

C 272

**STEREO
AMPLIFIER**

SERVICE MANUAL

C 272

**STEREO
AMPLIFIER**

NAD

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: 4 ohms: 2 ohms:	= 230 W (23.6 dBW) = 410 W (26.1 dBW) = 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	12.5 kg (27.5 lb)
Shipping Weight	14.2 kg (31.3 lb)
Dimension (W × H × D)	435 ´ 133 ´ 350 mm

ALIGNMENT PROCEDURE (C272)

I. INITIAL ADJUSTMENT (No load connected)

A. OUTPUT OFFSET VOLTAGE

1. Connect a DC Millivoltmeter to L Channel TP2 (DC) and TP8 (GND).
2. Turn unit "ON" and adjust VR301 (100ohms) to get a reading of 0V+/-30mV.
3. Connect a DC Millivoltmeter to R Channel TP5 (DC) and TP7, then adjust VR401(100ohms) to get a reading of 0V+/-30mV reading on meter.

B. IDLING CURRENT

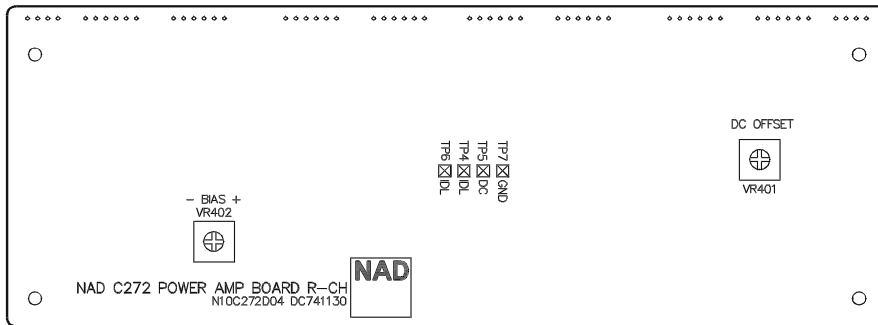
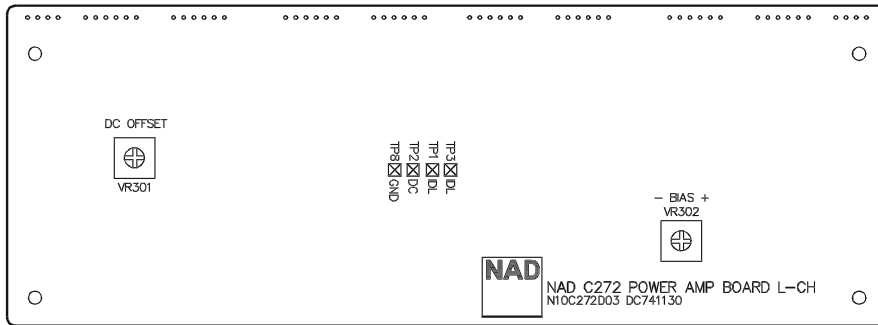
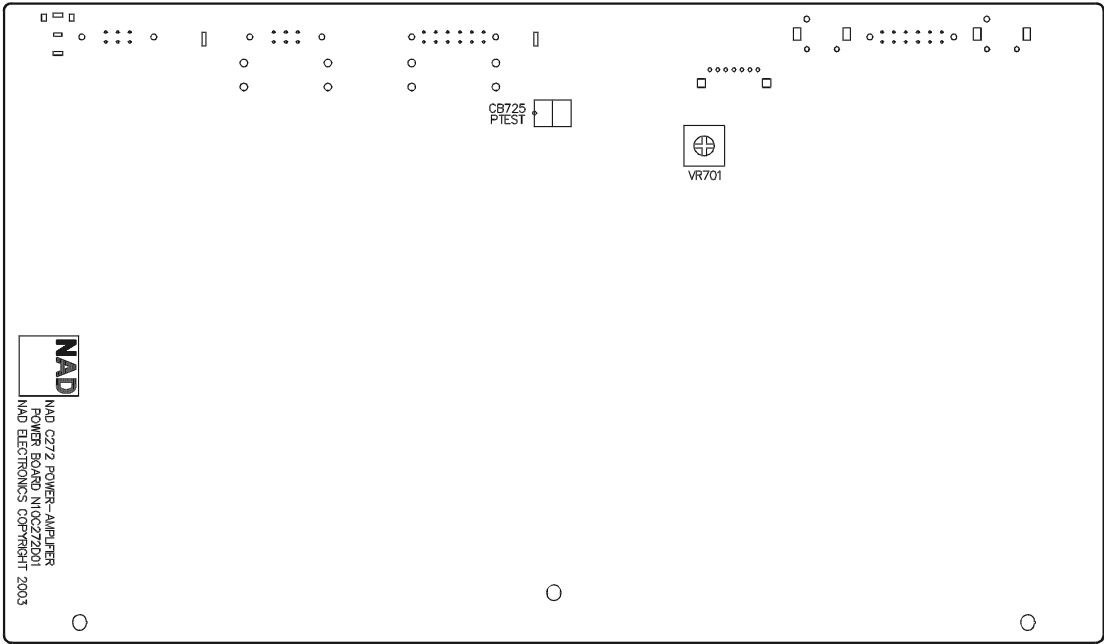
1. Connect a DC Millivoltmeter to L Channel TP1 (IDL) and TP3 (IDL), then adjust VR302 (500 ohms) for 6~7.5mV reading on meter.
2. Connect a DC Millivoltmeter to R Channel TP4 (IDL) and TP6 (IDL), then adjust VR402 (500 ohms) for 6~7.5mV reading on meter.

