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Motor Mounts

Click here for Engine Mounts in the Evo Suspension section of the Sportsterpedia.

Cylinder Mounting Studs

Weakest cylinder mounting stud holes in the case. [1)]

Timing Hole Plug (1986-2003)

Click Here to go the Timing Inspection Hole and Plug - Sealing and Thread Repair page in the

Sportsterpedia.

1972-2003 Sportster Timing Hole Plug (720).
Threads: 5/8“-18 x .350” with 3/8“ Hex Socket (Allen) Head.

[2)]

[3)]

Primary Compartment

Primary Cover Gasket

Below is a list of factory gaskets used on Sportster primary covers.
Pics of the different part numbers are listed to the right in the chart. Click on the link to open a picture of the part.

Year Model	Part#	Notes	Pics
1977-1990 Sportster	34955-75		
1991-2003 Sportster	34955-89 34955-89A 34955-89B	-89A replaced original in 1994. [4)] -89B shows up in 2013 (-B) series parts catalogs.	-89 [5)]
2004-Present Sportster	34955-04		

Shifter Shaft Seal

Navigate to the appropriate year model transmission pages in the Sportsterpedia for removal/installation.
Part numbers:
2003 and earlier (37101-84)
2004-2005 (37101-84A)
2006-up (37107-06)
There is a steel bushing pressed into the bore in the cover. The seal installs on the outside of the bushing with a light press fit.

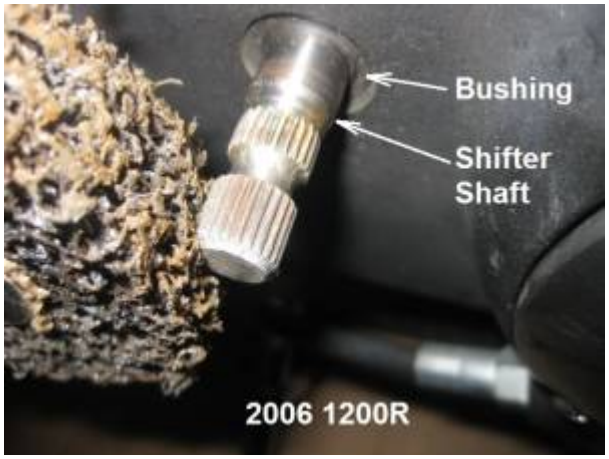
The seal can be removed/installed without removing the primary cover.

Shifter shaft seal on 1998 1200S primary cover.

6)

7)

Shifter shaft seal on 2006 1200R primary cover.



8)

9)

10)

Shifter Shaft Bushing

1977-2003 Sportster Shifter Shaft Bushing 40520-63:

11)

12)

13)

14)

Inspection Covers/Caps

1986-1990

1986-1990 Sportsters use the same threaded cap/plug for the primary oil filler hole and clutch inspection hole on the primary cover.
The tool access hole looks similar to the “Chevy Bowtie” symbol and uses a similar tool to remove and install it.
The plug has no through hole since the primary / transmission breathes out a rubber tube on the top-rear of the transmission.
Each plug is sealed with an O-ring (1139).
1986-1988 models used a polished aluminum plug (34742-86) that was sold through 1990 models.
In 1989, a chrome plug (34745-87) was also available and sold through 1990 for 1986-1990 models.

1986-1990 Sportster Polished Primary Cover Cap Plug (34742-86) [15]

1989-1990 Sportster Chrome Primary Cover Cap Plug (34745-87) [16]

Crankshaft Seal

Here is a trick to hold the spring in place to stop it popping off while you are fitting the seal. [17]
Before fitting it, pack some grease around the spring in the seal groove. You only need a small amount.

Crankshaft Seal (35151-74A) [18]



Gearcase / Cam Chest

Cam Cover Gasket

Below is a list of factory gaskets used on Sportster cam covers.
Pics of the different part numbers are listed to the right in the chart. Click on the link to open a picture of the part.

Year Model	Part#	Notes	Pics
1986-1990 Sportster	25263-86		Pic [19]
1991-1993 Sportster	25263-90		
1994-1997 Sportster	25263-90A		
1998-1999 Sportster	25263-90B		
2000-2003 Sportster	25263-90C	**Note: Do not use a pre-2000 gasket on 2000-2003 cam covers** A 1991-1999 style gasket WILL destroy a 2000-2003 engine! See below.	

1977-up Sportster engines have an internal rifling hole drilled into the lower left side of the case running past the left side of the oil pump.
That extra hole (in the picture below) is benign and doesn't need a hole in the gasket to match.
That hole is purely an artifact of how they connected two passages for routing crankcase oil up to the oil pump's scavenge section.
They drill that hole to connect the two passages, and then it gets blocked off naturally by the cam box cover and gasket. [20]

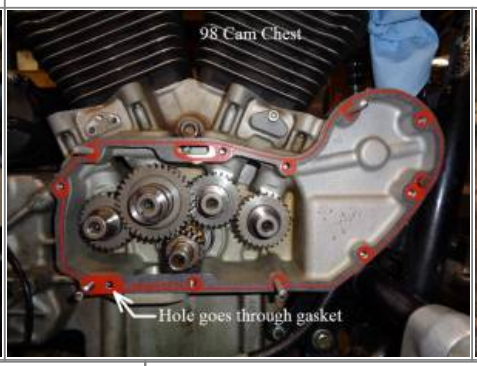
Also, in 2000, the factory changed the oil routing to the lifters to make manufacturing the cases easier.
The newer cam cover on the left in the pic below and has two extra grooves along the top. These grooves let oil get to the lifters.
If you have an older style gasket, it will not have cutouts for the grooves and you won't get oil to the lifters.

