

Feb 2006

SERVICE MANUAL



C 372

STEREO
AMPLIFIER

C 372

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SPECIFICATIONS

STEREO MODE

CONTINUOUS AVERAGE POWER OUTPUT INTO 8 OHMS OR 4 OHMS (Min. power per channel, 20 Hz – 20 kHz, both channels driven, with no more than rated distortion)	= 150 W (21.8 dBW)
Rated Distortion (THD 20 Hz – 20 kHz)	= 0.03%
Clipping power (maximum continuous power per channel).	= 170 W
IHF dynamic headroom at 8 ohms	= +2.3 dB
IHF dynamic power (Maximum short term power per channel)	8 ohms: = 230 W (23.6 dBW) 4 ohms: = 410 W (26.1 dBW) 2 ohms: = 520 W (27.2 dBW)
Damping factor (ref. 8 ohms 50Hz)	> 150
Input Impedance	R = 20 kohms C = 470 pF
Input sensitivity (for rated output into 8 ohms)	1.2 V ± 0.1V
Voltage gain	29 dB
Frequency response 20 Hz – 20 kHz	± 0.3 dB - 3 dB at 3 Hz/70 kHz
Signal / Noise ratio, A-weighted	> 100 dB ref. 1 W > 120 dB ref. rated power

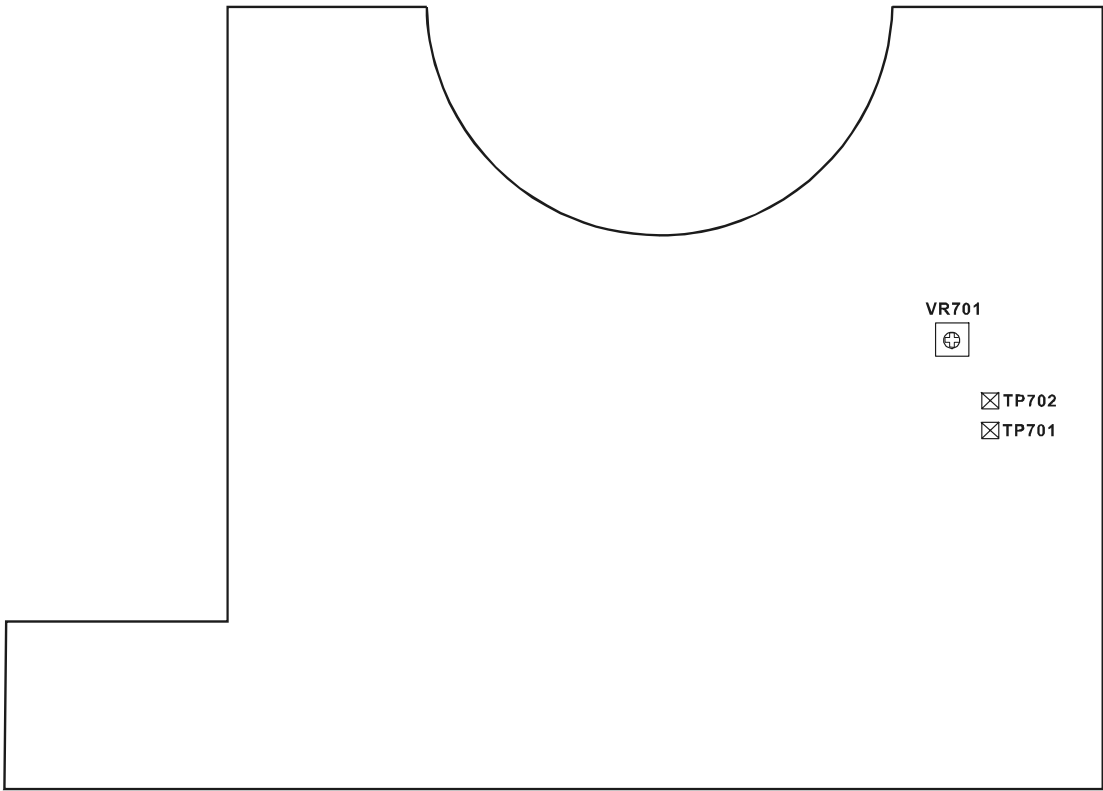
BRIDGED (MONOPHONIC) MODE

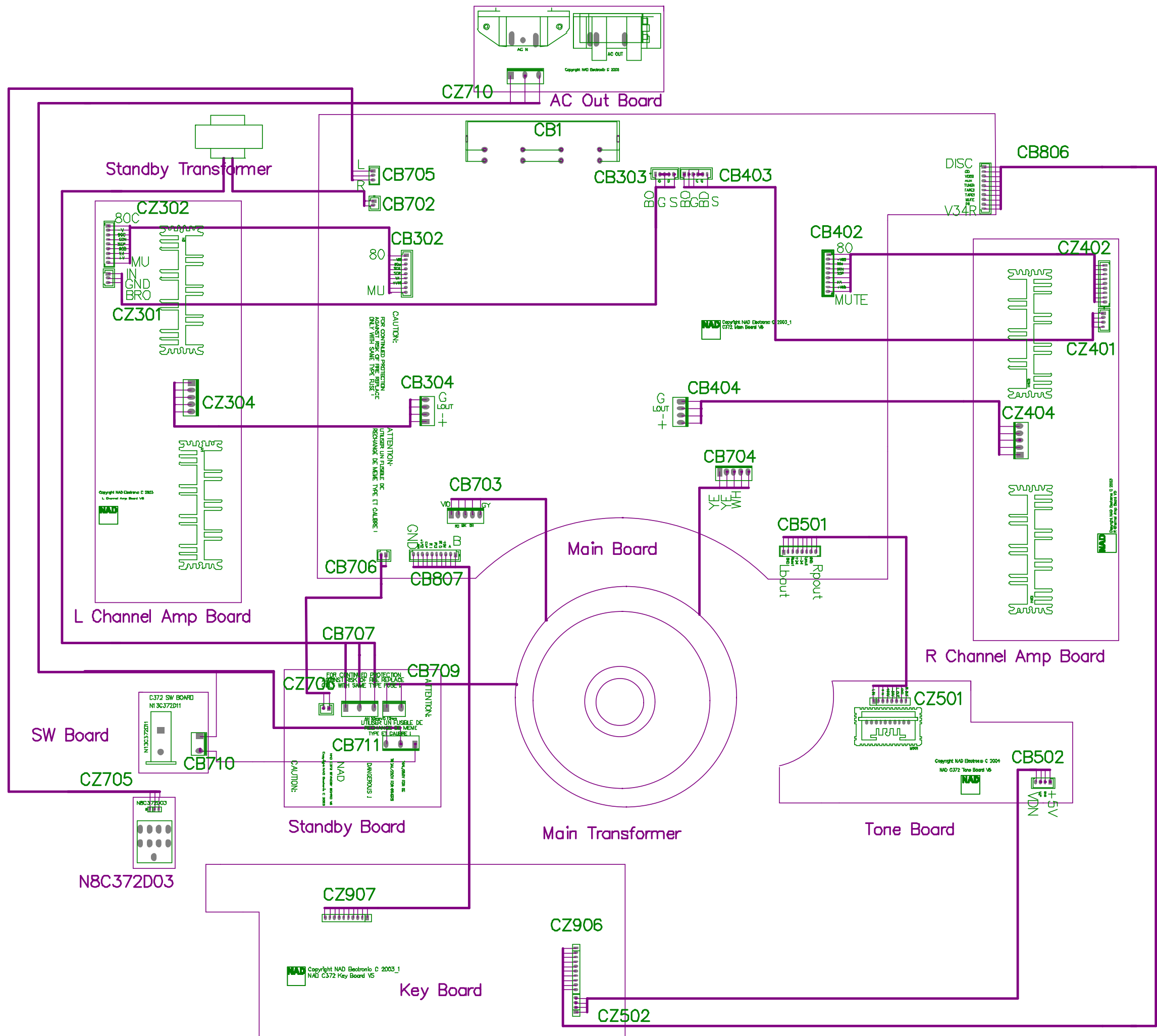
CONTINUOUS AVERAGE POWER OUTPUT INTO 8 OHMS (Min. power per channel, with no more than rated distortion)	330 W 25.2 dBW)
IHF dynamic headroom at 8 ohms	3 dB
IHF dynamic power 8 ohms:	800 W (29.0 dBW)
IHF dynamic power 4 ohms:	1200 W (30.8 dBW)

