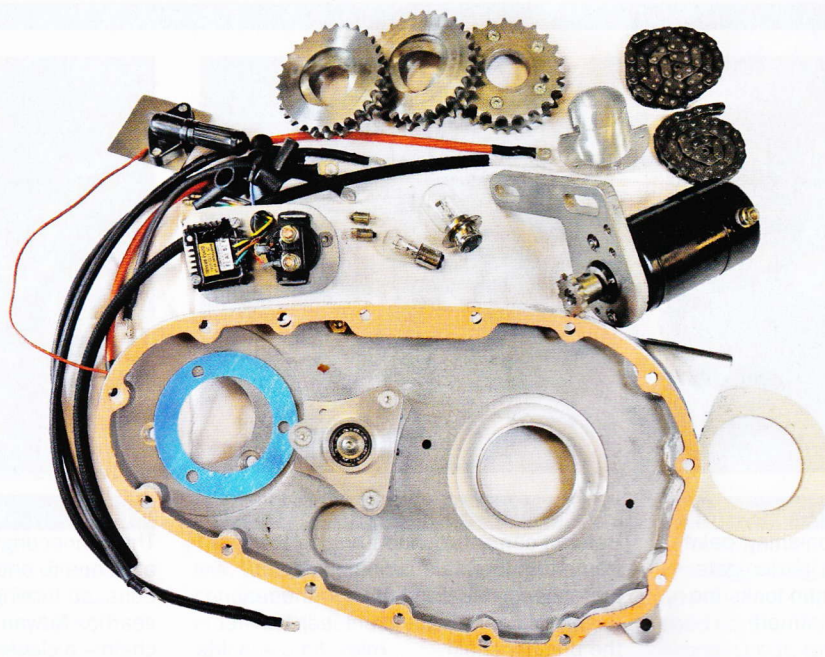


■ The kit comes with everything you need, including all gaskets



The  
SPECIALIST

HOW TO

# FIT AN ELECTRIC START TO A GOLDIE

BSA's sporting single can be a brute to kickstart. But there is a ray of hope for those with dodgy knees – fit an adapted Yamaha electric boot. Here's how...

WORDS AND PHOTOGRAPHY: PHILLIP TOOTH

**A**s the police report later recorded, I was riding a Norton Dominator on a straight stretch of road when a car pulled out from a private road and crashed into me. I flew over the bonnet and ended up lying in a pool of petrol because the alloy tank had burst. When I got my breath back, I wiggled my toes and fingers, noted that my shoulder ached and my right knee hurt like hell... and was dragged away from the smoking Domi in case it caught fire. Police, two fire engines and an ambulance with paramedics arrived to clear the mess and scoop me up.

So there I was, lying on a blanket while the paramedics cut off my clothes, when the car driver walked up. She had obviously been thinking about how to avoid blame. "You were travelling so fast that I didn't see you," she said, after taking the cigarette from her mouth. I wasn't in the mood for talk, but took the oxygen mask off and replied: "If you didn't see me, how do you know how fast I was travelling?" The policeman had to turn away to stifle his laughter.

Four years later and my knee is still giving me problems, so I have to look after it. But there's a DBD34 Gold Star in the garage that I love riding. Bringing the Goldie up to date with an electric starter had to be the answer. And that's where Phil Pearson and John Edwards ([bsagoldstar.bike](http://bsagoldstar.bike)) come in. They designed a conversion using a Yamaha starter motor that works perfectly, but

is so unobtrusive that you have to get down on your knees (or one good knee) and look underneath the primary chaincase to see any sign of the modification. The £1495 kit can be fitted to any Goldie, B31 or B33 with an alloy chaincase.

Fitting is straightforward, as Phil Pearson Junior demonstrates. A simple wiring diagram is supplied with the kit. Because the Yamaha starter motor is for a 12-volt negative earth bike, the BSA's six-volt Lucas dynamo has to be converted to generate 12 volts by installing the new regulator, and the polarity of the field magnet changed to positive earth (this is a simple operation that involves connecting the negative terminal of the battery to the chassis and briefly touching the positive lead of the battery to the F terminal of the dynamo so that you see a small spark – repeatedly 'flashing' the F terminal a few times will change the dynamo field magnet to the correct polarity).

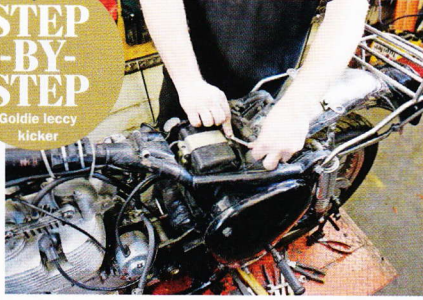
After a day in Phil's workshop my Goldie was ready. I turned on the petrol, pressed down the choke lever on the Mikuni – another sensible modification – and retarded the ignition. Then I squeezed the little valve lifter lever to the handlebar and hit the starter button. The engine spun over quickly, I dropped the valve lifter, and my DBD34 fired immediately. Easy.

