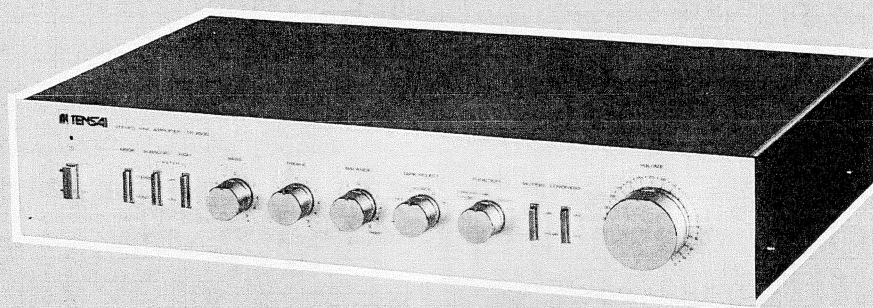


Service Manual

Stereo Pre Amplifier

MODEL TP2500



1. SPECIFICATIONS

Rated Output and Impedance	1V/4.7 K ohms
Input Sensitivity and Impedance	
Phono (MC)	200 μ V/100 ohm
(MM)	2.5mV/47K ohms
Tuner	150mV/80K ohms
AUX	150mV/80K ohms
TAPE-1, TAPE-2	150mV/80K ohms
Recording Output	
RCA pin Terminal	150mV
DIN Terminal	0.5mV/K ohms
Maximum Input at PHONO (MC)	
(MM)	12mV
Frequency Response	
Phono refer to RIAA	± 0.2 dB
Tuner, AUX, TAPE-1, TAPE-2	
10 – 10,000 Hz ref. 1 kHz	+0 dB
	-1.5 dB
Tone Control	
Bass at 50 Hz	± 10 dB
Treble at 20,000 Hz	± 10 dB
Subsonic Filter (turn over: 20 Hz)	-6 dB/Oct
High Cut Filter (turn over: 7 kHz)	-6 dB/Oct

Loudness Control at 100 Hz (-30 dB attenuated)	+8 dB
Total Harmonic Distortion at 20 – 20,000 Hz	
Phono (MC: Rec Out 1.5V at 1 kHz)	0.05%
(MM: Rec Out 1.5V at 1 kHz)	0.02%
Tuner	0.02%
AUX, TAPE 1, TAPE-2	0.02%
Signal to Noise Ratio (IHF-A)	
Phono (MC)	63 dB
(MM)	73 dB
AUX, Tuner, TAPE-1, TAPE-2	100 dB
Power Supply	$\sim 220 - 240$ Volts 50 Hz
Dimensions	430(W) x 80(H) x 250(D) mm
Weight	4.0 kg (approx.)

Subject to change without notice.

2. DISASSEMBLY INSTRUCTIONS

- (1) Top cover removal**
Remove four screws on the both sides of the set and lift up the top cover.
- (2) Bottom cover removal**
Remove the top cover and lift the bottom cover.
- (3) Front panel removal**
Remove six rotary knobs.
Remove four screws (A) from top and bottom as shown in Figure 1 and 2, and the panel can be removed with push buttons.

