER CIRCUIT BOARD (NA06780)

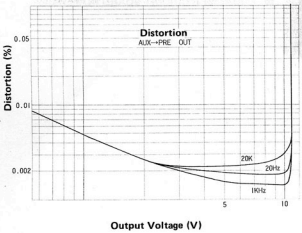
4.BOTTOM VIEW

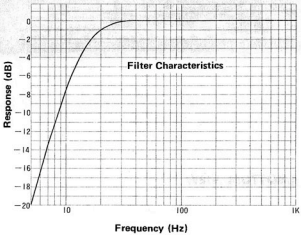


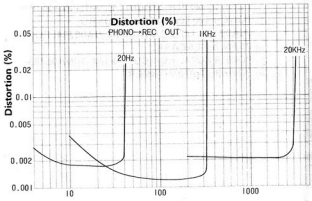
1. EQUALIZER CIRCUIT BOARD (NA06780)
2. TONE CONTROL CIRCUIT BOARD (NA06781)
3. POWER SWITCH CIRCUIT BOARD (NA06783: US & CANADIAN, NA06784: EUROPEAN & GENERAL)
4. POWER SUPPLY CIRCUIT BOARD (NA06785)
5. POWER TRANSFORMER


Frequency Characteristics of each
Equalizer Amplifier (2Hz~5MHz)
Response (dBm)
+25
+20
+15
+10
+5
0
−5
−10
−15
−20
−25
−30
−35
−40
Circuit Measured
1
10
100
1K
10K
100K
1M
10M
Frequency (Hz)


Tone Control Characteristics
Response (dB)
+12
+10
+8
+6
+4
+2
0
−2
−4
−6
−8
−10
−12
fc=350Hz
fc=3.5KHz
20
50
100
200
500
1K
2K
5K
10K
20K
50K
Frequency (Hz)


Distortion
AUX→PRE OUT
Distortion (%)
0.05
0.01
0.002
20K
20Hz
1KHz
5
10
Output Voltage (V)


Filter Characteristics
Response (dB)
0
−2
−4
−6
−8
−10
−12
−14
−16
−18
−20
10
100
1K
Frequency (Hz)


Distortion (%)
PHONO→REC OUT
Distortion (%)
0.05
0.02
0.01
0.005
0.002
0.001
1KHz
20Hz
20KHz
10
100
1000
Input Voltage (mV)

1.EQUALIZER CIRCUIT

Description of the tone control circuit will be deleted here in as much as the equalizer and tone control circuits are of equivalent comosition. The equalizer amplifier incorporates a bottstrap current mirror differential input, Darlington connected constant current load emitter grounded amplifier and a pure complementary Class A push-pull power output.

The initial differential amplifier stage (IC203) retains excellent electrical and temperature characteristics as it incorporates in a single package the FET which was developed by Yamaha for use with the C-2. As this differential stage is operated by the current mirror Cascode Bootstrap Constant Current Bias, deterioration from distortions resulting from changes in the signal source impedance is eliminated.

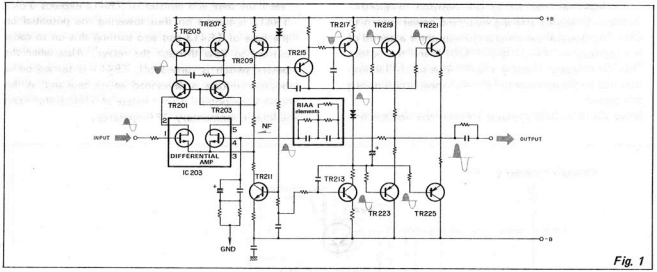


Fig. 1

• CIRCUIT OPERATION

In source grounded circuits, the drain voltage fluctuates in relation to variations in gate voltage and, as shown in Figure 2, source-grounded feedback capacitance (Crss) develops between the gate and drain and leakage current IDG between the drain of the FET itself and the source. Although there is no ill effects when the signal source impedance is low, when the impedance is high (when a volume control or catridge coil is added to the input side) however, the input signal will be distorted at the time it enters the differential stage.

In Figure 3, as distortion develops in the circuit, the transistor to be connected to the drain is emitter connected to reduce impedance and a bootstrap circuit provided to maintain the phase between the FET drain and source at a constant value.

Also, by incorporating a current mirror circuit, distortion during the even period is cancelled out.

In the second stage, ample gain is obtained by reducing the load in the first stage by employing Darlington connections constant current load with grounded emitter. The output stage employs two pairs of transistors with well-matched high threshold frequency characteristics (f = 100MHz) and excellent complementary characteristics in a pure complementary Class A parallel push-pull circuit to obtain

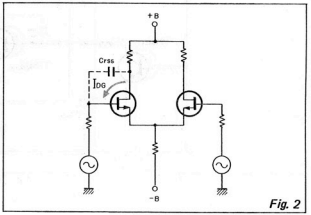


Fig. 2

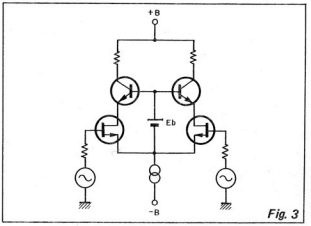


Fig. 3

high output with low distortion by lowering the impedance (600 ohms) and stabilizing the load.
Further, high accuracy of within ± 0.2dB of RIAA deviation is obtained with the use of high-grade styrol condensers and metallic film resistors as the RIAA elements.

2.MUTING CIRCUIT

The relays will be set to ON position in approximately 5 seconds aftering switching power switch to ON. To prevent the emission of sound for a period of 5 seconds, the REC. OUT. ON-OFF and the output ON-OFF relays in Figure 4 will not be set to ON position due to the operation of the muting circuit during this period.
When C415 is fully charged (when the voltage between the base and emitter of TR412 exceeds 0.6V), TR412 is turned on thus lowering the potential on the base of TR413 and also turning this on to cause current to flow through the relays. Also, when the power switch is turned off, TR411 is turned on as positive voltage is developed on its base and, as this lowers the potential on the base of TR412, the relays will be in momentary OFF operation.

