



# INSTRUCTIONS

-J06427

2016-08-22

## SCREAMIN EAGLE ADJUSTABLE FRONT FORK KIT

### GENERAL

#### Kit Number

45400176

#### Models

For model fitment information, see the P&A Retail Catalog or the Parts and Accessories section of [www.harley-davidson.com](http://www.harley-davidson.com) (English only).

#### Installation Requirements

- Proper installation of this kit also requires the following special tools:
- Loctite® 565 Thread Sealant (99818-97)
- Harley-Davidson® Type E Fork Oil (62600026)
- Harley-Davidson Seal Grease (11300005)
- Fork Tube Holder (HD-41177)
- Fork Seal/Bushing Tool (HD-36583)
- Front Fork Oil Level Gauge (HD-59000B)
- Front Fork Spring Compressing Tool (HD-45966)
- Extension tool (HD-45966-1)

#### ⚠ WARNING

The rider's safety depends upon the correct installation of this kit. Use the appropriate service manual procedures. If the procedure is not within your capabilities or you do not have the correct tools, have a Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury. (00333a)

#### NOTE

This instruction sheet references service manual information. A service manual for your model motorcycle is required for this installation. One is available from a Harley-Davidson Dealer.

#### Kit Contents

See Figure 9 and Table 4.

#### REMOVAL

1. See service manual. Remove front fender, wheel and brakes.
2. See service manual. Remove front forks.

### LEFT AND RIGHT FORK DISASSEMBLY

#### ⚠ WARNING

Wear safety glasses or goggles when servicing fork assembly. Do not remove slider tube caps without relieving spring preload or caps and springs can fly out, which could result in death or serious injury. (00297a)

#### NOTE

Be aware fork bolt is under spring pressure, make sure to have a firm grasp on the bolt as the last thread is turned.

1. See service manual for fork disassembly. Instructions vary by model and year.

#### NOTE

Inspect parts for wear or damage. Replace or repair as necessary.

2. Retain these stock parts to use with new fork kit:
  - a. Dust covers
  - b. Fork boots (if equipped)
  - c. Stopper rings
  - d. Seal spacers
  - e. Bushings
  - f. Fork sliders

3. Discard remaining parts.

### FORK ASSEMBLY

#### NOTE

Refer to Figure 9 for the following procedure unless the step says otherwise.

#### NOTICE

Exercise caution to avoid scratching or nicking fork tube. Damaging tube can result in fork oil leaks after assembly. (00421b)

#### NOTE

Harley-Davidson recommends that kit contents be separated between the **right side** and **left side** before beginning procedure. To visually differentiate between right and left damper:

- **The right damper can be identified by holes near the top of the cartridge.**
- **The left damper can be identified by holes near the bottom of the cartridge.**

It is imperative that the correct parts are installed in the proper fork assembly. Always build one complete fork assembly before repeating the procedure for the opposite side.

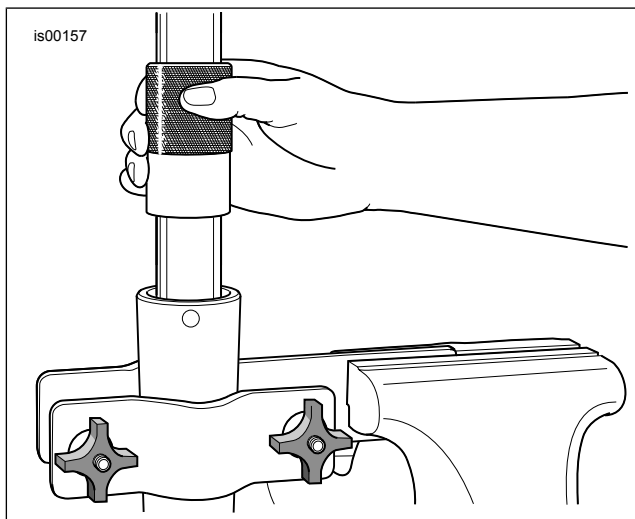
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Many Harley-Davidson® Parts & Accessories are made of plastics and metals which can be recycled. Please dispose of materials responsibly.

