

ABOUT THIS MANUAL

GENERAL

This manual has been created to inform Harley-Davidson technicians about the construction of Harley-Davidson products and the latest tested and approved maintenance and repair techniques.

HOW TO USE YOUR SERVICE MANUAL

Cross-References and Page Numbers

A cross-reference shown as **2.2 SPECIFICATIONS** refers to chapter 2 CHASSIS, heading 2.2 SPECIFICATIONS.

All pages contain a chapter number followed by a page number. For example, **page 3-5** refers to page 5 in Chapter 3.

Item References and Quantities

In figure legends and tables, the number in parentheses that follows the part name indicates the quantity of that part necessary for one complete assembly.

Example:

2. Screw (4)

In a procedure step or paragraph, the number in parentheses that follows a part name indicates the legend item of the part in the figure referenced by the text.

Example:

1. Remove screws (2).

Acronyms and Abbreviations

Acronyms and abbreviations are used in this document. See the service manual for a list of acronyms, abbreviations and definitions.

PREPARATION FOR SERVICE

- Start each job with a clean work area.
- Clean the motorcycle before work begins.
- Gather any tools, instruments and parts needed for the job before work begins.
- Carefully read all related service information, including service bulletins, before service work begins.

USE GENUINE REPLACEMENT PARTS

▲ WARNING

Harley-Davidson parts and accessories are designed for Harley-Davidson motorcycles. Using non-Harley-Davidson parts or accessories can adversely affect performance, stability or handling, which could result in death or serious injury. (00001b)

To achieve satisfactory and lasting repairs, carefully follow the service manual instructions and use **only** genuine Harley-Davidson replacement parts.

WARNINGS AND CAUTIONS

Statements in this manual preceded by the following words are of special significance.

▲ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. (00119a)

▲ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. (00139a)

NOTICE

NOTICE indicates a potentially hazardous situation which, if not avoided, may result in property damage. (00140b)

NOTE

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

Proper service and repair is important for the safe, reliable operation of all mechanical products. The service procedures recommended and described in this manual are effective methods for performing service operations.

▲ WARNING

Always wear proper eye protection when using hammers, arbor or hydraulic presses, gear pullers, spring compressors, slide hammers and similar tools. Flying parts could result in death or serious injury. (00496b)

Some of these service operations require the use of tools specially designed for the purpose. These special tools should be used when and as recommended. It is important to note that some warnings against the use of specific service methods, which could damage the motorcycle or render it unsafe, are stated in this manual. However, remember that these warnings are not all-inclusive. Inadequate safety precautions could result in death or serious injury.

Since Harley-Davidson could not possibly know, evaluate or advise the service trade of all possible ways in which service might be performed, or of the possible hazardous consequences of each method, we have not undertaken any such broad evaluation. Accordingly, anyone who uses a service procedure or tool which is not recommended by Harley-Davidson must first thoroughly satisfy himself that neither his nor the operator's safety will be jeopardized as a result. Failure to do so could result in death or serious injury.

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1.1 GENERAL.....1-1

NOTES

SHOP PRACTICES

PART NUMBER	CONSUMABLE
99642-97	LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE)

Removing Parts

Always use blocking or proper stands to support the part that has been hoisted. If a part cannot be removed, verify that all bolts and attaching hardware have been removed. Verify that no parts are in the way of the part being removed.

Always tag hoses, wiring or tubes to verify proper installation.

Cleaning

Thoroughly clean all parts to be reused before assembly. Clean parts promote better component operation and longer life. Seals, filters and covers used in this vehicle keep out extraneous dirt and dust. Keep these items in good condition to guarantee satisfactory operation. See Cleaning in the service manual.

Checking Torques on Fasteners and Threadlocking Agents

Check torque using a torque wrench set to the minimum specification for that fastener. If the fastener does not rotate, the torque has been maintained. If the fastener rotates, remove it to determine if it has a threadlocking agent.

If it has a threadlocking agent, clean all material from the threaded hole. See Cleaning Threads and Threaded Holes later in this section. Replace the fastener with a **new** one or clean the original fastener threads. Use the threadlocker stated in the appropriate procedure. If no threadlocker is indicated, use LOCTITE 243 MEDIUM STRENGTH THREADLOCKER

AND SEALANT (BLUE) (99642-97) or equivalent. Install and tighten the fastener to specification.

If the fastener does not use a threadlocking agent, install and tighten it to specification.

TOOL SAFETY

▲ WARNING

Read and follow warnings and directions on all products. Failure to follow warnings and directions can result in death or serious injury. (00470b)

Some service procedures require the use of tools designed for a specific purpose. These tools should be used when and as recommended.

When reference is made in this manual to a brand name product, tool or instrument, an equivalent product, tool or instrument may be substituted.

Special Tools

Special tools mentioned in this manual with a part number that begins with an "HD", "J" or "B" must be purchased, serviced or warrantied through a Harley-Davidson dealer.

Specific use of special tools is not discussed in this manual. Refer to the tool instruction sheet for instructions. If the tool instructions are misplaced, a copy can be obtained online at H-Dnet.com > My Toolbox > Edit > Bosch Tool Site.

LOCTITE Sealing and Threadlocking Products

Some procedures in this manual call for the use of LOCTITE products. If you have any questions regarding LOCTITE product usage or retailer/wholesaler locations, contact Loctite Corp. at www.loctite.com.

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NOTES

PREPARE

NOTE

Retain all parts removed to be reused if sidecar is removed from motorcycle.

To prepare for sidecar installation, perform the following steps as described in your service manual or service manual supplement:

1. Remove both saddlebags.
2. Remove both side covers.
3. Remove seat and seat fairing.
4. Remove battery.
5. Remove any equipment attached to right side of engine guard.
6. Remove the right passenger footrest bracket and footrest if equipped.
7. Remove headlamp nacelle (if required to fit dampener bracket).

8. Remove cable straps securing front lighting harness.
9. Remove rear master cylinder/brake pedal assembly.
10. Remove rear brake pedal from master cylinder assembly.
11. Remove clips securing hydraulic clutch line to the right front downtube.
12. Remove outer fairing (if required to fit dampener bracket).
13. Remove pursuit lamps and brackets (if required to fit dampener bracket).
14. Remove fairing skirt (if required to fit dampener bracket).
15. Route wheel speed sensor, fender tip lighting (FLHTP only), and forward lighting (FLHP only) harnesses through the left pocket of the lower fork bracket near the fork.

CARRYOVER PARTS

See Figure 2-1. The following components are to be carried over from existing vehicles if in safe working order. All hardware is to be replaced with **new** supplied in kit.

Clean all carryover parts thoroughly and inspect for any cracks, distortion or excessive wear.

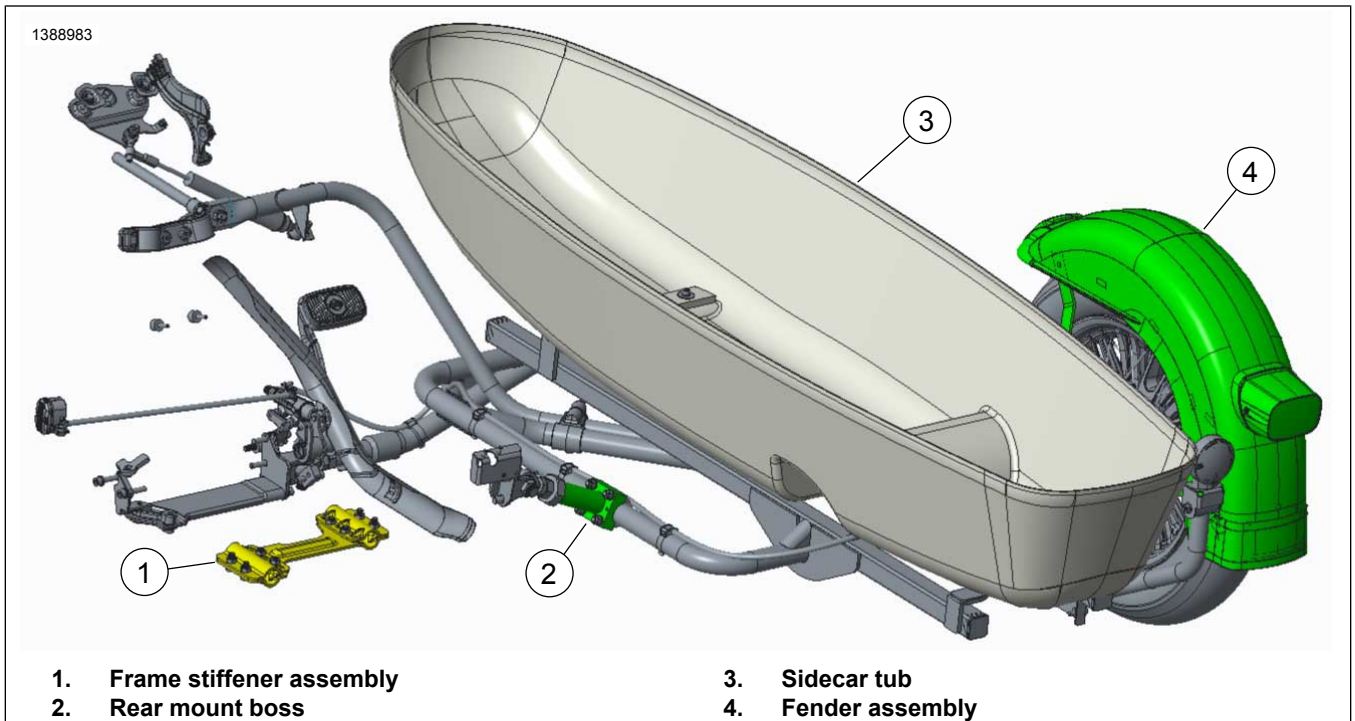


Figure 2-1. Carryover Part Locations

STEERING DAMPER

FASTENER	TORQUE VALUE	
Steering damper bracket mounting screws	97–124 in-lbs	11–14 N·m

1. See Figure 2-2 and Figure 2-3. Install steering damper bracket caps (1) to top side of lower fork bracket.

NOTE

Ensure raised section is located in pockets of bottom bracket.

Install steering damper bracket plate (2) to underside of lower fork bracket and secure using bolts (3), washers (4) and nuts (5)

- While holding nuts (5) tighten bolts (3).
Torque: 97–124 **in-lbs** (11–14 N·m) *Steering damper bracket mounting screws*

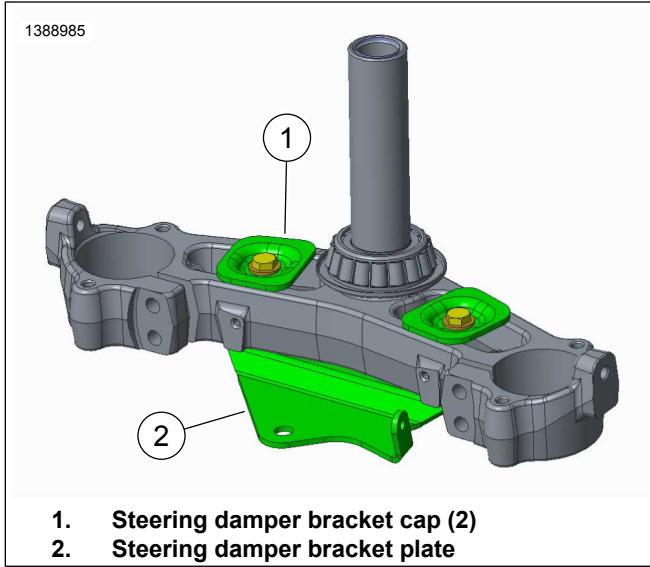
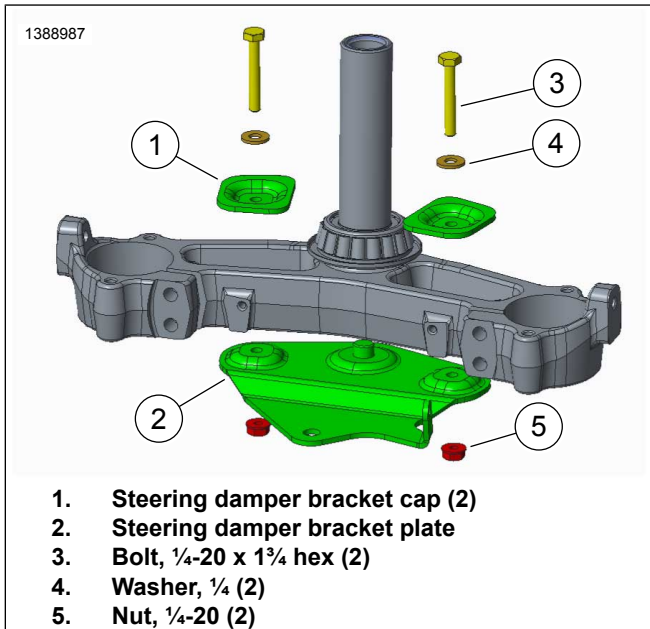


Figure 2-2. Install Steering Damper Bracket



- Steering damper bracket cap (2)
- Steering damper bracket plate
- Bolt, 1/4-20 x 1 1/4 hex (2)
- Washer, 1/4 (2)
- Nut, 1/4-20 (2)

Figure 2-3. Steering Damper Bracket Components

HEAT SHIELD

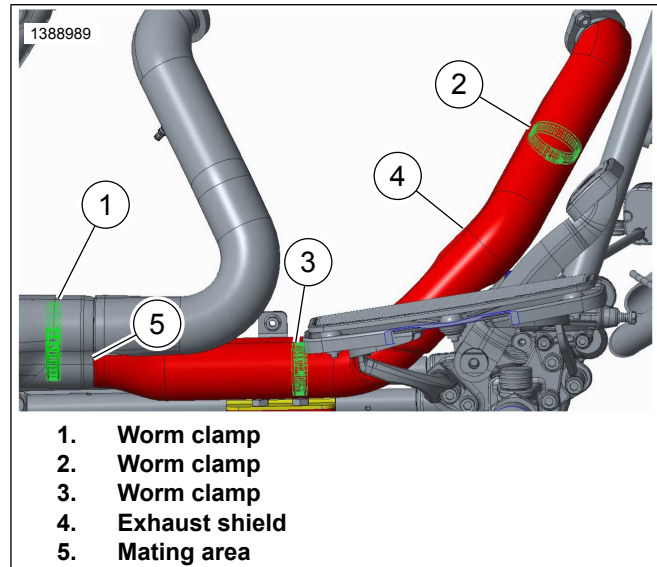
- If necessary:** Remove right side rider footboard.
- See Figure 2-4. Loosen worm clamp (1) and remove worm clamps (2,3).
- Remove exhaust shield (4).

4. **NOTE**
Verify orientation of worm clamps on Original Equipment (OE) exhaust shield.

Remove OE worm clamps from OE exhaust shield.

- Install worm clamps on exhaust shield supplied in kit.

- Install exhaust shield supplied in kit on exhaust ensuring shield is interlocked with mating part (5).
- Tighten worm clamps (2,3 then 1).



- Worm clamp
- Worm clamp
- Worm clamp
- Exhaust shield
- Mating area

Figure 2-4. Exhaust Shield

BODY CONTROL MODULE (BCM)

- NOTE**
The BCM must be reconfigured as Trike. When sidecar is removed BCM needs to be reconfigured back to a two-wheeled model.

Reconfigure BCM.

- Use Digital Technician to access the BCM customization options tab from the Vehicle Set-up screen.
- Under the "External Bank Angle Sensor" section select "FLHTCUTG".
- Select "Update Vehicle". See the service manual.

REAR BRAKE PEDAL

Rear brake pedal will be changed during rear brake master cylinder exchange. See Master Cylinder in BRAKE SYSTEM (Page 2-24).

OIL COOLER

FASTENER	TORQUE VALUE
PART NUMBER	CONSUMABLE
99642-97	LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE)

- See Figure 2-5. Remove spring clamp (3) at front of forward oil hose (1).
- Disconnect hose from oil cooler downtube.

3. Use low-pressure compressed air to blow oil out of line assembly.
 - a. Remove engine oil filler cap.
 - b. Blow compressed air into forward oil hose.
4. Remove heat shrink tubing and clamp (2).
5. Remove forward oil hose.
6. See Figure 2-6. Remove existing screws (2) securing top of oil cooler bracket (1).
7. Space out oil cooler bracket using spacers (3) in sidecar kit.
8. Apply one drop of threadlocker to screws (4) supplied in kit.

Consumable: LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE) (99642-97)
9. Install screws. Tighten.

Torque: 89–106 **in-lbs** (10–12 N·m)
10. Install upper sidecar mount prior to installing new forward oil hose. See INSTALL SIDECAR MOUNTS (Page 2-4).
11. See Figure 2-5. Install forward oil hose (1) supplied in sidecar kit and secure using new clamp and heat shrink tubing at top (2). Re-use existing clip at bottom (3).

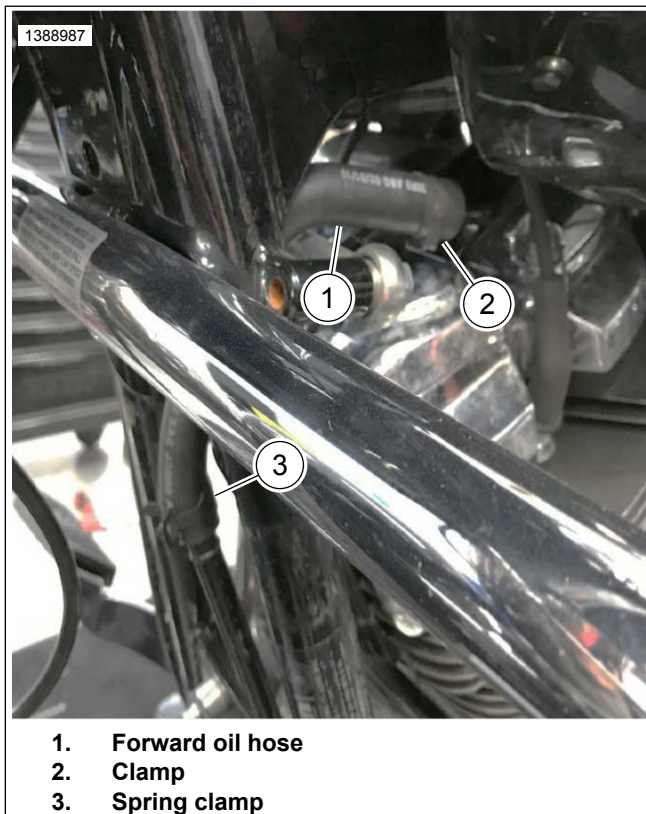


Figure 2-5. Oil Cooler Hose

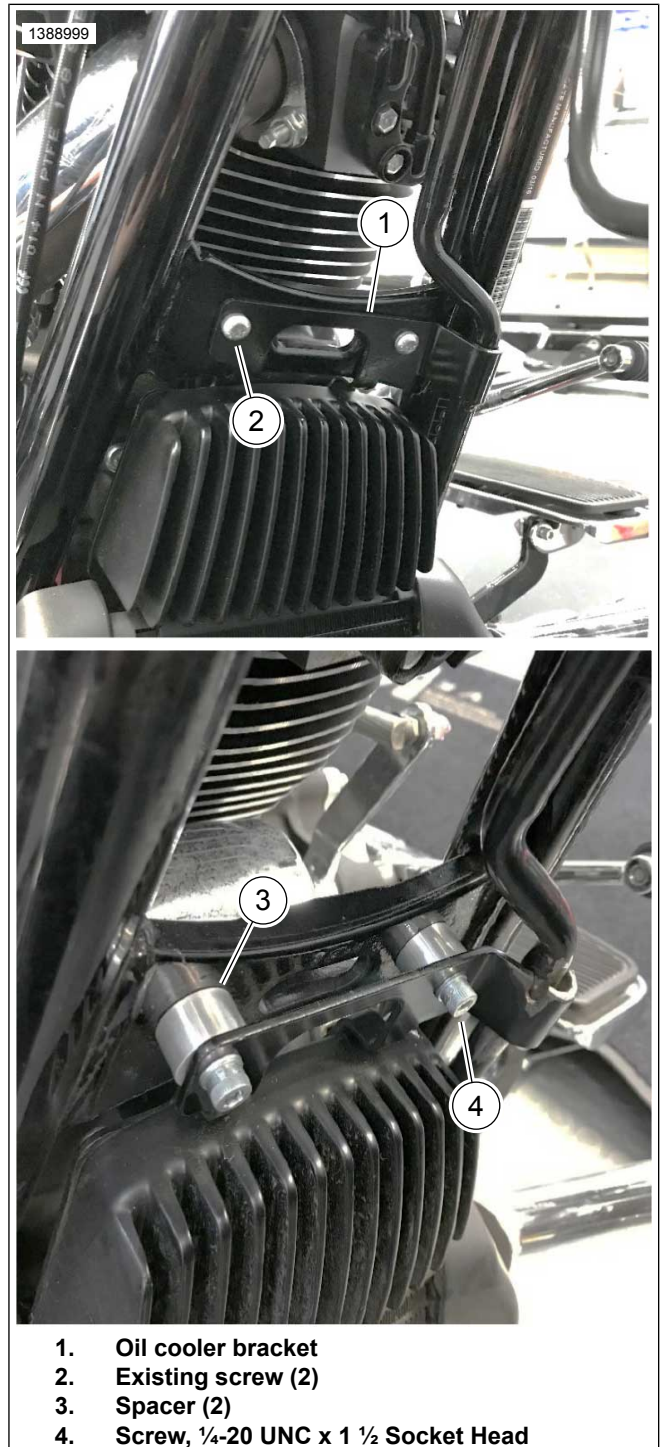
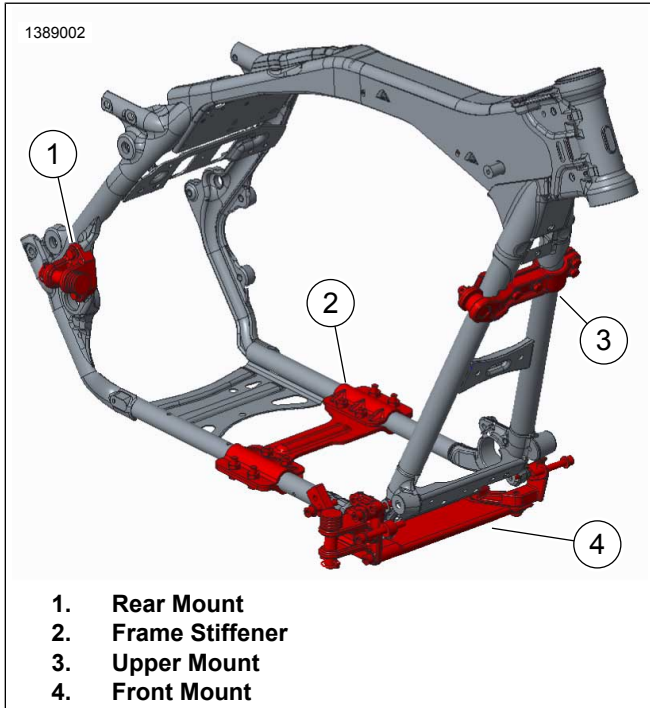


