



# INSTRUCTIONS

J05392

2011-10-20



## PREMIUM RIDE DOUBLE CARTRIDGE FORK KIT

### GENERAL

#### Kit Number

45500106

#### 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).

#### Additional Parts Required

##### ⚠ WARNING

This kit is not designed to be used with Sidecar installed. Any attempt to use this front suspension kit with sidecar can adversely affect stability and handling. (00430c)

Proper installation of this kit also requires the following special tools:

Fork Tube Holder (HD-41177)

Fork Seal/Bushing Tool (HD-34634)

Front Fork Oil Level Gauge (HD-59000B)

Front Fork Spring Compressing Tool (HD-45966)

Extension tool (HD-45966-1)

Proper installation of this kit may also require the replacement of the following parts:

Table 1. Replacement Parts

Item (Quantity)	Part Number
Quad ring seal (2)	45733-48
Slider bushing (2)	45940-84
Screw with copper crush washer, 6 mm (2)	45405-75A
Harley-Davidson® Type E Fork oil	99884-80

##### ⚠ WARNING

Rider and passenger safety depend 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. (00333b)

#### NOTE

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

### Kit Contents

See Figure 10 and Table 2.

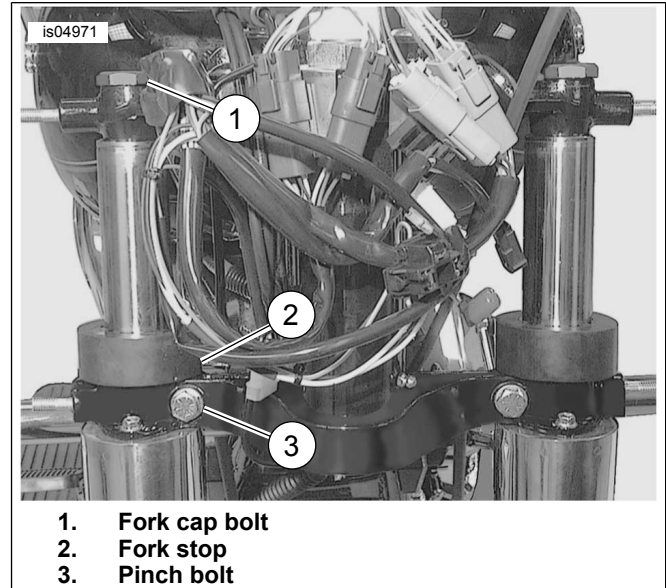


Figure 1. Loosen Pinch Bolt on Lower Fork Bracket

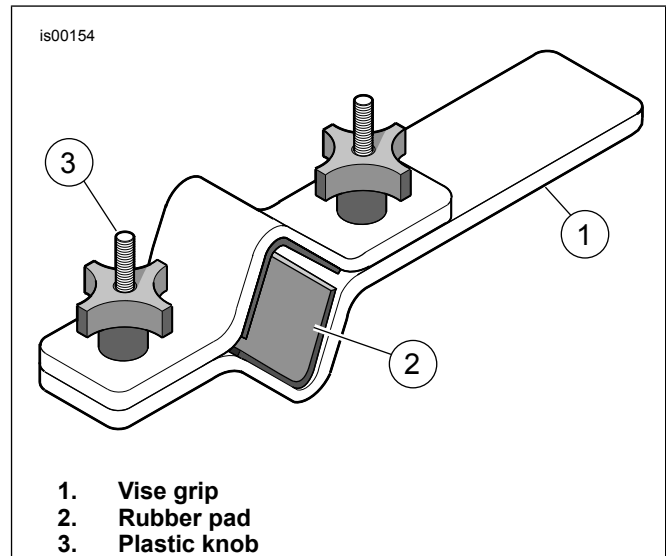


Figure 2. Fork Tube Holder (HD-41177)

### REMOVAL

1. Refer to the appropriate service manual and remove the front fender, wheel, brakes, and fairing or nacelle.
2. Refer to the appropriate service manual and remove the front forks.

