



Towing and Suspension Solutions

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Falcon 2™ & BlackHawk™ complete repair kit

part number 910003-60

This kit contains the components to replace the Falcon 2 or BlackHawk Autowlok™ button assemblies, collar shoulder bolts, inner and outer arm bushings, washers and end plugs.

All specifications are subject to change without notice.

WARNING

Read the instructions before installing the kit components. Failure to understand how to install this product could result in property damage, serious personal injury or even death.



Kit components

This kit contains the components to replace the collar shoulder bolt, inner and outer arm bushings, washers and end caps on a BlackHawk or Falcon 2 tow bar –

- (2) collar shoulder bolts
- (2) 3/4" nuts
- (2) square black end caps
- (9) 1 1/2" diameter acetyl washers
- (2) 1 1/4" diameter acetyl inner arm bushings
- (4) 3/4" diameter acetyl washers
- (2) Nylatron outer arm bushings
- (2) Nylock nuts

This kit also contains the components to replace the Autowlok button assemblies –

- (2) button stems
- (2) springs
- (1) epoxy glue kit
- (2) Autowlok buttons
- (2) pins

Required tools

- 1-1/8" socket wrench
- crescent wrench
- 9/16" socket wrench
- 5/8" Allen wrench
- grinder
- straight edge screwdriver
- 1/4" Allen wrench
- pair of needle nose pliers
- felt tip pen
- rubber mallet

Installation instructions

Replace the stinger washers and nut

1. Note the location of the two 1 1/2" diameter acetyl washers at the stinger bolt (Figure 1). Then with the 1-1/8" socket wrench and either a 5/8" Allen or crescent wrench (depending on the application), remove the stinger bolt. Discard the original washers and the 3/4" nut; replace them with new washers and a new nut.

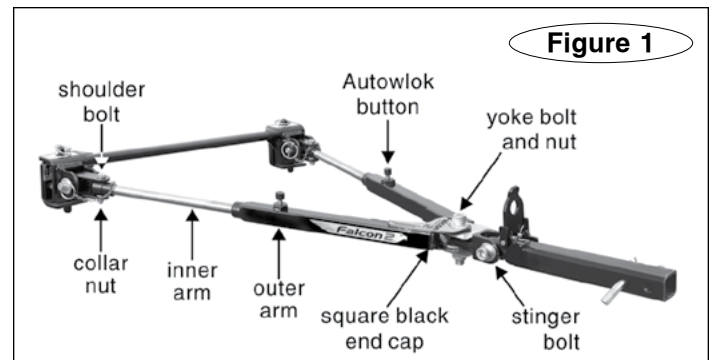
Tighten the nut until the bolt is snug.

The torque required to adequately tighten the stinger bolt varies from tow bar to tow bar. If the bolt is over-tightened, the tow bar arms will not pivot easily. If this is the case, adjust the torque.

Remove the yoke bolt, washers and nut

2. To aid in reassembly, carefully note the position of the driver's and passenger's side tow bar arms, in relation to the yoke (Figure 1), as well as the location of the six 1 1/2" diameter acetyl washers at the yoke bolt.

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IMPORTANT NOTICE! **Safety Definitions**

These instructions contain information that is very important to know and understand. This information is provided for **safety** and to **prevent equipment problems**. To help recognize this information, observe the following symbols:

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in property damage, serious personal injury or even death.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in property damage, or minor or moderate personal injury.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTE

Refers to important information and is placed in italic type. It is recommended that you take special notice of these items.

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Note: in earlier models of these tow bars, one set of acetyl washers was 'double stacked.' An additional 1½" diameter acetyl washer is provided for these applications.

3. With the 5/8" Allen wrench and the 1-1/8" socket wrench, remove the yoke bolt. Discard the original washers and the ¾" nut; later, you will replace them with new washers and a new nut.

Note: depending on the year of manufacture, there may be either one or two steel washers against the Allen head bolt. Do not discard the steel washer(s); use the same number of steel washers when you reattach the yoke bolt.

Replace the outer and inner arm bushings

4. Work on one tow bar arm at a time.

Use the straight edge screwdriver to pry off the square black end cap (Figure 1) at the end of one of the outer arms (Figure 1). Discard the cap; you will replace it when the tow bar is reassembled.