I'm going to miss going through the time-honoured ritual of kickstarting this most sporting of British singles. But I'm sure my knee will thank me for it.

**IT WORKS PERFECTLY, BUT  
IS SO UNOBTUSIVE IT'S  
HARD TO SEE ANY SIGN  
OF THE MODIFICATION.**



**STEP-BY-STEP**  
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kicker



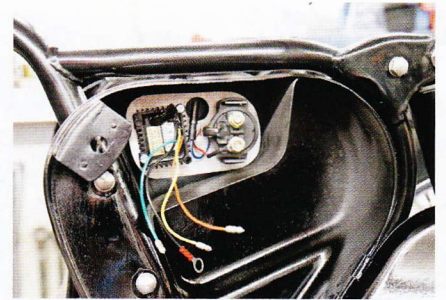
**STEP 1 ELECTRICS OUT**

Remove the fuse, then the battery and Lucas voltage regulator from inside the tool box. Pearson recommends a 12v Exide ETZ14-BS replacement battery.



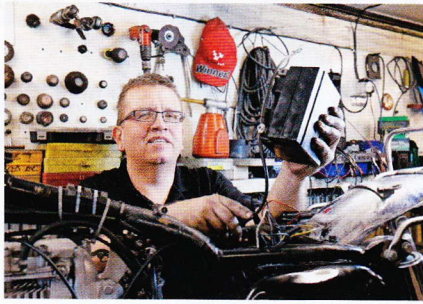
**STEP 2 GETTING HOLED**

The hole for the cables in the toolbox will need to be enlarged to 22mm to take the extra wires. We used a hole punch. Use a rubber grommet to prevent chafing.



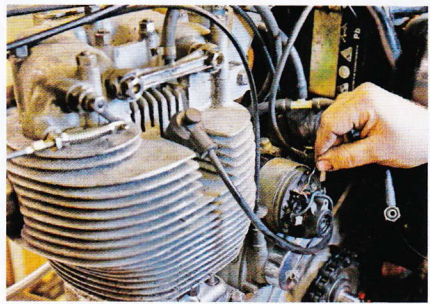
**STEP 3 REGULATORY BOARD**

Fit the new regulator and solenoid panel in the toolbox. The V-Reg II solid-state regulator converts Lucas 6v dynamo to 12v (you could use an Alton generator).



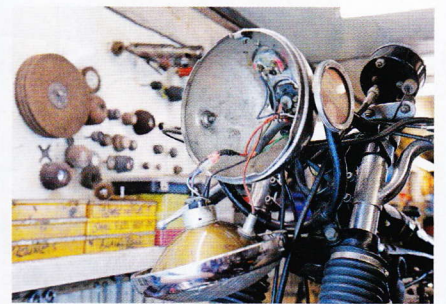
**STEP 4 REALIGNMENT OF POWER**

Fit new battery in original position but on end, with terminals facing oil tank. The starter motor needs a negative earth, so you will have to re-polarise the dynamo.



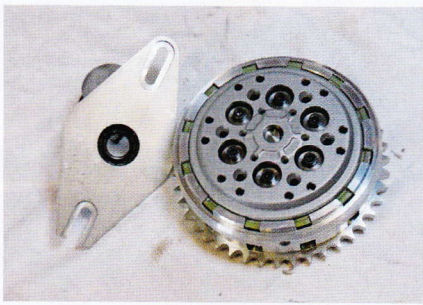
**STEP 5 DO DYNAMO POLARITY**

Connect negative battery terminal to chassis, take off dynamo D and F wires, connect a wire to positive terminal and brush it on F terminal to cause a spark.



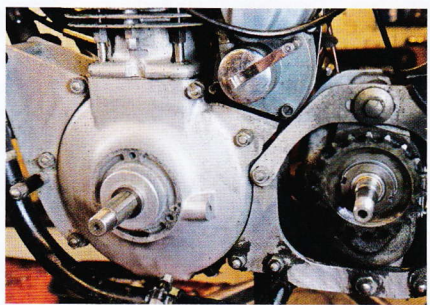
**STEP 6 ADJUST ELECTRIC BITS**

Swap wires around on the ammeter so charge is not showing as discharge. Fit 12v bulbs (6v horn works with 12v). Put starter button on 'bar, wire it to solenoid.