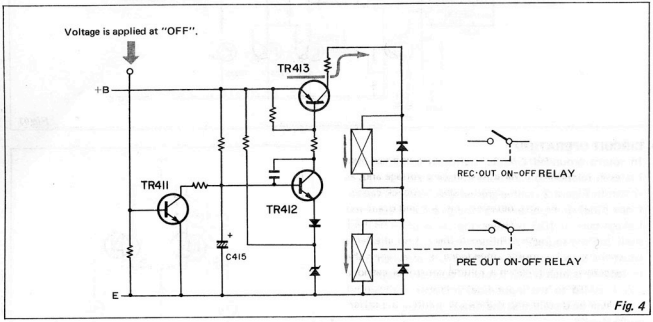


Fig. 4

1. REMOVING THE BACK COVER

Turn set upside down as shown in Photo 1 and remove by removing screws (1) through (7).

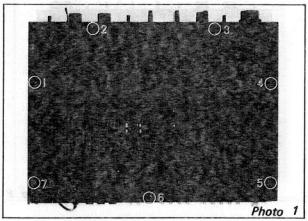


Photo 1

2. REMOVING THE CASE

a. Remove knobs BASS (1), TREBLE (2), MODE (3), TAPE (4), INPUT (5), BALANCE (6), and VOLUME (7) by loosening the set screws with a 1.5 ϕ hexagonal wrench.

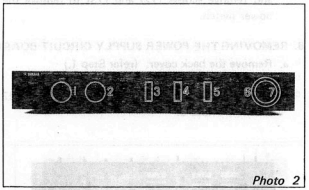


Photo 2

b. Remove back cover (refer Step 1)
c. Remove screws (1) through (10) shown in Photo3.

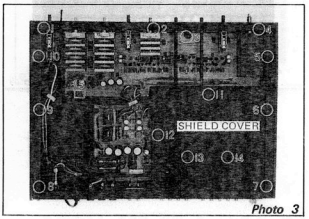


Photo 3

d. Pull out LED (power supply indicator lamp) connector # 5 shown in Photo 3.
e. Pull chassis out gently from the case and front panel which are constructed as a unit.

3. REMOVING THE EQUALIZER CIRCUIT BOARD

a. Remove back cover (refer Step 1)
b. Remove case (refer Step 2).
c. Remove shield cover of the equalizer circuit board by removing screws (11) through (14) shown in Photo 3.
d. Loosen joints (1) through (4) of the INPUT and TAPE changeover switch extension shaft with a 1.5ϕ hexagonal wrench and shift in the direction of the arrow as shown in Photo 4.

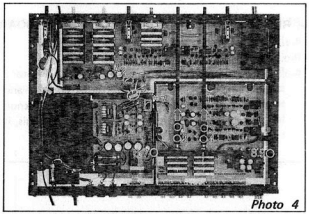


Photo 4

e. Remove switch mounting bracket screws (6) through (9) shown in Photo 4.
f. Pull out connectors # 2 and #7 shown in Photo 4.
• Remove connector # 2 lead wires from wire clamp (5).
g. Turn chassis upside down and remove the shield cover from the underside of the equalizer circuit board by removing screws (1) through (4) shown in Photo 5.

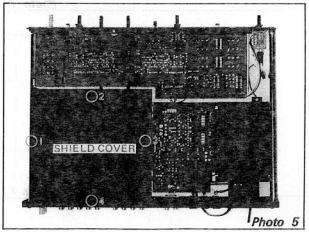


Photo 5

h. Remove screws (1) through (4) shown in Photo 6 and gently pull out equalizer circuit board towards the front.

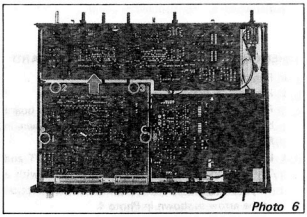


Photo 6

4. REMOVING THE TONE CONTROL CIRCUIT BOARD

a. Remove back cover. (refer Step 1)
b. Remove the case. (refer Step 2)
c. Remove nuts (1) through (4) shown in Photo 7 and remove lever switch knobs (5) and (6) and screws (7) through (10). When lever switch knob is installed, when viewed from above the chassis, it will appear as shown in Figure 1.

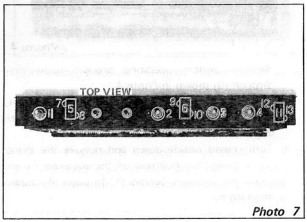


Photo 7

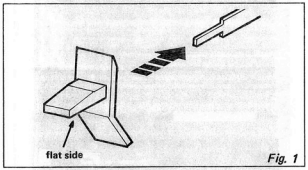


Fig. 1

d. Pull out connectors #1 through #4 and #6 shown in Photo 8, and remove tone control circuit board from the rear panel side.

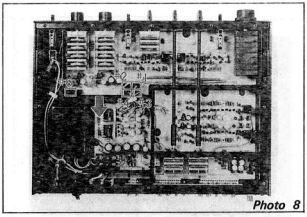


Photo 8

5. REMOVING THE POWER SUPPLY SWITCH

a. Remove the back cover. (refer Step 1)
b. Remove the case. (refer Step 2)
c. Disconnect connector #6 shown in Photo 8.
d. Pull loose lever switch knob (11) shown in Photo 7 and remove screws (12) and (13) to remove the power switch.

6. REMOVING THE POWER SUPPLY CIRCUIT BOARD

a. Remove the back cover. (refer Step 1.)
b. Remove the case. (refer Step 2.)
c. Disconnect connectors #1, #3, #4, and #7 shown in Photo 9.

