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REF: Tools - 133

Pinion Gear, Pinion Shaft Runout Tools

Pinion Gear

90 and Prior Models (4 Speed)

 Pinion Gear Removal Pinion Gear Install 1. LOST AND FOUND	 3/8" NUT (WELDED ON) 3/8" FULL THREAD ROD (H.C.) 3/8" BARREL NUT 5/16-24 (WF) LEFT HAND THREAD 5/16 FLAT WASHER WELDED 5/16 BOLT TO ALL-THREAD 3/8" STEEL WASHER W/ 5/8" HOLE ALUMINUM COLLAR (PROTECTS SHAFT) MADE FROM A JUNK ROLLER OFF OF AN OLD PRINTING PRESS - 5/8" DRILLED HOLE PINION GEAR	 FLYWHEEL PINION GEAR - PULLER Get the Harbor Freight gear puller #66868 and grind the end tips a bit to get them thinner. Remove the oil pump first and use a hose clamp on the end as shown. Works great! http://www.harborfreight.com/automotive/puller-puller-66868.html
Homemade Pinion Gear / Removal / Installation Tools ¹⁾	Homemade pinion gear press ²⁾	Pinion Gear Puller ³⁾



Large fender washer cut into a "C" shape and a gear puller

Homemade Pinion Gear Puller ⁴⁾



3/8" stainless steel plate with 20° spokes (for 18 teeth),
sawed initial groove to depth and widened it with files

Homemade pinion gear locking tool for '89 models ⁵⁾

91 and Up Models (5 Speed)

See also [Oil Pump Drive Gear](#) in the Evo section of the Sportsterpedia.

For turning the engine over using the pinion gear nut

You can use a 15/16" wrench or deep well socket to turn the engine over using the pinion gear nut. ⁶⁾



93-Present Pinion Gear Nut (7916A) ⁷⁾

To remove or install the pinion gear nut

You'll need to lock the pinion gear from moving while turning the nut.

- It's very important to hold the crank on the pinion side with an appropriate pinion locking tool whenever you take the pinion nut off or put it on. If you hold the crank still from the primary side (or by putting the bike in gear and holding the brake), the twisting torque applied to the pinion nut gets transmitted through the crank, from one side to the other. The crank pin is not designed to resist much twisting force. You'll risk scissoring the crankshaft (knocking the crank out of true), which requires a full tear-down to fix. ⁸⁾ So this is one of those situations where it's best to use the proper tool. ⁹⁾

Read the [Origin of the Grindlock Tool here](#)

The Grindlock Pinion Shaft Locking Tool engages for the full depth of the pinion gear for max. strength. ¹⁰⁾

Due to a change in the pinion gear in 2000, there are 2 different versions of this tool:
1. (91-99) year models & 2. (2000 to present) year models ¹¹⁾



Grindlock 91-99 & Grindlock 2000
(designed by XLFORUM member, “~Grind~” and Built by Hammer Performance ¹²⁾ ¹³⁾ ¹⁴⁾ ¹⁵⁾



Jims Pinion Gear Locking Tool ¹⁶⁾



Jims Pinion Gear Locking Tool on S&S Motor ¹⁷⁾

Pinion Gear Runout

Attach a scrap piece of metal to the outside of the gearcase and position a gauge holder on it so it won't move while turning over the engine. ¹⁸⁾



Install a dial gauge on the holder with the pointer on the pinion shaft. Find the lowest spot while turning the engine over and 'zero' the indicator. ¹⁹⁾

This setup is made with a piece of angle iron for the magnetic base to stand on ²⁰⁾



This gauge post is threaded into a cover mount hole. ²¹⁾



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<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/63858-special-tools/page5?t=395586&page=5>

2)

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5)

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<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/frame-mount-evo-sportster-talk-1986-2003-models/181287-made-a-pinion-gear-locking-tool-for-my-89-xlh1200#post5322902>

6)

photos by Hippysmack

7)

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8) 11)

Hammer Performance <http://www.hammerperf.com/xlvalvetrain.shtml#grindlock>

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10)

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<https://www.xlforum.net/forum/vendors/hammer-performance/149240-pinion-gear-locking-tools-now-avail>

[lable-from-hammer-performance/page4?t=1618841&page=4](#)

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13)

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