## INSTALLATION

### Fork Disassembly

1. Obtain right fork assembly removed in earlier step.
2. Remove nuts, lockwashers, flat washers and axle holder from studs at end of fork slider (Figure 10, items O through R).
3. See Figure 2. Install fork in Fork Tube Holder (HD-41177) as follows:
  - a. See Figure 4 Clamp end of tool (1) in vise in a horizontal position.
  - b. With the fork cap bolt upward, clamp fork tube (U) (Figure 10 and Table 2), between rubber pads (2) on inboard side of tool. Tighten knobs (3) until fork tube is securely held.

#### NOTE

Refer to Figure 10 for Steps 4 - 14.

#### ▲ 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)**

4. Remove fork cap bolt (A) from fork tube plug (C). Remove quad ring seal (B). Save bolt but discard quad ring seal.
5. Slowly remove fork tube plug (C) from fork tube (U). Be aware that fork tube plug is under spring-pressure, so have a firm grasp on plug as the last thread is turned.
6. Remove the fork spring (E) from the fork tube.
7. Remove fork assembly from fork tube holder. Turn fork upside down over drain pan to drain oil and remove damping valve (I). For best results, slowly pump fork tube and slider at least 10 times. Discard damping valve.
8. Install fork spring back into fork tube.
9. Put a shop rag on the floor. Turn the fork assembly upside down and press the end of the spring against the rag. Compress the spring and remove the 6 mm screw (M) from end of fork slider (X) or (N). Use air impact wrench for best results. Discard 6 mm screw (M) and copper crush washer (L).
10. Remove fork spring (E), damper tube (S), and rebound spring (T) from fork tube. Discard fork spring, damper tube, and rebound spring.
11. Using pick tool, remove retaining clip (D) between fork slider (X) or (N) and fork tube (U). Do not expand or stretch retaining clip to remove from fork tube or clip may be damaged.

#### NOTE

To overcome any resistance, use the fork tube as a slide hammer: Push fork tube into fork slider and then pull it outward with a moderate amount of force. Repeat this sequence until fork tube separates from fork slider.

12. Remove fork tube from fork slider.
13. Slide fork oil seal (W), slider washer (F) and slider bushing (H) off end of fork tube. Discard fork oil seal and fork tube (U).
14. Remove the oil lock (V) from the fork slider. Discard oil lock.
15. Repeat steps 3 - 14 for opposite side.

### Fork Assembly

#### NOTICE

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

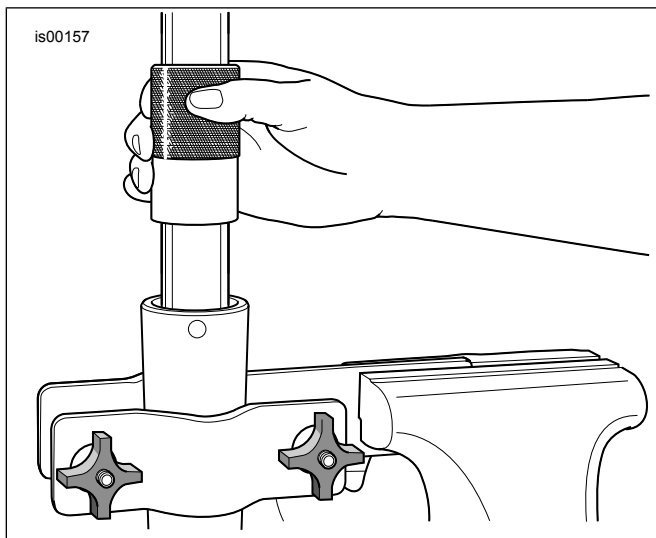
#### NOTE

Refer to Figure 10 for the following procedure.

1. If not already installed, coat new fork tube bushing (11) ID with clean fork oil. Expand fork tube bushing at split line only as far as required to slip over end and into groove of fork tube.
2. Install fork slider (X or N) in fork tube holder. Slide fork tube (7) into fork slider.
3. Coat slider bushing (H) ID with clean fork oil. Slide slider bushing down fork tube (7) (either direction).
4. Slide slider washer (F) down fork tube until it contacts slider bushing (either direction).
5. Coat the new fork oil seal (9) ID with clean fork oil. With the lettering side facing up, slide fork oil seal down the fork tube until it contacts the slider washer.



