NOTES & ERRATA FOR PROJECTS PUBLISHED IN SILICON CHIP (2002)

Ultra-LD 2 x 100W Stereo Amplifier, November & December 2001, January 2002: In the "Switching On The First Time" section (pages 71 & 72) of the third part of the series, a step-by-step procedure was presented for connection and testing of the various components of the system. A slight error in the sequence prevents the DC fault protection test from operating successfully.

As described in the second paragraph of "STEP 9", 2 x 1.5V cells are used to test the operation of the DC fault protection circuitry on the Loudspeaker Protection module. However, the negative speaker lead from the amplifier must remain connected to the Loudspeaker Protection module during the test.

Without this connection, there is no earth return path back to the power supply, so the protection circuit will be inoperative.

Note that it is still important to disconnect the positive lead from the amplifier during this test. As one hapless constructor discovered, if the positive lead is left connected and power is accidentally left on, connecting the battery will instantly destroy one or more of the amplifier's output transistors, along with their associated emitter resistors! (04/07)

Motorbike Alarm, January 2002: The Veroboard layout shown on page 56 contains a number of errors. The correct layouts for both the copper pattern and the parts overlay are shown in the February 2002 issue. The microprocessor is no longer available from the Queensland address given on page 56. Visit **http://users.tpg.com.au/micwen/bikealarm**

Touch/Infrared Light Dimmer, January & February 2002: The circuit diagram (Fig.3) should show the .01µF capacitor and 1MΩ resistor connected to pin 6 (RB0 input) of IC1 and not to the A2 terminal of TRIAC1. The PC board pattern and overlay diagram are correct. (08/02)

Solar Power Battery Charger, March 2002: (1) The MJE2955 labelling for Q2 and Q3 on the overlay diagram on page 85 should be MTP2955. (Note that an MTP2955 is a P-channel Mosfet while a MJE2955 is a bipolar power transistor.) The circuit and parts list are correct. Note also that IC1 is specified in the parts list as a 4011. It should be a 4093 quad NAND Schmitt gate package. (04/02)

(2) The PC board component overlay on page 85 shows diodes D1 & D2 mounted with metal sides down. They should be mounted metal side up, the same as the Mosfets. (05/03)

Mighty Midget 50W Module, March 2002: (1) The list of parts for the capacitors should be as follows: 2 4700µF 16VW, 1 2200µF 16VW, 2 0.22µF MKT, 4 0.1µF MKT. (05/02)

(2) This amplifier is very sensitive to dips in the supply voltage and will mute if it goes below about 7V. This may not seem likely but peak currents can be as high as 9A and with thin supply cables, the amplifier will repeatedly mute which can sound like motor-boating. The cure is to use heavy-duty cable. We suggest 4mm auto cable as a minimum. (06/02)

RIAA Preamplifier, March 2002: The 10µF across the ±15V rails should be 35V not 16V. (03/03)

6-Channel IR Remote Volume Control, March & April 2002: The 33Ω 5W resistor in the power supply should be 330Ω 5W. This can be seen in photos on page 64 of the March issue and page 72 of the April issue. (06/02)

Stepper Motor Controller, May 2002: On the circuit diagram on page 77 most of the earth symbols and one resistor failed to print. The "hole" alongside VR1, labelled 10kΩ, should have a resistor occupying it, while all nine of the vertical lines which end with nothing should go to earth (GND). (06/02)

Battery Guardian, May 2002: The PC board number should be 05105021. (07/02)

Rolling Code 4-Channel UHF Remote Control, July 2002: (1) The circuit on page 20 has the Set and Reset labelling on the four flipflops swapped over, ie, pin 6 on IC1a should be Set (S) and pin 4 should be Reset (R). (09/02)

(2) The circuit diagram on page 20 is incorrect. On the PC board overlay diagram, the collectors of all four transistors (Q1-Q4) connect first to 2.2kΩ resistors, then to their respective LEDs. However, the resistors and LEDs are swapped on the circuit diagram. (12/02)

