

Marantz CD670SE modifications

Power supply

Part:	Org. value:	Replace by:	Brand:	Farnell:	Remark:
C803/804	470u/35V	6800u/35V	Panasonic		+100n PPS
C805/806	470u/16V	2200u/25V	Elna RSH		+100n X7R
C813	4700u/16V	4700u/16V	Elna RSH		+100n PPS
C815	3300u/6,3V	4700u/16V	Elna RSH		+100n X7R
D801...804	S5688G	11DQ10	IR		schottky
D811/812	S5688G	11DQ10	IR		schottky
DN01/02	S5688G	11DQ10	IR		schottky
Q801/802	78M12/79M12	LM317/LM337	* see below		
Q811	7805	LM340AT-5,0	NSC	412-703	
Q871	7805	LM340AT-5,0	NSC	412-703	

HDAM & OPAMPS (Q605/606)

C611...614	100u/25V	leave in place	Elna Cerafine!		+100n PPS
C651...654 #	470u/16V	470u/35V	Elna RSH		+100n PPS
C655...658	220u/16V	(wire jumper)	Elna Silmic!		measure offset first!
C659/660	100p	remove			
R613...616	27R	1mH/14R	Siemens	608-609	
R651...654 #	27R	1mH/14R	Siemens	608-609	# optional, see below
R655/656	10k	remove			
R657/658	100R	wire jumper			
R659/660	100R	47R			
Q605/606 **	NJM2114D	AD827/LM6172/LT1361....		experiment!	** see below
- insert extra 220n/PPS between pins 4 and 8			Panasonic	383-5492	SMD

OUTPUT FILTER

C601...604	120p	120p/1%	Mica	867-901	
C605/606	1000p	470p/1% PS	Styroflex	304-0021	Bessel filter
C607/608	100p	100p/1% PS	Styroflex	303-9894	
CD21...24	120p	120p/1%	Mica	867-901	
R601...604	27k	26k7/0,1%	Welwyn	340-546	
R607/608	18k	18k2/0,1%	Welwyn	340-388	
R609/610	22k	22k1/0,1%	Welwyn	340-467	
R605/606/611/612	10k	10k/0,1%	Welwyn	340-133	
RD21...28	10k	10k/0,1%	Welwyn	340-133	

DAC (QD01, SM5872BS)

CD04	220u/10V	220u/35V	Elna RSH		+100n PPS
CD05	47n cer.	100n PPS	Panasonic	383-5418	
CD06	47n cer.	100n PPS	Panasonic	383-5418	SMD
CD07	220u/10V	220u/35V	Elna RSH		+100n PPS
CD12/13	47n cer.	100n PPS	Panasonic	383-5418	SMD
CD15/16	470u/10V	470u/35V	Elna RSH		
RD01/04	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites

Decoder (Q102, SAA7372GP)

C108	100n cer.	100n MKP			
C109	22n cer.	22n MKP			
C114/120	47u/16V	100u/16V	Elna RSH		
C115...119	47n cer.	100n PPS	Panasonic	383-5418	SMD
C125	1n cer.	1n MKP			
R117/118	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites

Drivers (Q106/107/108, TDA7073A)

C156	47u/16V	100u/16V	Elna RSH		
C132/157/159	47n cer.	100n X7R	Siemens		

- on bottom-side, directly between pin 5 and ground.

µCONTROLLER (QF01, MN187164)

CF02	47u/16V	remove			
CF01	47n cer.	100u/16V	Elna RSH		+100n X7R
RF01	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites
RY11	4,7R	470uH/2,5R.	Siemens	517-070	+2 ferrites

+100n X7R

SERVO PCB

C126	47u/16V	100u/16V	Elna RSH		+100n X7R
------	---------	----------	----------	--	-----------

MORE MOD'S...

- Disable headphone circuit: remove C901/902 (signal) and jumpers U139/140 (+/- 12V)
- Disable muting circuit: remove QN05...08, QN24/25/91/92 and RN27/28 (disables analog -12V to muting circuit).
- Drive new muting relays: replace RN30/31 with 2k2, tap power from collector of QN02 (approx. 12V=), jumper base and collector pins of QN24/25 and use muting-lines to drive BC547's with relays.
- Replace clock by special low jitter clock module and connect to pin 28 of DAC.
- Insert separate 5V voltage regulators (LM317 based) for analog and digital VDD pins of DAC and clock circuit. Remove U203 and replace RD04 and CD07 to obtain separate connection for analog +5V of DAC.
- Replace fixed powerchord by IEC socket and connect ground wire to chassis at the output socket. Use high quality steel braid shielded power cable to connect player to mains.
- Place varistor S20K250 directly on mains pins of IEC socket or on mains terminals on PCB.
- Insert common-mode filter (Farnell 353-2331). Remove U243/245 and insert filter instead. Place two class X or Y capacitors 4,7n/250Vac across mains before and after filter.

REMARKS

- * replace Q801/802 with LM317/337 on small PCB's. Use experimentingboard or PCB's found at <http://eddie.dyec.com.tw/diy-products/vrm/vrm.htm> for example. Fit LM337's by carefully cross-bending the input and output pins and reversing the diodes and caps. Use tantalum decoupling caps.
- ** for best results: use single opamps, each fit for their task. Example: OPA602 + THS4011 or AD8610 + AD8510 for post-DAC + filter on SMD adapters (BrownDog or eq.). Experiment and listen!
- # the HDAM-circuit looks nice, but when moving up to better opamps and interconnects this circuit starts to interfere and degrades sound quality. To disable HDAM: remove R651...654 (+/- 12V), R617/618 and RH23/24. Insert wire jumper at R619/620.

A lot of information and tips came from various articles and forums I found on the internet:

- many thanks to Thorsten Loesch for his article at <http://www.tnt-audio.com/clinica/cd67.html>
- and credits to the members of diyAudio.com that contributed through the forum, although they are probably not aware of that (they'll know who they are if they recognize their idea here...).

22-03-2005, data collected by R.A. van der Steen