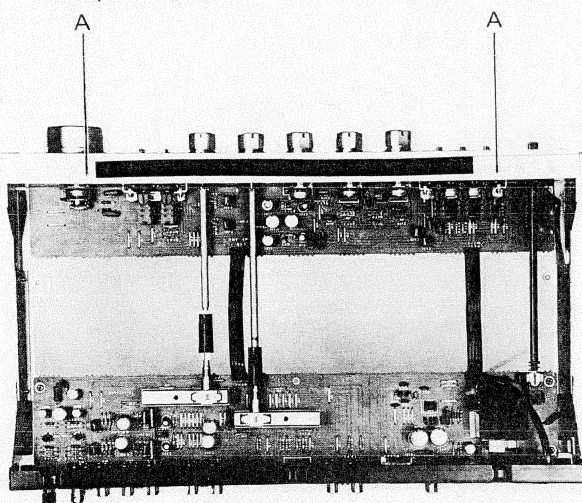


Figure 1

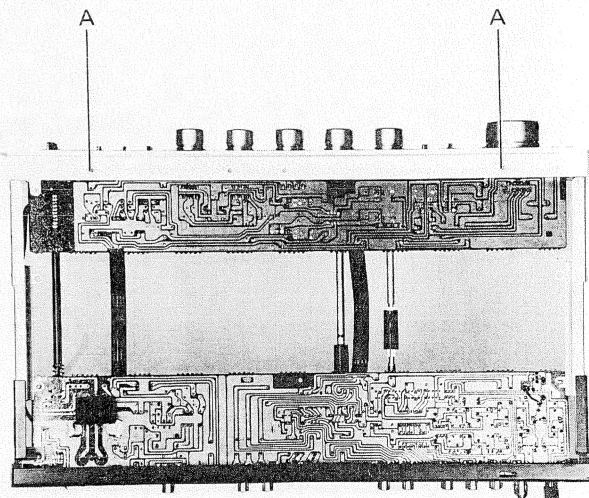
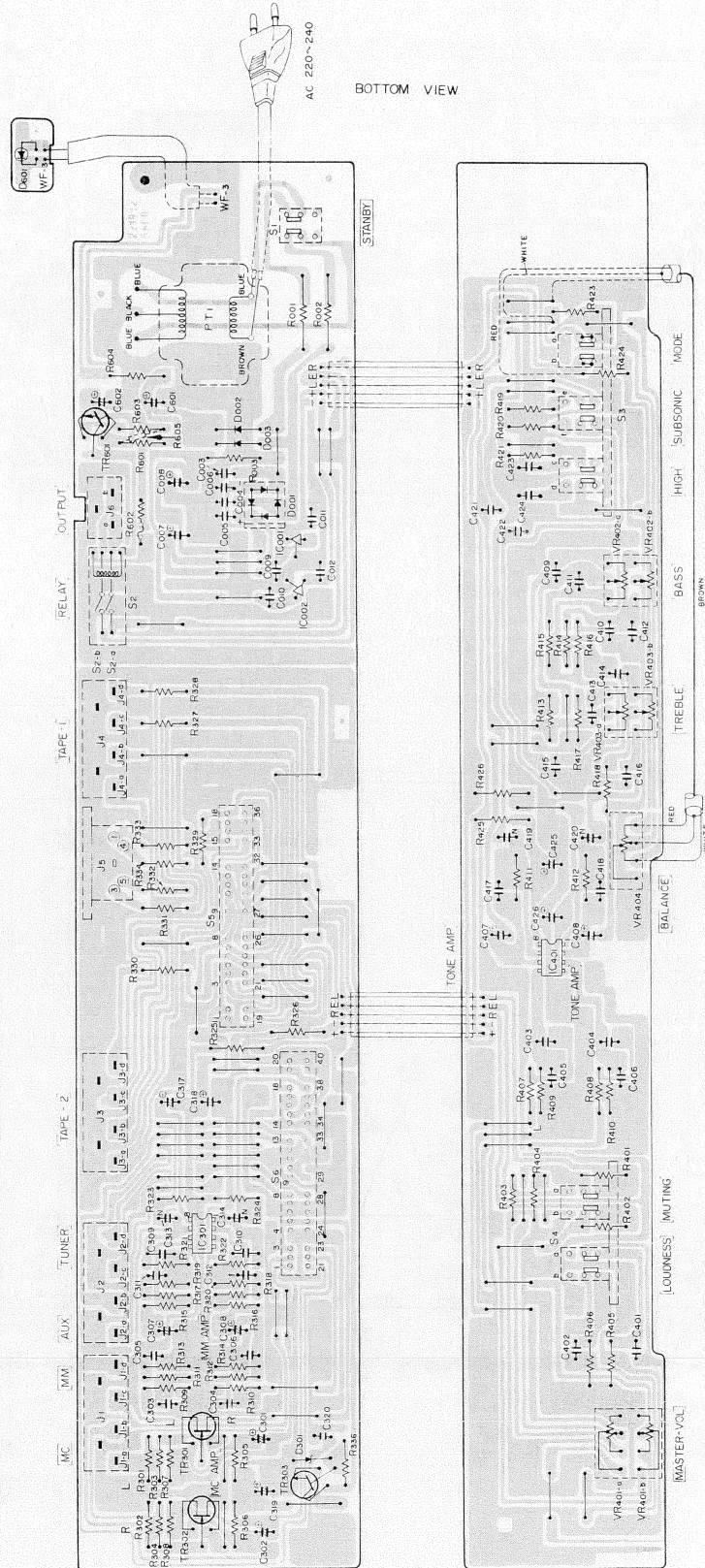