Rubbermount Evo vs Rigid Evo Cam Cover Internals [21)]

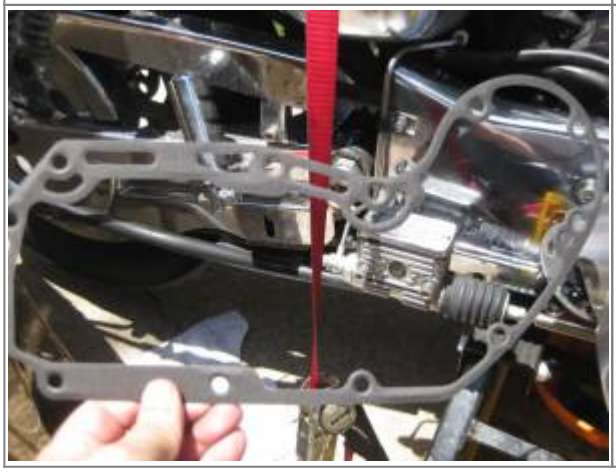
Both have been chopped on the outside but the gearcase perimeter is intact on them for reference.

1991-1999 cam cover gasket [22)]

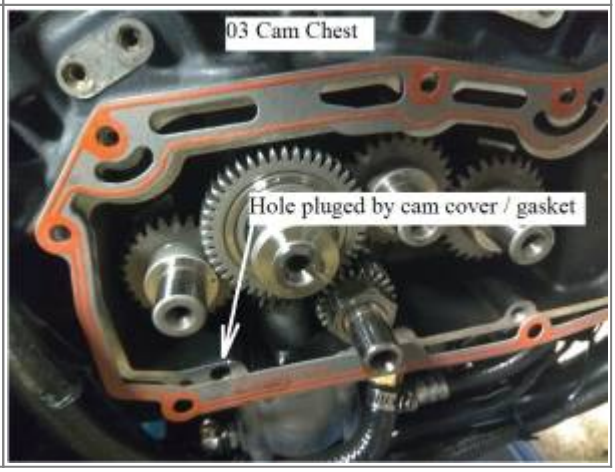
1991-1999 cam cover seals off the extra hole. [23)]



2000-up cam cover gasket [24)]



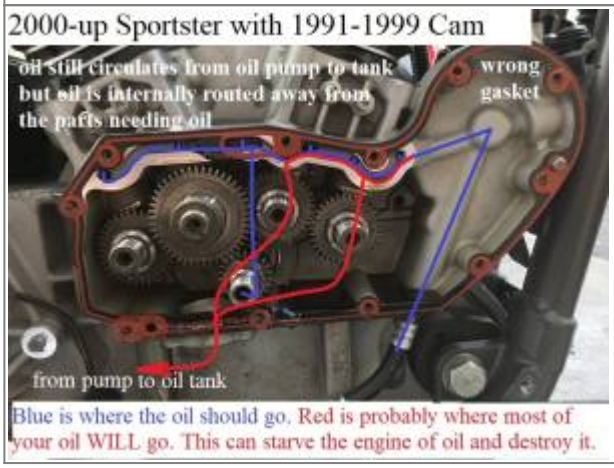
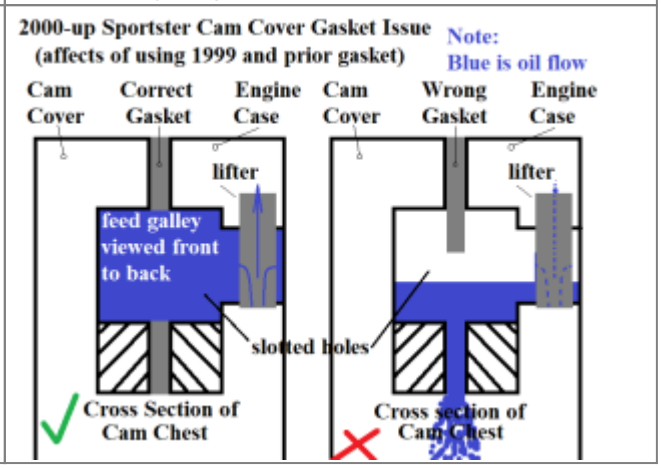
2000-up gasket seals off the extra hole. [25)]



DON'T INSTALL a 91-99 CAM COVER GASKET ON A 2000-UP MOTOR!!!!!!!

The 91-99 cam cover gasket has no business being on a 2000+ motor at all. It will cause you to lose all oil pressure. [26)]
The 2000+ gasket supersedes the 91-99 gasket. In other words, it can be used all the way back to 1991. Most companies completely dropped the 91-99 specific gasket and only offer the one that can be used from 1991-present.
Either James Gasket hasn't done that, or they may have some old stock.

