



INSTRUCTIONS

-J02268

REV. 8-16-01

Kit Number 18088-02

CHROME BILLET LIFTER-COVER KIT

General

This kit fits all 1999 and later Twin Cam 88 engines.

Kit contents:

QTY	DESCRIPTION	PART NO.
1	Front chrome billet lifter cover	18089-02
1	Rear chrome billet lifter cover	18091-02
2	Lifter-cover gaskets	18635-99A
8	Socket-head cap screws, chrome	94314-91T

WARNING

A Service Manual is required 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

A Service Manual for your model motorcycle is available from your Harley Davidson Dealer.

This kit installs in one of two ways, depending upon the kind of pushrods to be installed with the chrome billet lifter-cover kit. If you are installing:

- stock pushrods with the chrome billet lifter-cover kit, refer to the service manual for your motorcycle model.
- Screamin' Eagle adjustable pushrods with the chrome billet lifter-cover kit, refer to *Installation with Adjustable Pushrods* in this instruction sheet.

NOTE

Harley-Davidson recommends replacing the pushrod-cover O-rings with O-ring part numbers 11293 (top), 11132 (middle) and 11145 (bottom) during lifter-cover installation and assembly.

NOTE

Installing an adjustable pushrod kit may void the Harley-Davidson limited warranty.

CAUTION

Solid lifters must not be installed with the stock camshaft. Severe engine damage may result.

WARNING

To protect against shock and accidental start-up of the vehicle, disconnect the negative battery cable before proceeding. Inadequate safety precautions could result in death or serious injury.

WARNING

Always disconnect the negative battery cable first. If the positive battery cable should contact ground with the negative cable installed, the resulting sparks may cause a battery explosion which could result in death or serious personal injury.

Installation with Stock Pushrods

Refer to the service manual for your motorcycle model.

Installation with Adjustable Pushrods

Lifter-Cover Removal

CAUTION

Installing or removing the pushrods with the valve train loaded can result in engine damage. On the cylinder being serviced, always set the lifters to the base circle on the cam before servicing pushrods, lifters, rocker arms, and valves.

1. Set the lifters of the rear cylinder to their lowest point, or base circle, on the cam. Refer to *Setting the Lifters to the Base Circle* in this instruction sheet.
2. See Figure 1. Insert a screwdriver into the slot on the side of the spring-cap retainer on the pushrod cover.

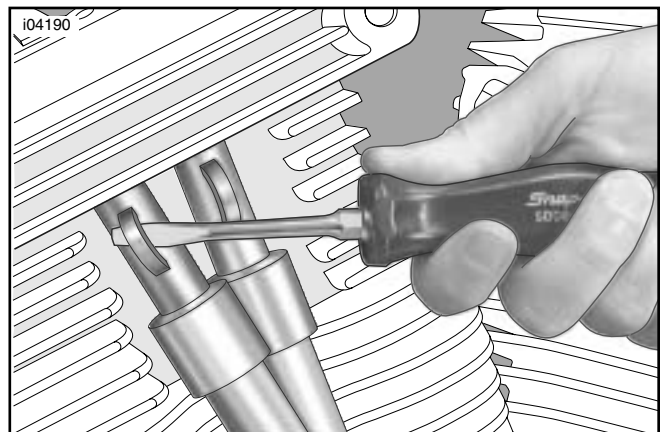


Figure 1. Pushrod Cover Removal

3. Press the spring-cap and retainer down while pulling outward to remove the spring-cap retainer.
4. See Figure 2. Lift the lower pushrod cover to reveal the lower third of the pushrod.
5. If the engine has stock pushrods installed and you are installing adjustable pushrods with this lifter-cover installation, go to step 6. If the engine already has adjustable pushrods installed and you are installing adjustable pushrods with this lifter-cover installation, go to step 7.

