



Sunbeam Service Sheet No. 4

Subject: Conversion of Gear Ratios (all models)

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Conversion of the gear ratios is effected by changing the rear drive worm and worm wheel. For solo work, Worm Part No. 89-5521 and Wheel Part No. 89-5520 giving gear ratios of 5.3, 6.5, 9.0 and 14.5 should be used. For sidecar work Worm Part No. 89-5536 and Wheel Part No. 89-5535 giving gear ratios of 6.1, 7.4, 10.0 and 16.6 should be used.

In each case the worms and wheels are paired up before issue from the factory, and it is therefore essential that these components are fitted as pairs.

To change the worm and wheel

Undo the rear mudguard stay pinch bolts and raise the hinged portion of the mudguard. Unscrew and withdraw the rear wheel spindle (left-hand thread) and take out the rear wheel. Disconnect the rear brake lever by removing the nut from the cam spindle (A, Figure 2). Uncouple the universal joint by unscrewing the knurled nut on the shaft, making a special note of the positions of the universal joint forks.

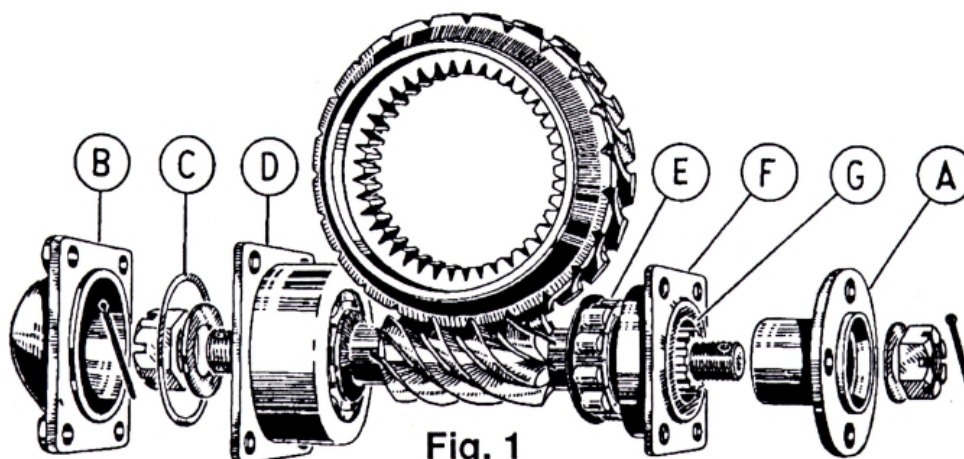
The complete worm drive unit should now be removed from the frame. To do this remove the chromium-plated top cap from the right-hand rear suspension bracket and take out the silencer bolt. This bolt also acts as a pinch bolt for the suspension column. Supporting the worm drive unit, drive out the suspension column from the bottom of the bracket using a suitable soft drift.

Grip the top and bottom spring sleeves and press them together to compress the springs and to disengage the unit from the bracket. Withdraw the complete assembly from the frame.

The rear cover plate which is also part of the offside rear suspension system is attached to the worm drive housing by six studs and one bolt on early models, and seven studs and one bolt on later models. The bolt is also an oil level plug for the worm drive where no separate level plug is provided. Remove the oil from the drive by removing the bolt or drain plug and unscrew the nuts. Take off the cover plate.

To remove the worm

Take off the universal joint, remove the split pin and unscrew the nut from the front end of the housing. Withdraw the coupling flange (A, Figure 1). Undo the four nuts and remove the rear end cover B followed by the washer and spacing shim C. Draw the worm shaft from its housing. It may be necessary to tap the front end of the shaft sharply with a hide or wooden mallet to facilitate removal. Remove the rear bearing housing D and the inner race of the front bearing E from the shaft.





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Take out the worm wheel (B, Figure 2) together with its inner and outer races, the coupling dog E and distance piece F. Hold the worm wheel firmly and tap the coupling dog smartly with the hide or wooden mallet to drive out the outer race. Reverse the coupling dog and repeat this procedure driving out the inner race D.

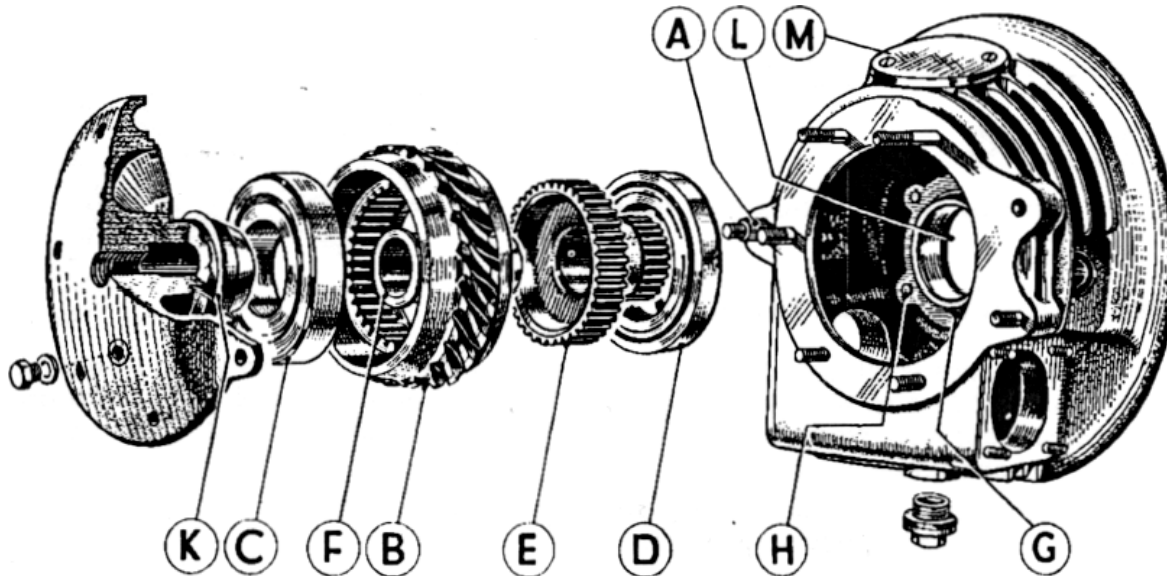


Fig. 2

It will have been noted that packing shims are fitted to both the worm and wheel and it is of the utmost importance that the worm and wheel are correctly aligned by replacing these shims when the new components are fitted.

Carefully note the positions of the shims and oil baffle plate. Clean and preserve them for subsequent re-assembly.

Re-assembly

This is carried out in the reverse order to that of dismantling. Replace all shims in their original positions to ensure correct alignment of worm and wheel. Rapid wear and noisy transmission will result if the alignment is incorrect. Refill with oil.

After assembly it must be possible to turn the drive using the fingers only, on the universal Joint flange on the worm shaft.

After the initial test run, check the tightness of all nuts on the worm drive cover.

SERVICE DEPARTMENT
B.S.A. CYCLES LIMITED