The 1991-1999 lifter feed galley is an internal rifling hole in the case. It's drilled thru the case and only open to the cam cover via the center port to the pinion bushing.
The 2000-up lifter feed galley is external and it takes both the cover and the case mounted together to make up the feed galley.
So 2000-up feed galley is split in half between the case and cover. The slots in the 2000-up cam cover gasket mate to both the case and the cover.
If you have the correct gasket on there, oil would be forced (between the cover and case) to all the lifter feed holes and piston squirters.
With the wrong gasket (1991-1999), oil pressure leaving the filter gets into that (now open) galley.
Then the oil will blow into into the cam chest, therefore bypassing the lifters, piston squirters and rod bearings.
The oil will simply cycle from the oil pump to cam chest to oil pump and back to the oil tank.
The oil light will stay off so you'll get no notice before moving the parts start oil starving and making noises and worse if the noises aren't heeded to quickly.

2000-up motor with 1991-1999 cam cover gasket. [27]	Below is a rough cross section of the joint in the feed galley at that first slotted run. [28]
	

Ignition Sensor Seal (1986-2003)

This is a steel shell radial shaft seal (HD# 11124) installed in the cam cover.
It surrounds and seals #2 cam when the cover is installed. Also used on 1971-1985 Sportster cam covers.
Dims per XLForum member, Fizzle:
OD 1.570” (39.878mm), ID 1.050“ (26.67mm), W 0.248” (6.2992mm)

Other brands include James (JGI-11124), Cometic (C9355), Athena (51-A210), Custom Chrome (54-043).
The rubber shell HD Genuine double lip version is part number (11124-DL).
Other brands include James (JGI-11124-DL).
NOTE: SKF makes a radial shaft seal with a part number of 11124 but that IS NOT AN HD PART NUMBER.
SKF 11124 IS TOO BIG TO FIT THE COVER and they don't show a compatible seal in their catalog for this application.

HD Seal (11124):

29)

Removing / installing the pinion shaft nut

To remove or install the pinion gear nut,
You'll need to lock the pinion gear from moving while turning it.
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. [30)]
So this is one of those situations where it's best to use the proper tool. [31)] The pinion nut takes a 15/16“ wrench size.

Pinion Shaft Runout

Check to see if your crank is out of true. See Measuring Pinion Shaft Runout in the REF section of the Sportsterpedia.

Flywheel Related Information

Late 1986 flywheels and crankpin bearing changes.
Information from Technical Service Bulletin #M-927. Click here to see the actual bulletin from this page in

the Sportsterpedia.
Beginning with crankcase numbers 883cc (1786 083 003) and 1100cc (1886 090 012), a new (F.A.G.) crank pin bearing set and revised flywheels were installed at the factory.
The new crank pin bearing set (using the existing crankpin P/N) consists of three bearings in a package.
Early production engines were assembled without thrust washers.
L1986-later production flywheels had thrust washers staked into a counter-bore in the flywheels. The L86 crank pin bearing set retrofits earlier models.
However, the new bearings require a stepped flywheel thrust washer to provide clearance for the wider bearing cages.
You will select the correct thrust washer for your particular assembly and machine off the raised lip in the area of the flywheel thrust washers' I.D.
This lip must be machined off or you will crush the bearing cage as you assemble and torque the crankpin nuts.
See Tech Tip #14, Instruction Sheet #J00022 and Instruction Sheet #J00025 in the Sportsterpedia for more information.

The L86 XLH883 flywheel assembly is (23905-86A) and the L86 XLH1100 flywheel assembly is (23900-86A).
There were new crank pin bearing clearances also.
The new crank pin bearing set packages were color coded with either a red or a blue identification. This color coding is used by the bearing manufacturer only.
The color coding DOES NOT indicate size selection for crank pin bearing replacement.

1989 flywheel changes.
Information from Technical Service Bulletin #M-971. Click here to see the actual bulletin from this page in the Sportsterpedia.
Beginning June 1, 1988, flywheels forged from a micro-alloyed steel went into production. Part numbers and color codes of assemblies with the new material were changed.

1991-1994 Flywheels.
From '91 to '94 the Crankshaft/Flywheel was balanced according to the engine size, either for 883 pistons or 1200 pistons. From 1995-later, the flywheels are balanced to be between the weight of the 883 & 1200 pistons. [32] This is one reason why riders would use Wiseco pistons in early (pre-2004) 883 to 1200 conversions - the Wiseco 1200 piston & pin was closer to the weight of the 883 combination rather than the stock 1200 piston & pin from HD.

1995-1999 Flywheels.
Flywheel assembly part number (23905-89A).
Each flywheel casting number (23931-88A).

2000 Flywheels:
There are no timing marks on the wheels for any of the rubber mounts. [33]
Nor is there a timing window (on the case) to look through to see the mark that's not there.
And for that matter, there's no way to change the timing, even if you had a window to see the mark that's not there.
The only way to change the timing on a rubber mount is to use an aftermarket ignition that gives you control, through dials and/or a programming kit.
And even doing that, there's no way to measure it, you just have to trust that it's delivering the timing

you're telling it to.