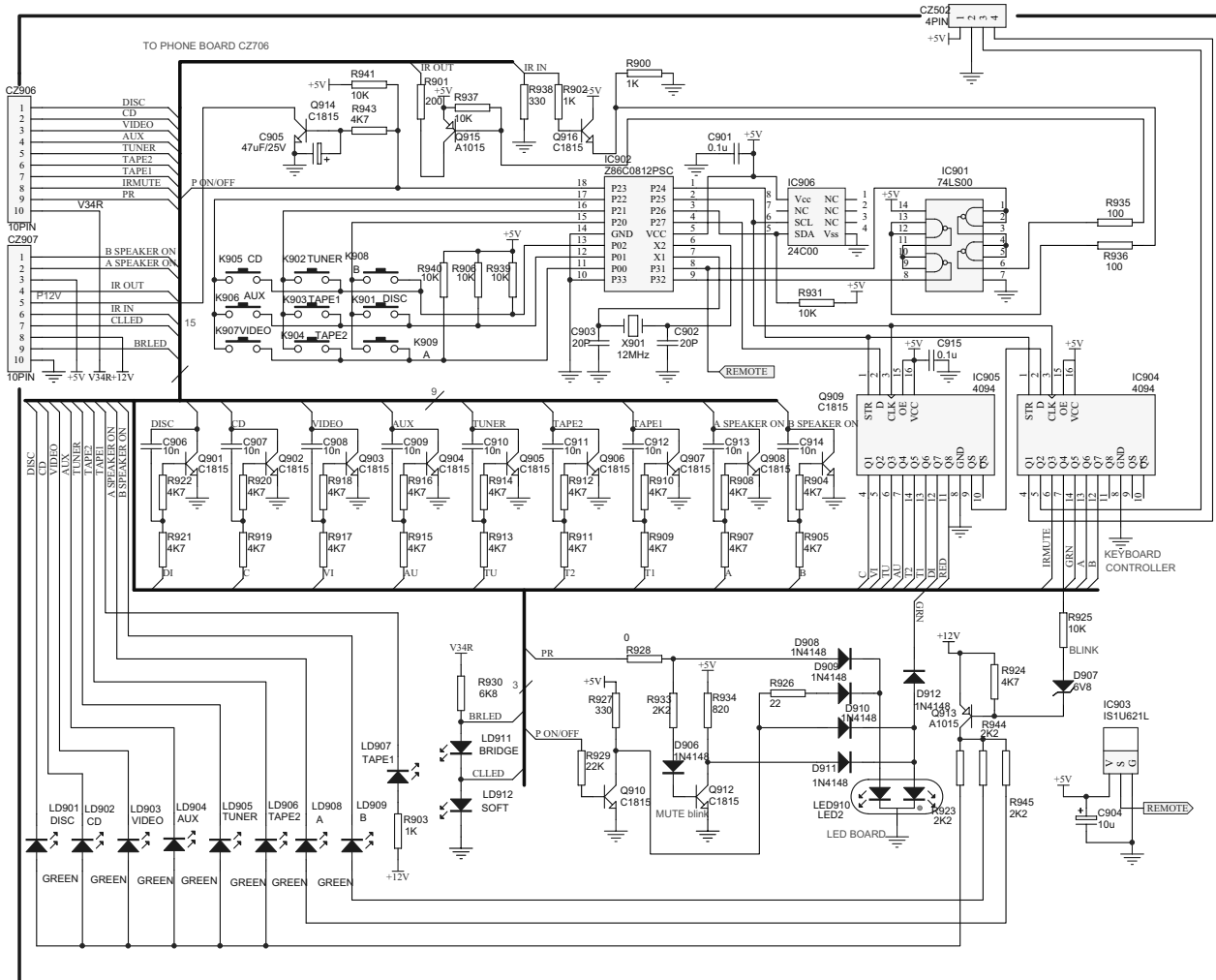
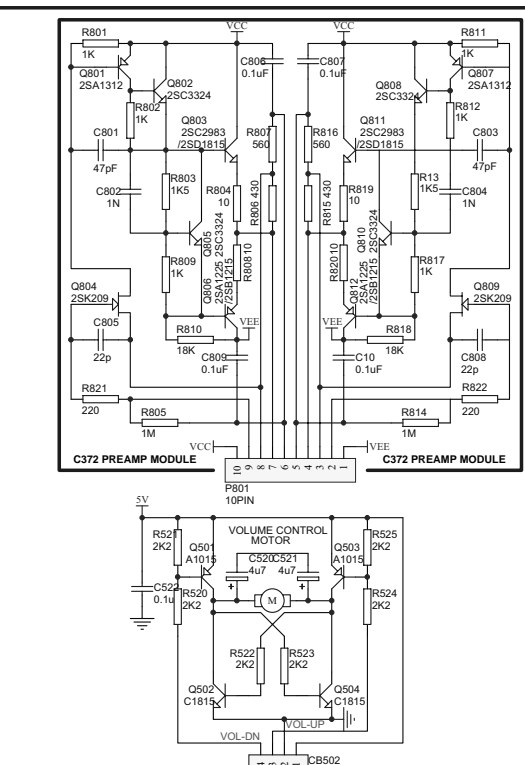
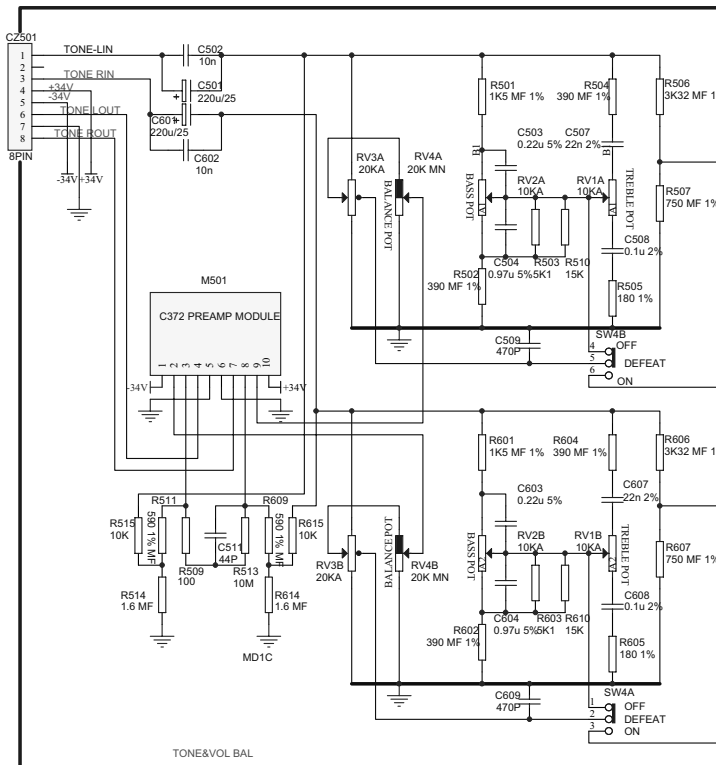
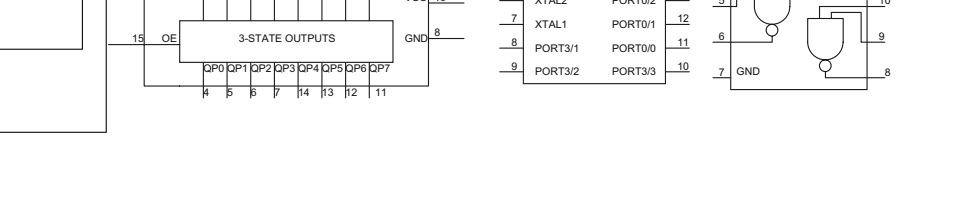
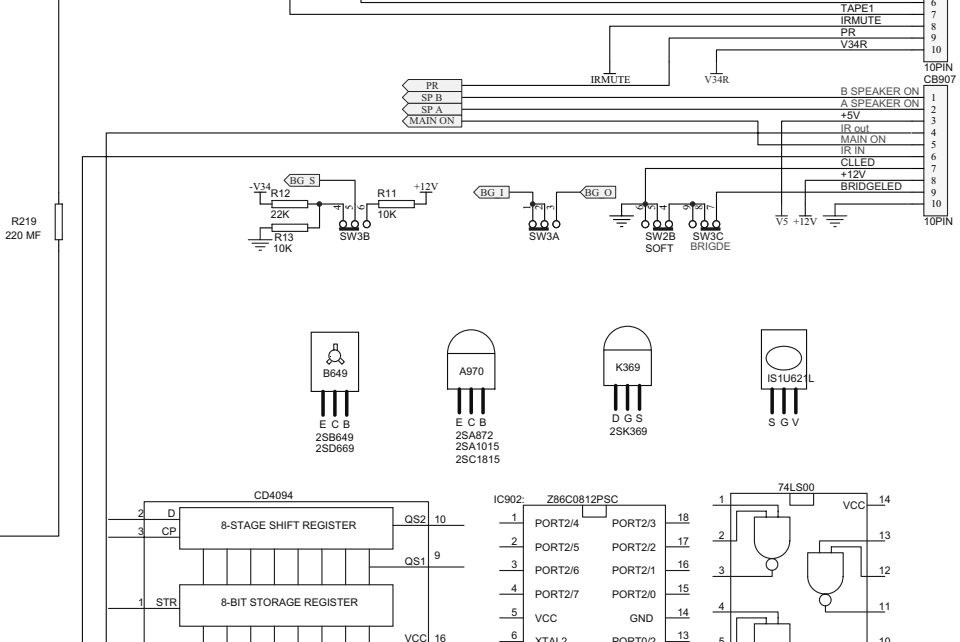
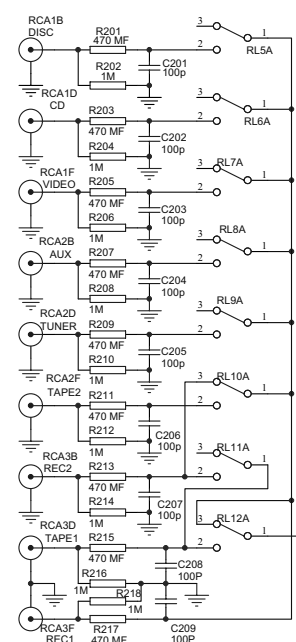
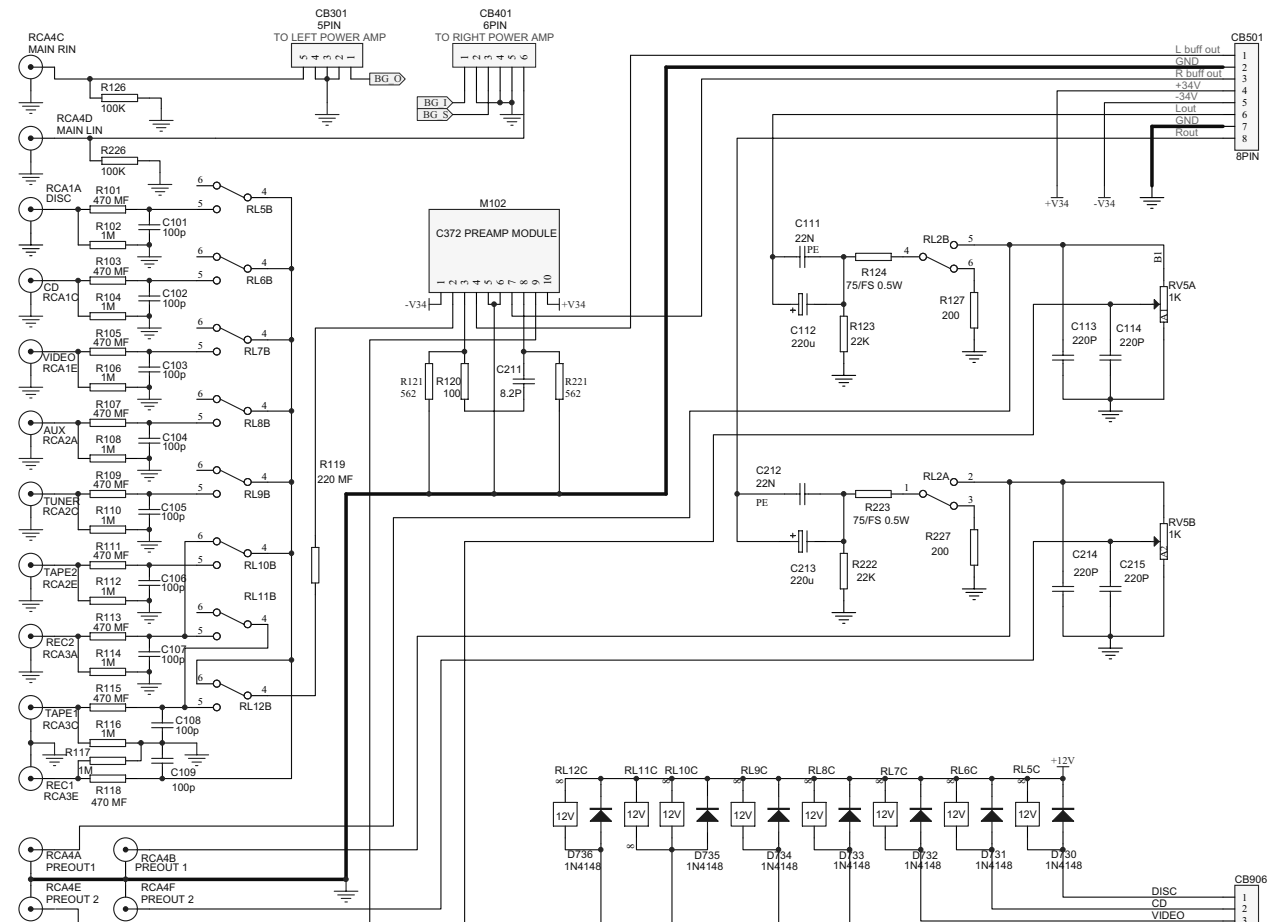
DIMENSIONS AND WEIGHTS

