SERVICE MANUAL

T973C/AH

SEVEN CHANNEL AMPLIFIER
WITH STANDBY BOARD ADDENDUM

NAD

T973 C/AH
T973 MKII-A

SEVEN CHANNEL AMPLIFIER
WITH STANDBY BOARD ADDENDUM

ALIGNMENT PROCEDURE (T973) 2004 2005

A. DC OFFSET VOLTAGE

The DC OFFSET between OFFSET Test Point and AGND must be controlled within 0+/-3mV. If it's found to be out of this range, change the TL084BCD to get it to meet the requirement.

B. IDLING CURRENT

The idling current at the final stage of the unit should be set to about 40mA+/-10mA. Adjust RV102 (As marked as "Idling Current ADJ" in the enclosed drawing below) to control the voltage between Idling current Test point 1 and 2 to be 8mV +/- 2mV.
Preheat the unit for 10 to 15 minutes, and then readjust to 8mV +/- 2mV.
(Please note: The idling current must be adjusted when all modules are assembled into the unit.)

C. ISC SENSITIVITY

Adjust Pot RV104 (as marked as "ISC SENS ADJ" in the below drawing) to get the voltage across "ISC SENS TEST POINT" and AGND to be 0mV+/-10mV.
(Please note that the ISC should be adjusted when all modules are assembled into the unit. It's not possible to get 0V +/-10mV if the modules are not assembled.

D. THERMAL SENSE ADJUSTMENT

The adjustment should be always done when the T973 is cool condition. (That means the temperature inside the unit should be almost same as the ambient temperature. Connector P208B that connects the transformer and power board should be removed to avoid that the Idling current to heat up the unit excessively)
At ambient temperature of 25 C degree and when the unit is just turned on (still in cool condition), adjust the pot RV103 (as marked as "THERMAL SENS ADJ" in the below drawing) to get voltage across the THERMAL TEST POINT and AGND to be 750mV +/-10mV. While the ambient temperature is different, the voltage will vary as well. There is a relation between the temperature and voltage, that is; if the ambient temperature is 20 degree C, the voltage should be 850mV+/-10mV; if the ambient temperature is 30 degree C, the voltage should be adjusted to 650mV+/-10mV, etc.

E. Fan Cut Off Point Adjustment

Note: This Fan cut off function **does not** appear on PCB V10.0, V11.0 or MKII-A version but only appeared on PCB V12.0. Run the unit for all 7 channels at 1 kHz, 4ohms load, and 250mW output. Do this adjustment when the unit heats up, for example; run the unit at all 7 channels at 50W/4ohms for 10 minutes. Then adjust Pot RV201 on power supply board so the voltage at Pin14 of IC203 just changes from negative to positive (to get the fans just start turning). Then turn off the input signal and monitor if fans will stop within 30 seconds, then turn on the input signal again to see if the fans start turning immediately.

ALIGNMENT PROCEDURE (T973) 2006 T973 MKII-B

A. THERMAL SENSE ADJUSTMENT

Always perform this adjustment when the T973 is in a cool condition such that the temperature inside the unit should be almost same as the ambient temperature. For this adjustment, first disconnect the plug from connector P208B that connects the transformer and power board in order to avoid the idle currents of the amplifiers from heating up the T973 excessively. At an ambient temperature of 25 degrees C **and** when the unit is just turned on, adjust the potentiometer RV103 (as marked as "Thermal Sens ADJ" in Figure 1) for a reading of 750mV+/-10mV across the THERMAL TEST POINT and AGND. After all THERMAL SENSE adjustments are complete, reattach the plug to connector P208B.

NOTES:

There is an inverse relation between the temperature and voltage. At different ambient temperatures, the THERMAL TEST POINT voltage should vary. For example; for an ambient temperature is 20 degrees C, the THERMAL TEST POINT voltage should be 850mV+/-10mV, and for an ambient temperature is 30 degrees C, the THERMAL TEST POINT voltage should be adjusted to 650mV+/-10mV.

Ambient Celsius	Ambient Fahrenheit	THERMAL TEST POINT & AGND
20	68	850mV +/- 10mV
25	77	750mV +/- 10mV
30	86	650mV +/- 10mV

B. DC OFFSET VOLTAGE

The DC OFFSET between OFFSET TEST POINT and AGND must be servo-controlled within 0+/-3mV. If the values are found not to be within this range, change the TL084BCD to meet the specification.

C. IDLING CURRENT

The idle current at the final stages of each power amplifier module should be set to 40mA+/-10mA. Measure a reading of 8mV +/- 2mV between IDLING CURRENT TEST POINTS 1 and 2. Adjust RV102 (As marked as "IDLING CURRENT ADJ" in Figure 1) after preheating the unit for 10 to 15 minutes without any input/output connections, and then readjust to 8mV +/- 2mV.

Notes:

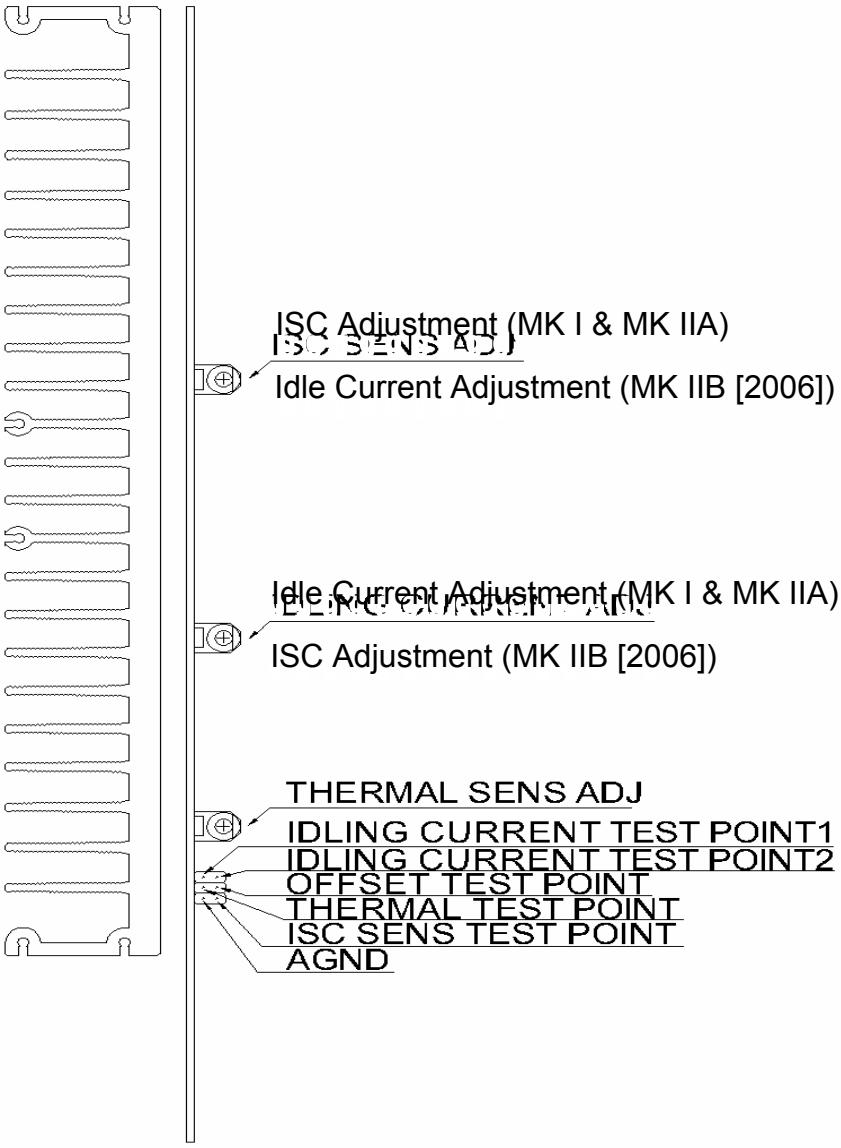
- The idle current must be adjusted with all modules assembled into the unit.
- The 10 to 15 minutes preheating of the unit represents powering on the unit for 10 to 15 minutes without any connections of input signals or loads.

D. ISC SENSITIVITY

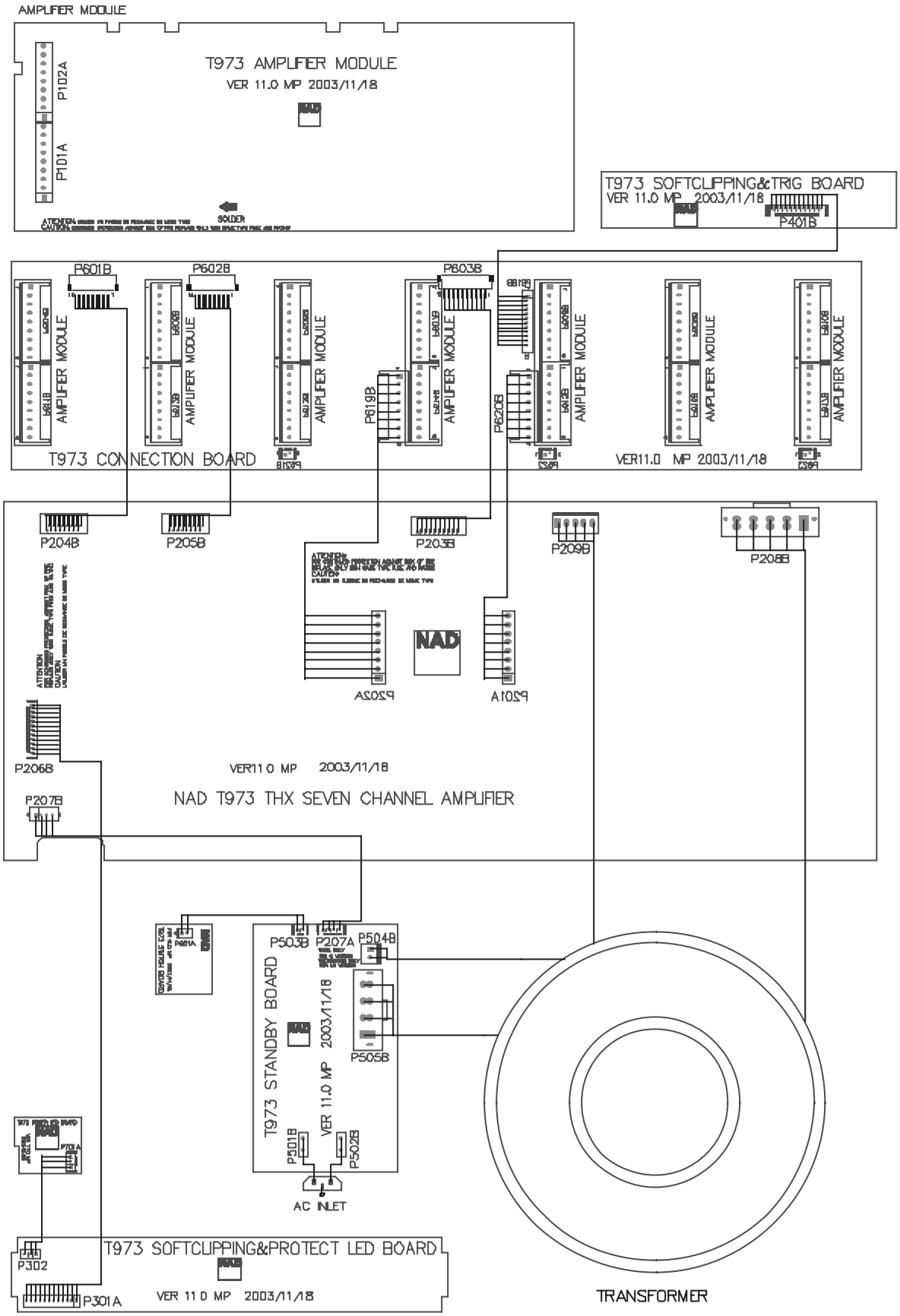
The ISC current-sensing voltage under a non-signal condition should be 0mV+/-50mV. Adjust Potentiometer RV104 (as marked as "ISC SENSE ADJ" Figure 1) for a reading of 0mV+/-10mV between the "ISC SENSE TEST POINT" and AGND.