95-99 Flywheels [34)]

L1986-up crank pin boss washer (6508) [35)]

1995-1999 Flywheel Assembly

The same flywheel set was used in all Sportsters 95-99.
Sold as a unit: part number (23905-89A) consists of the flywheels, shafts and rods.
Each flywheel casting number (23931-88A)
Connecting rod set: part number (24275-86A)
Front connecting rod casting number (24321-83)
Rear connecting rod casting number (24320-83)
Rod bearing set (24354-87A)
Rod bearing race - front (2)-(24341-52A)
Rod bearing race - rear (2)-(24352-52A)
Piston pin bushing std (2)-(24331-36), .01” O.S. (24332-36
Crankpin std (23960-80A), .001“ O.S. (23948-87), .002” O.S. (23949-87)
Crankpin boss washer (2)-(6508)


23905-89A
Flywheels,
shafts
and
rods set
All Sportsters 95-99


23905-89A
Flywheels,
shafts
and
rods set
All Sportsters 95-99


23905-89A Flywheels, shafts and rods set
All Sportsters 95-99


23905-89A Flywheels, shafts and rods set
All Sportsters 95-99


23905-89A Flywheels, shafts and rods set
All Sportsters 95-99


23905-89A Flywheels, shafts and rods set
All Sportsters 95-99


23905-89A Flywheels, shafts and rods set
All Sportsters 95-99


23905-89A Flywheels, shafts and rods set
All Sportsters 95-99
24321-83


23905-89A
Flywheels,
shafts
and
rods set
All Sportsters 95-99


23905-89A Flywheels, shafts and rods set
All Sportsters 95-99


23905-89A Flywheels, shafts and rods set
All Sportsters 95-99

2000-2002 Flywheel Assembly

The OEM Flywheel assembly (23905-00) was factory installed in all Sportsters 2000-2003.
That's to say the entire assembly part number is the same from 00-03.
However, the rods in the 2000-2002 assemblies are reportedly thicker than the 2003 assembly. [36)]

The entire assembly was sold as a unit with no published part numbers for it's individual parts.
To date, we have no pics or casting numbers on the 00-02 rods for comparison.
Rod bearings and races, crankpin and even the shaft nuts were not mentioned in the parts catalogs.

Piston Pin bushing, standard (24331-36), 0.01“ O.S (24332-36)
Inner bearing ring (24658-87)
Retaining ring (11177A)

Flywheel assembly 23905-00 [37)]	Flywheel assembly 23905-00A [38)]
	

2003 Flywheel Assembly

The original OEM Flywheel assembly (23905-00) was factory installed in all Sportsters 2000-2003.
However, the rods in the 2003 assemblies are reportedly thinner than in the 00-02 assembly and carry -02 casting numbers. [39)]
So the original 2003 flywheel version appears to be a one year only version.

Entire assembly was sold as a unit with no published part numbers for individual parts for the assembly.
Rod bearings and races, crankpin and shaft nuts were not mentioned in the parts catalogs.

- The assembly in the pics below came from a 2003 883R:
  - Front connecting rod casting number (24225-02)
  - Rear connecting rod casting number (24224-02)

Piston Pin bushing, standard (24331-36), 0.01” O.S (24332-36)
Inner bearing ring (24658-87)
Retaining ring (11177A)

Flywheel assembly 23905-00 [40)]

Flywheel assembly 23905-00 [41)]

2004-Later Flywheel Assembly

The sprocket shaft nut torque for 2004 & later Sportsters and 2003 & later Buell XB models has been changed. [42)]
The torque has been increased from 190-210 ft-lbs. to 240-260ft-lbs.
Remember to clean the threads and generously apply LOCTITE Threadlocker 262 (red) onto the threads of engine sprocket shaft and use a sprocket locking tool.
Some examples of sprocket locking tools are here in the tools section of the Sportsterpedia.

Crank Pin

Crank pin (23960-80A) was used from L1981-2003.

- Pressurized oil in the pinion bushing is sent through a hole in the (hollow) pinion shaft toward the

flywheel.
Oil travels to and through the right flywheel via an internal passage from the pinion bore and the crank pin bore in the flywheel.
Oil enters the crank pin inside the crank pin bore on the flywheel.
Oil is routed out of the crank pin through a hole under the rod bearings in the middle of the pin and circulates to the rod bearings.
This is the end point of static oil pump pressure to the bottom end.

- Oil leaving the rod bearings lands into the crankcase to be scavenged by the oil pump (or splashed into the gearcase).
  Crankcase pressure and oil pump suction moves the oil from this point.

(used) L81-03 'one hole' crank pin. [43]

L87-03 crank pin [44]

Connecting Rods

Rod set (24275-86A) includes bearings, crankpin and nuts.
Below are pics of just the rods off a 1998 1200S model.
The part numbers cast into the rods are front (24321-83) and rear (24320-83).



Below is the rod set known to be fitted to at least 2003 model Sportsters.
Front casting number (24225-02)
Rear casting number (24224-02)

45)

46)

47)

Pinion Shaft

Installing 1986-2003 Flywheels

1976 and previous year Sportsters use a one piece dual Timken bearing race on the left (sprocket

shaft) side of motor.
These engines also used a press-in outer race on the right (pinion) side.
The right bearing race was able to be line-lapped to the left bearing to fit oversize bearings. You need a line-lapping tool to do this. [48)]

1977-E1986 Sportsters use two separate Timken bearing races on the left side.
The right bearing was changed to a single Torrington bearing with an accompanying inner race that presses over the pinion shaft.
This bearing is not rebuildable so you don't lap these engines. You just press the bearing out and install a new one. [49)]

L1986-2003 Sportsters still use the two piece Timken bearing races on the left case.
But the right cases are now back to the lap-able race with oversize roller replacements.
(only the rollers are in a cage and the inner race is still pressed onto the pinion shaft)
Pre-1977 cases had loose rollers and post-86 cases have captive rollers in cage with less choices on bearing over-sizes. [50)]