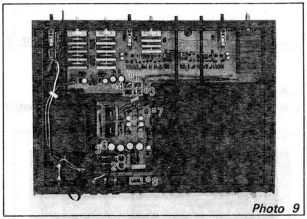


Photo 9

d. Unsolder fuse holder soldered connections (1), (2), and (3) shown in Photo 9.
e. Turn chassis upside down, remove screws (1) and (2) shown in Photo 10, and remove power supply circuit board from connector #8.

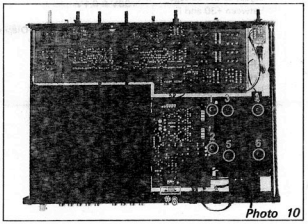


Photo 10

7. REMOVING THE POWER SUPPLY TRANSFORMER

a. Remove the back cover. (refer Step 1.)
b. Remove the case. (refer Step 2.)
c. Unsolder the leads from the power supply transformer.
d. Remove screws (3) through (6) shown in Photo 10 and remove the power supply transformer.

8. REMOVING THE REAR PANEL

a. Remove the back cover. (refer Step 1.)
b. Remove the case. (refer Step 2.)
c. Remove screws (1) through (5) shown in Photo 11 and remove rear panel.
   • Unsolder the AC OUTLET connections at this time.

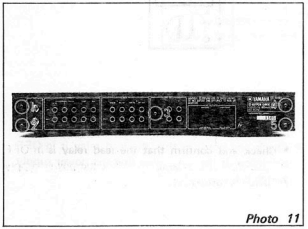


Photo 11

9. REMOVING THE PIN JACK CIRCUIT BOARD

a. Remove the rear panel. (refer Step 7.)
b. Remove screws (1) through (5) shown in Photo 12 and remove circuit board, with the pin jack circuit board mounting brackets attached, from connectors #8, #10, and #13.

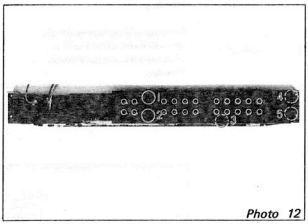
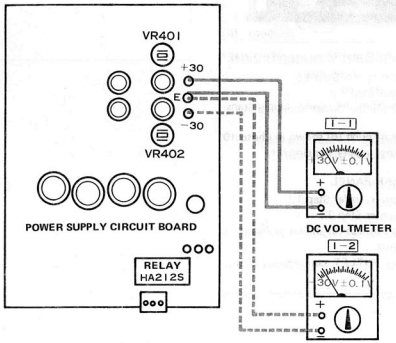


Photo 12

1. ADJUSTING THE POWER SUPPLY VOLTAGE

STEP	Item Adjusted	Method of Adjustment	Adjusting Procedure	Places to be Adjusted	Voltage Values	Remarks
1-1	+30V	Connect a DC voltmeter between terminals E and +30 of the power supply circuit board.	VR401	Turn VR401 and adjust so the voltage between +30 and E is +30V ± 0.1V.	+30V ± 0.1V	Refer Diagram Below
1-2	−30V	Connect a DC voltmeter between terminals E and −30 of the power supply circuit board.	VR402	Turn VR402 and adjust so the voltage between −30 and E is −30V ± 0.1V.	−30V ± 0.1V	



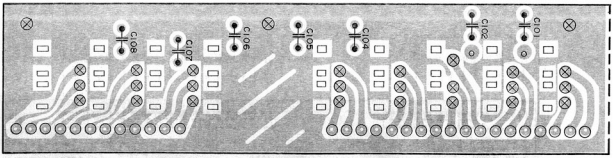
2. CHECKING MUTING OPERATIONS

Check and confirm that the respective relays in the power supply circuit board and equalizer circuit board is in ON condition in 5 seconds ± 2 seconds.

- Check and confirm that the lead relay is in OFF condition at the same time that the power supply switch is turned off.