Figure 3. Fork Seal/Bushing Tool (HD-34634)



**Figure 4. Install Fork Oil Seal**

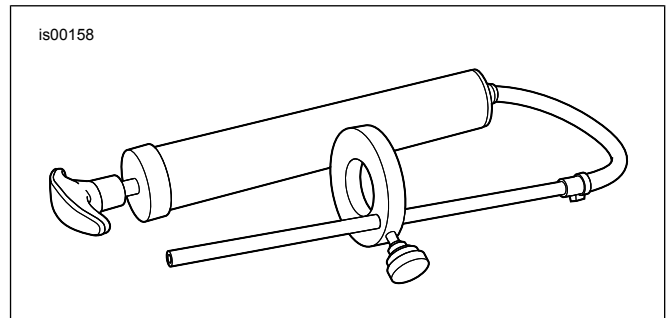
6. See Figure 3. Obtain the Fork Seal/Bushing Tool (HD-34634) and proceed as follows:
  - a. Slide the fork seal installer down the fork tube until it contacts the fork oil seal.
  - b. See Figure 4. Using the tool like a slide hammer, drive fork oil seal (with slider washer and slider bushing) down the fork tube until retaining clip groove is visible in fork slider ID.
  - c. Slide the retaining clip (D) down the fork tube until it contacts the fork oil seal. Install retaining clip in the fork slider groove. Do not expand or stretch retaining clip to install on fork tube or clip may be damaged.
7. Remove assembly from fork tube holder.
8. Install oil lock (8) over the end of the damper cartridge (2).
9. Hold fork assembly horizontal and slide damper cartridge with oil lock into fork assembly.
10. Push down on cartridge.
11. Install new screw (M) with copper crush washer (L). Slide screw through hole at bottom of fork slider and start into end of damper cartridge.
12. Obtain fork spring (1) from the kit. Install new fork spring into fork tube.
13. Put a shop rag on the floor. Turn the fork assembly upside down and press the end of the spring against the rag. Compress the spring and tighten the screw (M) to 15–24 N·m (11–18 ft-lbs).
14. With the fork tube upright, clamp fork slider (not the fork tube) into fork tube holder.

**NOTE**

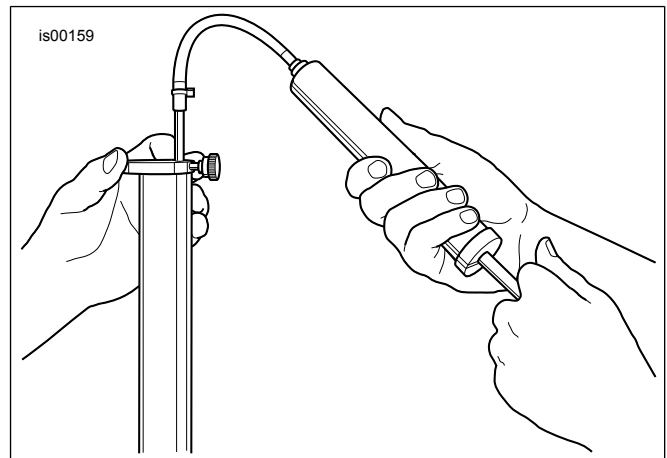
*Install the drain screw at the bottom of the fork slider, if removed. Tighten the screw to 8–11 N·m (72–96 in-lbs).*

15. Fill the fork tube as follows:

- a. See Figure 9. Thread extension tool onto end of damper rod.
- b. Pour Harley-Davidson Type E Fork Oil into the fork tube almost to the top. Pump fork tube ten times.
- c. Slowly pump the damper rod until resistance is felt and then pump ten more times.
- d. Place the damper rod in the fully bottomed position.
- e. Remove the extension tool from the end of the damper rod.