The flywheel assembly doesn't really press into the left case half, that's a misconception that a lot of people have.
There are two bearings that get pressed onto the sprocket shaft, and the left case half is sandwiched in between those two bearings.
So it's not the crank itself that's pressed in, it's two bearings that are pressed onto the crank.
(positioned as one inside and one outside of the left case (inner and outer case positions). [51)]

Proper assembly of the lower end requires special tools to remove / install the bearing races into the case halves. [52)]
Plus you need a puller that can get the inner bearing off to replace it.
And you need to be able to accurately measure the pinion shaft bearing races to a ten-thousandth (.0001“) to select the right replacement size bearing.
(which means snap gauges and a couple different sized .0001” reading micrometers)
Plus you need to rig up a dial indicator to check your flywheel end play.
And if you've already pressed against the flywheel assembly to remove it, it really ought to be put in a truing stand and make sure it's still straight.
Also, once it's all together, the sprocket shaft seal ought to be put on with the correct tool.
The tool puts it in square and sets the depth correctly.

Left Side Bearing Assembly: [53)]

- The inner bearing goes on the crankshaft before installing it through the bore in the left case.
  And it will remain on the shaft once the shaft is removed from the left case.
  It's corresponding inner race (Timken bearing outer race) is a cone shaped race that's pressed into the inside of the left case.
  It will also remain in it's place when the flywheel assembly is removed.
- There is a bearing spacer that resides between the inner and outer bearings that separates the bearings and sets the preload between the two.
  It basically controls how much gap is left between the bearings and the case half (actually the races which are pressed into the case half).
  The bearing spacer (shim) is available in sizes from .098“ to .114” in steps of .002“.

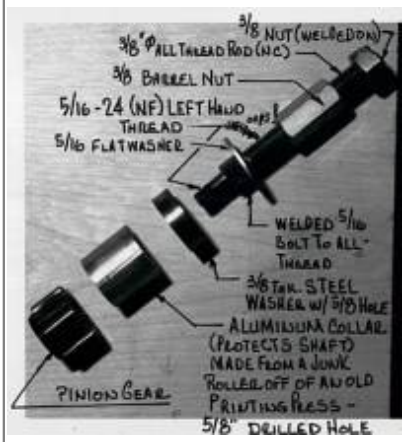
It's thickness is sized (selected) to set the flywheel end play. The end play spec is .001” to .005“.
- There is also a bearing race spacer. This spacer is a thick piece of steel that's sandwiched between the inner and outer bearing races.
  It fits into a notch that's machined into the cases. It has a gap that needs to be pointing straight up as there's an oil hole there where crankcase oil bleeds down into the bearing area.
  It will most likely (should) stay in the middle of the cases once the flywheel assembly is removed.
- The left case outer bearing race, like the inner race, this is a cone shaped race that's pressed into the case.
  It will most likely stay in the case once the flywheel assembly is removed.
- The outer bearing, same as the inner bearing, is pressed onto the crankshaft and will have to be removed before the flywheel assembly comes out.
  Then it'll have to be pressed back on when the flywheel assembly is installed.
- There is another spacer that sits directly under the front primary sprocket and holds it away from the outer bearing.
  The seal rides on this spacer. Don't forget it.
- Even though both bearing outer races are installed into the case half with a press, you really can't put the sprocket shaft bearings on with a press.
  Pressing against the flywheel assembly is a really bad thing to do, it'll knock it out of true.
  There's a special tool for pushing those bearings onto the shaft. It threads onto the end of the shaft, so it never presses against the wheels at all.

Right Side Bearing Assembly: [54)]
The pinion shaft just slides into the right case. Oil everything up first though.

- The pinion bearing is available in four different sizes.
- The outer race for the pinion bearing is pressed into the right case.
- You have to precisely measure the I.D. of the outer then measure the O.D. of the race that's on your pinion shaft.
- Then there's a table in the service manual that shows you which of the four different available pinion bearings to use based on those two measurements.

90 and Prior Models (4 Speed)

Homemade Pinion Gear / Removal / Installation Tools [55)]



Homemade pinion gear press [56)]

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!

Pinion Gear Puller [57)]

Large fender washer cut into a “C” shape and a gear puller

Homemade Pinion Gear Puller [58)]

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 [59)]

1991-Up Models (5 Speed)

See also in the Sportsterpedia:
Oil Pump Drive Gear
Origin of the Grindlock Tool

- You can use a 15/16“ 6 point wrench or deep well socket to remove / install the pinion gear nut.
- The Grindlock Pinion Shaft Locking Tool engages for the full depth of the pinion gear for max. strength.

60)

61)

- Due to a change in the pinion gear in 2000, there are 2 different versions of this tool: (L) - (91-99) year models & (R) - (2000 to present) year models [62) 63)]

64)


65) 66)

- Once the pinion shaft nut is removed, the pinion gear may or may not slide off by itself.
  You can use a gear puller to remove it if it is stuck on.
- It's very important to hold the crank still from the cam side (not the primary side) when torquing the pinion nut. [67)]
  If you for example put the bike in gear and hold the rear brake and torque on the nut, you run the very real risk of knocking the crank out of true.
  It's not designed to transmit torque from one side to the other and it tries to twist the crankpin connection.
- In respect to the key shearing, it's a very common issue particularly when heavy valve springs are used.
  However, it shouldn't be the one thing that keeps the gear from spinning. The clamp load should do that.
  The caption in the second pic below describes the fix:
  Loctite red and 70ft-lbs instead of the factory specified 50ft-lbs. You won't have this issue again.


