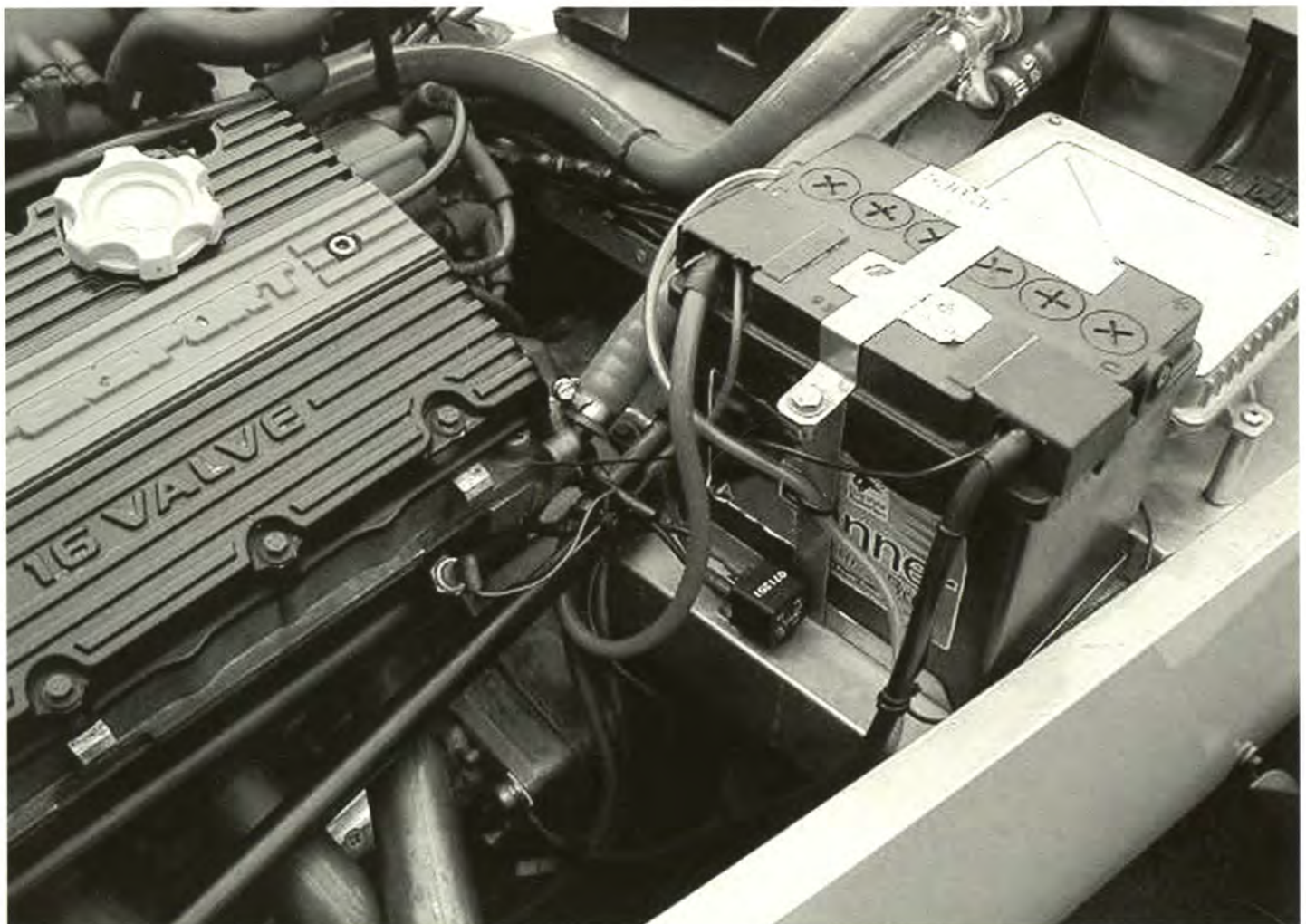


# K Series Starter Problem

I have a 7 fitted with a 1.8 K series engine which I built new and since it was about 6 months old I had problems with starting when it was hot. This was cured by the fitting of a couple of new starter motors, but kept on returning after a while.