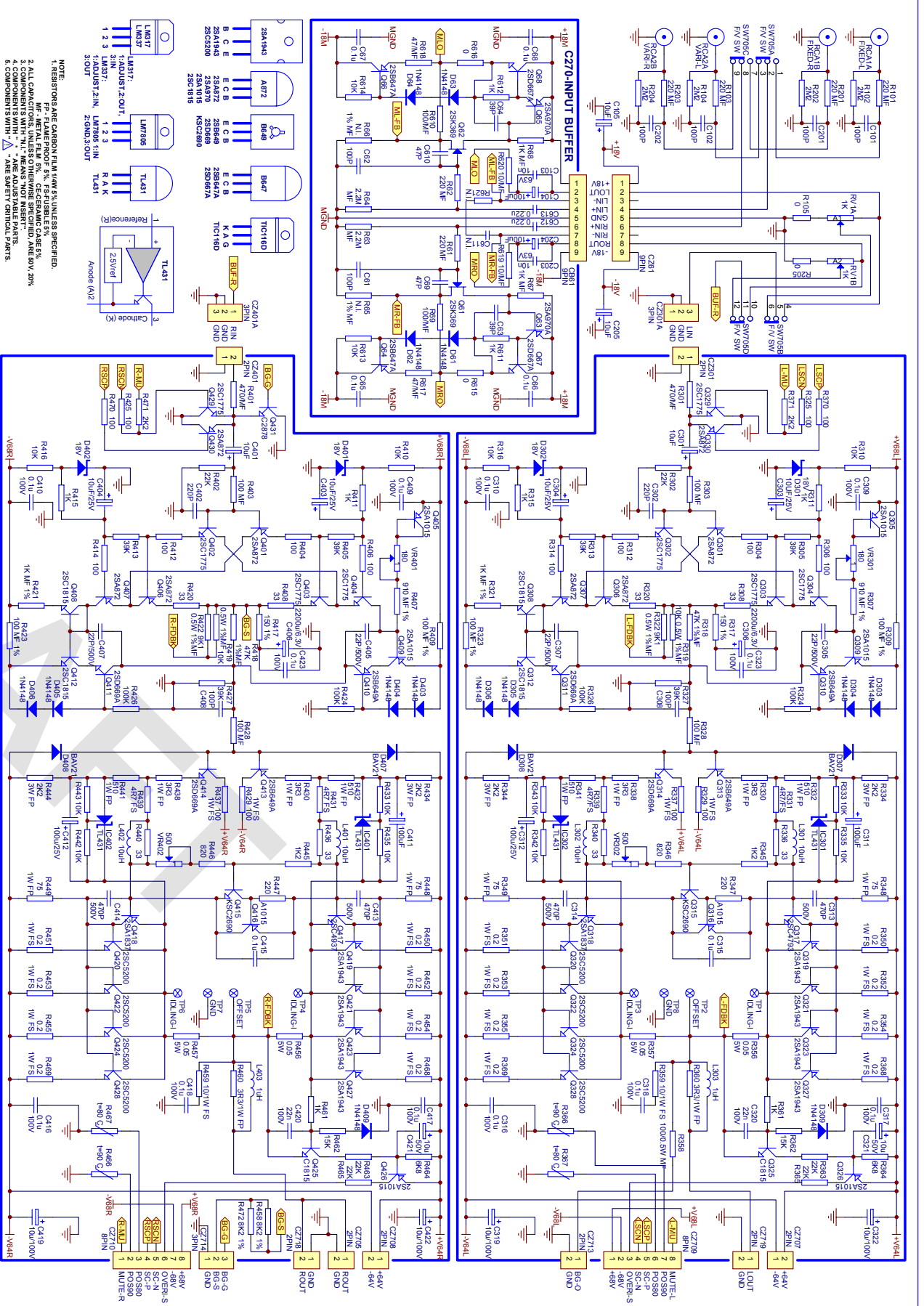
II. ISC ADJUSTMENT (WITH LOAD CONNECTED)

1. Connect a DC Millivoltmeter to Power Board CB725, and connect 4 ohms load to both L&R speaker output terminals. Then feed 20kHz signal to Fixed In RCA.
2. Turn unit "ON" and try to get 15W on speaker output terminal. Then adjust VR701 (82kohms) to get a reading of 0V+/-10mV.
3. Change the load to 8 ohms and try to get 160W on speaker output terminals. Then adjust VR701 (82kohms) to get a reading of 1.4V+/-30mV.