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1. Unless already installed, coat new fork slide bushing (11) ID with clean fork oil. Expand fork slide bushing at split line only as far as required to slip over end and into groove of fork tube (6).
2. Install fork slider (F or K) in fork tube holder. Slide fork tube (6) into fork slider.
3. Coat inner diameter (ID) and outer diameter (OD) of guide bushing (E) with clean fork oil. Slide guide bushing down fork tube (6) (either direction).
4. Slide seal spacer (D) down fork tube until it contacts guide bushing (either direction).
5. Coat the ID of the **new** fork oil seal (2) with clean fork oil. Coat the OD of the fork oil seal with Harley-Davidson Seal Grease. With the lettering side facing up, slide fork oil seal down the fork tube until it contacts the seal spacer.
6. See Figure 1. Obtain the Fork Seal/Bushing Tool (HD-36583) and proceed:
  - a. Slide the fork seal installer down the fork tube until it contacts the fork oil seal.
  - b. Using the tool like a slide hammer, drive fork oil seal (with seal spacer and guide bushing) down the fork tube until stopper ring groove is visible in fork slider ID.
  - c. Slide the stopper ring (C) down the fork tube until it contacts the fork oil seal. Install stopper ring in the fork slider groove. Do not expand or stretch stopper ring to install on fork tube or ring could be damaged.
7. Install dust seal (1).
8. Remove assembly from fork tube holder.
9. See Figure 6. Remove fork bolt (3) from damper rod (4) by loosening jamnut (5). The jamnut is to remain on damper rod.
10. Set fork bolt (w/needle rod) aside.
11. Install oil lock (8) over the end of the damper cartridge (7 or 10).
12. Hold fork assembly horizontal and slide damper cartridge with oil lock into fork assembly.
13. Push down on cartridge.
14. Apply Loctite 565 Thread Sealant to screw (9). Install new screw (9) with copper crush washer. Slide screw through hole at bottom of fork slider and start into end of damper cartridge.
15. Obtain fork spring (5) from the kit. Install new fork spring into fork tube.
16. Put a shop rag on the floor. Turn the fork assembly upside down. Press the end of the spring against the rag. Compress the spring and tighten the screw (9) to  $20 \pm 5 \text{ N}\cdot\text{m}$  ( $15 \pm 4 \text{ ft}\cdot\text{lbs}$ ).
17. With the fork tube upright, clamp fork slider (not the fork tube) into fork tube holder.
18. Fill the fork tube:
  - a. See Figure 2. Thread extension tool onto end of damper rod.
  - b. With the fork tube compressed, pour Harley-Davidson Type E Fork Oil into the fork tube almost to the top. Pump fork tube ten times to remove air from system.
  - c. Slowly pump the damper rod until resistance is felt through the entire stroke. Then pump ten more times.
  - d. Place the damper rod in the fully bottomed position. Verify that fork pipe is bottomed out.



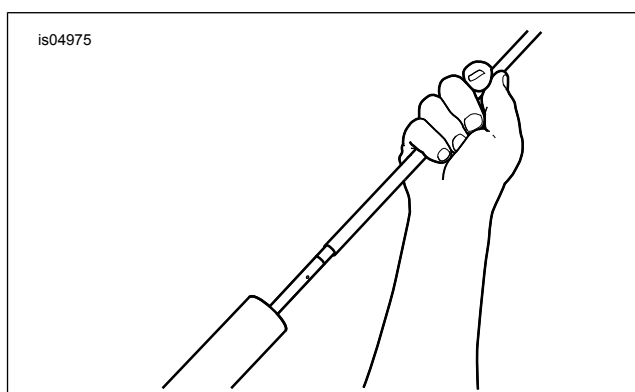
**Figure 1. Install Fork Oil Seal**

7. Install dust seal (1).

**NOTE**

Left damper can be identified by holes near the bottom of the cartridge. Right damper can be identified by holes near the top of the cartridge.