68)

69)

Oil pump drive gear (L), pinion gear (R). The pinion shaft key resides under the oil pump gear. But the pinion gear only slides around the key, not over it. [70)]

Parts Lists

Engine Cases

Year Model	Case Set Part#	Left Case Casting# (location)	Right Case Casting# (location)
1986-E1987 All	24527-86	24532-86 (outer wall)	24552-86 (outer wall)
Notes	One year only case set. Left over 1986 cases used on early 1987 models. Crank shaft bearings (24729-74) and pinion shaft bearings (24648-77)		
1987-1989 All	24527-87	(E87) 24532-86 (outer wall) (L87-89) 24534-86 (inner wall)	24558-86 (inner wall)
Notes	Some early 1987 models may have leftover cases from 1986. 1987-up crankshaft bearings (24729-74) 1987-up pinion shaft bearings (24647-87 / 24650-87 / 24659-87 / 24660-87)		
1990 All	24470-87	24534-86 (inner wall)	24558-86 (inner wall)
Notes	Case set supplied with bearings. Replacement set for 1987-1989 Sportsters. Crankshaft bearings (24729-74) Pinion shaft bearings (24647-87 / 24650-87 / 24659-87 / 24660-87)		
1991 All	24470-91		

Notes	Case set supplied with bearings. Crankshaft bearing complete set (2) (48302-85) Pinion shaft bearing (24647-87 / 24650-87 / 24659-87 / 24660-87)		
1992-1994 All	24470-91B	24534-89 (outer wall)	24558-89 (inner wall)
Notes	Case set supplied with bearings.Crankshaft bearing complete set (2) (48302-85) Pinion shaft bearing (24647-87 / 24650-87 / 24659-87 / 24660-87)		
1995-1997 All (except XL1200C) 1996-1997 XL1200C	24470-91C 24466-96	24534-89 (outer wall)	24558-92A (inner wall)
Notes	Case set supplied with bearings. Crankshaft bearing complete set (2) (48302-85) Pinion shaft bearing (24647-87 / 24650-87 / 24659-87 / 24660-87) XL1200C cases are black, all others are silver.		
1998-1999 All (except XL1200C) 1998-1999 XL1200C	24470-98 24466-98	24534-98 (outer wall)	24558-98 (inner wall)
Notes	Case set supplied with bearings. Crankshaft bearing complete set (2) (48302-85) Pinion shaft bearing (24647-87 / 24650-87 / 24659-87 / 24660-87) XL1200C cases are black, all others are silver.		
2000-2002 All (except XL1200C) 2000-2002 XL1200C	24470-00 24466-00	24534-98A (outer wall)	24558-00 (inner wall)
Notes	Case set supplied with bearings. Crankshaft bearing complete set (2) (48302-85) Pinion shaft bearing (24647-87 / 24650-87 / 24659-87 / 24660-87) XL1200C cases are black, all others are silver.		
2003 All (except XL883R/XL1200C) 2003 XL883R/XL1200C	24502-03 24500-03	24555-03 (outer wall)	24558-00 (inner wall)
Notes	Case set (silver) supplied with bearings. 100th Anniversary restricted sale. Crankshaft bearing complete set (2) (48302-85) Pinion shaft bearing (24647-87 / 24650-87 / 24659-87 / 24660-87) XL883R and XL1200C cases are black, all others are silver.		
2004-2005 All (except XL1200C) 2004-2005 XL1200C/XL883R (black)	24470-04 24466-04	24534-04 (outer wall)	
Notes	Case set (silver) with bearings.		
2006-2007 XL883/XL883C/XL883L/XL1200R	24470-06		
Notes	Case set (silver) with bearings.		
2006-2007 XL883R/XL1200C XL1200L/XL50	24466-06	24534-06A (outer wall)	24558-06 (inner wall)
Notes	Case set (black) with bearings.		

2007-2008 XL1200N	24745-07		
Notes	Case set (gray) with bearings.		
2008 XL883/XL883C/XL883L/XL1200R	24470-06A		
Notes	Case set (silver) with bearings.		
2008 XL883R/XL1200C XL1200L	24466-06A		
Notes	Case set (black) with bearings.		
2009-2016 XL883/XL883C/XL883L	24470-06B		
Notes	Case set (silver) with bearings.		
2009-2016 XL883R/XL883N XL1200C/XL1200C Anv/XL1200L XL1200R/XL1200X/XL1200CP XL1200CA/XL1200CB/XL1200T 2014-2016 XL1200V	24466-06B		
Notes	Case set (black) with bearings.		
2009-2013 XL1200N/XL1200V 2016 XL1200V/XL1200CX	24745-07A		
Notes	Case set (gray) with bearings.		
2009-2013 XR-1200/XR1200X	24475-08		
Notes	Case set (black) with bearings.		