**Figure 5. Front Fork Oil Level Gauge (HD-59000B)**



**Figure 6. Remove Excess Fork Oil**

**⚠ 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)**

16. Adjust the fork oil level, so that it is 121 mm (4.76 in) from the top of the fork tube with the fork tube compressed and the fork spring removed. Proceed as follows:
  - a. See Figure 5. 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 121 mm (4.76 in) from the bottom of the rod. Tighten thumbscrew.
  - c. Push the plunger on the cylinder all the way in.

- d. See Figure 6. 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 oil is being drawn from fork.
- f. Remove rod from fork tube. Push plunger into cylinder to eject excess fork oil into suitable container.
- g. If necessary, repeat Steps 16(c) through 16(f). Level is correct when no fork oil is observed being drawn through transparent tube.

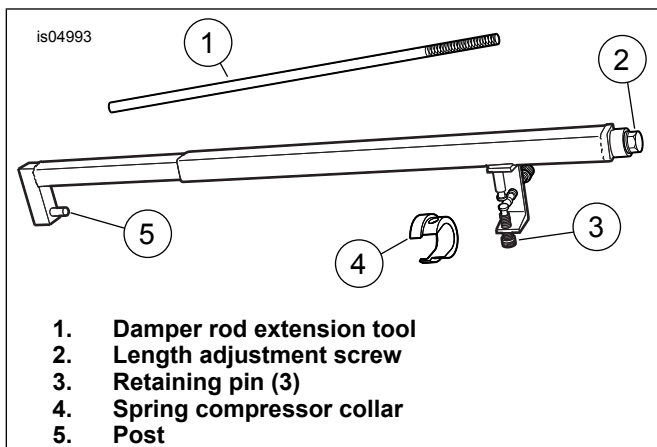
**NOTE**

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

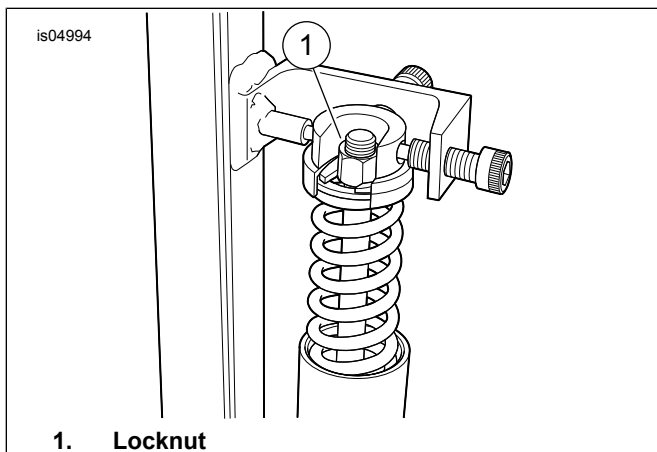
17. Install fork spring into the fork tube with the dense end down.
18. Thread extension tool onto end of damper rod.

**NOTE**

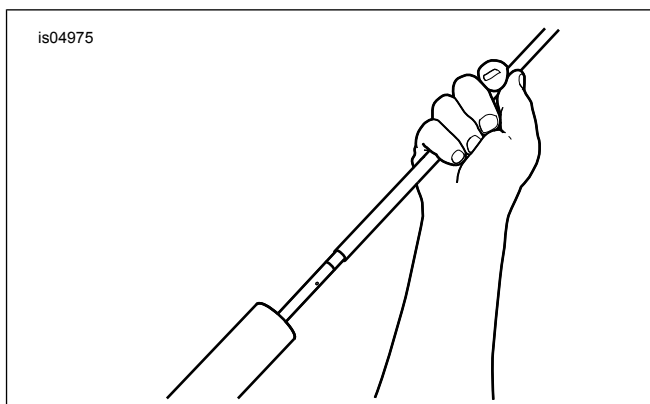
Do not use an air impact wrench to adjust the fork spring compression tool.