8. Remove assembly from fork tube holder.



**Figure 2. Pump Damper Rod Extension Tool**

**⚠ WARNING**

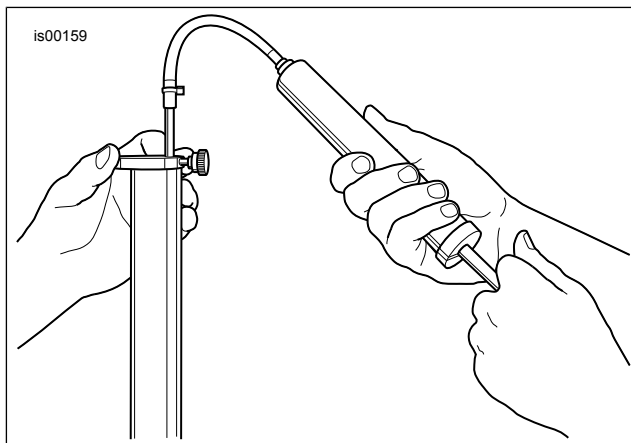
**Incorrect amount of fork oil can adversely affect handling and lead to loss of vehicle control, which could result in death or serious injury. (00298a)**

19. See Figure 3. Adjust the fork oil level, so that it is 170 mm (6.69 in) from the top of the fork tube with the fork tube compressed and the fork spring removed.
  - a. Obtain the Front Fork Oil Level Gauge (HD-59000B).
  - b. Loosen thumbscrew on metal ring and move it up or down the rod until the bottom of the ring is 170 mm (6.69 in) from the bottom of the rod. Tighten thumbscrew.
  - c. Push the plunger on the cylinder all the way in.
  - d. Insert rod into top of fork tube until metal ring rests flat on top of fork tube.
  - e. Pull plunger to remove fork oil from fork tube. Observe fork oil through transparent tube to verify that oil is being drawn from fork.
  - f. Remove rod from fork tube. Push plunger into cylinder to eject excess fork oil into suitable container.

**NOTE**

Verify that the fork spring is installed with dense section of coils to the bottom.

- g. If necessary, repeat Steps 19(c) through 19(f). Level is correct when no fork oil is observed being drawn through transparent tube.



**Figure 3. Remove Excess Fork Oil**

20. Install fork spring into the fork tube (6) with the dense end down.

**NOTE**

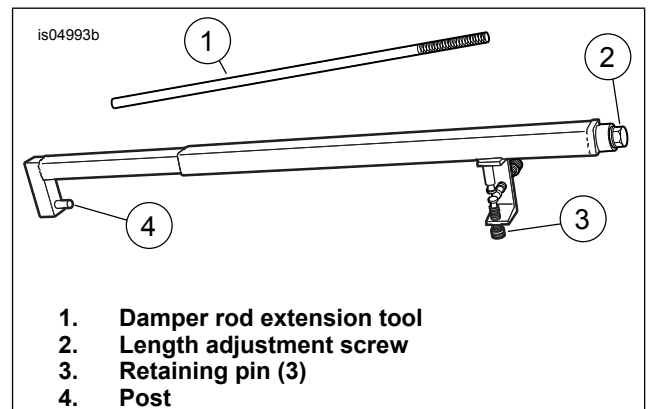
Do not use an air impact wrench to adjust the fork spring compression tool.