Figure 2

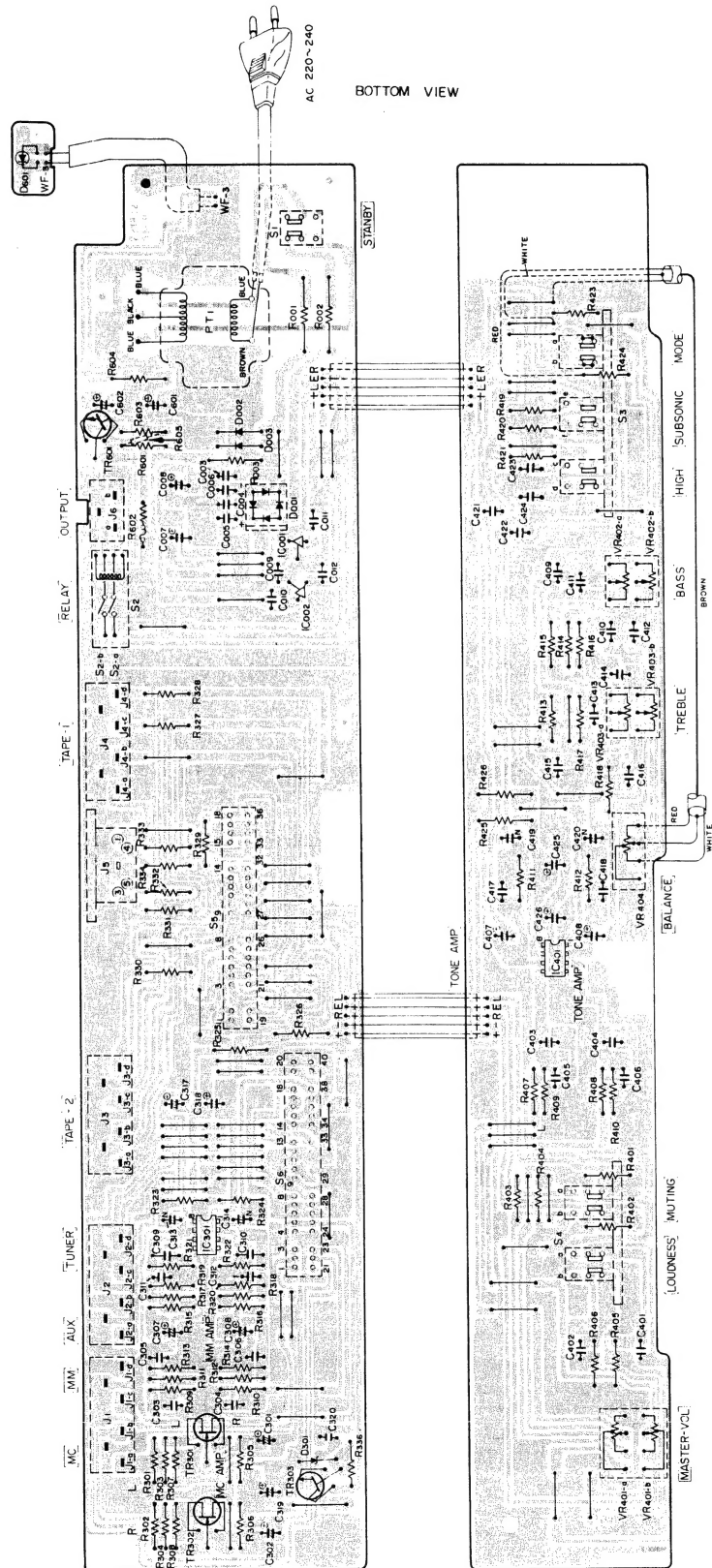
NOTE:

This model has no alignment point.

