



# T 973

Seven Channel Amplifier

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PRELIMINARY SCHEMATICS updated alignment procedures

ISSUE DATE: September 2005

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Preliminary

## **ALIGNMENT PROCEDURE (T973)**

### **A. DC OFFSET VOLTAGE**

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

### **B. IDLING CURRENT**

The idling current at the final stage of the unit should be set to about 40mA $\pm$ 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  $\pm$  2mV.

Preheat the unit for 10 to 15 minutes, and then readjust to 8mV  $\pm$  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 $\pm$ 10mV.

(Please note that the ISC should be adjusted when all modules are assembled into the unit. It's not possible to get 0V  $\pm$ 10mV if the modules are not assembled.

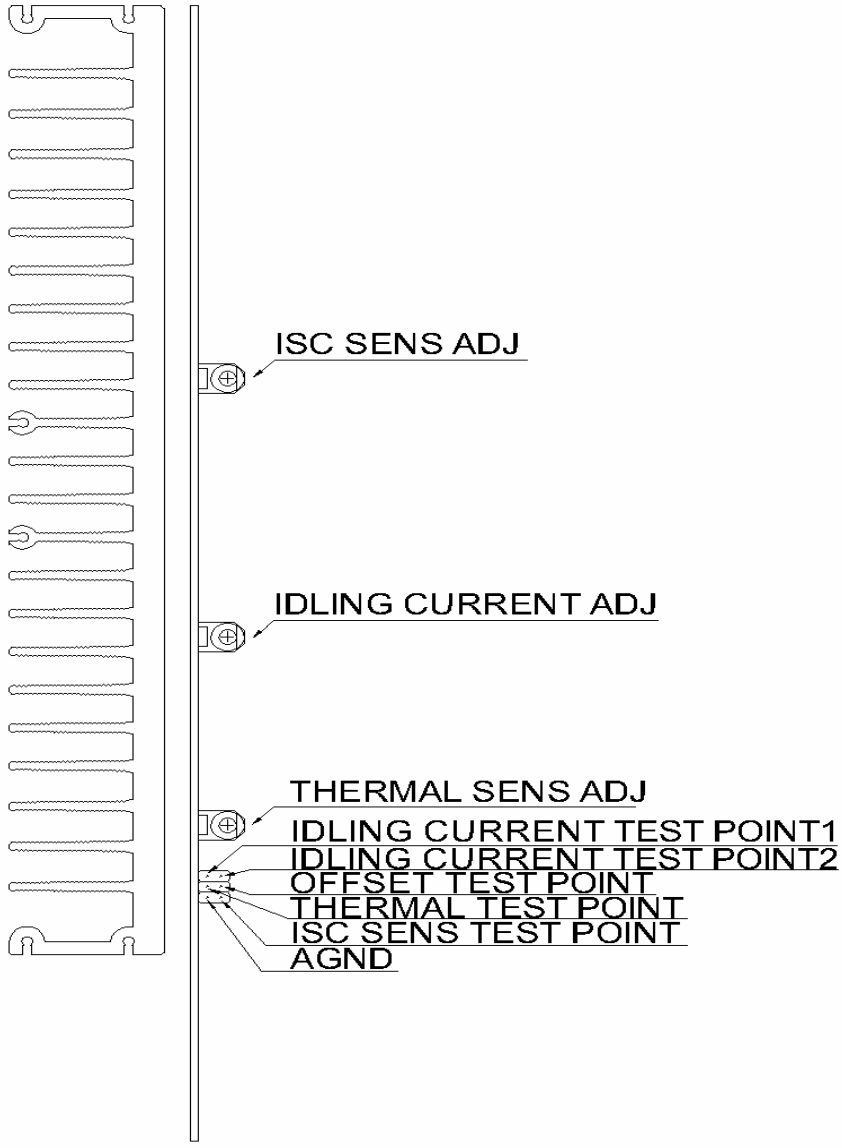
### **D. THERMAL SENSE ADJUSTMENT**

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)

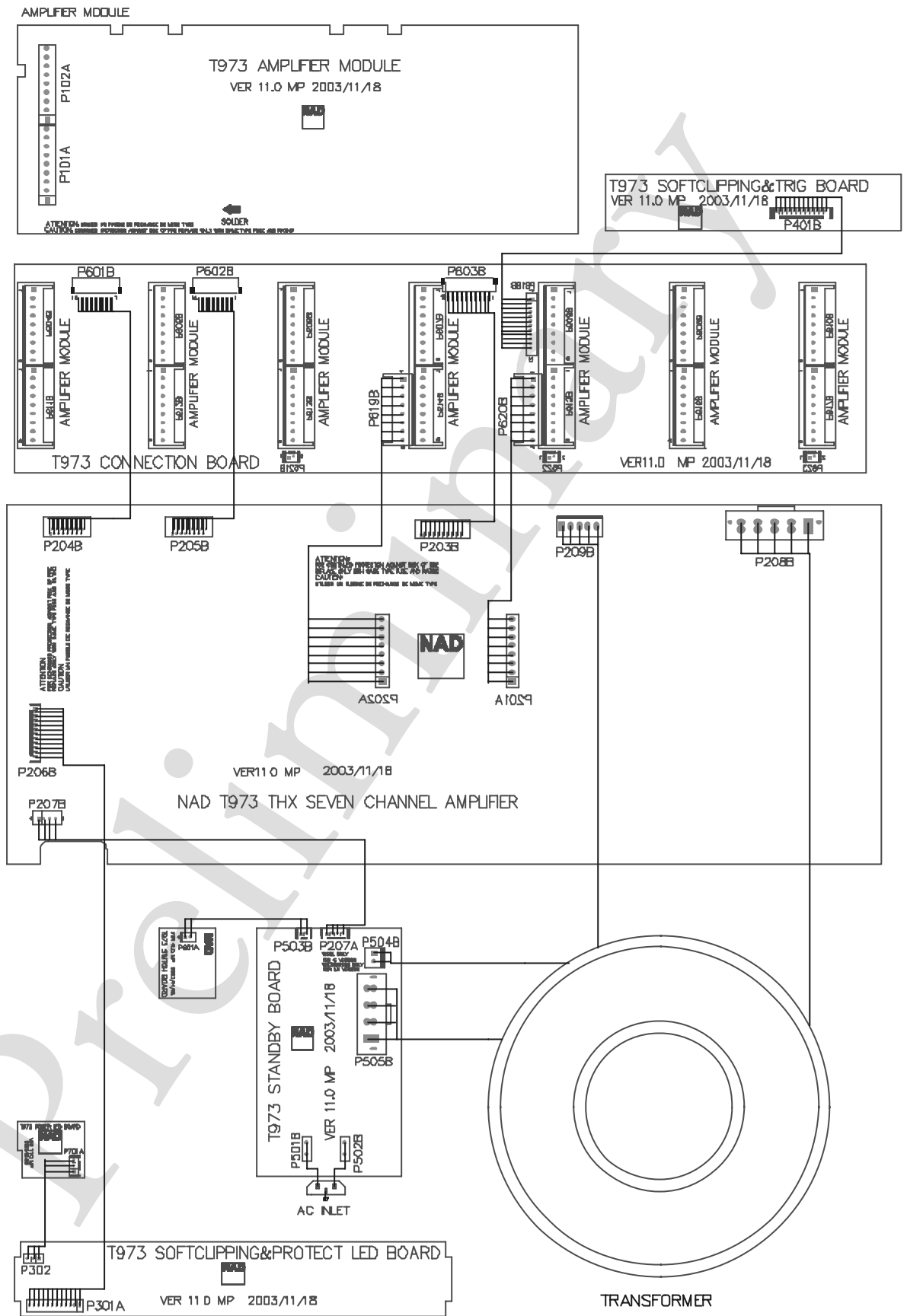
At ambient temperature of 25 C degree and when the unit is just turned on (still in cool condition), adjust the pot RV103 (as marked as "THERMAL SENS ADJ" in the below drawing) to get voltage across the THERMAL TEST POINT and AGND to be 750mV  $\pm$ 10mV. While the ambient temperature is different, the 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 $\pm$ 10mV; if the ambient temperature is 30 degree C, the voltage should be adjusted to 650mV $\pm$ 10mV, etc.