21. Confirm that the jamnut is on the damper rod.

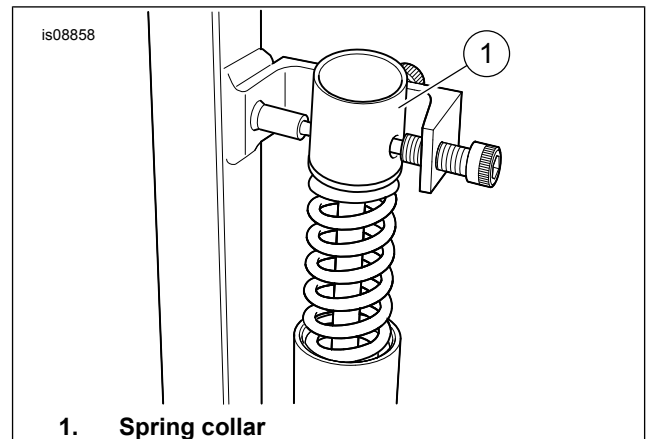
**▲ WARNING**

**Wear safety glasses or goggles when removing or installing spring. Spring tension can cause spring, attached components and/or hand tools to fly out which could result in death or serious injury. (00477c)**

22. See Figure 4. Install fork spring compressing tool:
  - a. Clamp tool in vise in a vertical position with length adjustment screw (2) upward.
  - b. Place hole at bottom of fork slider over post (4) at bottom end of tool.
  - c. See Figure 9. Place spring joint (3), spring collar (4), and spring joint (3) over the damper rod extension tool and on top of spring.
  - d. See Figure 5. Adjust tool as necessary until two retaining pins engage through holes in spring collar (1). Turn length adjustment screw counterclockwise to lengthen and clockwise to shorten.
  - e. Turn retaining pins as necessary to lock position of spring collar.
  - f. Turn length adjustment screw clockwise to compress spring.



**Figure 4. Fork Spring Compressor Tool (HD-45966)**



**Figure 5. Compress Fork Spring**

23. After a number of turns, pull up on extension tool to raise damper rod. If threaded portion of rod cannot be pulled out of spring collar, compress spring further. Repeat until threaded portion of rod can be pulled out of spring collar.
24. Remove extension tool, while holding the damper rod in the extended position.
25. See Figure 6. Install and assemble fork bolt.
  - a. Bottom out the jamnut (5) on the damper rod (4).
  - b. Make sure that the damping force adjustment knob (2) is bottomed out on fork bolt before install.

- c. Confirm that O-ring is installed on fork bolt.
- d. Install fork bolt (3) with needle rod into the damper rod (4) slowly. Hand tighten the fork bolt to the damper rod until fork bolt is bottomed out on the damper rod.
- e. Turn jamnut (5) until it makes firm contact with fork bolt (3). Tighten and torque jamnut (14 mm) to fork bolt (17 mm).  $20 \pm 2.5 \text{ N}\cdot\text{m}$  ( $15 \pm 1.8 \text{ ft}\cdot\text{lbs}$ )
- f. Tighten fork bolt (1)(35 mm natural color) to fork bolt (3)(17 mm orange color).  $35 \pm 5 \text{ N}\cdot\text{m}$  ( $26 \pm 3.7 \text{ ft}\cdot\text{lbs}$ )

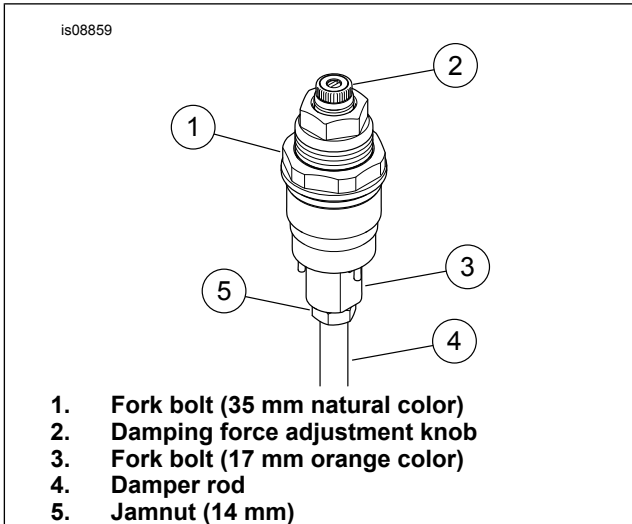


Figure 6. Fork Bolt Assembly

26. Release tension on compression tool and remove fork assembly.
27. Make sure that spring, washers and spring collar are all aligned. Push to center with fingers if necessary.