Digital Thermometer/Thermostat, August 2002: The display reading and the thermostat trip point can be affected by RF signals produced by portable and mobile telephones. This problem can be cured with the addition of four 0.1µF ceramic capacitors and a 1kΩ resistor. The 1kΩ resistor is placed in series with the probe input connecting to pin 3 of IC1 while one 0.1µF capacitor connects between pin 3 and pin 4 of IC1. The second 0.1µF capacitor connects between pin 3 of IC1 and ground which is the thicker PC track adjacent to the 10µF capacitor to the left of IC1. The third 0.1µF capacitor connects between pins 2 and 3 of IC1. The 0.1µF MKT polyester capacitor connecting between pins 6 and 2 of IC1 (located to the right of IC1 on the PC board) is removed. The fourth 0.1µF ceramic capacitor connects between pins 2 and 3 of IC2. To provide for these changes, we have modified the PC board. The modified PC board is coded 04208022 and is available at **www.siliconchip.com.au** (10/02)

Digital Storage Logic Probe, August 2002: The outputs of the 4N25 optocouplers on the circuit on page 24 should be pins 4 & 5, not 5 & 6. The PC board diagrams are correct in this regard. (10/02)

40W Fluorescent Inverter, September 2002: Mosfets Q1 & Q2 have been found to be prone to overheating when the PC board is placed within the confines of a slimline 36W fluorescent tube batten. To correct this, the inverter has been altered to improve efficiency without reducing the lamp brightness. Changes include reducing the 334V DC supply to 280V and winding transformer T1 differently. The voltage change requires replacing one of the 270kΩ resistors leading to pin 1 of IC1 with a 180kΩ resistor. The changes to T1 involve using 130 turns on the secondary. For the primary use figure-8 7.5A wire with a polarity stripe. Insert the one end of the figure-8 wire in the S1 & F1 holes nearest to Q2 and wind on five turns, starting up through the centre of the core and anti-clockwise toward S2 & F2. Insert the wire ends into S2 & F2 with continuity (same wire) between S1 and S2 and the second wire between F1 and F2. This means that if the polarity stripe on the figure-8 wire is at S1 it then it terminates into S2. Set the current drain from the battery at 3A (300mV across the 0.1Ω resistor used in the current measurement setup in Fig.8. As noted in December 2002, it is recommended that the maximum current delivered to the fluorescent tube be adjusted using a trimpot. The 100kΩ resistor connecting between pin 2 of IC3 and the top of the dimming potentiometer (VR1) should be replaced with a 50kΩ trimpot and series 82kΩ resistor. The 1.2Ω resistor between the source of Q4 and ground should be changed to 2.2Ω to allow the full dimming range available from VR1. Using the current measuring setup of Fig.8, the trimpot should be adjusted for the 300mV corresponding to 3A when the dimming pot (VR1) is turned fully clockwise. Note that this adjustment should be made after the inverter has been running for some time and is fully warmed up. Once adjusted, the trimpot and 82kΩ resistor can be swapped for a single resistor that is the same value as the total series combination. When testing the current (using the setup of Fig.8), it is important not to have the 0.1Ω 5W resistor in series with the supply for any appreciable length of time as the current drain will begin to increase. To prevent this, short out the 0.1Ω resistor (with a clip lead) when not making the measurement. Remove the clip lead briefly to make the current measurement. In addition, use heavy gauge wire rated at 7.5A or more to connect the inverter to the 12V battery. It is recommended that the inverter not be used while the battery is being charged from a high current charger such as an automotive alternator or mains-powered unit. If the inverter Mosfets still run excessively hot it is recommended to reduce the current drain to 2.5A (250mV across the 0.1Ω resistor) which will reduce the lamp brightness slightly. With slimline batten holders, ventilation can be improved by drilling some holes in the side of the batten adjacent to the Q1 and Q2 heatsinks and some extra holes at the other end of the batten to allow air flow. The lower cost MTP3055E Mosfets can be substituted for the STP60NE06 devices used for Q1 and Q2. The Dick Smith Electronics D-5375 ferrite core is also suitable for L2 and requires 100 turns of wire (50 turns on each half) instead of the 84 total shown in Fig.6. (supersedes Errata published in December 2002)

