NOTES & ERRATA FOR PROJECTS PUBLISHED IN
SILICON CHIP (2017)

Please note: errata apply primarily to the print edition of SILICON CHIP as online issues are normally changed when an error is identified. However some errata may still apply to the online edition; check carefully before making any changes to a project.

Improved PICAXE Wireless Rain Alarm, Circuit Notebook, January 2017 (page 61): There are two errors in the circuit diagram published. A 10kΩ pull-up resistor was omitted between pins 4 and 1 of IC1. Also, the 0V rail of CON1 has no GND, leaving the filter capacitors isolated; they should be connected to 0V. (03/17)

High Power DC Motor Speed Control, January-February 2017: (1) The top of trimpots VR1, VR2 and VR7 should connect to 5V, not Vbat. The top of R1 should go to the switched side of S1, ie, the anode of D3. The connections on the PCB are correct. Also in the parts list, the Altronics S6040 blade fuse holder is rated at 30A, not 40A. (02/17)

(2) On page 66 of the February issue, the PCB overlay (Fig.4, at top) incorrectly labelled LK8 as HSS when it should be LSS; however, note that it was correctly shown in blue **(indicating it is fitted for low-side switching).** (03/17)

(3) On page 67 of the February issue, under the heading Testing, the second paragraph should read: "Rotate VR2 and VR3 fully clockwise and VR1, VR4, VR5 and VR6 fully anticlockwise. Set VR7 mid way". The difference is VR1 is rotated anticlockwise and VR2 clockwise, while VR7 is set mid way. (05/17)

(4) the IPP023N10N5AKSA1 Mosfets specified are currently unobtainable. Constructors can substitute the FDP2D3N10C, which is available at the time of writing. (07/22)

SC200 Audio Amplifier, January-March 2017: (1) In the circuit diagram, Fig.1 on pages 30 & 31 of the January 2017 issue, D3 and D4 are shown connected across the pre-fuse ±57V rails when they are actually connected across the collectors of Q11-Q16, ie, after the fuses. Also, in the PCB overlay diagrams (Fig.4) on page 80 of the February 2017 issue, the pairs of 100Ω resistors on either side of VR1 should be 220Ω to match the circuit and parts list, and there is a 330Ω resistor not shown immediately above VR2 which should be fitted. Errors have been corrected in the online version of these issues. (05/17)

(2) The power supply is mistakenly listed as 45-0-45V to provide ±57Von page 32 of the January issue and page 85 of the February issue. The transformer is actually 40-0-40V as described in the parts list and circuit diagram in the March issue where the power supply is described in full. (03/18)

(3) The circuit diagram for the SC200 shows a 150Ω resistor in series with VR1. This should be 120Ω to match the overlay diagram and parts list. Also, the overlay diagram shows a 100pF 250V capacitor; this should be 150pF 250V as shown in the circuit diagram and parts list. The PCB has the correct markings. (08/18)

(4) In the alternative SMD parts list on page 81 of the February 2017 issue, Q1 should be listed as a BCM856DS, not a BC856. Q2, Q5 and Q6 are all listed correctly as BC856 types. (02/19)

GPS-Synchronised Analog Clock Driver, February 2017: (1) The CP2102-based USB/Serial interface requires inverted signalling compared to the PICAXE programming cable, so the latest version of the software includes four different HEX files; two for clocks with stepping hands, for use with a USB/serial cable (04120217A) or PICAXE cable (04120217B); and two for clocks with sweep second hands, for use with a USB/serial cable (04130217A) or PICAXE cable (04130217B). By default, programmed micros are supplied with the -A versions; if you require the alternative version, please indicate this clearly at the time of purchase. (03/17)

(2) Two bugs in the software have been brought to our attention. One only affected the stepping version and caused a weak clock motor drive as the three paralleled outputs didn't always provide the same polarity output. This is fixed with revised firmware (v2.6). The other affected all versions of the clock but only when using certain GPS modules (eg, VK16HX) and would result in a failure to acquire GPS time even if the module had a proper satellite lock. This has also been fixed in v2.6 firmware for stepping hands and v1.3 for sweep hands. (05/17)

(3) Another bug has been identified in the sweep hands version of the software. Its output drive waveforms were not always correct and this caused weak output drive and potentially slow operation. A new version of the firmware, v1.4, is now available for download from the Silicon Chip website which solves this. (11/17)

(4) On page 39, the text states "For either type of clock, the clock pulse width can be changed in steps of 1ms…". This is incorrect; only the sweep hand firmware offers 1ms steps. For clocks with stepping hands, the pulse width can only be set from 16ms to 96ms in 8ms steps. One reader found that a 56ms pulse width gave reliable drive with a battery voltage as low as 2V with his clock. (09/20)