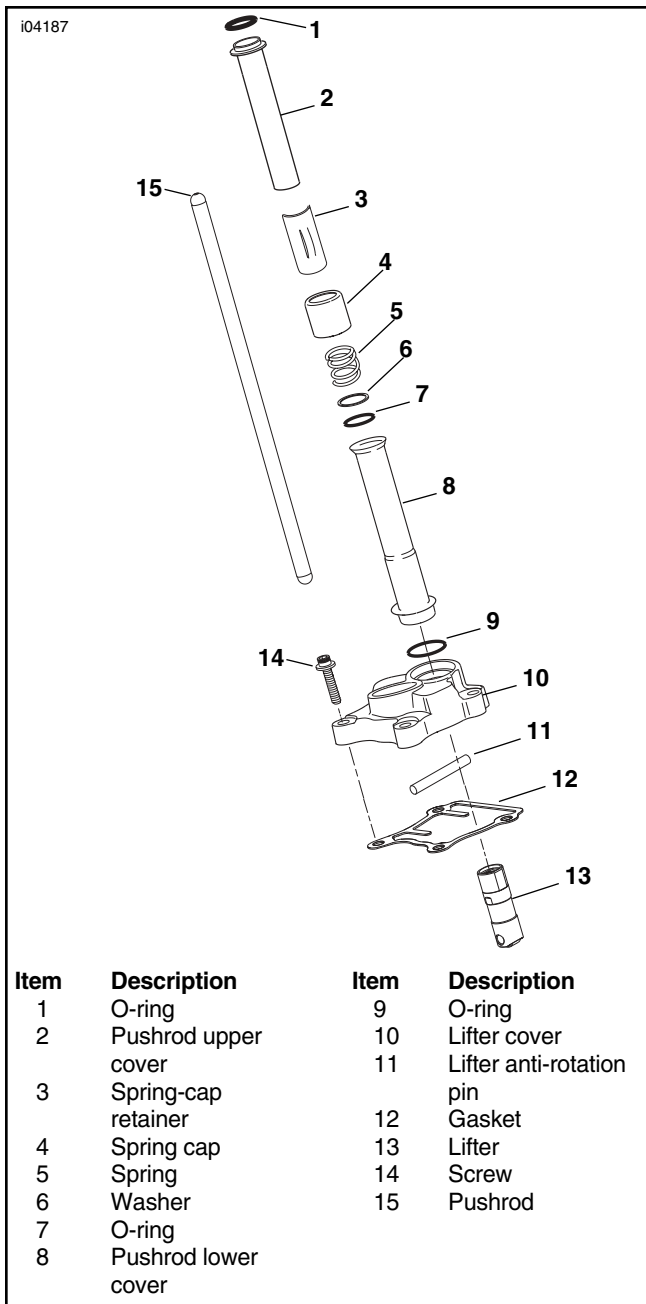


Figure 2. Pushrod, Pushrod Cover, and Lifter Cover

- | Item | Description | Item | Description |
|------|---------------------|------|--------------------------|
| 1 | O-ring | 9 | O-ring |
| 2 | Pushrod upper cover | 10 | Lifter cover |
| 3 | Spring-cap retainer | 11 | Lifter anti-rotation pin |
| 4 | Spring cap | 12 | Gasket |
| 5 | Spring | 13 | Lifter |
| 6 | Washer | 14 | Screw |
| 7 | O-ring | 15 | Pushrod |
| 8 | Pushrod lower cover | | |
6. Use a bolt cutter or similar tool to cut the stock pushrod. Avoid cutting the pushrods with a saw, grinder, or other method that may allow metal debris into the engine. Go to step 8.
 7. Loosen the jam nut on each adjustable pushrod and resize each rod to its shortest length.
 8. Remove the pushrod covers and pushrods from the engine.
 9. Remove the O-rings from the seats in the engine at the top and bottom of the pushrod cover.
 10. Remove the four screws fastening the lifter cover to the engine to remove the cover and gasket.
 11. Remove old lifter-cover gasket material from the engine, taking care not to allow material to fall into the engine. Continue to *Lifter-Cover Installation* in this I-Sheet.