Note:

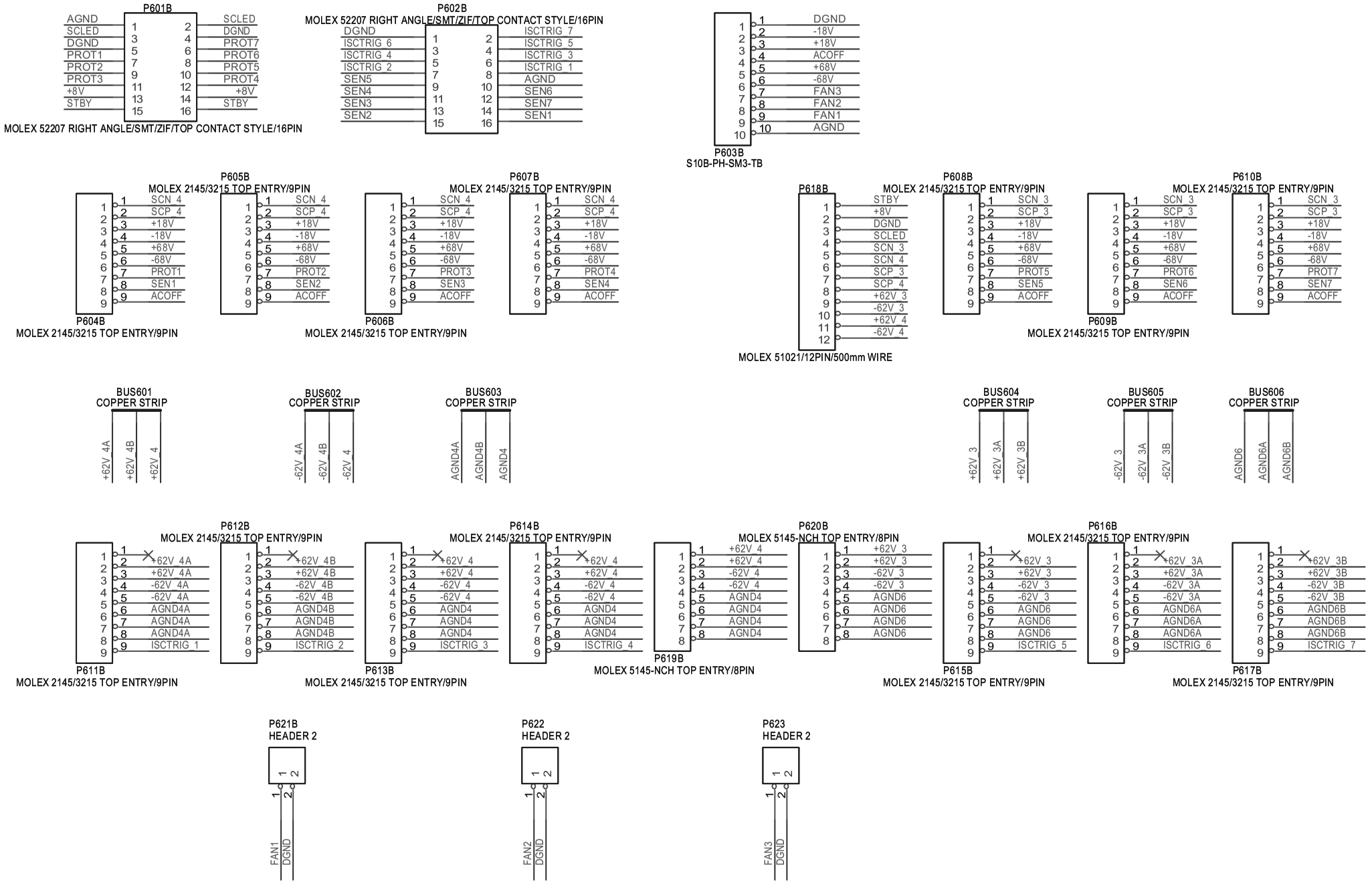
The **ISC** should be adjusted when all modules are assembled into the unit. It is not possible to get the 0mV +/-10mV if any of the modules are removed.

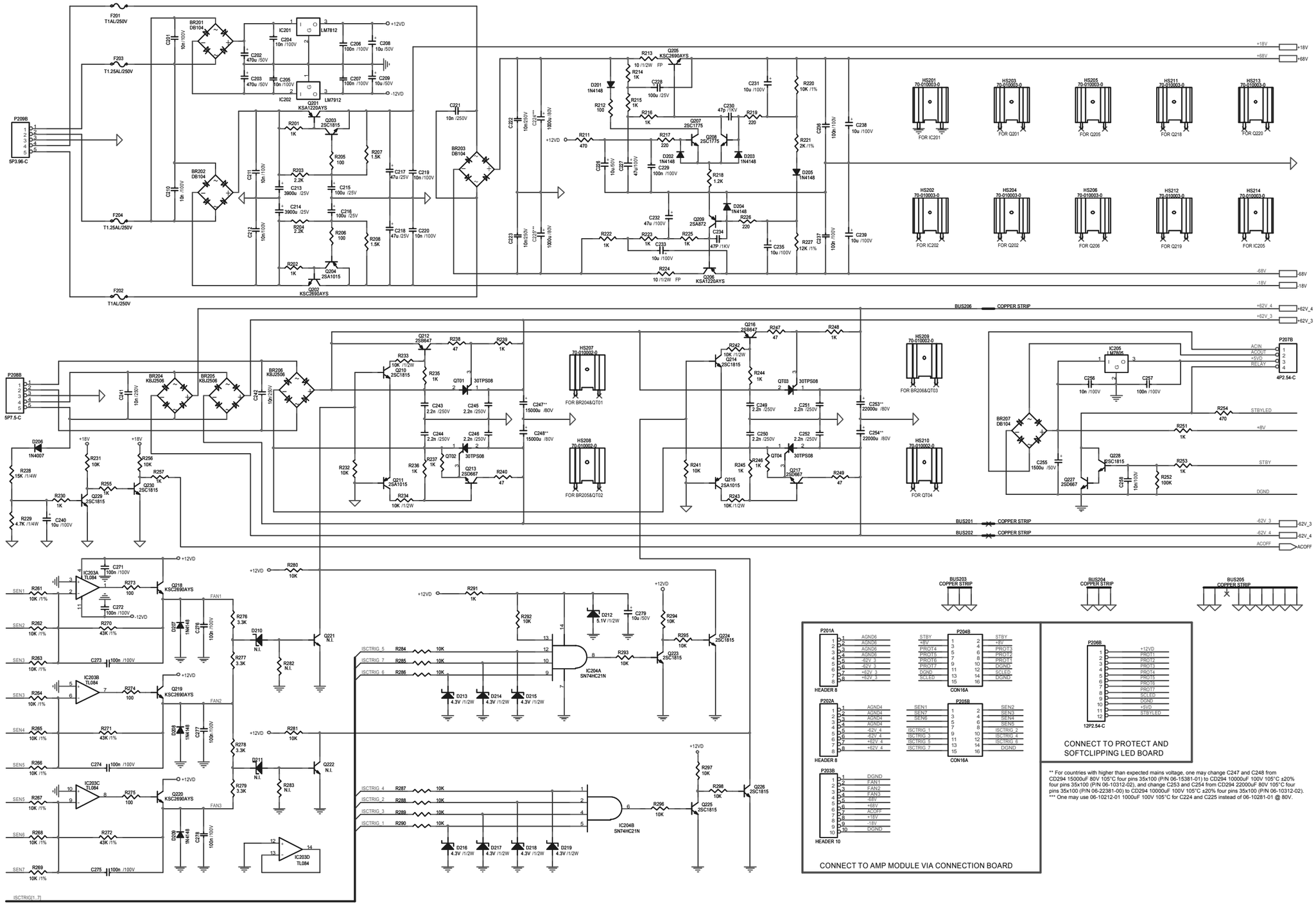

ISC Adjustment (MK I & MK IIA)
ISC SENS ADJ
Idle Current Adjustment (MK IIB [2006])
Idle Current Adjustment (MK I & MK IIA)
IDLING CURRENT ADJ
ISC Adjustment (MK IIB [2006])
THERMAL SENS ADJ
IDLING CURRENT TEST POINT1
IDLING CURRENT TEST POINT2
OFFSET TEST POINT
THERMAL TEST POINT
ISC SENS TEST POINT
AGND

T 973 WIRING DIAGRAM

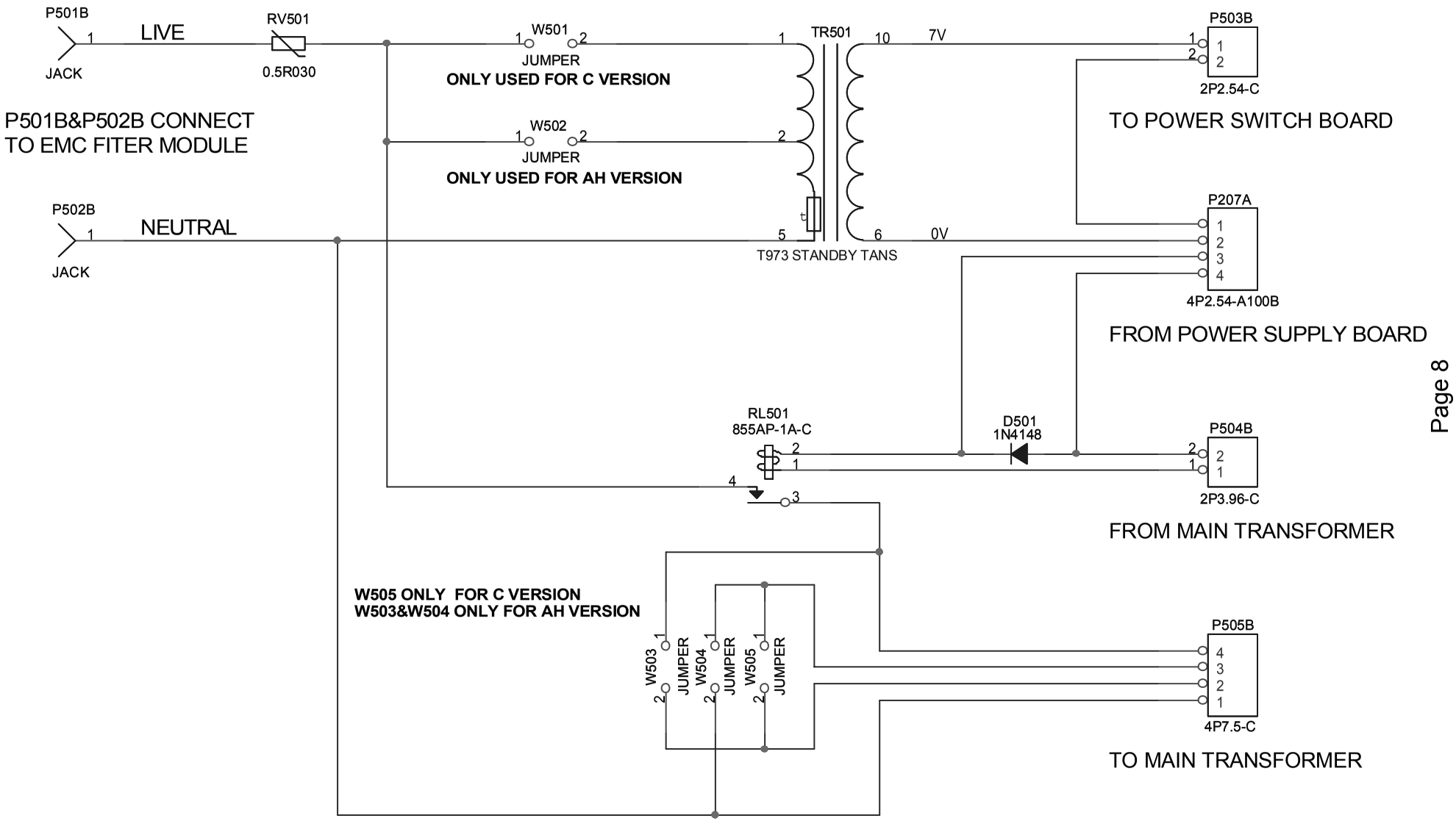


SCHEMATIC DIAGRAM(AMP CONNECTION)