3. PRINTED CIRCUIT BOARD BOTTOM VIEW AND WIRING

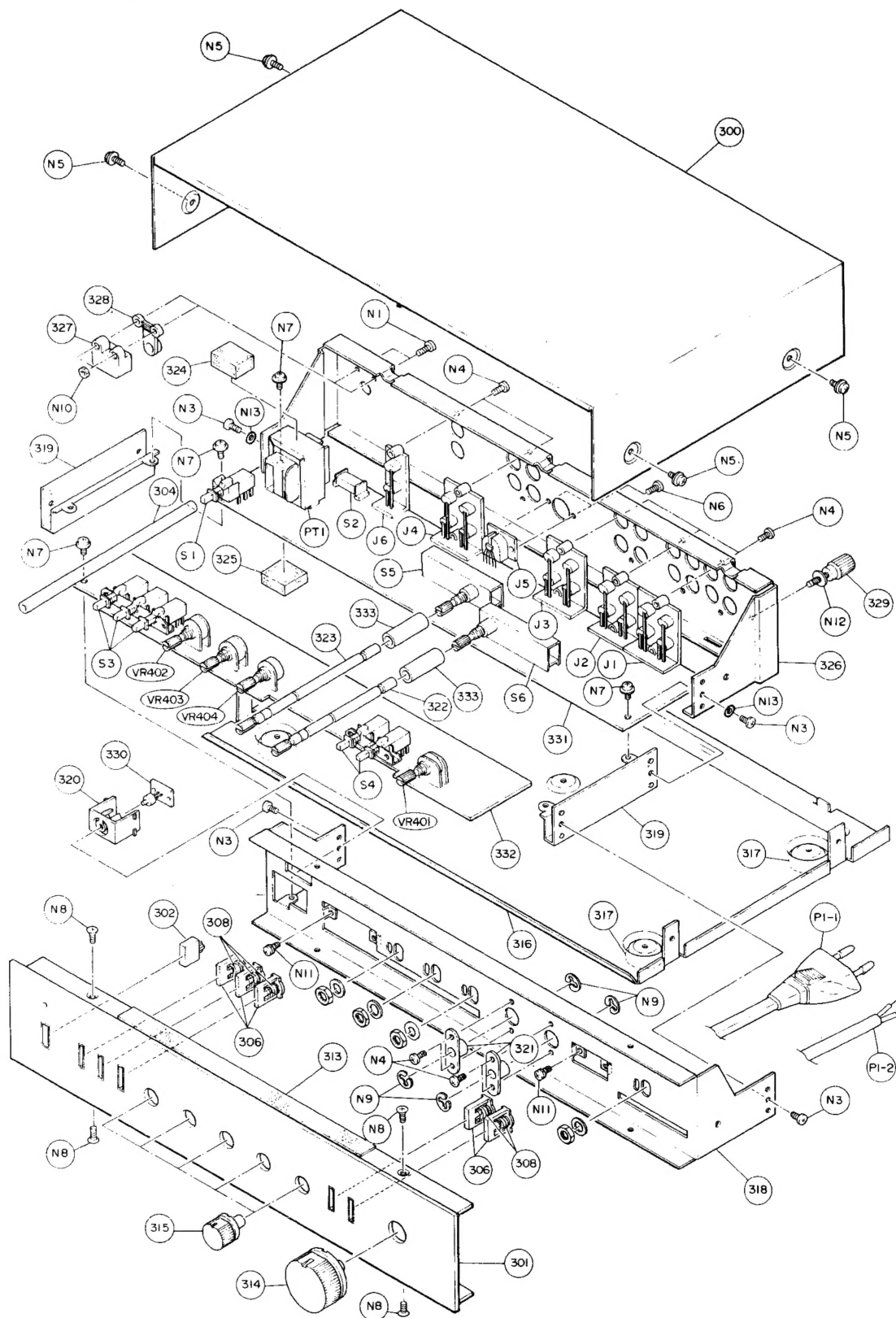


3. PRINTED CIRCUIT BOARD BOTTOM VIEW AND WIRING



5. EXPLODED VIEW AND PARTS LISTS

EXPLODED VIEW



PARTS LIST

ELECTRICAL PARTS

Symbol No.	Part No.	Description
ICs		
IC001	22114875	MC78L24C
IC002	22114876	MC79L24C
IC301, 302	22114866	NJM4560DX
TRANSISTORS & DIODES		
Symbol No. with TR: Transistor Symbol No. with D: Diode		
TR301, 302 or TR301, 302	36042742	2SK170-GR2
TR301, 302 or TR301, 302	36042743	2SK170-GR3
TR301, 302 or TR301, 302	36042751	2SK170-BL1
TR301, 302	36042752	2SK170-BL2
TR303	36317480	2SC1815-BL
TR601	36317480	2SC1815-BL
D001	22115631	S1WB10
D002, 003	37978380	1S5277B
D301	22115668	RD16JE
D601	22115632	GL2PR1
CAPACITORS		
Tolerance: D: $\pm 0.5PF$, J: $\pm 5\%$, K: $\pm 10\%$, M: $\pm 20\%$, P: $+100$ to -0% , Z: $+80$ to -20% , G: $\pm 2\%$ (N): Nonpolarity type		
C003, 004	22342103	Ceramic 0.01 mfd, Z
C005, 006	22342103	Ceramic 0.01 mfd, Z
C007, 008	22447471	Electrolytic 470 mfd/35WV, P
C009, 010	22342103	Ceramic 0.01 mfd, Z
C011, 012	22342103	Ceramic 0.01 mfd, Z
C301, 302	22440316	Electrolytic 4.7 mfd/50WV, M
C303, 304	22370228	Mylar 0.47 mfd, J
C305, 306	22361101	Ceramic 100 PF, J
C307, 308	22440395	Electrolytic 470 mfd/10WV, M
C309, 310	22321211	Polypropylene 0.056 mfd, G
C311, 312	22321212	Polypropylene 0.016 mfd, G
C313, 314	22403080	Electrolytic 4.7 mfd/35WV, K (N)
C317, 318	22446101	Electrolytic 100 mfd/25WV, P
C319	22445471	Electrolytic 470 mfd/16WV, P
C401, 402	22371473	Mylar 0.047 mfd, J
C403, 404	22370288	Mylar 0.47 mfd, J
C405, 406	22361101	Ceramic 100 PF, J
C407, 408	22440389	Electrolytic 47 mfd/16WV, M
