INSTRUCTIONS

-J03392 REV. 2009-02-13

SOFTAIL REAR LOWERING KIT

GENERAL

Kit Number

54001-04A

Models

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

Additional Parts Required

To access the shock absorber bolts, a Snap-on Tool Co. adapter (Part Number SRES 24) is required. To adjust the preload, Harley-Davidson Shock Absorber Spanner Wrench (Part number HD-94455-89) is required.

LOCTITE® 243 (blue) (Harley-Davidson Part Number 99642-97) and Anti-Seize Lubricant (Harley-Davidson Part Number 98960-97) are required for this installation and can be purchased at a Harley-Davidson dealer.

⚠WARNING

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 a Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury. (00308a)

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.

⚠WARNING

Installation of any accessory suspension components can affect cornering clearance. This could distract the rider, causing loss of control and death or serious injury. (00431b)

NOTE

Rear shock absorbers on Softail models cannot be repaired. If a shock absorber becomes damaged, it must be replaced.

Kit Contents

See Figure 4 and Table 1.

INSTALLATION

Prepare the Motorcycle

1. Follow the Service Manual instructions to remove the seat.

⚠WARNING

To prevent accidental vehicle start-up, which could cause death or serious injury, disconnect negative (-) battery cable before proceeding. (00048a)

2. Disconnect the negative (-) battery cable from the battery.
3. Place motorcycle on a lift and secure the front wheel.
4. Use an overhead crane or hoist attached to the frame to lift the rear of the motorcycle to allow the rear fork to pivot through its range of travel.
5. Place a screw jack under the rear wheel to support and adjust the rear fork during shock removal, installation and ride height adjustment.

⚠WARNING

Be sure rear wheel is supported when removing rear shocks. If wheel is not supported rear fork can drop down, which could result in death or serious injury. (00481b)

Removal

1. See Figure 1. Remove the bolt and washer (1) that fasten each of the shock absorbers (2) to the rear fork.

NOTE

Snap-on Tool Co. adapter, Part Number SRES 24, is necessary to gain access to the shock absorber bolts.

2. Remove the flanged locknut (6) and cup washer with grommet (5) fastening the shock absorber to the frame bracket (4) and remove the shock absorber.
3. Remove, inspect and, if necessary, replace the rubber grommets, the cup washers (5), and the bushing (3).
4. Repeat for the other shock absorber.