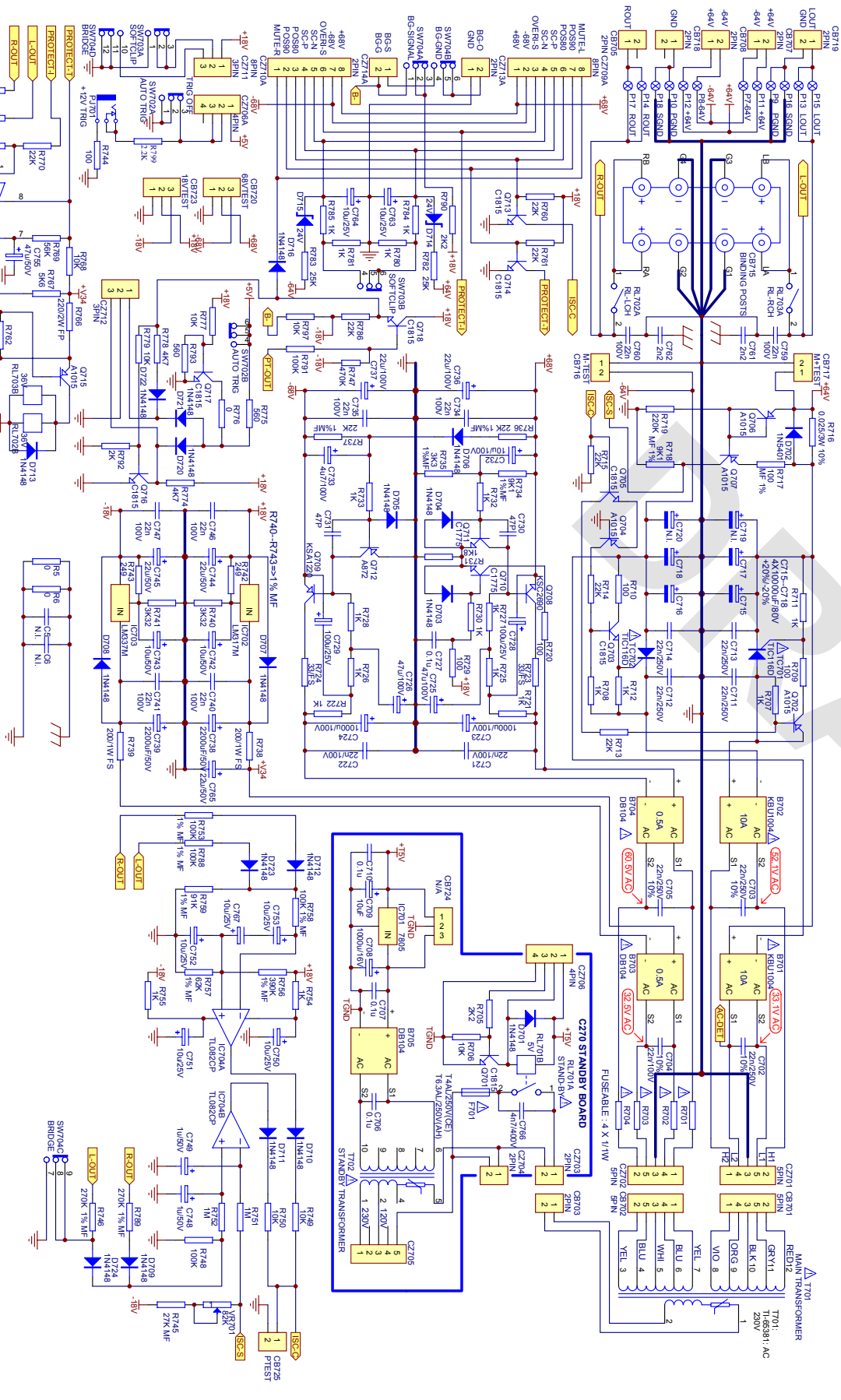
III. FINAL ADJUSTMENT

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





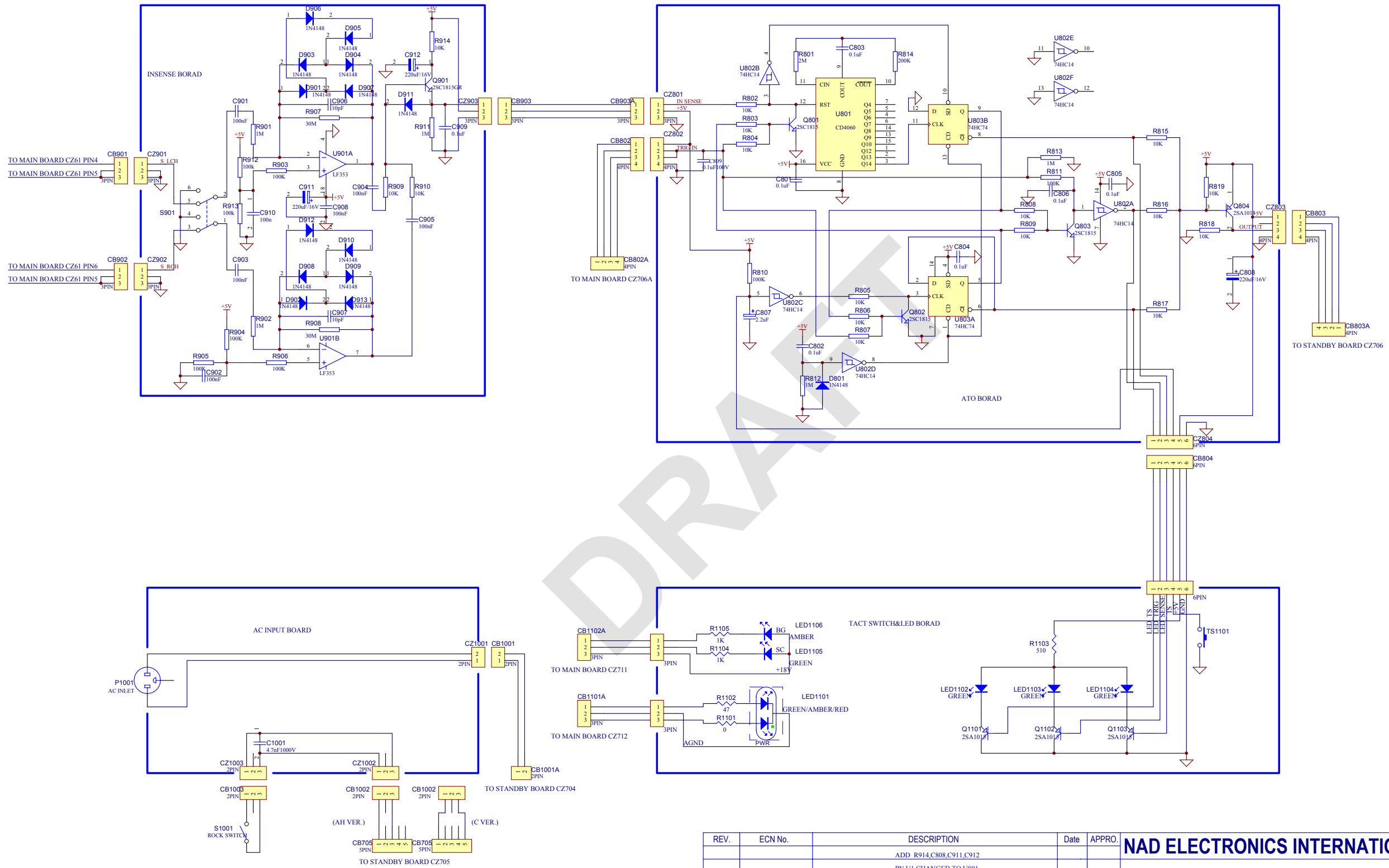
- NOTES:
1. RESISTORS ARE CARBON FILM 1/4W 5% UNLESS SPECIFIED.
 2. ALL CAPACITORS UNLESS OTHERWISE SPECIFIED ARE NEW 20%.
 3. COMPONENTS WITH "N" ARE AND NOT METAL PARTS.
 4. COMPONENTS WITH "A" ARE SAFETY CRITICAL PARTS.
 5. COMPONENTS WITH "C" ARE SAFETY CRITICAL PARTS.



REV.	DESCRIPTION	DATE	APPRO.
	CHANGE R24 TO 100		
	ADD R299 1/4W 2K		

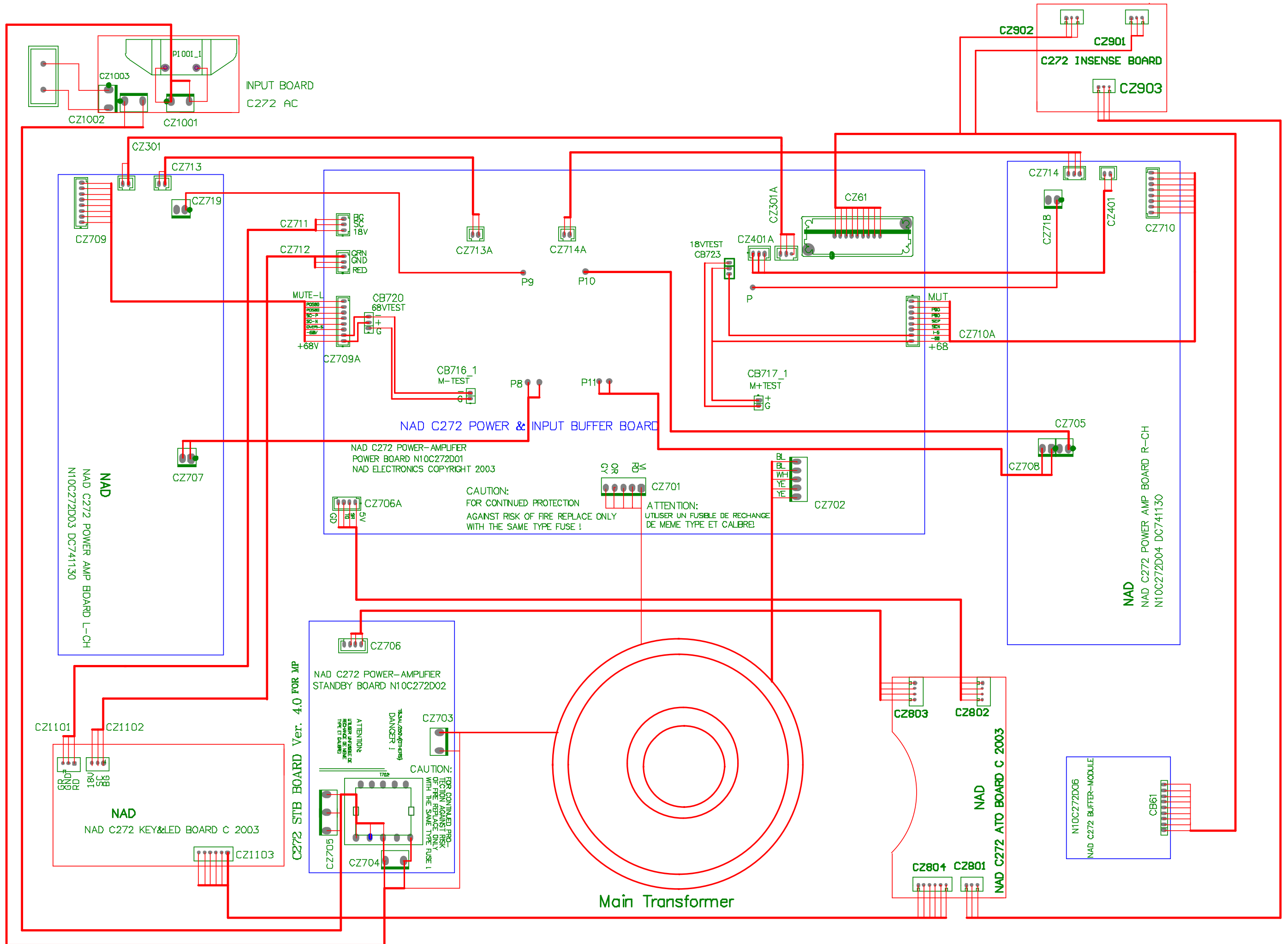
Document Number:	HSA_C272_3007 V3.0-MAIN sch	Sheet:	
Project:	C272	PTA Checked by:	
Drafted by:		PTA Checked by:	
Date:		Date:	
		Approved by:	
		Date:	