Squash/Ping-Pong, Circuit Notebook, February 2017: Trimpot VR1 should be connected directly to the +5V rail rather than junction of the reset switch and 100nF capacitor so that the speed of the ball can be properly adjusted. (04/17)

Pool Lap Counter, March 2017: On the circuit diagram two 1kΩ resistors are missing between the bases of Q4 & 6 and the collectors of Q3 & 5 respectively. Both are shown correctly on the PCB and are listed in the parts list. (04/17)

Stationmaster, March 2017: (1) On page 36, Fig.2, LED5 is mistakenly listed twice, LED4 is the one closest to CON3. Also, CON2 is shown with all its connections shorted on Fig.2, the PCB has the correct connections made. (04/17)

(2) Two 10MΩ resistors have been left off the circuit diagram, Fig.2. One connects from the +5V rail to pins 10 & 13 of IC1 while the other connects from pins 10 & 13 of IC1 to ground. The PCB overlay and parts list are correct. Also, because power indicator LED1 is connected to the supply before the bridge rectifier, it will only light with a DC supply that applies a positive voltage to either pin 1 of CON1 or the centre pin of CON2. On page 37, instead of 10kΩ capacitor, read 10kΩ resistor. Also, the cable connecting the two boards needs to be the type with its inner two conductors swapped or else speed control VR2 will operate in reverse. Finally, note that the MC14584 chip used in this project is hard to obtain; the more common 74HC14 can be substituted. (03/19)

(3) In the circuit diagram (Fig.2) on page 36, brake switch S1 should have been shown connected between potentiometer VR3 and the 10kΩ resistor, with the second pin of CON5 from the top connecting to the junction of VR3 and switch S1. (12/19)

ATmega-based Metal Detector, Circuit Notebook, March 2017: The circuit diagram published is missing two 10kΩ resistors, one of which is connected between the anode of D1 and pin 27 of IC1 and the other goes between pin 27 and ground. This allows IC1 to monitor the battery voltage and display it on the LCD. (06/17)

Spring Reverberation Unit, April 2017: If using the DC supply option with CON6 (the barrel connector), it is necessary to either omit CON5 and solder a short length of wire between its two outer mounting holes (without shorting to the centre), or alternatively, fit a 3-way connector for CON5 and connect a wire link across its two outer terminals. (07/17)

Micromite BackPack Touchscreen DDS Signal Generator, April 2017: (1) Add three chassis-mount RCA sockets to the parts list. (02/18)
  (2) The 560Ω resistor in the parts list should actually be 470Ω. (02/19)

Micromite LCD BackPack V2, May 2017: In the parts list on page 89 it lists 4 M3 x 12mm pan-head machine screws. They should instead be M3 x 6mm (M3 x 8mm may also work). Also omitted from the parts list is the jumper shunt and 2-pin male header needed for JP1, and in Fig.1 JP1 is mistakenly labelled as LK1; the PCB overlay is correct. (06/17)

6GHz+ RF Prescaler, May 2017: As published, this project does not have an output impedance of 75Ω; it is 300Ω. This can be fixed by substituting 0Ω resistors for the 100Ω resistors and 75Ω resistors for the 300Ω resistors. (07/17)

New Marine Ultrasonic Anti-Fouling Unit, May & June 2017: ETD29 3C85 ferrite cores may no longer be available since they have been discontinued by FerroxCube. ETD29 3C90 ferrite cores are suitable substitutes. (09/17)

Arduino-based Digital Inductance/Capacitance Meter, June 2017: The software as provided assumes an I^2C LCD address of 0x27 which is for displays with a PCF8574T IC. If your display has a PCF8574AT IC, you will need to change the address near the top of the sketch from 0x27 to 0x3F before compiling and uploading it. Note also that if printing the front panel artwork PDF, you need to set up your printer to print "actual size" (rather than "shrink to fit", etc) so that it comes out the right size. (08/17)

VS1053 Arduino Music Player, July 2017: The circuit diagram (Fig.2 on pages 74 and 75) shows LED2 connected to SCK but the text says it is connected to the CS line. The diagram is correct. (09/17)
  The software has been updated to fix the following issues:
(1) pressing any of the bottom row of keys on the keypad during playback would cause the player to lock up. This was due to that pin being connected to D10 (SS), which was in use by the SPI module. Pin D0 (RX), the only free pin, is now used instead;
(2) recording drop-outs have been solved by writing data to the SD card in larger blocks (ie, writing less frequently);
(3) the player would lock up if certain file types were played back after recording. This was due to the correct plugin not being reloaded after recording, which has been fixed;
(4) a few small additional improvements were made. (01/18)