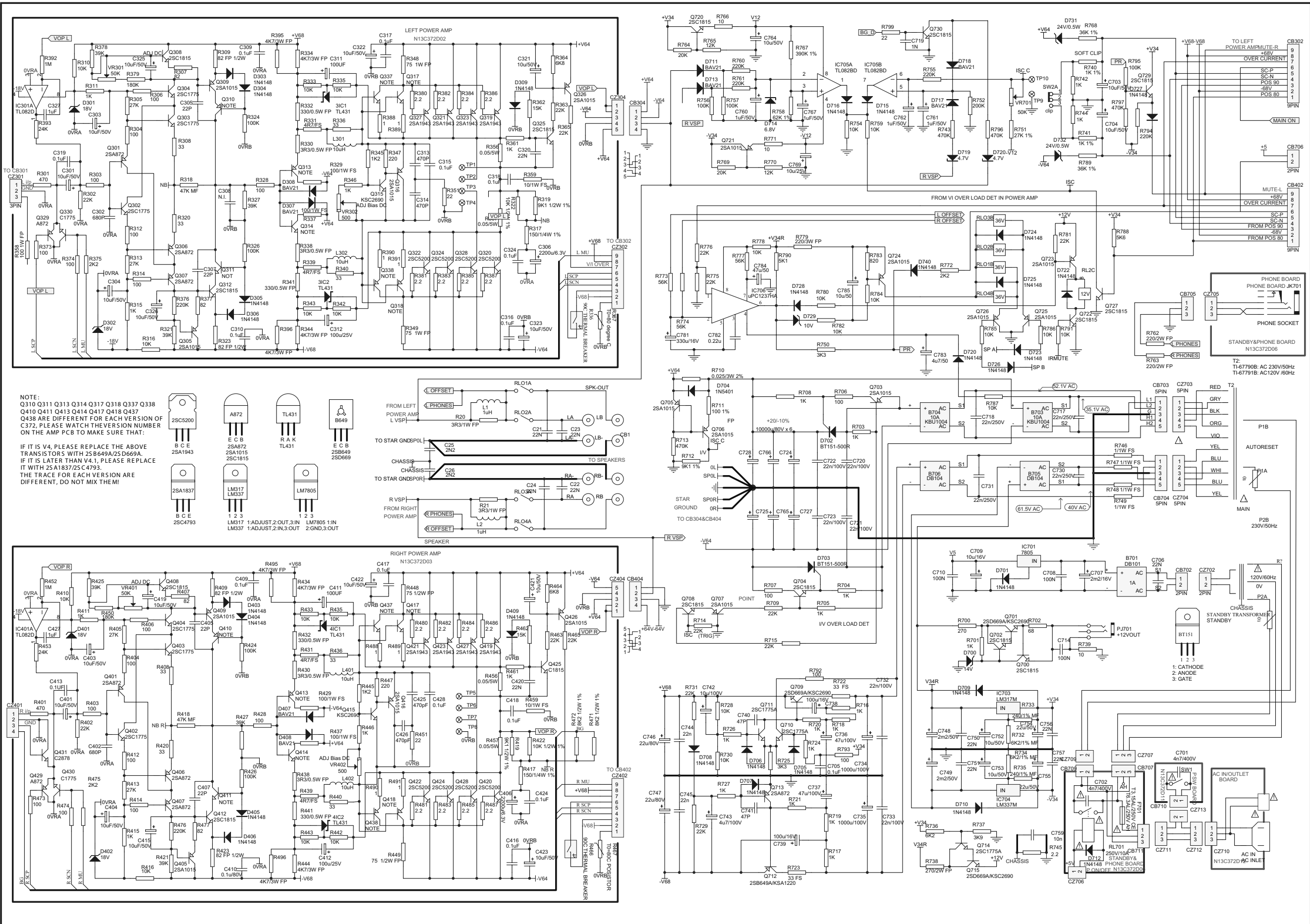
Net Weight	13.0 kg (28.7 lb)
Shipping Weight	14.9 kg (32.85 lb)
Dimension (W × H × D)	435 ´ 133 ´ 350 mm