Figure 2-6. Spacing Oil Cooler

UPPER MOUNT

FASTENER	TORQUE VALUE	
Upper mount bolts	16–20 ft-lbs	22–27 N·m

PART NUMBER	CONSUMABLE
99642-97	LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE)



- 1. Rear Mount
- 2. Frame Stiffener
- 3. Upper Mount
- 4. Front Mount

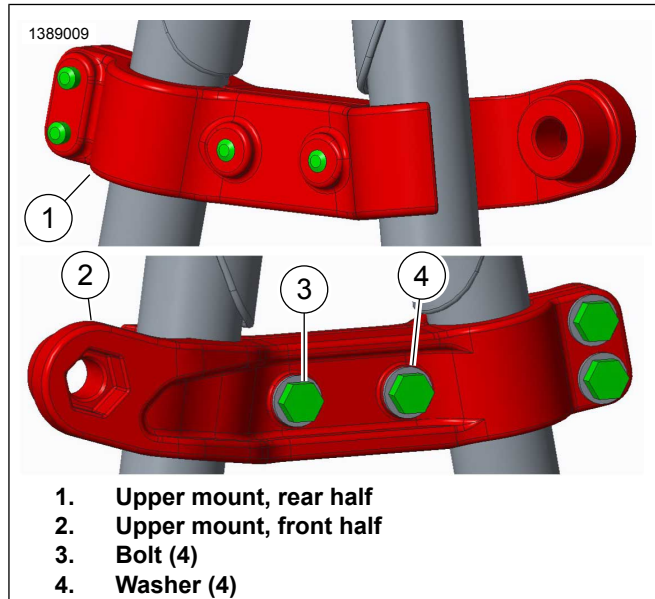
Figure 2-7. Frame Stiffener and Mounts Locations

1. **NOTE**
 The mount is self-aligning and is located correctly when the grooves in the mount mate fully and cleanly with the frame tubes.

See Figure 2-8. Install mount.

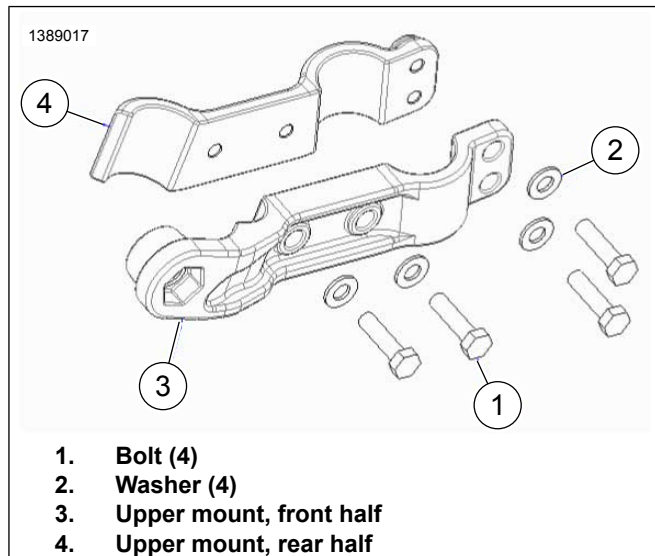
- a. Obtain the rear half of upper mount (4) from kit.
- b. Position the clamp on the back of the frame downtubes.
- c. Slide the clamp up or down on the frame tubes until it is correctly aligned.
- d. Apply one drop of threadlocker to bolt threads.
 LOCTITE 243 MEDIUM STRENGTH
 THREADLOCKER AND SEALANT (BLUE)
 (99642-97)

- e. See Figure 2-9 Install the front half of the upper mount (2) to the rear half (1) with bolts (3) and washers (4).
- f. Tighten bolts.
 Torque: 16–20 ft-lbs (22–27 N·m) *Upper mount bolts*



- 1. Upper mount, rear half
- 2. Upper mount, front half
- 3. Bolt (4)
- 4. Washer (4)

Figure 2-8. Install Upper Mount



- 1. Bolt (4)
- 2. Washer (4)
- 3. Upper mount, front half
- 4. Upper mount, rear half

Figure 2-9. Upper Mount Assembly

FRAME STIFFENER

FASTENER	TORQUE VALUE	
Frame stiffener bolts, inner	89–106 in-lbs	10–12 N·m
Frame stiffener bolts, outer	89–106 in-lbs	10–12 N·m

PART NUMBER	CONSUMABLE
99642-97	LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE)

NOTE
 Frame stiffener is to be carried over the existing vehicle. Replace hardware with new supplied in kit.

- 1. See Figure 2-10. Orient lower frame stiffener.
- 2. See Figure 2-11. Apply one drop of threadlocker on each bolt (3,4)

Consumable: LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE) (99642-97)

3. See Figure 2-12. Loosely install two frame stiffener caps (2) with the ribs on the caps facing toward the centre of the motorcycle using bolts and washers (3, 4).

4. Tighten outer bolts (3) on each side.

Torque: 89–106 in-lbs (10–12 N·m) *Frame stiffener bolts, outer*

5. **NOTE**

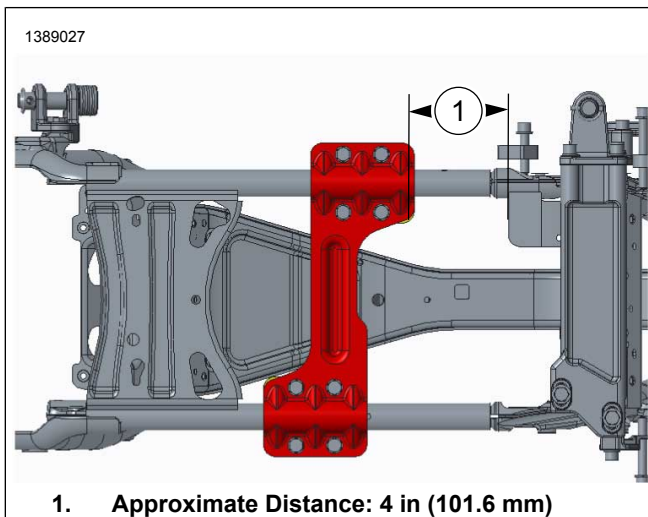
Alternately check torque on the two inner bolts until the specification is met for both. There should be no gap between cap and cross brace at the outer joint, but there will be a gap at the inner joint.

Tighten inner bolts (4) on each side 8-9 ft-lbs (10-12 Nm).

Torque: 89–106 in-lbs (10–12 N·m) *Frame stiffener bolts, inner*

6. Repeat for the other cap.

7. See Figure 2-10. Verify that the frame stiffener remained in position.



1. Approximate Distance: 4 in (101.6 mm)
Figure 2-10. Position Frame Stiffener (View from under frame)

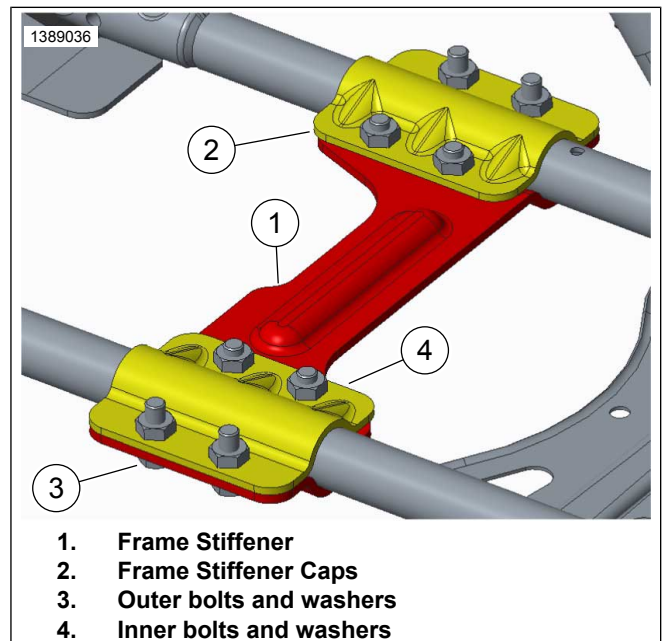


Figure 2-11. Install Frame Stiffener (view from top of frame)

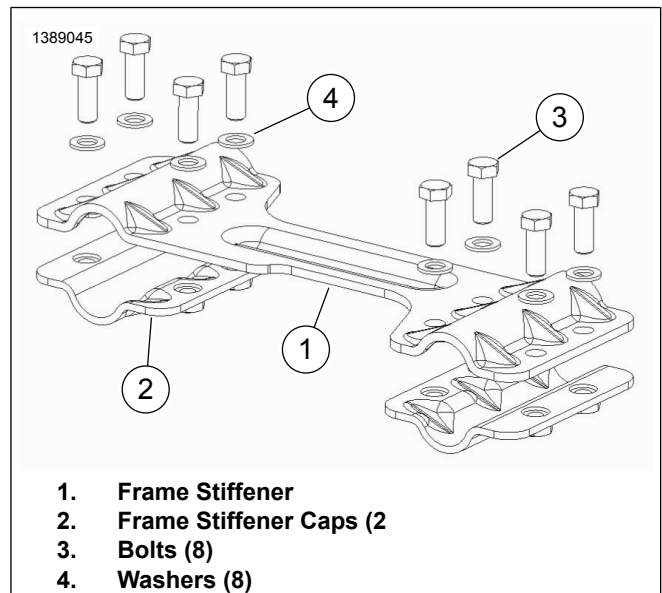


Figure 2-12. Frame Stiffener Assembly

REAR MOUNT

FASTENER	TORQUE VALUE	
Rear mount lower bolt	34–42 ft-lbs	46–57 N·m
Rear mount upper bolt	30–36 ft-lbs	40–49 N·m

PART NUMBER	CONSUMABLE
99642-97	LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE)

NOTE

Use thread cutting fluid when drilling and threading holes.

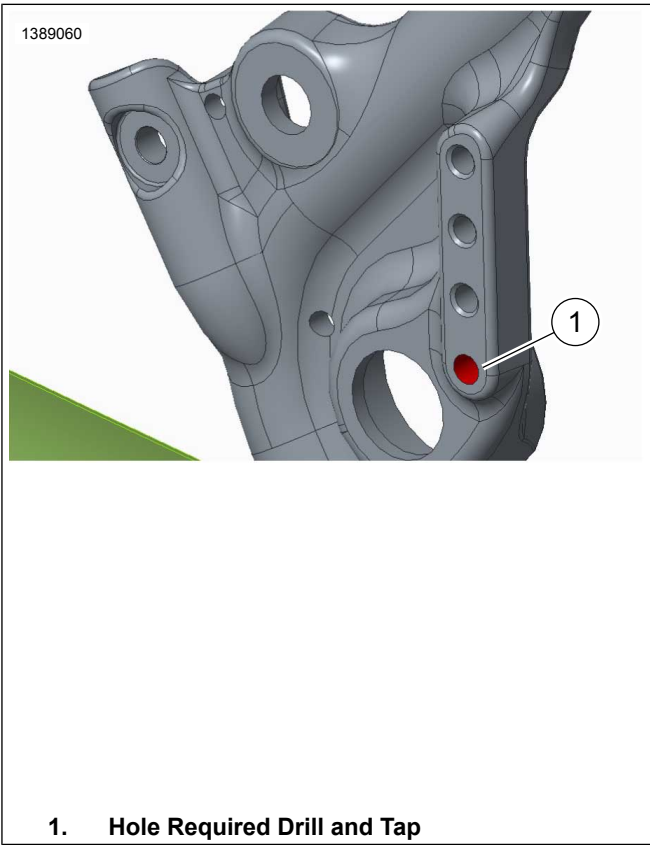
1. If installed, remove right passenger footrest and bracket.
2. If installed, remove the chrome plug and two black plastic plugs from the holes in the right side frame boss.

3. Install stop collar onto "U" size drill bit supplied.
 - a. Adjust the collar to .85" in from drill tip.
 - b. Tighten set screw securely.
4. See Figure 2-14. Drill squarely onto lower hole (1) of frame boss until collar contacts frame.
5. Thread hole .75" deep using 7/16-14 supplied tap.
6. Ensure hole is free from debris.
7. See Figure 2-15. Apply one drop of threadlocker to bolts. Position the rear mount over the two mounting holes. Install the upper (2) and lower mounting bolts (4) and washers (3,5) to secure the mount to the frame.

Consumable: LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE) (99642-97)
8. Tighten upper bolt (2).

Torque: 30–36 ft-lbs (40–49 N·m) *Rear mount upper bolt*
9. Tighten lower bolt (4).

Torque: 34–42 ft-lbs (46–57 N·m) *Rear mount lower bolt*



1. Hole Required Drill and Tap

Figure 2-14. Rear Mount Frame Modification

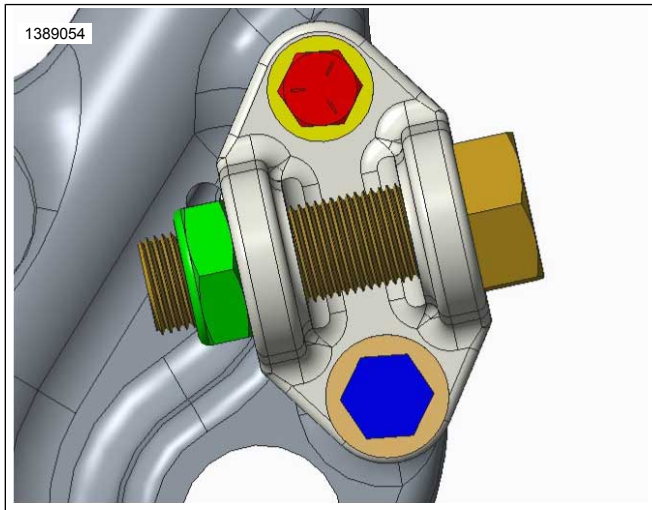
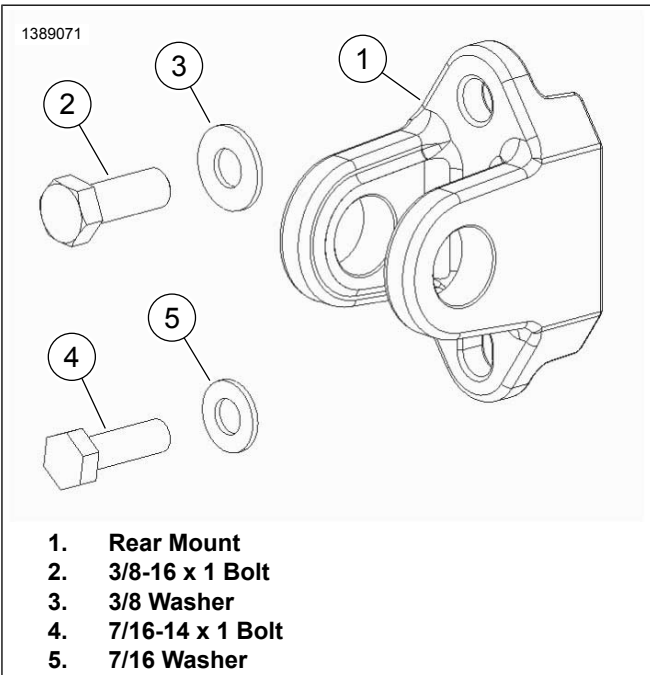


Figure 2-13. Rear Mount



1. Rear Mount
2. 3/8-16 x 1 Bolt
3. 3/8 Washer
4. 7/16-14 x 1 Bolt
5. 7/16 Washer

Figure 2-15. Rear Mount Assembly

LOWER MOUNT

FASTENER	TORQUE VALUE	
Left hand lower mount and footrest bolts	35–40 ft-lbs	47–54 N·m
Lower mount center bracket bolts	35–40 ft-lbs	47–54 N·m
Right hand bracket bolts, lower frame mount	35–40 ft-lbs	47–54 N·m

PART NUMBER	CONSUMABLE
99642-97	LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE)

NOTE

- When removing sidecar to ride motorcycle the right hand bracket and centre bracket must be removed and original components reused in right engine mount to keep ground clearance.
- Prior to installing lower mount motorcycle rear master cylinder must be replaced with one in kit. See BRAKE SYSTEM (Page 2-24).
- Prior to installing the righthand footrest, the existing brake pedal must be replaced with the brake pedal supplied in the sidecar kit. See Rear Brake Pedal in PREPARE MOTORCYCLE (Page 2-1).

1. Remove right and left hand footrest and brackets.
2. See Figure 2-16. From the right hand engine bracket, remove bolts (1) from mount and keep for when removing sidecar mount.

3. **NOTE**
Engine may need to be moved to align bolt holes.

See Figure 2-17. Install right hand bracket.

- a. Apply one drop of threadlocker to bolts.
LOCTITE 243 MEDIUM STRENGTH
THREADLOCKER AND SEALANT (BLUE)
(99642-97)

- b. Position right hand bracket (1) over mounting holes.
- c. Install the bolts (2) and (3) with washers (4) to secure the mount to the frame.
- d. Tighten bolts (2,3).

Torque: 35–40 ft-lbs (47–54 N·m) *Right hand bracket bolts, lower frame mount*

4. See Figure 2-18. From the left hand engine bracket, remove 1 bolt (1) from mount.

5. See Figure 2-19. Install left hand bracket.

- a. Position left hand bracket (1) over the mounting holes. Loosely install the bolt (1) to secure the mount to the frame.

- b. See Figure 2-20. Loosely reinstall left hand footrest (1) and bracket using existing bolt (2) and new bolt and washer (3).

- c. Tighten bolt (1,2,3).
Torque: 35–40 ft-lbs (47–54 N·m) *Left hand lower mount and footrest bolts*

6. See Figure 2-21. Position centre bracket (1) to left and right bracket (2,3). Loosely install bolts and washers (4,5,6) to secure mount.