1.PIN JACK CIRCUIT BOARD NA06782

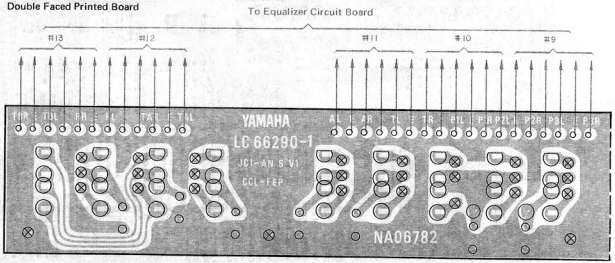
Front

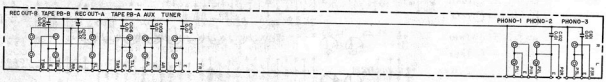


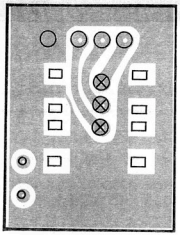
Double Faced Printed Board

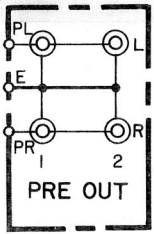
To Equalizer Circuit Board

Back

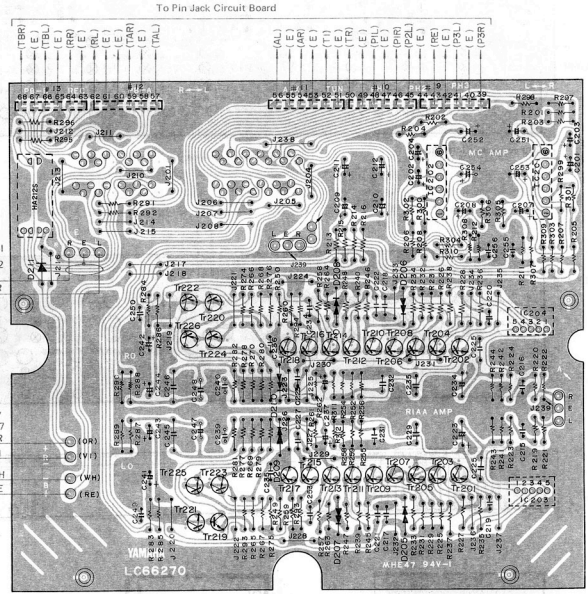




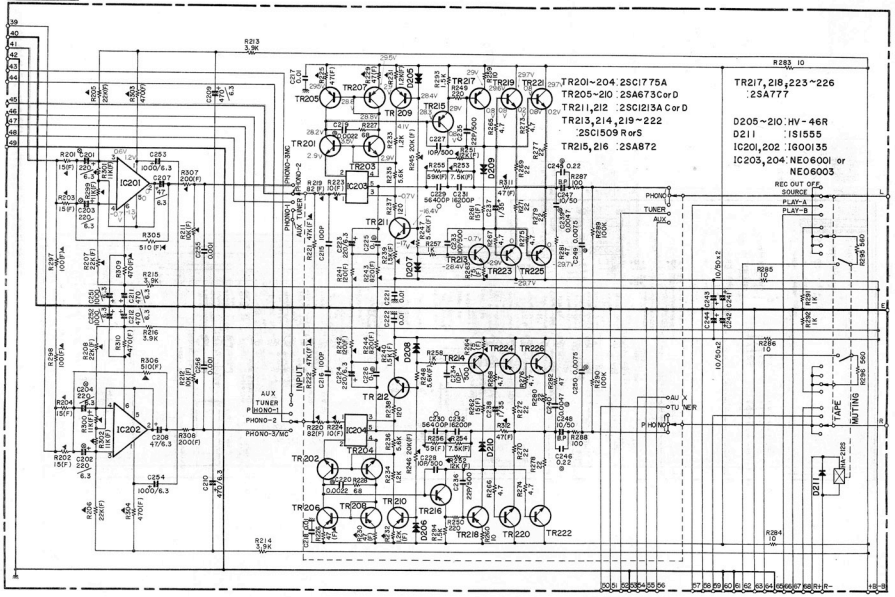




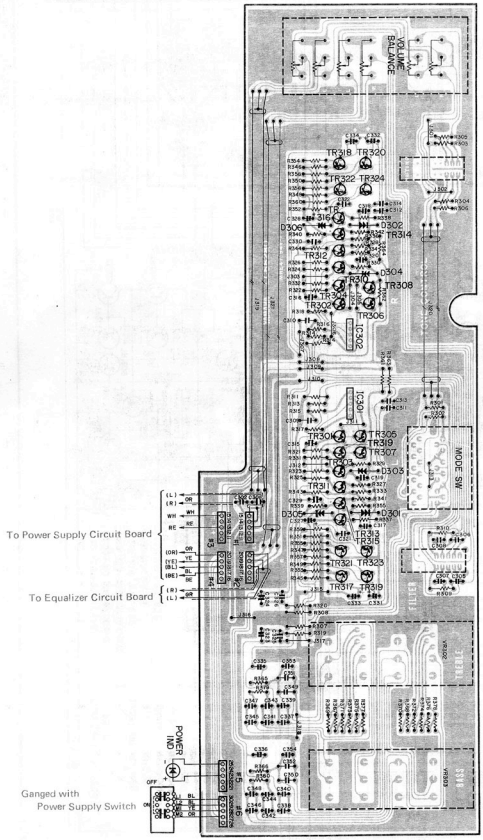
2. EQUALIZER CIRCUIT BOARD NA06780

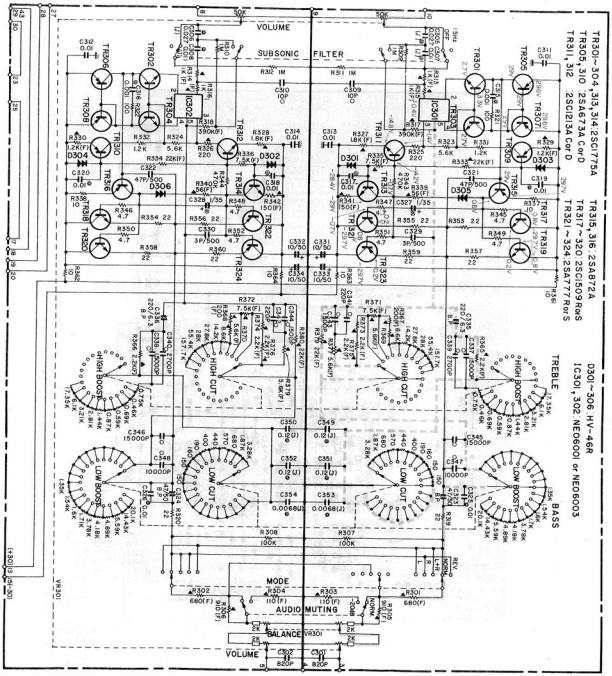