NAD ELECTRONICS INTERNATIONAL

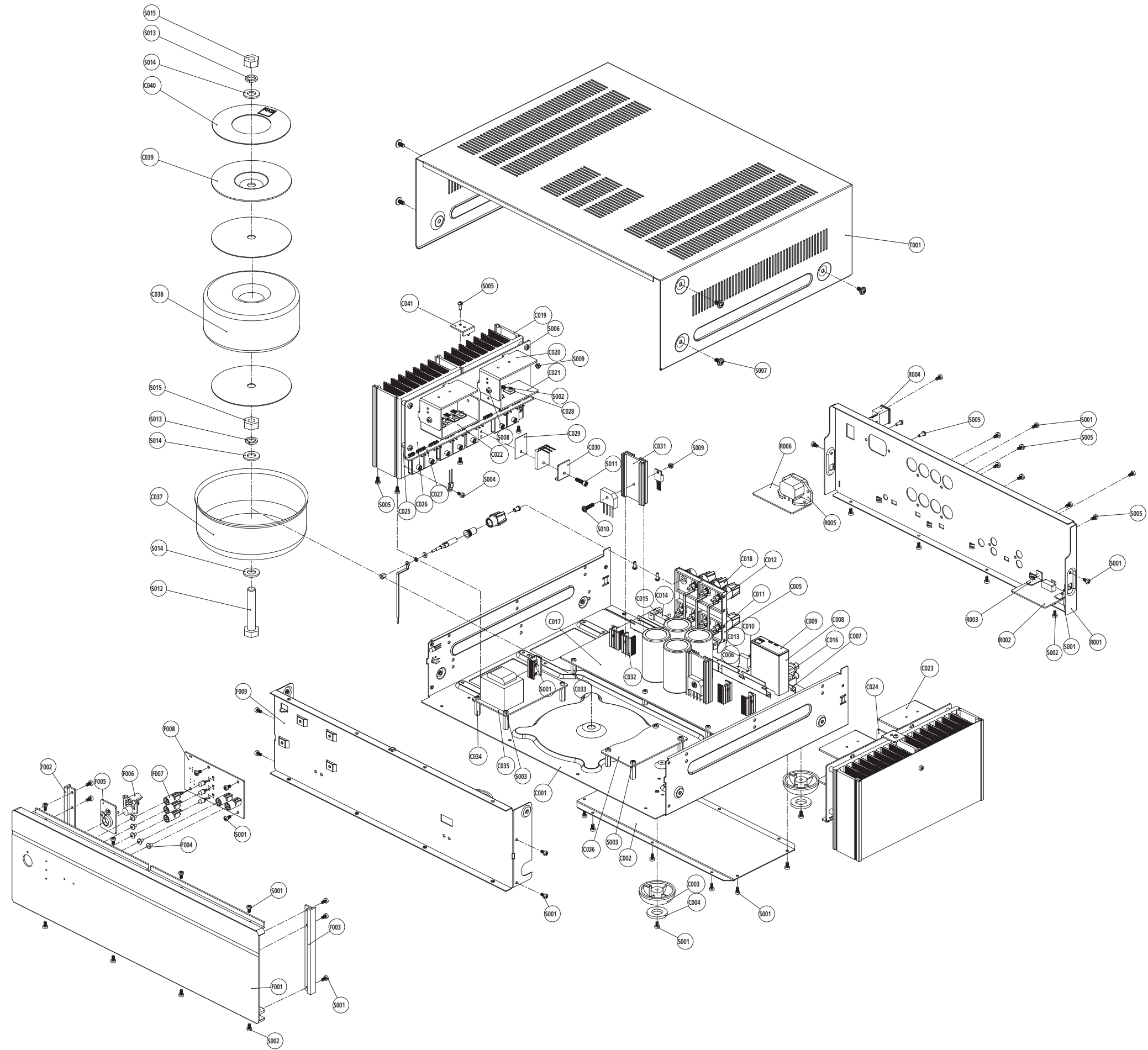


REV.	ECN No.	DESCRIPTION	Date	APPRO.	NAD ELECTRONICS INTERNATIONAL			
		ADD R914,C808,C911,C912			Document Number: HS4_C272_B007 V4.0-ATO.SCH Project: C272 State:			
		PN U1 CHANGED TO U801						
		ADD 0.1uF CAP FROM TRIG IN' TO GND						
V3.7	C022V1-013	R819 CHANGED TO 10K	03-12-10		Drafted by:	PL Checked by:	PTA Checked by:	Approved by:
					Date:	Date:	Date:	Date:

WIRING DIAGRAM



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

REF.NO	PART NO.	DESCRIPTION	Qty.	REF.NO	PART NO.	DESCRIPTION	Qty.
C001	66-026002-1	Chassis	1	F001	67-026001-0	Fascia	1
C002	66-005004-0	Base Cover	1	F002	67-018001-0	End Cap L	1
C003	75-010004-1	Foot	4	F003	67-018002-0	End Cap R	1
C004	78-001002-0	Foot Pad	4	F004	76-003001-0	LED Lens	6
C005	66-005006-0	BDP Support	1	F005	77-026002-0	Power Button Bezel	1
C006	69-006003-0	Copper Slot	1	F006	77-026001-0	Power Button	1
C007	66-006001-0	Bus Bar	2	F007	75-005001-0	Sleeve	5
C008	70-002004-0	Module Support 2	1	F008	16-27209-00	LED&Tact Switch Board	1
C009	75-003004-0	Module Lid	1	F009	66-026001-0	Subfascia	1
C010	73-003001-0	Rotate Knob	1				
C011	69-002004-0	BDP Pin	4				
C012	69-005006-0	BDP Pin	4	R001	67-026003-0	Rear Panel (AH)	1
C013	11-05202-01	Slide Swich	2		67-026002-0	Rear Panel (C)	1
C014	11-05202-00	Slide Swich	2	R002	16-27205-00	Insense Board	1
C015	17-07001-00	Trigger In Socket	1	R003	11-05202-00	Slide Switch	1
C016	17-01002-01	RCA	2	R004	66-010010-0	L Type Bracket	2
C017	16-27010-00	Main PCB	1	R005	17-07102-00	AC Inlet	1
C018		Binding Post	8	R006	16-27207-00	AC Input Board	1
C019	70-005005-0	Heat Sink	2	R007	11-01101-02	Rock Swich	1
C020	70-026004-1	Heat Sink 2b	2				
C021	70-026005-1	Heat Sink 1a	1				
C022	70-026002-1	Heat Sink 2	2	T001	67-018004-0	Top Cover	1
C023	70-026001-1	Heat Sink 1b	2				
C024	70-026003-1	Heat Sink 2a	1				
C025	85-005001-0	PC Spacer	8	S001	61-023106-0	Self Taping Screw STB3x6	50
C026	16-27020-00	Amplifier PCB	2	S002	61-023108-0	Self Taping Screw STB3x8	22
C027	16-27040-00	Transistor PCB	2	S003	61-023506-0	Machine Screw MB3x6	24
C028	78-005002-0	Insulation Causion(Small)	8	S004	61-023206-0	Self Taping Screw BTB3x6	4
C029	78-005005-0	Insulation Causion(Big)	16	S005	61-023208-0	Self Taping Screw BTB3x8	26
C030	66-005009-0	Tr. Clamper	16	S006	61-033420-0	Self Taping Screw PTP3x20	8
C031	70-004001-0	Small Heat Sink	2	S007	61-084108-0	Self Taping ScrewSTPW4x8	6
C032	70-002005-0	Heat Sink	5	S008	61-023508-0	Machine Screw MB3x8	4
C033	69-005001-0	Copper Spacer	3	S009	62-010302-0	Nut GB6170 M3	6
C034	69-006002-0	Copper Spacer	9	S010	61-083515-0	Machine Screw MPW3x15	2
C035	16-27030-00	Standby PCB	1	S011	61-223514-0	Hex Screw M3x14	16
C036	16-27080-00	Module Board	1	S012	64-110070-0	Bolt GB5781 M10x70	1
C037	67-005010-0	Box	1	S013	63-021030-0	Spring Washer GB93 10	2
C038	18-37371-22	Main Transformer(C version)	1	S014	63-011020-1	Washer GB95 10	3
	18-37371-12	Main Transformer(AH version)	1	S015	62-011002-0	Nut GB6170 M10	2
C039	66-005007-0	Metal Disc	1				
C040	94-005004-0	Transformer Label	1				
C041	66-005008-0	Clamp 2	2				