### **E. Fan Cut Off Point Adjustment**

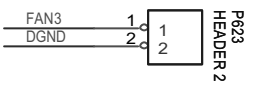
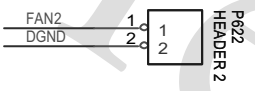
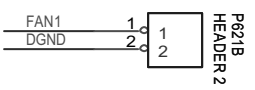
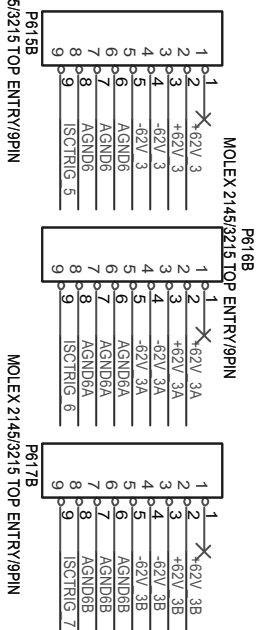
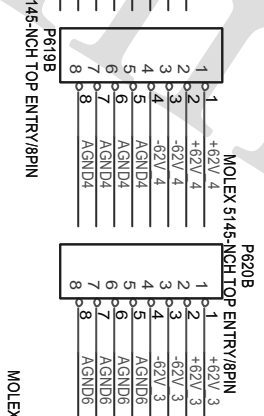
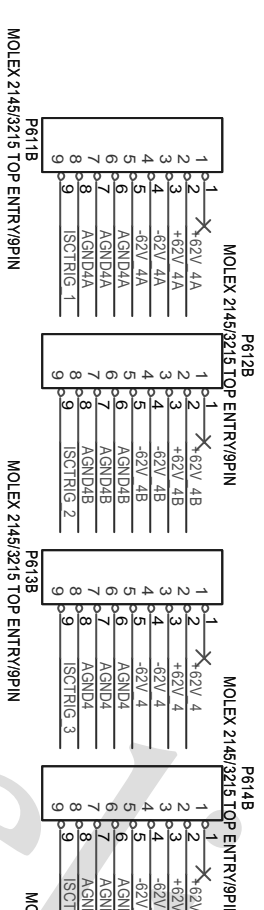
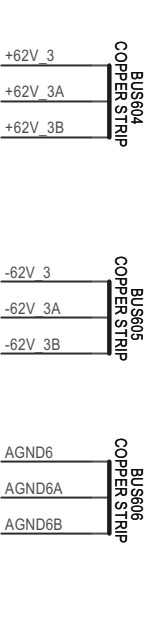
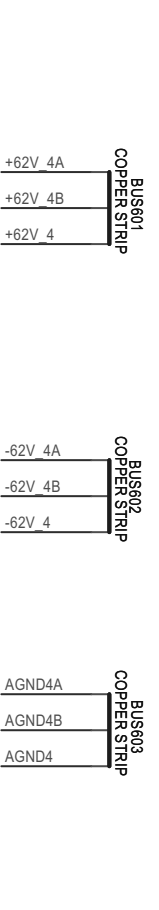
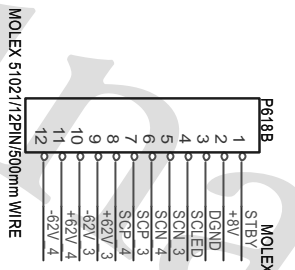
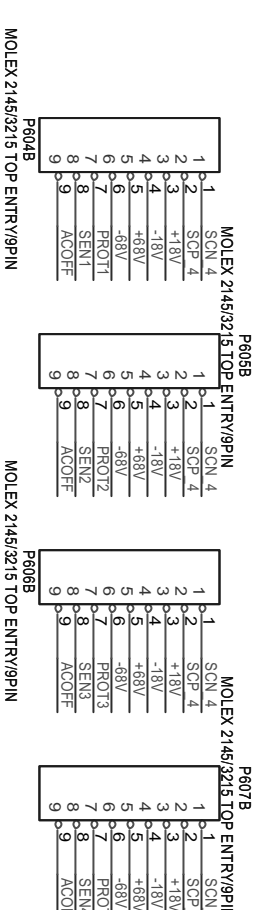
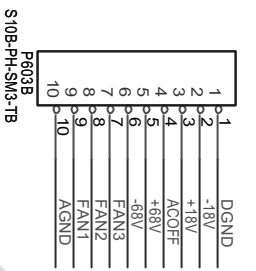
Note: This Fan cut off function does not appear on PCB V10.0, V11.0 or MKII version but only appeared on PCB V12.0. Run the unit for all 7 channels at 1 kHz, 4ohms load, and 250mW output. Do this adjustment when the unit heats up, for example; run the unit at all 7 channels at 50W/4ohms for 10 minutes. 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.

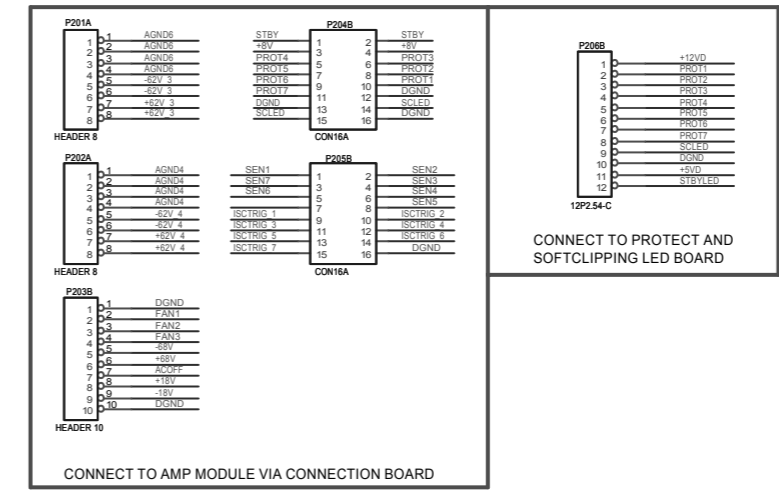
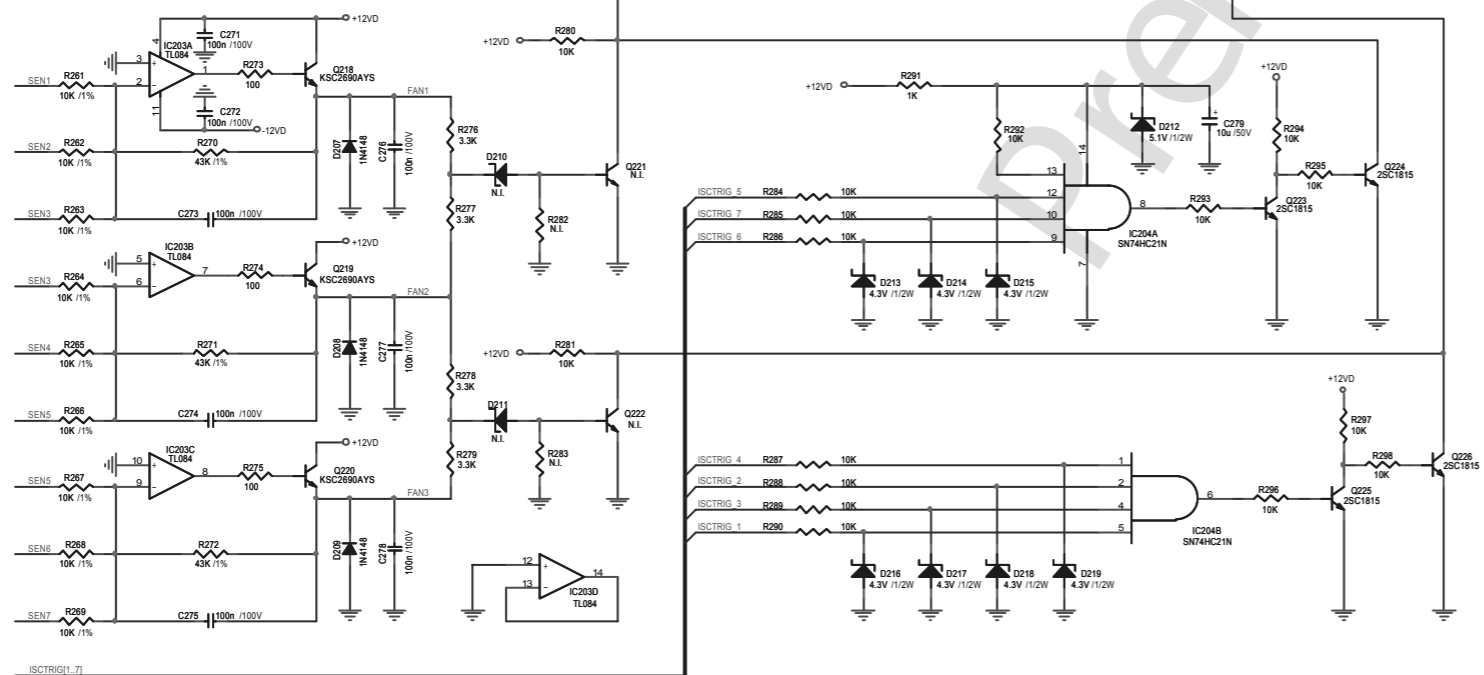
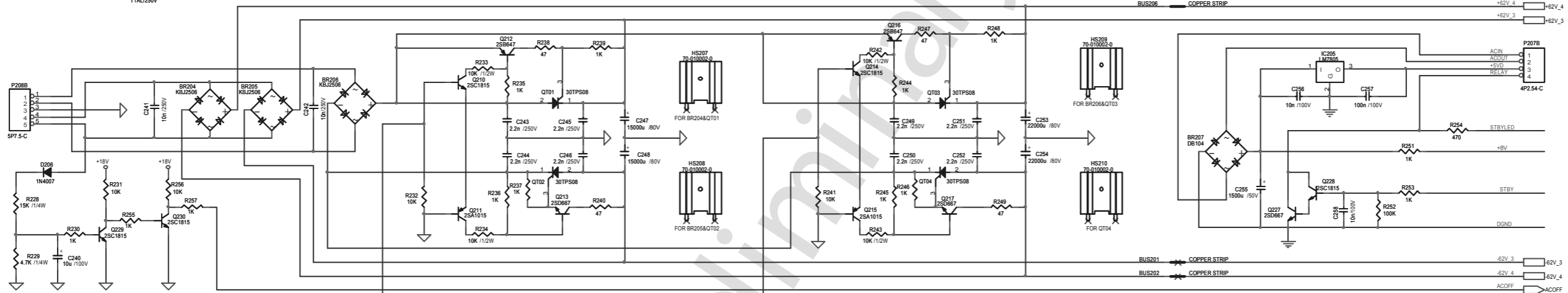
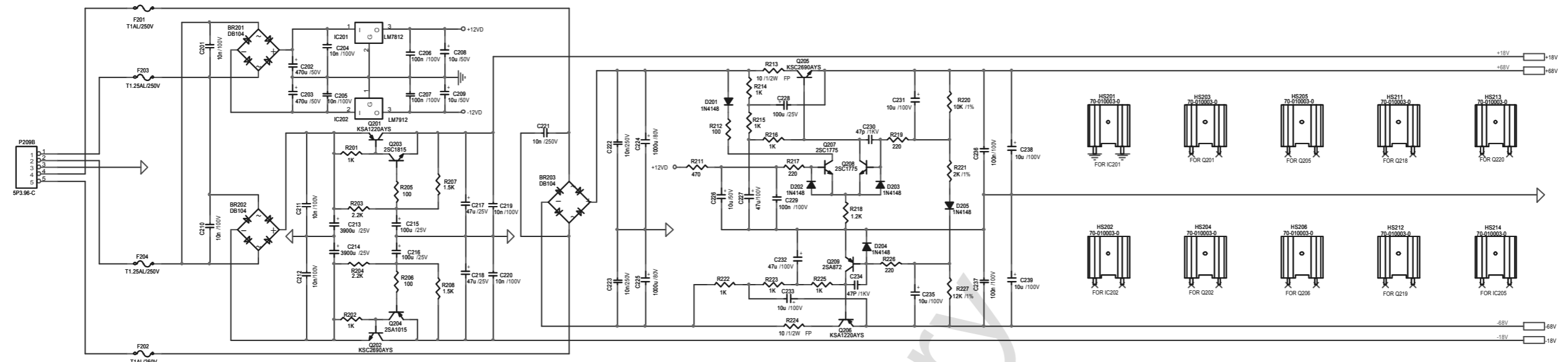