5. Use a felt tip pen to mark the tow bar arm at the point where the round nut (Figure 2) attaches to the end of the tow bar inner arm (Figure 2).

Note: the swivel ears were redesigned in 2014; the earlier, original version is shown in Figure 2. Later steps in the installation will vary depending on which version is on the tow bar. See step 24.

6. With the ¼" Allen wrench and the 9/16" socket wrench, remove the lock nut from the bottom of the Allen head shoulder bolt connecting the swivel ear to the round nut (Figure 3).

7. Remove the round nut.

8. Hold a piece of cloth over the end of the outer arm that was covered by the square black end cap. Press the Autowlok button (Figure 1) down.

Push the inner arm (Figure 1) completely out, through the end of the outer tubing that was covered by the square black dust cap.

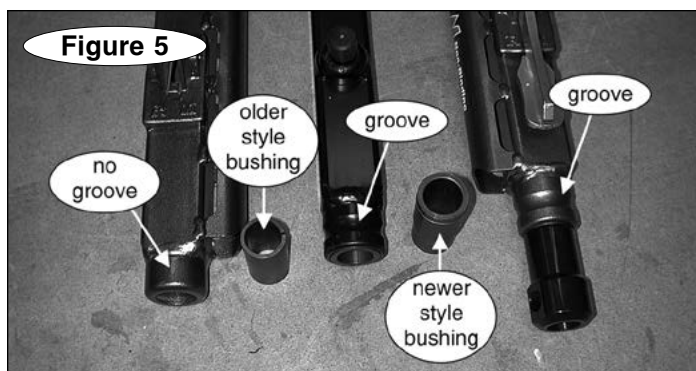
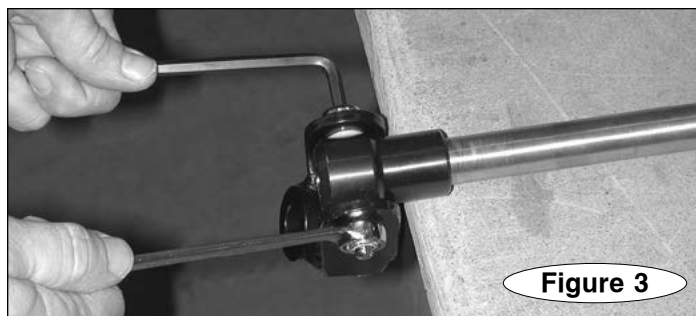
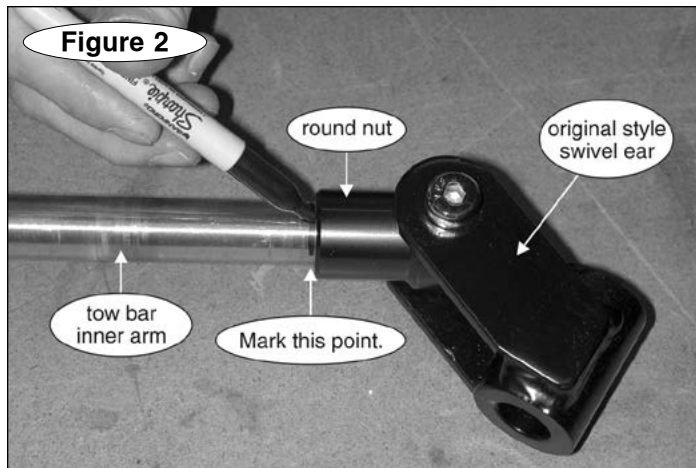
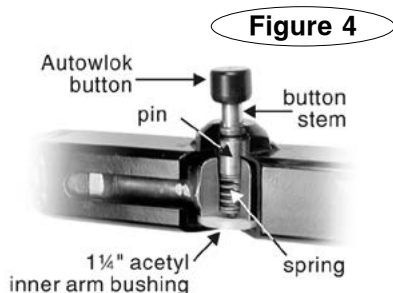
CAUTION

The spring inside the Autowlok assembly is under pressure. It will eject a pin when the spring and pin clear the outer arm, and the pressure is released.

To avoid injury, hold a cloth over the end of the outer arm and stand to one side, clear of the pin and spring, as the Autowlok assembly clears the outer arm.