Lifter-Cover Installation

1. See Figure 3. Verify that the lifter anti-rotation pin is in position.

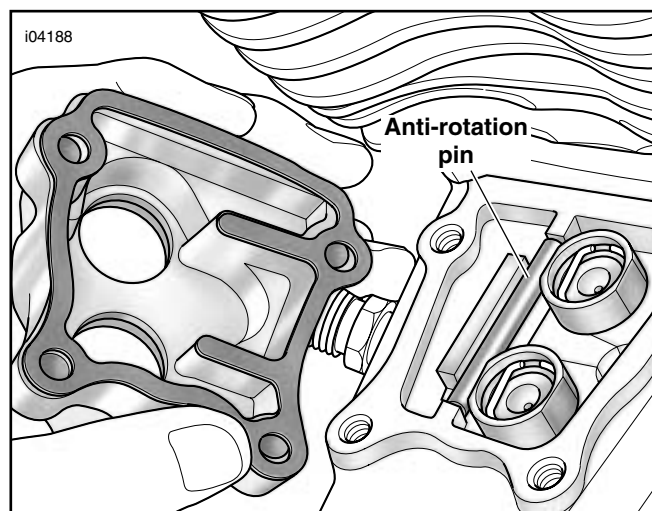


Figure 3. Lifter Anti-Rotation Pin

CAUTION

Installing or removing the pushrods with the valve train loaded can result in engine damage. On the cylinder being serviced, always set the lifters to the base circle on the cam before servicing pushrods, lifters, rocker arms, and valves.

2. Verify that the cylinder lifters are set to their lowest point, or base circle, on the cam. Refer to *Setting the Lifters to the Base Circle* in this instruction sheet.
3. Fasten the new lifter-cover gasket and chrome billet lifter cover to the engine using the chrome screws from this kit. In a cross pattern, torque the lifter-cover screws to 90 – 120 **in-lbs** (10.2 – 13.6 Nm).
4. See Figure 4. Loosen the jam nut on all of the pushrods and adjust the pushrods to their shortest length.

NOTE

See Figures 4 and 5. Install the narrow-band pushrods in the cylinder-intake location. Install the wide-band pushrods in the cylinder-exhaust location.

5. Assemble the O-rings (purchased separately) and pushrod covers.
6. Install the pushrods with the pushrod covers. The adjustment-end of the pushrod must be on the lifter.

NOTE

Do not install the spring-cap retainers on the pushrod covers at this time.

7. To adjust pushrods on hydraulic lifters, go to step 8. To adjust pushrods on solid lifters, go to step 11.

NOTE

Pushrod adjustment must be made with the engine cold.

8. See Figure 4. Adjust each pushrod length to zero clearance.
 - Use a wrench to keep the pushrod from rotating.

- Slowly turn the adjusting screw 2-1/2 complete turns (lengthening the pushrod).

9. Hold the adjusting screw and tighten the jam nut against the pushrod. If the pushrod turns with the jam nut, use three wrenches; one to hold the pushrod, one to hold the adjusting screw, and one to turn the jam nut.