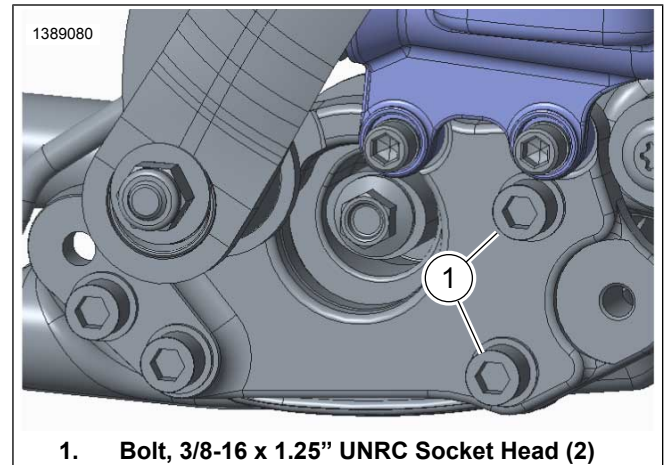
7. Tighten bolt (4).
Torque: 35–40 ft-lbs (47–54 N·m) *Lower mount center bracket bolts*

8. **NOTE**
Ensure there is no gap between right hand and center bracket.

- Tighten bolt (5).
Torque: 35–40 ft-lbs (47–54 N·m) *Lower mount center bracket bolts*

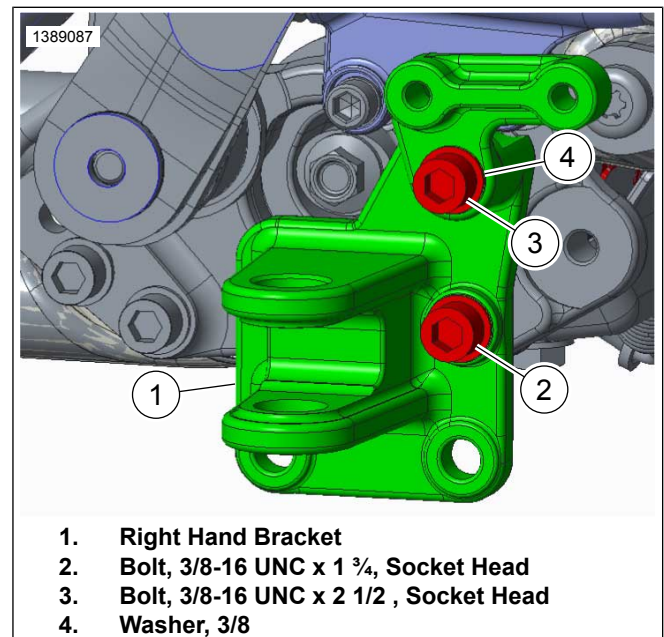
NOTE

To reattach right hand footrest see right hand footrest section within this document.



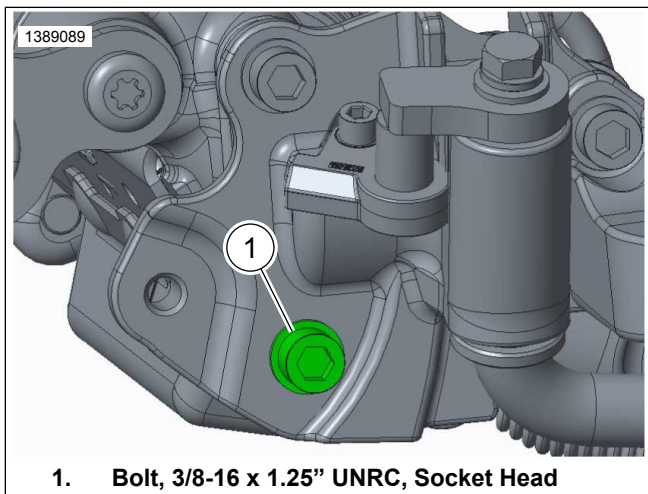
1. Bolt, 3/8-16 x 1.25" UNRC Socket Head (2)

Figure 2-16. Right Hand Engine Mount

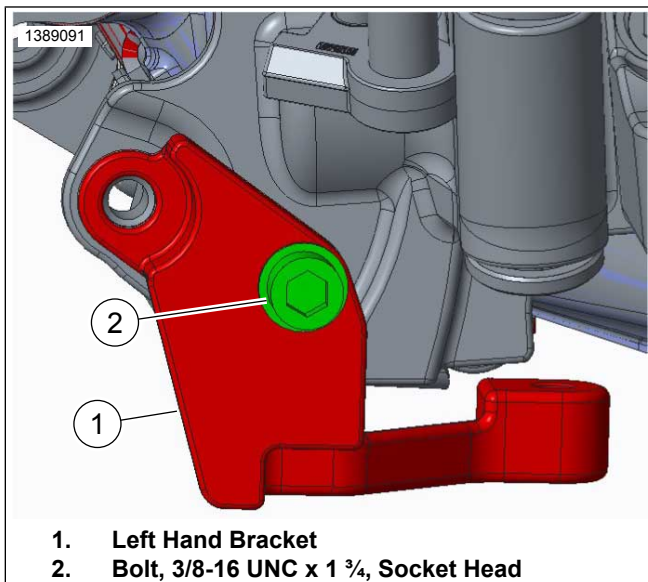


1. Right Hand Bracket
2. Bolt, 3/8-16 UNC x 1 3/4, Socket Head
3. Bolt, 3/8-16 UNC x 2 1/2, Socket Head
4. Washer, 3/8

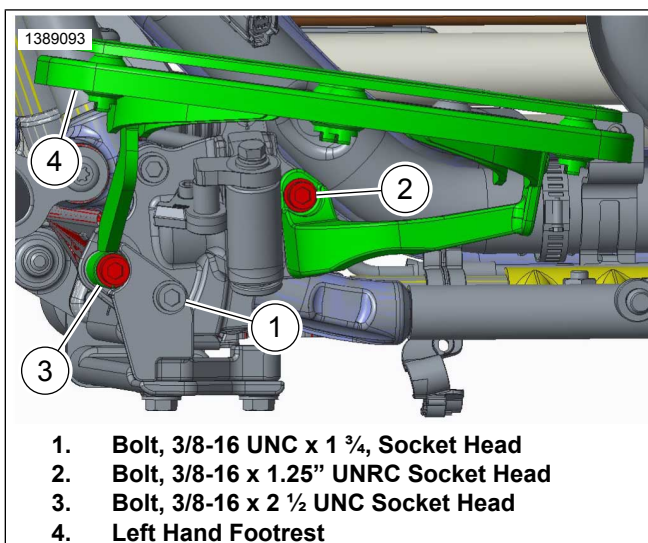
Figure 2-17. Right Hand Mount



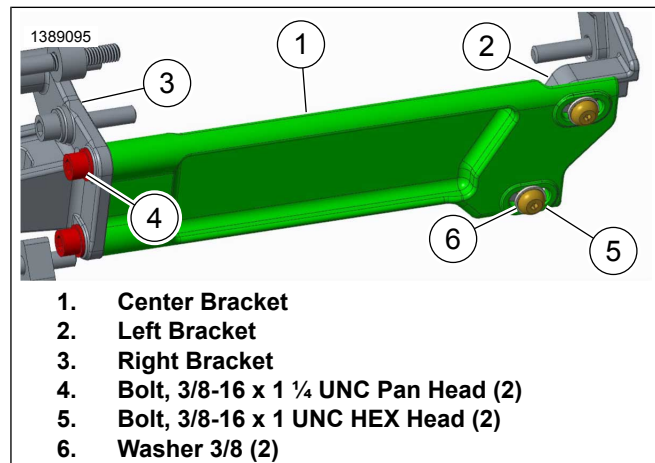
1. Bolt, 3/8-16 x 1.25" UNRC, Socket Head
Figure 2-18. Left Hand Engine Mount



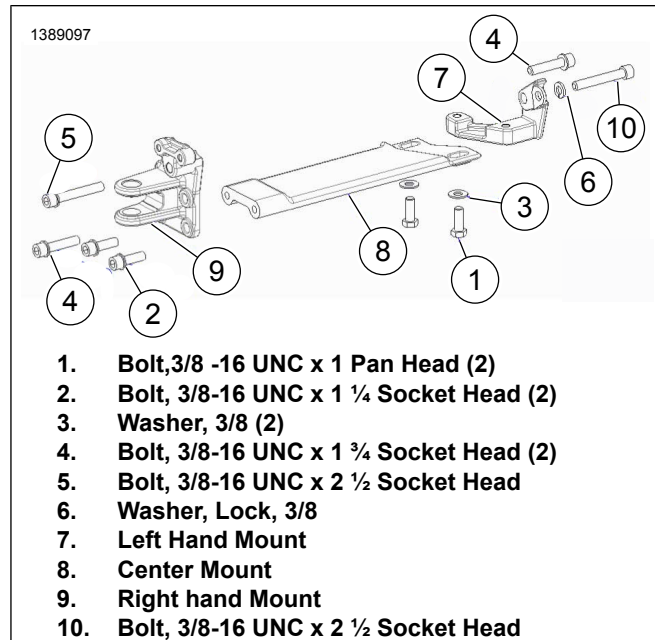
1. Left Hand Bracket
 2. Bolt, 3/8-16 UNC x 1 3/4, Socket Head
Figure 2-19. Left Hand Mount



1. Bolt, 3/8-16 UNC x 1 3/4, Socket Head
 2. Bolt, 3/8-16 x 1.25" UNRC Socket Head
 3. Bolt, 3/8-16 x 2 1/2 UNC Socket Head
 4. Left Hand Footrest
Figure 2-20. Left Hand Foot Rest



1. Center Bracket
 2. Left Bracket
 3. Right Bracket
 4. Bolt, 3/8-16 x 1 1/4 UNC Pan Head (2)
 5. Bolt, 3/8-16 x 1 UNC HEX Head (2)
 6. Washer 3/8 (2)
Figure 2-21. Lower Mount Assembly



1. Bolt, 3/8 -16 UNC x 1 Pan Head (2)
 2. Bolt, 3/8-16 UNC x 1 1/4 Socket Head (2)
 3. Washer, 3/8 (2)
 4. Bolt, 3/8-16 UNC x 1 3/4 Socket Head (2)
 5. Bolt, 3/8-16 UNC x 2 1/2 Socket Head
 6. Washer, Lock, 3/8
 7. Left Hand Mount
 8. Center Mount
 9. Right hand Mount
 10. Bolt, 3/8-16 UNC x 2 1/2 Socket Head
Figure 2-22. Lower Mount Assembly

RIGHT HAND FOOTREST

FASTENER	TORQUE VALUE	
Right hand footrest bracket bolts	30–35 ft-lbs	41–48 N·m

NOTE

Complete lower mount section prior to attaching footrest.

1. See Figure 2-23. If attached, remove Right Hand Footrest.

2. **NOTE**

Verify locating pins on right hand footrest (1) and spacer (2) are correctly located.

Position right hand footrest (1) and spacers (2,3) over the mounting holes. Install the bolts (4,5) to secure the foot rest to the frame.

3. Tighten bolts.

Torque: 30–35 ft-lbs (41–48 N·m) Right hand footrest bracket bolts

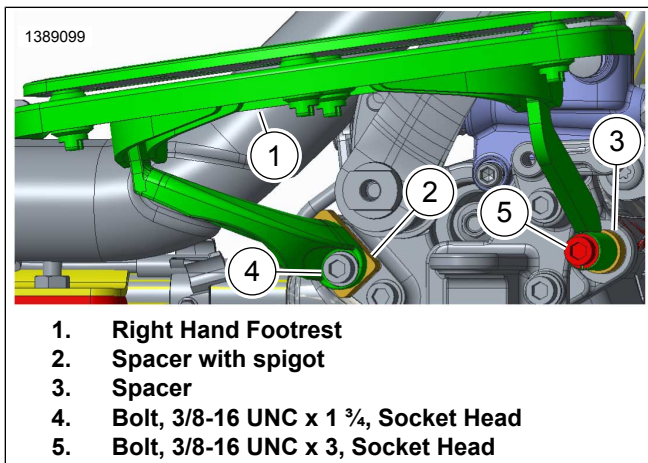


Figure 2-23. Right Hand Foot Rest

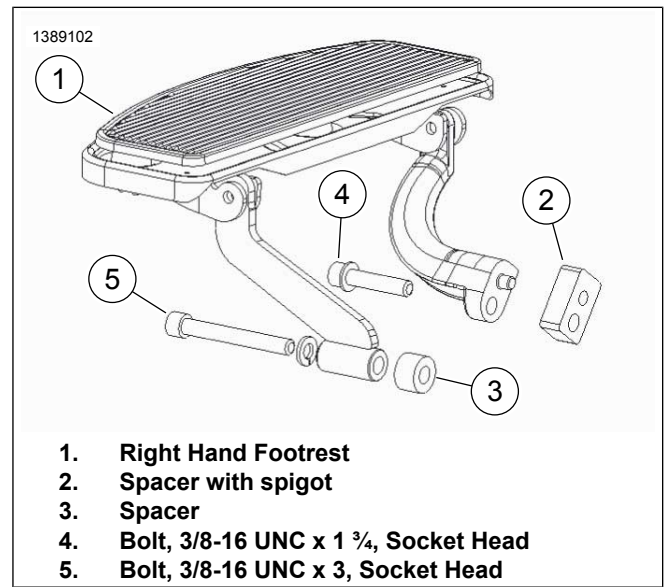


Figure 2-24. Right Hand Foot Rest Assembly

ASSEMBLE SWINGARM

FASTENER	TORQUE VALUE	
Axle nut, inner	85–90 ft-lbs	115–122 N·m

1. See Figure 2-25. Insert bearing (1) into either side of swingarm assembly.
2. Insert dust seal (2) into either side of swingarm assembly.
3. Apply a thin layer of ANTI-SIEZE LUBRICANT to the rolling elements on the bearings (1) and outside diameter of the inner race (3) and insert into swingarm assembly.
4. Insert end caps (4) into either side of swingarm assembly.
5. See Figure 2-27. Ensure area for rubber pad is clean and free from contaminants. Remove backing from rubber pad (6) and locate on frame lining up front edge of swingarm bracket (7). Firmly press down and hold to 10 seconds.

NOTE

Do not apply ANTI-SEIZE LUBRICANT to axle taper or taper in swingarm assembly.

6. See Figure 2-26. Insert axle (2) into the tapered hole in the swingarm assembly (3) and secure with nut (1).
7. Tighten axle nut (1).
Torque: 85–90 ft-lbs (115–122 N·m) *Axle nut, inner*
8. See Figure 2-27. Position swingarm onto frame assembly and secure using bolt (3), washer (4), washer (6) and nut (5).
9. Tighten nut on bolt to 51-62 ft.-lbs(70-85 Nm)

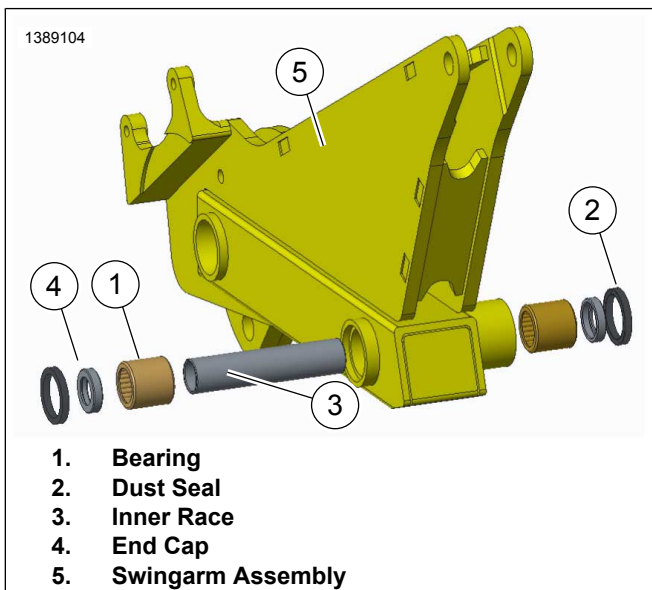


Figure 2-25. Assembly Of Swingarm

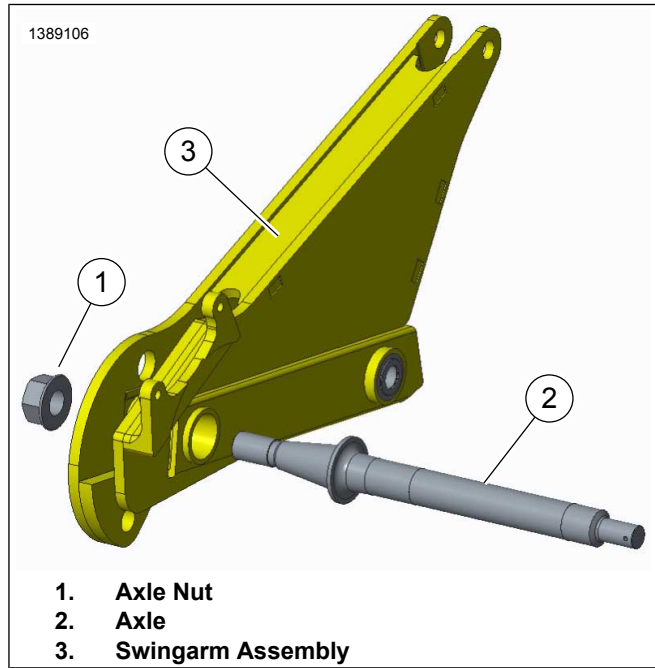


Figure 2-26. Assembly Of Axle

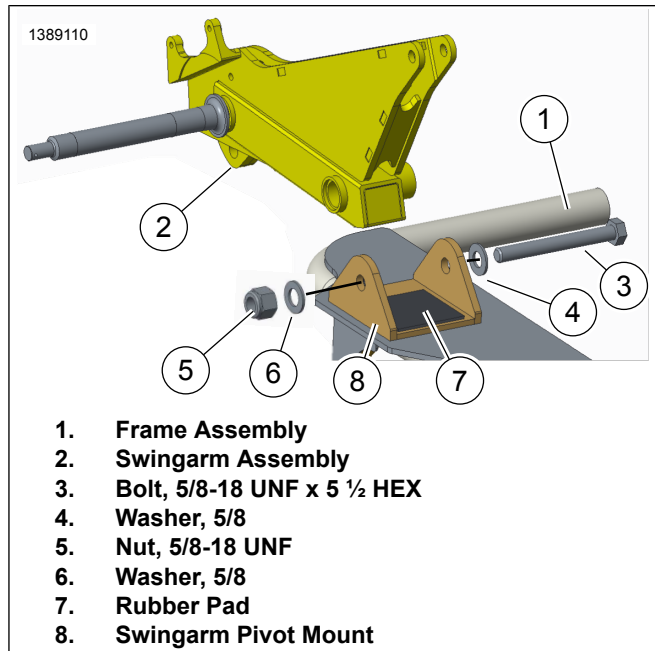
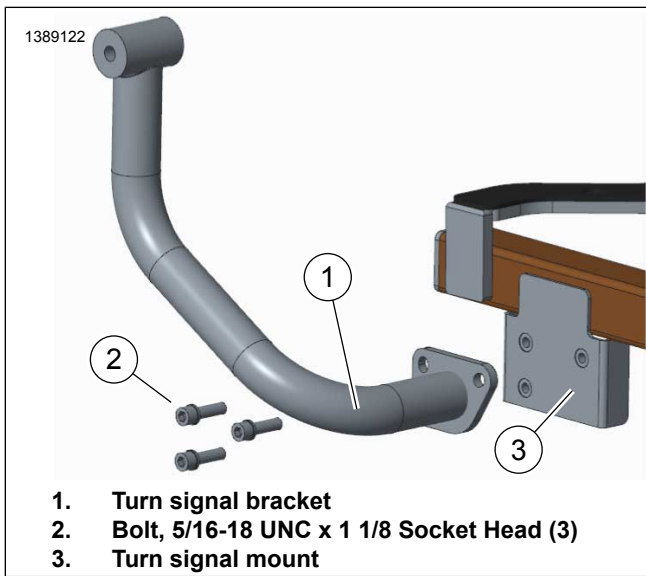


Figure 2-27. Assemble Swingarm To Frame

TURN SIGNAL MOUNT

1. See Figure 2-28. Apply one drop of LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (blue) on each bolt.
2. Secure turn signal bracket (1) to turn signal mount (3) using bolts (2). Tighten to 16-20 ft-lbs (22-27 Nm)

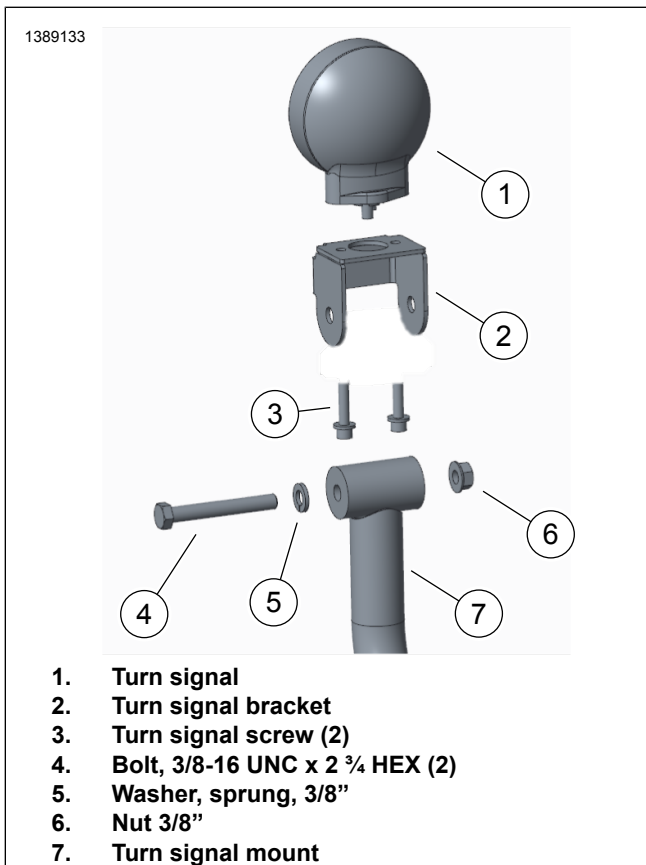


1. Turn signal bracket
2. Bolt, 5/16-18 UNC x 1 1/8 Socket Head (3)
3. Turn signal mount

Figure 2-28. Turn Signal Mount

TURN SIGNAL BRACKET

1. See Figure 2-29. Secure turn signal (1) to turn signal bracket (2) using bolts (3).
2. Secure turn signal bracket (2) to indicator mount (7) level to ground using bolt and washer (4,5) and nut (6). Tighten to 34-42 ft-lbs (46-57 Nm).



