BSA - SECTION E

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D14/4 FRONT FORKS E2
HYDRAULIC DAMPING
(Supreme)
Figure E1 opposite, is a sectioned illustration of a front fork leg fully extended.
When the fork leg is compressed the lower member rises, forcing the oil upwards around the top of the restrictor rod. The pressure of the oil increases as the gap narrows between the lower bush and the restrictor rod, progressively slowing the fork spring action. Eventually the point of maximum compression is reached and is cushioned by the remaining oil in the main reservoir. As the fork leg begins to extend again, a vacuum is created in the lower member, causing the oil above the restrictor rod to be drawn back into the main reservoir under great pressure, thus providing a smooth cushioned action.
It will be seen therefore, that to ensure a uniform damping action, each fork leg must contain the right amount of the correct grade oil (see page A3).
A holder containing an oil seal is screwed on to the

top of the lower sliding member and prevents oil from seeping around the main tube when the forks are compressed.

REMOVING THE FORK LEGS

Before starting work on the forks it is advisable to have the following tools and replacements available:

(2 off) 90-5230 Upper bush.
(2 off) 90-5229 Lower bush.
(2 off) 97-2557 Oil seal.
61-3350 Service tool.
61-3633 Service tool.

DESCRIPTION

FIG. E1.

There are two basic designs of front fork fitted to the D14 Bantam range. The fork described on this page is fitted to the Supreme, and the fork fitted to the Sports and Bushman models as described on page E4.

Remove the front wheel as described on page F2, then take off the front mudguard and unscrew the front brake cable adjuster. Drain the oil from each fork leg (see page A5) and slacken off the pinch bolts in the bottom yoke. Prise out the cap from the top of each fork leg and unscrew the small nuts holding the top spring scroll.

D14/4 FRONT FORKS E3

Remove the large top cap nuts and screw service tool No. 61-3350 (minus the large nut and washer), into the top of the fork leg. Take a firm grasp of the lower sliding member and strike the top of the service tool sharply with a mallet. This will release the leg from its taper-fit in the top yoke, allowing the complete leg to be withdrawn.

The fork leg top cover on Supreme models is secured to the bottom yoke by the pinch bolts and need not be disturbed.

DISMANTLING THE FORK LEGS

To assist in dismantling, hold the fork leg firmly in a soft-jawed vice, on the flats of the wheel spindle lug. Fit service tool No. 61-3633 around the main tube and engage the dogs with the slots in the top of the oil seal holder. Whilst pressing down firmly on the tool, turn anti-clockwise to unscrew the holder. The main tube can now be drawn upwards from the sliding member complete with its two bronze bushes, leaving the

restrictor rod and spring still attached to the lower member.
If the fork spring is in need of replacement, it can be unscrewed from the top of the restrictor rod and withdrawn. The restrictor rod should not have been subjected to any wear, but can if necessary be unscrewed from the base of the sliding member.
The lower bush is a press-fit on to the end of the main tube and can be removed by first prising open the joint with a thin-bladed instrument, then tapping it off with a soft mallet. Ensure on replacement, that the holes in the bush coincide with the holes in the tube.
The upper bush is simply a push-fit into the top of the sliding member and is retained by the oil seal holder.
REBUILDING THE FORK LEGS
Before reassembling the fork legs, clean all the components thoroughly and check that the work bench is also clean. It will be assumed that the bushes and oil seal have been renewed as necessary. The oil seal is a press-fit into the holder groove.
FIG. E2. Fork leg exploded.
Later models have a different sealing arrangement, using a thicker seal, retained by a circlip.
Slide the oil seal holder on to the main tube with its slots uppermost then pass the tube over the spring and restrictor rod in the lower sliding member. Holding the assembly in a vice, screw down the oil seal holder on to the top of the lower member with service tool No. 61-3633.

D14/4 FRONT FORKS E4
FORK DISMANTLING
Before starting work on the forks it is advisable to have the following tools and replacements available:
(2 off) 65-5451 Oil seal.
(2 off) 65-5424 Top bush.
(2 off) 29-5347 Bottom bush.
61-3006 Service tool.
61-3007 Service tool.
61-3350 Service tool.
A length of No. 5 twine approximately 15" long.