EQUALIZER NA06780

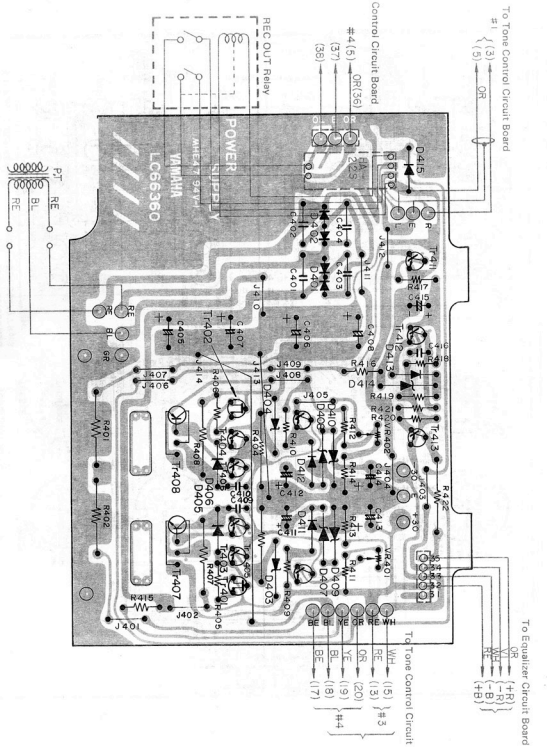


3.TONE CONTROL CIRCUIT BOARD NA06781

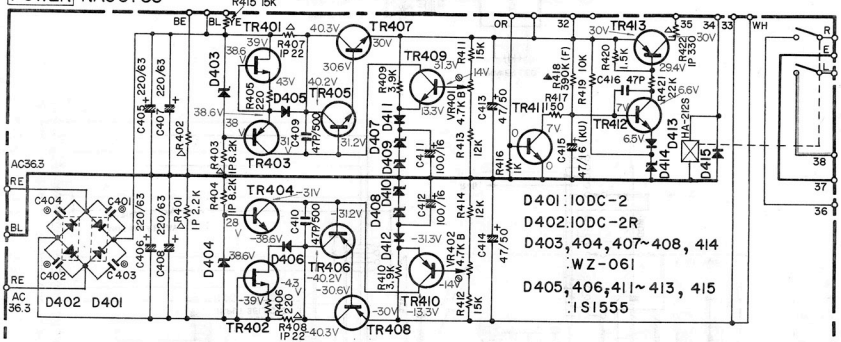



TR301~304,313,314:2SC775A
TR305,310 2SA673A Cor D
TR311,312 2SC2134A Cor D
TR315,316: 2SA872A
TR317~320: 2SC5096 or S
TR321~324:2SA777 For S
D301~306: HV-46R
IC301,302: NE6600I or NE6600J
VOLUME
SUBSONIC FILTER
HIGH BOOST
HIGH CUT
LOW BOOST
LOW CUT
TREBLE
BASS
MODE
AUDIO MUTING
BALANCE
VOLUME