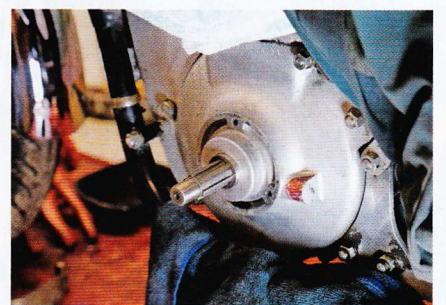
**STEP 7 CLUTCHING AT IT**

Bendix bearings need oil. Leaks can be prevented with improved Pearson O-ring type sliding plate. While you're at it, why not fit a Pearson clutch, too...?



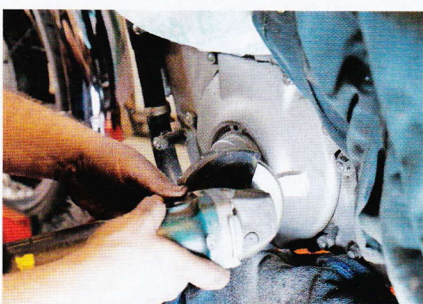
**STEP 8 EXPOSE THE AREA**

Remove the outer primary cover, clutch and primary chain, cush drive with engine sprocket and inner primary chaincase. Clean the crankcase where gasket fits.



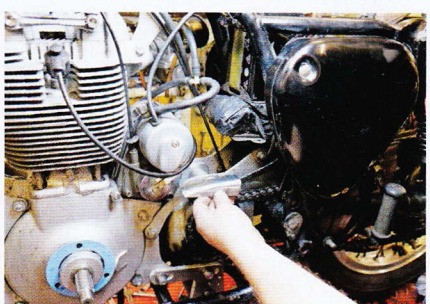
**STEP 9 MARK THE BOSS**

The boss on crankcase carries oil feed to rockers on pre-war models but was not internally drilled later, so is redundant and gets in the way. Mark it with felt pen.



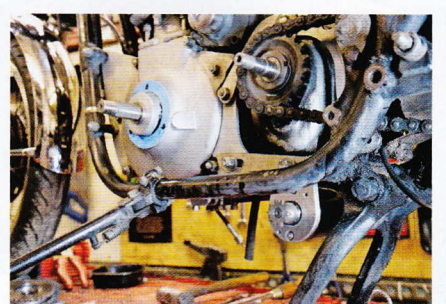
**STEP 10 GET GRINDING**

Grind off the part of the redundant boss you've marked, to allow clearance for the starter sprocket to be mounted on the back of the new inner primary chaincase.



**STEP 11 ON GUARD**

Temporarily fit new inner case; mark the chainguard where it fouls the case. Take off chain guard and cut it so guard fits and won't catch as suspension bottoms.



**STEP 12 GET THE MOTOR ON**

Remove lower gearbox stud and engine plate stud, and replace with starter motor mounting bolts. The starter motor can now fitted, but leave bolts slack.

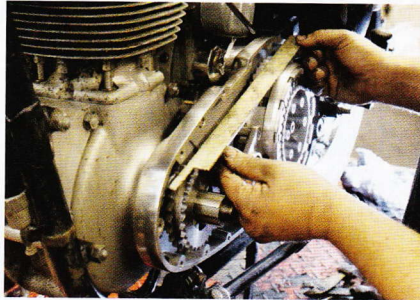
## STEP-BY-STEP

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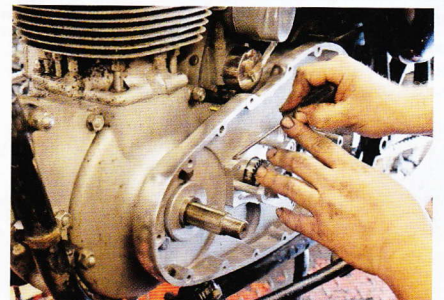
### STEP 13 LOCATE THE BENDIX

Fit Bendix to the inner case, but don't tighten the bolts yet. The ratchet teeth are held out of engagement by a 10 x 5mm neodymium magnet with a 1kg pull.



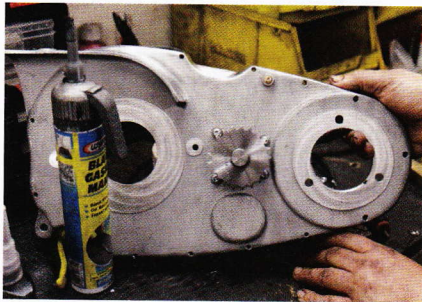
### STEP 14 SPROCKETS & CHAINS

Fit cush drive and sprockets to crank, and starter chain from Bendix to crank sprocket. Adjust tension. Check clutch and engine sprockets are in line.