**Figure 7. Fork Spring Compressing Tool (HD-45966)**



**Figure 8. Compress Fork Spring**



**Figure 9. Pump Damper Rod Extension Tool**

**▲ 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)**

19. See Figure 7. Install fork spring compressing tool as follows:
  - 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 (5) at bottom end of tool.
  - c. Place flat washer (Item 6, Figure 10 ), over the damper rod extension tool and on top of spring. Place spring seat (Item 5, Figure 10 ), concave side up, on top of the flat washer. With the smaller OD upward, place spring compressor collar (item 4, Figure 7) over spring seat and flat washer.
  - d. Adjust tool as necessary until three retaining pins (3) engage blind holes in spring compressor collar (4). Turn length adjustment screw counterclockwise to lengthen and clockwise to shorten.
  - e. Turn retaining pins as necessary to lock position of spring compressor collar.
  - f. Turn length adjustment screw in a clockwise direction to compress spring.
20. After a number of turns, pull up on extension tool to raise damper rod. If threaded portion of rod cannot be pulled completely out of spring, compress spring further. Repeat until threaded portion of rod can be pulled completely out of spring.
21. Remove extension tool, while holding the damper rod in the extended position.
22. Install new jam nut (4) with non-threaded end over the damper rod first. Thread onto damper rod until it bottoms out on the shoulder.

23. Turn the length adjustment screw at top end of fork spring compressing tool counterclockwise to release tension on fork spring. Loosen retaining pins and remove spring compressor. Remove fork assembly from tool and remove tool from vise.
24. Install fork tube holder in vise. Clamp fork tube into fork tube holder.
25. Install new O-ring (10) onto fork tube plug (3). Thread fork tube plug onto threaded end of damper rod until it bottoms. Turn jam nut counterclockwise until it makes firm contact with the fork tube plug. Tighten jam nut to 18–27 N·m (13–20 ft-lbs).

**NOTE**

*Do NOT over-tighten or O-ring damage may occur.*

26. Thread new fork tube plug (3) into fork tube (7). Tighten fork tube plug to 30–79 N·m (22–59 ft-lbs).
27. Install new quad ring seal (B) onto fork cap bolt. Thread fork cap bolt (A) into fork tube plug to prevent loss of fork oil while handling.
28. Remove the fork assembly from the fork tube holder.
29. Repeat steps 1-28 for the opposite side.

## Fork Installation

1. Remove fork cap bolt with quad ring seal from front fork and retain.
2. Refer to the appropriate service manual and install the 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)**

3. Refer to the appropriate service manual and install the front fender, wheel, brakes and fairing or nacelle.
4. Pump brakes to build system pressure.