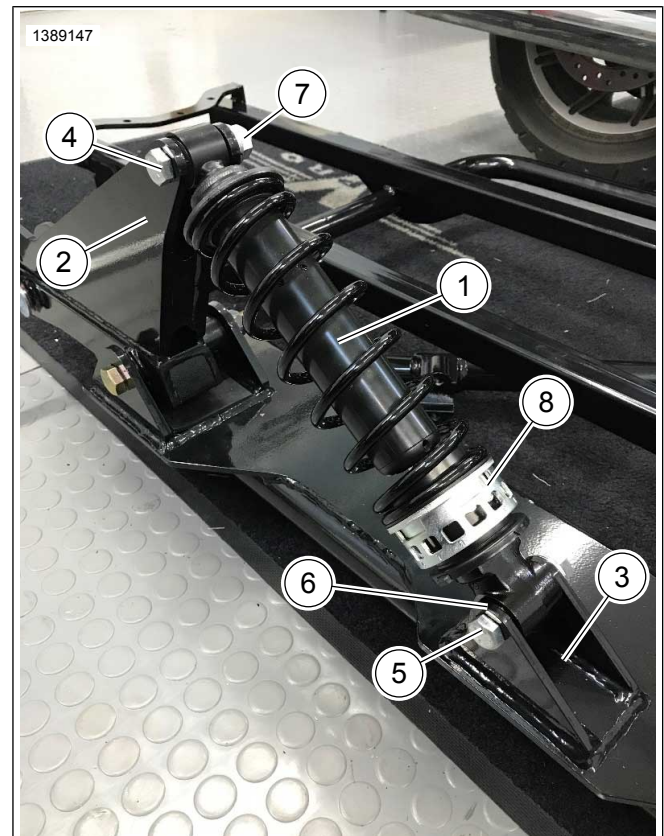
1. Turn signal
2. Turn signal bracket
3. Turn signal screw (2)
4. Bolt, 3/8-16 UNC x 2 3/4 HEX (2)
5. Washer, sprung, 3/8"
6. Nut 3/8"
7. Turn signal mount

Figure 2-29. Turn Signal Installation

SHOCK ABSORBERS

1. See Figure 2-30. Locate shock (1) on swingarm assembly (2) using bolt (4) washer (6) and nut (7) with preload adjuster (8) at frame end.

2. Locate other end of shock on front shock mount (3) using bolt (5) washer (6) and nut (7).
3. Tighten fasteners (4,5) to 33-41 ft-lbs (45-55 Nm)



1. Shock
2. Swingarm Assembly
3. Front Shock Mount
4. Bolt, 1/2-13 UNC x 2 1/2 HEX
5. Bolt, 1/2-13 UNC x 2 3/4 HEX
6. Washer, 1/2 x 3/32 Thick (2)
7. Nut 1/2 (2)
8. Preload Adjuster

Figure 2-30. Assembly Of Shock

FRONT MOUNT ASSEMBLY

NOTE

Rod end assembly and rear mount boss is to be carried over from the existing vehicle. Replace hardware with new supplied in kit.

1. See Figure 2-31. Loosely install stand-off (1), locking nut (2,3) and rod end (4) into frame.
2. Do not tighten lock nuts (2,3). Final adjustment of front mount is performed when sidecar is attached to motorcycle.

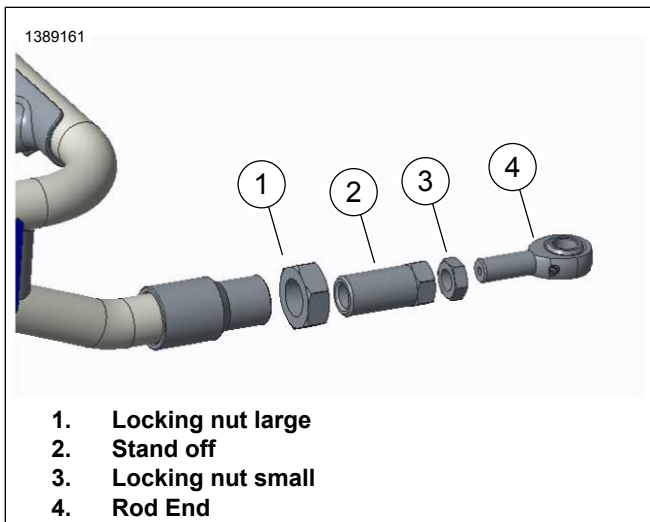


Figure 2-31. Front Mount

REAR MOUNT ASSEMBLY

1. See Figure 2-32. Install rear mount assembly onto frame. Do not tighten fasteners. Final adjustment of rear mount is performed when sidecar is attached to motorcycle.

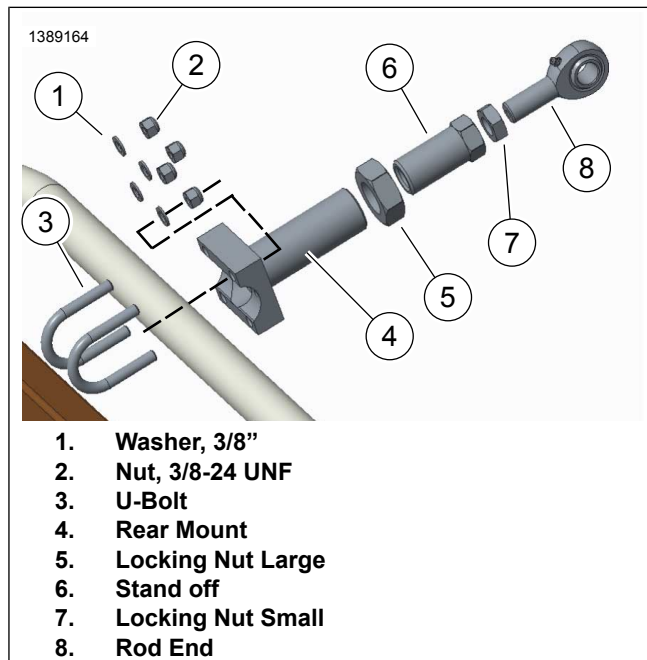
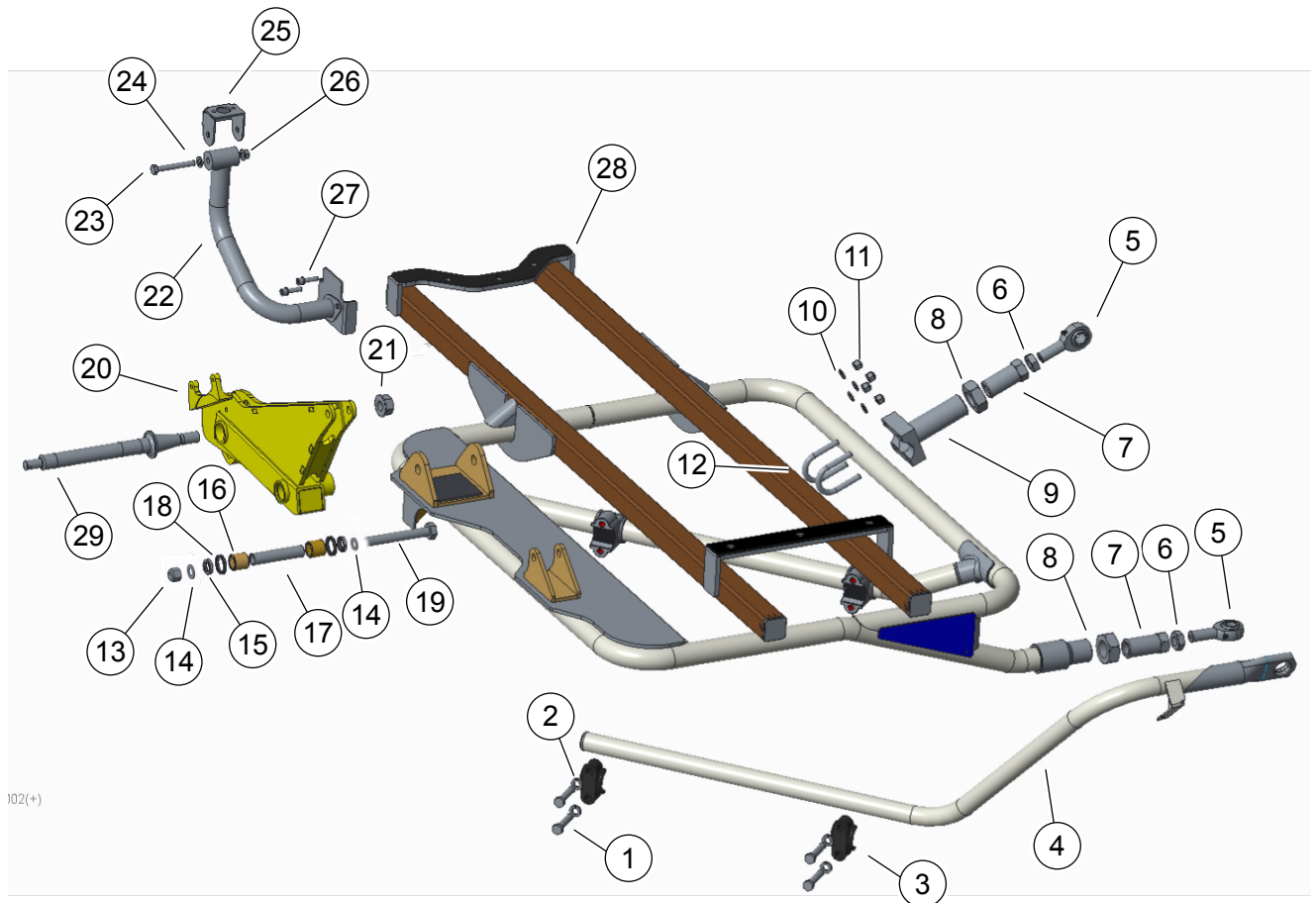


Figure 2-32. Rear Mount

SIDECAR FRAME BRACE

1. See Figure 2-33. Secure frame brace tube (4) to chassis using bolts and washers (1,2) and brace clamps (3).
2. Do not tighten bolts. Final adjustment of frame brace is performed when sidecar is attached to motorcycle.



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- | | |
|--------------------------|---|
| 1. Bolt, 7/16-14 UNC (4) | 16. Bearing (2) |
| 2. Washer, 7/16 (4) | 17. Inner race |
| 3. Brace Clamp, (2) | 18. Dust Seal (2) |
| 4. Frame brace tube assy | 19. Bolt, 5/8-18 UNF x 5 1/2 HEX |
| 5. Rod End (2) | 20. Swingarm Assy |
| 6. Locking Nut Small (2) | 21. Nut, 5/8-18 |
| 7. Stand off (2) | 22. Indicator bracket assembly |
| 8. Locking nut large (2) | 23. Bolt, 3/8-16 UNC x 2 3/4 HEX |
| 9. Rear Mount | 24. Washer, 3/8" |
| 10. Washer 3/8" (4) | 25. Turn signal bracket |
| 11. Nut 3/8-24 UNF (4) | 26. Nut, 3/8-16 UNC |
| 12. U-Bolt (2) | 27. Bolt, 5/16-18 UNC x 1 1/8 Socket head (3) |
| 13. Nut, 5/8-18 UNF | 28. Sidecar Frame |
| 14. Washer 5/8 (2) | 29. Axle |
| 15. End Cap (2) | |

Figure 2-33. Sidecar Frame Assembly

WHEEL

NOTE

- Prior to fitting the fender, wiring loom must be installed into the fender. Refer to WIRING HARNESS (Page 2-29).
- Fender is to be carried over from the existing vehicle. Replace all hardware with new supplied in kit.

⚠ WARNING

Harley-Davidson recommends the use of its specified tires. Harley-Davidson vehicles are not designed for operation with non-specified tires, including snow, moped and other special-use tires. Use of non-specified tires can adversely affect stability, handling or braking and lead to loss of vehicle control, which could result in death or serious injury. (00024d)

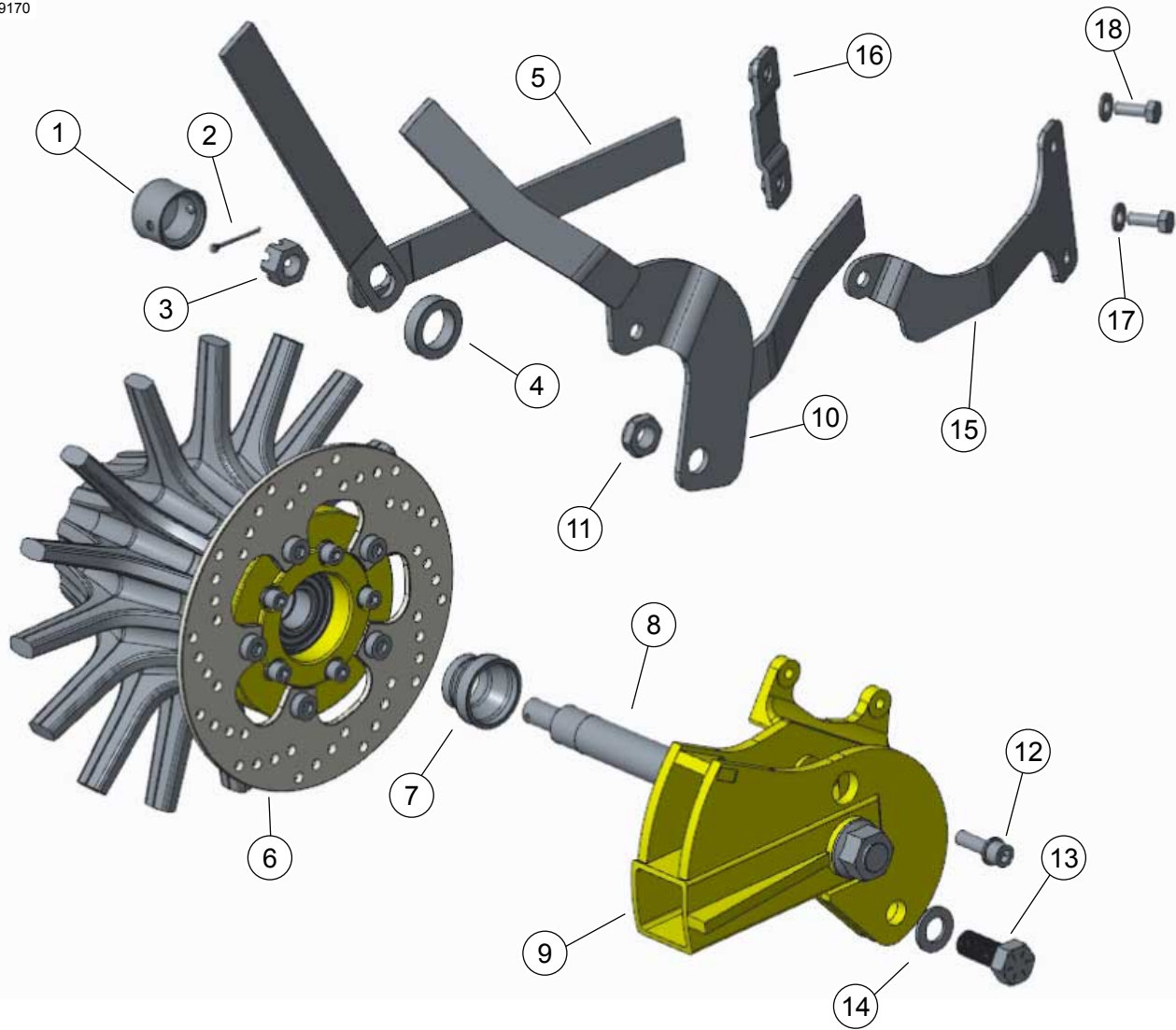
1. See Figure 2-34. Mount brake disc spacer (7) on primary brake rotor side of wheel using bolts (6). Tighten screws to 16-24 ft-lbs (22-33 Nm).

2. Make sure brake disc is clean. Install brake disc (5) onto disc spacer with bolts (4) (Ensure countersunk pockets on rotor are outward facing of the wheel). Tighten screws to 16-24 ft-lbs (22-33 Nm).
3. Apply a thin layer of ANTI-SEIZE LUBRICANT to: Axle (2), Inside diameters of wheel bearing inner races and spacers (3,8,9).
4. Install the inner spacer (3) on the axle.
5. Gently slide new wheel assembly (15) onto the axle.
6. Install outer spacer (11) on axle and slide it inboard until it makes contact with inner race of wheel ball bearing.
7. Wipe off excess anti-seize.
8. See Figure 2-35. Install fender:
 - a. Stretch the outer fender braces to fit over the axle.
 - b. Fasten the inner fender support to the chassis with bolt , washer and locknut (11,13,14).
 - c. Tighten to 34-42 ft-lbs (46-57Nm).
9. See Figure 2-34. Install Axle Hardware.
 - a. Install castle nut (12).
 - b. Tighten to 38 ft-lbs (51.5 Nm).
 - c. Secure with split pin (13).
 - d. Install cap (14).
 - e. Tighten set screw.



- | | |
|--------------------------------------|-----------------------------|
| 1. Axle Nut | 10. Wheel Bearing |
| 2. Axle | 11. Outer Spacer |
| 3. Inner spacer | 12. Castle Nut |
| 4. Bolt, M10 x 1.25 Socket Head (5) | 13. Split Pin |
| 5. Brake Disc | 14. Hub Cap |
| 6. Bolt, 5/16-18 UNC x 1 1/8 HEX (5) | 15. Laced Wheel 16" |
| 7. Disc Spacer | 16. 7 Spoke Cast Wheel 16" |
| 8. Wheel Bearing | 17. 5 Spoke Cast Wheel 19" |
| 9. Inner Race | 18. 15 Spoke Cast Wheel 19" |

Figure 2-34. Wheel Assembly



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Axle Cap 2. Split Pin 3. Castle Nut 4. Outer spacer 5. Outer Fender Braces 6. Wheel Assembly and Brake Disc 7. Inner Wheel Spacer 8. Axle 9. Swingarm Assembly | <ol style="list-style-type: none"> 10. Inner Fender Brace 11. Nut 5/8" 12. Bolt 3/8-16 UNC x 1 1/4 13. Bolt 5/8-18 UNF x 1 1/2 14. Washer, 5/8 15. Fender Brace Front 16. Fender Brace Rear 17. Washer 5/16 (2) 18. Bolt 5/16-18 UNC 7/8 (2) |
|---|---|

Figure 2-35. Fender Installation

FENDER BRACE

FASTENER	TORQUE VALUE	
Fender support brace bolt	30–35 ft-lbs	40.7–47.5 N·m

1. See Figure 2-36. Install fender brace (2).
 - a. Loosely install bolt (1).
 - b. Install washers (4) on screws.
 - c. Install screws (5).
 - d. Install rear fender support bracket (3).

