



# INSTRUCTIONS

-J01090

REV. 2-23-01

Kit Number 25648-91

## XL BOLT-IN HYDRAULIC CAM SET

### General

This kit is designed for use on the 1991-1999 Sportster V2 Evolution 883 and 1200cc engines.

#### CAUTION

Do not install this cam set on 1990 and earlier Sportster engines. This cam set will cause severe engine damage if installed on pre-1991 engines.

#### Camshaft Specifications

|                  |          |
|------------------|----------|
| Intake open      | 28° BTDC |
| Intake closed    | 48° ABDC |
| Intake duration  | 256°     |
| Exhaust open     | 52° BBDC |
| Exhaust closed   | 24° ATDC |
| Exhaust duration | 256°     |

All data taken at .053 lift  
Lift at cam .300

#### CAUTION

Harley-Davidson motorcycles equipped with Screamin' Eagle high performance engine parts may not be used on public roads and in some cases must be restricted to closed course competition because these parts may impair the vehicles emission system performance and/or increase its noise level. Installation of Screamin' Eagle parts could also void any new vehicle warranty. Engine related performance parts are intended for THE EXPERIENCED RIDER ONLY.

#### WARNING

A Service Manual is needed to install this kit. The rider's safety depends upon the correct installation of this kit. If the procedure is not within your capabilities or you do not have the correct tools, have your Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury.

#### NOTE

To properly install this kit you must have a Service Manual that covers the V2 Evolution 883 and 1200cc engines. Service Manuals are available from your authorized Harley-Davidson Dealer.

#### Camshaft Specifications

Installation of this kit will require the following gaskets available from an authorized Harley-Davidson Dealer:

| DESCRIPTION              | PART NO.  |
|--------------------------|-----------|
| Gasket kit, top overhaul | 17032-91  |
| Camgear cover gasket     | 25263-90C |

### Camshaft Installation

Camshaft installation requires the removal of the top and middle sections of the rocker boxes and gear case cover. The cams in this kit may be used with the stock hydraulic tappets.

Follow Service Manual Procedures to perform the following:

#### NOTE

All washers and fasteners used in the Evolution engine are hardened. They must not be mixed or replaced with unhardened parts. Do not reuse cover seals.

1. Remove top and middle sections of rocker boxes on both cylinders. Remove gaskets and discard.
2. Rotate the crankshaft so both valves are closed on the cylinder being worked on.
3. Remove the two 5/16 in. rocker arm shaft retaining bolts at the pushrod end.
4. Remove the rocker arm shafts by tapping them out with hammer and soft metal punch.

#### NOTE

Mark all valve train components for reassembly in their original positions. Valve train components must be reinstalled in their original positions during reassembly.

5. Remove rocker arms and mark them so they will be reassembled in their original positions.
6. Rotate crankshaft so both valves are closed on the next cylinder and repeat Steps 3 through 5.
7. Remove ignition components from gear cover.
8. Remove the gear cover screws and gear cover.

#### NOTE

It is not necessary to remove the pinion gear, oil pump gear or oil pump.

#### NOTE

These cams were designed to replace stock cams and maintain sufficient valve to piston clearance. However, it is advisable to check all engines for valve spring coil bind at full lift and piston to valve clearance.

We recommend that this inspection or any subsequent piston modification be done by a Harley-Davidson dealer.

9. See Figure 1. Rotate engine to align timing marks. Cams are numbered 1 to 4 from the rear exhaust (1) to the front exhaust (4). Remove camshaft (2). One at a time remove camshaft (1), (3), and (4) and replace with the appropriate camshaft from this kit. Be careful to maintain timing mark alignment. Install camshaft (2) from this kit last. Carefully check alignment of all timing marks.10. Following Service Manual instructions,

assemble gearcase cover and check that specified camshaft play is present. After final assembly torque cover screws to 80-110 **in-lbs** (9-12 Nm.)

11. Install ignition components.
12. Rotate engine crankshaft so either cylinder has both cams at their lowest point (valves closed). Install rocker arms and with a hammer and soft metal punch tap rocker arm shaft back into position so 5/16in. retaining bolt can be installed. Consult Service Manual for proper torque specifications.

#### CAUTION

Wait ten minutes before turning engine after installing push rods. This wait allows tappets to bleed down and prevents bending push rods or valves.

13. Install top and middle sections of rocker boxes using new gaskets from gasket kit. Consult Service Manual for proper torque specifications.