12V DC Cycling Pump Timer, Circuit Notebook, July 2017: A 10μF capacitor needs to be connected between pin 7 of IC1 and ground in order for IC1 to operate in pump timer mode. (09/17)

Vintage Radio (DKE38), July 2017: In the middle column of page 94, the article states that "The amplified signal is developed across the 2MΩ resistor R3...". This is incorrect. R3 is a feedback resistor from the loudspeaker. The demodulated audio appears across 200kΩ resistor R2. (10/17)

Deluxe Touchscreen eFuse, July, August & October 2017: (1) A couple of changes need to be made to prevent false tripping and rebooting. First, change the two 4.7kΩ resistors to 100kΩ. Then, add two 220pF capacitors. The first one goes between the base (middle pin) of Q2 and the nearby ground point, where the adjacent 30kΩ resistor connects to the large ground trace. This can be mounted on the underside of the PCB. The second 220pF capacitor is similarly connected between the base of Q4 and ground; the top end of the nearby 100nF bypass capacitor for REG3 can be used (it's connected to the middle pin of REG3 by a track on the top side). (11/17)
  (2) In the July issue, the text on page 47 (last paragraph, third column) states that IC4 is connected... after D7. Instead, it is connected after D1 and the associated 1Ω resistor. (12/17)
  (3) In the circuit diagram (Fig.3) on pages 44 and 45 of the July 2017 issue, the resistors connecting to pins 24 and 26 of IC1 are shown incorrectly. The 390kΩ/30kΩ and 27kΩ/3kΩ pairs should be swapped. The same is true of the overlay diagram on page 63 of the August 2017 issue. The resistors to swap are above REG3 (390kΩ) and just above Q4 (30kΩ), and to the right of REG1 (27kΩ) and above and to the left of REG3 (3kΩ). Also, the PCB overlay incorrectly shows ZD8 (just above Q6) as ZD4. The PCBs supplied are correctly labelled and the online versions of these issues have been corrected. (02/18)
  (4) The HEX file we have been providing has not had the AUTORUN flag set, meaning eFuses built with a preprogrammed chip or using the HEX file from the Silicon Chip website will not work without being run manually from MMBasic. We've updated the HEX and MMBasic files to fix this and also to fix a bug that may cause the Micromite to crash and reset if the screen timeout was set to certain values. (06/21)

Building the RapidBrake, August 2017: In the calibration instructions on page 85, the first sentence under "Step 1" is incorrect. It should read: "If the jumper at JP1 is set for the Y-axis, go to step 2. If the jumper is set for the X-axis, as before, ..." (09/17)

Power Supply for Battery Valve Radios, August 2017: (1) The case specified in the text is too large. It should be PacTec LH55-130. The correct Mouser catalog item is 616-71886-510-000. Also, note that if you use the B battery sockets on the rear panel you need to make sure they are not swapped or the power supply will be shorted out. (10/17)
  (2) The circuit on page 35 shows the labelling on diodes D4 & D5 swapped. In other respects, the circuit is correct. (12/17)

Li-ion and LiPo Charger Modules, August 2017: On page 44, the article refers to red LED2 and green LED1. It should instead refer to red LED1 and green LED2, to be consistent with the circuit diagram (Fig.1) on the following page. (11/17)

Arduino Data Logger, August-September 2017: A reader discovered a bug in the code which sometimes caused the unit to fail to detect the GPS module. This has been fixed in software version v1.12 which is now available for download from the Silicon Chip website. (10/18)

Automatic NBN Rebooter, Circuit Notebook, September 2017: In the circuit on page 36, the relay is incorrectly shown with the normally-open contacts in series with the router. The circuit should be changed to show the normally-closed contacts in series with the router. That will mean that when the relay is enabled, the power to the router will be interrupted. (10/17)

3-Way Active Stereo Crossover for Loudspeakers, September & October 2017: (1) 38 1kΩ SMD resistors are required, not 37 as stated in the parts list on page 34 of the September issue. (11/17)
    (2) The PCB has pads for diode D4 but it was not shown on the PCB overlay or the circuit diagram because it isn't strictly needed. It can be left off or fitted below D3 if desired. (12/17)
    (3) There is a mistake in the PCB design which means that if a transformer with a centre-tapped secondary (or two secondaries connected in series) is used, those secondaries are shorted out when the unit is switched off. To solve this, cut the top layer copper rectangle joining the two front-most power switch terminals between the two pins, or use a RevE PCB, which no longer has these two pins shorted together. (05/19)