C409, 410	22371273	Mylar 0.027 mfd, J

Symbol No.	Part No.	Description
C411, 412	22370289	Mylar 0.027 mfd, J
C413, 414	22371152	Mylar 0.0015 mfd, J
C415, 416	22371103	Mylar 0.01 mfd, J
C417, 418	22361220	Ceramic 22 PF, J
C419, 420	22403077	Electrolytic 1 mfd/50WV, M (N)
C421, 422	22370288	Mylar 0.47 mfd, J
C423, 424	22371123	Mylar 0.012 mfd, J
C425, 426	22446101	Electrolytic 100 mfd/25WV, P
C601	22447100	Electrolytic 10 mfd/35WV, P
C602	22443471	Electrolytic 470 mfd/10WV, P
RESISTORS		
All fixed resistors are $\frac{1}{4}W$, $\pm 5\%$, carbon resistor unless otherwise noted. Tolerance: G: $\pm 2\%$, J: $\pm 5\%$, K: $\pm 20\%$		
R003	22571102	Metal Oxide 1K ohm 1W, J
R301, 302	22543101	100 ohm
R303, 304	22543101	100 ohm
R305, 306		Metal Oxide 1/4W, C
	22570570	2.2K ohm for BL2 of TR301,302
	22570529	1.8K ohm for BL1 of TR301,302
	22570528	1.5K ohm for GR3 of TR301,302
	22570569	1K ohm for GR2 of TR301, 302
R307, 308	22570524	Metal Oxide 2.7K ohm $\frac{1}{4}W$, G
R309, 310	22543104	100K ohm
R311, 312	22543101	100 ohm
R313, 314	22543104	100K ohm
R315, 316	22570562	Metal Oxide 100 ohm $\frac{1}{4}W$, G
R317, 318	22543150	15 ohm
R319, 320	22570535	Metal Oxide 4.7K ohm $\frac{1}{4}W$, G
R321, 322	22570565	Metal Oxide 59K ohm $\frac{1}{4}W$, G
R323, 324	22543104	100K ohm
R325, 326	22571152	Metal Oxide 1.5K ohm 1W, J
R327, 328	22543222	2.2K ohm
R329, 330	22543222	2.2K ohm
R331, 332	22543222	2.2K ohm
R333, 334	22543274	270K ohm
R336	22543392	3.9K ohm
R401, 402	22570566	Metal Oxide 75K ohm $\frac{1}{4}W$, G
R403, 404	22543822	8.2K ohm
R405, 406	22543123	12K ohm
R407, 408	22543101	100 ohm
R409, 410	22519274	270K ohm