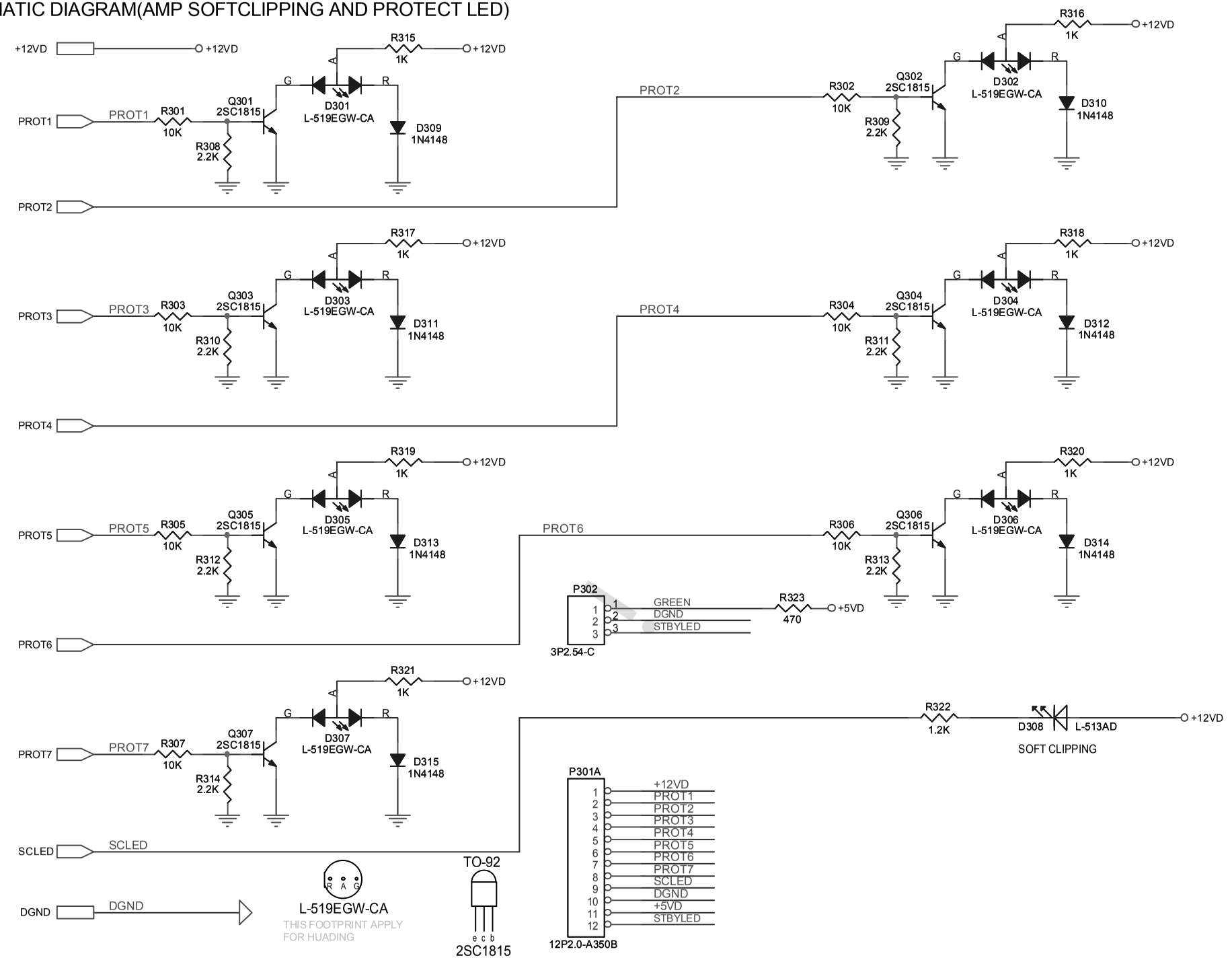



F201 T1AL/250V
F203 T1.25AL/250V
F204 T1.25AL/250V
F202 T1AL/250V
P209B
5P3.96-C
BR201 DB104
BR202 DB104
BR203 DB104
IC201 LM7812
IC202 LM7912
+12VD
-12VD
Q201 KSA1220AYS
Q202 KSC2690AYS
Q203 2SC1815
Q204 2SA1015
Q205 KSC2690AYS
Q206 KSA1220AYS
Q207 2SC1775
Q208 2SC1775
Q209 2SA872
D201 1N4148
D202 1N4148
D203 1N4148
D204 1N4148
D205 1N4148
R213 10 /1/2W FP
R214 1K
R215 1K
R216 1K
R212 100
R211 470
R217 220
R218 1.2K
R219 220
R220 10K /1%
R221 2K /1%
R222 1K
R223 1K
R224 10 /1/2W FP
R225 1K
R226 220
R227 12K /1%
C228 100n /100V
C229 100n /100V
C230 47p /1KV
C231 10u /100V
C232 47u /100V
C233 10u /100V
C234 47P /1KV
C235 10u /100V
C236 100n /100V
C237 100n /100V
C238 10u /100V
C239 10u /100V
HS201 70-010003-0
HS202 70-010003-0
HS203 70-010003-0
HS204 70-010003-0
HS205 70-010003-0
HS206 70-010003-0
HS211 70-010003-0
HS212 70-010003-0
HS213 70-010003-0
HS214 70-010003-0
FOR IC201
FOR Q201
FOR Q205
FOR Q218
FOR Q220
FOR IC202
FOR Q202
FOR Q206
FOR Q219
FOR IC205
+18V
+68V
-68V
-18V
BUS206 COPPER STRIP
+62V_4
+62V_3
P208B
5P7.5-C
BR204 KBJ2506
BR205 KBJ2506
BR206 KBJ2506
Q212 2SB647
Q210 2SC1815
Q214 2SC1815
Q216 2SB647
Q211 2SA1015
Q213 2SD667
Q215 2SA1015
Q217 2SD667
QT01 30TPS08
QT02 30TPS08
QT03 30TPS08
QT04 30TPS08
HS207 70-010002-0
HS208 70-010002-0
HS209 70-010002-0
HS210 70-010002-0
FOR BR204&QT01
FOR BR205&QT02
FOR BR206&QT03
FOR QT04
C247** 15000u /80V
C248** 15000u /80V
C253** 22000u /80V
C254** 22000u /80V
D206 1N4007
R228 15K /1/4W
R229 4.7K /1/4W
R230 1K
R231 10K
R255 1K
R256 10K
R257 1K
Q229 2SC1815
Q230 2SC1815
C240 10u /100V
IC205 LM7805
P207B
4P2.54-C
ACIN
ACOUT
+5VD
RELAY
C256 10n /100V
C257 100n /100V
BR207 DB104
C255 1500u /50V
Q228 2SC1815
Q227 2SD667
R254 470
R251 1K
R253 1K
R252 100K
C258 10n/100V
STBYLED
+8V
STBY
DGND
BUS201 COPPER STRIP
BUS202 COPPER STRIP
-62V_3
-62V_4
ACOFF
BUS203 COPPER STRIP
BUS204 COPPER STRIP
BUS205 COPPER STRIP
IC203A TL084
IC203B TL084
IC203C TL084
IC203D TL084
Q218 KSC2690AYS
Q219 KSC2690AYS
Q220 KSC2690AYS
Q221 N.I.
Q222 N.I.
Q223 2SC1815
Q224 2SC1815
Q225 2SC1815
Q226 2SC1815
FAN1
FAN2
FAN3
D210 N.I.
D211 N.I.
D212 5.1V /1/2W
D213 4.3V /1/2W
D214 4.3V /1/2W
D215 4.3V /1/2W
D216 4.3V /1/2W
D217 4.3V /1/2W
D218 4.3V /1/2W
D219 4.3V /1/2W
IC204A SN74HC21N
IC204B SN74HC21N
R280 10K
R281 10K
R291 1K
R292 10K
R294 10K
R295 10K
R293 10K
R297 10K
R298 10K
R296 10K
R282 N.I.
R283 N.I.
R284 10K
R285 10K
R286 10K
R287 10K
R288 10K
R289 10K
R290 10K
ISCTRIG_5
ISCTRIG_7
ISCTRIG_6
ISCTRIG_4
ISCTRIG_2
ISCTRIG_3
ISCTRIG_1
ISCTRIG[1..7]
SEN1
SEN2
SEN3
SEN4
SEN5
SEN6
SEN7
R261 10K /1%
R262 10K /1%
R263 10K /1%
R264 10K /1%
R265 10K /1%
R266 10K /1%
R267 10K /1%
R268 10K /1%
R269 10K /1%
R270 43K /1%
R271 43K /1%
R272 43K /1%
R273 100
R274 100
R275 100
R276 3.3K
R277 3.3K
R278 3.3K
R279 3.3K
C271 100n /100V
C272 100n /100V
C273 100n /100V
C274 100n /100V
C275 100n /100V
C276 100n /100V
C277 100n /100V
C278 100n /100V
D207 1N4148
D208 1N4148
D209 1N4148
P201A
HEADER 8
P202A
HEADER 8
P203B
HEADER 10
P204B
CON16A
P205B
CON16A
AGND6
AGND4
-62V_3
-62V_4
+62V_3
+62V_4
-68V
+68V
+8V
+5VD
ACOFF
-18V
+18V
DGND
STBY
PROT4
PROT5
PROT6
PROT7
SCLED
PROT3
PROT2
PROT1
STBYLED
ISCTRIG_1
ISCTRIG_3
ISCTRIG_5
ISCTRIG_7
ISCTRIG_2
ISCTRIG_4
ISCTRIG_6
CONNECT TO AMP MODULE VIA CONNECTION BOARD
P206B
12P2.54-C
CONNECT TO PROTECT AND SOFTCLIPPING LED BOARD
** For countries with higher than expected mains voltage, one may change C247 and C248 from CD294 15000uF 80V 105°C four pins 35x100 (P/N 06-15381-01) to CD294 10000uF 100V 105°C ±20% four pins 35x100 (P/N 06-10312-02), and change C253 and C254 from CD294 22000uF 80V 105°C four pins 35x100 (P/N 06-22381-00) to CD294 10000uF 100V 105°C ±20% four pins 35x100 (P/N 06-10312-02).
*** One may use 06-10212-01 1000uF 100V 105°C for C224 and C225 instead of 06-10281-01 @ 80V.