MAIN BOARD

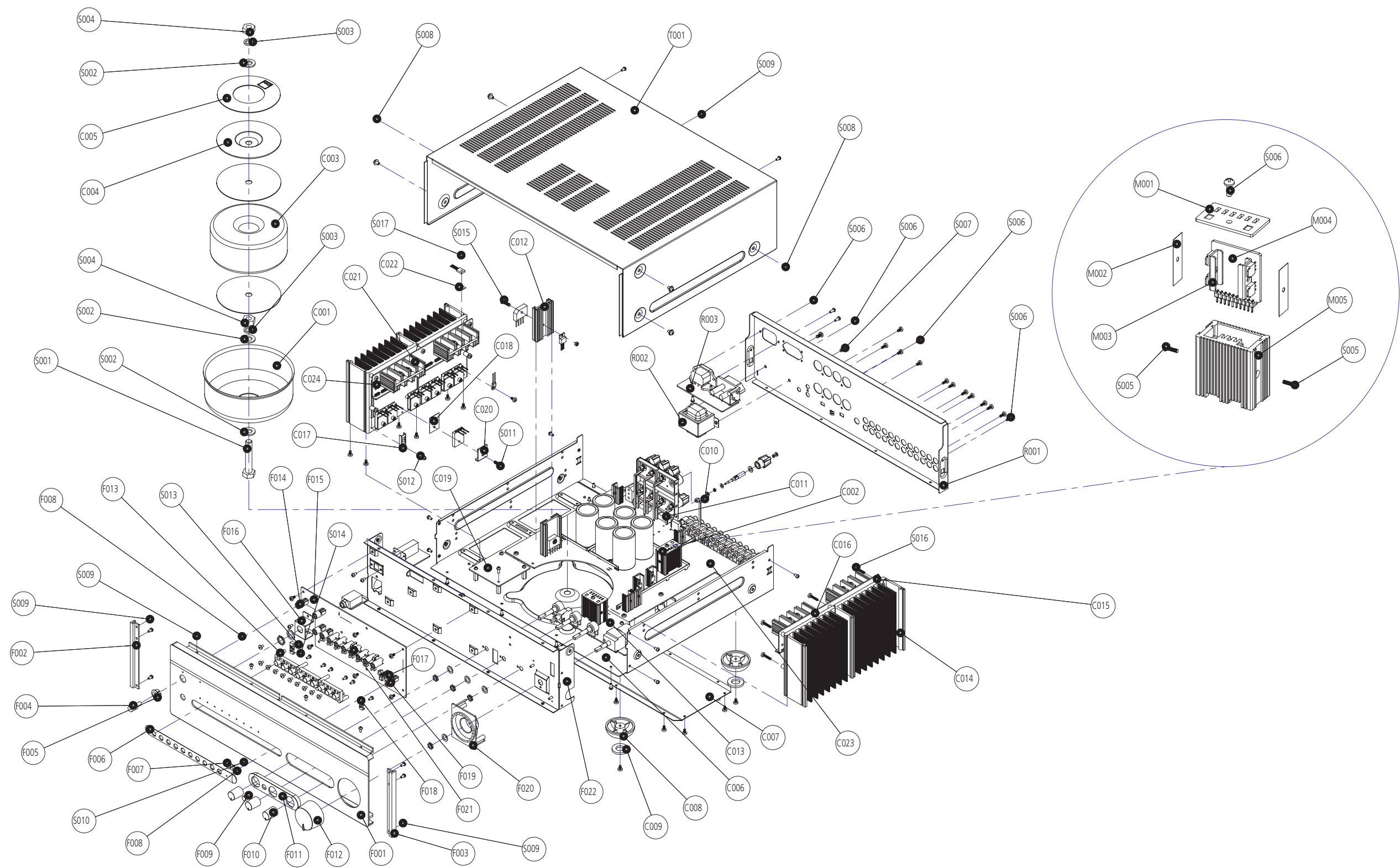








EXPLODED VIEW



EXPLODED VIEW PARTS LIST

REF. NO	PART NO.	DESCRIPTION	Qty.	REF. NO	PART NO.	DESCRIPTION	Qty.
C001	67-005010-0	Transformer Shielding Box	1	F007	76-001001-0	IR Lens	1
C002	01-37205-10	Assembled Pre Amp Module	2	F008	76-003001-0	LED Lens	12
C003	18-37371-22	Transformer C Version	1	F009	77-002002-1	Tone Defeat Button	1
	18-37371-12	Transformer AH Version	1	F010	73-014001-1	Tone Knob	3
C004	66-005007-0	Metal Disc	1	F011	77-001001-1	Tone Control Lozenge	1
C005	94-005004-1	Transformer Disc Label	1	F012	73-014002-1	Volume Knob	1
C006	66-018001-1	Chassis	1	F013	74-001002-1	Input Button (3P)	3
C007	66-005004-0	Base Cover	1	F014	75-005001-0	Sleeve(1P)	4
C008	75-010004-1	Foot	4	F015	01-37204-00	Assembled Key Board	1
C009	78-001002-0	Foot Pad	4	F016	66-018003-0	Headphone Bracket	1
C010	69-005006-0	BDP Pin Big	4	F017	66-005005-0	IR Bracket	1
C011	69-002004-0	BDP Pin Small	4	F018	75-003003-0	Bracket	2
C012	70-004003-1	Heat Sink Small B	2	F019	75-003002-0	Sleeve(1P)	1
C013	01-37203-00	Assembled Tone PCB	1	F020	77-018001-0	Knob Volume lozenge	1
C014	70-018001-0	Main Heatsink	2	F021	75-003001-0	Sleeve(7P)	1
C015	85-005001-0	PCB Spacer	10	F022	66-018002-0	Subfascia	1
C016	01-37202-02	Assembled R Channel AMP PCB	1				
C017	66-018005-0	Tem. SW Clamper	2	R001	67-018006-0	Rear Panel(C)	1
C018	78-005005-0	Insulated Cashion	16		67-018005-0	Rear Panel(AH)	1
C019	01-37206-00	Assembled Relay PCB	1	R002	18-37060-01	Standby Transformer	1
C020	66-005009-0	Transistor Clamping	16	R003	01-37208-01	Assembled AC Inlet PCB (C Version)	1
C021	70-018003-1	Heatsink C	4		01-37208-02	Assembled AC Inlet PCB (AH Version)	1
C022	78-005002-0	Insulation Cushion(Small)	9				
C023	01-37201-00	Assembled Main PCB	1	S001	64-110070-0	Bolt, GB5781, M10X70	1
C024	01-37202-01	Assembled L Channel AMP PCB	1	S002	63-011020-2	Washers, GB97-87φ10	3
				S003	63-021030-0	Spring Washers, GB93φ10	2
M001	70-018004-0	Module Lid	2	S004	62-011002-0	Nuts, GB6170, M10	2
M002	78-018001-0	Insulated Cashion	4	S005	61-062108-0	Self Taping Screws, STF2X8-0	4
M003	66-018004-0	Trans Clamp (Module)	4	S006	61-023208-0	Self Taping Screws, BTB3X8	32
M004	01-37205-00	Assembled Pre Amp Module PCB	2	S007	61-024108-0	Self Taping Screws, STB3X8	11
M005	70-018002-0	Module heatsink box	2	S008	61-084108-0	Self Taping Screws, STPW4X8	6
				S009	61-023106-0	Self Taping Screws, STB3X6	44
T001	67-018004-0	Top Cover	1	S010	61-022204-6	Self Taping Screws, BTB2.6X4	1
				S011	61-023212-0	Self Taping Screws, BTB3X12	2
F001	67-018003-0	Fascia	1	S012	61-223514-0	Hex Screws, GB70, 3X14	16
F002	67-018001-0	End Cap L	1	S013	61-022205-6	Self Taping Screws, BTB2.6X5	2
F003	67-018002-0	End Cap R	1	S014	61-022206-6	Self Taping Screws, BTB2.6X6	14
F004	77-002002-1	Power Button	1	S015	61-083515-0	Machine Screws, MPW3X15	2
F005	77-001007-1	Power Button Bezel	1	S016	61-033420-0	Self Taping Screws, PTP3X20	10
F006	77-005001-1	Input Button Lozenge	1	S017	61-022206-8	Self Taping Screws, BTB2.6X8	18

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION					
L CHANNEL AMP BOARD							
DIODES	16-37202-01	L Channel Raw PCB					
	01-37202-01	Assembled L Channel PCB					
	D303, D304, D305, D306, D309	33-44148-02	1N4148			Switch Diode	
	D302	33-11800-00	18V	1/2W		Zener Diode	
	D301	33-11800-01	18V	1/2W		Zener Diode	
D307, D308	33-40021-01	BAV21			Switch Diode		
TRANSISTORS	Q329, Q301, Q306, Q307	31-00872-00	2SA872A E			Transistor	
	Q305, Q309, Q316, Q326	31-01015-00	2SA1015GR			Transistor	
	Q302, Q303, Q304, Q330	31-01775-00	2SC1775A E			Transistor	
	Q308, Q312, Q325	31-01815-00	2SC1815GR			Transistor	
	Q310, Q313, Q318, Q338	31-00649-00	2SB649A C			Transistor	
	Q311, Q314, Q317, Q337	31-00669-00	2SD669A C			Transistor	
	Q315	31-02690-00	KSC2690A Y			Transistor	
	Q319, Q321, Q323, Q327	31-01943-00	2SA1943 O			Transistor	
	Q320, Q322, Q324, Q328	31-05200-00	2SC5200 O			Transistor	
	ICS	3IC1, 3IC2	03-00431-00	TL431/KA431			IC, Regulator
		IC301	03-00082-00	TL082D			IC, OP-AMP
CAPACITORS	C305, C307	05-22052-00	22pF	500V	±20%	Cermatic Disk Capacitor	
	C302	05-68152-00	680pF	500V	±20%	Cermatic Disk Capacitor	
	C313, C314	05-47152-00	470pF	500V	±20%	Cermatic Disk Capacitor	
	C320	05-22312-00	22nF	100V	+50%-20%	Cermatic Disk Capacitor	
	C315, C319, C324	25-10451-03	0.1uF	50V	±10%	Metallized Polyester Film Capacitor	
	C318	25-10461-01	0.1uF, CL21	63V	±10%	Metallized Polyester Film Capacitor	
	C309, C310, C316, C317	25-10412-02	0.1uF, CL23B	100V	±10%	Metallized Polyester Film Capacitor	
	C327	25-10561-00	1uF, CL233X	63V	±5%	Metallized Polyester Film Capacitor	
	C301, C303, C304, C321, C325, C326	06-10051-00	10uF, CD110	50V	±20%	Alu Electrolytic Capacitor	
	C322, C323	06-10012-00	10uF, CD110	100V	±20%	Alu Electrolytic Capacitor	
	C311, C312	06-10121-02	100uF, CD263	25V	±20%	Alu Electrolytic Capacitor	
	C306	06-22260-00	2200uF, CD110	6.3V	±20%	Alu Electrolytic Capacitor	
	RESISTORS	R388, R389, R390, R391	07-10109-10	1 Ω	1/4W	±5%	Carbon Film Resistor
		R380, R381, R382, R383, R384, R385, R386, R387	07-10229-12	2R2 Ω	1/4W	±5%	Carbon Film Resistor
R308, R320, R336, R340		07-10330-10	33 Ω	1/4W	±5%	Carbon Film Resistor	
R377, R307		07-10820-10	82 Ω	1/4W	±5%	Carbon Film Resistor	
R303, R304, R306, R312, R314, R328, R373, R374		07-10101-10	100 Ω	1/4W	±5%	Carbon Film Resistor	
R347		07-10221-10	220 Ω	1/4W	±5%	Carbon Film Resistor	
R301		07-10471-10	470 Ω	1/4W	±5%	Carbon Film Resistor	
R311, R315, R346, R361		07-10102-10	1k Ω	1/4W	±5%	Carbon Film Resistor	
R345		07-10122-10	1k2 Ω	1/4W	±5%	Carbon Film Resistor	
R375		07-10222-10	2k2 Ω	1/4W	±5%	Carbon Film Resistor	
R364		07-10682-10	6k8 Ω	1/4W	±5%	Carbon Film Resistor	
R310, R316, R333, R335, R342, R343		07-10103-10	10k Ω	1/4W	±5%	Carbon Film Resistor	
R362		07-10153-10	15k Ω	1/4W	±5%	Carbon Film Resistor	
R302, R363, R365		07-10223-10	22k Ω	1/4W	±5%	Carbon Film Resistor	
R317		07-21500-10	150 Ω	1/4W	±1%	Metal Film Resistor	