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
Power AMP Board L Channel (Assembled AMP PCB 01-27220-01 with heatsink)					
AMP Raw PCB	16-27220-01	CEM-1			
TRANSISTORS					
Q305, Q309, Q326, Q316	31-01015-00	2SA1015GR	TO-92	Transistors	
Q301, Q306, Q307, Q330	31-00872-00	2SA872A	TO-92	Transistors	
Q302, Q303, Q304, Q329	31-01775-00	2SC1775A	TO-92	Transistors	
Q308, Q312, Q325	31-01815-00	2SC1815GR	TO-92	Transistors	
Q318	31-01837-00	2SA1837	TO-220	Transistors	
Q310, Q313	31-01220-00	KSA1220A	TO-126	Transistors	
Q311, Q314	31-02690-00	KSC2690A	TO-126	Transistors	
Q315	31-02690-00	KSC2690A	TO-126	Transistors	
Q317	31-04793-00	2SC4793	TO-220	Transistors	
Q319, Q321, Q323, Q327	31-01943-00	2SA1943O	TO-3P	Transistors	
Q320, Q322, Q324, Q328	31-05200-00	2SC5200O	TO-3P	Transistors	
DIODES					
D301, D302	33-11800-00	18V/0.5W		Zener Diodes	
D303, D304, D309	33-44148-02	1N4148		SW Diodes	
D305, D306	33-44148-03	1N4148		SW Diodes	
D307, D308	33-40021-00	1SS88(or BAV21 [BV>200V])		SW Diode	
ICS					
IC301, IC302	03-00431-00	TL431	TO-92	Regulator	
CAPACTORS					
C305, C307	05-22052-00	22pF	500V	±20%	Ceramic Disk
C308	05-10151-01	100pF	50V	±20%	Ceramic Disk
C302	05-22151-01	220pF	50V	±20%	Ceramic Disk
C313, C314	05-47152-00	470pF	500V	±20%	Ceramic Disk
C320	25-22312-01	22nF	100V	±10%	Metallized Polyester Film
C309, C310, C315, C316, C317, C318, C323	25-10412-02	0.1uF	100V	±10%	Metallized Polyester Film
C306	06-22260-00	2200uF	6.3V	±20%	Electrolytic
C301, C303, C304	06-10021-01	10uF	25V	±20%	Electrolytic
C312, C311	06-10121-00	100uF	25V	±20%	Electrolytic
C321	06-10051-00	10uF	50V	±20%	Electrolytic
C319, C322	06-10012-00	10uF	100V	±20%	Electrolytic
RESISTOR					
R367	07-70471-08	t=80° C			Posistor
R366	07-70471-09	t=90° C			Posistor
R331, R339	07-50479-00	4.7ohms	1/4W	±5%	Fusible
R350, R351, R352, R353, R354, R355, R368, R369	07-50208-01	0.2ohms	1W	±5%	Fusible
R359	07-50100-01	10ohms	1W	±5%	Fusible
R337, R329	07-50101-02	100ohms	1W	±5%	Fusible
R325	07-10101-00	100ohms	1/6W	±5%	Carbon Film
R371	07-10222-00	2.2kohms	1/6W	±5%	Carbon Film
R313	07-10393-00	39kohms	1/6W	±5%	Carbon Film
R324	07-10104-00	100kohms	1/6W	±5%	Carbon Film
R308, R320, R336, R340	07-10330-10	33ohms	1/4W	±5%	Carbon Film
R304, R306, R312, R314	07-10101-10	100ohms	1/4W	±5%	Carbon Film
R370	07-10101-10	100ohms	1/4W	±5%	Carbon Film
R347	07-10221-10	220ohms	1/4W	±5%	Carbon Film
R346	07-10821-10	820ohms	1/4W	±5%	Carbon Film
R311, R315, R361	07-10102-10	1kohms	1/4W	±5%	Carbon Film
R345	07-10122-10	1.2kohms	1/4W	±5%	Carbon Film
R364	07-10682-10	6.8kohms	1/4W	±5%	Carbon Film
R310, R316, R333, R342, R343, R335	07-10103-10	10kohms	1/4W	±5%	Carbon Film
R362	07-10153-10	15kohms	1/4W	±5%	Carbon Film
R302, R363, R365	07-10223-10	22kohms	1/4W	±5%	Carbon Film
R305, R327	07-10393-10	39kohms	1/4W	±5%	Carbon Film
R326	07-10104-10	100kohms	1/4W	±5%	Carbon Film
R303	07-20101-00	100ohms	1/6W	±5%	Metal Film
R301	07-20471-00	470ohms	1/6W	±5%	Metal Film
R307	07-29100-00	910ohms	1/6W	±1%	Metal Film