If the spring and/or pin come out of the inner arm, reassemble as shown in Figure 4.

IMPORTANT: the pin must be installed with the round side up, or the tow bar will not lock.



bushings (step 10, below).

Replace the outer arm bushing

10. If replacing the outer arm bushing, remove it with the straight edge screwdriver and the needle nose pliers (Figure 6). **IMPORTANT: Do not replace the newer style bushings. See step 9.**

11. Clean the interior of the outer arm with a water-soluble cleaner such as Voom RV (part number 9911) – spray a lib-

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eral amount of cleaner inside the arm, then push a piece of cloth through the other side. Repeat, if necessary, until the interior of the outer arm is clean.

CAUTION

Do not use petroleum-based products to clean the tow bar. Petroleum will attract dirt and dust, which will impede the operation of the inner arms and/or other components. Certain petroleum products may also corrode non-metallic components.

12. Rinse the interior of the outer arm to remove all of the cleaner, then dry the interior of the outer arm completely, by repeatedly pushing a piece of cloth through the interior of the outer arm.

13. Collapse the replacement outer arm bushing and insert it into the end of the outer arm (Figure 7). The bushing will snap into place when it is fully inserted.

14. Discard the original 1¼" acetyl inner arm bushing (Figure 8) and fit one of the replacement 1¼" acetyl bushings onto the raised lip at the end of the inner arm (Figure 8). Then, test the fit – slide the inner arm into the outer arm.

Note: if the flat white bushing is too wide to fit, use a grinder to trim a small amount from the edges touching the inside of the outer arm. Trim an equal amount from each side, test-fit the inner arm and trim more, if necessary, until the inner arm slides in and out easily.

Attach the Autowlok button assembly

15. If the button stem (Figure 4) will not be replaced, proceed to step 16.

If the button stem will be replaced – first, with the old pin and spring (Figure 4) removed, insert the button stem flat side up (Figure 9) into the opening at the end of the inner arm opposite the 1¼" acetyl inner arm bushing (Figure 9).

Then, slide the inner arm into the outer arm until the top of the button stem is visible through the hole in the outer arm.

Turn the tow bar arm over and move the inner arm forward or backward slightly, if necessary, until the button stem drops through the hole in the outer arm. Then, draw a straight line with a pencil across the bottom of the inner arm (Figure 10), ¾" from the edge of the outer arm.

Slowly close the inner arm until the edge of the outer arm is even with the pencil line you drew. This position will stabilize and support the button stem.

16. Turn the tow bar arm back over and clean any dust or debris that may be on the exposed surface of the button stem.

Note: for easier attachment to the button stem (step 17, below), drop the Autowlok button in boiling water for five minutes. The heat will make the button more flexible.

If you choose this method, dry the button completely before applying the glue.

17. Follow the instructions on the supplied package of epoxy glue to mix and activate the glue, then apply enough to lightly cover the inside of the button. Next, apply enough glue to completely fill the grooves at the top of the button stem.

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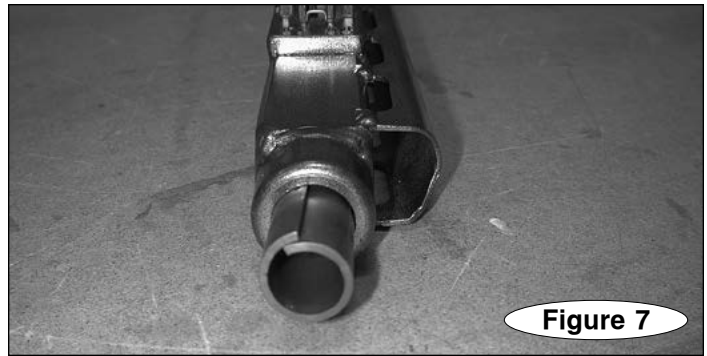