#### NOTE

If there has been any other valve train or combustion chamber modifications, follow the following procedure:

Put clay about 1/8 in. thick on piston in area where valve would contact pistons. Assemble the heads and valve train and turn the engine by hand. The heads are then removed and the clay measured at its thinnest point. If not at least .080 in. thick, then notches should be cut into the piston crown to obtain that dimension. Do not deepen relief notches more than .020 or pistons will be ruined. It is strongly recommended that this practice be followed.

## Improving Engine Output

To enhance the horsepower increase of this kit see an authorized Harley-Davidson Dealer for the latest Parts & Accessories catalog which includes the complete line of Screamin' Eagle performance parts.

### Ignition Timing

Stock ignition timing is recommended. Use Screamin' Eagle ignition modules for greater RPM range.

#### CAUTION

Screamin' Eagle modules will allow the engine to rev to 8000 RPM which is well above design parameters. It is imperative that the rider use the tachometer and avoid harmful over-revving.

### Exhaust Systems

A free flowing exhaust system, such as Harley-Davidson slip-on mufflers, will give additional horsepower. See a Harley-Davidson Dealer for an exhaust system recommendation.

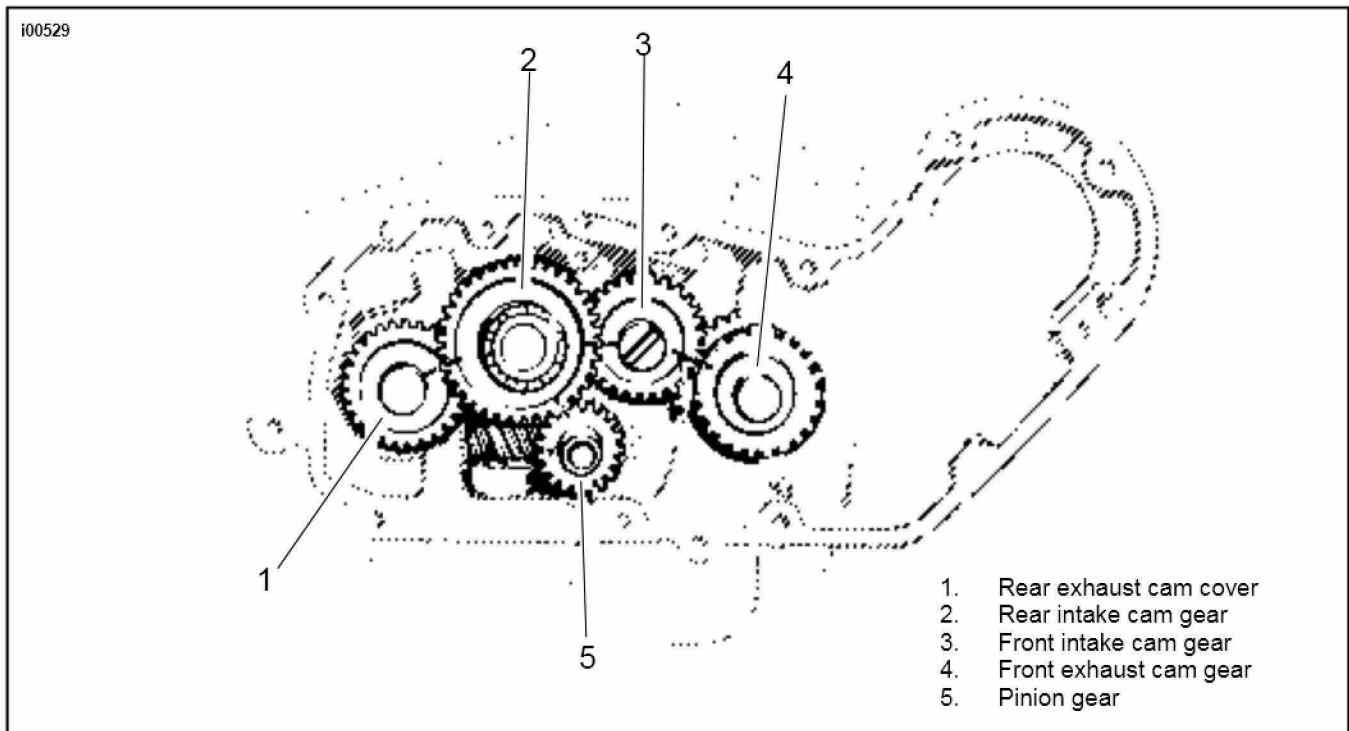


Figure 1. Timing Mark Alignment