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# REF: Tools - 101

## Gearcase / Cam Cover Tools

### Engine Cases

#### Splitting Cases

Usually, after all the bolts have been removed, the case halves come right apart. However, sometimes they will stick together and require light tapping with a rubber mallet.

Caution should be taken around the lower run of the left case, on IH engines, as it is fragile (pretty thin at the 3 nut and bolt area). <sup>1)</sup>

If the cases are still stubborn to remove;

Light pressure applied in the transmission area followed by tapping the right case at the generator mount should work.

(not at the far end of generator mount but nearest the crankshaft as possible) <sup>2)</sup>

This tool is will put 'some' pressure from within to help separate the case halves while tapping the case halves.

The tool below is basically an ironhead clutch spring compression tool (homemade) without the long standoffs. <sup>3)</sup>

- Bolt it to primary gasket surface.
- Place a piece of wood inside the transmission compartment between the tool's threaded rod and the right case.
- The tool screws in against the wood and the wood puts outward pressure on the right case half.



Homemade Tool for Splitting Cases <sup>4)</sup>

# Primary and Cam / Gearcase Cover

Early primary and cam covers had flat head, phillips and posidrive heads.

It's difficult to get them tight enough to keep from leaking and easy to get them too, causing leaks, case cracks or broken screws.

This prompts some to change the screws out to modern hex (allen) head socket screws.

Even allen head screws won't take a lot of over-torque without distorting the drive slots in the head though.

For the most even tightening of any of these screws, you can use a torque wrench with the correct bits.

You can find hex bits at hardware / tool stores that are either made to socket wrench adapters or made to insert into them.

Then simply attach the adapter to a torque wrench and torque away.

With the cover screws only being spec'd at 80-110 in/lbs, an in/lb beam torque wrench will give more consistent results than an in/lb clicker wrench.

The pic below shows a 0-80 in/lb torque wrench with adapters for a flat head screw. Just use the correct hex bit needed.



## Primary Cover

## Cam / Gearcase Cover

You can use an old points plate with a 1/2"X13 nut welded in the center to ease the cover off. Mount the plate inside the cover as you would normally and insert a 1/2"X13x3" headless bolt in the center. Turn it in until the cover comes loose. This way the #2 cam stays in place so they don't all fall out when you remove the cover.



**Cam Cover Removal Tool** <sup>6)</sup>

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1) , 2) , 3)

Dr Dick of the XLFORUM <http://xlforum.net/forums/showthread.php?t=1297584&page=6>

4)

photos by DirtyCory of the XLFORUM <http://xlforum.net/forums/showthread.php?t=1297584&page=6>

5)

photo by Hippysmack

6)

photo by dobermandave of the XLFORUM <http://xlforum.net/forums/showthread.php?t=395586&page=5>

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Last update: **2022/03/23 21:14**