Engine Case / Shaft Bearings and Races

Unless coded in parenthesis, all part numbers below are factory part numbers.
Legend for part numbers coded in parenthesis;
(HD) = Harley Davidson (Ti) = Timken (To) = Torrington

1986-2003 Crankshaft Bearings							
Year Case All Models	Crankshaft Bearing Set w/ races	Timken Bearing w/ Outer Race	Timken Bearing (cone only)	Timken Bearing Outer Race	Bearing Shim	Ret Ring bearing race spacer	Bearing Seal

1986					supplied		
1987-2003	24729-74	48302-85	(HD) 48348-70 (Ti) L44649	(HD) 48315-60 (Ti) L44610	9155 (.098”) 9142 (.100“) 9143 (.102”) 9144 (.104“) 9145 (.106”) 9146 (.108“) 9147 (.110”) 9148 (.112“) 9149 (.114”)	9119A	35151-74 2002 upgrade (35151-74A)

2004-Up Crankshaft Bearings

Year Case All Models	Crankshaft Bearing	Bearing Thrust Washer	Inner Retaining Ring	Outer Retaining Ring	Sprocket Shaft Spacer	Bearing Seal
2004-2005	24604-00C	8973 (2)	35114-02	35118-03	40254-02	12068
2006-2008	24604-00D	8973 (2)	35114-02	35118-03	40254-02	12068
2009-2010	24605-07	8972	35114-02	35118-03	40254-02	12068

Transmission Bearings

	Left Case (trapdoor)		Right Case			
Year Case	Mainshaft Bearing includes race	Countershaft Bearing includes race	Mainshaft Bearing	Mainshaft Bearing Race	Countershaft Bearing includes race	Shifter Shaft/Drum Bushing / Bearing
1986-1990	(HD) 9025A (NTN) 6207ZZ (Fafnir) 207KDD	35961-52	(HD) 9118 (To) BH2012	35041-84	(HD) 35960-54 (To) M-11121 closed end	bushing 40520-63
1991-2003	35030-89	(HD) 8998	(HD) 8996 / 8996A (FAG) 559197 (FAG) 6209 C3 (SKF) 6209 C3		(HD) 8977 (FAG) BK2526 (INA) BK2526	bearing 9151

Pinion Shaft Bearings	**Inner Cam Bearings or Bushings**

Year Case	Pinion Shaft Bearing	Outer Bearing Race	Inner Bearing Race	Bearing Retainer Ring	Bearings	Bushings
E1986	24648-77 (includes outer race) (To) HJ-202816		24658-86 (To) IR-162016	n/a	(HD) 9057 (To) BH-117	
L1986-1990	24650-87 (red) largest 24647-87 (blue) 24659-87 (white/grey) 24660-87 (green) smallest bearing locked to pinion shaft	8881	24658-87	11177 11177A (95)	(HD) 9057 (To) BH-117	
1991-2003						25598-91

Flywheel Assembly

Year Model [71)]	Flywheel Assembly	Connecting Rod Assembly	Crankpin
Early 1986 Models			
E1986 XLH883	23905-86	24275-86	23960-80A
E1986 XLH1100	23900-86	24275-86	23960-80A
Late 1986-1990 Models			
L1986 XLH883	23905-86A	24275-86A	23960-80A
1987 XLH883	23905-87	24275-86A	23960-80A (std) 23948-87 (.001“ O.S.) 23949-87 (.002” O.S.)
1988 XLH883	23905-88		
1989-1990 XLH883	23905-88A		
L1986 XLH1100	23900-86A	24275-86A	23960-80A (std) 23948-87 (.001“ O.S.) 23949-87 (.002” O.S.)
1987 XLH1100	23900-87		
1988 XLH1200	23900-88	24275-86A	23960-80A (std) 23948-87 (.001“ O.S.) 23949-87 (.002” O.S.)
1989-1990 XLH1200	23900-88A		
1991-1999 Models			
1991-1994 XLH883	23905-89	24275-86A	23960-80A (std) 23948-87 (.001“ O.S.) 23949-87 (.002” O.S.)
1991-1994 XLH1200	23900-90	24275-86A	23960-80A (std) 23948-87 (.001“ O.S.) 23949-87 (.002” O.S.)
1995-1999 All Models	23905-89A	24275-86A	23960-80A (std) 23948-87 (.001“ O.S.) 23949-87 (.002” O.S.)
2000-2003 Models			
2000-2003 All Models	23905-00 23905-00A	Not Sold Separate	Not Sold Separate
2004-up Models			

2004-2005 All Models	23905-04	Not Sold Separate	Not Sold Separate
2006-2009 All Models (Except XR1200)	23905-04A	Not Sold Separate	Not Sold Separate
2010-2019 All Models (Except XR1200/X)	23905-04B	Not Sold Separate	Not Sold Separate
2009-2013 XR1200 / XR1200X	23999-08	Not Sold Separate	Not Sold Separate