SCHEMATIC DIAGRAM (AMP STANDBY)



SCHEMATIC DIAGRAM(AMP SOFTCLIPPING AND PROTECT LED)



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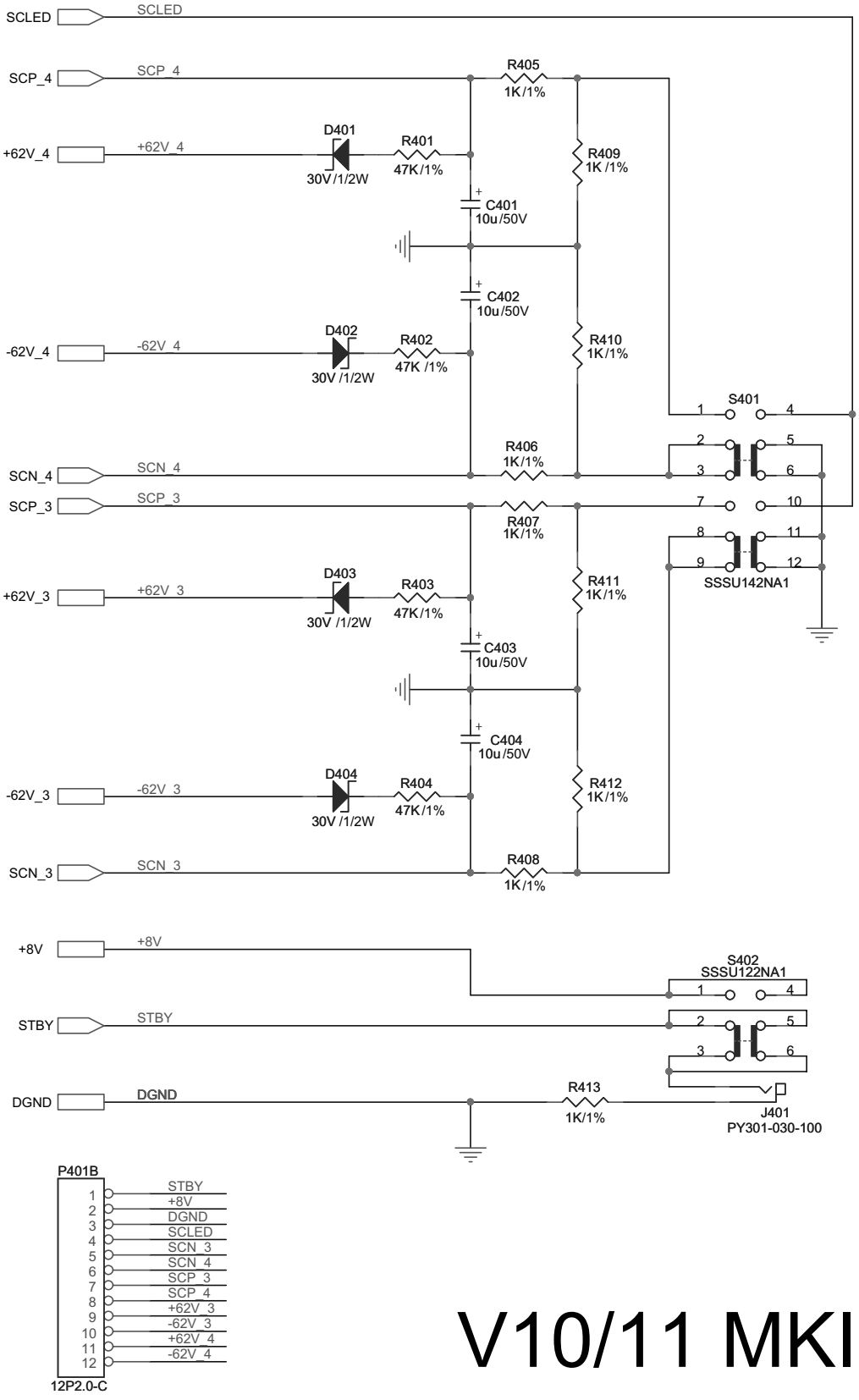
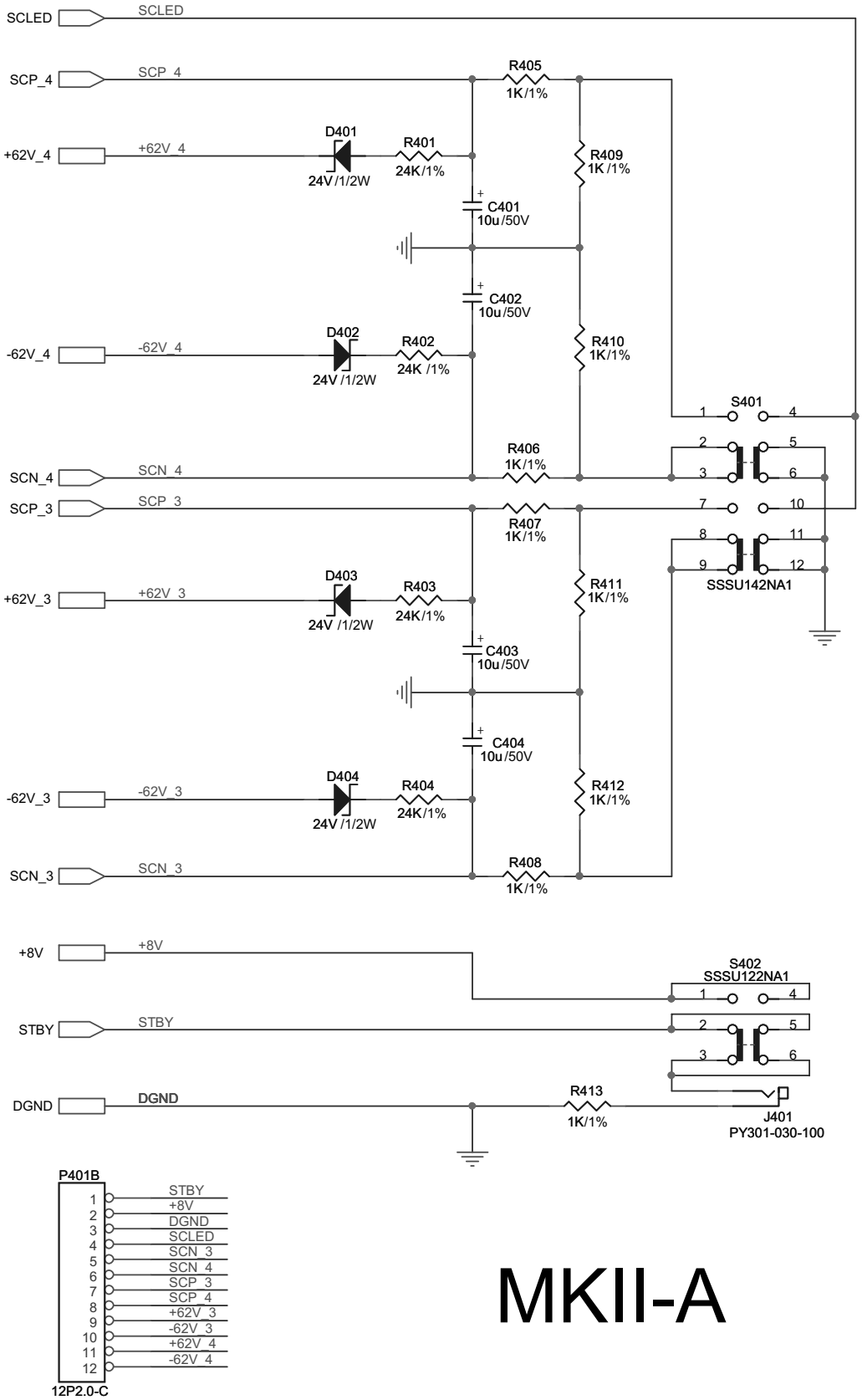
SCHEMATIC DIAGRAM (AMP SOFTCLIPPING AND AUTO TRIGGER)



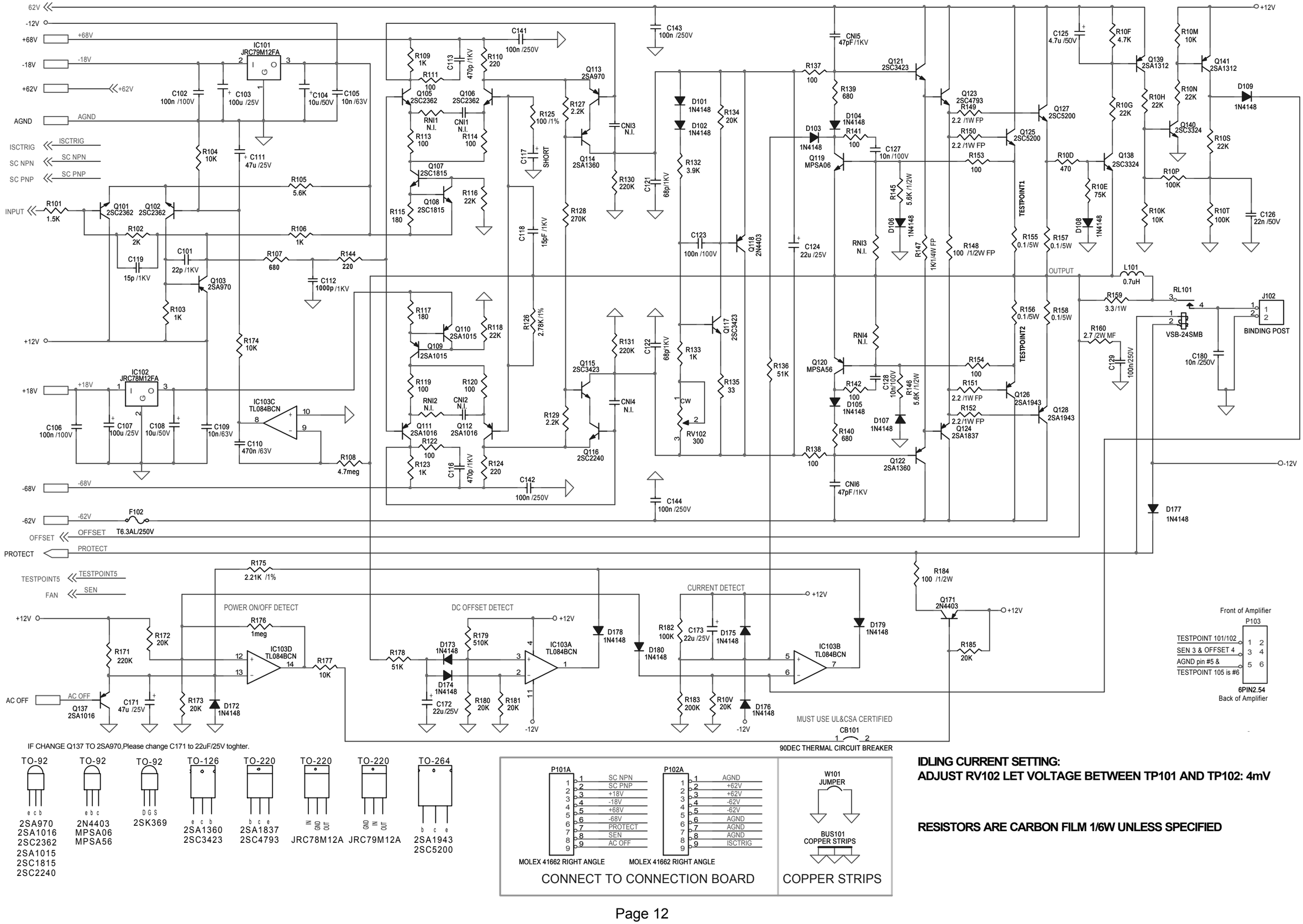
V10/11 MKI

SCHEMATIC DIAGRAM (AMP SOFTCLIPPING AND AUTO TRIGGER)