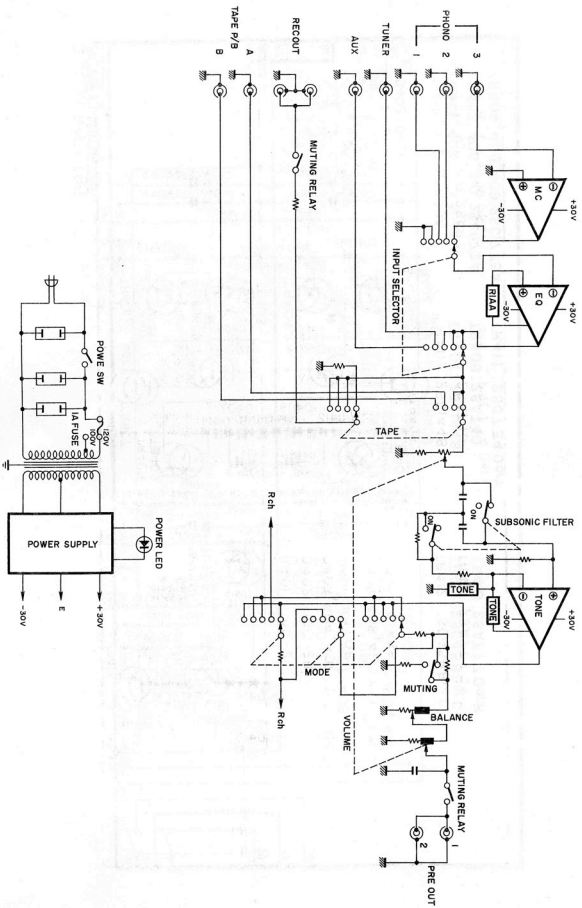
4.POWER SUPPLY CIRCUIT BOARD NA06785

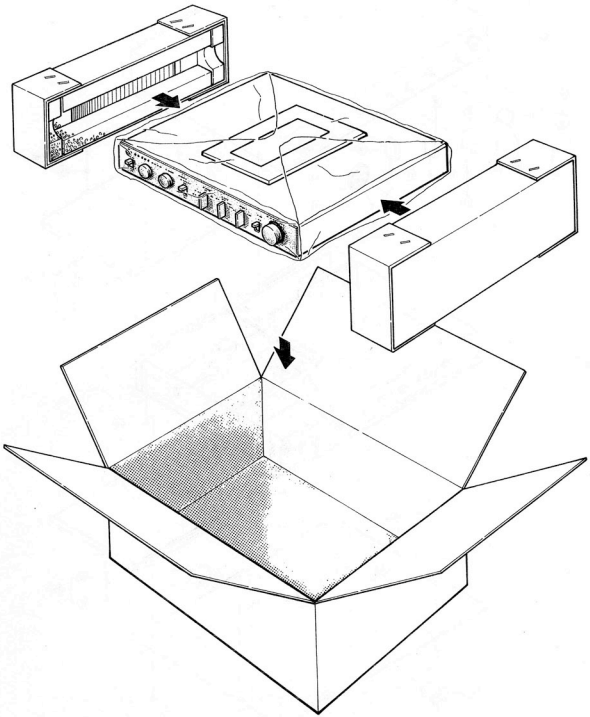


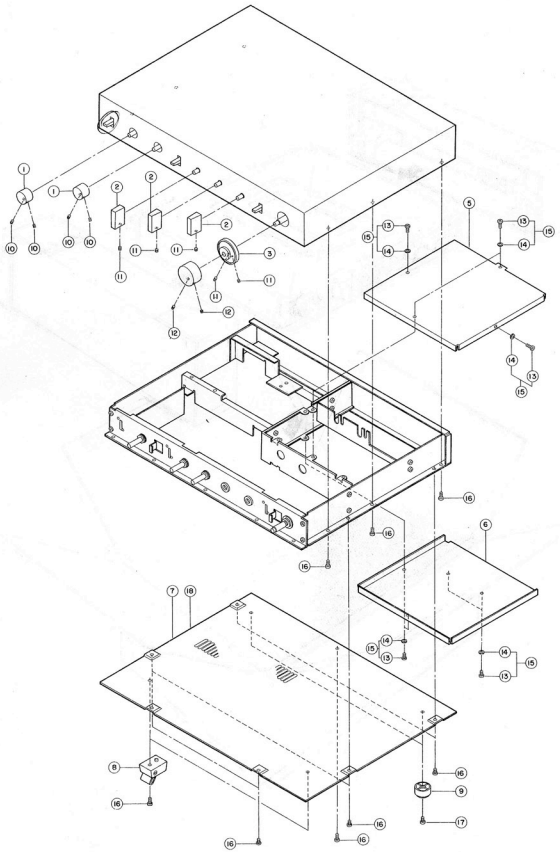
POWER NA06785



BLOCK DIAGRAM



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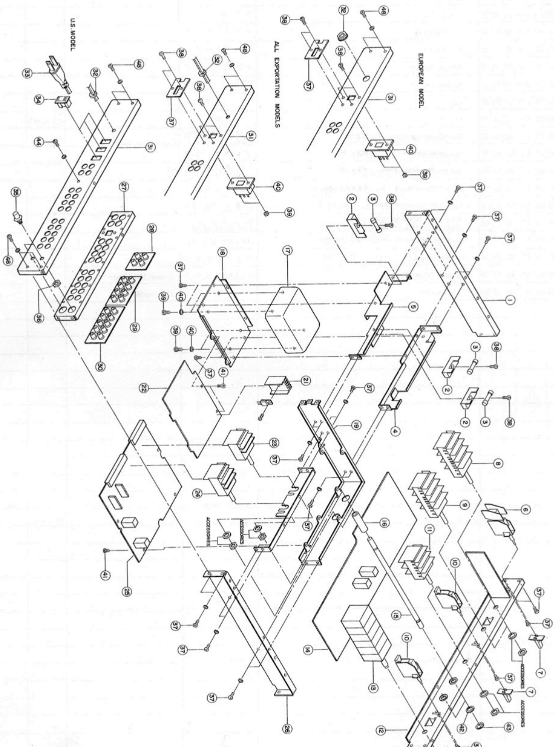
Ref. No.	Part No.	Description		Remarks	Common Models	
1	32 00 00 BA 06 78 40	Tone Control Knob	トーンツマミ			
2	32 00 00 BA 06 78 10	Switch Knob	SWツマミ			
3	32 00 00 BA 06 78 30	Double Knob	ダブルツマミ			
4	32 00 00 BA 06 78 20	Volume Knob	VOLツマミ			
5	32 00 00 AA 08 15 20	Top Sealed	トップシールド			
6	32 00 00 AA 08 15 30	Bottom Sealed	ボトムシールド			
7	32 00 00 AA 08 13 30	Bottom Cover	ボトムカバー			
8	32 00 00 CB 07 65 40	Leg	脚			
9	42 00 00 CB 07 28 70	Leg	脚		CT-400	
10	42 00 00 EZ 00 03 60	Nut Hexaponal Hole M3 x 8	6角穴付クボミ先止メネジ			
11	42 00 00 EZ 00 02 10	Hexaponal Nut M3 x 4S	6角セットネジ			
12	42 00 00 EZ 00 03 70	Nut Hexaponal Hole M3 x 10	6角穴付クボミ先止メネジ			
13	42 00 00 ED 33 00 60	Binding Head Screw M3 x 6 FCM3-BL	バインド小ネジ			
14	42 00 00 EV 41 30 30	Toothed Locked Washer 3φ FCM-BL	歯付座金			
15	42 00 00 EH 33 00 60	Sems Type Screw M3 x 6 FCM-BL (With Toothed Locked Washer)	セムス小ネジ(内歯座金付)			
16	42 00 00 EI 33 00 60	Bind Tapping Screw M3 x 6 FCM3-BL	バインドタッピングネジ			
17	42 00 00 ED 33 00 80	Binding Screw M3 x 8 ZMC2-BL	バインド小ネジ			
18	32 00 00 NB 07 53 20	Bottom Cover Unit	ボトムカバーユニット	Except U.S. model		
18	32 00 00 NB 07 53 30	–do.–	〃	U.S. model		