# T 973 WIRING DIAGRAM



SCHEMATIC DIAGRAM (AMP CONNECTION)

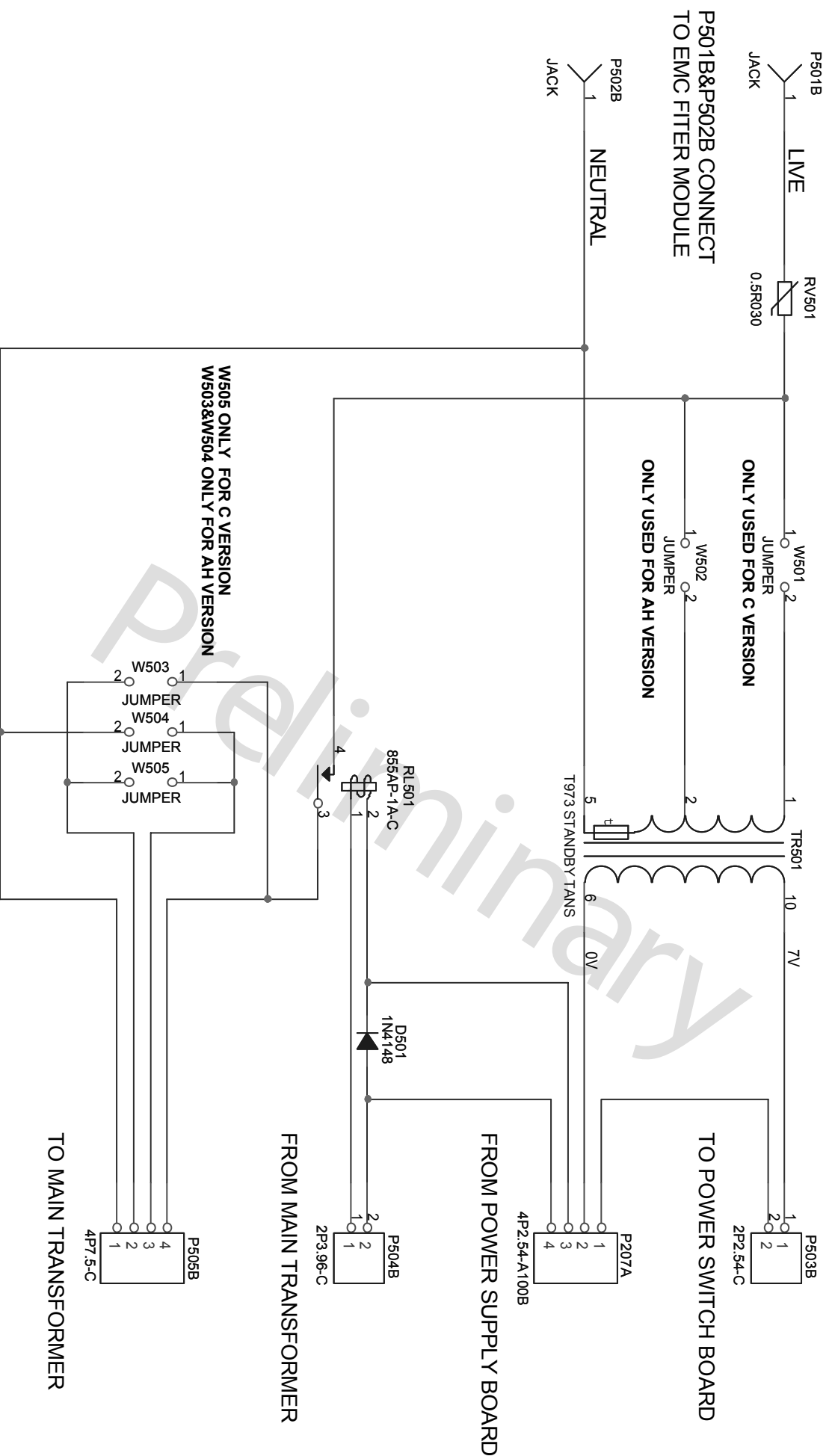




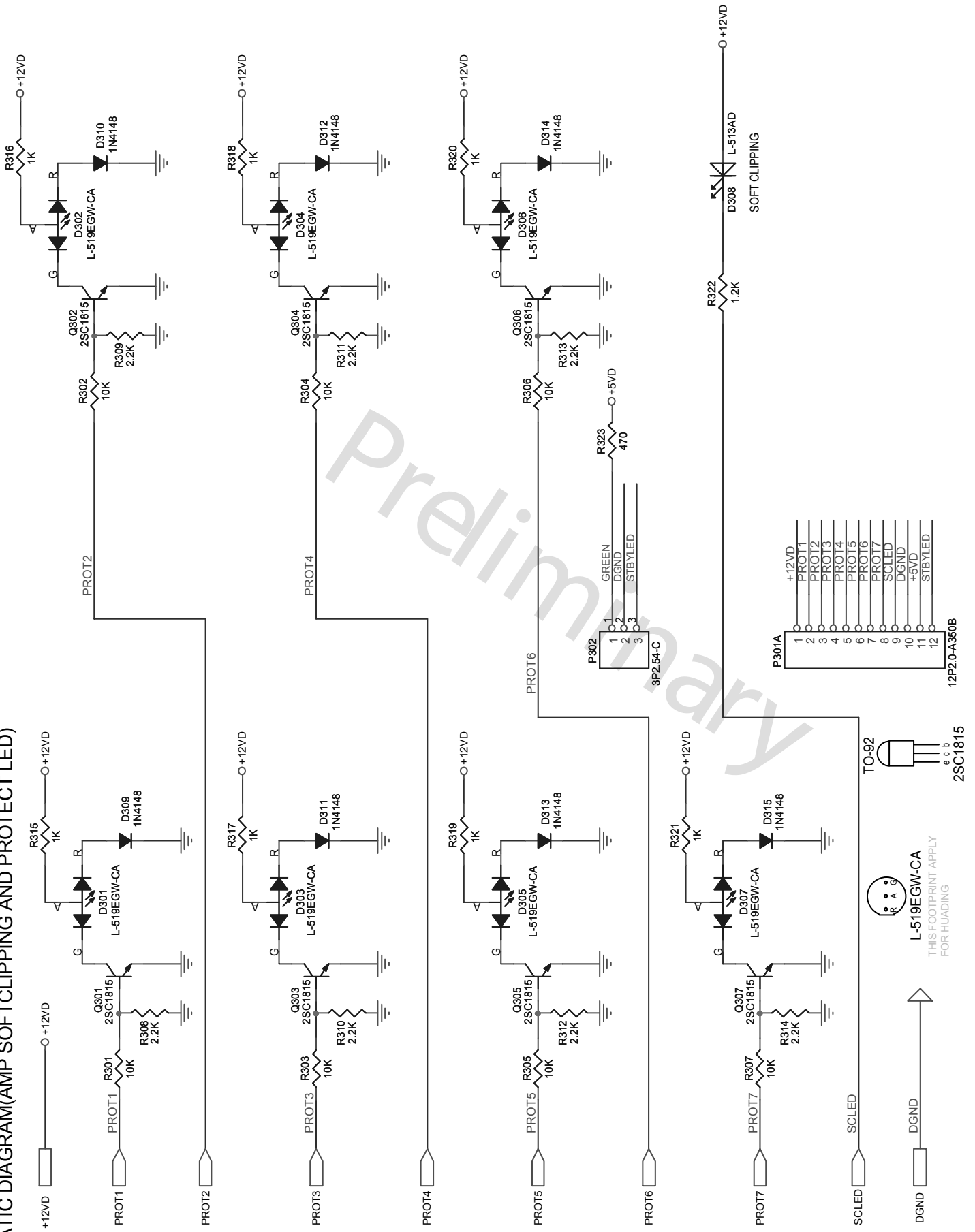
CONNECT TO PROTECT AND SOFTCLIPPING LED BOARD

CONNECT TO AMP MODULE VIA CONNECTION BOARD

# SCHEMATIC DIAGRAM (AMP STANDBY)



# SCHEMATIC DIAGRAM(AMP SOFTCLIPPING AND PROTECT LED)



**L-519EGW-CA**
  
 THIS FOOTPRINT APPLY
   
 FOR HUADING

**2SC1815**
  
 e c b

**P301A**

1	+12VD
2	PROT1
3	PROT2
4	PROT3
5	PROT4
6	PROT5
7	PROT6
8	SCLD
9	DGND
10	+5VD
11	STBYLED
12	STBYLED

12P2.0-A350B

**P302**

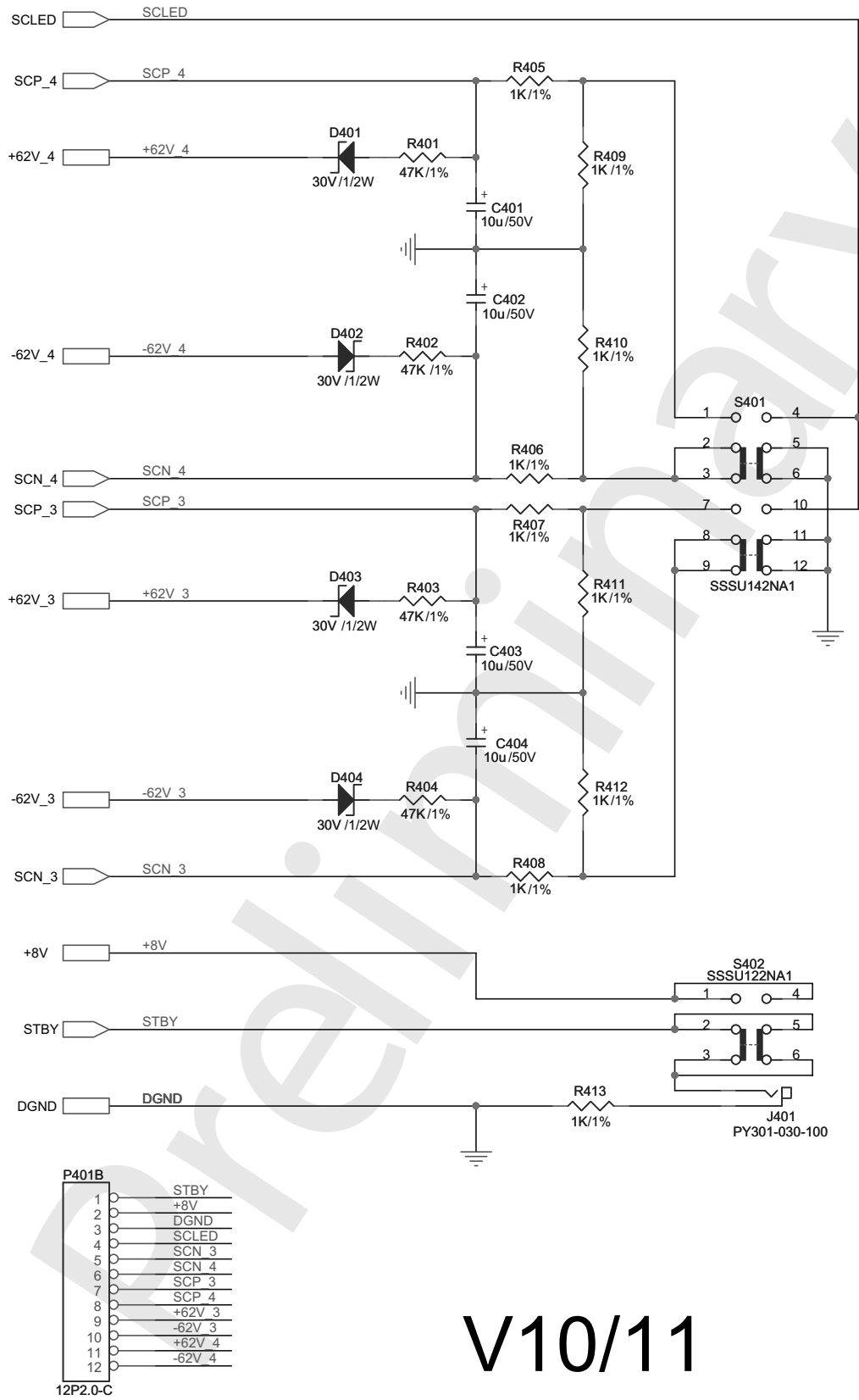
1	GREEN