Symbol No.	Part No.	Description
R411, 412	22519274	270K ohm
R413, 414	22570560	Metal Oxide 22K ohm ¼W, G
R415, 516	22570561	Metal Oxide 3.3K ohm ¼W, G
R417, 418	22543681	680 ohm
R419, 420	22543563	56K ohm
R421, 422	22543222	2.2K ohm
R423, 424	22543222	2.2K ohm
R425, 426	22571152	Metal Oxide 1.5K ohm 1W, J
R601	22543184	180K ohm
R602	22500196	Fusible 100 ohm ½W, J
R603	22543101	100 ohm
R604	22571392	Metal Oxide 3.9K ohm 1W, J
R605	22543223	22K ohm
VR401	22651229	Variable Resistor 200K ohm with click x 2
VR402	22620223	Variable Resistor 100K ohm C x 2
VR403	22620224	Variable Resistor 100K ohm C x 2
VR404	22620225	Variable Resistor 100K ohm W
MISCELLANEOUS		
S1	22140660	Push Switch (Power)
S2	22148414	Relay
S3	22140661	Push Switch
S4	22140650	Push Switch
S5	22140608	Rotary Switch
S6	22140646	Rotary Switch
J1	22163817	US4P Jack
J2, J3, J4	22163762	US4P Jack
J5	22167910	DIN 5P Socket
J6	22163761	US2P Jack
PT1	22223541	Power Transformer
P1-1	22176529	Power Cord (Europe)
P1-2	22177081	Power Cord (UK)
ACCESSORIES		
	22953948	Owner's Manual
	22951862	Warranty Card
	22164839	US 1P Plug
	22164836	US 1P Plug Cord

EXPLODED VIEW PARTS

Symbol No.	Part No.	Description
300	20848607	Cabinet
301	20711675	Panel Assembly
302	20874674	Push Button
304	20773908	Spacer
306	20874676	Push Button
308	22776666	Push Spring
313	22756528	Cushion
314	20872638	Volume Knob, Large
315	20872639	Tone Knob, Small
316	22832822	Bottom Cabinet
317	20842649	Foot
318	20015834	Chassis
319	20735707	Bracket
320	20747628	LED Holder
321	20743975	Guide
322	20764794	Shaft
323	20764795	Shaft
324	22756946	Rubber Cushion
325	22756979	Rubber Cushion
326	20015832	Back Chassis
327	22754791	Cord Clamper
328	22184183	Cord Clamper
329	22162380	S1P Terminal
330	22193257	LED P.C. Board
331	22193256	AF P.C. Board
332	22193267	Control P.C. Board
333	20754792	Joint
SCREWS & RINGS		
N1	22701716	Bind Head 3.0 x 14 mm MSNI
N2	20795986	Bind Head 3.0 x 8 mm MSNI with SW
N3	72633006	Bind Head Tapping 3.0 x 6 mm
N4	22701724	Bind Head Tapping 3.0 x 10 mm, NI
N5	20795992	Pan Head 3.0 x 8 mm NSNI W/W
N6	22701777	Pan Head Tapping 3.0 x 10 mm, NI
N7	20795908	Flange Head Tapping 3.0 x 8 mm
N8	70443006	Flat Head 3.0 x 6 mm
N9	74050050	Retaning Ring 5.0φ
N10	73653000	Nut M3
N11	20795955	Bind Head 3.0 x 6 mm with SW
N12	22703553	Washer 3.2φ x 10φ x 0.5t
N13	74022030	Lock Washer M3