## Test Ride

1. Test ride motorcycle to verify fork travel and rebound.

# SERVICE PARTS

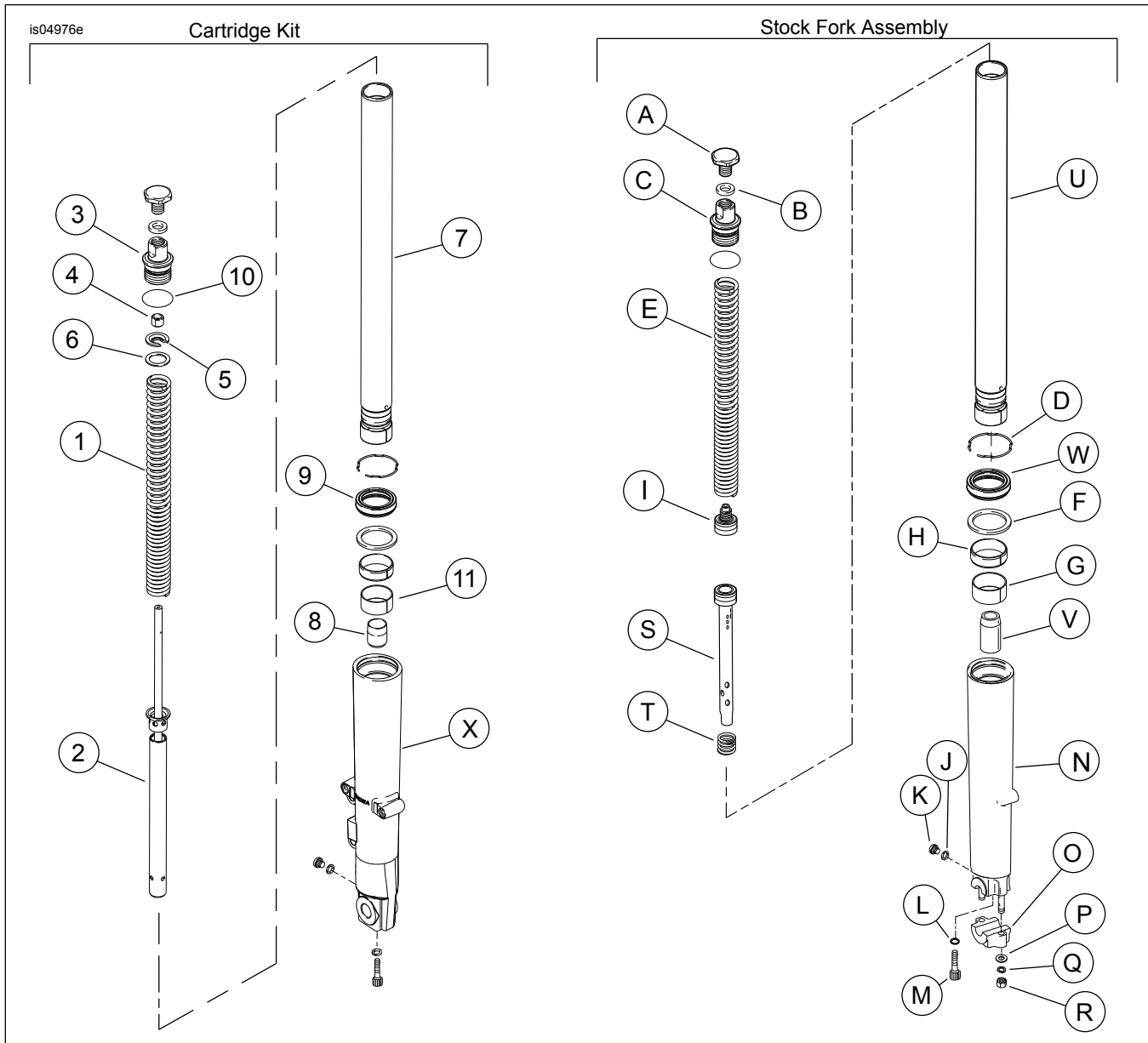


Figure 10. Service Parts: FLHT, FLHR (Road King) Front End Cartridge Kit

Table 2. Service Parts Table

Item	Description (Quantity)	Part Number
1	Fork spring	Not Sold Separately
2	Damper cartridge	Not Sold Separately
3	Fork tube plug	46229-02
4	Jam nut	46262-02
5	Spring seat	46236-02
6	Washer, flat	46237-02
7	Fork tube	45972-02
8	Oil lock	46238-02
9	Fork oil seal	45875-84A
10	O-ring	45845-77
11	Fork tube bushing	45866-84
<b>Items mentioned in text, but not included in kit:</b>		
A	Fork cap bolt (2)	
B	Quad ring seal (2)	45733-48
C	Fork tube plug	
D	Retaining clip (2)	

**Table 2. Service Parts Table**

<b>Item</b>	<b>Description (Quantity)</b>	<b>Part Number</b>
E	Spring	
F	Slider washer (2)	
G	Bushing, fork tube (2)	
H	Bushing slider (2)	45940-84
I	Damping valve	
J	Washer, flat (2)	
K	Plug (2)	
L	Washer, copper, crush (2)	45405-75A
M	Screw, 6mm (2)	
N	Fork slider, right	
O	Axle holder	
P	Washer, flat (2)	
Q	Lock washer (2)	
R	Nut (2)	
S	Damper tube	
T	Rebound spring	
U	Fork tube	
V	Oil lock	
W	Fork oil seal	
X	Fork slider, left	