



With ring removed, the thin metal oil retaining shim over the bearing can be lifted off. The bearing is then tapped out of position from the inside of the case. Take care to keep the internal oil shim.

The internal layshaft bearing within the gearbox shell can be removed, in a similar manner to that of the mainshaft bearing in the end cover, by gently heating the casing and bringing it down sharply on a block of wood, jarring the bearing out of position.



Examination and Inspection

Before reassembling the gearbox, it is necessary to inspect all the components that will be reused in the 5 speed gearbox.

These parts, including the case and end cover, should be washed in a petrol/paraffin mix, to remove all traces of oil and metallic particles which may have accumulated as the result of general wear and tear in the gear box.

Do not omit to check the castings themselves, for cracks or signs of damage or distortion. If there is any doubt over the condition of the case and components, seek specialist advice. Check the condition of the bearing housing. If the bearings are a slack fit and have shown a tendency to rotate it is advisable to use a bearing sealant, such as *Loctite* when refitting the bearings.

Again, if the case is badly worn due to this occurrence and the clearance is too great, then another case will have to be found.

Ball Bearings

As above, the 3 ball races employed with the gearbox, namely mainshaft, layshaft and sleeve gear pinion bearings, should be washed within a clean petrol/paraffin mix and then checked for any play or roughness as they are rotated.

If there is any doubt about their condition it is best to play safe and renew.

Layshaft Bush

Clean the bush as above, and test fit to new 5 speed layshaft. If excessive movement is found, replace bush. Similarly, test fit the bush with the kickstart housing. Replace if necessary.

Selector Mechanism

Check the remaining components of the gear selector mechanism that have been left within the gearbox housing are not unduly worn or damaged. Check the condition of the striking pawl spring and replace as necessary.

Selector Rods

If the selector rods are bent, damaged or burred, replace. Similarly, if the rods are a slack fit in the gearbox housing, remedial work will be required to overcome this problem.



Replacement of Gearbox Bearings

We strongly recommend the fitting of new bearings throughout the gearbox, whilst the gearbox is in this stripped down state, which ensures correct alignment of the gear cluster to be fitted, as well as giving peace of mind in the future.

Sleeve Gear Bearing

1. Fit inner oil retaining shim into gearbox shell bearing housing.



2. Fit sleeve gear bearing into housing, push fit

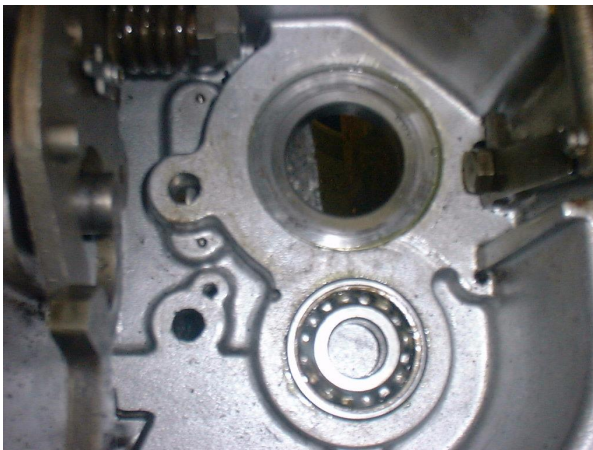
3. Place outer oil retaining shim on outer face of bearing. Screw threaded locking ring into position. When tightened fully, it should be arranged so that one of the internal grooves on the locking ring is positioned to the bottom of the housing. This ensures the oil trapped by the shims, drains back into the gearbox. The relative position of the internal grooves can be determined by the position of the external grooves. With the external groove near to the top of the housing, than an internal groove will be near the bottom.



4. Check the operation of the bearing, by rotating by hand and ensuring the shims are correctly positioned, not fouling the rotating component of the bearing.
5. With the ring tightened fully, it should be locked into position, by the use of a centre punch to burr over the edge of the aluminium housing at the point of one the rings slots.

Layshaft Bearing

1. The left hand layshaft ball race should press into the gearbox housing from the inside.
2. Gently warm the gearbox shell and align the bearing to the edge of the bearing housing.



3. Make sure the bearing enters the housing squarely, before tapping fully home.
4. If it is found the bearing is a slack fit, remove the bearing and reinsert using a bearing sealant as previously described.

Mainshaft Bearing

1. Gently warm the end cover and align the bearing to the edge of the bearing housing.
2. Make sure the bearing enters the housing squarely, before tapping fully home.