EUROPEAN MODEL
ALL EXPORTATION MODELS
U.S. MODEL
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ACCESSORIES
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Ref. No.	Part No.	Description		Remarks	Common Models	
1	32 00 00 AA 08 15 00	Side Frame (L)	サイドフレーム(L)			
2	42 00 00 LB 20 08 40	Fuse Holder AU 1 PFH	ヒューズホルダー	Except European model		
	42 00 00 LB 20 09 40	--do.-- AU Common 1 PFH-M	〃	European model		
3	42 00 00 KB 00 03 30	Fuse 250V1AT UL SS-2	ヒューズ耐ラッシュ	Except European model		
	42 00 00 KB 00 07 30	Miniature Fuse 250V 1AT	ミニチュアヒューズ	European model		
4	32 00 00 AA 08 15 50	Front Bridge	フロントブリッジ			
5	32 00 00 AA 08 15 60	Rear Bridge	リアブリッジ			
6	32 00 00 NA 06 78 30	Power Switch C, B KA2 00 370	パワーSWシート	U.S. model		
	32 00 00 NA 06 78 40	--do.- 42000 C, B KA2 00 380	〃	Except U.S. model CSA		
7	32 00 00 CB 07 59 90	Lever Knob	レバーツマミ			
8	42 00 00 HY 00 04 90	Variable Resistor JH80E504	SKA-VRH16H	Made by Alps		
9	42 00 00 HY 00 05 00	--do.-- JH80E505	〃 Low	--do.--		
10	42 00 00 KA 20 01 20	Lever Switch SLA-34202	レバーSW			
11	42 00 00 KA 50 07 40	Rotary Switch SRA2-3-5 CA, CR-Common	ロータリーSW	Made by Alps		
12	32 00 00 AA 08 13 10	Sub-Chassis	サブシャーシ			
13	42 00 00 HY 00 04 80	Variable Resistor 00048	2 軸 6 連 VR	Made by Alps or Matsushita	VDL	BAL
14	32 00 00 NA 06 78 10	Tone Control C, B	トーンコントロールシート			
15	32 00 00 BA 06 78 00	Extension Shaft	延長シャフト			
16	32 00 00 AA 08 15 80	Sleeve	スリーブ			
17	42 00 00 GA 60 62 10	Power Transformer	電源トランス	U.S. model		
	42 00 00 GA 60 62 20	--do.--	〃	Except U.S. model		
18	32 00 00 AA 08 13 20	Trans Holder	トランスホルダー			
19	32 00 00 AA 08 14 90	Shield Frame	シールドフレーム			
20	32 00 00 AA 08 15 70	Switch Holder	スイッチホルダー			
21	32 00 00 BA 06 77 80	Heat Sink	放熱器			
22	32 00 00 NA 06 78 50	Power Supply C, B	電源シート			
23	42 00 00 KA 50 07 30	Push Switch SPM142P	ロータリーSW	Made by Alps		
24	42 00 00 KA 50 07 20	--do.-- SPM142L	〃	Made by Alps		
25	42 00 00 NA 06 78 00	Equalizer C, B	イコライザーシート			
26	32 00 00 AA 08 15 10	Side Frame (R)	サイドフレーム(R)			
27	32 00 00 AA 08 15 40	Rear Shield	リヤシールド			
28	42 00 00 LB 40 02 50	4P Pin Jack AU Common	4Pピンジャック			
29	42 00 00 LB 60 09 70	8P --do.--	6Pピンジャック			
30	42 00 00 LB 60 09 80	10P --do.--	10Pピンジャック			
31	32 00 00 AA 08 16 30	Rear Panel	リヤパネル	U.S. & Canadian models		
	32 00 00 AA 08 16 10	--do.--	〃	European model		
	32 00 00 AA 08 16 20	--do.--	〃	All Exportation models		
32	42 00 00 CB 06 86 30	Cord Stopper	コードストッパー	Except European model		
	42 00 00 CB 07 06 90	--do.-- BA-5	〃	European model		
33	42 00 00 MG 00 03 40	AC Cord	電源コード	Except European model		
	42 00 00 MG 00 04 60	--do.--	〃	European model		
34	42 00 00 LB 20 07 10	AC Socket SI-6429 Spring-Type	ACソケット	U.S. model		
35	32 00 00 BB 06 46 20	Grand Terminal	アース端子			
36	32 00 00 BB 06 46 30	Bushing	アースブッシュ			
37	42 00 00 CB 07 71 80	Stopper	ストッパー	Except U.S. model		
38	42 00 00 EC 30 08 70	Binding Screw M3 x 8 FCM-BL	バインドホネジ	--do.--		
39	42 00 00 EY 11 30 20	Hexagonal Nut M3 ZMC2-Y	六角ナット	--do.--		
40	42 00 00 KA 40 05 50	Slide Switch 4021-0111 AU Common	スライドSW	--do.--		
41	42 00 00 EH 33 00 60	Pan Head Sems Type Screw (With Toothed Washer) FCM-BL	セムスナベホネジ(内歯座金付)			

Ref. No.	Part No.	Description		Remarks	Common Models	
42	42 00 00 EJ 33 01 00	Pan Head Tapping Screw M3 x 10 FCM-BL	ナベタッピングネジ			
43	42 00 00 ED 34 00 80	Binding Screw M4 x 8 FCM-BL	バインド小ネジ			
44	42 00 00 EV 41 30 40	Toothed Locked Washer 4S FCM-BL	歯付座金			
45	42 00 00 EI 33 00 60	Bind Tapping Screw M3 x 6 ZMC2-Y	バインドタッピングネジ			
46	42 00 00 CB 06 09 50	Washer	軸受ワッシャー		CA-X1	
47	42 00 00 EV 50 15 00	Ring E 5φ	E リング			
48	42 00 00 ED 33 00 60	Binding Head Screw M3 x 6 FCM-BL	バインド小ネジ			