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
R393	07-20243-10	24k Ω	1/4W	$\pm 5\%$	Metal Film Resistor
R305, R313	07-20273-10	27k Ω	1/4W	$\pm 5\%$	Metal Film Resistor
R321, R378, R327	07-20393-10	39k Ω	1/4W	$\pm 5\%$	Metal Film Resistor
R318	07-20473-10	47k Ω	1/4W	$\pm 5\%$	Metal Film Resistor
R324, R326	07-20104-10	100k Ω	1/4W	$\pm 5\%$	Metal Film Resistor
R379	07-20184-10	180k Ω	1/4W	$\pm 5\%$	Metal Film Resistor
R376	07-20224-10	220k Ω	1/4W	$\pm 5\%$	Metal Film Resistor
R392	07-20105-10	1M Ω	1/4W	$\pm 5\%$	Metal Film Resistor
R319	07-29101-20	9k1 Ω	1/2W	$\pm 1\%$	Metal Film Resistor
R322	07-21002-20	10k Ω	1/2W	$\pm 1\%$	Metal Film Resistor
R330, R338	07-30339-00	3R3 Ω	1/2W	$\pm 5\%$	Metallized Oxid Film Resistor
R309, R323	07-38209-00	82 Ω	1/2W	$\pm 2\%$	Metallized Oxid Film Resistor
R332, R341	07-30331-01	330 Ω	1/2W	$\pm 5\%$	Metallized Oxid Film Resistor
R351	07-30220-00	22 Ω , 0.5W, $\pm 5\%$	1/2W	$\pm 5\%$	Metallized Oxid Film Resistor
R359	07-30100-01	10 Ω	1W	$\pm 5\%$	Metallized Oxid Film Resistor
R348, R349	07-30750-01	75 Ω	1W	$\pm 5\%$	Metallized Oxid Film Resistor
R358	07-30101-01	100 Ω	1W	$\pm 5\%$	Metallized Oxid Film Resistor
R329, R337	07-30101-15	100 Ω	1W	$\pm 5\%$	Metallized Oxid Film Resistor
R334, R344, R395, R396	07-30472-03	4k7 Ω	3W	$\pm 5\%$	Metallized Oxid Film Resistor
R331, R339	07-50479-01	4R7 Ω	1/2W	$\pm 5\%$	Fusible Resistor
R356, R357	07-50507-05	0.05 Ω	5W	$\pm 5\%$	CERAMIC CASE
R367	07-70471-08	T0=80 C degree PTH9M04BF471TS2F333			PTC
R366	07-70022-09	T0=90 C degree ST-22 90C			Thermal breaker
VR302	09-02501-00	500 Ω			Variable Resistor
VR301	09-02503-00	50k Ω			Variable Resistor
INDUCTORS					
L301, L302	08-02100-00	10uH			Inductor
CONNECTORS					
CZ304	13-23905-00	VH 3.96A-5Y1			Connector
CZ301	13-22503-00	XHB 2.54A-3A			Connector
CZ302	13-22509-00	XHB 2.54A-9A			Connector
TP303-TP304	13-12502-00	2PIN			Connector
TP301, TP302	13-10001-00	1PIN			Connector
R CHANNEL AMP BOARD					
DIODES	16-37202-02	R Channel Raw PCB			
	01-37202-02	Assembled R Channel PCB			
	D403, D404, D405, D406, D409	33-44148-02	1N4148		Switch Diode
	D407, D408	33-40021-01	BAV21		Switch Diode
	D402	33-11800-00	18V	1/2W	Zener Diode
D401	33-11800-01	18V		1/2W	Zener Diode
TRANSISTORS					
Q401, Q406, Q407, Q429	31-00872-00	2SA872A E			Transistor
Q405, Q409, Q416, Q426	31-01015-00	2SA1015GR			Transistor
Q402, Q403, Q404, Q430	31-01775-00	2SC1775A E			Transistor
Q408, Q412, Q425	31-01815-00	2SC1815GR			Transistor
Q431	31-02878-00	2SC2878A			Transistor
Q410, Q413, Q418, Q438	31-00649-00	2SB649A C			Transistor
Q411, Q414, Q417, Q437	31-00669-00	2SD669A C			Transistor
Q415	31-02690-00	KSC2690A Y			Transistor
Q419, Q421, Q423, Q427	31-01943-00	2SA1943 O			Transistor
Q420, Q422, Q424, Q428	31-05200-00	2SC5200 O			Transistor

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
ICS					
4IC1, 4IC2	03-00431-00	TL431/KA431			IC, Regulator
IC401	03-00082-00	TL082D			IC, OP-AMP
CAPACITORS					
C405, C407	05-22052-00	22pF	500V	±20%	Cermatic Disk Capacitor
C402	05-68152-00	680pF	500V	±20%	Cermatic Disk Capacitor
C425, C426	05-47152-00	470pF	500V	±20%	Cermatic Disk Capacitor
C420	05-22312-00	22nF	100V	+50%-20%	Cermatic Disk Capacitor
C413, C424, C428	25-10451-03	0.1uF, CL23B	50V	±10%	Metallized Polyester Film Capacitor
C418	25-10461-01	0.1uF, CL21	63V	±10%	Metallized Polyester Film Capacitor
C409, C410, C416, C417	25-10412-02	0.1uF, CL23B	100V	±10%	Metallized Polyester Film Capacitor
C427	25-10561-00	1uF, CL233X	63V	±5%	Metallized Polyester Film Capacitor
C401, C403, C404, C421, C415, C419	06-10051-00	10uF, CD110	50V	±20%	Alu Electrolytic Capacitor
C422, C423	06-10012-00	10uF, CD110	100V	±20%	Alu Electrolytic Capacitor
C411, C412	06-10121-02	100uF, CD263	25V	±20%	Alu Electrolytic Capacitor
C406	06-22260-00	2200uF, CD110	6.3V	±20%	Alu Electrolytic Capacitor
RESISTORS					
R488, R489, R490, R491	07-10109-10	1 Ω	1/4W	±5%	Carbon Film Resistor
R480, R481, R482, R483, R484, R485, R486, R487	07-10229-12	2R2 Ω	1/4W	±5%	Carbon Film Resistor
R408, R420, R436, R440	07-10330-10	33 Ω	1/4W	±5%	Carbon Film Resistor
R407, R477	07-10820-10	82 Ω	1/4W	±5%	Carbon Film Resistor
R403, R404, R406, R412, R414, R428, R473, R474	07-10101-10	100 Ω	1/4W	±5%	Carbon Film Resistor
R447	07-10221-10	220 Ω	1/4W	±5%	Carbon Film Resistor
R401	07-10471-10	470 Ω	1/4W	±5%	Carbon Film Resistor
R411, R415, R446, R461	07-10102-10	1k Ω	1/4W	±5%	Carbon Film Resistor
R445	07-10122-10	1k2 Ω	1/4W	±5%	Carbon Film Resistor
R475	07-10222-10	2k2 Ω	1/4W	±5%	Carbon Film Resistor
R464	07-10682-10	6k8 Ω	1/4W	±5%	Carbon Film Resistor
R410, R416, R433, R435, R442, R443	07-10103-10	10k Ω	1/4W	±5%	Carbon Film Resistor
R462	07-10153-10	15k Ω	1/4W	±5%	Carbon Film Resistor
R402, R463, R465	07-10223-10	22k Ω	1/4W	±5%	Carbon Film Resistor
R417	07-21500-10	150 Ω	1/4W	±1%	Metal Film Resistor
R453	07-20243-10	24k Ω	1/4W	±5%	Metal Film Resistor
R405, R413	07-20273-10	27K Ω	1/4W	±5%	Metal Film Resistor
R421, R425, R427	07-20393-10	39K Ω	1/4W	±5%	Metal Film Resistor
R418	07-20473-10	47K Ω	1/4W	±5%	Metal Film Resistor
R424, R426	07-20104-10	100K Ω	1/4W	±5%	Metal Film Resistor
R450	07-20184-10	180K Ω	1/4W	±5%	Metal Film Resistor
R476	07-20224-10	220K Ω	1/4W	±5%	Metal Film Resistor
R452	07-20105-10	1M Ω	1/4W	±5%	Metal Film Resistor
R471, R472	07-28201-20	8K2 Ω	1/2W	±1%	Metal Film Resistor
R419	07-29101-20	9K1 Ω	1/2W	±1%	Metal Film Resistor
R422	07-21002-20	10K Ω	1/2W	±1%	Metal Film Resistor
R430, R438	07-30339-00	3R3 Ω	1/2W	±5%	Metallized Oxid Film Resistor
R451	07-30220-00	22 Ω	1/2W	±5%	Metallized Oxid Film Resistor
R409, R423	07-38209-00	82 Ω	1/2W	±2%	Metallized Oxid Film Resistor
R432, R441	07-30331-01	330 Ω	1/2W	±5%	Metallized Oxid Film Resistor
R459	07-30100-01	10 Ω	1W	±5%	Metallized Oxid Film Resistor
R429, R437	07-30101-15	100 Ω	1W	±5%	Metallized Oxid Film Resistor
R449, R448	07-30750-01	75 Ω	1W	±5%	Metallized Oxid Film Resistor
R434, R444, R495, R496	07-30472-03	4K7 Ω	3W	±5%	Metallized Oxid Film Resistor
R431, R439	07-50479-01	4R7 Ω	1/2W	±5%	Fusible Resistor
R456, R457	07-50507-05	0.05 Ω	5W	±5%	CERAMIC CASE