50W DC Electronic Load, September 2002: The circuit diagram (Fig.2) shows the input pin numbers for IC1b in reverse. The non-inverting input should be pin 5 and the inverting input pin 6. (09/04)

Speed Controller For Universal Motors, October 2002: (1) The PC board wiring diagram on page 17 shows a 100nF capacitor next to diode D2. This should be 47nF, to agree with the circuit on page 17 and the parts list. (11/02)

(2) Note also that the pinout diagram for the MCR100 on the circuit is wrong with regard to the Anode and Gate pins. The gate is the centre pin of the package as it is with the C103B however the A and K pins are swapped. (12/02)

(3) Fig.4, the overlay diagram on page 17 shows the device installed SCR1 as an MCR100. If you fit a C103B, remember to reverse the device so that the flat on the package faces down, ie, towards the edge of the PC board. (02/03)

(4) The PC board diagram on page 17 shows a 5404 fitted as D3. This should be a 6A diode such as R250H or PX6007. (05/03)

Whistle & Point Cable Tracer, October 2002: The pinout diagram for the C8050 package (circuit diagram, page 54) is incorrect. The C8050 collector & emitter pins are reversed with respect to common general-purpose TO-92 transistors like the BC549. (12/02)

AVR ISP Serial Programmer, October 2002: There is an error on the circuit on page 75. Pins 1 & 4 have been swapped on CON3. The PC board is correct. (04/03)

Supercharger For NiCd & NiMH Batteries, November & December 2002: (1) See two-page Addendum in March 2003 to ensure correct operation under all conditions. (03/03)

(2) With some 16VAC plugpacks, a high mains voltage condition may cause the transient voltage suppressor (TVS1) to conduct, blowing the fuse. To prevent this occurring, replace the SMCJ24A with the higher voltage SMCJ30A (Farnell Cat. 421-3580). Also, reduce the value of R19 from 9.1kΩ to 2.7kΩ and R20 from 1.3kΩ to 300Ω. A microcontroller firmware upgrade is necessary to accommodate these changes. An updated version (V1.1) is available from **www.siliconchip.com.au** Also, when charging six 1600-1800mAh cells in high ambient temperatures, the unit may overheat. The component most at risk is bridge rectifier (BR1). To reduce the temperature of the bridge, replace the KBL404 device with a GBU4D (Farnell Cat. 330-7256). The GBU4D has a hole in the centre that allows attachment of a small "micro U" style heatsink (eg, Altronics Cat. H-0630). Secure the heatsink to the bridge using an M3 x 10mm screw, nut and washer. Note that you'll need to cut or file off the lower left fin of the heatsink so that it clears the AC input socket. Use heatsink compound on all surfaces to aid heat transfer. Note also that when in position, the heatsink will obscure the fourth lamp position on the rear panel, so if you've yet to build the unit, omit the fourth (innermost) lamp. Finally, to further decrease heat sensitivity, we recommend replacing the 2.5A polyswitch (PTC1) with a higher current, 3A device. A suitable replacement is the RUE300 (Farnell Cat. 608-956 or Altronics R-4561A). (06/04)

Capacitor Leakage Adaptor for DMMs, Circuit Notebook, December 2002: The maximum supply voltage to this circuit should be limited to 30V DC. (02/03)

Simple VHF FM/AM Receiver, December 2002: a short track is missing from the PC board, as shown on pages 88 & 90. The track should connect the junction of the two 3.3kΩ resistors and L1 with the adjacent end of the 22kΩ resistor. The corrected PC board pattern can be downloaded from **www.siliconchip.com.au** (04/03)