2	DGND
3	STBYLED

3P2.54-C

Preliminary

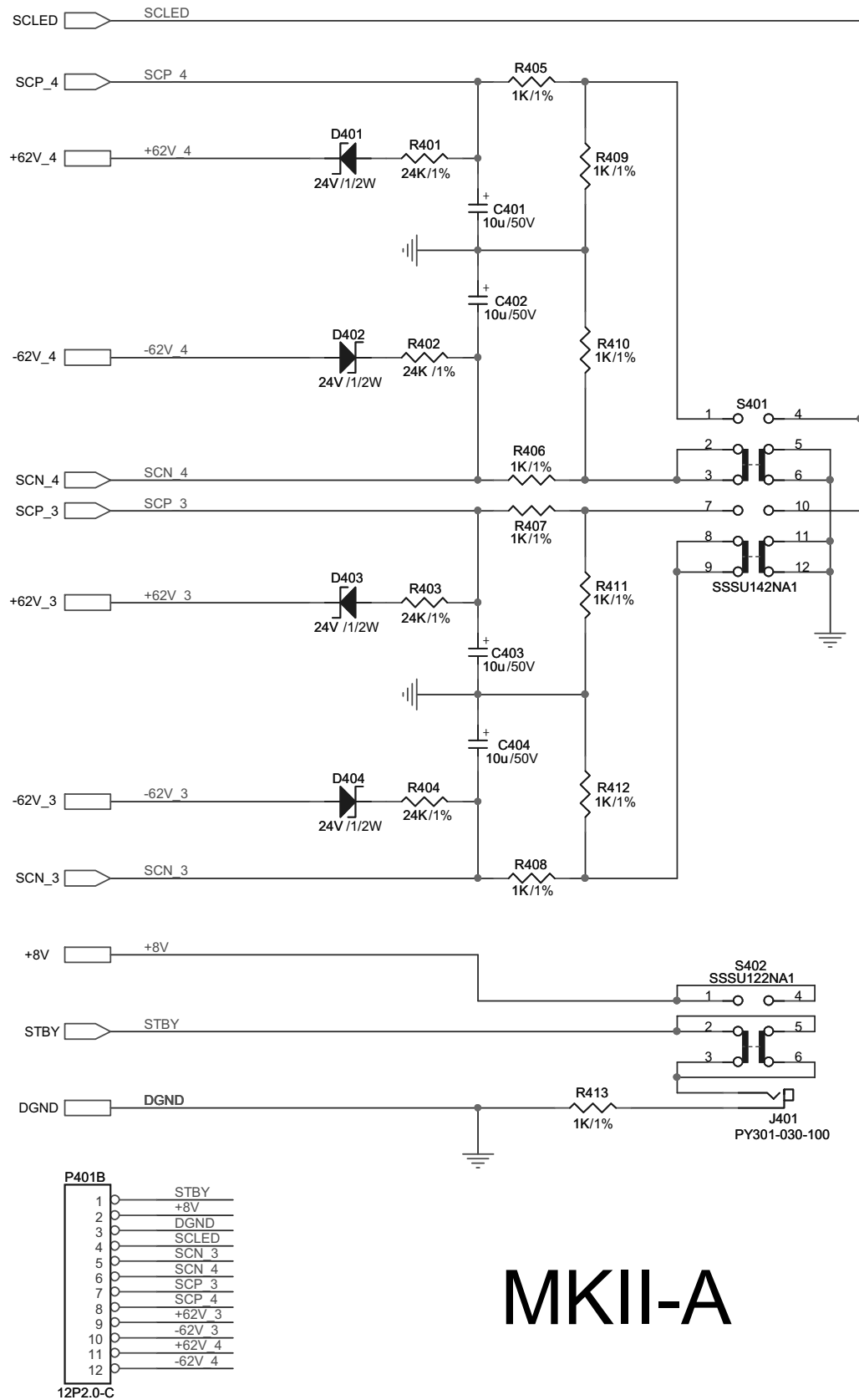


# SCHEMATIC DIAGRAM (AMP SOFTCLIPPING AND AUTO TRIGGER)



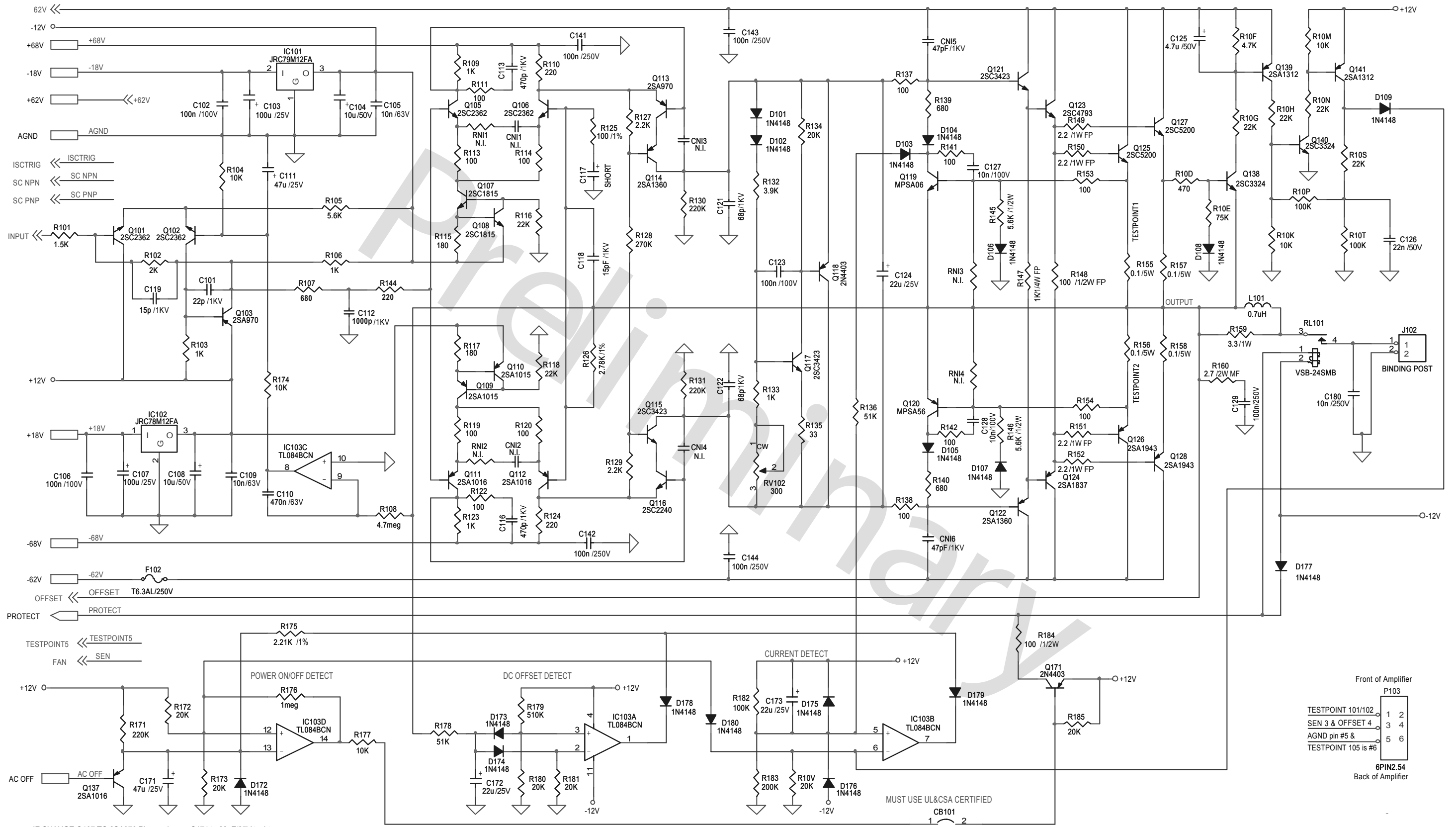
V10/11

# SCHEMATIC DIAGRAM (AMP SOFTCLIPPING AND AUTO TRIGGER)



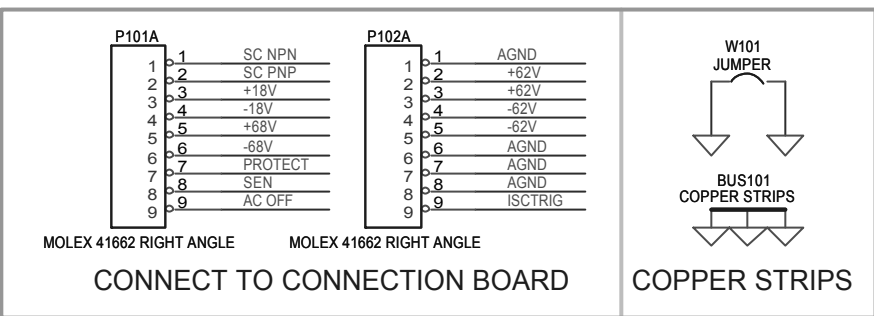
# MKII-A

# SCHEMATIC DIAGRAM (AMP 1/2)



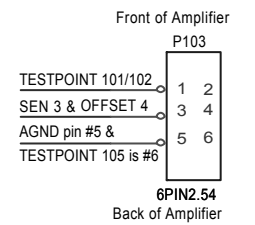
IF CHANGE Q137 TO 2SA970, Please change C171 to 22uF/25V together.

- |         |        |        |         |         |           |           |         |
|---------|--------|--------|---------|---------|-----------|-----------|---------|
|         |        |        |         |         |           |           |         |
| 2SA970  | 2N4403 | 2SK369 | 2SA1360 | 2SA1837 | JRC78M12A | JRC79M12A | 2SA1943 |
| 2SA1016 | MPSA06 |        | 2SC3423 | 2SC4793 |           |           | 2SC5200 |
| 2SC2362 |        |        |         |         |           |           |         |
| 2SA1015 |        |        |         |         |           |           |         |
| 2SC1815 |        |        |         |         |           |           |         |
| 2SC2240 |        |        |         |         |           |           |         |