MKII-A

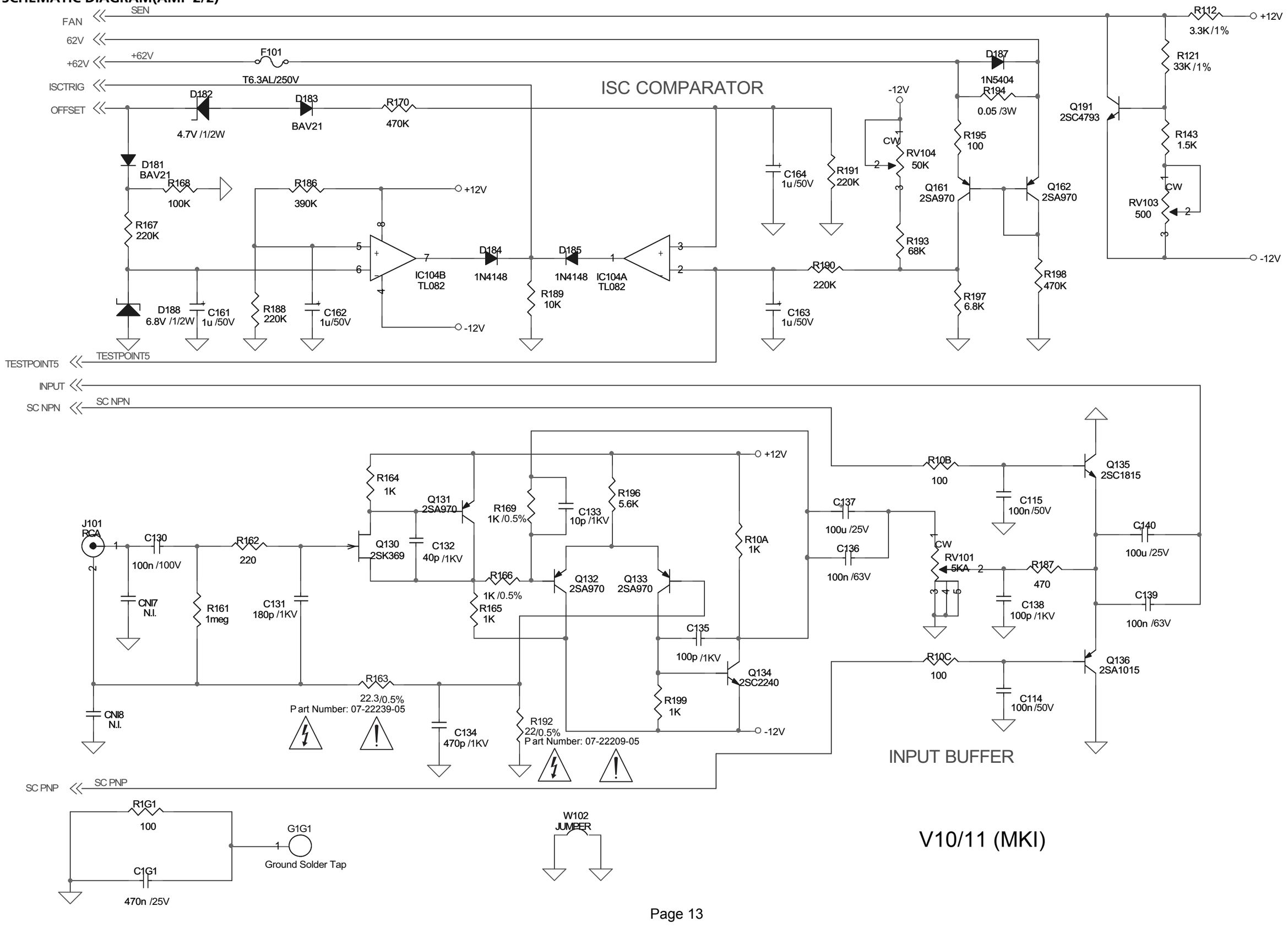
SCHEMATIC DIAGRAM (AMP 1/2)



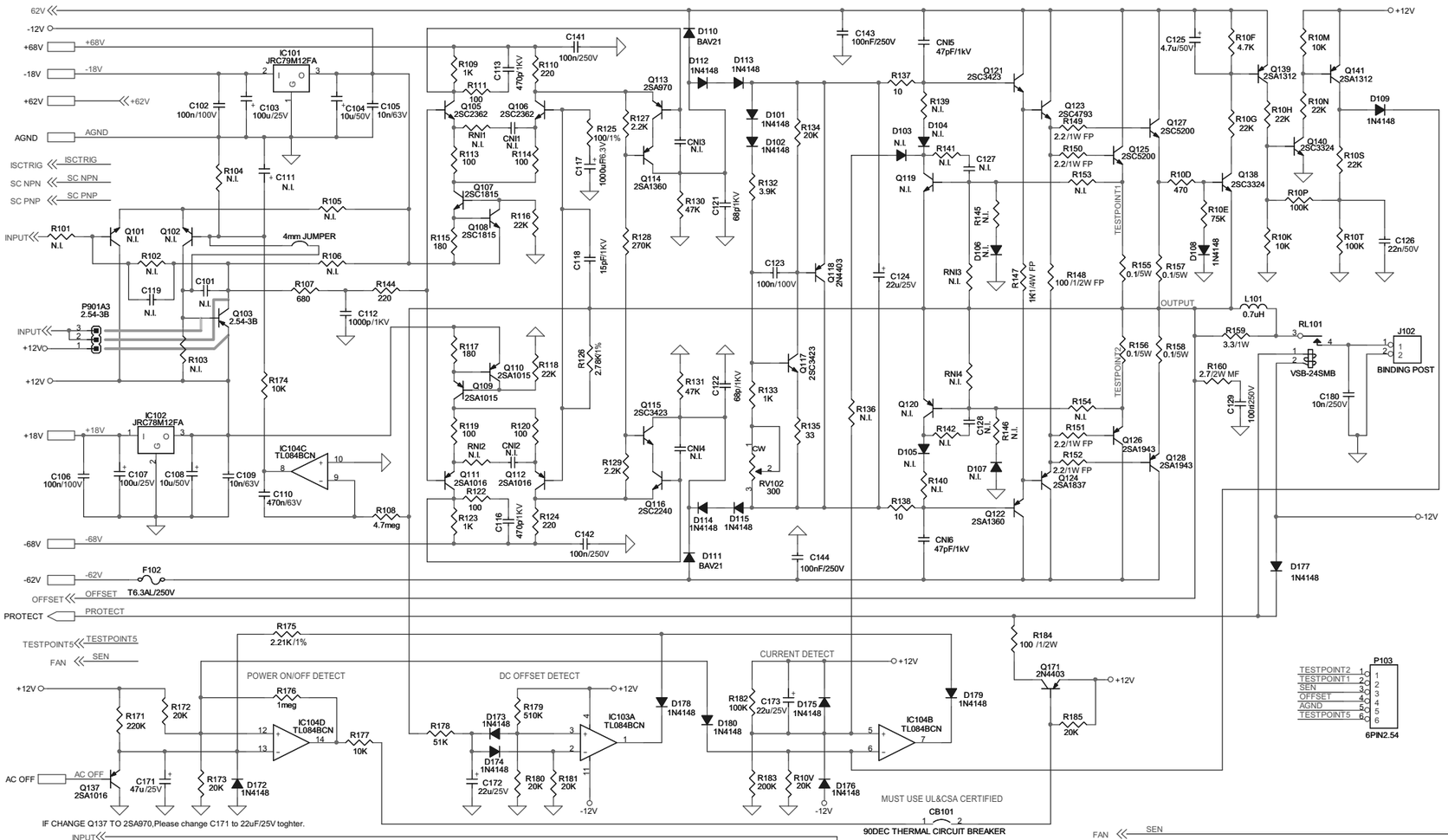
IDLING CURRENT SETTING:
ADJUST RV102 LET VOLTAGE BETWEEN TP101 AND TP102: 4mV

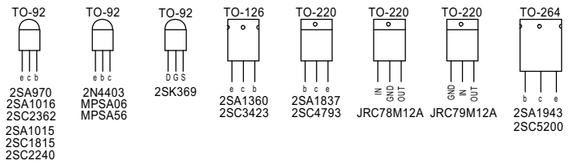
RESISTORS ARE CARBON FILM 1/6W UNLESS SPECIFIED

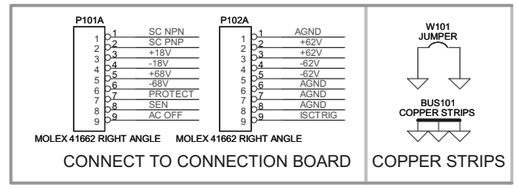
SCHEMATIC DIAGRAM(AMP 2/2)

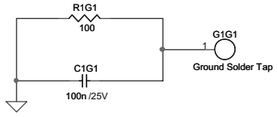


SCHEMATIC DIAGRAM MKII AMPLIFIER & NEW INPUT BUFFER

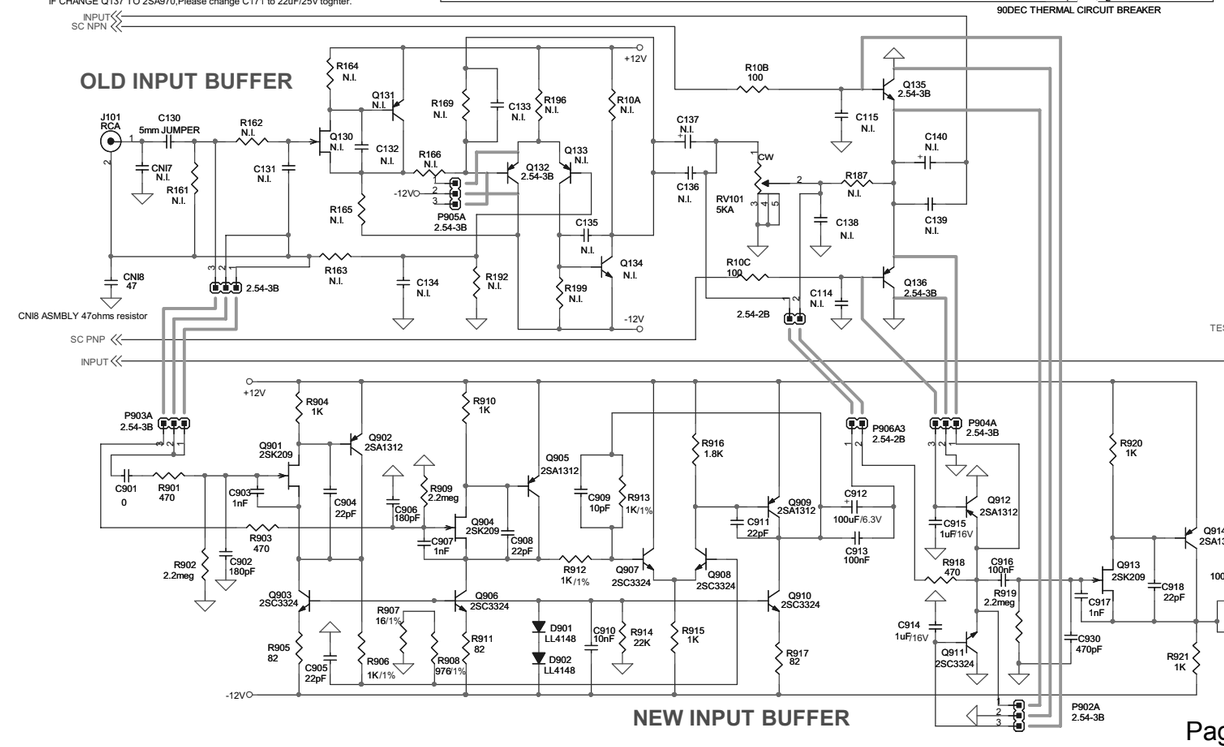


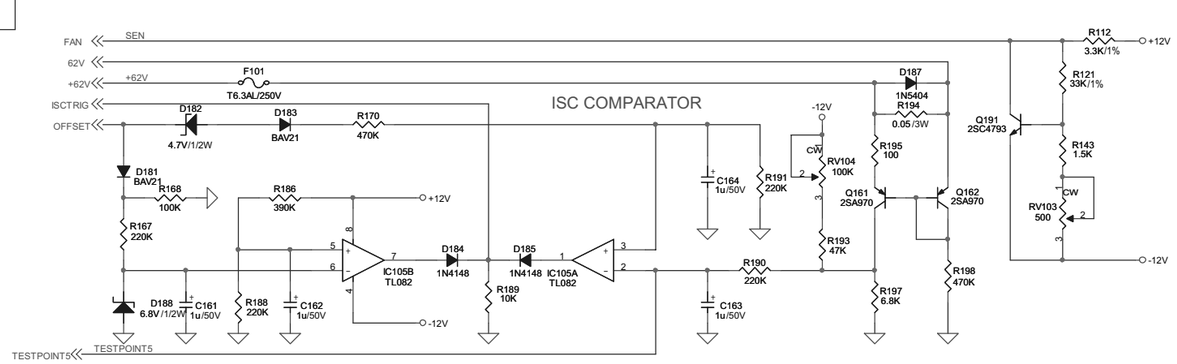






IDLING CURRENT SETTING:
ADJUST RV102 LET VOLTAGE BETWEEN TP101 AND TP102: 4mV
FAN&ISC SENSITIVITY SETTING
ADJUST RV103 LET VOLTAGE AT SEN PORT: +300mV
RESISTORS ARE CARBON FILM 1/6W UNLESS SPECIFIED