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION				
R328	07-20101-10	100ohms	1/4W	±5%	Metal Film	
R309, R323	07-21000-10	100ohms	1/4W	±1%	Metal Film	
R321	07-21001-10	1kohms	1/4W	±1%	Metal Film	
R358	07-20101-21	100ohms	0.5W	±5%	Metal Film	
R317	07-21500-10	150ohms	1/4W	±1%	Metal Film	
R318	07-24702-10	47kohms	1/4W	±1%	Metal Film	
R322	07-29101-21	9.1kohms	0.5W	±1%	Metal Film	
R319	07-21002-20	10kohms	0.5W	±1%	Metal Film	
R330, R338	07-30339-01	3.3ohms	1W	±5%	Metal Oxidized Film	
R348, R349	07-30750-01	75ohms	1W	±5%	Metal Oxidized Film	
R332, R341	07-30511-01	510ohms	1W	±5%	Metal Oxidized Film	
R360	07-30339-04	3.3ohms	1W	±5%	Metal Oxidized Film	
R334, R344	07-30222-03	2.2kohms	3W	±5%	Metal Oxidized Film	
R356, R357	07-40507-05	0.05ohms	5W	±10%	Ceramic	
INDUCTORS						
L303	08-01010-00	1uH		10%	Inductor	
L301, L302	08-02100-00	10uH		10%	Inductor	
POT						
VR301	09-02181-00	180ohms			Semi-POT	
VR302	09-02501-00	500ohms			Semi-POT	
Power AMP Board R Channel (Assembled AMP PCB 01-27220-02 with heatsink)						
TRANSISTORS						
Q405, Q409, Q416, Q426	31-01015-00	2SA1015GR	TO-92		Transistor	
Q401, Q406, Q407, Q430	31-00872-00	2SA872A	TO-92		Transistor	
Q402, Q403, Q404, Q429	31-01775-00	2SC1775A	TO-92		Transistor	
Q418	31-01837-00	2SA1837	TO-220		Transistor	
Q431	31-02878-00	2SC2878A	TO-92		Transistor	
Q408, Q412, Q425	31-01815-00	2SC1815GR	TO-92		Transistor	
Q410, Q413	31-01220-00	KSA1220A	TO-126		Transistor	
Q411, Q414	31-02690-00	KSC2690A	TO-126		Transistor	
Q415	31-02690-00	KSC2690A	TO-126		Transistor	
Q417	31-04793-00	2SC4793	TO-220		Transistor	
Q419, Q421, Q423, Q427	31-01943-00	2SA1943O	TO-3P		Transistor	
Q420, Q422, Q424, Q428	31-05200-00	2SC5200O	TO-3P		Transistor	
DIODES						
D401, D402	33-11800-00	18V	0.5W		Zener Diode	
D403, D404, D409	33-44148-02	1N4148			Switch Diode	
D405, D406	33-44148-03	1N4148			Switch Diode	
D407, D408	33-40021-00	1SS88(or BAV21 [BV>200V])			Switch Diode	
ICS						
IC401, IC402	03-00431-00	TL431	TO-92		Regulator	
CAPACTORS						
C408	05-10151-01	100pF	50V	±20%	Ceramic Disk	
C405, C407	05-22052-00	22pF	500V	±20%	Ceramic Disk	
C402	05-22151-01	220pF	50V	±20%	Ceramic Disk	
C413, C414	05-47152-00	470pF	500V	±20%	Ceramic Disk	
C420	25-22312-01	22nF	100V	±10%	Metallized Polyester Film	
C421	06-10051-00	10uF	50V	±20%	ELECT	
C409, C410, C415, C416, C417, C418, C423	25-10412-02	0.1uF	100V	±10%	Metallized Polyester Film	
C411	06-10121-00	100uF	25V	±20%	Electrolytic	
C412	06-10121-00	100uF	25V	±20%	Electrolytic	
C401, C403, C404	06-10021-01	10uF	25V	±20%	Electrolytic	
C406	06-22260-00	2200uF	6.3V	±20%	Electrolytic	
C419, C422	06-10012-00	10uF	100V	±20%	Electrolytic	
RESISTOR						
R467	07-70471-08	t=80° C			Posistor	
R466	07-70471-09	t=90° C			Posistor	
R431, R439	07-50479-00	4.7ohms	1/4W	±5%	Fusible	
R450, R451, R452, R453, R454, R455, R468, R469	07-50208-01	0.2ohms	1W	±5%	Fusible	
R459	07-50100-01	10ohms	1W	±5%	Fusible	
R437, R429	07-50101-02	100ohms	1W	±5%	Fusible	
R425	07-10101-00	100ohms	1/6W	±5%	Carbon Film	

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
R471	07-10222-00	2.2kohms	1/6W	±5%	Carbon Film
R413	07-10393-00	39kohms	1/6W	±5%	Carbon Film
R424	07-10104-00	100kohms	1/6W	±5%	Carbon Film
R408, R420, R436, R440	07-10330-10	33ohms	1/4W	±5%	Carbon Film
R404, R406, R412, R414, R470	07-10101-10	100ohms	1/4W	±5%	Carbon Film
R447	07-10221-10	220ohms	1/4W	±5%	Carbon Film
R446	07-10821-10	820ohms	1/4W	±5%	Carbon Film
R445	07-10122-10	1.2kohms	1/4W	±5%	Carbon Film
R411, R415, R461	07-10102-10	1kohms	1/4W	±5%	Carbon Film
R464	07-10682-10	6.8kohms	1/4W	±5%	Carbon Film
R410, R416, R433, R442, R443, R435	07-10103-10	10kohms	1/4W	±5%	Carbon Film
R462	07-10153-10	15kohms	1/4W	±5%	Carbon Film
R402, R463, R465	07-10223-10	22kohms	1/4W	±5%	Carbon Film
R405, R427	07-10393-10	39kohms	1/4W	±5%	Carbon Film
R426	07-10104-10	100kohms	1/4W	±5%	Carbon Film
R403	07-20101-00	100ohms	1/6W	±5%	Metal Film
R401	07-20471-00	470ohms	1/6W	±5%	Metal Film
R407	07-29100-00	910ohms	1/6W	±1%	Metal Film
R428	07-20101-10	100ohms	1/4W	±5%	Metal Film
R409, R423	07-21000-10	100ohms	1/4W	±1%	Metal Film
R417	07-21500-10	150ohms	1/4W	±1%	Metal Film
R421	07-21001-10	1kohms	1/4W	±1%	Metal Film
R418	07-24702-10	47kohms	1/4W	±1%	Metal Film
R458, R472	07-28201-20	8.2kohms	0.5W	±1%	Metal Film
R422	07-29101-21	9.1kohms	0.5W	±1%	Metal Film
R419	07-21002-20	10kohms	0.5W	±1%	Metal Film
R430, R438, R460	07-30339-01	3.3ohms	1W	±5%	Metal Oxdiode Film
R448, R449	07-30750-01	75ohms	1W	±5%	Metal Oxdiode Film
R432, R441	07-30511-01	510ohms	1W	±5%	Metal Oxdiode Film
R434, R444	07-30222-03	2.2kohms	3W	±5%	Metal Oxdiode Film
R456, R457	07-40507-05	0.05ohms	5W	±10%	Ceramic
INDUCTORS					
L403	08-01010-00	1uH		10%	Inductor
L401, L402	08-02100-00	10uH		10%	Inductor
POT					
VR401	09-02181-00	180ohms			Semi-POT
VR402	09-02501-00	500ohms			Semi-POT
Power Board					
Power Raw PCB	16-27210-01				
Assembled Power PCB	01-27210-01				
TRANSISTORS					
Q702, Q704, Q706, Q707, Q715	31-01015-00	2SA1015GR	TO-92		Transistors
Q712	31-00872-00	2SA872A	TO-92		Transistors
Q710, Q711	31-01775-00	2SC1775A	TO-92		Transistors
Q701, Q703, Q705, Q713, Q714, Q716, Q717, Q718	31-01815-00	2SC1815GR	TO-92		Transistors
Q709	31-01220-00	KSA1220A	TO-126		Transistors
Q708	31-02690-00	KSC2690A	TO-126		Transistors
DIODES					
D703, D704, D705, D706, D710, D712, D713, D719, D720, D721, D722	33-44148-02	1N4148			Switch Diode
D707, D708, D709, D711, D723, D724	33-44148-03	1N4148			Switch Diode
D716	33-44148-04	1N4148			Switch Diode
D702	33-25401-00	1N5401			Switch Diode
D718	33-11000-00	10V	0.5W		Zener Diode
D714, D715	33-12400-00	24V	0.5W		Zener Diode
B701, B702	33-31042-00	KBU1004			Rectifier Bridge
B703, B704	33-30142-00	DB104			Rectifier Bridge