Figure 7

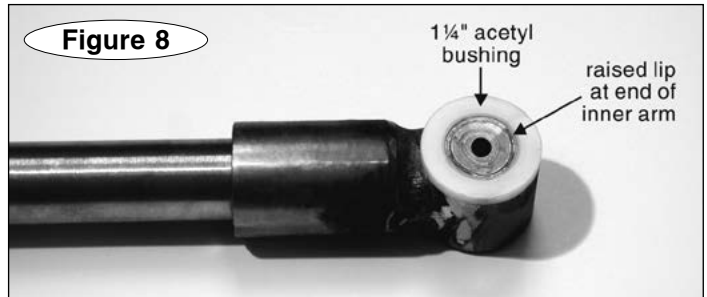


Figure 8

1¼" acetyl bushing

raised lip at end of inner arm

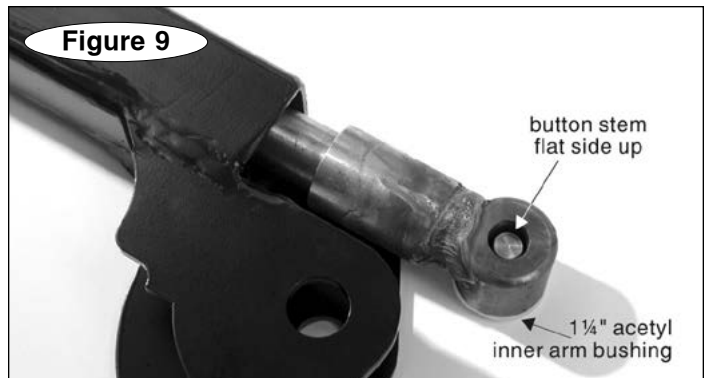


Figure 9

button stem flat side up

1¼" acetyl inner arm bushing

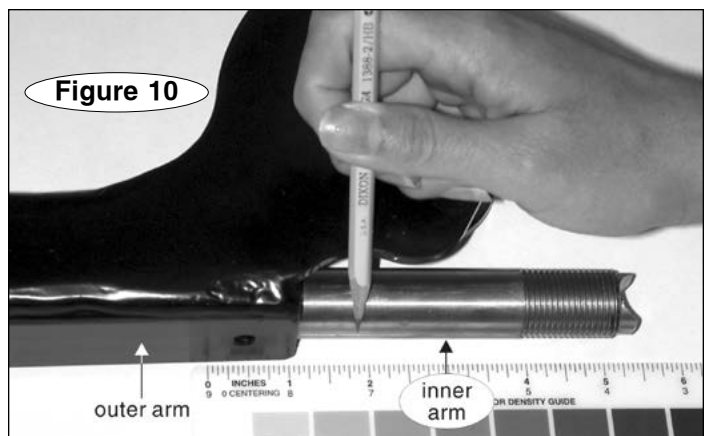


Figure 10

outer arm

inner arm

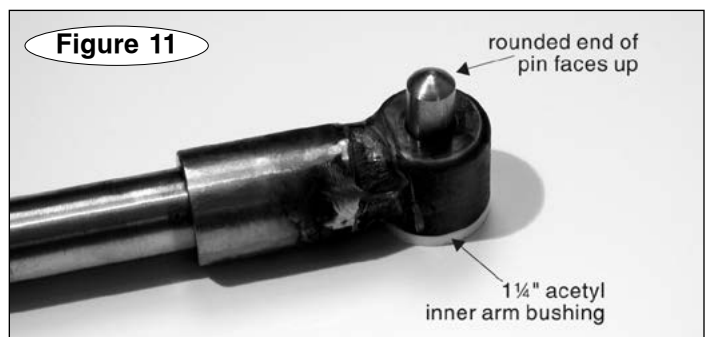


Figure 11

rounded end of pin faces up

1¼" acetyl inner arm bushing

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Within 30 seconds, position the button over the top of the button stem, and tap the button down over the button stem, as far as it can go, with a rubber mallet.

CAUTION

Ensure that the button is tapped completely down, as far as it can go. If the button is not completely down, it will not depress the pin and spring far enough to lock or unlock the tow bar arm.

18. Allow 24 hours for the epoxy glue to set. The button can be depressed and released after approximately 10 minutes, but do not pull on the button for 24 hours.

After the button has been attached, slide the inner arm out.

19. Replace the spring and pin (Figure 4) – insert one of the supplied springs into the opening at the end of the inner arm opposite the flat white bushing.

