

Nr	Device or Taks	What to do	MODS - to do	where to find
1	24 V 4Ampere PSU	Check Ripple and real Earth GND 18Volt minimum decoupling caps	add some Caps for less ripple, maybe CRC filtering	#112 page 11 #143 page 15
			Those capacitors used in my FX502SPRO amp are 35V caps except the 6 analog input DC blocking caps are 10V caps. So I will say the maximum DC input is 32V DC. Under the 10% safety factor, $35 \times 0.9 = 31.5V$ DC.  I will read the LM317 set to 24V DC output for the OpAmp is a safeguard when it is higher than 24V DC power supply input. For example, 27V DC input will burn out an AD8610 if no the 24V DC limit, because the OpAmp is $\pm 13V$ DC or 26V DC input voltage.  I am no concern of under voltage on the LM317 if it uses quality power supply.  If using <b>32V DC power supply</b> for the FX amp, I am only concern the over heat problem. It is because the aluminum case is a no airflow holes enclosure.	page 22 #220
2	Voltage regulator	LM317M to provide 24V, rest of voltage reg. are always powered (LM2596HVS 12V, AMS1117 3.3V)		#100 page 10
			The mods I've found making a difference so far as PSU-related. Looks like the FX502 has a buck regulator (the Spin device) which will generate plenty of noise. Hence filtering out its noise pays dividends in SQ. I also just found out that more decoupling on the TPA's analog regulator output (pin14) improves dynamics and transparency. I started off with 470uF (put in parallel with the 1uF the application shows) and I've since moved up to 1800uF.	#116 page 12
			provide 3.3V for 8bit MCU ST S003F3P6 (datasheet 100mA) ~ total max approx 0.16A <b>LDO LM317 ~ 7V drop gives 1.2W heat.</b>	#222 page 23
3	pre amp NE5532	input is 775mV	clipping ?	
4	NE5532 replacement	change OPAMP	OPA1602	#41 page 5
		change OPAMP	1642 with DIP8 to SOIC adapter	#43 page 5 <a href="https://tangentsoft.net/audio/opamps.html">https://tangentsoft.net/audio/opamps.html</a>
		change OPAMP	LME49720 (\$11) metal can LME49720HA (TO-99) LME49860 LM4562NA The 4562 is the 49720. And the 49860 is the same chip, but binned for low leakage and rated for 44V rail-to-rail operation. That's it.	#99 page 10 #154 page16 #123 - #124 page 13 #159 page16
		change OPAMP	change opamp OPA2134 vs NE5532	#120 page12 #122 page 13
5	Aircolis	measure the interference on coils	shielding the air coils - mumetal cases	#143 page 15
6	error /protection LED	check the exact behave		
7	Mono Mode	How is this to configure?		#60 page 6
8	24V SMPS cap check	is it rated for 25V? TPA3250 is 25V !		#69 page7
9	SE mode, balanced inputs	3-e board has provisions for SE and balanced connection, and balanced is the way to go...	SE mode possible?	#103 page 11
10	Potentiometer for volume	smaller steps for volume control	change to ALPs Poti or similar	#197 page 20
11	Catching diodes	change to shottky diodes		<a href="http://www.diyaudio.com/forums/class-d/319909-running-load-2.html">http://www.diyaudio.com/forums/class-d/319909-running-load-2.html</a> page 2 #15