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION				
R467	07-70471-08	T0=80 C degree PTH9M04BF471TS2F333				PTC
R466	07-70022-09	T0=90 C degree ST-22 90C				Thermal breaker
VR402	09-02501-00	500 Ω				Variable Resistor
VR401	09-02503-00	50K Ω				Variable Resistor
INDUCTORS						
L401, L402	08-02100-00	10uH				Inductor
CONNECTORS						
CZ404	13-23905-00	VH 3.96A-5Y1				Connector
CZ401	13-22504-00	XHB 2.54A-4A				Connector
CZ402	13-22509-00	XHB 2.54A-9A				Connector
TP403-TP404	13-12502-00	2PIN				Connector
TP401, TP402	13-10001-00	1PIN				Connector
TONE BOARD						
TRANSISTORS	16-37203-00	Tone Raw PCB				
	01-37203-00	Assembled Tone PCB				
Q501, Q503	31-01015-00	2SA1015GR				Transistor
Q502, Q504	31-01815-00	2SC1815GR				Transistor
RESISTORS						
R520, R521, R522, R523, R524, R525	07-10222-10	2K2 Ω	1/4W	±5%	Carbon Film Resistor	
R515	07-10103-10	10K Ω	1/4W	±5%	Carbon Film Resistor	
R615	07-10103-00	10K Ω	1/6W	±5%	Carbon Film Resistor	
R509	07-10101-00	100 Ω	1/6W	±5%	Carbon Film Resistor	
R514, R614	07-20169-00	1.6 Ω	1/6W	±5%	Metal Film Resistor	
R505, R605	07-21800-10	180 Ω	1/4W	±1%	Metal Film Resistor	
R502, R602, R504, R604	07-23900-10	390 Ω	1/4W	±1%	Metal Film Resistor	
R511, R609	07-25900-00	590 Ω	1/6W	±1%	Metal Film Resistor	
R507, R607	07-27500-10	750 Ω	1/4W	±1%	Metal Film Resistor	
R601, R501	07-21501-10	1K5 Ω	1/4W	±1%	Metal Film Resistor	
R606, R506	07-23221-10	3K32 Ω	1/4W	±1%	Metal Film Resistor	
R503	07-25101-00	5K1 Ω	1/6W	±1%	Metal Film Resistor	
R603	07-25101-10	5K1 Ω	1/4W	±1%	Metal Film Resistor	
R510, R610	07-20153-10	15K Ω (Debug part)	1/4W	±5%	Metal Film Resistor	
R513	07-20106-00	10M Ω	1/6W	±5%	Metal Film Resistor	
RV3	09-01203-05	RK16812MGA10(20KBX2)				POT
RV1, RV2	09-01103-07	RD163121A023-10KAX2				POT
RV4	09-01203-06	RD163121A020-20KMN				POT
CAPACITORS						
C511	05-43022-00	43pF	250V	±20%	Cermatic Disk Capacitor	
C509, C609	05-47122-00	470pF	250V	±20%	Cermatic Disk Capacitor	
C522	24-10461-00	0.1uF	63V	±20%	Cermatic Disk Capacitor	
C502, C602	25-10361-04	10nF, CL23B	63V	±10%	Metallized Polyester Film Capacitor	
C507, C607	25-22312-05	22nF, CBB25	100V	±2%	Metallized Polyester Film Capacitor	
C508, C608	25-10461-03	0.1uF, CBB25	63V	±2%	Metallized Polyester Film Capacitor	
C503, C603	25-23461-00	0.23uF, CL23B	63V	±5%	Metallized Polyester Film Capacitor	
C504, C604	25-95461-00	0.95uF, CL23B	63V	±5%	Metallized Polyester Film Capacitor	
C520, C521	06-47961-01	4.7uF, CD110	63V	±20%	Alu Electrolytic Capacitor	
C501, C601	06-22121-00	220uF, CD110	25V	±20%	Alu Electrolytic Capacitor	
SWITCHS						
SW4	11-02202-00	SPUN19K605				Push Switch

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
CONNECTIONS		
CZ501	14-37208-00	8P2.54-A50B Connection
CB502	13-22504-00	XHB 2.54A-4A Connection
PRE AMP MODULE(2 PCS)		
	16-37205-00	PRE AMP Module Raw PCB
	01-37205-00	Assembled PRE AMP Module PCB
TRANSISTORS		
Q804, Q809	31-00209-00	2SK209GR MOSFET
Q801, Q807	31-01312-00	2SA1312GR Transistor
Q802, Q805, Q808, Q810	31-03324-00	2SC3324GR Transistor
Q806, Q812	31-01225-00	2SA1225Y(Complementary pair with 2SC2983Y) Transistor
Q806, Q812	31-01215-10	(or 2SB1215S)(Complementary pair with 2SD1815S) Transistor
Q803, Q811	31-02983-00	2SC2983Y(Complementary pair with 2SA1225Y) Transistor
Q803, Q811	31-01815-10	(or 2SD1815S)(Complementary pair with 2SB1215S) Transistor
CAPACITORS		
C805, C808	26-22051-01	22pF, 0805 50V ±5% Cermatic Capacitor Smd
C801, C803	26-47051-01	47pF, 0805 50V ±5% Cermatic Capacitor Smd
C802, C804	26-10251-01	1nF, 0805 50V ±10% Cermatic Capacitor Smd
C806, C807, C809, C810	26-10451-01	0.1uF, 0805 50V +80%-20% Cermatic Capacitor Smd
RESISTOR		
R804, R808, R819, R820	07-90100-01	10 Ω 0805 ±5% Resistor Smd
R821, R822	07-90221-01	220 Ω 0805 ±5% Resistor Smd
R806, R815	07-94320-01	432 Ω 0805 ±1% Resistor Smd
R801, R802, R809, R811, R812, R817	07-90102-01	1k Ω 0805 ±58% Resistor Smd
R803, R813	07-90152-01	1k5 Ω 0805 ±5% Resistor Smd
R810, R818	07-90183-01	18k Ω 0805 ±5% Resistor Smd
R805, R814	07-90105-01	1M Ω 0805 ±5% Resistor Smd
CONNECTORS		
P801	13-12510-01	10PIN Connector
KEY BOARD		
	16-37204-00	Key Raw PCB
	01-37204-00	Assembled Key PCB
DIODES		
D906, D908, D909, D910, D911	33-44148-02	1N4148 Switch Diode
D912	33-44148-03	1N4148 Switch Diode
D907	33-16809-00	6V8 Zener Diode
LD908, LD904, LD909, LD902, LD901, LD912, LD905, LD903, LD906	33-50550-00	L-513DG LED Green
LD907, LD911	33-50540-00	L-513AD LED Red
LED910	33-50525-00	L-519EGFW LED Dual Color
TRANSISTORS		
Q916, Q901, Q902, Q903, Q904, Q905, Q906, Q907, Q908, Q909, Q910, Q912, Q914	31-01815-00	2SC1815GR
Q915, Q913	31-01015-00	2SA1015GR
ICS		

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
IC906	03-02400-00	AT24C01			IC, EEPROM
IC901	03-07400-00	74LS00 N			IC, LOGIC IC
IC904, IC905	03-04094-00	HEF4094/CD4094			IC, LOGIC IC
IC902	03-86812-05	Z86E(或C)0812PSC			IC, MCU
IC903	03-01701-00	GP1UV701QS			IC, IR Receiver
IC903	03-00038-40	(or HS0038B4)			IC, IR Receiver
CAPACITORS					
C902, C903	05-20022-00	20pF	250V	±20%	Cermatic Disk Capacitor
C906, C907, C908, C909, C910, C911, C912, C913, C914	25-10361-01	10nF, CL11	63V	±10%	Metallized Polyester Film Capacitor
C901, C915	24-10461-00	0.1uF	63V	±20%	Monolithic
C904	06-10061-01	10uF, CD110	63V	±20%	Alu Electrolytic Capacitor
C905	06-47061-00	47uF, CD110	63V	±20%	Alu Electrolytic Capacitor
RESISTORS					
R926	07-10220-10	22 Ω	1/4W	±5%	Carbon Film Resistor
R901, R935, R936	07-10101-10	100 Ω	1/4W	±5%	Carbon Film Resistor
R927, R938	07-10331-10	330 Ω	1/4W	±5%	Carbon Film Resistor
R934	07-10821-10	820 Ω	1/4W	±5%	Carbon Film Resistor
R900, R902, R903	07-10102-10	1K Ω	1/4W	±5%	Carbon Film Resistor
R923, R933, R944, R945	07-10222-10	2K2 Ω	1/4W	±5%	Carbon Film Resistor
R904, R905, R907, R908, R909, R910, R911, R912, R913, R914, R915, R916, R917, R918, R919, R920, R921, R922, R924, R943	07-10472-10	4K7 Ω	1/4W	±5%	Carbon Film Resistor
R930	07-10682-10	6K8 Ω	1/4W	±5%	Carbon Film Resistor
R906, R925, R937, R939, R940, R941, R931	07-10103-10	10K Ω	1/4W	±5%	Carbon Film Resistor
R929	07-10223-10	22K Ω	1/4W	±5%	Carbon Film Resistor
SWITCHS					
K909, K906, K908, K905, K901, K903, K904, K902, K907	11-04101-00	IT-1102D-1160			Tact Switch
CRYSTALS					
X901	04-11202-00	12MHz, HC-49uF			Crystal
CONNECTORS					
CZ502	14-37004-00	4PIN, L=260mm			Connector
CZ907	14-37010-01	10PIN, L=170mm			Connector
CZ906	14-37010-00	10PIN, L=550mm			Connector
MAIN BOARD					
DIODES	16-37201-00	Main Board Raw PCB			
	01-37201-00	Assembled Main Board PCB			
	33-44148-02	1N4148			Switch Diode
	33-44148-03	1N4148			Switch Diode
	33-40021-00	BAV21			Switch Diode
	33-25401-01	1N5401			Rectifier Diode