Primary / Chain Cover

Year Model	Part Number	Casting Number	Gasket	Shifter Shaft Bushing
1986-1987 Sportster	25430-86	Circle Date Stamp	34955-75	40520-63
Notes:	Polished. Replaced by 25430-86A (1989)			
1988-1990 Sportster	25430-88		34955-75	40520-63
Notes:	Polished			
1991-1993 Sportster	25430-89	35950-89	34955-89	40520-63
Notes:	Polished			
1994 Sportster	25430-94		34955-89A	40520-63
Notes:	Polished			
1995-2003 Sportster (except XL1200C) (except XL1200S) (except XL883R)	25430-94A	34951-95	34955-89A	40520-63
Notes:	Polished			
1996-2003 XL1200C	25460-94	34951-95	34955-89A	40520-63
Notes:	Chrome			
1998-2003 XL1200S/XL883C	25471-97Y		34955-89A	40520-63
Notes:	Silver			
2002-2003 XL883R	25574-99Y		34955-89A	40520-63
Notes:	Black			
2004-2005 XL883/XL883L	25430-04		34955-04	40520-63
Notes:	Polished			
2004-2005 XL1200C	25460-04	34951-04	34955-04	40520-63
Notes:	Chrome			
2004-2005 XL883C/XL1200R	25471-04		34955-04	40520-63
Notes:	Silver			
2005 XL883R	25307-05		34955-04	40520-63
Notes:	Polished			
2006 XL883R/XL1200R	25307-06		34955-04	40574-06
Notes:	Black. New shifter shaft bushing has a flange on one end.			
2006 XL883/XL883L	25430-06		34955-04	40574-06

Notes:	Polished			
2006 XL1200C/XL1200L	25460-06		34955-04	40574-06
Notes:	Chrome			
2006 XL883C	25471-06		34955-04	40574-06
Notes:	Silver			
XL1200N	60830-07		34955-04	40574-06
Notes:	Gray			

Cam / Gearcase Cover

Year Model	Part Number	Casting Number	Gasket
1986-1990 Sportster	25219-86	25222-84A	25263-86
	Polished, cover only. See also circled date stamp. 86-87 cover (25488-86) and 88-90 cover (25488-88) include matched cam gear set.		
1991-1993 Sportster	25219-91	25222-89	25263-90 25263-90A (1994)
	Polished, includes trans vent fitting/clamp, #2 cam seal and bushings. 1991-1994 cover 25488-89 includes the matched cam gear set. See also date stamp.		
1994 Sportster	25219-94		25263-90A
	Polished, includes trans vent fitting/clamp, #2 cam seal and bushings.		
1995-1997 Sportster (except XL1200C)	25219-91A	25230-95	25263-90A
	Polished, includes trans vent fitting, #2 cam seal and bushings. 1995-1997 cover 25488-89A includes the matched cam gear set.		
1996-1997 XL1200C	25213-96		25263-90A
	Chrome, includes trans vent fitting, #2 cam seal and bushings. 1996-1997 cover 25483-96 includes the matched cam gear set.		
1998-1999 Sportster (except XL1200C) (except XL1200S)	25219-91B	25230-98	25263-90B
	Polished, includes trans vent fitting, #2 cam seal and bushings. 98-99 (except 883C) cover 25488-89B includes matching cam gear set. 1999 XL883C cover 25473-97YA (silver) includes matching cam gear set.		
1998-1999 XL1200C	25213-96A		25263-90B
	Chrome, includes trans vent fitting, #2 cam seal and bushings. 98-99 cover 25483-96A includes matching cam gear set.		
1998 XL1200S	25252-97Y		25263-90B
	Silver, includes trans vent fitting, #2 cam seal and bushings. 98-99 cover 25491-98 includes matching cam gear set.		
1999 XL1200S	25252-97YA		25263-90B
	Silver, includes trans vent fitting #2 cam seal and bushings.		

2000-2003 XL883/883HUG XL883C/1200	25219-91C		25263-90C
	Polished, includes trans vent fitting, #2 cam seal and bushings.		
2000-2003 XL1200C	25213-96B		25263-90C
	Chrome, includes trans vent fitting, #2 cam seal and bushings.		
2000-2003 XL1200S	25252-97YB		25263-90C
	Silver, includes trans vent fitting, #2 cam seal and bushings.		
2002-2003 XL883R	25307-99YA		25263-90C
	Black, includes trans vent fitting, #2 cam seal and bushings.		
2004-2016 XL883/XL883L	25219-04	25230-04	25263-90D
	Polished. Has ignition cover plate (32506-90) labeled “5”.		
2004-2016 XL1200C/Anv, XL1200L XL50/XL1200CP XL1200V/XL1200T	25213-04	25230-04	25263-90D
	Chrome. Has ignition cover plate (32514-04) with center Bar and Shield.		
2004-2010 XL883C 2004-2005 XL1200R	25252-04	25230-04	25263-90D
	Silver. 883C has ignition cover (32514-04), 1200R has ignition cover (32555-04).		
2005-2016 XL883R 2006-2009 XL1200R 2009-2016 XL883N 2011-2016 XL1200X 2012-2016 XL1200CP 2013-2016 XL1200CA/XL1200CB	25486-05		25263-90D
	Black.		
2007-2012 XL1200N	25546-07		25263-90D
	Gray.		
2009-2010 XR1200/XR1200X	25246-08	25239-08	
	Silver.		
2010-2013 XR1200/XR1200X HDI	25250-10		
	Black.		

Transmission Sprocket Cover

Year Model	Part Number	Casting Number	Notes
1986-1990 Sportster	34911-81A [72)]		Polished
1991-1994 Sportster	34911-91	34913-91	Polished
1995-2003 Sportster (except XL883C) (except XL1200C) (except XL1200S)	34911-91A	34907-95	Polished
1996-2003 XL1200C	34932-96	34910-95	Chrome
1998-2003 XL1200S/XL883C	34938-98	34910-95	Silver
2002-2003 XL883R	34943-02	34910-95	Black

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