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
TC701, TC702	33-60116-00	TIC116D/BT151-500R	TO-220		Thyristor
ICS					
IC702	03-00317-00	LM317M	TO-220		Regulator
IC703	03-00337-00	LM337M	TO-220		Regulator
IC704	03-00082-00	TL082CP/D	DIP8		Dual OPAMP
IC705	03-01237-00	upc1237HA	SIP8-IC		Protection IC
CAPACTORS					
C730, C731	05-47051-02	47pF	50V	±20%	Ceramic Disk
C101, C102, C201, C202	05-10151-01	100pF	50V	±20%	Ceramic Disk
C761, C762	05-22251-00	2n2	50V	±20%	Ceramic Disk
C757	24-22461-00	220nF	63V	±20%	Ceramic Disk
C706, C727	24-10461-00	0.1uF	63V	±20%	Ceramic Disk
C103, C203	25-10361-04	10nF	63V	±10%	Metallized Polyester Film
C704, C721, C722, C734, C735, C740, C741, C746, C747, C759, C760	25-22312-01	22nF	100V	±10%	Metallized Polyester Film
C702, C703, C705, C711, C712, C713, C714	25-22322-00	22nF	250V	±10%	Metallized Polyester Film
C748, C749	06-10951-00	1uF	50V	±20%	Electrolytic Capacitor
C733, C756	06-47912-00	4u7	100V	±20%	Electrolytic Capacitor
C105, C205, C750, C751, C752, C753, C763, C764, C767	06-10021-01	10uF	25V	±20%	Electrolytic Capacitor
C742, C743, C754	06-10051-00	10uF	50V	±20%	Electrolytic Capacitor
C732	06-10012-00	10uF	100V	±20%	Electrolytic Capacitor
C744, C745, C765	06-22051-00	22uF	50V	±20%	Electrolytic Capacitor
C736, C737	06-22012-00	22uF	100V	±20%	Electrolytic Capacitor
C104, C204	06-10160-02	100uF	6.3V	±20%	Electrolytic Capacitor
C728, C729	06-10121-00	100uF	25V	±20%	Electrolytic Capacitor
C758	06-33111-01	330uF	16V	±20%	Electrolytic Capacitor
C755	06-47051-00	47uF	50V	±20%	Electrolytic Capacitor
C725, C726	06-47012-00	47uF	100V	±20%	Electrolytic Capacitor
C723, C724	06-10212-02	1000uF	100V	±20%	Electrolytic Capacitor
C738, C739	06-22251-00	2200uF	50V	±20%	Electrolytic Capacitor
C715, C716, C717, C718	06-10381-01	10000uF	80V	±20%	Electrolytic Capacitor
RESISTOR					
R799	07-90222-01	2.2kohms	0805	5%	Chip Resistor
R723, R724	07-50330-02	33ohms	1/2W	±5%	Fusible
R701, R702, R703, R704	07-50109-00	1ohms	1W	±5%	Fusible
R738, R739	07-50201-01	200ohms	1W	±5%	Fusible
R744	07-10101-00	100ohms	1/6W	±5%	Carbon Film
R793	07-10561-00	560ohms	1/6W	±5%	Carbon Film
R754	07-10102-00	1kohms	1/6W	±5%	Carbon Film
R792	07-10202-00	2kohms	1/6W	±5%	Carbon Film
R774, R778	07-10472-00	4.7kohms	1/6W	±5%	Carbon Film
R777	07-10103-00	10kohms	1/6W	±5%	Carbon Film
R771, R760	07-10223-00	22kohms	1/6W	±5%	Carbon Film
R791	07-10104-00	100kohms	1/6W	±5%	Carbon Film
R747	07-10474-00	470kohms	1/6W	±5%	Carbon Film
R709, R710, R720, R729	07-10101-10	100ohms	1/4W	±5%	Carbon Film
R775	07-10561-10	560ohms	1/4W	±5%	Carbon Film
R707, R708, R711, R712, R721, R722, R725, R726, R727, R730, R732, R733, R755, R780, R781, R728, R784, R785	07-10102-10	1kohms	1/4W	±5%	Carbon Film
R731	07-10182-10	1.8kohms	1/4W	±5%	Carbon Film
R790	07-10222-10	2.2kohms	1/4W	±5%	Carbon Film
R767	07-10562-10	5.6kohms	1/4W	±5%	Carbon Film
R749, R750, R763, R764, R765, R768, R779, R797	07-10103-10	10kohms	1/4W	±5%	Carbon Film
R713, R714, R715, R761, R762, R770, R786	07-10223-10	22kohms	1/4W	±5%	Carbon Film
R769, R772, R773	07-10563-10	56kohms	1/4W	±5%	Carbon Film

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
R748	07-10104-10	100kohms	1/4W	±5%	Carbon Film
R719	07-10224-10	220kohms	1/4W	±5%	Carbon Film
R751, R752	07-10105-10	1Mohms	1/4W	±5%	Carbon Film
R102, R104, R202, R204	07-10225-00	2.2Mohms	1/6W	±5%	Carbon Film
R101, R201	07-20221-00	220ohms	1/6W	±5%	Metal Film
R745	07-20273-00	27kohms	1/6W	±5%	Metal Film
R756	07-23903-00	390kohms	1/6W	±1%	Metal Film
R717	07-21000-10	100ohms	1/4W	±1%	Metal Film
R103, R203	07-20221-12	220ohms	1/4W	±5%	Metal Film
R742, R743	07-22490-10	249ohms	1/4W	±1%	Metal Film
R735	07-23301-10	3.3kohms	1/4W	±1%	Metal Film
R740, R741	07-23321-10	3.32kohms	1/4W	±1%	Metal Film
R718, R734	07-29101-10	9.1kohms	1/4W	±1%	Metal Film
R736, R737	07-22202-10	22kohms	1/4W	±1%	Metal Film
R782, R783	07-22502-12	25kohms	1/4W	±1%	Metal Film
R757	07-26202-10	62kohms	1/4W	±1%	Metal Film
R759	07-29102-10	91kohms	1/4W	±1%	Metal Film
R753, R758, R788	07-21003-10	100kohms	1/4W	±1%	Metal Film
R746, R789	07-22703-10	270kohms	1/4W	±1%	Metal Film
R716	07-40257-03	0.025ohms	3W	±10%	Cement
R766	07-30221-03	220ohms	2W	±5%	Metal Oxidized Film
TRANSFORMERS					
T701	18-37371-22				Main Transformer (C Version)
T701	18-37371-12				Main Transformer (AH Version)
POTS					
VR701	09-02823-00	82kohms			Semi-POT
RV1	09-02102-00	1kA			POT
SWITCHES					
SW702, SW703	11-05202-00				Slide Switches
SW704, SW705	11-05202-01				Slide Switches
RELAYS					
RL702, RL703	12-03101-04	JQX-115F/036/1HS1			Speaker Relays
BUFFER MODULE BOARD					
Module Raw PCB	16-27080-00	CEM-1			
Assembled Module PCB	01-27080-00				
TRANSISTORS					
Q61, Q62	31-00369-00	2SK369GR	TO-92		Transistor
	or 31-00170-00	2SK170-BL	TO-92		Transistor
Q64, Q66	31-00647-00	2SB647A	TO-126		Transistor
Q63, Q65	31-00970-00	2SA970GR	TO-92		Transistor
Q67, Q68	31-00667-00	2SD667A	TO-126		Transistor
DIODES					
D61, D62, D63, D64	33-44148-02	1N4148			SW Diodes
CAPACTORS					
C63, C64	05-39051-00	39pF	50V	±20%	Ceramic Disk
C69, C610	05-47051-00	47pF	50V	±20%	Ceramic Disk
C61, C62	05-10151-00	100pF	50V	±20%	Ceramic Disk
C65, C66, C67, C68	24-10461-00	0.1uF	63V	±20%	Ceramic Disk
C612, C613	25-22461-00	0.22uF	63V	±10%	Metallized Polyester Film
RESISTOR					
R617, R618	07-10470-00	47ohms	1/6W	±5%	Carbon Film
R613, R614	07-10103-00	10kohms	1/6W	±5%	Carbon Film
R619, R620	07-20100-00	10ohms	1/6W	±5%	Metal Film
R69, R610	07-20101-00	100ohms	1/6W	±5%	Metal Film
R61, R62	07-20221-00	220ohms	1/6W	±5%	Metal Film
R63, R64	07-20225-00	2.2Mohms	1/6W	±5%	Metal Film
R67, R68, R611, R612	07-20102-00	1kohms	1/6W	±5%	Metal Film
STANDBY BOARD					
Standby Raw PCB	16-27030-00				CEM-1
Assembled Standby PCB	01-27030-00				
TRANSISTORS					
Q701	31-01815-00	2SC1815GR	TO-92		Transistors