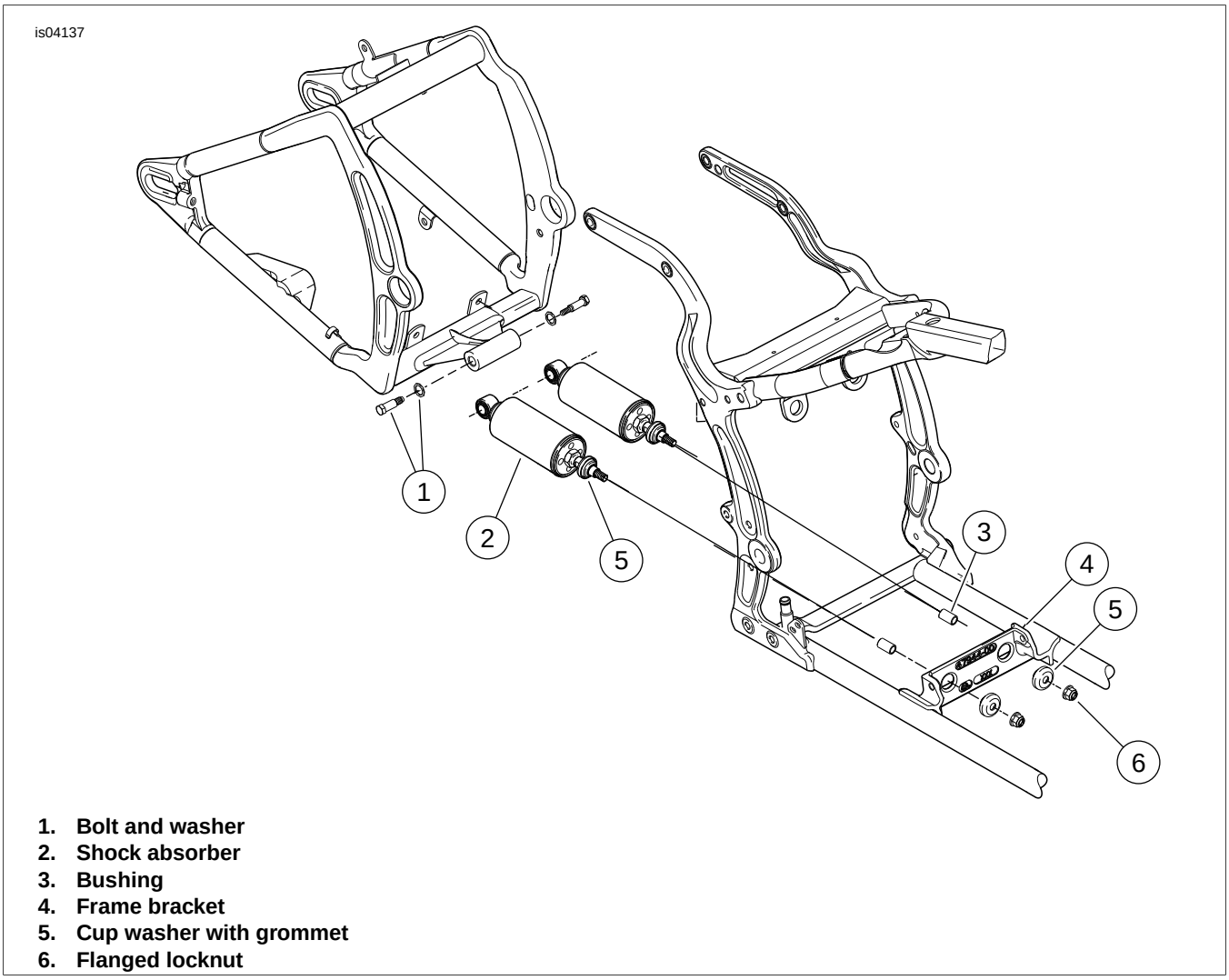
Disassemble the Shock

1. Thoroughly clean the rear fork end of the shock, especially near the shock canister seal.
2. Support the rear fork end of the shock absorber and shock canister on the table of a press.
3. Press on the shaft to compress the spring in the canister until the keeper plate drops down away from the retaining ring.

⚠WARNING

Wear safety glasses or goggles when removing or installing retaining rings. Retaining rings can slip from the pliers and could be propelled with enough force to cause serious eye injury. (00312a)

4. Use a mechanics pick to remove the ring.
5. Carefully release the press and separate the parts.
6. Carefully remove the inner shock assembly and spring seat from the outer cannister. Do not remove the clip from the damper body that retains the seat. Do not remove the spring or nylon washers from the shock canister.



1. **Bolt and washer**
2. **Shock absorber**
3. **Bushing**
4. **Frame bracket**
5. **Cup washer with grommet**
6. **Flanged locknut**

Figure 1. Softail Rear Suspension

7. Holding the flats on the shock shaft nut, use a wrench on flats of the existing stub shaft and thread the shaft off the shock.
8. Thread off the jam nut from the existing stub shaft.

Assemble the Shock and Lowering Kit

1. See Figure 2. Thread the jam nut (1) and the keeper plate (2) on the stub shaft (3) from the kit.
2. Apply LOCTITE 243 (blue) (Harley-Davidson Part Number 99642-97) to shock shaft threads (4).
3. Holding the flats (5) on the shock shaft nut, tighten the new stub shaft down fully on the shock shaft threads.
4. Thread the keeper plate all the way down the threaded adjustment length to the plate on the shock shaft.

NOTE

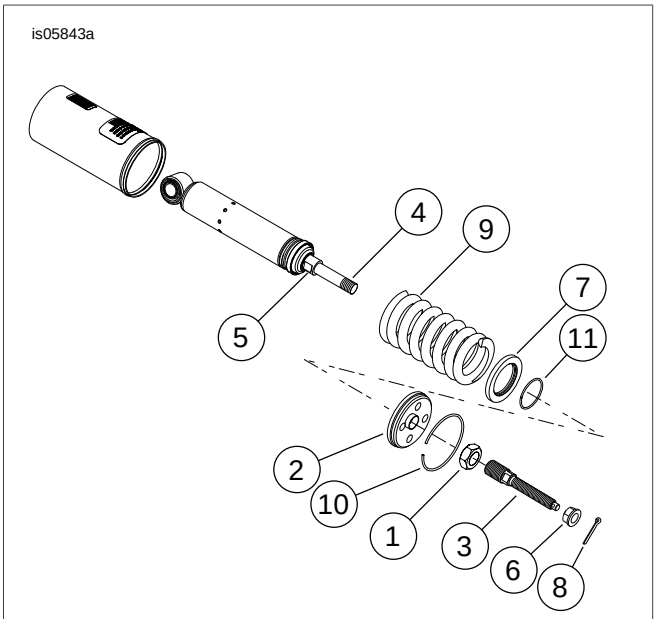
This is the MINIMUM preload position. Preload can be adjusted after installation for operating load.