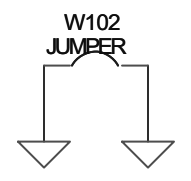
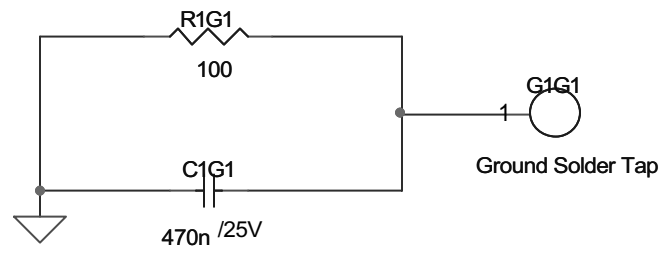
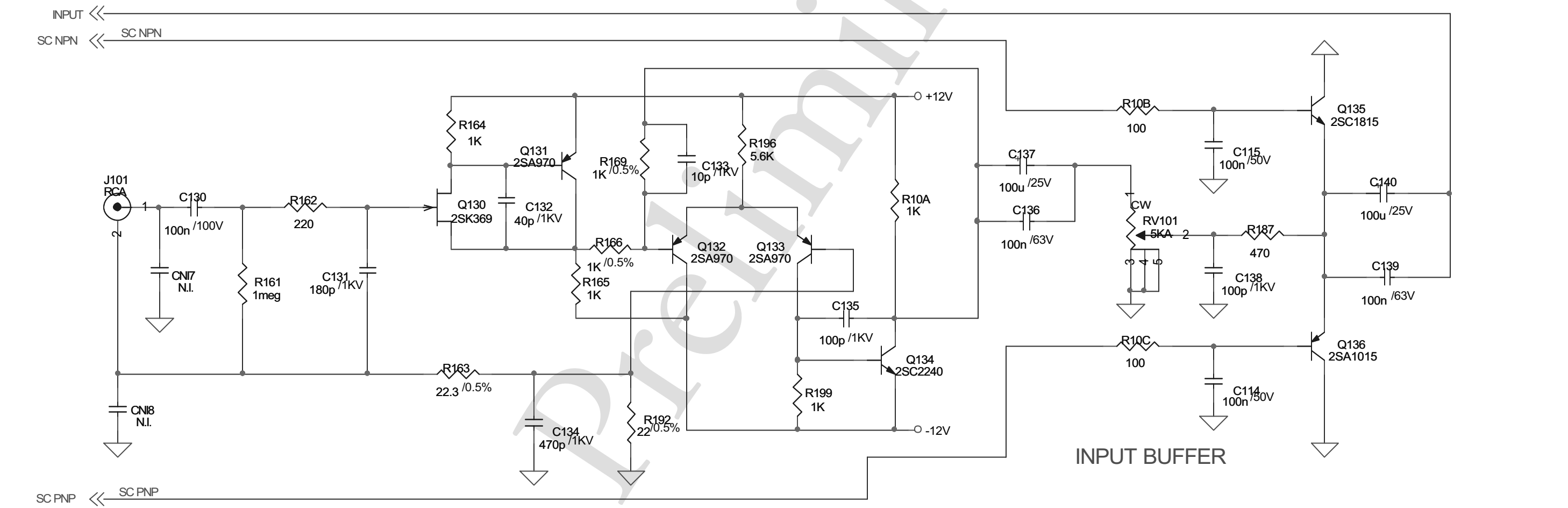
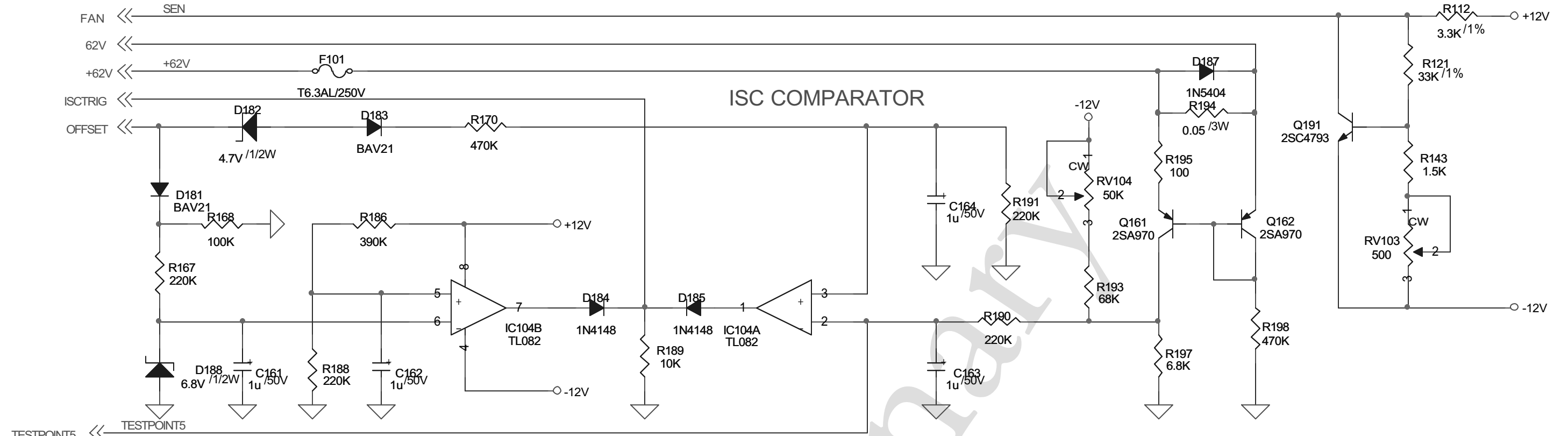
**IDLING CURRENT SETTING:**  
 ADJUST RV102 LET VOLTAGE BETWEEN TP101 AND TP102: 4mV

**RESISTORS ARE CARBON FILM 1/6W UNLESS SPECIFIED**



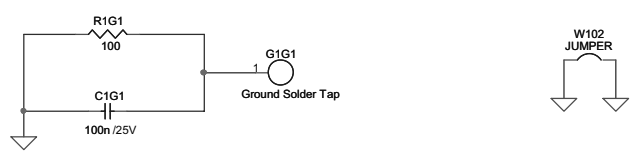
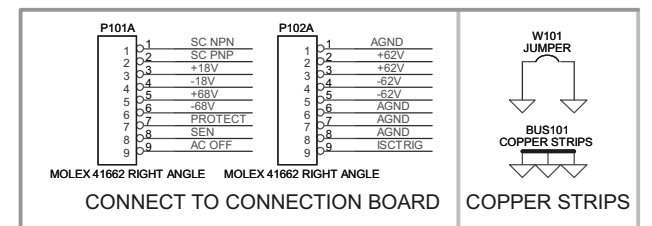
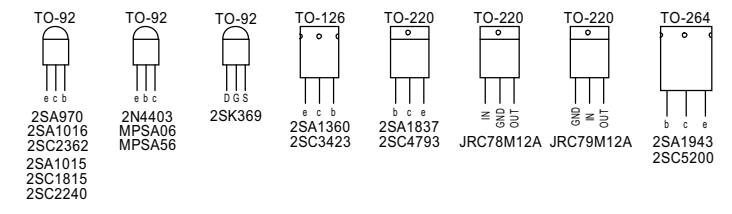
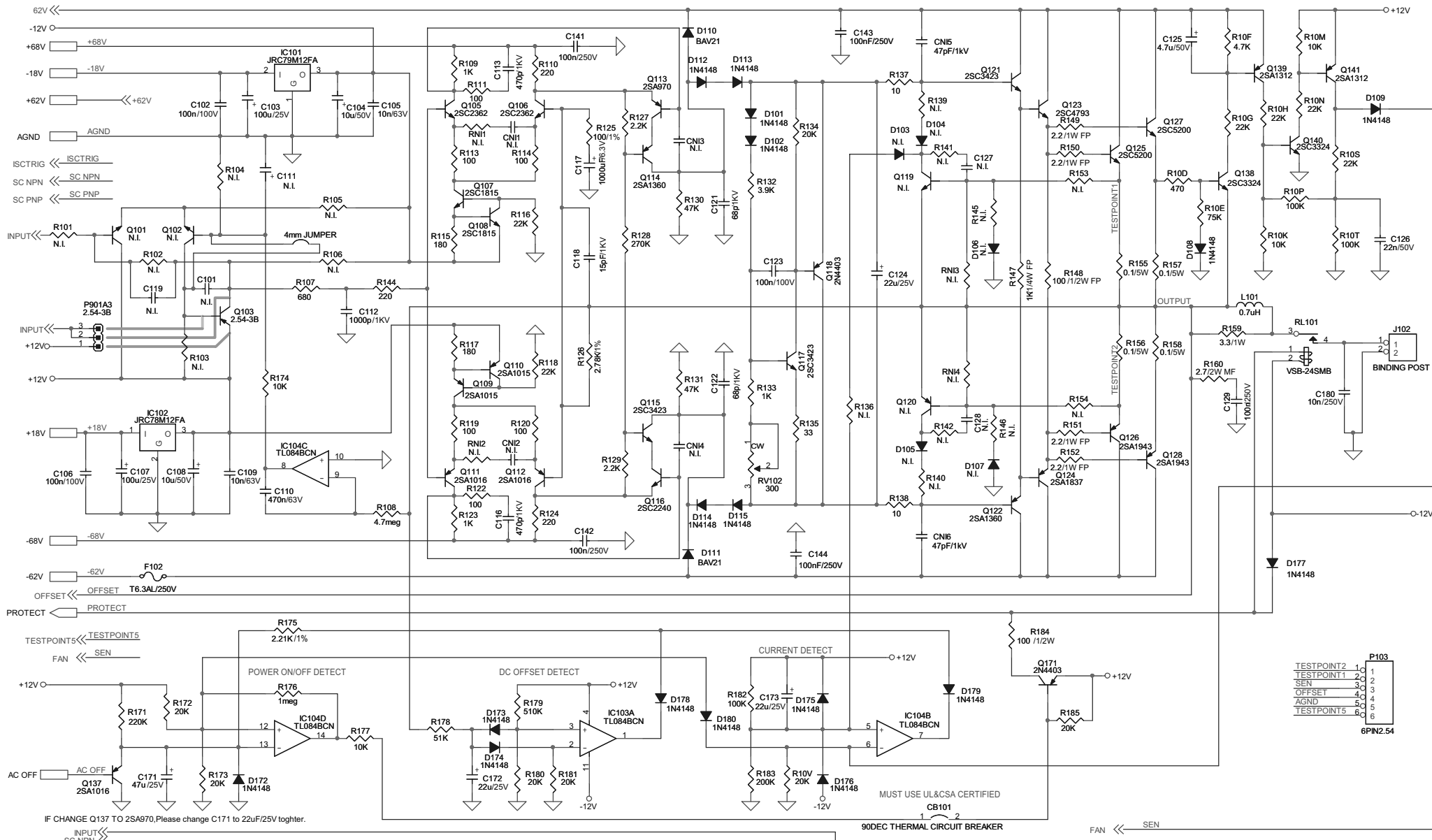
MUST USE UL&CSA CERTIFIED  
 CB101  
 90DEC THERMAL CIRCUIT BREAKER