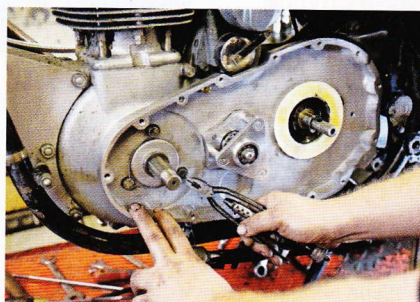
### STEP 15 MARK MOUNTING PLATE

Remove cush drive, engine sprockets, clutch and both chains. Scribe around the Bendix mounting plate so you know where to fit it for correct chain tension.



### STEP 16 FIT THE BENDIX

Remove inner case and take off Bendix mechanism. Coat back of mounting plate with oil-proof gasket sealant, refit Bendix to scribe mark, and tighten Allen bolts.



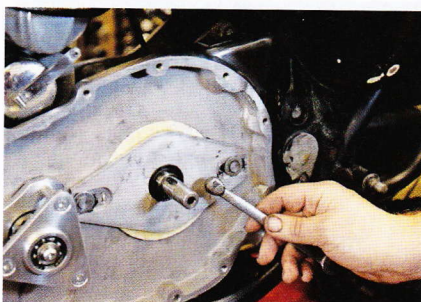
### STEP 17 CHECK THE THREADS

Before lock-wiring bolts securing inner chaincase, check the three threads in crankcase – longer bolts may be needed. Use grease to hold felt seal in place.



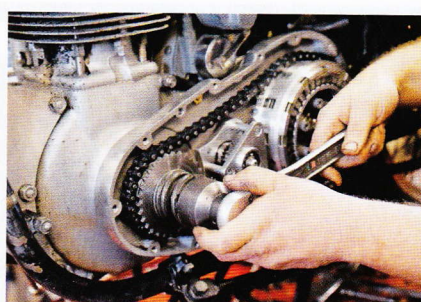
### STEP 18 CUT THE PLATE

Pearson sliding plate O-ring clutch seal has slot at one end, a hole the other. Cut alloy plate and make a second slot to take the 2mm thicker inner primary chaincase.



### STEP 19 FIT THE PLATE

Fit modified sliding plate, using gasket goo under bolt heads. Weld up the back of a ring spanner; use it to make holding the nuts behind the primary case easier.



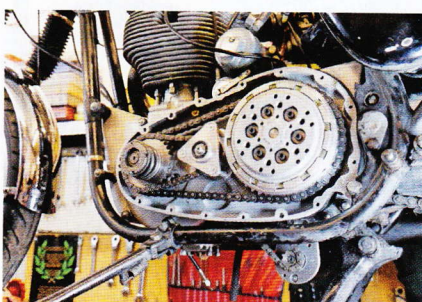
### STEP 20 IT'S ALL GOING ON...

Fit engine sprockets, cush drive, clutch and primary drive chain. The cush drive bearing nut can be tightened with hammer and drift, but it's more professional...



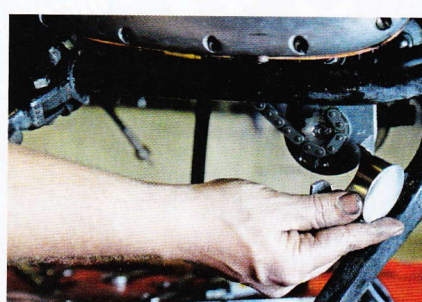
### STEP 21 MAKE A SPECIAL TOOL

... and less brutal to use a home-made tool made by grinding the face of an old socket to leave four ears to engage with the slots in the cush-drive bearing nut.



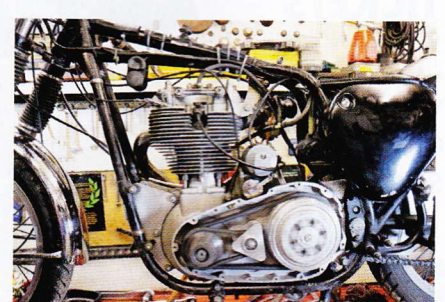
### STEP 22 CHAIN GANG

Fit chain between engine sprocket and Bendix. Fit chain from starter motor to sprocket at other end of Bendix; adjust tension by moving the starter plate.



### STEP 23 KEEP IT COVERED

Fit external starter motor chain cover. Both starter chains maintain the correct tension for high mileages, but check when you adjust primary drive chain.



### STEP 24 LET IT RIP

Before fitting the outer cover, hit the button to check it works. Bendix bearings need plenty of oil, so fit outer chaincase and add 400ml of 20/30. Job done!