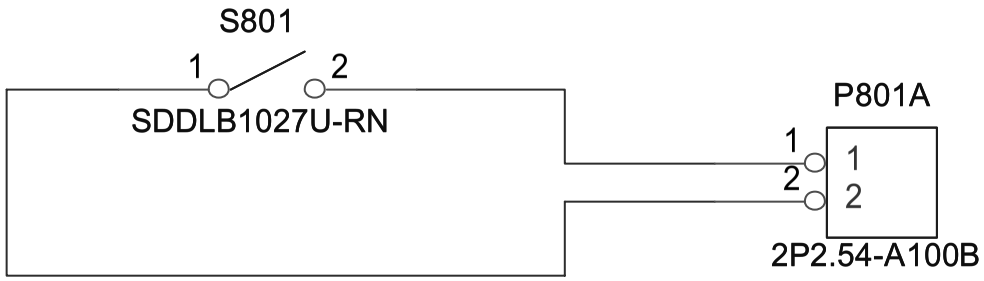




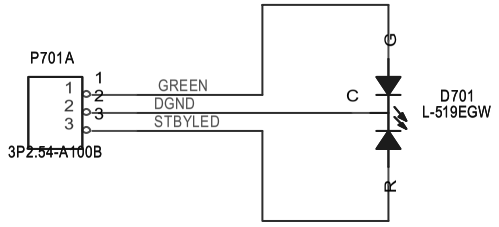
MKII-A

T973 S/N Range: From H51T97301587 to H51T97301886

SCHEMATIC DIAGRAM(AMP POWER SWITCH)



SCHEMATIC DIAGRAM(AMP POWER LED)



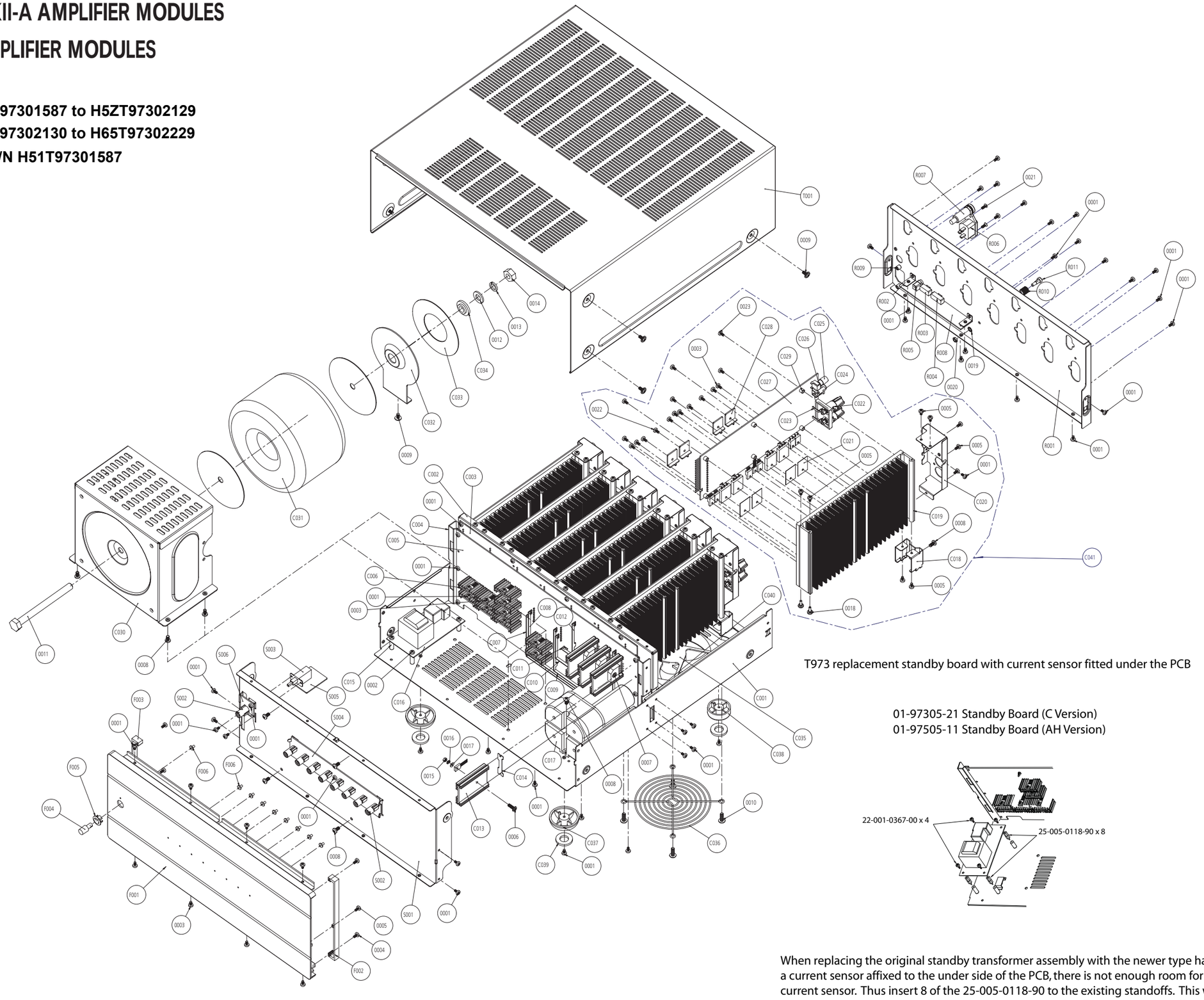
L-519EGW

THIS FOOTPRINT APPLY
FOR HUADING

EXPLODED VIEW

NOTE: DO NOT MIX MKII-A AMPLIFIER MODULES WITH MKII-B AMPLIFIER MODULES

T973 Amplifier Module Schedule:
MKIIA T973 S/N Range: From H51T97301587 to H5ZT97302129
MKIIB T973 S/N Range: From H65T97302130 to H65T97302229
MKIIB T973 May Be Used Prior to S/N H51T97301587



T973 replacement standby board with current sensor fitted under the PCB

01-97305-21 Standby Board (C Version)
01-97505-11 Standby Board (AH Version)

When replacing the original standby transformer assembly with the newer type having a current sensor affixed to the under side of the PCB, there is not enough room for the current sensor. Thus insert 8 of the 25-005-0118-90 to the existing standoffs. This will allow the standby board to sit free of the bottom chassis. T973 production affected by this are; H39T97300001 to H47T97301586 and from H4ZT97301587 to H5ZT97302129.

EXPLODED VIEW PARTS LIST

REF.NO	PART NO.	DESCRIPTION	Qty.
C001	66-010001-0	Chassis	1
C002	66-010006-0	Bracket 1	1
C003	01-97306-00	Assembled Connection PCB	1
C004	66-010008-0	Bracket 3	2
C005	01-97302-00	Assembled PSU PCB	1
C006	70-010003-0	Heatsink 3	10
C007	69-010008-0	Bus Bar 206	1
C008	69-010007-0	Bus Bar 205	1
C009	69-010005-0	Bus Bar 203	1
C010	69-010006-0	Bus Bar 204	1
C011	69-006001-0	Bus Bar 201	1
C012	69-010004-0	Bus Bar 202	1
C013	70-010002-0	Heatsink 2	4
C014	75-010002-0	Cushion	4
C015	68-010001-0	Spacer Support (1)	5
C016	01-97305-01	Assembled Standby PCB	1
C017	75-010001-0	Capacitor Holder	1
C018	66-010007-0	Bracket 2	7
C019	70-010001-1	Heatsink 1	7
C020	67-010002-2	Bracket 4	7
C021	78-005005-0	Insulated Cushion	4
C022	71-001001-0	Bindding Post	7
C023	69-010003-0	Pin	7
C024	17-01001-10	RCA	7
C025	73-010001-0	Rotate Knob	7
C026	09-01502-00	Pot	7
C027	01-97301-00	Assembled AMP Module PCB	7
C028	66-005009-0	TR Clamper	4
C029	85-010001-0	Spacer Support	42
C030	66-010005-0	Transformer Bracket	1
C031	18-97132-00	Transformer (Toroid) or	1
	18-97132-01	Transformer (Gloria)	1
C032	66-010004-0	Metal Disc	1
C033	94-010001-0	Transformer (Toroid) Label or	1
	94-010005-0	Transformer (Gloria) Label	
C034	75-010003-0	Insulated Cell	1
C035	35-01212-00	Fan	3
C036	68-010003-0	Fan Cover	3
C037	75-010004-1	Foot (Big)	2
C038	75-001008-0	Foot (Small)	2
C039	79-008001-0	Foot Pad	4
C040	66-010009-0	Bracket 5	1
C041	01-97301-10 01-97301-11 01-97301-12	Assembled AMP MKI V10/11 Assembled AMP MKIIA Assembled AMP MKIIB(2006)	7
F001	67-010003-0	Fascia	1
F002	67-010005-0	End Cap (R)	1
F003	67-010004-0	End Cap (L)	1
F004	77-009003-1	Power Button	1

REF.NO	PART NO.	DESCRIPTION	Qty.
F005	77-001007-1	Power Button Bezel	1
F006	76-003001-0	LED Lens	9
T001	66-010002-0	Top Cover	1
S001	66-010003-1	Subfacia	1
S002	75-005001-0	LED Sleeve	9
S003	11-01101-20	Power Switch	1
S004	01-97303-00	Assembled Protect Softclipping Board	1
S005	01-97308-00	Assembled Power Switch Board	1
S006	01-97307-00	Assembled Power LED Board	1
R001	67-010001-0	Rear Panel (C Version) or	1
	67-010006-0	Rear Panel (AH Version)	1
R002	66-010010-0	Bracket 6	2
R003	11-05202-10	Switch (S402)	1
R004	11-05402-00	Switch (S401)	1
R005	17-07001-00	12V Trigger In Jack	1
R006	17-07003-01	AC Inlets	1
R007	20-20000-03	Fuse Holder	1
R008	01-97304-00	Assembled Trigger PCB	1
R009	68-010002-0	Spacer Support (2)	2
R010	71-003002-0	Grd. Post Cap	1
R011	71-010001-0	Grd. Post Bolt	1
0001	61-023106-0	Self Screw STB3X6	68
0002	61-023506-0	Machine Screw MB3X6	5
0003	61-023108-0	Self Screw STB3X8	63
0004	61-033106-0	Self Screw STP3×6	4
0005	61-023208-0	Self Screw BTB3X8	63
0006	61-083512-0	Machine Screw MPW3X12	1
0007	61-083518-0	Machine Screw MPW3X18	3
0008	61-024108-0	Self Screw STB4X8	10
0009	61-084108-0	Self Screw STPW4X8	7
0010	61-045215-0	Self Screw TB5X15	12
0011	64-110110-0	Bolt M10X110	1
0012	63-011020-0	Washer, GB97.1-85, Φ10	1
0013	63-021030-0	Spring Washer 10 GB93-87	1
0014	62-011002-0	Nut, M10 GB6170-86	1
0015	62-010302-0	Nut, M3, GB6170-86	4
0016	63-020308-0	Spring Washer, 3mm	4
0017	63-010303-0	Washer, 3mm	4
0018	61-013206-0	Bolt	14
0019	63-030410-0	Serrated Lock Washer	2
0020	62-010402-0	Nut M4 GB6170-86	1
0021	61-063108-0	STF3X8	2
0022	61-223514-0	Machine Screw MB3X14	28
0023	61-023215-0	Self Taping Screw BTB3X15	42