- e. Tighten bolt (1).
Torque: 30–35 ft-lbs (40.7–47.5 N·m) *Fender support brace bolt*
- f. Tighten screws (5).
Torque: 16–20 ft-lbs (21.6–26.5 N·m) *Fender support brace bolt*

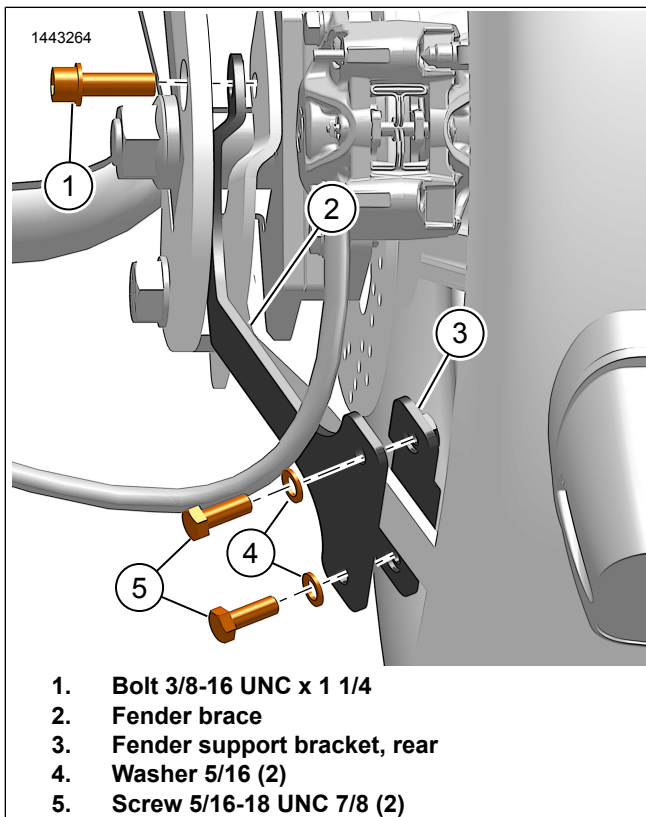


Figure 2-36. Fender Brace

INSTALLATION

1. Rest motorcycle on jiffy stand next to sidecar chassis. Block up sidecar chassis so connections on chassis line up as close as possible to connections on motorcycle. Sidecar wheel must be perpendicular (at 90 degrees) with floor.
2. Loosen front and rear rod end nuts and stand off nuts on sidecar.
3. See Figure 2-37. Turn front rod end (1) and stand off (6) all the way into frame tube and then turn rod end back out 1-2 turns.
4. Install front rod end into front mount (5). Install bolt (3) and nut (4). Tighten to 48-58 ft-lbs (65-79Nm).
5. See Figure 2-38. Loosen the four U-bolt nuts (1) and two set screws (2).
6. Turn rear rod end (4) and stand off (8) all the way into frame tube and then turn rod end back out 1-2 turns.
7. Align rear rod end (4) on sidecar with rear mount (5) on motorcycle.
8. Install bolt (6) and nut (7). Tighten to 48-58 ft-lbs (65-79Nm).
9. See Figure 2-39. Connect front brace (1) to front upper clamp (3) with bolt (4), large flat washer (2 washers may be required to ensure split pin locates through nut) (5), and castle nut (6). Nut and large washer should be to rear of motorcycle.
10. Snug up bolt and nut, but do not tighten and do not install cotter pin (7) at this time.
11. Position front brace along sidecar frame in the forward frame clamp and secure with cap and fasteners. Do not tighten at this time.
12. Install front brace into rear frame clamp and secure with cap and fasteners. Do not tighten at this time.

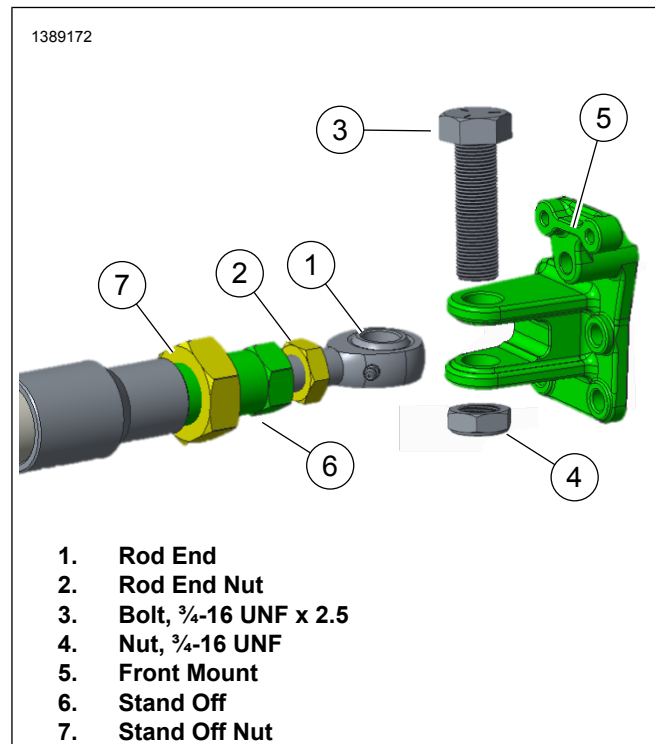


Figure 2-37. Front Sidecar Connection

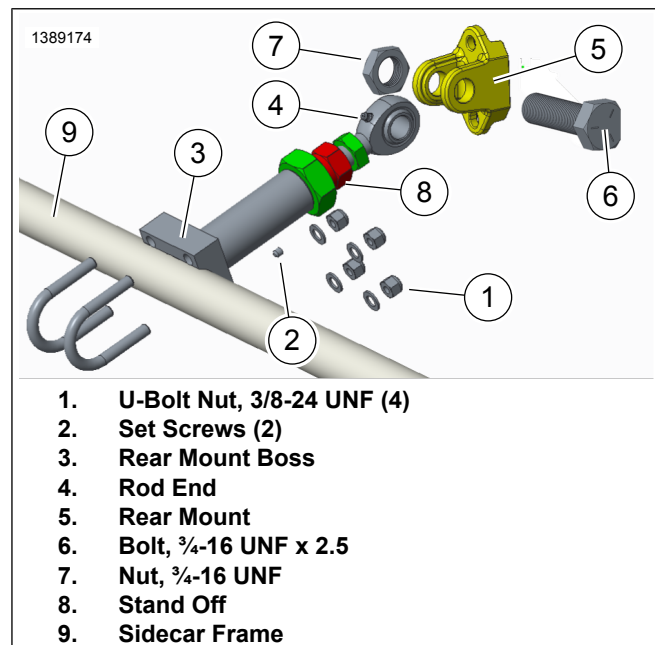
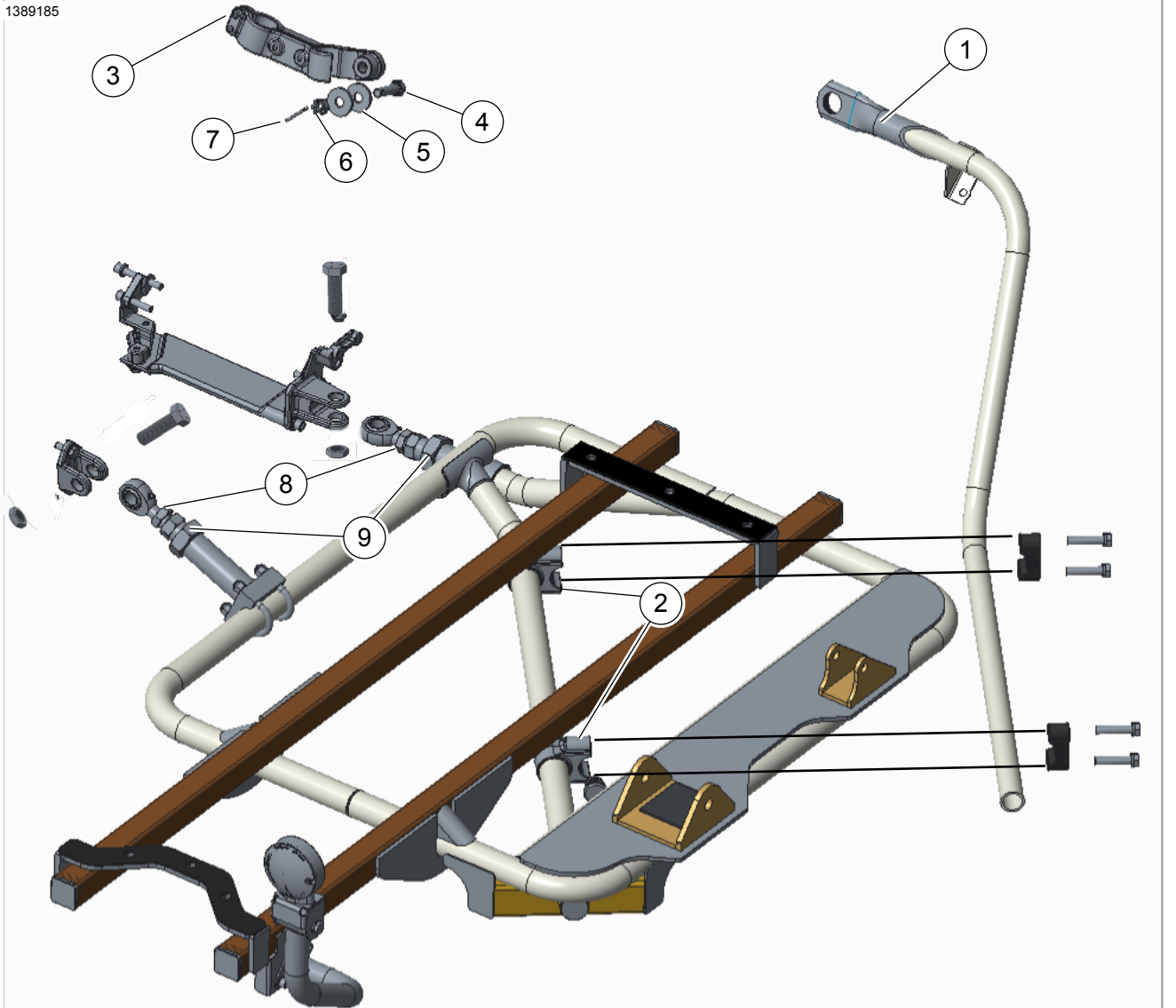


Figure 2-38. Rear Sidecar Connection

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|--|---|
| <ol style="list-style-type: none"> 1. Brace assembly 2. Clamps (2) 3. Upper Mount 4. Bolt, 1/2-13 UNC x 1 3/4 HEX, Clevis 5. Washer, 1/2" | <ol style="list-style-type: none"> 6. Castal Nut 1/2" 7. Cotter Pin 8. Rod End Locking Nut (2) 9. Stand Off Nut (2) |
|--|---|

Figure 2-39. Front Brace Connection

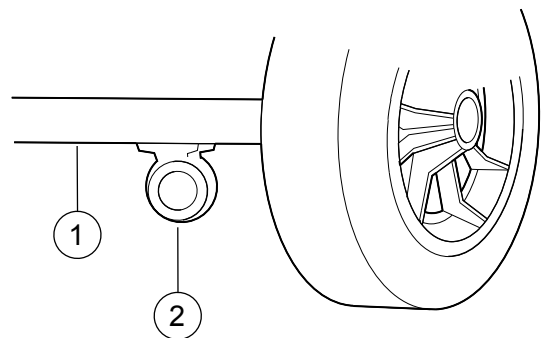
ADJUSTMENTS

▲ WARNING

Inadequate thread engagement could allow sidecar and motorcycle to separate which could result in death or serious injury. (00577c)

1. Inflate vehicle tires per tire specifications given in owner's manual.
2. See Figure 2-40. Check sidecar rear frame member to be sure that it is parallel (at 0 degrees) with a level floor. Place a protractor on the rear frame member.

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1. Rear Frame Member
2. Protractor

Figure 2-40. Checking Sidecar Frame Level

3. See Front Brace Connection in Installation (Page 2-18). If sidecar wheel is not perpendicular, raise or lower sidecar chassis at rear connector (4) until sidecar wheel is perpendicular.
4. Lightly tighten the four U-bolt nuts (1) that attach the rear mount boss to the sidecar chassis to 10-15 ft-lbs (14-20 Nm). Tighten the two set screws (2) only until they lightly contact the frame tube.
5. See Figure 2-41. Measure lean-in from a protractor mounted on the rear brake disc of the motorcycle.

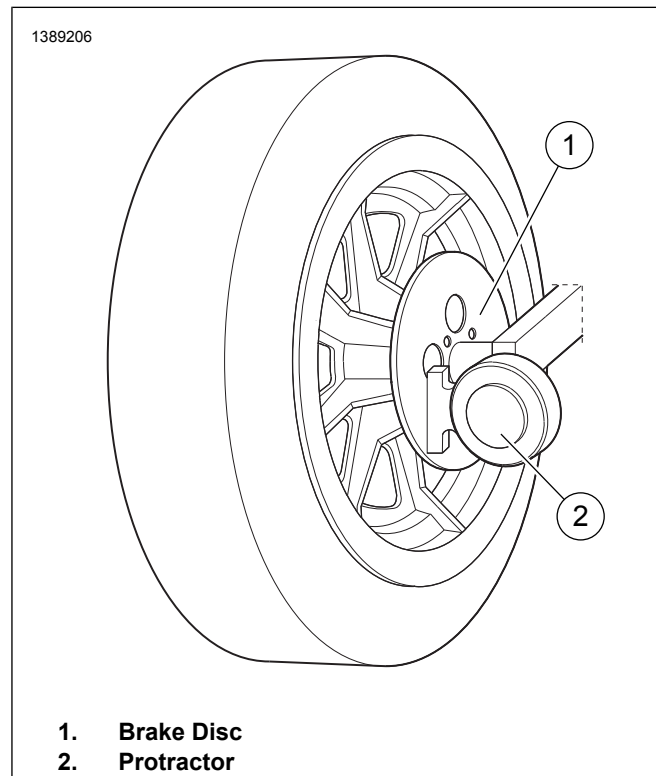


Figure 2-41. Protractor on Rear Disc of motorcycle

6. See Front Sidecar Connection in Installation (Page 2-18). Adjust sidecar front brace (1) forward or backward in clamps (2) so motorcycle leans approximately 1 degree in towards sidecar as shown in Figure 2-42.

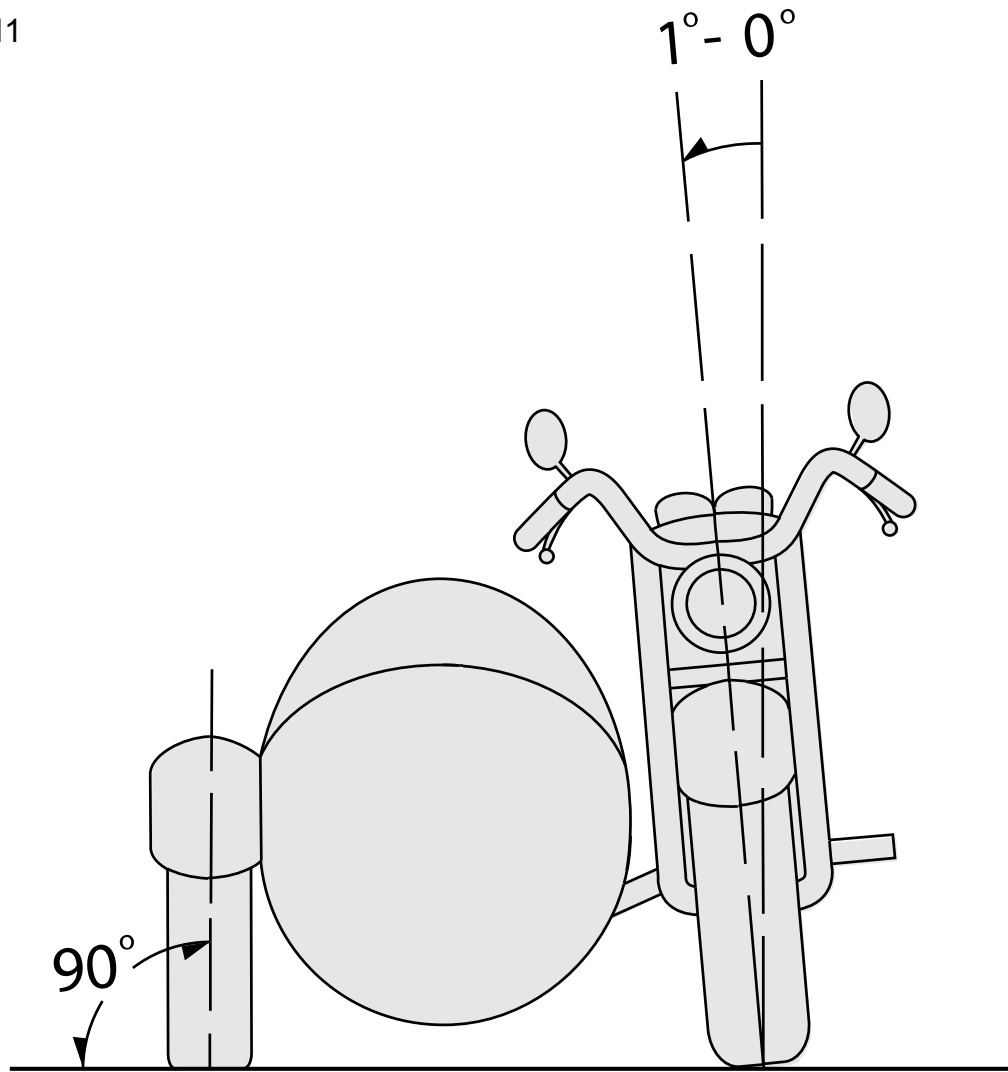


Figure 2-42. Motorcycle Lean-angle

7.

NOTE

Do not fully tighten sidecar front brace clamps now. Final tightening must be performed after toe-in has been set. Lean angle can change with rider weight. See Setup Adjustments in TROUBLESHOOTING (Page 4-1).

See Front Sidecar Connection in Installation (Page 2-18). Tighten fasteners at clamps (2) just enough to hold motorcycle in position or block motorcycle to maintain lean-angle.

8. See Figure 2-43. The rear connection, when adjusted properly, should provide 0.75 to 1.0 in (19-25 mm) toe-in at front of motorcycle (measurement take between front axle and rear axle). To achieve proper toe-in, turn connector either in or out. Do not expose more than 3/8 in (9.5 mm) of threads when turning connector out. (Measured from face of locknut after locknut is tightened.) If additional adjustment is needed, the front connector can be turned in.

9.

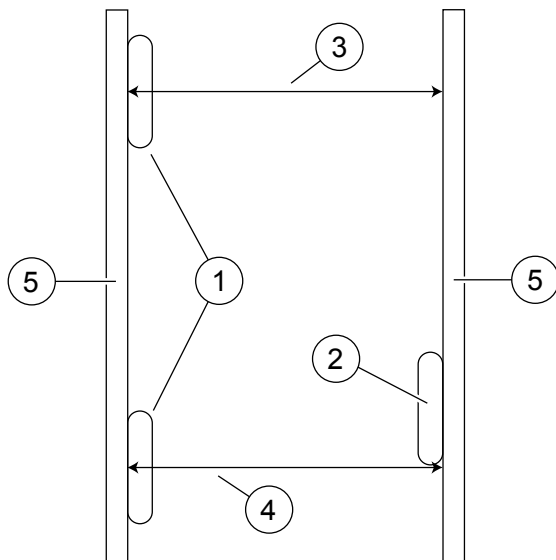
NOTE

See Rear Sidecar Connection and Front Brace Connection in Installation (Page 2-18). Adequate connector thread

engagement into rear mounting bracket and front sidecar frame tube is critical. No more than 3/8 in (9.5 mm) of threads should be visible between locknut and rod end head after tightening locknut on either connection.

Tighten locknut on connector 1/4-1/2 turn after contact with rear mount assembly.

10. Check sidecar wheel to verify that it is perpendicular (at 90 degrees) with a level floor. See previous steps for adjustment if necessary.
11. Support sidecar frame to prevent movement, and loosen U-bolt nuts 2 turns each. Tighten set screws 1 1/2 turns inward.
12. Tighten U-bolt nuts to 23-28 ft-lbs (31-38 Nm). Remove blocking supporting sidecar.



1. Motorcycle wheel
2. Sidecar wheel
3. Front measurement
4. Rear measurement
5. Straightedge

Figure 2-43. Toe-in Adjustment

MODIFY JIFFY STAND

NOTE

- Retain OE stop for install prior to removing the side car.
- New stop will lock jiffy stand so that it does not contact the frame stiffener and will also activate the jiffy stand switch on models equipped with that system. After installation, the stop will prevent the jiffy stand from being deployed.