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
D719, D720	33-14709-00	4.7V	1/2W	Zener Diode	
D714	33-16809-00	6.8V	1/2W	Zener Diode	
D729	33-11000-00	10V	1/2W	Zener Diode	
D700	33-11300-00	13V	1/2W	Zener Diode	
D741, D742	33-11800-00	18V	1/2W	Zener Diode	
D721	33-12400-02	(24V, with 24V relay)	5W	Zener Diode	
B703, B704	33-31542-00	KBU1504		Rectifier Bridge	
B701, B705, B706	33-30142-00	DB104		Rectifier Bridge	
TRANSISTORS					
Q713	31-00872-00	2SA872AE		Transistor	
Q703, Q705, Q706, Q707, Q721, Q723, Q724, Q725, Q726	31-01015-00	2SA1015GR		Transistor	
Q710, Q711, Q714	31-01775-00	2SC1775AE		Transistor	
Q700, Q702, Q704, Q708, Q720, Q722, Q727, Q729, Q730	31-01815-00	2SC1815GR		Transistor	
Q712	31-01220-00	KSA1220AYSTU		Transistor	
Q701, Q709, Q715	31-02690-00	KSC2690AYSTU		Transistor	
D702, D703	33-60116-00	BT151-500R		SCR	
ICS					
IC701	03-07805-00	LM7805		IC, Regulator	
IC703	03-00317-00	LM317(T)		IC, Tunable Regulator	
IC704	03-00337-00	LM337(T)		IC, Tunable Regulator	
IC705	03-00082-00	TL082D		IC, OP-AMP	
IC706	03-01237-00	uPC1237HA		IC,Protect IC	
CAPACITORS					
C211	05-82922-00	8.2pF	250V	±0.5pF	Ceramic Disk Capacitor
C740, C741	05-47022-00	47pF	250V	±20%	Ceramic Disk Capacitor
C101, C102, C103, C104, C105, C106, C107, C108, C109, C201, C202, C203, C204, C205, C206, C207, C208, C209	05-10152-00	100pF	500V	±20%	Ceramic Disk Capacitor
C113, C114, C214, C215	05-22122-00	220pF	250V	±20%	Ceramic Disk Capacitor
C759, C786	24-10361-05	10nF	63V	±20%	Ceramic Disk Capacitor
C705, C708, C710, C714	24-10461-00	0.1uF	63V	±20%	Ceramic Disk Capacitor
C782	24-22461-00	0.22uF	63V	±20%	Ceramic Disk Capacitor
C719	25-10251-06	1nF, CL11	50V	±20%	Metallized Polyester Film Capacitor
C25, C26	25-22261-01	2.2nF, CL11	63V	±20%	Metallized Polyester Film Capacitor
C706, C750, C751, C756, C757, C722, C723, C111, C212	25-22312-01	22nF, CL23B	100V	±10%	Metallized Polyester Film Capacitor
C21, C22, C23, C24, C720, C721, C745, C744, C732, C733	25-22312-04	22nF, CL21	100V	±10%	Metallized Polyester Film Capacitor
C717, C718, C730, C731	25-22322-02	22nF, CL21	250V	±10%	Metallized Polyester Film Capacitor
C761, C762, C767, C760, C764, C752, C753	06-10951-00	1uF, CD110	50V	±20%	Alu Electrolytic Capacitor
C783	06-47951-00	4.7uF, CD110	50V	±20%	Alu Electrolytic Capacitor
C743	06-47912-00	4.7uF, CD110	100V	±20%	Alu Electrolytic Capacitor
C703, C704, C709, C769, C785	06-10051-00	10uF, CD110	50V	±20%	Alu Electrolytic Capacitor
C742	06-10012-01	10uF, CD263	100V	±20%	Alu Electrolytic Capacitor
C754, C755	06-22051-00	22uF, CD110	50V	±20%	Alu Electrolytic Capacitor
C746, C747	06-22012-00	22uF, CD110	100V	±20%	Alu Electrolytic Capacitor
C784	06-47051-00	47uF, CD110	50V	±20%	Alu Electrolytic Capacitor

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
C736, C737	06-47012-00	47uF, CD110	100V	±20%	Alu Electrolytic Capacitor
C738, C739	06-10121-02	100uF, CD263	25V	±20%	Alu Electrolytic Capacitor
C112, C213	06-22121-00	220uF, CD110	25V	±20%	Alu Electrolytic Capacitor
C781	06-33111-01	330uF, CD110	16V	±20%	Alu Electrolytic Capacitor
C734, C735	06-10212-01	1000uF, CD294	100V	±20%	Alu Electrolytic Capacitor
C707	06-22211-00	2200uF, CD110	16V	±20%	Alu Electrolytic Capacitor
C748, C749	06-22251-01	2200uF, CD263	50V	±20%	Alu Electrolytic Capacitor
C724, C725, C727, C728	06-10381-02	10000uF, CD294	80V	±20%	Alu Electrolytic Capacitor
RESISTORS					
R745	07-10229-00	2R2 Ω	1/6W	±5%	Carbon Film Resistor
R759	07-10103-00	10K Ω	1/6W	±5%	Carbon Film Resistor
R739, R766, R771, R799	07-10100-10	10 Ω	1/4W	±5%	Carbon Film Resistor
R702	07-10680-10	68 Ω	1/4W	±5%	Carbon Film Resistor
R120	07-10101-00	100 Ω	1/6W	±5%	Carbon Film Resistor
R706, R707, R753, R792, R793	07-10101-10	100 Ω	1/4W	±5%	Carbon Film Resistor
R127, R227	07-10201-00	200 Ω	1/6W	±5%	Carbon Film Resistor
R783(with 36V relay)	07-10821-10	820 Ω	1/4W	±5%	Carbon Film Resistor
R701, R703, R704, R705, R708, R716, R717, R718, R719, R720, R721, R724, R726, R727, R742, R744	07-10102-10	1K Ω	1/4W	±5%	Carbon Film Resistor
R772	07-10222-10	2K2 Ω	1/4W	±5%	Carbon Film Resistor
R725, R750, (R783)(with 24V relay)	07-10332-10	3K3 Ω	1/4W	±5%	Carbon Film Resistor
R737	07-10392-10	3K9 Ω	1/4W	±5%	Carbon Film Resistor
R790	07-10512-10	5K1 Ω	1/4W	±5%	Carbon Film Resistor
R788	07-10562-10	5K6 Ω	1/4W	±5%	Carbon Film Resistor
R736	07-10622-10	6K2 Ω	1/4W	±5%	Carbon Film Resistor
R11, R13, R728, R730, R785, R786, R787, R791, R778, R780, R782, R784	07-10103-10	10K Ω	1/4W	±5%	Carbon Film Resistor
R123, R222, R12, R709, R714, R715, R781, R775, R776	07-10223-10	22K Ω	1/4W	±5%	Carbon Film Resistor
R773, R774, R777	07-10563-10	56K Ω	1/4W	±5%	Carbon Film Resistor
R754	07-10103-00	10K Ω	1/6W	±5%	Carbon Film Resistor
R756, R757	07-10104-00	100K Ω	1/6W	±5%	Carbon Film Resistor
R126, R226, R795	07-10104-10	100K Ω	1/4W	±5%	Carbon Film Resistor
R752	07-10204-10	200K Ω	1/4W	±5%	Carbon Film Resistor
R755, R794	07-10224-10	220K Ω	1/4W	±5%	Carbon Film Resistor
R760, R761	07-10224-00	220K Ω	1/6W	±5%	Carbon Film Resistor
R743, R796	07-10474-00	470K Ω	1/6W	±5%	Carbon Film Resistor
R713, R797	07-10474-10	470K Ω	1/4W	±5%	Carbon Film Resistor
R711	07-21000-10	100 Ω	1/4W	±1%	Metal Film Resistor
R119, R219	07-20221-10	220 Ω	1/4W	±5%	Metal Film Resistor
R733, R735	07-22400-10	240 Ω	1/4W	±1%	Metal Film Resistor
R101, R103, R105, R107, 109, R111, R113, R115, R118, R201, R203, R205, R207, R209, R211, R213, R215, R217	07-20471-00	470 Ω	1/6W	±5%	Metal Film Resistor
R121, R221	07-25620-10	562 Ω	1/4W	±1%	Metal Film Resistor
R740, R741	07-21001-11	1K Ω	1/4W	±2%	Metal Film Resistor
R732, R734	07-26201-10	6K2 Ω	1/4W	±1%	Metal Film Resistor
R712	07-29101-10	9K1 Ω	1/4W	±1%	Metal Film Resistor
R765, R770	07-21202-11	12K Ω	1/4W	±2%	Metal Film Resistor
R768, R789	07-23602-10	36K Ω	1/4W	±1%	Metal Film Resistor
R764, R769	07-22002-10	20K Ω	1/4W	±1%	Metal Film Resistor

