

FORK OIL SEAL and SPRING REPLACEMENT (Indian built Bullets after 1988)

First obtain the new parts that you will need:

4 x fork seals, part 144468

2 x fork spring stud copper washers for bottom nuts, part 144601

400ml of fork oil: SAE20 for normal use or SAE5 for a softer fork action.

Tools needed:

Whitworth ring spanners ($\frac{1}{4}$ + $\frac{3}{8}$)

Thin nosed pliers

Rubber Mallet (Can be found in most owner's toolkit)!

Tyre lever or strong screwdriver

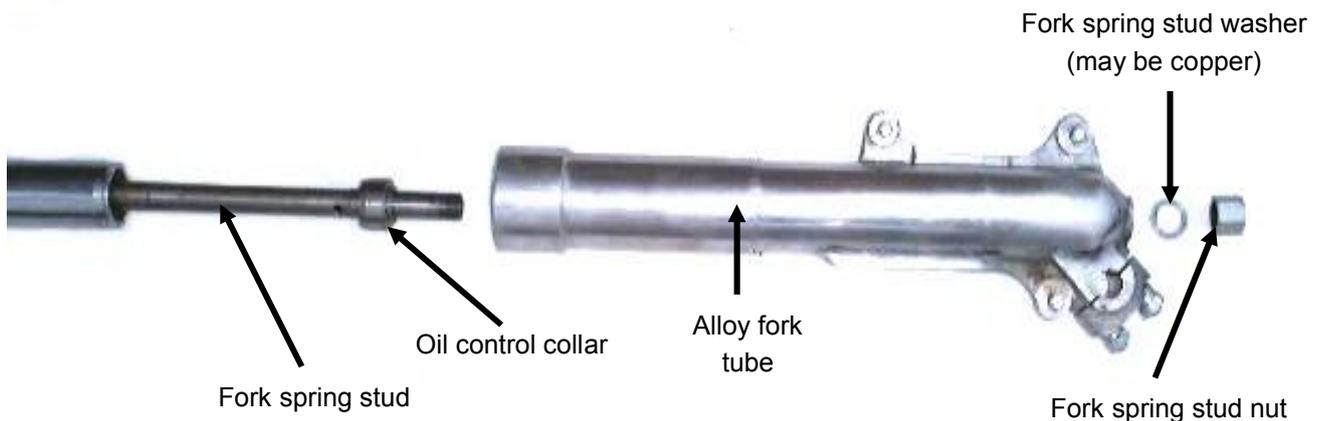
Special tool part ST25114 Fork seal removal sleeve (essential)

Special tool part ST25113 Fork seal drift (not essential)

Special tool part ST25112 Fork oil seal expander (not essential)

Special tool part ST25105 Fork valve port spanner (essential)

FRONT FORK BASIC COMPONENTS



With someone holding the bike, and before placing it on the centre stand, start by loosening the domed 'fork spring stud nuts' at the bottom of each fork end. The weight of the machine pressing down on the 'spring stud' will help to prevent the stud turning in the alloy fork tubes while unscrewing this nut. If the stud starts to turn, put more pressure on the forks and tap the spanner sharply with a hammer, this should be sufficient to free the nut. Occasionally, these nuts will not come undone and you may have to resort to carefully cutting the nut off.

Place the machine on its centre stand and support the front of the engine on a strong box to lift the front wheel clear of the ground. Disconnect the speedo and brake cables. Unscrew the 4 shouldered nuts and remove the 2 'fork spindle clamps' and remove the wheel. Unscrew the 6 nuts holding the mudguard stays to the alloy fork ends. Pull the stays off the studs, twist and drop the mudguard out of the forks.

A tray should be placed under the forks to catch the oil that will spill from the forks when the domed 'spring stud nuts' and washers are removed. Pull the alloy fork tube down and off the fork main tubes. The alloy fork tube may need a little encouragement with a rubber mallet to release from the fork spring stud. Take careful note of the oil control collar on the end of the fork spring studs. These may drop off, or may already have fallen down in the alloy fork tube.