Then lubricate the flat side of one of the pins thoroughly. Use a dry silicone aerosol, such as LubeMaster (part number 747). Next, insert the pin into the hole at the end of the inner arm, so that the rounded end of the pin faces up (Figure 11).

CAUTION

Do not use petroleum-based products to lubricate the tow bar. Petroleum will attract dirt and dust, which will impede the operation of the sliding inner arms and/or other components. Certain petroleum products may also corrode non-metallic components.

Figure 4 shows the flat white bushing, spring and pin correctly positioned below the Autowlok button and button stem.

20. Insert the inner arm back into the outer arm. When the inner arm is fully inserted, the Autowlok button will snap into the locked position.

21. Repeat steps 4 through 20 for the other tow bar arm.

Replace swivel ear bolt, washers and nut

22. Thread the round nut (Figure 2) onto one of the tow bar inner arms, up to the mark you made in step 5.

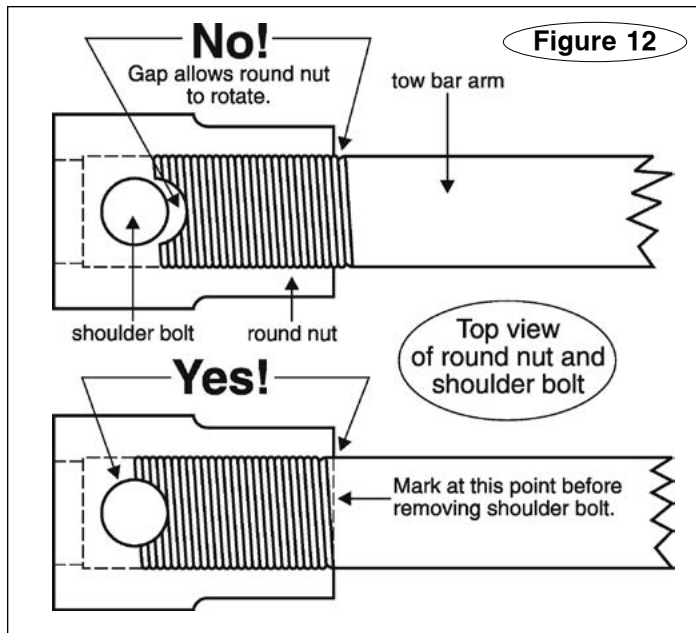
Do not rotate the round nut forward or backward from this position. If the round nut is moved forward, the replacement shoulder bolt will not fit. If the round nut is moved backward, it will rotate off the tow bar arm. Refer to Figure 12.

⚠ WARNING

If the round nut is moved backward on the tow bar arm, the shoulder bolt will not hold the round nut in place. Towing vibrations will cause the round nut, and the swivel ear with it, to rotate off the tow bar arm.

The tow bar arm will detach from the towed vehicle, causing the towed vehicle to separate or to be held by only one tow bar arm, which will result in property damage, personal injury or even death.

23. Determine which version of swivel ears are on the tow bar – the swivel ears were redesigned in 2014, to fit either



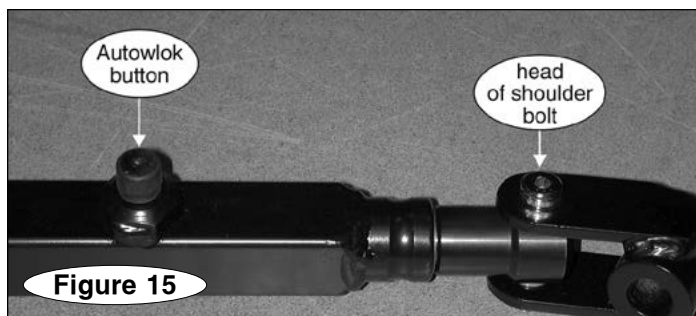
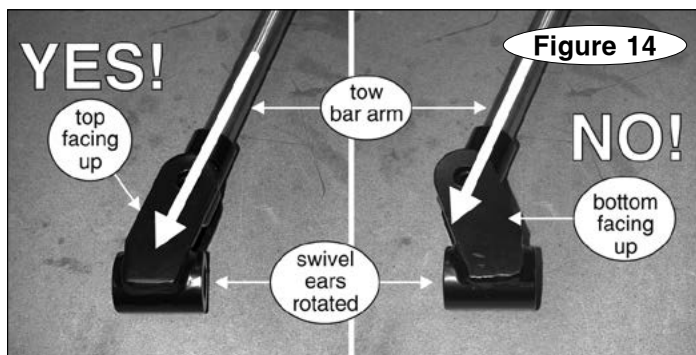
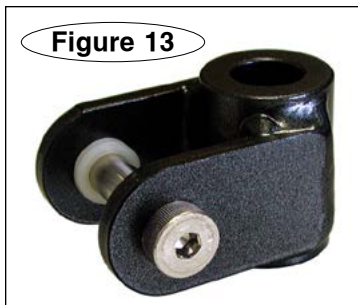
side of the tow bar. A photo of the newer swivel ear is shown in Figure 13.