1. Remove bolt retaining jiffy stand stop.
2. Remove stock jiffy stand stop. Retain for future use.
3. See Figure 2-44. Install new jiffy stand stop from kit with hardware removed in Step 1. Note the orientation of the new stop. Tighten bolt to 15-20 ft-lbs (20-27 Nm).

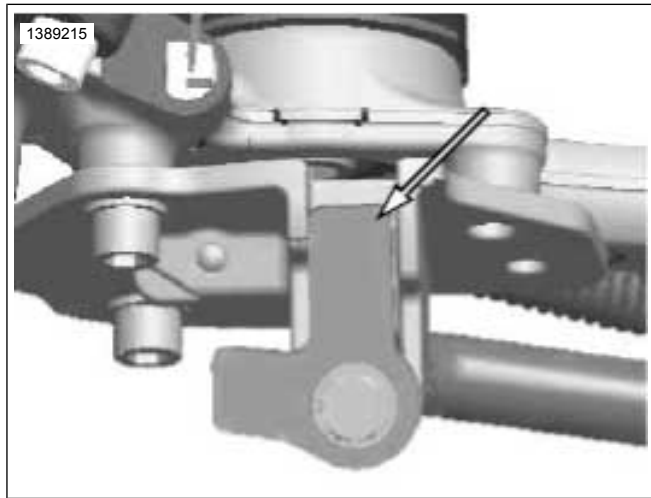


Figure 2-44. Jiffy Stand Stop

STEERING DAMPER

Install

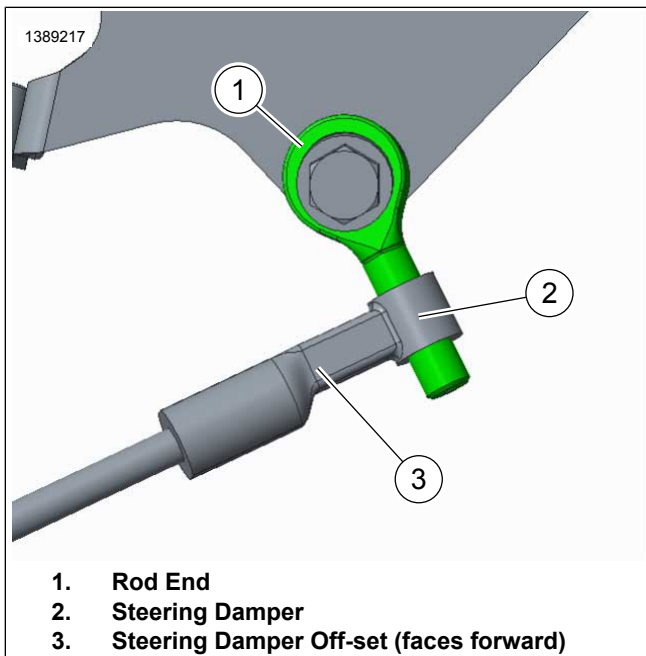
1. See Steering Damper (Page 2-1) to attach bracket to lower yoke.
2. See Figure 2-45. Install rod end (1) to threaded end of steering damper (2). Off-set on damper should face front of motorcycle as shown.
3. See Figure 2-46. Attach rod end (1) to the top of the damper bracket (2) with bolt and washer (3,6), spacers (4) and locknut (5).

NOTE

Do not install spacer or additional washers between rod end (1) and underside of bracket (2). If inner end of steering damper is positioned too low, bolt head (3) can damage front fender when front wheel hits bump. To compensate for manufacturing tolerances, raise or lower the outer steering damper stationary (sidecar) end by installing or removing washers so clearance is present between steering damper and engine guard or fairing lower.

Attach large end of steering damper to standoff bracket (8) on upper brace (9) with bolt (3), washers either side (6) and locknut (5).

5. Check clearances at engine guard and fairing lower.
 - a. **If steering damper is touching engine guard**, and clearance is present between top of steering damper and fairing lower, add washers at the underside of the damper sidecar end. If washers are added, the bolt will also have to be replaced with a 3/8-16 hex head (Grade 5) bolt of suitable length.
 - b. **If top of steering damper is touching fairing lower**, remove one of the washers (6) from the sidecar end.

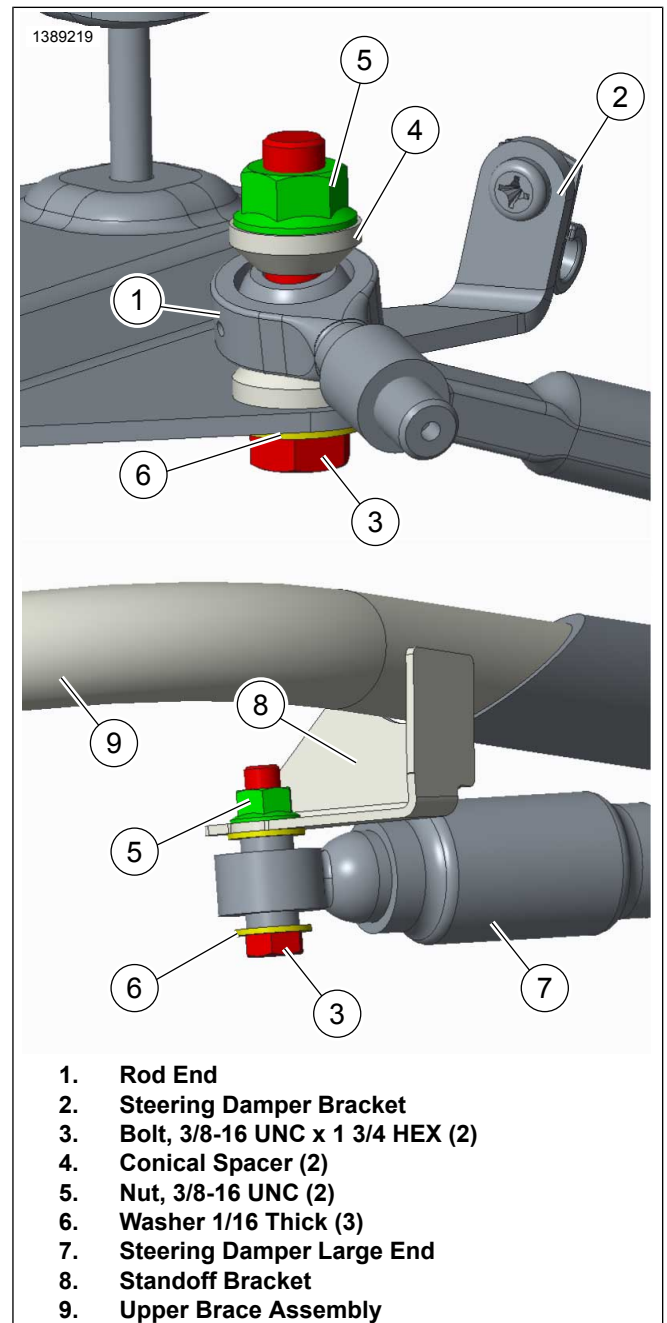


1. Rod End
2. Steering Damper
3. Steering Damper Off-set (faces forward)

Figure 2-45. Damper Rod End Orientation

Adjust

1. See Figure 2-46. The large end of the steering damper (7) can be adjusted in the slot in the standoff bracket (8). Rod end (1) of steering damper is adjusted by removing bolt (3) and turning rod end (1) in or out.
2. Adjust both ends of steering damper to prevent it from interfering with frame or fork, when front fork is rotated between its limits of travel.
3. After adjustment is made, tighten all hardware to 25-30 ft-lbs (34-41 Nm).
4. Check for possible interference at frame, fork, engine guard and lower fairing.



1. Rod End
2. Steering Damper Bracket
3. Bolt, 3/8-16 UNC x 1 3/4 HEX (2)
4. Conical Spacer (2)
5. Nut, 3/8-16 UNC (2)
6. Washer 1/16 Thick (3)
7. Steering Damper Large End
8. Standoff Bracket
9. Upper Brace Assembly

Figure 2-46. Steering Damper Mounting

MASTER CYLINDER

▲ WARNING

Clean reservoir filler cap or cover before removing. Use only DOT 4 brake fluid from a sealed container. Contaminated fluid can adversely affect braking or clutch disengagement, which could result in death or serious injury. (00504d)

▲ WARNING

Contact with DOT 4 brake fluid can have serious health effects. Failure to wear proper skin and eye protection could result in death or serious injury.

- If inhaled: Keep calm, remove to fresh air, seek medical attention.
- If on skin: Remove contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. If irritation develops, seek medical attention.
- If in eyes: Wash affected eyes for at least 15 minutes under running water with eye lids held open. If irritation develops, seek medical attention.
- If swallowed: Rinse mouth and then drink plenty of water. Do not induce vomiting. Immediate medical attention required.
- See Safety Data Sheet (SDS) for more details available at sds.harley-davidson.com

(00240d)

NOTICE

DOT 4 brake fluid will damage painted and body panel surfaces it comes in contact with. Always use caution and protect surfaces from spills whenever brake work is performed. Failure to comply can result in cosmetic damage. (00239c)

NOTICE

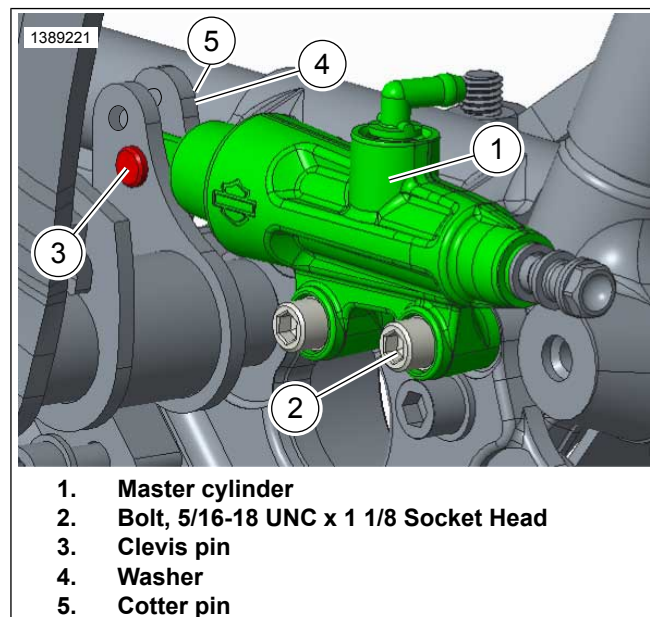
Do not allow dirt or debris to enter the master cylinder reservoir. Dirt or debris in the reservoir can cause improper operation and equipment damage. (00205c)

NOTE

- Use DOT 4 Brake Fluid.
- The existing brake pedal must be replaced with the brake pedal supplied in the sidecar connection kit.
- Use lower brake pedal clevis pin hole for securing master cylinder actuator.

1. Remove the motorcycle rear master cylinder and rear brake pedal assembly from the bike. See the service manual or service manual supplement for more information.
2. See Figure 2-47. Assemble brake pedal to rear master cylinder.
 - a. Secure master cylinder actuator with clevis pin (3).

- b. Install washer (4) and new cotter pin (5).
 - c. Bend ends of cotter pin to secure.
3. Install new master cylinder (1) and new brake pedal onto existing mounts.
 - a. Apply a light coat of WHEEL BEARING GREASE to the brake pedal shaft and bore.
 - b. Install new O-ring on each side of bore.
 - c. Install brake pedal/master cylinder assembly on the pedal shaft.
 - d. Install screws securing master cylinder. Tighten to 14.2–17 N·m (126–150 in-lbs).
 - e. See Figure 2-48. Apply one drop of LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (blue) to new special nut (5).
 - f. Tighten brake pedal shaft locknut to 20.3–27.1 N·m (15–20 ft-lbs).
4. Install brake pedal pad.



1. Master cylinder
2. Bolt, 5/16-18 UNC x 1 1/8 Socket Head
3. Clevis pin
4. Washer
5. Cotter pin

Figure 2-47. Sidecar Master Cylinder

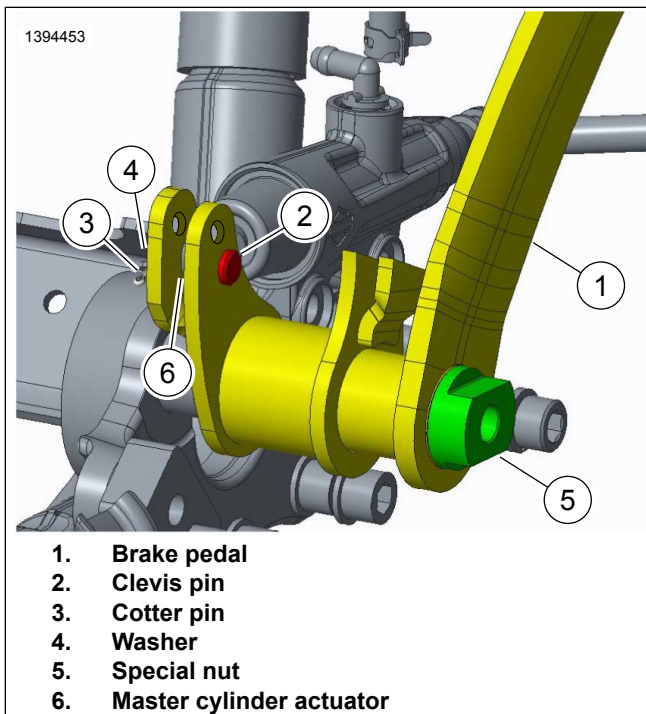


Figure 2-48. Brake Pedal

BRAKE CALIPER

NOTE

Ensure brake disc is between brake pads.

1. See Figure 2-49. Slide caliper (1) over disc and locate onto swingarm (4) mounting hole using bolts and washers (2,3). Tighten to 15-25 ft-lbs (20-34 Nm).

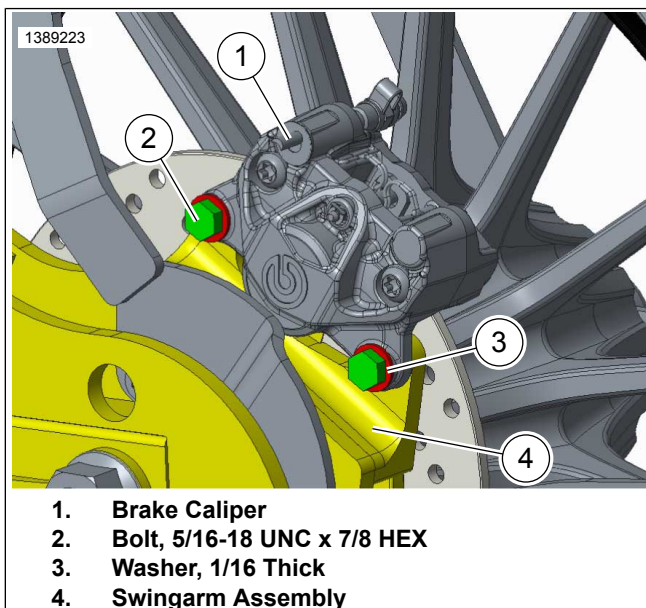


Figure 2-49. Mounting Caliper

BRAKE LINE

1. See Figure 2-50. Loosely secure hard end of brake line to sidecar caliper (1) and brake line to ABS module (2) using double banjo bolt (3) with copper washer (4) either side and between lines three in total.

2. NOTE

- Ensure third wheel brake line is not in contact with sidecar chassis when securing in position. See Figure 2-52 for position of brake line to master cylinder.
- Refer to Figure 2-53 for brake line routing.
- Brake line to sit on top of frame tubes.

See Figure 2-52. Orientate brake line 160 ±5mm from the floor. Tighten to 19-22 ft-lbs (26-30 Nm).

3. See Figure 2-51. Secure third wheel brake line (1) to caliper connection (2) using banjo (3) with copper washer (4) either side, 45° from vertical (ensure brake line does not contact fender stiffener). Tighten to 19-22 ft-lbs (26-30 Nm).
4. See Figure 2-53. Secure brake line to sidecar chassis using clip with rubbers (1) and T-Stud clips (2).

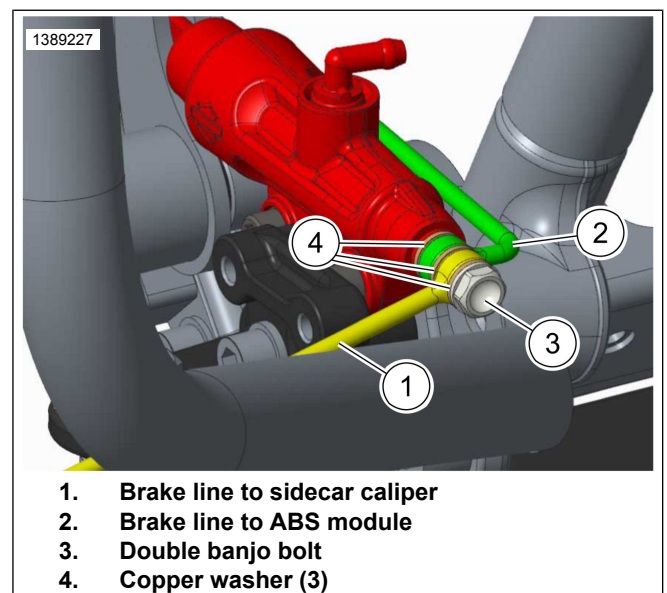


Figure 2-50. Brake Line To Master cylinder

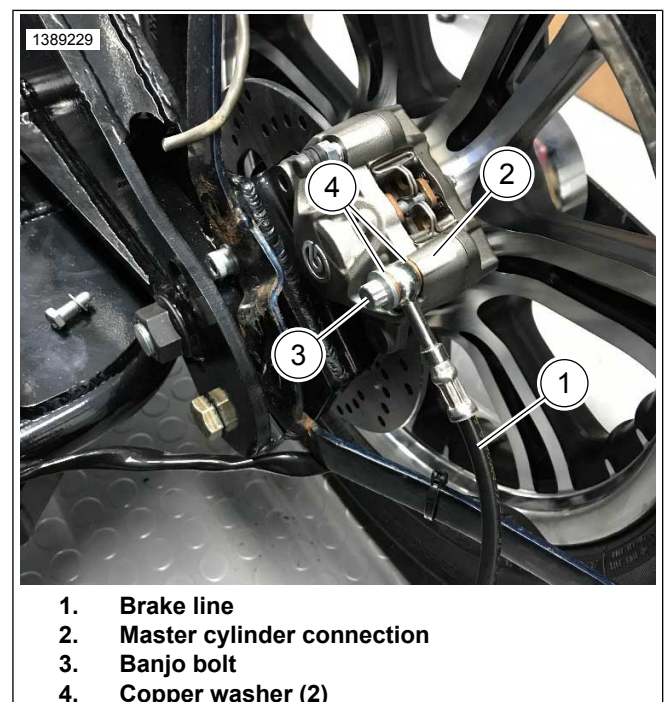
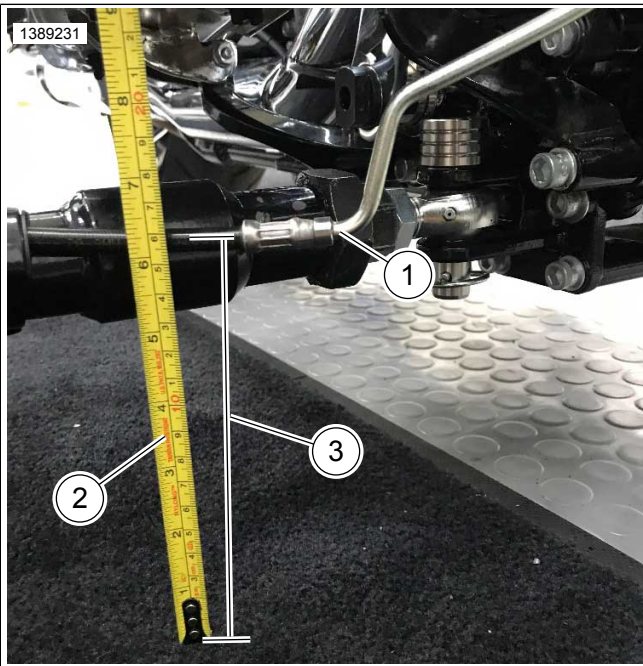
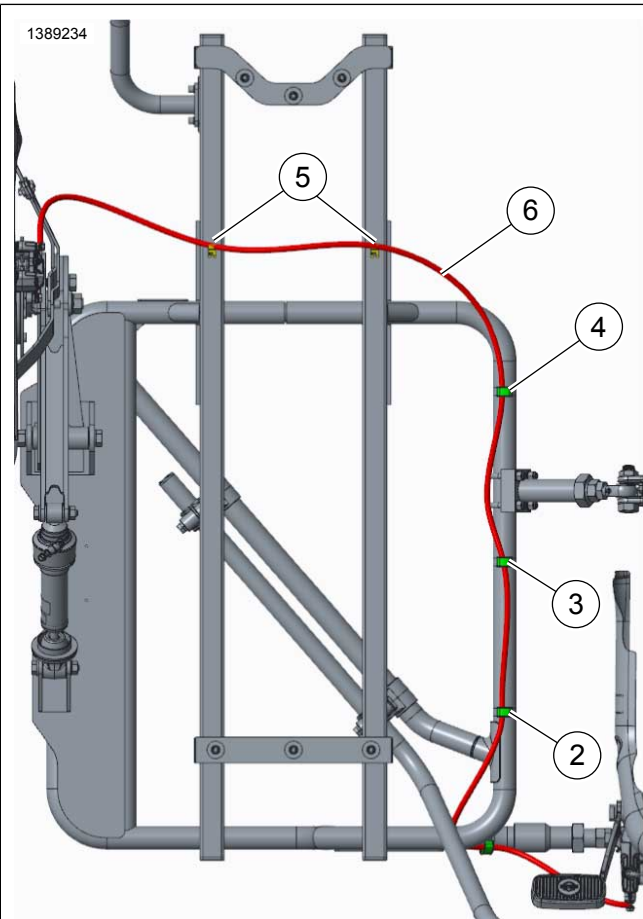