**NOTE**

Do NOT over-tighten. O-ring damage can occur.

28. Install fork tube holder in vise. Clamp fork tube into fork tube holder.
29. Install new fork bolt into fork tube (6). Tighten fork bolt to  $55 \pm 25 \text{ N}\cdot\text{m}$  ( $40.5 \pm 18.5 \text{ ft}\cdot\text{lbs}$ ).
30. Install duct cover (A) or fork boot (B, if equipped).
31. Repeat procedure for other fork assembly.

**Fork Installation**

1. See service manual. Install front forks.

**⚠ WARNING**

After repairing the brake system, test brakes at low speed. If brakes are not operating properly, testing at high speeds can cause loss of control, which could result in death or serious injury. (00289a)

**⚠ WARNING**

Whenever a wheel is installed and before moving the motorcycle, pump brakes to build brake system pressure. Insufficient pressure can adversely affect brake performance, which could result in death or serious injury. (00284a)

2. See service manual. Install front fender, wheel, brakes and any other removed parts.
3. Pump brakes to build system pressure.
4. See fork adjustment section to set preload and damping for your riding style and road conditions.

**Fork Adjustment**

**Fork Preload Adjustment**

The front and rear preload setting will need to be adjusted for the rider's weight and cargo. This adjustment should be made before the motorcycle is ridden any distance and after changing the overall vehicle weight (adding saddlebags, etc.). Changes in the load carried requires changes in the preload settings. Carrying less weight than was used for setting up the suspension requires decreasing the amount of preload. Increasing the load carried requires adding more preload.

**⚠ WARNING**

Adjust both forks equally. Improper fork adjustment can lead to loss of control, which could result in death or serious injury. (00124c)

1. See Table 1. Determine preload setting for your riding weight with gear.
2. See Figure 7. Turn preload hex (1) counterclockwise till it stops.
3. Adjust preload hex to desired location determined in step 1.
4. Repeat steps 1 through 3 on opposite side.

**Fork Preload Table**

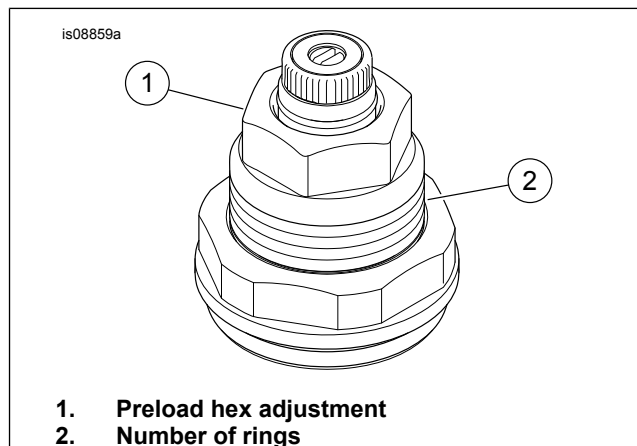


Figure 7. Fork Preload Adjustment

Table 1. Suspension Preload Table

RIDER WEIGHT		PRELOAD SETTING (mm)	NUMBER OF VISIBLE RINGS
0-135 lbs	0-61 kg	0	7
135-143 lbs	61-65 kg	1	
143-151 lbs	65-68 kg	2	6
151-159 lbs	68-72 kg	3	
159-167 lbs	72-76 kg	4	5

**Table 1. Suspension Preload Table**

RIDER WEIGHT		PRELOAD SETTING (mm)	NUMBER OF VISIBLE RINGS
167-175 lbs	76-79 kg	5	
175-182 lbs	79-93 kg	6	4
182-190 lbs	83-86 kg	7	
190-198 lbs	86-90 kg	8	3
198-206 lbs	90-94 kg	9	
206-214 lbs	94-97 kg	10	2
214-222 lbs	97-101 kg	11	
222-230 lbs	101-104 kg	12	1
230-238 lbs	104-108 kg	13	
238-241 lbs	108-109 kg	13.4	0