If the swivel ears on your tow bar resemble those in Figure 13, skip step 24 and the warning that follows it.

24. For earlier versions of these tow bars **only** (see the preceding step) – the swivel ears must be attached with the top facing up, as shown in Figure 14.

To distinguish between the top and bottom, spread the tow bar arms about 28 inches apart. Place a swivel ear over a round nut and rotate it to the left or the right, to the approximate position it would be in

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when towing. When the top is facing up, the swivel ear will be at the same angle as the tow bar arm.

 **WARNING**

If the swivel ears are not attached as described above, the weight of the towed vehicle will cause them to separate, resulting in tow bar failure and the loss of the towed vehicle.

Failure to attach the ears properly may cause property damage, personal injury or even death.

25. With the 1/4" Allen wrench and the 9/16" socket wrench, reattach the swivel ear to the round nut (Figure 3). Discard the original shoulder bolt, the two 3/4" diameter acetyl washers and the Nylock nut; replace them with the new bolt, washers and nut.

26. Be certain to position the head of the shoulder bolt at the top of the tow bar – on the same side as the Autowlok button (Figure 15).

Before tightening the lock nut, make certain that the head of the shoulder bolt is flush to the swivel ear, as shown in Figure 16.

Note: over-tightening the lock nut will bind the collar and prevent it from pivoting properly. When it is tightened correctly, the collar should pivot easily.

27. Check the mark on the tow bar arm to make certain the round nut has not moved backward.

28. Check for correct installation – the swivel ear should rotate **no more** than 10° to 15° in either direction.

29. Repeat steps 22 through 28 for the other swivel ear.

Reassemble

27. Insert the two replacement end caps into the ends of the tow bar outer arms.

28. Reassemble the yoke bolt through the two tow bar arms. Replace the six (or seven, if one set of washers was 'double-stacked') original 1 1/2" diameter acetyl washers and the 3/4" nut with new washers and a new nut.

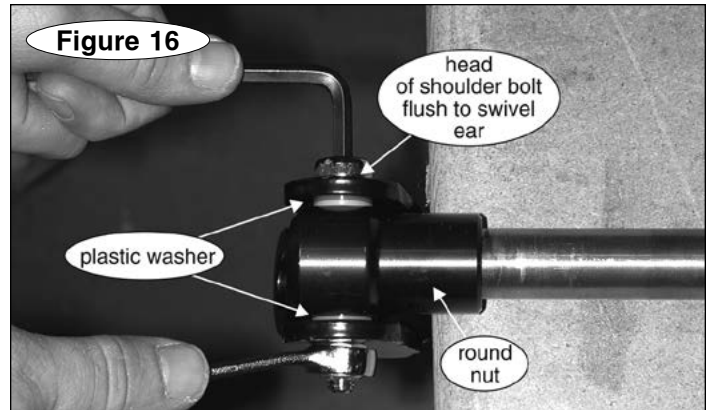
Tighten the nut until the bolt is snug.

The torque required to adequately tighten the yoke bolt varies from tow bar to tow bar. If the bolt is over-tightened, the tow bar arms will not pivot easily. If this is the case, adjust the torque.

 **WARNING**

Use all mounting hardware and kit components necessary to replace all kit components, and reassemble the tow bar as described above.

Failure to use all kit components, or to reassemble the tow bar correctly, may cause the tow bar to fail, which may cause a loss of vehicular control, a traffic accident or loss of the towed vehicle, resulting in property damage, personal injury or even death.



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