Figure 2-51. Brake Line To Caliper

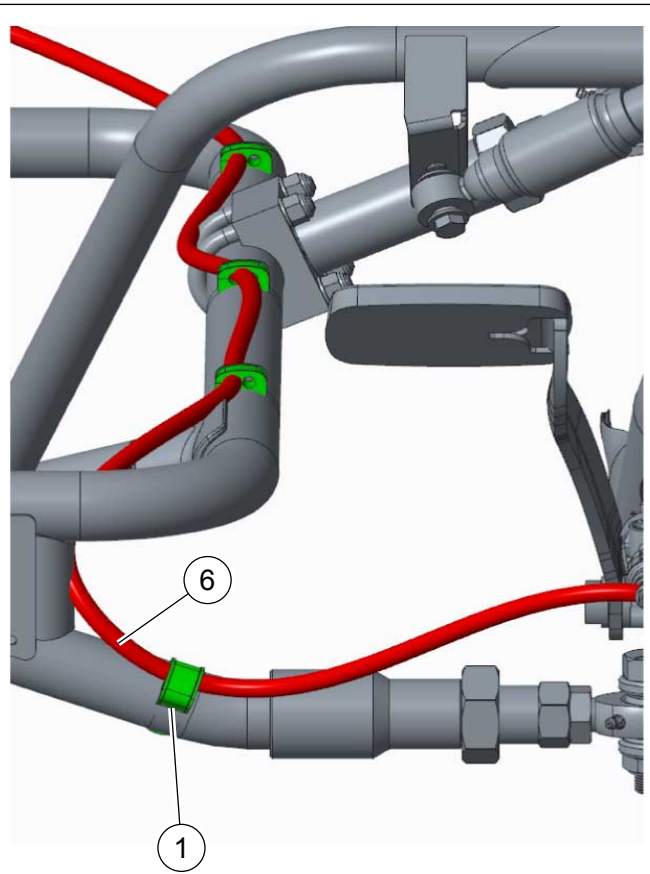


- 1. Brake line
- 2. Tape measure

Figure 2-52. Brake Line To Master cylinder Position



- 1. Brake line clip position lower mount (green)
- 2. Brake line clip position 250mm ±10mm from front of frame (green)
- 3. Brake line clip position 470mm ±10mm from front of frame (green)



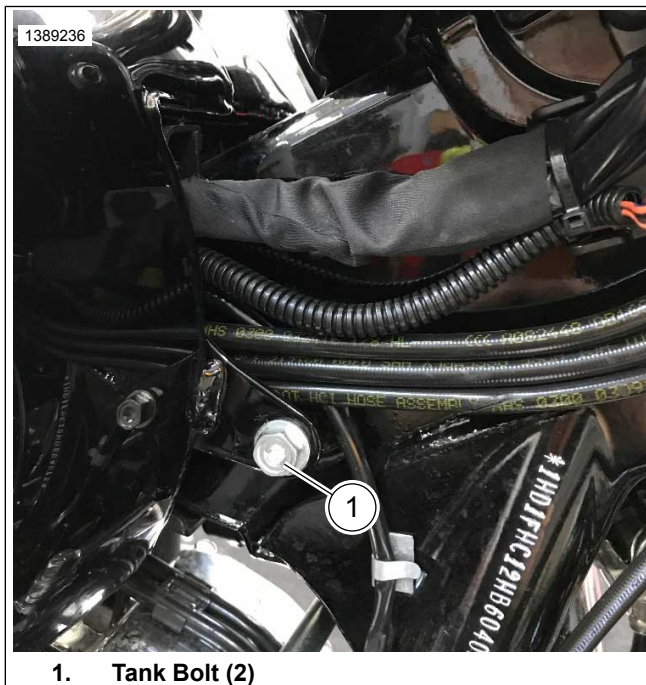
- 4. Brake line clip position 780mm ±10mm from front of frame (green)
- 5. T-Stud clips (yellow)
- 6. Brake line (red)

Figure 2-53. Brake Line Routing

REAR BRAKE RESERVOIR

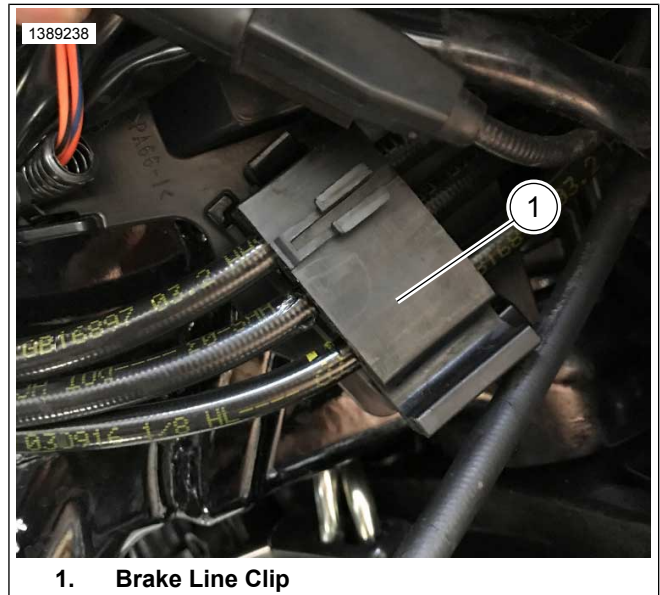
FASTENER	TORQUE VALUE	
Reservoir mount screw, rear	15–20 ft-lbs	20.3–27.1 N·m

- Remove seat bracket. See the service manual for tank removal.
- See Figure 2-54. Remove two front bolts (1) securing tank to frame.
- See Figure 2-56. Lift front of tank and position rubber grommet (2) over lug.
- Attach tank using existing bolts. Tighten.
Torque: 15–20 ft-lbs (20.3–27.1 N·m) *Reservoir mount screw, rear*
- See Figure 2-55. Remove existing brake line clip.
- See Figure 2-56. Install reservoir bracket.
 - Select correct bracket for model of vehicle.
 - Slide over rubber grommet on tank lug
 - Engage front in steering head caddy in place of OE brake line clip.
- Install brake lines into bracket and electric connector.
- See Figure 2-57. Locate nut (3) into recess on bracket and secure reservoir (1) to bracket using bolt (2). Tighten to 4-6 ft-lbs (6-8 Nm).
- Secure reservoir hose to master cylinder fitting. Secure hose to frame down tube using clip.



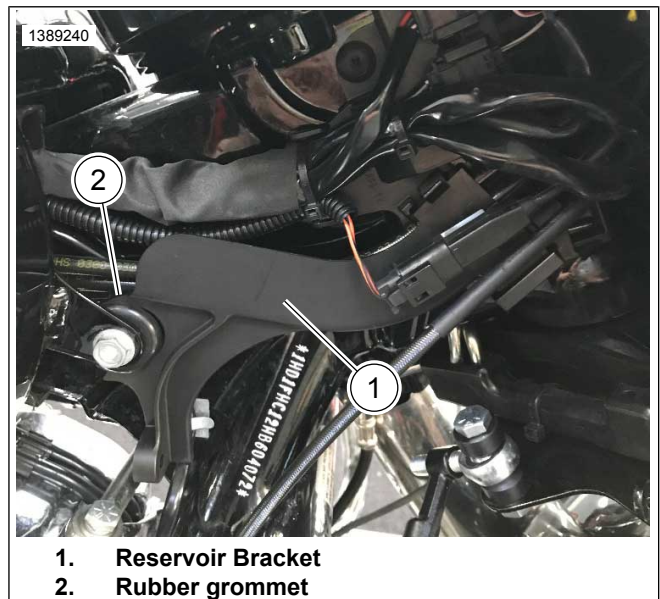
1. Tank Bolt (2)

Figure 2-54. Removal of Tank



1. Brake Line Clip

Figure 2-55. Brake Line Clip



1. Reservoir Bracket
2. Rubber grommet

Figure 2-56. Reservoir Bracket

WIRING HARNESS

⚠ WARNING

Disconnect negative (-) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00049a)

1. Remove seat, seat fairing and right side cover.
2. Route light harness up along frame tube to area behind the battery.
3. See Figure 2-58. Disconnect the motorcycle rear light harness connector (1).
4. See Figure 2-59. Connect the sidecar "Y" connectors (2) to the motorcycle rear light harness connector (1). Be sure latches snap together.
5. Route light harness along rear mount assembly and secure with cable straps as needed.
6. Connect harness to sidecar indicator connector.
7. See Figure 2-60. Connect harness to fender rear light holder (2). Secure cable on inside of fender using tabs fitted. Ensure cable is clear of wheel.
8. See Figure 2-61. Position light harness so it will not be pinched by seat, suspension movement and wheel or tire, secure the harness and connectors with cable straps as needed.

⚠ WARNING

Connect positive (+) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00068a)

9. Connect battery, positive cable first.

⚠ 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)

10. Install side cover, seat fairing and seat.

⚠ WARNING

Be sure that all lights and switches operate properly before operating motorcycle. Low visibility of rider can result in death or serious injury. (00316a)

11. Check that all lights are operating correctly.

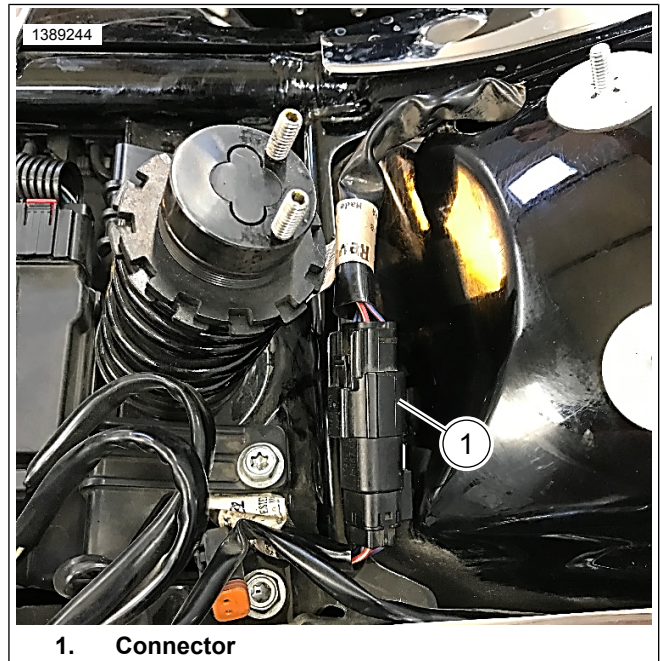


Figure 2-58. Motorcycle rear light connector

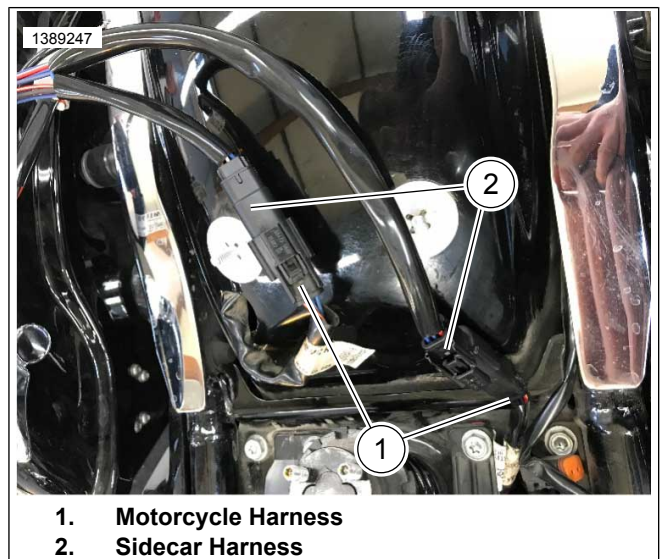


Figure 2-59. Harness To Motorcycle

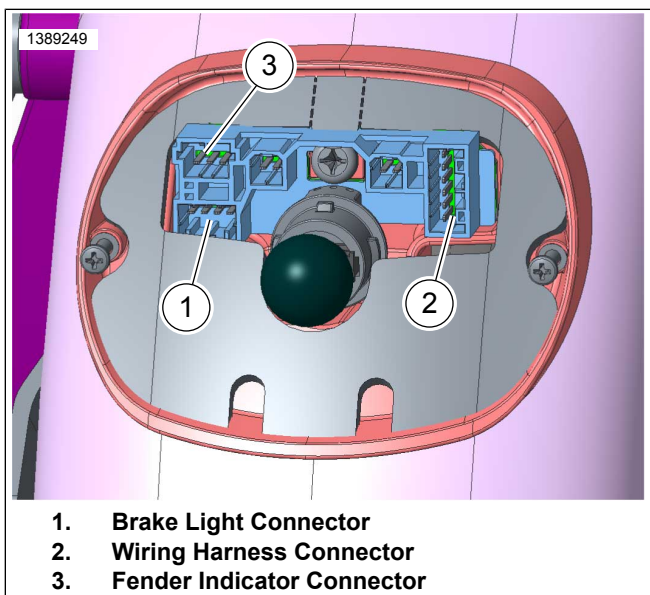


Figure 2-60. Fender Rear Light Holder

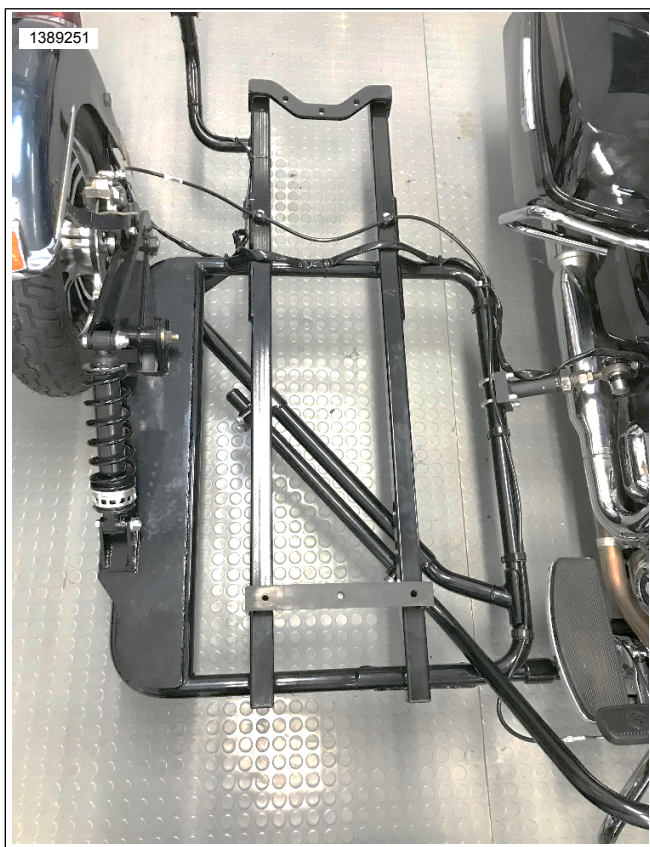


Figure 2-61. Harness Routing

BANK ANGLE SENSOR (BAS)

⚠ WARNING

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

NOTE

The BCM must be reconfigured. See Body Control Module (BCM) in PREPARE MOTORCYCLE (Page 2-1).

1. Remove seat, seat fairing and left side cover.

2. See Figure 2-62. Remove the bolts (1) to remove plastic cover above the battery.
3. Disconnect the battery cables, negative first.
4. Remove battery from battery box.
5. See Figure 2-63. Install BAS (4) to bracket (5) with screw (2) and split lockwasher(3).
6. Tighten to 2.2–3.4Nm (20–30in-lbs).
7. Remove seat spring lower screws.
8. Apply LOCTITE 243 MEDIUM STRENGTH THREADLOCKER AND SEALANT (BLUE) to new 1/4-20 x 0.625 in shcs(1).
9. Install BAS and bracket with new 1/4-20 x 0.625 in shcs(15). Tighten to 4.1–6.8Nm (36–60in-lbs).
10. See Figure 2-64. Remove BCM (1) from caddy and disconnect larger connector (2) from the rear.
11. See Figure 2-65. Insert the bank angle sensor cable terminal (1) of the new harness into cavity B4 of the connector. See the electrical diagnostic manual for procedures to disassemble and assemble the BCM connector.

12. Mate the connector.

13. Install the BCM.

14. *NOTE*

The harness connects to the existing diagnostic connector (5) and creates a new one (2). Route the new harness as shown.

Secure the new wire to the existing BCM bundle with cable strap (6).

15. Mate connector (4) to the diagnostic connector at the left caddy.

16. Install sealing plug into **new** diagnostics connector (2). Position connector as shown.

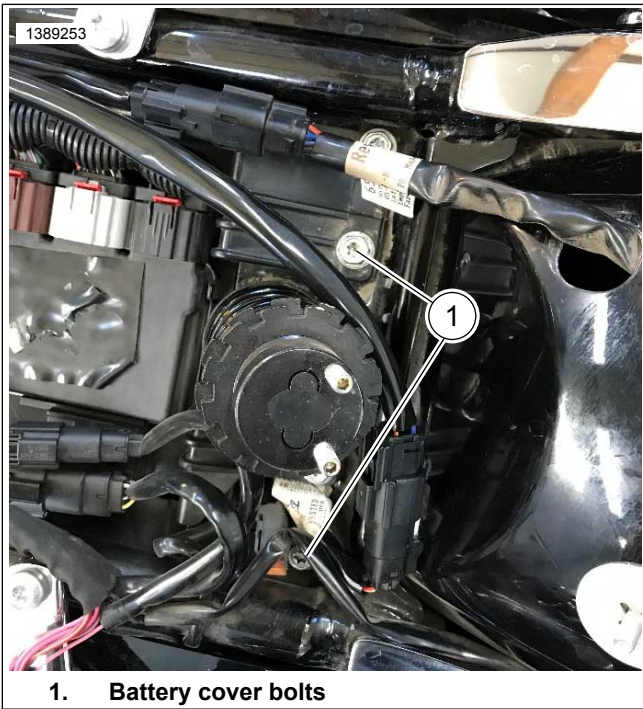
17. Route harness through opening (4) next to main harness.

