SERVICE SHOP DOPE

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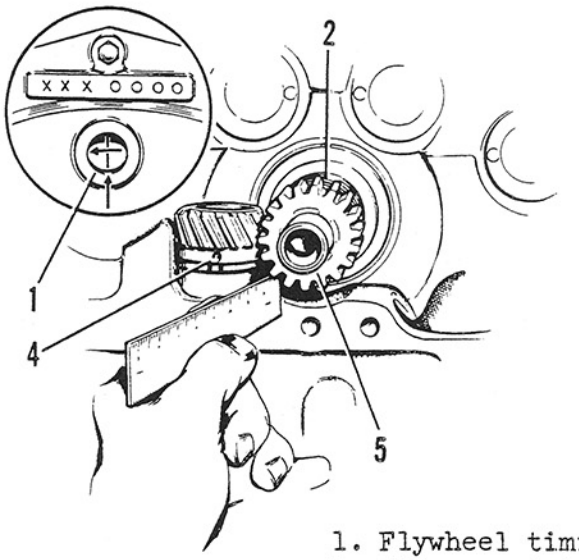
PROCEDURE FOR GEAR TIMING KH AND KHK ENGINES



1. Flywheel timing mark.
2. Oil pump drive gear (spiral gear).
4. Timing hole in breather sleeve gear.
5. Pinion gear.

Figure 1. Timing Crankcase Breather

Breather Timing

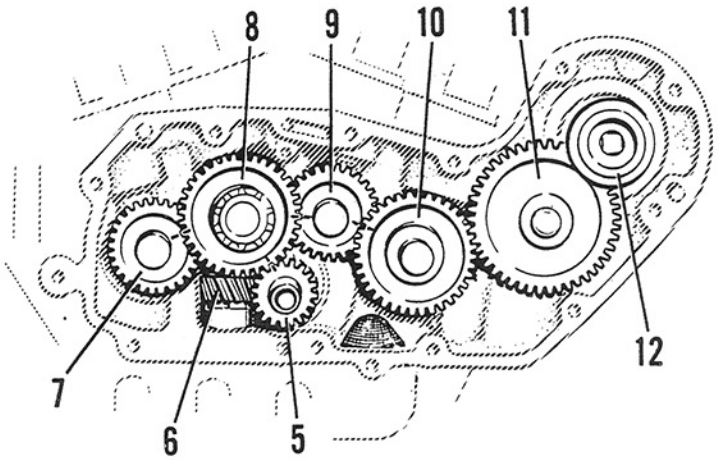
The breather valve is incorporated in the oil pump drive. It must be correctly timed since it controls the oil circulation system. The breather must be retimed if disengaged from oil pump drive gear (spiral gear) on pinion shaft for any reason (such as oil pump removal or spiral gear removal). To check breather timing proceed as follows:

1. Flywheel timing mark (1) should be exactly in center of timing inspection hole in left side of crankcase as shown in figure 1.

2. Oil pump drive gear (spiral gear) (2) is located on splined shaft behind pinion gear (5). Spiral gear is a slip fit on splines. A mark is cut in one side of spiral gear, which should face outward against pinion gear when assembled to shaft.

3. Assemble spiral gear against shoulder on pinion shaft, engaging breather sleeve gear tooth which will register timing hole in breather sleeve (4) in center of slot in breather bushing as shown.

4. Pinion gear (5) is a press fit on pinion shaft spline. Set pinion gear with its outer face exactly 5/16" from gear case, as this is the running position of the gear when gear case cover is in place.



5. Pinion gear.
6. Crankcase breather sleeve gear (also drives oil pumps).
7. Rear exhaust cam gear.
8. Rear intake cam gear. (also drives ignition circuit breaker)
9. Front intake cam gear.
10. Front exhaust cam gear.
11. Intermediate gear (has no timing mark).
12. Generator drive gear with breather oil separator ring (has no timing mark).

Figure 2. Timing Gears

Valve Timing

Correct valve timing is provided when marks on gears are in alignment as shown in Figure 2. Breather must be timed first as described previously.

Cam gears are numbered 7, 8, 9, and 10 in illustration from the rear exhaust valve cam forward. When cam gears are removed, make note whether or not cam gears 7, 9, and 10 have thin steel spacing shims on either end of cam gear shafts. If any of the cam gears mentioned have spacing shims, be sure the same number of shims are used on each shaft when reassembling.

When gear case cover is taken off it is advisable to remove from it the circuit breaker assembly, before it is replaced. The circuit breaker has to be retimed according to instructions which can be found in the Model KH Rider's Handbook, page 36.

HARLEY-DAVIDSON MOTOR COMPANY
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