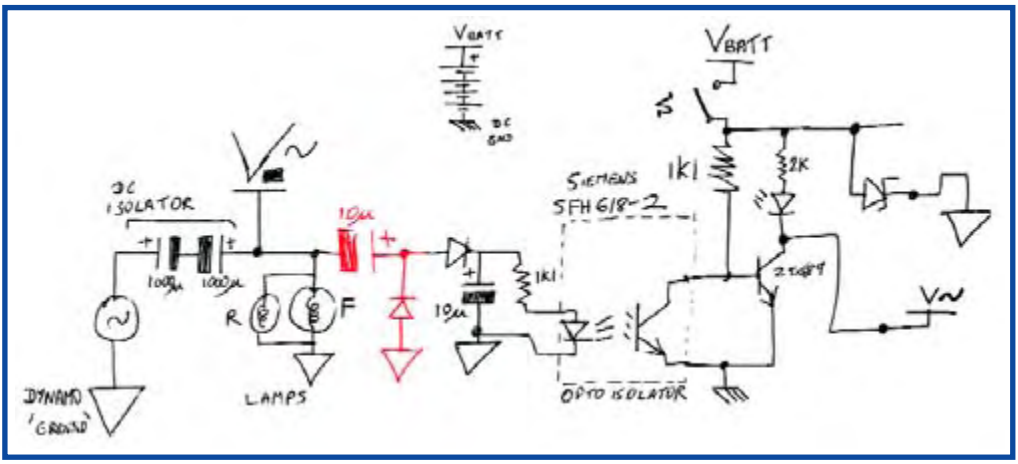

Battery backup for bike — help please

(Mailbox December 2005 issue refers, *Ed.*)
Dear Editor — I have got my dynamo backup circuit to work: a voltage doubling rectifier solved the problem caused by the half-wave rectifier's series capacitor.

I enclose the corrected schematic. Note that the DC isolator capacitors are mounted separately beside the dynamo, whereas the circuit is mounted at the other end of the bike (near the battery pouch).
The battery is also used for extra lamp(s) such as a turn indicator.
The circuit seems to take 3 mA from battery when switched over to dynamo but even if that's just noise picked up by the meter, I can live with it.
I found the free Linear Technology LTSpice program very useful.

An alternative circuit (simulated with LTSpice) replaced the optoisolator and BJT with a logic-level p-channel MOSFET (protected by a zener), and connected battery ground to dynamo ground.
Unfortunately, Maplin no longer sell p-type MOSFETs so I could not build this circuit.
I have also enclosed a photo of the finished unit. The handlebar bracket is a Minoura battery lamp extension (long) minus the lamp tube.
Alan Bradley (UK)

That's a happy ending then Alan, congratulations on getting your circuit to work. We also thank those readers who have written with suggestions to help Alan find (and solve) the problem. He also informed us that he has further information available on the migration of the circuit to FETs.

Hexadokus

While compiling this month's Mailbox pages, we're inundated with solutions to our first and second 'Hexadoku' puzzles published in the January and February 2006 issue. Apparently, we succeeded in adding a lighter note to high-brow electronics stuff that normally fills our pages. We were both pleased and surprised to see that a good number of correct solutions were sent by family members of our readers. A number of solutions reached us by regular post (thank you all for using our new address). Readers were also quick to spot that our Hexadokus can be downloaded free of charge from our website. Here's some comment we got from you:

"A great opportunity for us lesser gods in electronics to win a prize".
"Can we have a microcontroller version of it please."
"Took me two days to solve but I think I have the solution."
"What a wonderful idea this Hexadoku; just what I would expect from Elektor."
"I just love Sudokus and was hooked the moment my husband showed your hexadecimal variety. It's addictive and crazing. And tough, too."
"The normal 9x9 Sudoku was starting to bore me. Your hex variety got my grey matter milling over numbers again."
"A great puzzle. I was already hooked on Sudokus but yours is even worse!"
"Cost me one pencil and a rubber to solve;