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
R729, R731	07-22202-10	22K Ω	1/4W	$\pm 1\%$	Metal Film Resistor
R751	07-22702-10	27K Ω	1/4W	$\pm 1\%$	Metal Film Resistor
R758	07-26202-00	62K Ω	1/6W	$\pm 1\%$	Metal Film Resistor
R767	07-23903-10	390K Ω	1/4W	$\pm 1\%$	Metal Film Resistor
R102, R104, R106, R108, R110, R112, R114, R116, R117, R202, R204, R206, R208, R210, R212, R214, R216, R218	07-20105-00	1M Ω	1/6W	$\pm 5\%$	Metal Film Resistor
R20, R21	07-30339-01	3R3 Ω	1W	$\pm 5\%$	Metallized Oxid Film Resistor
R762, R763	07-30221-05	220 Ω	2W	$\pm 5\%$	Metallized Oxid Film Resistor
R779	07-30221-04	220 Ω	3W	$\pm 5\%$	Metallized Oxid Film Resistor
R738, R700	07-30271-02	270 Ω	2W	$\pm 5\%$	Metallized Oxid Film Resistor
R722, R723	07-50330-01	33 Ω	1/2W	$\pm 5\%$	Fusible Resistor
R124, R223	07-50750-00	75 Ω	1/2W	$\pm 5\%$	Fusible Resistor
R746, R747, R748, R749	07-50109-01	1 Ω	1W	$\pm 5\%$	Fusible Resistor
R710	07-40257-03	0.025 Ω	3W	$\pm 2\%$	Ceramic Case
VR701	09-02503-00	50K Ω			Variable Resistor
RV5	09-02102-00	1KA, RV142			POT
INDUCTORS					
L1, L2	08-01010-00	1uH			Inductor
RELAYS					
RLO1, RLO2, RLO3, RLO4	12-03101-04	JQX-115F/036/1HS1			Relay
RLO1, RLO2, RLO3, RLO4	12-03101-03	(or JQX-115F/024/1HS1)			Relay
RL2, RL5, RL6, RL7, RL8, RL9, RL10, RL11, RL12	12-02101-02	JRC-27F/012/S			Relay
SWITCHES					
SW2	11-05202-00	SSSU122NB1			SLIDE SWITCH
SW3	11-05202-01	SSSU142NB1			SLIDE SWITCH
CONNECTORS					
PJ701	17-07001-00	PY301-030-100			Headphone Socket
RCA1, RCA2, RCA3, RCA4	17-01006-00	AV6-8.4-13			RCA Socket
JIR	17-02002-00	SCJ351P00XS0B00			Dual 3.5 Headphone Socket
TP701-TP702	13-12502-00	2PIN			Connector
CB702	13-22502-00	XHB 2.5A-2A			Connector
CB705	13-22503-00	XHB 2.5A-3A			Connector
CB303	13-22505-00	XHB 2.5A-5A			Connector
CB403	13-22506-00	XHB 2.5A-6A			Connector
CB501	13-22508-00	XHB 2.5A-8A			Connector
CB302, CB402	13-22509-00	XHB 2.5A-9A			Connector
CB806, CB807	13-22510-00	XHB 2.5A-10A			Connector
CB304, CB404	13-23904-00	VH 3.96A-4Y1			Connector
CB703, CB704	13-23905-00	VH 3.96A-5Y1			Connector
TRANSISTOR ASSEMBL BOARD					
CONNECTORS	16-37210-00	Transistor Assemble Raw PCB			
	01-37210-00	Transistor Assemble PCB with components			
	13-12504-01	4PIN			Connector
	13-12506-00	6PIN			Connector

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
RELAY BOARD		
	16-37206-00	Relay Board Raw PCB
DIODES D712 CAPACITORS C702 RELAYS RL701 FUSES F701 CONNECTIONS CZ706 CB709 CB707, CB711 OTHERS J701	01-37206-01	Relay Board with components (C Version)
	01-37206-02	Relay Board with components (AH Version)
	33-44148-02	1N4148 Switch Diode
	05-47242-00	4.7nF, 400V, ±20%, CT81 High-Voltage Ceramic Capacitor
	12-02101-01	DH5D1-Q(M) TV-8 Relay
	20-20000-01	HF-003-1 Fuse Holder
	20-12402-01	T4.0AL/250V (C Version)
	20-12632-01	T6.3AL/250V (AH Version)
	13-22502-00	XHB 2.5A-2A Connector
	13-23903-01	VH 3.96A-5Y1 (Removed the middle pin) Connector
	13-23905-01	VH 3.96A-5Y1 (Removed the 2nd and 4th pin) Connector
MAIN SWITCH BOARD		
CAPACITORS C701 SWITCHES SW1 CONNECTONS CB710	16-37207-00	Main Switch Board Raw PCB
	01-37207-00	Main Switch Board PCB with components
	05-47242-00	4.7nF, 400V, ±20%, CT81 High-Voltage Ceramic Capacitor
	11-01101-00	SFDFA1117U Power Switch
	13-23903-01	VH 3.96A-3Y1 (Removed the middle pin)
AC INLET BOARD		
CONNECTIONS CZ710	16-37208-00	AC Inlet Board Raw PCB
	01-37208-00	AC Inlet Board PCB with components
	17-07102-00	GSP1.9500.1/R-30190 2PIN AC Inlet
	17-07002-20	A3-02-D006-0P(C Version) AC Outlet
	17-07002-12	A2-02-D003-0P(AH Version) AC Outlet
	13-23905-01	VH 3.96A-5Y1 (Remover the 2nd and 4th pin) Connector
HEADPHONE SOCKET BOARD		
CONNECTORS JK701	16-37209-00	Headphone Socket Board Raw PCB
	01-37209-00	Headphone Socket Board PCB with components
	17-02001-00	PH-2ASW(with nut and washer) Phone Jack

ALIGNMENT PROCEDURE (C372)

I. INITIAL ADJUSTMENT (No load connected)

A. OUTPUT OFFSET VOLTAGE

1. Connect a DC Millivoltmeter between TP303 & TP304 (pin 1 of IC 301A & gnd), then adjust VR303(50kohms) to get a reading as close as 0V as possible, +/-3V.
2. Connect a DC Millivoltmeter between TP403 & TP404 (pin 1 of IC 401A & gnd), then adjust VR401(50kohms) to get a reading as close as 0V as possible, +/-3V.

B. IDLING CURRENT

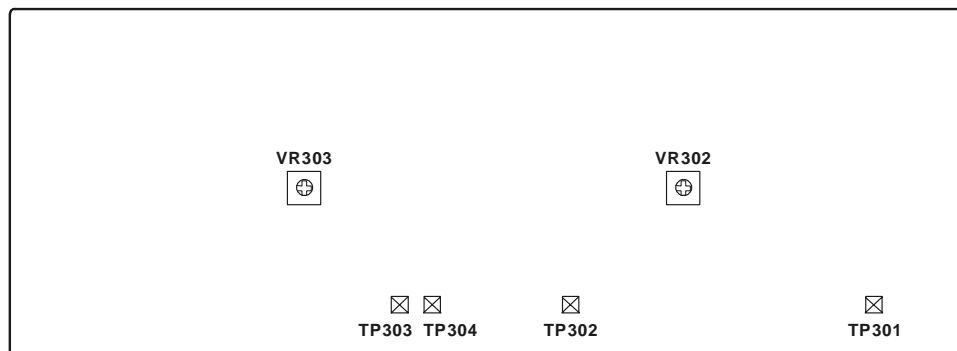
1. Connect a DC Millivoltmeter to TP301 and TP302, then adjust VR302 (500ohms) for 5-6mV reading on meter.
2. Connect a DC Millivoltmeter to TP401 and TP402, then adjust VR402 (500ohms) for 5-6mV reading on meter.
3. Leave power "ON" for a minimum of 5 minutes.

C. ISC SENSITIVITY

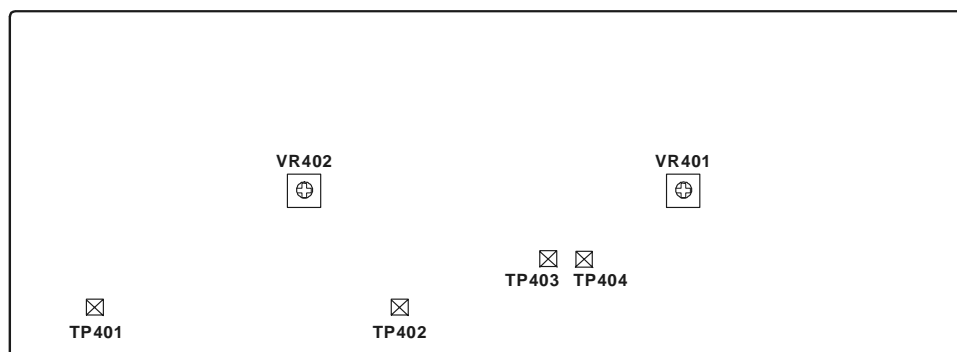
Connect a DC Millivoltmeter to TP701 and TP702, then adjust VR701 (47kohms) between -50mV to -100mV.

II. FINAL ADJUSTMENT

Repeat procedure A and B for offset voltage and idling current alignment respectively.



LEFT CHANNEL



RIGHT CHANNEL

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
OTHERS			
	18-37371-22	TD-230-0300A(C Version)	MAIN TRANSFORMER
	18-37371-12	TD-120-0300B(AH Version)	MAIN TRANSFORMER
	18-37060-01	TD050-E103S	STANDBY TRANSFORMER
	15-10125-00	T582-AH(AH Version)	AC Cord
	15-10250-00	T582-C(C Version)	AC Cord