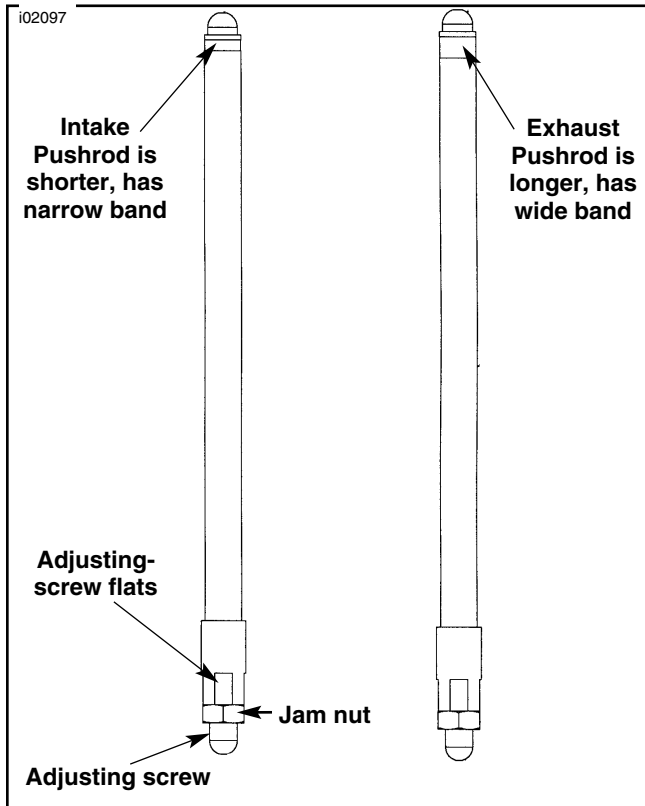


Figure 4. Adjustable Push Rod

CAUTION

Wait ten minutes before turning engine over after adjusting front or rear cylinder pushrods. This allows lifters to bleed down and prevents bending the pushrods and valves. Pushrods should turn freely and valves must be seated before turning over the engine.

10. Wait ten minutes. Go to step 13.
11. See Figure 4. Adjust each pushrod length to zero clearance. The pushrod must turn with no drag and no vertical play.
12. Hold the adjusting screw and tighten the jam nut against the pushrod. If the pushrod turns with the jam nut, use three wrenches; one to hold the pushrod, one to hold the adjusting screw, and one to turn the jam nut.
13. Repeat *Lifter-Cover Removal* steps 1 – 11 and *Lifter-Cover Installation* steps 1 – 7 for the front cylinder. When both cylinders' pushrods are installed, go to step 14.

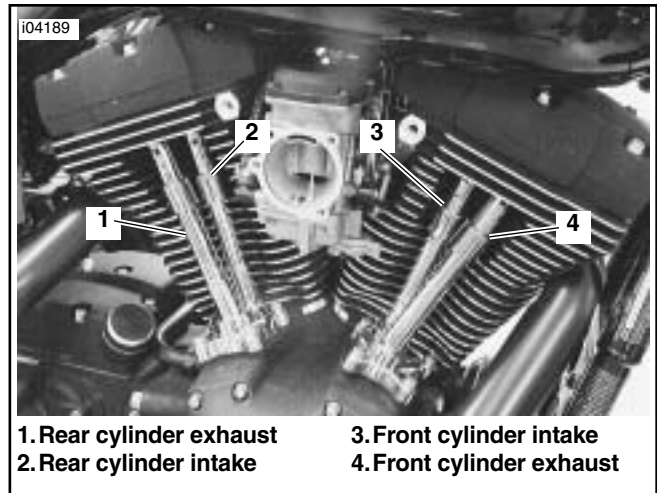


Figure 5. Pushrod Locations and Functions

NOTE

Check for contact between the pushrods and upper pushrod covers. Rotate the engine slowly until both valves are closed on the cylinder you are checking. If contact occurs, shift the rocker arm supports toward the engine's cam side.

14. Install the pushrod spring-cap retainers on the pushrod covers.
15. Install the spark plugs and plug wires, and shift the transmission to neutral.

WARNING

Always connect the positive battery cable first. If the positive cable should contact ground with the negative cable installed, the resulting sparks may cause a battery explosion which could result in death or serious injury.

16. Connect the battery cables.

Setting the Lifters to the Base Circle

This procedure positions both lifters of a cylinder to their lowest position on the cam, reducing valve-spring pressure to a minimum. This procedure is required for removing and installing a rocker-arm support plate on a cylinder.

1. Remove the spark plugs from the engine.
2. Elevate the motorcycle on a center stand until the rear wheel is elevated from the ground.
3. Shift the transmission into 5th gear.
4. From the left side of the motorcycle, put a left-hand finger over the spark-plug hole on a cylinder.
 - Turn the rear wheel counterclockwise with your right hand until you feel the compression stroke of the piston forcing air out of the spark-plug hole.
 - When air pressure through the spark-plug hole stops, the piston is at top-dead-center (TDC). Stop turning the rear wheel and check TDC with a flashlight beam directed into the spark-plug hole.
 - If the piston is at TDC on the compression stroke and the lifters are in their lowest position on the cam, then the intake and exhaust valves are closed and the pushrods are unloaded, and the rocker-arm support plate can be safely removed or installed.