It will now be possible to see the fork oil seal in the top of the alloy fork end. With a pair of pliers, pull out the retaining circlip.



For the next step, we strongly recommend the use of the special tool, part ST25114 'Fork oil seal removal sleeve'. This tool slips over the top of the alloy fork end and prevents excess leverage cracking the alloy whilst removing the seals. With this sleeve in place, use an old tyre lever or strong screwdriver to lever out the first fork seal, then the nylon spacer and finally the second fork seal. These fork seals can be tight, heat or hot water applied locally to the fork end may help.

Please note that 1988 to late 1990's use a dust seal that is no longer required. These are replaced with the 2nd oil seal. You will also need to order 2 x nylon spacers, part 140895.

To remove the fork springs, it will be helpful to have the special spanner part ST25105. Slacken off and remove the fork valve port and fork spring stud. (Due to variances between this tool and the slots in the valve port, it may be necessary to dress the castellation pegs to ensure that they locate correctly). The fork spring should now simply fall out, however, these can be wedged in place, so a carefully guided screwdriver or similar can be used to prise out the end of the spring.



Before reassembly, clean out the fork ends, removing all the old oil. Now is a good time to check for play between the fork end and the main tube. There are no bushes fitted to this type of fork, so if the play is excessive you will need to replace the fork ends. Also make sure the main tube is not scratched or rusty, as this will damage the fork seals and create oil leaks if left unattended. Smooth out any imperfections using 1000 grade wet & dry paper with a little oil.

Check the fork springs for sag - 20½" is the correct new length; if they are shorter than 19½" the springs should be replaced. One worthwhile modification, that will improve the ride and handling, is to replace the standard springs with the softer, more progressive spring (part 144219A).



Slide the springs into the fork tubes, insert the fork spring stud with the fork valve port, tighten the valve port using the special spanner already referred to.

Now fit the new forks seals. Smearing the seals with suitable grease will aid assembly. Tap the seals in to place, using the special tool (part ST25113). These seals must be fitted the correct way up - with the open end pointing downwards. Fit the first seal on each fork end, followed by the spacer, then the second seal and the circlip.



Fit the oil control collar on to the fork spring stud, with taper facing upwards. Again, a little grease will help to hold it in place on the spring stud.

The alloy fork tube is now ready to be pushed on to the fork main tube. The special tool (part ST25112), fork oil seal expander, will make this job easier and prevent damaging the seals on the edges of the main tube and castellated valve port. A useable substitute can be made from a piece of strong polythene coated in grease, pulling this out as the seals slide over the end of the main tubes.

Push the fork end up until the fork spring stud protrudes through the bottom. This simple task can be a tedious and frustrating business! The drilling in the bottom of the alloy fork tube is a very tight fit against the thread on the end of the fork spring stud to help eliminate oil leaks. The tight fit also helps to prevent the stud turning during assembly and removal. The stud will, therefore, need to be encouraged to pass through the drilling in the bottom of the alloy fork tube. It can help to lie on the floor, using a torch, to see exactly where the fork spring stud thread is in relation to the hole in the alloy fork tube. It will also help if the stud is guided into the hole by means of a screwdriver from underneath. When sufficient thread is showing, place the nut and washer on the thread and tighten. You may need to put some weight on the forks in the same way as when you disassembled them. If the stud seems to turn before the nut is tight, it would be worth removing the stud again and smearing some loctite on the area of the stud which is located in the alloy tube.



Remove the slotted fork plug screws from the top of the fork legs and refill with 200ml of oil in each. Refit the mudguard. Refit the front wheel ensuring that the brake plate anchor lug is fully located in to the brake plate. Replace the 4 spindle clamp nuts; do not over-tighten, or you will break the alloy clamps. (The correct torque is 9 lb-ft [1.30 Kg-m]). Reconnect the speedo cable and reconnect and adjust the brake cable. Check the brake and fork action before going back on the road.