Ref. No.	Part No.	Description			Remarks	Common Models
25	32 00 00 NA 06 78 00	Equalizer C, B		イコライザーシート		
	42 00 00 FZ 00 04 20	Polystylene Cap.	F16200P 50V X Type	スチコンX型		
	42 00 00 FZ 00 04 10	–do.–	F56400P 50V	〃		
	42 00 00 FH 61 11 00	Ceramic Cap.	CH10P 500V	セラコン		
	42 00 00 FH 61 12 20	–do.–	CH22P 500V	〃		
	42 00 00 FZ 00 05 20	Tantalum Cap.	220μ 6.3V ± 5%	タンタルコン		
	42 00 00 FP 51 82 20	–do.–	220μ 35V ± 5%	〃		
	42 00 00 FP 15 61 00	–do.–	1μ 35V ± 5%	〃		
	42 00 00 HU 87 41 00	Metal Film Resistor	RE42AF 10Ω	金属被膜抵抗F型		
	42 00 00 HU 87 41 50	–do.–	15Ω	〃		
	42 00 00 HU 87 44 70	–do.–	47Ω	〃		
	42 00 00 HU 87 47 50	–do.–	75Ω	〃		
	42 00 00 HU 87 48 20	–do.–	82Ω	〃		
	42 00 00 HU 87 51 00	–do.–	100Ω	〃		
	42 00 00 HU 87 51 20	–do.–	120Ω	〃		
	42 00 00 HU 87 52 00	–do.–	200 Ω	〃		
	42 00 00 HU 87 54 70	–do.–	470Ω	〃		
	42 00 00 HU 87 55 10	–do.–	510Ω	〃		
	42 00 00 HU 87 58 20	–do.–	820Ω	〃		
	42 00 00 HU 87 61 20	–do.–	1.2KΩ	〃		
	42 00 00 HU 87 61 50	–do.–	1.5KΩ	〃		
	42 00 00 HU 87 65 60	–do.–	5.6KΩ	〃		
	42 00 00 HU 87 67 50	–do.–	RP42AF 7.5KΩ	〃		
	42 00 00 HU 87 71 00	–do.–	RE42AF 10KΩ	〃		
	42 00 00 HU 87 71 10	–do.–	RP42AF 11KΩ	〃		
	42 00 00 HU 87 71 20	–do.–	RE42AF 12KΩ	〃		
	42 00 00 HU 87 72 00	–do.–	RP42AF 20KΩ	〃		
	42 00 00 HU 87 72 20	–do.–	22KΩ	〃		
	42 00 00 HU 87 74 70	–do.–	47KΩ	〃		
	42 00 00 HU 87 75 90	–do.–	59KΩ	〃		
	42 00 00 IA 06 73 10	Transistor	2SA673A	トランジスター	(C or D)	
	42 00 00 IA 07 77 50	–do.–	2SA777R	〃	Or S Rank	
	42 00 00 IA 08 72 10	–do.–	2SA872A	〃		
	42 00 00 IC 12 13 30	–do.–	2SC1213A	〃	(C or D)	
	42 00 00 IC 15 09 50	–do.–	2SC1509R	〃		
	42 00 00 IC 17 75 10	–do.–	2SC1775A	〃	Or S Rank	
	42 00 00 IF 00 00 40	Diode	1S1555	ダイオード		
	42 00 00 IF 00 05 30	Varistor	HU46R	バリスター		
	42 00 00 IG 00 13 50	IC	LA3350	IC		
	32 00 00 NE 06 00 30	Module (FET Cifferental Type)		FETモジュール	Made by Sony or Yamaha	
	42 00 00 KA 50 07 20	Push Switch	SPM142L	ロータリーSW	Made by Alps	
	42 00 00 KA 50 07 30	–do.–	SPM142P	〃	Made by Alps	
	42 00 00 LB 60 02 80	Connector Socket	2145-6A	コネクトコンソケット		
	42 00 00 KC 00 02 90	Relay (Read Type)		リードリレー	Made by Hitachi	

Ref. No.	Part No.	Description			Remarks	Common Models	
14	32 00 00 NA 06 78 10	Tone Control C, B					
	42 00 00 FH 61 03 00	Ceramic Cap.	500V 3P	セ ラ コ ン			
	42 00 00 FH 61 14 70	–do.–	500V CH47P	〃			
	42 00 00 FM 10 82 20	Bipolar Electrolytic Cap.	6.3V 220μ Vert	バイポーラコン（タテ型）			
	42 00 00 FM 11 74 70	–do.–	50V 47μ Vert	〃			
	42 00 00 FP 15 61 00	Tantalum Cap.	35V 1μ	タ ン タ ル コ ン			
	42 00 00 HU 87 45 60	Metal Film Resistor	RE42AF 56Ω	金属被膜抵抗F型			
	42 00 00 HU 87 51 10	–do.–	110Ω	〃			
	42 00 00 HU 87 51 50	–do.–	RP42AF 150Ω	〃			
	42 00 00 HU 87 52 00	–do.–	RE42AF 200Ω	〃			
	42 00 00 HU 87 56 80	–do.–	RP42AF 680Ω	〃			
	42 00 00 HU 87 59 10	–do.–	RE42AF 910Ω	〃			
	42 00 00 HU 87 61 00	–do.–	1KΩ	〃			
	42 00 00 HU 87 61 20	–do.–	1.2KΩ	〃			
	42 00 00 HU 87 61 80	–do.–	1.8KΩ	〃			
	42 00 00 HU 87 62 20	–do.–	2.2KΩ	〃			
	42 00 00 HU 87 65 60	–do.–	RP42AF 5.6KΩ	〃			
	42 00 00 HU 87 67 50	–do.–	7.5KΩ	〃			
	42 00 00 HU 87 72 20	–do.–	22KΩ	〃			
	42 00 00 HU 87 83 90	–do.–	RE42AF 390KΩ	〃			
	42 00 00 HY 00 04 90	Variable Resistor	JH80E 504 SRA HIGH	S R A 型 V R	Made by Alps		
	42 00 00 HY 00 05 00	–do.–	JH80E 505 SRA LOW	〃	Made by Alps		
	42 00 00 HY 00 04 80	–do.–		2 軸 6 連 V R	Made by Alps or Matsushita		
	42 00 00 IA 06 73 10	Transistor	2SA673A	トランジスター	(C or D)		
	42 00 00 IA 07 77 50	–do.–	2SA777R	〃			
	42 00 00 IA 08 72 10	–do.–	2SA872A	〃			
	42 00 00 IC 12 13 30	–do.–	2SC1213A	〃	(C or D)		
	42 00 00 IC 15 09 50	–do.–	2SC1509R	〃			
	42 00 00 IC 17 75 10	–do.–	2SC1775A	〃			
	42 00 00 IF 00 05 30	Varistor	HV146R	バ リ ス タ ー			
	32 00 00 NE 06 00 30	Module	(FET Cifferental Type)	F E T モジュール	Made by Sony or Yamaha		
	42 00 00 KA 20 01 20	Lever Switch	SLA-34202	レバースイッチ			
	42 00 00 KA 50 07 40	Rotary Switch SRA	SRA2-3-5 CA, CR-Common	ロータリスイッチ	Made by Alps		