3. Refit retaining circlip.

Installation of Gear Cluster

The only “special” Tools that are required for this assembly are External circlip pliers

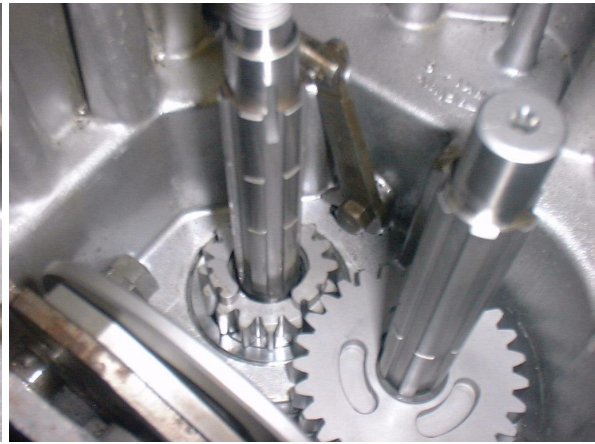
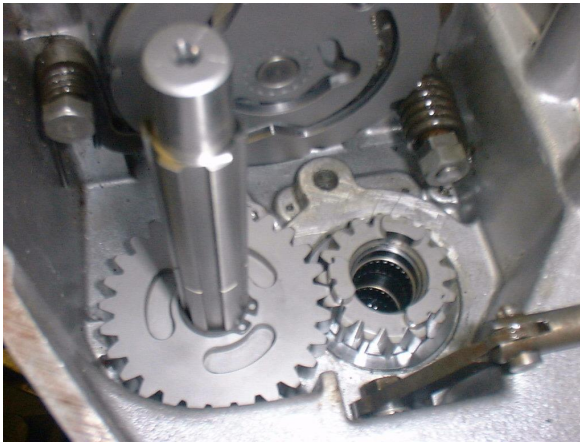
1. It has been found that is preferable for the gear cluster installation to be carried out with the gearbox housing laying with “its back” (clutch side) flat on the bench.
2. Place the gearbox housing on a block of wood, to allow the sleeve gear to pass through and not foul the bench.
3. As stated previously, the gearbox housing should be in the situation with its bearings fitted and the striking plate/ gear selector assembly in place.
4. Fit new striking pawl onto pin of the original Velocette striking plate assembly. Replace spring if worn, distorted or damaged.



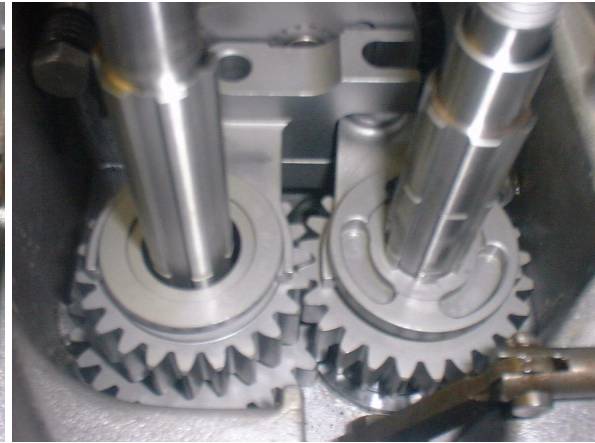
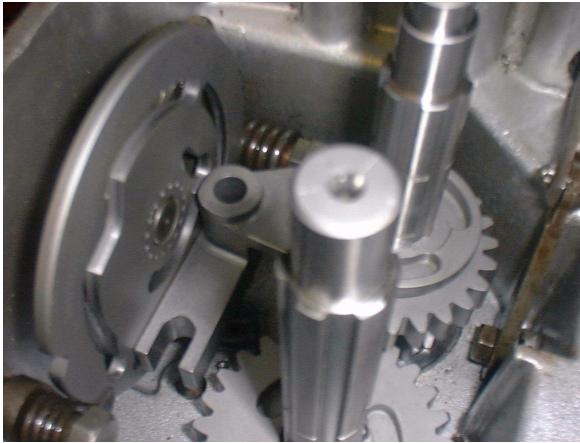
5. The new Camplate comes pre-assembled with its ratchet plate. **On no account** should this be separated, and remains as one assembly.
6. Fit camplate to camplate pivot, by springing pawl clear of the camplate. Release to allow indexing pawl to locate to the gear position notches on the camplate.
7. Set Cam plate to fourth gear position and keep fourth gear position selected throughout assembly of the cluster.
8. Fit the sleeve gear complete with the oil thrower, from inside the gearbox case, through main output bearing.



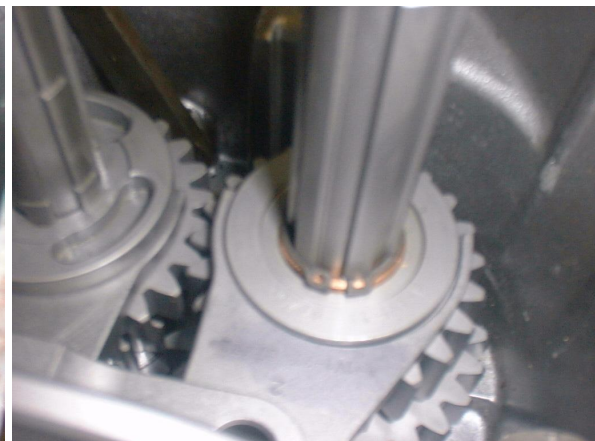
9. Fit circlip on the left hand end of the layshaft.



10. Fit fifth gear on layshaft and install layshaft into layshaft bearing within gearbox housing.
11. Push mainshaft through sleeve gear.



12. Fit **selector 1** onto the second gear and fit both simultaneously onto the mainshaft.
13. Fit **selector 2** onto the layshaft second gear and fit both simultaneously on to the layshaft, without fitting the bush.



14. Insert the bush onto the layshaft, through the second gear.
15. Fit the circlip onto the layshaft to secure the bush into position.