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
AMP MODULE BOARD					
DIODES					
D101, D102, D103, D104, D105, D106, D107, D108, D109, D172, D173, D174, D175, D176, D177, D178, D179, D180, D184, D185	33-44148-02	1N4148			Switch Diode
D187	33-25404-00	1N5404			Rectifier Diode
D182	33-14709-00	4.7V	1/2W		Zener Diode
D188	33-16809-00	6.8V	1/2W		Zener Diode
D181, D183	33-40021-00	BAV21			Switch Diode
TRANSISTORS					
Q139, Q141	31-01312-00	2SA1312-GR			Transistor
Q138, Q140	31-03324-00	2SC3324-GR			Transistor
Q103, Q113, Q131, Q132, Q133, Q161, Q162	31-00970-00	2SA970-GR			Transistor
Q118, Q171	31-04403-00	2N4403			Transistor
Q107, Q108, Q135	31-01815-00	2SC1815-GR			Transistor
Q109, Q110, Q136	31-01015-00	2SA1015-GR			Transistor
Q116, Q134	31-02240-00	2SA2240-GR			Transistor
Q126, Q128	31-01943-00	2SA1943-O			Transistor
Q125, Q127	31-05200-00	2SC5200-O			Transistor
Q130	31-00369-00	2SK369-GR			Transistor
	or 31-00170-00	or 2SK170-BL			Transistor
Q124	31-01837-00	2SA1837			Transistor
Q123, Q191	31-04793-00	2SC4793			Transistor
Q115, Q117, Q121	31-03423-00	2SC3423-O			Transistor
Q114, Q122	31-01360-00	2SA1360-O			Transistor
Q111, Q112, Q137	31-01016-00	2SA1016-KG-AA			Transistor
Q101, Q102, Q105, Q106	31-02362-00	2SC2362-KG-AA			Transistor
Q119	31-00006-00	MPSA06			Transistor
Q120	31-00056-00	MPSA56			Transistor
ICS					
CB101	03-67090-00	67L090			IC, Thermal Circuit Break
IC104	03-00082-00	TL082D			IC, Dual OP-AMP
IC103	03-00084-01	TL084BCN			IC, Quad OP-AMP
IC102	03-07812-20	NJM78M12FA			IC, Regulator
IC101	03-07912-20	NJM79M12FA			IC, Regulator
RESISTORS					
R1G1	07-90101-01	100ohms	0805	±5%	Chip Resistor
R10F	07-90472-01	4.7kohms	0805	±5%	Chip Resistor
R10K, R10M	07-90103-01	10kohms	0805	±5%	Chip Resistor
R10G, R10H, R10N, R10S	07-90223-01	22kohms	0805	±5%	Chip Resistor
R10P, R10T	07-90104-01	100kohms	0805	±5%	Chip Resistor
R192	07-22209-05	22ohms	1/6W	±0.5%	Metal Film Resistor
R163	07-22239-05	22ohms3	1/6W	±0.5%	Metal Film Resistor
R135	07-20330-00	33ohms	1/6W	±5%	Metal Film Resistor
R10B, R10C, R111, R113, R114, R119, R120, R122, R195	07-20101-00	100ohms	1/6W	±5%	Metal Film Resistor
R125	07-21000-00	100ohms	1/6W	±1%	Metal Film Resistor
R115, R117	07-20181-00	180ohms	1/6W	±5%	Metal Film Resistor
R110, R124, R144, R162, R107	07-20221-00	220ohms	1/6W	±5%	Metal Film Resistor
R187, R10D	07-24700-00	470ohms	1/6W	±1%	Metal Film Resistor
R166, R169	07-21001-05	1kohms	1/6W	±0.5%	Metal Film Resistor
R103, R106, R10A, R109, R123, R133, R164, R165, R199	07-20102-00	1kohms	1/6W	±5%	Metal Film Resistor
R143	07-20152-00	1k5ohms	1/6W	±5%	Metal Film Resistor
R101	07-21501-00	1k5ohms	1/6W	±1%	Metal Film Resistor
R102	07-22001-00	2kohms	1/6W	±1%	Metal Film Resistor
R127, R129	07-20222-00	2k2ohms	1/6W	±5%	Metal Film Resistor
R175	07-22211-00	2k21ohms	1/6W	±1%	Metal Film Resistor

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
R112	07-23301-00	3k3ohms	1/6W	±1%	Metal Film Resistor
R132	07-20392-00	3k9ohms	1/6W	±5%	Metal Film Resistor
R105, R196	07-20562-00	5k6ohms	1/6W	±5%	Metal Film Resistor
R197	07-20682-00	6k8ohms	1/6W	±5%	Metal Film Resistor
R104, R174, R177, R189	07-20103-00	10kohms	1/6W	±5%	Metal Film Resistor
R126	07-22781-00	2k78ohms	1/6W	±1%	Metal Film Resistor
R134, R172, R173, R180, R181, R185, R10V	07-20203-00	20kohms	1/6W	±5%	Metal Film Resistor
R116, R118	07-20223-00	22kohms	1/6W	±5%	Metal Film Resistor
R121	07-23302-00	33kohms	1/6W	±1%	Metal Film Resistor
R193	07-20473-00	47kohms	1/6W	±5%	Metal Film Resistor
R10E	07-20753-00	75kohms	1/6W	±5%	Metal Film Resistor
R136, R178	07-20513-00	51kohms	1/6W	±5%	Metal Film Resistor
R168, R182	07-20104-00	100kohms	1/6W	±5%	Metal Film Resistor
R183	07-20204-00	200kohms	1/6W	±5%	Metal Film Resistor
R130, R131, R167, R171, R188, R190, R191	07-20224-00	220kohms	1/6W	±5%	Metal Film Resistor
R128	07-20274-00	270kohms	1/6W	±5%	Metal Film Resistor
R186	07-20394-00	390kohms	1/6W	±5%	Metal Film Resistor
R170, R198	07-20474-00	470kohms	1/6W	±5%	Metal Film Resistor
R179	07-20514-00	510kohms	1/6W	±5%	Metal Film Resistor
R161, R176	07-20105-00	1Mohms	1/6W	±5%	Metal Film Resistor
R108	07-20475-00	4.7Mohms	1/6W	±5%	Metal Film Resistor
R137, R138, R141, R142, R153, R154	07-20101-10	100ohms	1/4W	±5%	Metal Film Resistor
R139, R140	07-20681-10	680ohms	1/4W	±5%	Metal Film Resistor
R147	07-50102-00	1kohms	1/4W	±5%	Fusible Resistor
R148, R184	07-30101-00	100ohms	1/2W	±5%	Metal Oxide Film Resistor
R145, R146	07-30562-00	5k6ohms	1/2W	±5%	Metal Oxide Film Resistor
R149, R150, R151, R152	07-30229-01	2.2ohms	1W	±5%	Metal Oxide Film Resistor
R159	07-30339-10	3.3ohms	1W	±5%	Metal Oxide Film Resistor
R160	07-30279-02	2.7ohms	2W	±5%	Metal Oxide Film Resistor
R155, R156, R157, R158	07-60108-06	0.1ohms	5W	±5%	Cement Resistor
R194	07-40507-04	0.05ohms	3W	±5%	Metal Oxide Film Resistor
CAPACITORS					
C133	05-10013-00	10pF	1KV	±10%	Ceramic Capacitor
C118, C119	05-15013-00	15pF	1KV	±10%	Ceramic Capacitor
C101	05-22013-00	22pF	1KV	±10%	Ceramic Capacitor
C132	05-40013-00	40pF	1KV	±10%	Ceramic Capacitor
CNI5, CNI6	05-47013-00	47pF	1KV	±10%	Ceramic Capacitor
C121, C122	05-68013-00	68pF	1KV	±10%	Ceramic Capacitor
C135, C138	05-10113-01	100pF	1KV	±10%	Ceramic Capacitor
C131	05-18113-00	180pF	1KV	±10%	Ceramic Capacitor
C112	05-10213-02	220pF	1KV	±10%	Ceramic Capacitor
C113, C116, C134	05-47113-00	470pF	1KV	±10%	Ceramic Capacitor
C126	26-22351-01	22nF, 0805(X7R)	50V	±10%	Ceramic Capacitor SMD
C114, C115	26-10451-11	100nF, 0805(X7R)	50V	±10%	Ceramic Capacitor SMD
C1G1	26-47421-01	470nF, 0805(X7R)	25V	±10%	Ceramic Capacitor SMD
C105, C109	25-10361-04	10nF, CL23B	63V	±10%	Polyester capacitor
C127, C128	25-10312-02	10nF, CL23B	100V	±5%	Polyester capacitor
C180	25-10322-02	10nF, CL23B	250V	±5%	Polyester capacitor
C129, C141, C142, C143, C144	25-10422-01	100nF, CL23B	250V	±5%	Polyester capacitor
C136, C139	25-10461-00	100nF, CL23B	63V	±10%	Polyester capacitor
C130, C123, C102, C106	25-10412-02	100nF, CL23B	100V	±10%	Polyester capacitor
C110	25-47461-01	470nF, CL23B	63V	±10%	Polyester capacitor
C161, C162, C164, C163	06-10951-03	1uF, CD263	50V	±20%	ALU Electrolytic Capacitor
C125	06-47951-05	4.7uF, CD263	50V	±20%	ALU Electrolytic Capacitor
C104, C108	06-10051-06	10uF, CD263	50V	±20%	ALU Electrolytic Capacitor
C124, C172, C173	06-22021-01	22uF, CD263	25V	±20%	ALU Electrolytic Capacitor
C111, C171	06-47021-01	47uF, CD263	25V	±20%	ALU Electrolytic Capacitor
C103, C107, C137, C140	06-10121-02	100uF, CD263	25V	±20%	ALU Electrolytic Capacitor
INDUCTORS					
L101	08-01079-01	0.7uH			Inductor

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
RELAYS					
RL101	12-03101-03	JQX-115F/024/1HS1			Relay
POTS					
RV102	09-02301-01	300ohms			SEMI POT
RV103	09-02501-02	500ohms			SEMI POT
RV104	09-02503-02	50kohms			SEMI POT
RV101	09-01502-00	5kohms, RK09K1110482-5KA			POT
FUSES					
F101, F102	20-12632-00	T6.3AL/250V			Fuse
F101, F102	20-20000-06	LS-PTF-78 or CQ-200C, no cover			Fuse Holder
CONNECTORS					
J101	17-01001-10	AV-8.4-14	white	no grounding	RCA
J102	71-001001-0				Binding Post
G1G1	32-28042-00	GND-8			Ground Solder Tap
P103	13-12506-02	10-89-4062			Connector
P101A, P102A	13-13909-00	41662-0031			Connector
POWER SUPPLY BOARD					
DIODES					
D201, D202, D203, D204, D205, D207, D208, D209	33-44148-02	1N4148			Switch Diode
D206	33-24007-00	1N4007			Rectify Diode
D213, D214, D215, D216, D217, D218, D219	33-14309-00	4.3V	1/2W		Zener Diode
D212	33-15109-00	5.1V	1/2W		Zener Diode
QT01, QT02, QT03, QT04	33-83008-00	30TPS08			SCR
BR201, BR202, BR203, BR207	33-30142-00	DB104G			Bridge
BR204, BR205, BR206	33-32562-00	KBJ2506			Bridge
TRANSISTORS					
Q209	31-00872-00	2SA872-AETZ			Transistor
Q207, Q208	31-01775-00	2SC1775-AETZ			Transistor
Q212, Q216	31-00647-00	2SD647-AWC			Transistor
Q203, Q210, Q214, Q223, Q224, Q225, Q226, Q228, Q229, Q230	31-01815-00	2SC1815-GR			Transistor
Q204, Q211, Q215	31-01015-00	2SA1015-GR			Transistor
Q213, Q217, Q227	31-00667-00	2SD667-AWC			Transistor
Q202, Q205, Q218, Q219, Q220	31-02690-00	KSC2690AYSTU			Transistor
Q201, Q206	31-01220-00	KSA1220AYSTU			Transistor
ICS					
IC205	03-07805-00	L7805CV			IC, Regulator
IC201	03-07812-00	L7812CV			IC, Regulator
IC202	03-07912-00	L7912CV			IC, Regulator
IC204	03-07421-00	SN74HC21N			Gate IC
IC203	03-00084-00	TL084CN			IC, Quad OP-AMP
RESISTORS					
R238, R240, R247, R249	07-20470-00	47ohms	1/6W	±5%	Metal Film Resistor
R205, R206, R212, R273, R274, R275	07-20101-00	100ohms	1/6W	±5%	Metal Film Resistor
R217, R219, R226	07-20221-00	220ohms	1/6W	±5%	Metal Film Resistor
R211, R254	07-20471-00	470ohms	1/6W	±5%	Metal Film Resistor
R201, R202, R214, R215, R216, R222, R223, R225, R230, R235, R236, R237, R239, R244, R245, R246, R248, R251, R253, R255, R257, R291	07-20102-00	1kohms	1/6W	±5%	Metal Film Resistor
R218	07-20122-00	1.2kohms	1/6W	±5%	Metal Film Resistor
R207, R208	07-20152-00	1.5kohms	1/6W	±5%	Metal Film Resistor
R221	07-22001-00	2kohms	1/6W	±1%	Metal Film Resistor
R203, R204	07-20222-00	2.2kohms	1/6W	±5%	Metal Film Resistor