It was at its worst when on a long motorway trip and the car got very hot. This was most embarrassing when filling with petrol at the services. You can picture the scene:-  
Approached by the driver of a tin top and the questions/comments are usually -  
"Is it a Pinto engine?"  
"What did it used to be?"  
"That looks well for an old car"  
I'm sure you've all had similar experiences. I usually reply with:-

"It's actually almost new and its' fitted with a sophisticated, all aluminium, fuel injected, 16 valve, double over head cam engine etc."  
This seems to impress them, but oh the embarrassment of .....  
"Before you go, could you give me a push?"  
I'd never noticed until this time that few filling stations are built on slopes!  
The problem got worse, but like a lot of problems, was difficult to diagnose as it

was intermittent and more often than not, my journeys start and end at home with no need to re-start en route when hot. The symptoms were a click from under the bonnet when turning the ignition key to activate the starter motor. Repeated trying would often result in the ECU fuse (the bottom one) blowing. This was a 20-amp fuse and I replaced it with a 30 amp fuse on Caterhams recommendation. This seemed to cure the blowing of fuses, but did nothing to coax the starter motor into



life when the car was hot. Eventually I managed to get my head under the bonnet when the problem was occurring and discovered that if I connected a temporary fly lead to the solenoid on the starter and touched this to the positive terminal of the battery, the engine would burst into life every time. For a couple of weeks I ran with a fly lead permanently connected to the solenoid. At least this helped cure the embarrassment of the filling station. I could now pretend I was removing the bonnet to check the oil and at the same time start the car. My good friend and fellow 7 owner, John happened to mention the problem at a local auto electricians and they suggested a relay be fitted as they had cured a number of other cars of various makes which had similar problems. Nothing ventured, nothing gained and a relay was fitted straightaway. Wow! What a difference! The car became a joy to drive. No parking on hills and no fly leads! From that day on the car has never failed to start. I posted a topic on Blatchat and received a number of grateful e-mails from other Blatchatters who fitted a relay following my experience and also found the cure, often after buying rather expensive starter motors with no improvement. If you too have a K series engine with similar problems, then this may also help you, but I must stress that there may be other reasons! If you are unsure, try the fly lead method out and it will tell you whether a relay is the answer to your problems also.

#### Fitting the relay

It will cost about £10 or £12 in bits and take about 45 or so minutes to fit.

You'll need :-

- A 30 amp 4 pin relay - available from virtually all motor accessory shops at around £6.
- A couple of lengths of wire - suggest about 1 foot of black and about 3 feet of red.
- An in line fuse - preferably waterproof.
- Electrical terminals - 2 ring type to fit the battery terminals, and 4 female spade terminals (3 to fit the relay and 1 to fit the starter solenoid), although I

understand some solenoids are fitted with a ring terminal also - please check.

#### Method:-

- 1 First disconnect the battery. You should disconnect the negative (Black) lead first. You will normally need a couple of either 10mm or 11mm spanners.
  2. Attach the relay to the 'ledge' in front of the battery in the centre i.e. around middle of battery. The relay is attached using a tag with a hole in it, which is normally fitted to or supplied with the relay. I prefer to fix using a pop rivet, but you can use a self-tapping screw or a small nut and bolt if you don't have a pop rivet gun.
  3. Detach the smaller wire (i.e. NOT the big red one) from the rear of the solenoid on the starter. It may be stiff, but should just pull off.
  4. Reconnect this wire to the terminal on the relay marked 86.
  5. Connect a long red wire to the terminal on the solenoid (where you previously removed the wire - see 3 above) and connect the other end to terminal marked 87.
  6. Connect the wire with the in line fuse to terminal 30 on the relay and the other end to the positive terminal of the battery (using a ring terminal) along with the wire(s) that you originally removed.
- \*\*\*\*\* It is important to reconnect the positive terminal first \*\*\*\*\*
7. Using the short length of black wire connect terminal 85 of the relay to the negative terminal of the battery along with the wire(s) that you originally removed.
  8. Check that all connections are secure and "tidy up" the wires using tape or cable ties, making sure that wires are kept well away from the exhaust.
  9. Your car should now be ready for use. Start in the normal manner, but don't forget that you'll probably have to reset the immobiliser after disconnecting the battery. This is normally achieved by pressing the 'plip' about 4 or 5 times - I'm sure you're all familiar.
- One other thing you might need (if you have eyesight like me) is a magnifying glass - the markings on the relays tend to be very, very small!

HAPPY STARTING **Paul Richards**

## West Sussex On the Move

Well, not actually the whole of West Sussex, but the West Sussex meeting is changing venues, after more than 13 years we are leaving The Crown at Dial Post, and heading West. The new venue will be The Gribble at Oving - which is just off the A27 to the East of Chichester. The day stays the same - 2nd Wednesday of each and every month.

To get to Oving, head for Goodwood, then follow the A27 towards Portsmouth. At the traffic lights after the Goodwood roundabout on the A27 turn left, next right, then left. The Gribble is on the left - all signposted.

To complement this shift to the far West of the County, another meeting has been arranged to the East of the County - in fact it is so far to the East that it is actually in East Sussex - at the 6 Bells in Chiddingly on the last Thursday of the Month.

Chiddingly is South of Uckfield, North of the A27 & Eastbourne, just off the A22 near Golden Cross - turn off at the Shell Garage and take the left at the T junction. The 6 Bells is on the left.