REPLACING THE FORK LEGS
Screw service tool No. 61-3350 (minus the nut and

collar) into the top of the leg and pass the assembly up through the two yokes. Fit the collar and nut, then tighten the latter until the leg is drawn firmly home into its taper. Tighten the pinch bolt in the bottom yoke before removing the tool. Replace the large cap nut and its washer, followed by the small spring retaining nut and its cover.
Repeat the operations on the other fork leg and refill with the correct amount of oil (eighth-pint to each leg).
Finally, replace the front mudguard and wheel, adjusting the front brake as necessary.

FRONT FORKS
(Bushman and Sports)
The front forks fitted to these models are of an even simpler design than those fitted to the Supreme. The fork spring is on the outside of the main fork tube, which dispenses with the need for restrictor rod and fittings.
HYDRAULIC DAMPING
The hydraulic damping on these forks is similar to that of the other type with the exception that when the lower member rises oil is forced up around the fork shaft and enters it through a small hole in the fork shaft. This hole limits by virtue of its size the quantity of oil that can escape. It is this pressure resistance that slows the fork action. On recoil, the retraction of the main shaft creates a vacuum which sucks the oil back through the hole under great pressure. It is this action that gives the smooth controlled fork action.
Remove the front wheel as described on page F2, then remove the mudguard and support stays.
Drain the oil from the fork as described on page A5.
Pull the top of the rubber gaiter off the fork leg.
Slacken off the pinch bolts on the bottom yoke, and screw service tool No. 61-3350 (less the large nut and washer) into the thread at the top of the fork leg.
The tapered end of the fork shaft fits into a corresponding taper in the top yoke.
Hold the lower sliding member in one hand, and strike the top of the service tool with a hammer or mallet. Once the grip of the taper has been broken, it should be possible to draw the complete leg down through the yoke and remove it from the machine.

DISMANTLING THE LEG

To dismantle the lower section of the fork hold the sliding tube by gripping the wheel spindle lug in a soft-jawed vice.

To remove the oil seal holder slide service tool No. 61-3005 over the main tube and enter the dogs in the slots at the bottom of the oil seal holder.

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FIG. E3. Removing oil seal holder.

Pressing down firmly on the tool and turning anti-clockwise at the same time, unscrew the oil holder complete with the extension tube.

Remove the tool and slide the holder up the shaft until it becomes tight on the tapered section of the shaft, but do not use force or the oil seal may be damaged.

FIG. E4. Removing lower nut.

The main tube complete with bushes can now be withdrawn.

Grip the tube in a vice using soft clamps on the unground portion of the shaft and unscrew the nut at the lower end of the shaft.

This nut secures the lower bush and after its removal the oil seal holder, and bushes can be slid off the shaft.

OIL SEALS

If it is necessary to change the oil seal, place the lower edge of the holder on a wooden block and enter service tool No. 61-3006 into the top of the holder. Give the tool a sharp blow with the hammer and the seal will be driven out.

To fit a replacement seal, coat the outside with a good jointing compound and whilst still wet enter the seal squarely into the holder with the open side upwards and drive home with service tool No. 61-3007. Great care is required to avoid damaging the feather-edge of the oil seal and this should be greased before reassembly.

FIG. E5. Removing oil seal.

REBUILDING THE FORK LEG

Reassembly is carried out in the reverse order to dismantling.

Cleanliness is essential and before attempting to reassemble, clean all parts thoroughly and clear the

work bench on which the fork legs have been dismantled.

D14/4 FRONT FORKS E6
FIG. E6. Using the twine.
Slide the oil seal holder over the shaft until it is on the tapered section but do not use force or the seal may be damaged.
Place the top bush over the shaft followed by the bottom bush and bottom nut.
Tighten the nut securely, grip the lower sliding tube in the vice and enter the mainshaft, with the assembled parts, into the sliding tube.
Using service tool No. 61-3005, screw down the oil seal holder on to one turn of No. 5 twine round the groove at the end of the thread. This will provide an additional seal.
FIG. E7. Usin