**SCHEMATIC DIAGRAM(AMP 2/2)**



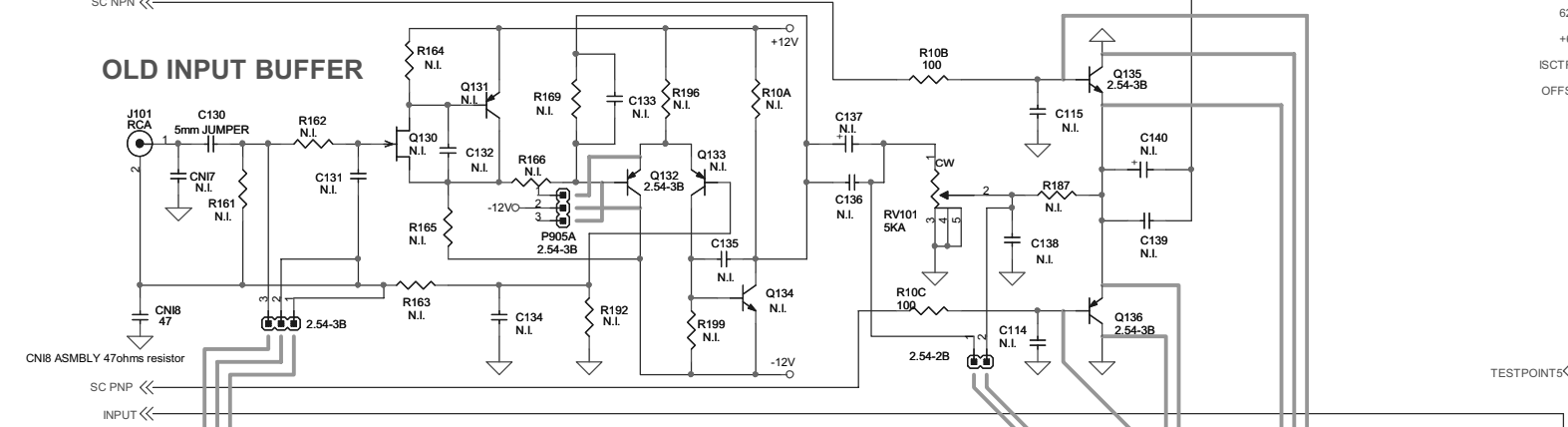
V10/11

**SCHEMATIC DIAGRAM MKII AMPLIFIER & NEW INPUT BUFFER**

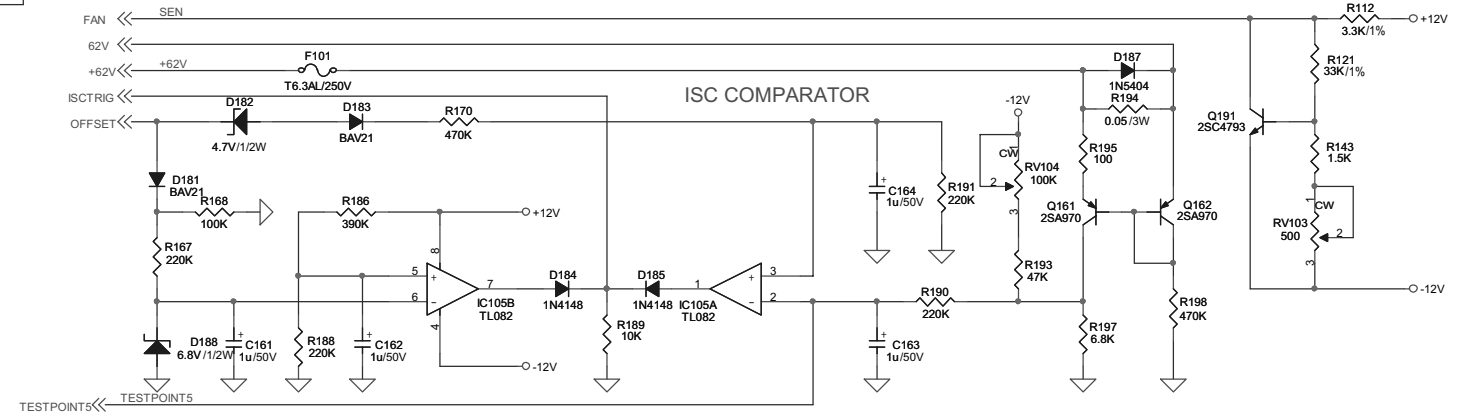
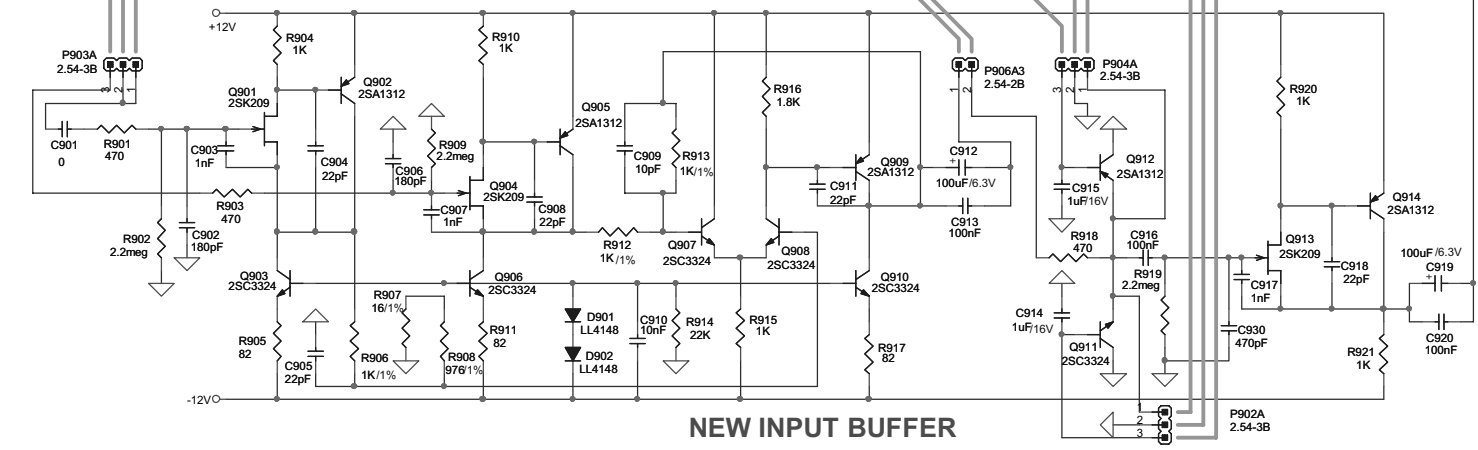


IDLING CURRENT SETTING:  
 ADJUST RV102 LET VOLTAGE BETWEEN TP101 AND TP102: 4mV  
 FAN&ISC SENSITIVITY SETTING  
 ADJUST RV103 LET VOLTAGE AT SEN PORT: +300mV  
 RESISTORS ARE CARBON FILM 1/6W UNLESS SPECIFIED

**OLD INPUT BUFFER**

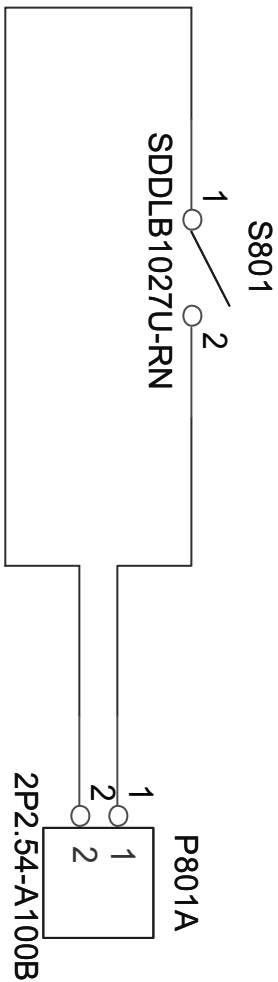


**NEW INPUT BUFFER**

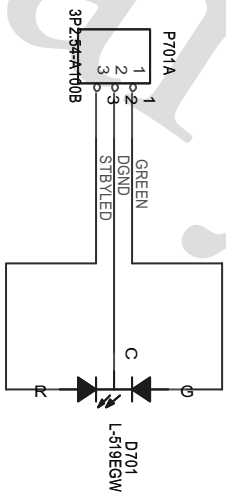


**MKII-A**

SCHEMATIC DIAGRAM (AMP POWER SWITCH)