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
DIODES					
D701	33-44148-02	1N4148			SW Diodes
B705	33-30142-00	DB104			Rectifier Bridge
IC					
IC701	03-07805-00	7805	TO-220		Regulator
CAPACTORS					
C766	05-47242-00	4n7	400V	±20%	Ceramic Disk
C707	24-10461-00	0.1uF	63V	±20%	Ceramic Disk
C710	24-10461-00	0.1uF	63V	±20%	Ceramic Disk
C708	06-10211-00	1000uF	16V	±20%	Electrolytic Capacitor
C709	06-10021-01	10uF	25V	±20%	Electrolytic Capacitor
RESISTOR					
R705	07-10222-10	2.2kohms	1/4W	±5%	Carbon Film
R706	07-10103-10	10kohms	1/4W	±5%	Carbon Film
TRANSFORMER					
T702	18-27030-00	TD030-E101B			Standby Transformer
RELAY					
RL701	12-02101-01	VS5MB-NR or DH1U5VDC			Standby Relay
POWER TRANSISTOR BOARD					
Transistor Raw PCB	16-27040-00				CEM-1
Assembled Raw PCB	01-27040-00				
MISCS					
PJ701	17-07001-00	12V Trigger In			Trigger In Socket
RCA1, RCA2	17-01002-01	With Grounding Tap			RCA, 2 holes,
AC Cord	15-10250-00				C Version
AC Cord	15-10125-00				AH Version
AC INPUT BOARD					
AC Input Raw PCB	16-27207-00	CEM-1			
Assembled AC Input PCB	01-27207-00				
P1001	17-07102-00	GSP1.9500.1/R-30190		2 Pin	AC Inlet
CZ1001, CZ1002, CZ1003	13-23903-01	VH 3.96A-3A, without middle pin			Socket
C1001	05-47242-00	4N7, CT81	400V	20%	Hi-Pot Capacitor
	11-01101-02	BR-12A-11S			Rock Switch
ATO BOARD					
ATO Logic Raw PCB	16-27206-01	CEM-1			
Assembled ATO Logic PCB	01-27206-01	CEM-1			
DIODE					
D801	33-44148-01	1N4148			Switch Diode
TRANSISTOR					
Q801, Q802, Q803	31-01815-00	2SC1815GR	TO92		Transistor
Q804	31-01015-00	2SA1015GR	TO92		Transistor
IC					
U802	03-07414-01	74HC14	DIP14		Logic IC
U803	03-07474-01	74HC74	DIP14		Logic IC
U801	03-04060-00	CD4060BCN	DIP16		Logic IC
CAPACITORS					
C809	26-10451-10	0603, 100nF, X7R	50V	±10%	Chip Capacitor
C801, C802, C803, C804, C805, C806	24-10461-00	0.1uF	63V	20%	Monolythic
C807	06-22911-01	2.2uF, CD110	16V	20%	Electrolytic Cap
C808	06-22111-09	220uF, CD110	16V	20%	Electrolytic Cap

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
RESISTOR					
R815, R816, R817, R819	07-10103-13	10kohms	1/4W	5%	Carbon Film Resistor
R802, R803, R804, R805, R806, R807, R808, R809, R818	07-10103-10	10kohms	1/4W	5%	Carbon Film Resistor
R810, R811	07-10104-10	100kohms	1/4W	5%	Carbon Film Resistor
R814	07-10204-10	200kohms	1/4W	5%	Carbon Film Resistor
R812, R813	07-10105-10	1Mohms	1/4W	5%	Carbon Film Resistor
R801	07-10205-10	2Mohms	1/4W	5%	Carbon Film Resistor
SENSE BOARD					
Sense Raw PCB	16-27205-00	CEM-1			
Assembled Sense PCB	01-27205-00	CEM-1			
DIODE					
D901, D902, D903, D904, D905, D906, D907, D908, D909, D910, D911, D912, D913	33-44148-01	1N4148			Switch Diode
TRANSISTOR					
Q901	31-01815-00	2SC1815GR	TO92		Transistor
IC					
U901	03-00353-00	LF353N	DIP8		OPAMP
CAPACITORS					
C906, C907	05-10052-00	10pF, CT1	500V	20%	Ceramic Capacitor
C901, C902, C903, C904, C905, C908, C909, C910	24-10461-00	0.1uF	63V	20%	Monolithic Capacitor
C911, C912	06-22111-09	220uF	16V	20%	Electrolytic Capacitor
RESISTOR					
R909, R910, R914	07-10103-00	10kohms	1/6W	5%	Carbon Film Resistor
R903, R904, R905, R906, R912, R913	07-10104-00	100kohms	1/6W	5%	Carbon Film Resistor
R901, R902, R911	07-10105-00	1Mohms	1/6W	5%	Carbon Film Resistor
R907, R908	07-10306-00	30Mohms	1/6W	5%	Carbon Film Resistor
SWITCH					
S901	11-05202-00	SSSU122NB1			Slide Switch
LED&TSW BOARD					
LED&Tact Switch Raw PCB	16-27209-00	CEM-1			
Assembled Led&Tact Switch PCB	01-27209-00	CEM-1			
LED					
LED1101	33-50525-00				Dual Color
LED1102, LED1103, LED1104, LED1105	33-50550-00				Green
LED1106	33-50540-00				Amber
TRANSISTOR					
Q1101, Q1102, Q1103	31-01015-00	2SA1015GR	TO92		Transistor
RESISTOR					
R1102	07-10470-10	47ohms	1/4W	5%	Cabbon Film Resistor
R1103	07-10511-10	510ohms	1/4W	5%	Cabbon Film Resistor
R1104, R1105	07-10102-10	1kohms	1/4W	5%	Cabbon Film Resistor
SWITCH					
TS1101	11-04101-00	IT-1102D-1160			Tact Switch
FUSE					
F701	20-12402-01	T4.0AL/250V			Fuse C Version
F701	20-12632-01	T6.3AL/250V			Fuse AH Version
Fuse Holder	20-20000-00	HF-004			

SERVICE MANUAL

C 272

STEREO
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