5. Snug the jam nut down on the keeper plate.
6. See Figure 2. Assemble the shock absorber.
   a. Holding the inner shock assembly with the shock shaft down, first install the spring seat (11) with its chamfer facing the retaining clip, then slide on the shock spacer (7) from the kit.
   b. Carefully insert the inner shock assembly into the outer canister.
7. In the press, as before, support the fork end of the spring shock assembly and compress the stub shaft (3) until the keeper plate travels below the retaining ring notch in the bore of the shock canister.
8. Snap the retaining ring (10) into place.
9. Carefully release the press until the spring pushes the keeper plate firmly against the retainer ring and remove the spring/shock assembly from the press.
10. See Figure 2. Thread on an adjuster collar (6) from the kit with the flange facing the frame bracket.
11. Slip a cup washer and a rubber grommet over the shaft.

12. Repeat for the second shock absorber.

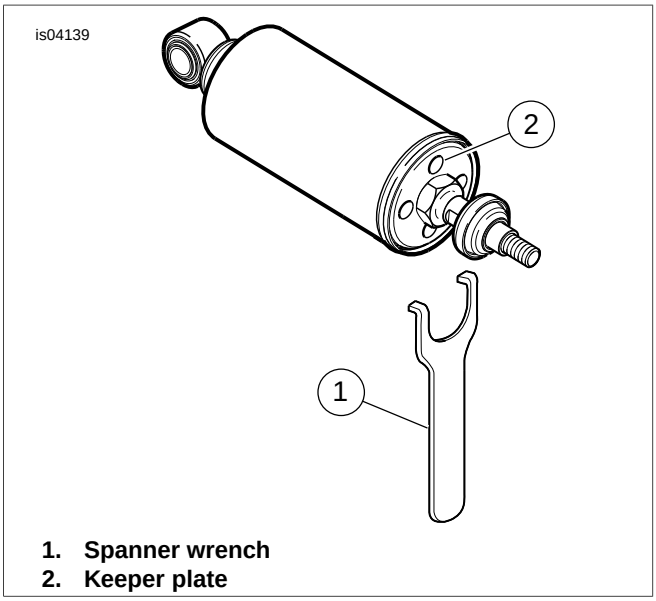
NOTE

The second shock absorber must be assembled with the keeper plate and the jam nut exposing an identical number of threads on the stub shaft.



1. **Jam nut**
2. **Keeper plate**
3. **Stub Shaft**
4. **Shock threads (add Loctite)**
5. **Shock shaft nut**
6. **Adjuster collar (facing frame bracket)**
7. **Shock spacer**
8. **Cotter pin**
9. **Shock absorber spring**
10. **Retaining ring**
11. **Spring seat**

Figure 2. Shock Absorber to Stub Shaft Assembly



1. **Spanner wrench**
2. **Keeper plate**

Figure 3. Spanner Wrench (Part Number HD-94455-89)

Install the Shock

1. Slide the bushing over the stub shaft and insert the shaft through the frame bracket.
2. Slip a rubber grommet and cup washer onto the shock absorber shaft and loosely fasten with the flanged locknut. Check that the washer/grommet assemblies properly fit the hole in the frame bracket. Do not tighten at this time.
3. Insert a **new** cotter pin through the hole in the end of the shock stub shaft and spread the pin.
4. Align the shock absorber eye with the rear fork mount by adjusting the rear wheel height with the screw jack.
5. Fasten the shock absorber to the rear fork with the stock washer and bolt as follows:
   a. Apply LOCTITE 243 (blue) to the bolt threads.
   b. Apply Anti-Seize Lubricant (Harley-Davidson Part Number 98960-97) to the bolt shoulder.
   c. Thread the bolt through the shock absorber eye and into the rear fork mount, but do not tighten.
6. Repeat for the second shock absorber.

NOTE

The number of exposed threads on the stub shafts must be equal between the two shock absorbers.

7. With the screw jack raise or lower the rear wheel to the desired ride height. Set both shock absorbers to exactly the same ride height as follows:
   a. Snug the flanged locknut down to the cup washers.
   b. Count the number of threads showing on the shaft in front of the flanged locknut.
   c. Turn the shock side adjuster collar up to capture the cup washers, rubber grommet, and bushings against the bracket. Continue to raise or lower the rear wheel and turning the adjuster collar to precisely set the ride height.

NOTE

Snap-on Tool Co. adapter, Part Number SRES 24, is required to gain access to the shock absorber bolts. When adding an adapter or extension to a torque wrench, bolt torque must be computed. A Torque Computer, Part Number SS-306G, is available from Snap-on Tool Co. The computer is easy to use with dial- or click-type torque wrenches.

8. Tighten each rear shock mounting bolt to 115-130 ft-lbs (156-176 Nm).
9. Tighten each flanged locknut to 32-39 ft-lbs (43.4-52.9 Nm).