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
R276, R277, R278, R279	07-20332-00	3.3kohms	1/6W	±5%	Metal Film Resistor
R220, R261, R262, R263, R264, R265, R266, R267, R268, R269	07-21002-00	10kohms	1/6W	±1%	Metal Film Resistor
R231, R232, R241, R256, R280, R281, R284, R285, R286, R287, R288, R289, R290, R292, R293, R294, R295, R296, R297, R298	07-20103-00	10kohms	1/6W	±5%	Metal Film Resistor
R227	07-21202-00	12kohms	1/6W	±1%	Metal Film Resistor
R270, R271, R272	07-24302-00	43kohms	1/6W	±1%	Metal Film Resistor
R252	07-20104-00	100kohms	1/6W	±5%	Metal Film Resistor
R228	07-20153-10	15kohms	1/4W	±5%	Metal Film Resistor
R229	07-20472-10	4.7kohms	1/4W	±5%	Metal Film Resistor
R213, R224	07-30100-03	10ohms	1/2W	±5%	Metal Oxide Film Resistor
R233, R234, R242, R243	07-30103-00	10kohms	1/2W	±5%	Metal Oxide Film Resistor
CAPACTIORS					
C230, C234	05-47013-00	47pF	1KV	±10%	Ceramic Capacitor
C243, C244, C245, C246, C249, C250, C251, C252	25-22222-00	2.2nF, CL23B	250V	±10%	Polyester capacitor
C201, C204, C205, C210, C211, C212, C219, C220, C256, C258	25-10312-01	10nF, CL23B	100V	±10%	Polyester capacitor
C221, C222, C223, C241, C242	25-10322-01	10nF, CL23B	250V	±10%	Polyester capacitor
C206, C207, C229, C236, C237, C257, C271, C272, C273, C274, C275, C276, C277, C278	25-10412-02	100nF, CL23B	100V	±10%	Polyester capacitor
C208, C209, C226, C240, C279	06-10051-06	10uF, CD263	50V	±20%	ALU Electrolytic Capacitor
C231, C233, C235, C238, C239	06-10012-01	10uF, CD263	100V	±20%	ALU Electrolytic Capacitor
C217, C218	06-47021-01	47uF, CD263	25V	±20%	ALU Electrolytic Capacitor
C227, C232	06-47012-01	47uF, CD263	100V	±20%	ALU Electrolytic Capacitor
C215, C216, C228	06-10121-02	100uF, CD263	25V	±20%	ALU Electrolytic Capacitor
C202, C203	06-47151-00	470uF, CD263	50V	±20%	ALU Electrolytic Capacitor
C255	06-15251-00	1500uF, CD297	50V	±20%	ALU Electrolytic Capacitor
C224, C225	06-10281-01	1000uF, CD297	80V	±20%	ALU Electrolytic Capacitor
C213, C214	06-39221-00	3900uF, CD297	25V	±20%	ALU Electrolytic Capacitor
C247, C248	06-15381-00	15000uF, CD294	80V		ALU Electrolytic Capacitor
C253, C254	06-22381-00	22000uF, CD294	80V		ALU Electrolytic Capacitor
CONNECTORS					
P203B	14-97310-00	10P2.0-A35B			Connector Ribbon
P207B	14-97304-00	4P2.54-A100B			Connector Ribbon
P209B	13-23905-00	5PIN3.96-C			Housing
P208B	13-27505-00	43160-2105			Housing
P206B	13-22012-00	12PIN2.0-C			Housing
P204B, P205B	13-21016-02	52807-1610 or FPC1.0-16P			Connector
P201A, P202A	13-13908-00	09-67-4081			Connector
	14-97316-00	16PIN，60mm，K PW9249-1A			Connector
FUSES					
F203, F204	20-12122-00	T1.25AL/250V			Fuse
F201, F202	20-12102-00	T1AL/250V			Fuse
F201, F202, F203, F204	20-20000-06	LS-PTF-78 or CQ-200C, no cover			Fuse Holder
PROTECT&SOFTCLIPPING BOARD					
DIODES					
D309, D310, D311, D312, D313, D314, D315	33-44148-02	1N4148			Switch Diode
D308	33-50550-00	L-513GD			LED Green
D301, D302, D303, D304, D305, D306, D307	33-50525-02	L-519SRSGW-CAE			LED Dual
TRANSISTORS					

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
Q301, Q302, Q303, Q304, Q305, Q306, Q307	31-01815-00	2SC1815-GR			Transistor
RESISTORS					
R323	07-20471-00	470ohms	1/6W	±5%	Metal Film Resistor
R315, R316, R317, R318, R319, R320, R321	07-20102-00	1kohms	1/6W	±5%	Metal Film Resistor
R322	07-20122-00	1.2kohms	1/6W	±5%	Metal Film Resistor
R308, R309, R310, R311, R312, R313, R314	07-20222-00	2.2kohms	1/6W	±5%	Metal Film Resistor
R301, R302, R303, R304, R305, R306, R307	07-20103-00	10kohms	1/6W	±5%	Metal Film Resistor
CONNECTORS					
P301A	14-97312-10	12P2.0-A290B	26AWG		Connector Ribbon
P302	14-97303-00	3P2.54-A100B			Connector Ribbon
12V TRIGGER BOARD					
DIODES					
D401, D402, D403, D404	33-13000-00	30V	1/2W		Zener Diode
RESISTORS					
R405, R406, R407, R408, R409, R410, R411, R412	07-21001-00	1kohms	1/6W	±1%	Metal Film Resistor
R401, R402, R403, R404	07-23602-00	36kohms	1/6W	±1%	Metal Film Resistor
CAPACTIORS					
C401, C402, C403, C404	06-10051-06	10uF, CD263	50V	±20%	ALU Electrolytic Capacitor
CONNECTORS					
P401B	13-22012-00	12PIN2.0-C			Housing
S402	11-05202-10	SSSU122NA1			Slide Switch
S401	11-05402-00	SSSU142NA1			Slide Switch
J401	17-07001-00	PY301-030-100			12V Trigger In Jack
STANDBY BOARD					
D501	33-44148-02	1N4148			Switch Diode
C501	05-10422-00	0.1uF	275V	±5%	High Voltage Ceramic Capacitor
RV501	07-70059-00	0.5R030			Inrush Current Limiter
TRANSFORMS and RELAYS					
TR501	18-35003-00	TD030-E102D			Standby Transformer
RL501	12-03101-02	832A-1A-C-BH DC5V			Relays
CONNECTORS					
P503B	13-22502-00	2PIN2.54-C			Housing
P504B	13-23902-00	2PIN3.96-C			Housing
P207A	13-22504-00	4PIN2.54-C			Housing
P505B	13-27504-00	43160-2104			Housing
P502B	32-26304-00	HS4-CI9120-B009V1-M032			Jack
P501B	32-26304-10	PCFS250L			Jack
CONNECTION BOARD					
CONNECTORS					
P604B, P605B, P606B, P607B, P608B, P609B, P610B, P611B, P612B, P613B, P614B, P615B, P616B, P617B	13-25009-00	26-01-1099			Connector
P619B, P620B	13-25008-00	26-01-1089			Connector
P618B	14-97312-11	12P2.0-A580B	26AWG		Connector Ribbon
P601B, P602B	13-21016-01	52207-1690			Connector
P603B	13-22010-01	S10B-PH-SM3-TB			Connector
P621B, P622, P623	13-22502-00	2PIN2.54			Connector

ELECTRICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
POWER LED BOARD			
DIODES and CONNECTERS			
D701	33-50525-00	L-519EGW	LED Dual
P701A	13-22503-00	3PIN2.54C	Housing
POWER SWITCH BOARD			
	16-97308-00	Power Switch Raw PCB	
	01-97308-00	Power Switch PCB with components	
SWITCHS			
S801	11-01101-20	SDDLB1027U-RN	Power Switch
MISC			
	20-11203-10	T20AL/250V（AH Version）	Fuse
	20-12103-20	T10AL/250V（C Version）	Fuse
	20-20000-03	HTB-32I	Fuse Holder
	17-07003-01	R-301(00)	AC Inlets
	18-97132-00	TI-69860L AU ISS3	Main Transformer
	or 18-97132-01	or TD-230-1300E	Main Transformer

FLAT WHITE RIBBON CABLE				
P204B to P601B	Flat white ribbon cable	16PIN, 60mm, KP W9249-1A	14-97316-00	
P205B to P602B	Flat white ribbon cable	16PIN, 60mm, KP W9249-1A	14-97316-00	

T973 T973MKII-A T973MKII-B REPLACEMENT P/N LIST

	T973	T973MKII-A	T973MKII-B
POWER AMP AH Complete with heatsink	01-97510-10	01-97310-13	01-97510-10
POWER AMP Board-Only AH	01-97501-10	01-97301-13	01-97501-10
POWER AMP C Complete with heatsink	01-97510-20	01-97310-23	01-97510-20
POWER AMP Board-Only C	01-97501-20	01-97301-23	01-97501-20
POWER SUPPLY BOARD	01-97502-99	01-97502-99	01-97502-00
DISPLAY BOARD	01-97503-99	01-97503-99	01-97503-99
TRIGGER BOARD	01-97504-00	01-97504-00	01-97504-00
STANDBY BOARD AH	01-97505-98	01-97505-98	01-97505-10
STANDBY BOARD C	01-97505-99	01-97505-99	01-97505-20
CONNECTION BOARD	01-97506-00	01-97506-00	01-97506-00
POWER LED BOARD	01-97507-99	01-97507-99	01-97507-99
POWER SWITCH BOARD	01-97508-00	01-97508-00	01-97508-00
TP BOARD	NONE	NONE	01-97509-00

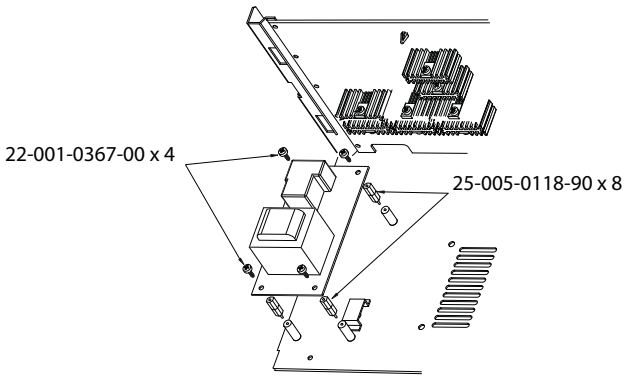
T973 SERIAL NUMBER FROM H39T97300001 TO H47T97301586
T973MKII-A SERIAL NUMBER FROM H4ZT97301587 TO H5ZT97302129
T973MKII-B SERIAL NUMBER FROM H65T97302130 TO H65T97302229

Serial Number Illustrator:
First one digit (H) is manufactory.
Second two digits (XY) are the year and month of manufacture.
Next four digits (T973) are a model code
Last five digits (XXXXX) are a series of numbers

T973 STANDBY BOARD ADDENDUM

T973 replacement standby board with current sensor fitted under the PCB

01-97305-21 Standby Board (C Version)
01-97505-11 Standby Board (AH Version)



When replacing the original standby transformer assembly with the newer type having a current sensor affixed to the under side of the PCB, there is not enough room for the current sensor. Thus insert 8 of the 25-005-0118-90 to the existing standoffs. This will allow the standby board to sit free of the bottom chassis. T973 production affected by this are; H39T97300001 to H47T97301586 and from H4ZT97301587 to H5ZT97302129.