Kelvin the Cricket, October 2017: The circuit on page 44 shows switch S1 connected to pin GP0/pin 7. It should connect to GP2/pin 5. The PCB is correct. (12/17)
    (2) The parts list on page 46 gives the incorrect Jaycar catalog code for the piezo buzzer. It should be AB-3440. (01/18)
    (3) There is a bug in the software which prevents modes 13-16 from working properly. Revised firmware (0810917B) is available for download from the Silicon Chip website and chips supplied from now on will be programmed with this new version. (02/18)

Modifications to Universal Battery Valve Power Supply, Circuit Notebook, October 2017: There is a mistake in the circuit diagram which shorts out the secondary of transformer T2 by joining pins 5 and 8. Diodes D5 and D6 should connect to pin 5 of T2 only while diodes D4 and D7 and the 470μF capacitor connect to pin 8 of T2. (12/17)

6GHz+ Touchscreen Frequency Meter, October-December 2017: (1) On pages 28 & 29 of the October issue, timer 2/3 and timer 4/5 should be swapped with regards to their explanation. The block & circuit diagram are correct. (11/17)
    (2) The parts list states that the 1PS70SB82 UHF diodes are supplied in the SOT-23 package. They are actually in the smaller SOT-323 (SC-70) package. The board is designed to accept this. (12/17)
    (3) REG1 and REG3 are TPS73701 regulators, as shown in the parts list on page 33 of the October 2017 issue, not TPS73700 as shown in the circuit diagram (Fig.2) on page 30 of that same issue. (01/18)
    (4) CON1 is described as an "SMB" connector in the text and an "SMD" connector in the parts list. It is an SMA right-angle through-hole female connector. Digi-Key Cat 931-1361-ND is suitable. (06/18)
    (5) The power ground connection for op amp IC9 is made to pin 4 in both the circuit diagram and on the PCB but it should be to pin 5 instead. This can be fixed after assembling the board by running a short length of fine wire between pins 4 and 5 of the IC package. This will be fixed in the RevC PCB. (09/18)
    (6) In the circuit diagram on pages 30 & 31 of the October 2017 issue, a 1μF bypass capacitor is missing between the anode and cathode of REF1. Also, in the overlay diagram (Fig.3) on p86 of the November 2017 issue, the board shown is RevA; the final (RevB) board adds a 100μF capacitor just to the left of REG2, with its positive lead towards the regulator. (03/21)

Super-7 AM Radio, November 2017: (1) There are two errors on the circuit. Schottky diode D1 should be a BAT46, not BAT56. The capacitor connected to the emitters of Q6 & Q7, the output coupling capacitor, is 470μF, not 100μF. Also the parts list shows Q7, a BD140 as an NPN type. It is PNP, as shown correctly on the circuit. The text on page 47 has errors in two sentences: "It oscillates at a frequency set by the parallel resonant circuitry connected to its emitter, ie, the primary of T3 plus VC3 and VC4" and "the output signal of the mixer/oscillator appears at the bottom end of this secondary and is fed to the primary of transformer T2". The first sentence should refer to T2 while the second should refer to T3. (12/17)
    (2) The parts list includes four 22nF MKT polyester capacitors and one 47nF MKT polyester. It should instead list five 22nF capacitors and no 47nF capacitors. (08/18)

Vintage Radio, November 2017: In Figs.1 and 2, coupling capacitor C4 has been drawn connected to the wrong side of L2. It is connected to the plate of V1, not the junction of L2 and L3. (01/18)

High power H-bridge uses discrete Mosfets, Circuit Notebook, November 2017: The 74LS08 IC in the H-bridge should be replaced with a 74HC08 as the LS-series chip has an insufficiently high output voltage to drive the IRFZ44N Mosfets properly. Ideally, those Mosfets should also be changed to a logic-level equivalent such as the CSD18534KCS (Silicon Chip Online Shop Cat SC4177) to ensure they switch on fully with a 5V supply. (10/19)

Touchscreen Altimeter & Weather Station, December 2017: There are some inconsistencies and ambiguities between the circuit diagram (Fig.1), sensor wiring (Fig.3) and parts list, regarding the temperature and humidity sensor. The circuit diagram on page 25 showed a bare DHT22/AM2302 sensor with correctly wired pins, however, pin 4 was shown on the left side of the device and pin 1 on the right, the opposite of how they are numbered on the physical module. Also, the module shown in Fig.3 and the accompanying photo is mounted on a small breakout board with two extra components which were not shown on Fig.1 and not mentioned in the text or parts list. The sensor we supply does not come with the breakout board. The circuit diagram in the online edition has been corrected to show the two extra components. If the sensor you purchased does not come on a breakout board, simply solder a 100nF capacitor between pins 1 and 4 of the DHT22/AM2302 and a 1kΩ resistor between pins 1 and 2. Note that the 1kΩ resistor could just as easily be fitted between the +5V and pin 21 (DATA) connections on the BackPack module. (03/18)