## Fork Damping Adjustment

### NOTICE

Compression and rebound adjusting valves may be damaged if too much force is used at either end of the adjustment range. (00237a)

### NOTE

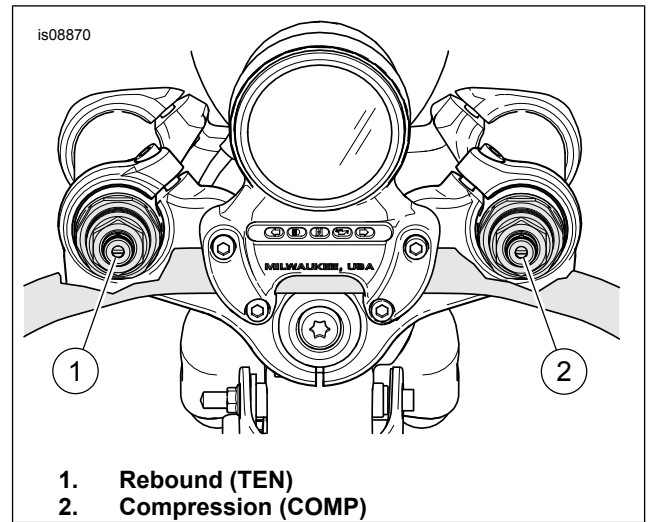
See Table 2 for rebound (TEN) and compression (COMP) damping adjustment.

## Fork Rebound Damping Adjustment

1. See Figure 8. Turn rebound damping adjuster clockwise until it stops. This is the maximum rebound damping setting.
2. Turn adjuster counterclockwise to the desired setting.

## Fork Compression Damping Adjustment

1. See Figure 8. Turn compression damping adjuster clockwise until it stops. This is the maximum compression damping setting.
2. Turn adjuster counterclockwise to the desired setting.



1. Rebound (TEN)
2. Compression (COMP)

**Figure 8. Fork Damping Adjustments**

**Table 2. Recommended Fork Rebound and Compression Damping Adjustment**

DAMPING	NOMINAL (From Maximum)
Compression (COMP)	7 clicks
Rebound (TEN)	7 clicks
Values shown are counterclockwise turns from maximum. Rotate adjuster clockwise to increase damping or counterclockwise to decrease damping.	

## Suspension Tuning

After the preload and damping have been set to the recommended settings, additional adjustments can be made to enhance the comfort, control and handling characteristics of the motorcycle. These adjustments may be based on personal riding style, desired ride quality and varying road conditions.

1. Set the front forks and shock absorbers to the recommended settings. Properly inflate the tires.
2. Determine the ride quality of the motorcycle. Ride the motorcycle on a familiar road with various bumps and turns. Ride over different surfaces at varying speeds. If the suspension is set properly, the vehicle suspension will feel controlled and comfortable.
3. See Table 3. Adjust the rebound and compression damping according to the motorcycle behavior experienced during the ride.
4. After adjusting the suspension, ride the motorcycle again to check for comfort and response.

### NOTE

When tuning the suspension, make all adjustments in small increments. Radical setting changes may overshoot the best adjustment setting.

**Table 3. Suspension Damping Adjustment Guidelines**

MOTORCYCLE BEHAVIOR	SUGGESTED REMEDY
Soft or unsettled feeling around corners or after bumps	Increase rebound damping
Leaping feeling or topping after large bumps	Increase rebound damping
Harsh/sharp feedback over bumps	Decrease rebound damping
Feels like motorcycle drops down over chatter bumps	Decrease rebound damping
Excessive bottoming through potholes	Increase compression damping
Excessive dive when applying front brake	Increase compression damping (forks)
Hard feeling or inadequate absorption over bumps	Decrease compression damping
Feels excessively stiff or busy around corners	Decrease compression damping
<b>NOTE:</b> Behavior felt through the handlebars should be remedied with front fork damping changes. Behavior felt through the seat should be remedied with rear shock damping changes.	