SCHEMATIC DIAGRAM (AMP POWER LED)

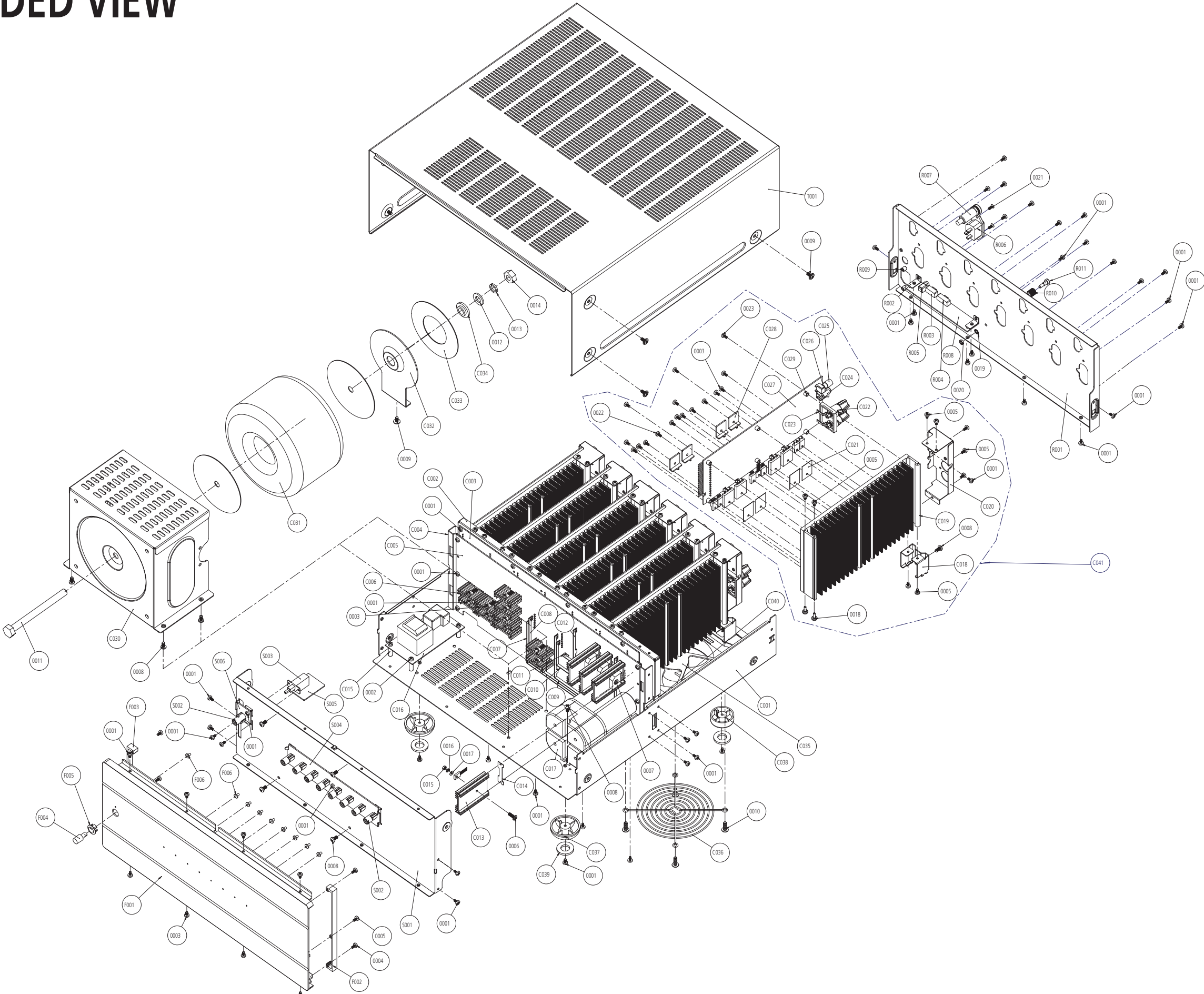


L-519EGW  
THIS FOOTPRINT APPLY  
FOR HUADING



Preliminary

# EXPLODED VIEW



## EXPLODED VIEW PARTS LIST

REF.NO	PART NO.	DESCRIPTION	Qty.	REF.NO	PART NO.	DESCRIPTION	Qty.
C001	66-010001-0	Chassis	1	F005	77-001007-1	Power Button Bezel	1
C002	66-010006-0	Bracket 1	1	F006	76-003001-0	LED Lens	9
C003	01-97306-00	Assembled Connection PCB	1				
C004	66-010008-0	Bracket 3	2	T001	66-010002-0	Top Cover	1
C005	01-97302-00	Assembled PSU PCB	1				
C006	70-010003-0	Heatsink 3	10	S001	66-010003-1	Subfacia	1
C007	69-010008-0	Bus Bar 206	1	S002	75-005001-0	LED Sleeve	9
C008	69-010007-0	Bus Bar 205	1	S003	11-01101-20	Power Switch	1
C009	69-010005-0	Bus Bar 203	1	S004	01-97303-00	Assembled Protect Softclipping Board	1
C010	69-010006-0	Bus Bar 204	1	S005	01-97308-00	Assembled Power Switch Board	1
C011	69-006001-0	Bus Bar 201	1	S006	01-97307-00	Assembled Power LED Board	1
C012	69-010004-0	Bus Bar 202	1				
C013	70-010002-0	Heatsink 2	4	R001	67-010001-0	Rear Panel (C Version) or	1
C014	75-010002-0	Cushion	4		67-010006-0	Rear Panel (AH Version)	1
C015	68-010001-0	Spacer Support (1)	5	R002	66-010010-0	Bracket 6	2
C016	01-97305-01	Assembled Standby PCB	1	R003	11-05202-10	Switch (S402)	1
C017	75-010001-0	Capacitor Holder	1	R004	11-05402-00	Switch (S401)	1
C018	66-010007-0	Bracket 2	7	R005	17-07001-00	12V Trigger In Jack	1
C019	70-010001-1	Heatsink 1	7	R006	17-07003-01	AC Inlets	1
C020	67-010002-2	Bracket 4	7	R007	20-20000-06	Fuse Holder	1
C021	78-005005-0	Insulated Cushion	4	R008	01-97304-00	Assembled Trigger PCB	1
C022	71-001001-0	Binding Post	7	R009	68-010002-0	Spacer Support (2)	2
C023	69-010003-0	Pin	7	R010	71-003002-0	Grd. Post Cap	1
C024	17-01001-10	RCA	7	R011	71-010001-0	Grd. Post Bolt	1
C025	73-010001-0	Rotate Knob	7				
C026	09-01502-00	Pot	7	0001	61-023106-0	Self Screw STB3X6	68
C027	01-97301-00	Assembled AMP Module PCB	7	0002	61-023506-0	Machine Screw MB3X6	5
C028	66-005009-0	TR Clamper	4	0003	61-023108-0	Self Screw STB3X8	63
C029	85-010001-0	Spacer Support	42	0004	61-033106-0	Self Screw STP3×6	4
C030	66-010005-0	Transformer Bracket	1	0005	61-023208-0	Self Screw BTB3X8	63
C031	18-97132-00	Transformer (Toroid) or	1	0006	61-083512-0	Machine Screw MPW3X12	1
	18-97132-01	Transformer (Gloria)	1	0007	61-083518-0	Machine Screw MPW3X18	3
C032	66-010004-0	Metal Disc	1	0008	61-024108-0	Self Screw STB4X8	10
C033	94-010001-0	Transformer (Toroid) Label or	1	0009	61-084108-0	Self Screw STPW4X8	7
	94-010005-0	Transformer (Gloria) Label		0010	61-045215-0	Self Screw TB5X15	12
C034	75-010003-0	Insulated Cell	1	0011	64-110110-0	Bolt M10X110	1
C035	35-01212-00	Fan	3	0012	63-011020-0	Washer, GB97.1-85, Φ10	1
C036	68-010003-0	Fan Cover	3	0013	63-021030-0	Spring Washer 10 GB93-87	1
C037	75-010004-1	Foot (Big)	2	0014	62-011002-0	Nut, M10 GB6170-86	1
C038	75-001008-0	Foot (Small)	2	0015	62-010302-0	Nut, M3, GB6170-86	4
C039	79-008001-0	Foot Pad	4	0016	63-020308-0	Spring Washer, 3mm	4
C040	66-010009-0	Bracket 5	1	0017	63-010303-0	Washer, 3mm	4
C041	01-97301-10	Assembled AMP Module	7	0018	61-013206-0	Bolt	14
				0019	63-030410-0	Serrated Lock Washer	2
F001	67-010003-0	Fascia	1	0020	62-010402-0	Nut M4 GB6170-86	1
F002	67-010005-0	End Cap (R)	1	0021	61-063108-0	STF3X8	2
F003	67-010004-0	End Cap (L)	1	0022	61-223514-0	Machine Screw MB3X14	28
F004	77-009003-1	Power Button	1	0023	61-023215-0	Self Taping Screw BTB3X15	42