Return the Motorcycle to Service

1. Remove the screw jack from under the rear wheel. Lower the rear of the motorcycle back down with the crane or hoist, then free the motorcycle from the lifting and securing devices.
2. Connect the negative (-) battery cable to the battery.

⚠WARNING

After installing seat, pull upward on seat to be sure it is locked in position. While riding, a loose seat can shift causing loss of control, which could result in death or serious injury. (00070b)

3. Install the seat.
4. After operating the motorcycle, adjust the suspension as desired for preload and ride height.

SUSPENSION ADJUSTMENTS

Preload

NOTE

Adjust spring compression to compensate for motorcycle load.

1. Place a mark in the same position on the keeper plate of each shock.
2. Loosen the jam nut on each shock.
3. See Figure 3. Use the shock absorber spanner wrench (1) (Part Number HD-94455-89) to rotate each keeper plate (2) to release or compress the springs.

   For heavier loads: Turn the keeper plates OUT (counter clockwise, toward the jam nut), to increase spring preload.

   For lighter loads: Turn the keeper plates IN (clockwise, away from the jam nut), to decrease spring preload.
4. Adjust both shock absorbers equally, the same number of turns, and to the same position relative to the marks.
5. Tighten the jam nut against each of the shock-absorber keeper plates.

Ride Height

NOTE

Ride height is adjusted with the motorcycle suspended and a screw jack under the rear wheel to raise/lower the suspension.

1. Loosen the flanged locknut on the front of the frame bracket.
2. Turn the adjuster collar in the direction of the desired ride height.

   To increase rear wheel travel and raise the height: Turn the adjuster collar IN towards the shock end of the stub shaft.

   To decrease rear wheel travel and lower ride height: Turn the adjuster collar OUT towards the frame bracket.

NOTES

***Longer** shock length from the frame bracket to the shock eye will equal **lower** motorcycle ride height. With this kit, ride height is adjustable from 0.5 to 1.0 in. (12.7 to 25.4 mm). Each complete revolution of the flanged nut equals approximately 0.140 in. (3.55 mm) of ride height.*

Adjust ride height according to rider preference. However, when operating under heavy loads, the lowest ride height setting with the minimum preload setting, may cause the rear tire to contact the rear fender.

3. When the desired ride height has been reached, tighten the flanged locknut on the front of the frame bracket to 32-39 ft-lbs (43.4-52.9 Nm).
4. Repeat for the opposite shock.

NOTE

Equal settings are required on both shock absorbers to maintain handling.

SERVICE PARTS

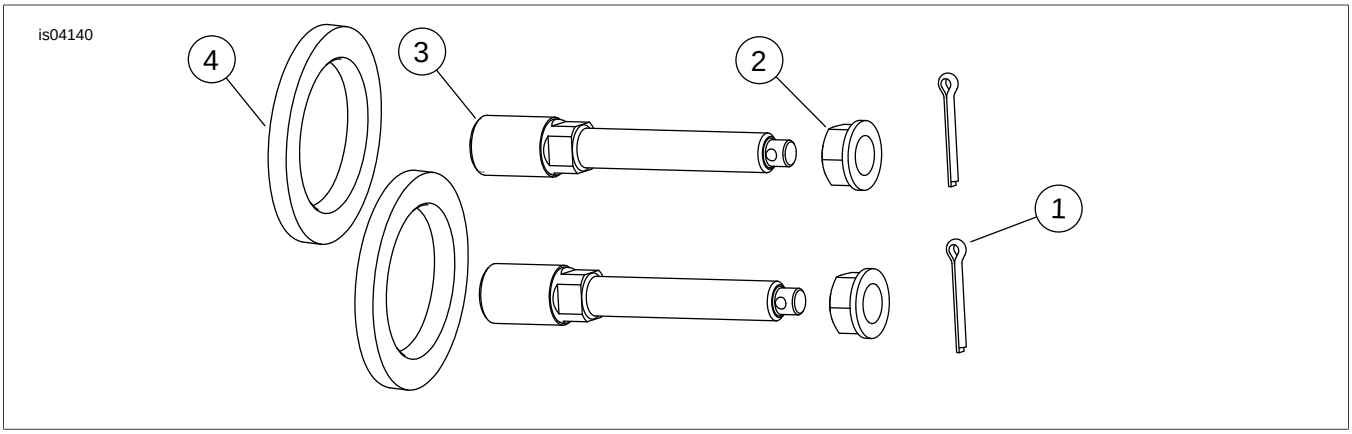


Figure 4. Service Parts: Softail Rear Lowering Kit

Table 1. Service Parts Table

Item	Description (Quantity)	Part Number
1	Cotter pin (2)	520W
2	Adjuster collar (2)	Not Sold Separately
3	Stub shaft (2)	Not Sold Separately
4	Shock spacer (2)	11892