18. Mate connector (3) to BAS.

19. Install battery, positive cable first, battery cover, seat and side panel in reverse of removal.

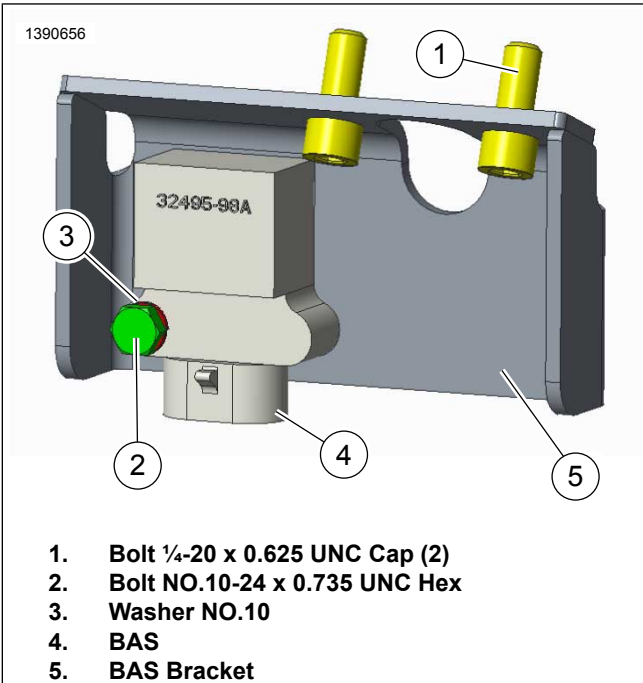
⚠ WARNING

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)



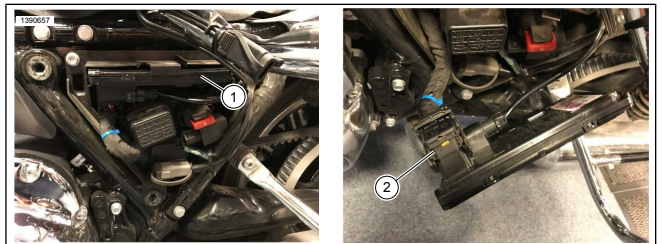
1. Battery cover bolts

Figure 2-62. Battery Cover



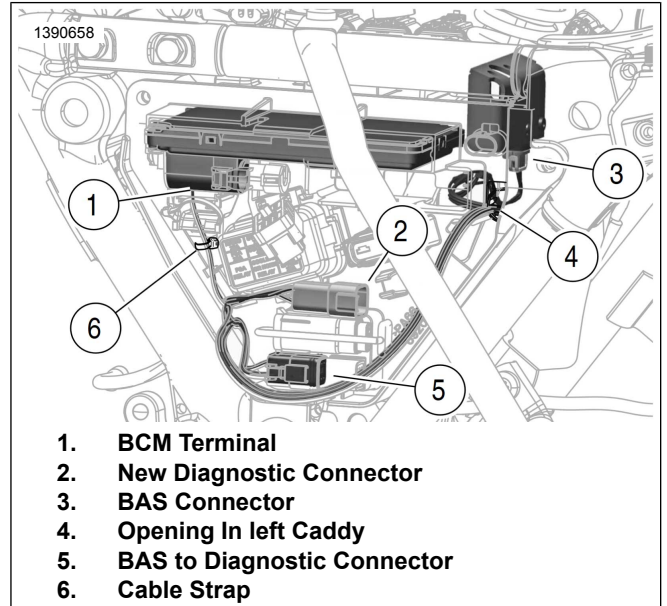
1. Bolt 1/4-20 x 0.625 UNC Cap (2)
2. Bolt NO.10-24 x 0.735 UNC Hex
3. Washer NO.10
4. BAS
5. BAS Bracket

Figure 2-63. BAS / Bracket



1. BCM
2. Large Connector

Figure 2-64. BCM



1. BCM Terminal
2. New Diagnostic Connector
3. BAS Connector
4. Opening In left Caddy
5. BAS to Diagnostic Connector
6. Cable Strap

Figure 2-65. BAS Harness Routing

SIDECAR BODY

1. See Figure 2-66. Ensure tub mounting rails (1,2) are clean. Remove adhesive cover from rubber padding (3) and secure to tub rails.

2. Secure front of tub (7) to front rail (1) using bolts (4) washers (5) and nuts (6). Do not tighten.

3. Secure rear of tub (7) to front rail (1) using bolts (4) washers (5) and nuts (6). To not tighten.

4. Tighten bolts to 16-20 ft-lbs (22-27 Nm).

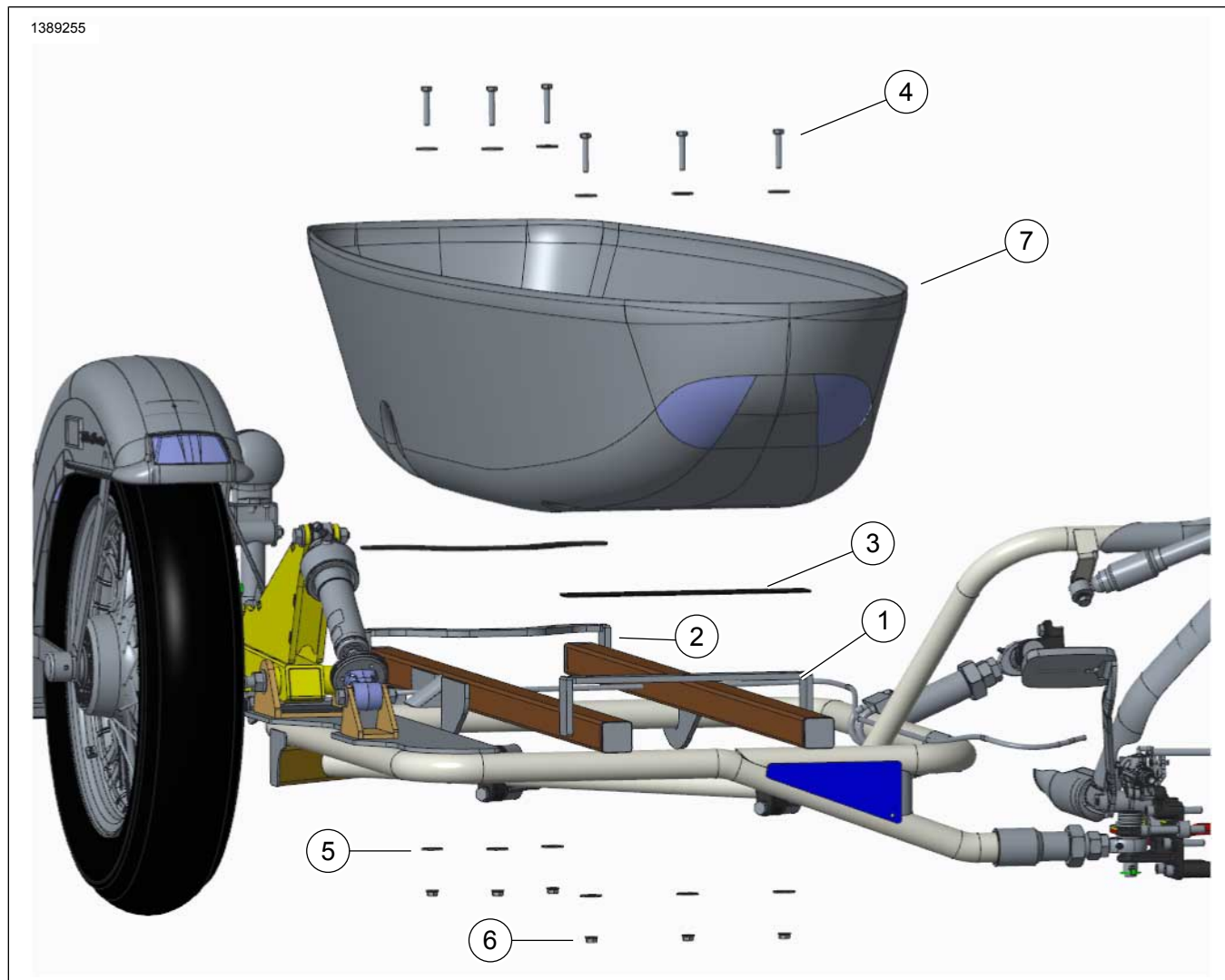


Figure 2-66. Sidecar Body

COMPLETE

To complete sidecar installation, perform the following steps as described in your service manual or service manual supplement:

1. Install outer fairing (if removed).
2. Install clips securing hydraulic clutch line to the right front downtube.
3. Install cable straps to secure front lighting harness.
4. Install headlamp nacelle (if removed).
5. Install battery.
6. Install seat fairing and seat.
7. Install both side covers.
8. Install both saddlebags.

NOTES

SUBJECT	PAGE NO.
3.1 KIT PART LISTS.....	3-1

NOTES

STEERING DAMPER KIT

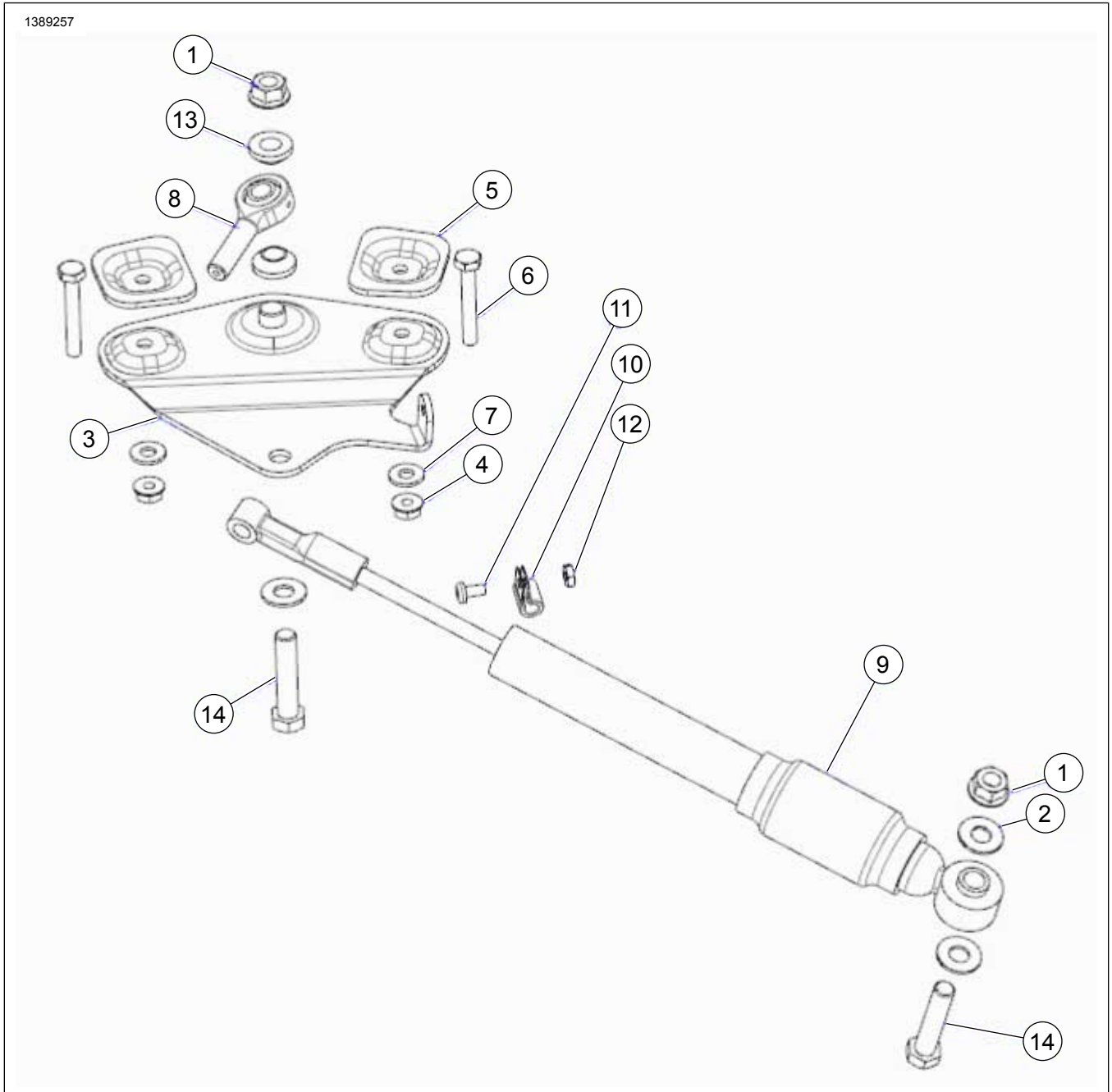


Figure 3-1. Steering Damper Kit

Table 3-1.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02251833	Nut, FLGD, 3/8-16	2			
2	02404903	Washer, 3/8 IDx13/16 ODx1/16 TH	3			
3	02405152	Mount, Strg dmpr, Brkt, Upr, S-car	1			
4	02405173	Nut, FLGD, 1/4-20	2			
5	02405176	Mount, Strg dmpr, Brkt, Upr, S-car	2			

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
6	02405183	Screw, 1/4x20x1 3/4", Hex	2			
7	02405187	Washer, 1/4 IDx5/8 ODX1/16 TH	2			
8	02405192	Rod end	1			
9	02405991	Steering damper	1			
10	02406008	P-Clip	1			
11	02406013	Screw, 10-24x3/8", pan	1			
12	02406016	Nut, 10x24	1			
13	02408502	Spacer, conical	2			
14	02408628	Screw, 3/8x16x1 3/4", Hex	2			

FRAME KIT

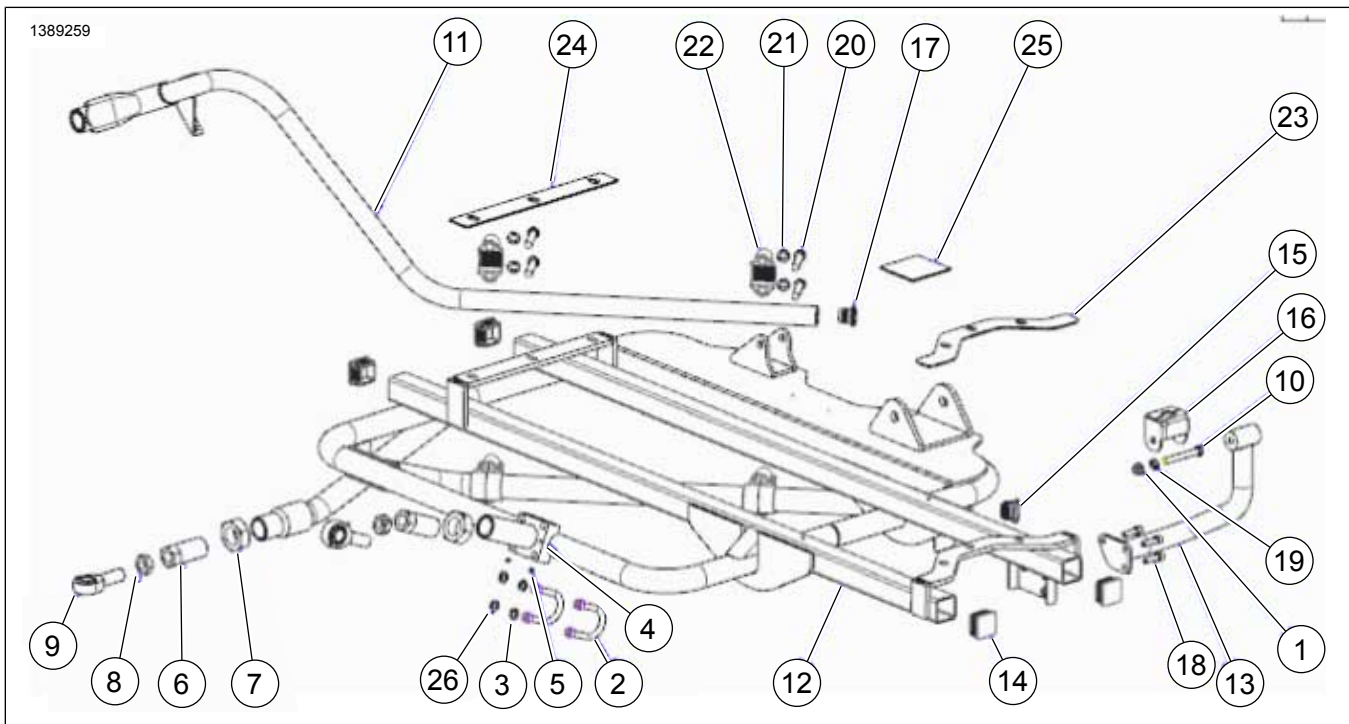


Figure 3-2. Frame Kit

Table 3-2.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02251833	Nut, flanged, 3/8-16	1			
2	02254380	U-Clamp, 87701-79	2			
3	02254395	Washer, 3/8IDx11/16ODx1/16th	4			
4	02255637	Mount, boss 87157-02	1			
5	02255692	Set screw, 1/4-28	2			
6	02255693	Mount, boss 87150-02	2			
7	02255702	Nut, 87152-02	2			
8	02255709	Nut 7855W	2			
9	02255719	Rod end, frame, sidecar	2			
10	02256726	Screw, 3/8-16x2 3/4", hex	1			

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
11	02348545	Brace assembly, sidecar	1			
12	02350884	Frame, sidecar, finished	1			
13	02363853	Bracket assembly, turn signal	1			
14	02365539	Tube cap, rectangular	4			
15	02365585	Tube cap, circular, 1 1/2"	1			
16	02381568	Indicator bracket	1			
17	02393334	Tube cap, circular, 1 1/4"	1			
18	02404612	Screw, 5/16-18x1 1/8"	3			
19	02405076	Lock washer, 3/8	1			
20	02407084	Screw, 7/16-14x2", hex	4			
21	02407884	Lock washer, 7/16	4			
22	02408430	Tube clamp, frame, finished	2			
23	02409631	Tub mount, rear	1			
24	02409635	Tub mount, front	1			
25	02440105	Bump stop	1			
26	7775	Nut, lock 3/8-24	4			

BRAKE KIT

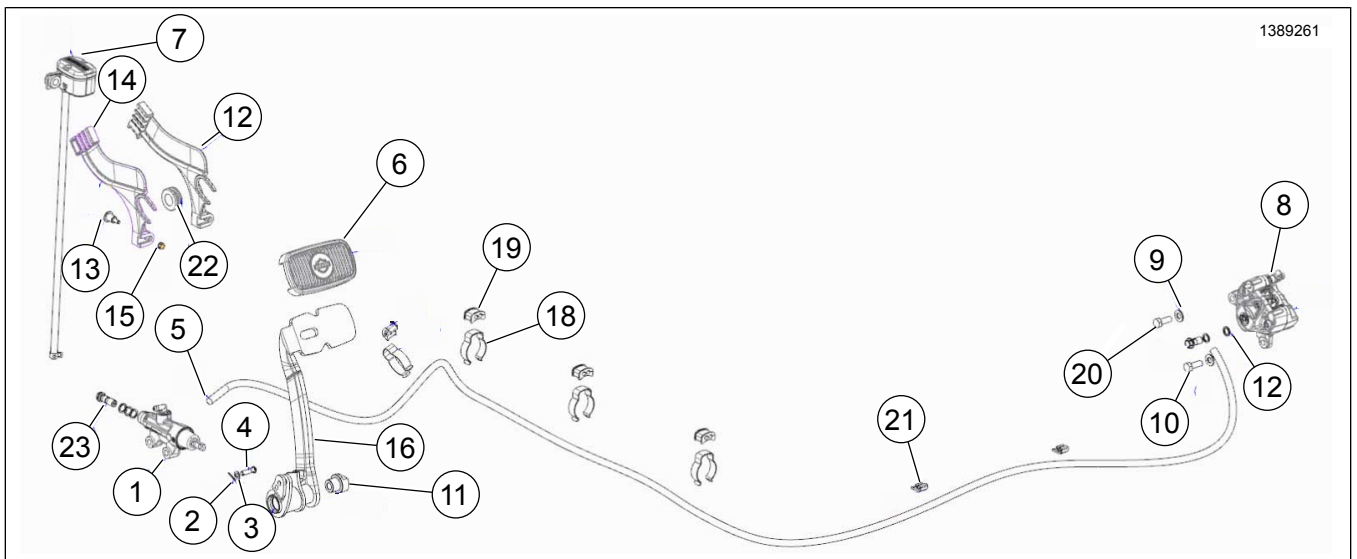


Figure 3-3. Brake Kit

Table 3-3.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02256737	Master cylinder, rear	1			
2	02258235	Cotter pin	1			
3	02258237	Washer, 1/4IDx7/16ODx.036TH	1			
4	02258238	Clevis pin	1			
5	02308071	Brake line	1			
6	02364249	Pad, brake pedal (42416-06)	1			

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
7	02371705	Brake reservoir assembly	1			
8	02390362	Brake caliper	1			
9	02404674	Washer, 5/16IDx11/16ODx1/16TH	1			
10	02407873	Screw 5/16-18x7/8"	1			
11	02409248	Extension shaft, foot brake	1			
12	02410382	Reservoir bracket, sidecar	1			
13	02410390	Screw, shoulder M5	1			
14	02426959	Reservoir bracket, sidecar	1			
15	02426960	Nut, lock, M5	1			
16	02427192	Brake pedal	1			
17	02429160	Gasket, brak eline	5			
18	02429163	Line clamp	4			
19	02429164	Grommet, line clamp	4			
20	02429165	Banjo bolt	1			
21	02510308	Clip, brake line	2			
22	02511112	Grommet	1			
23	02564346	Banjo bolt, double	1			

MOUNTING KIT

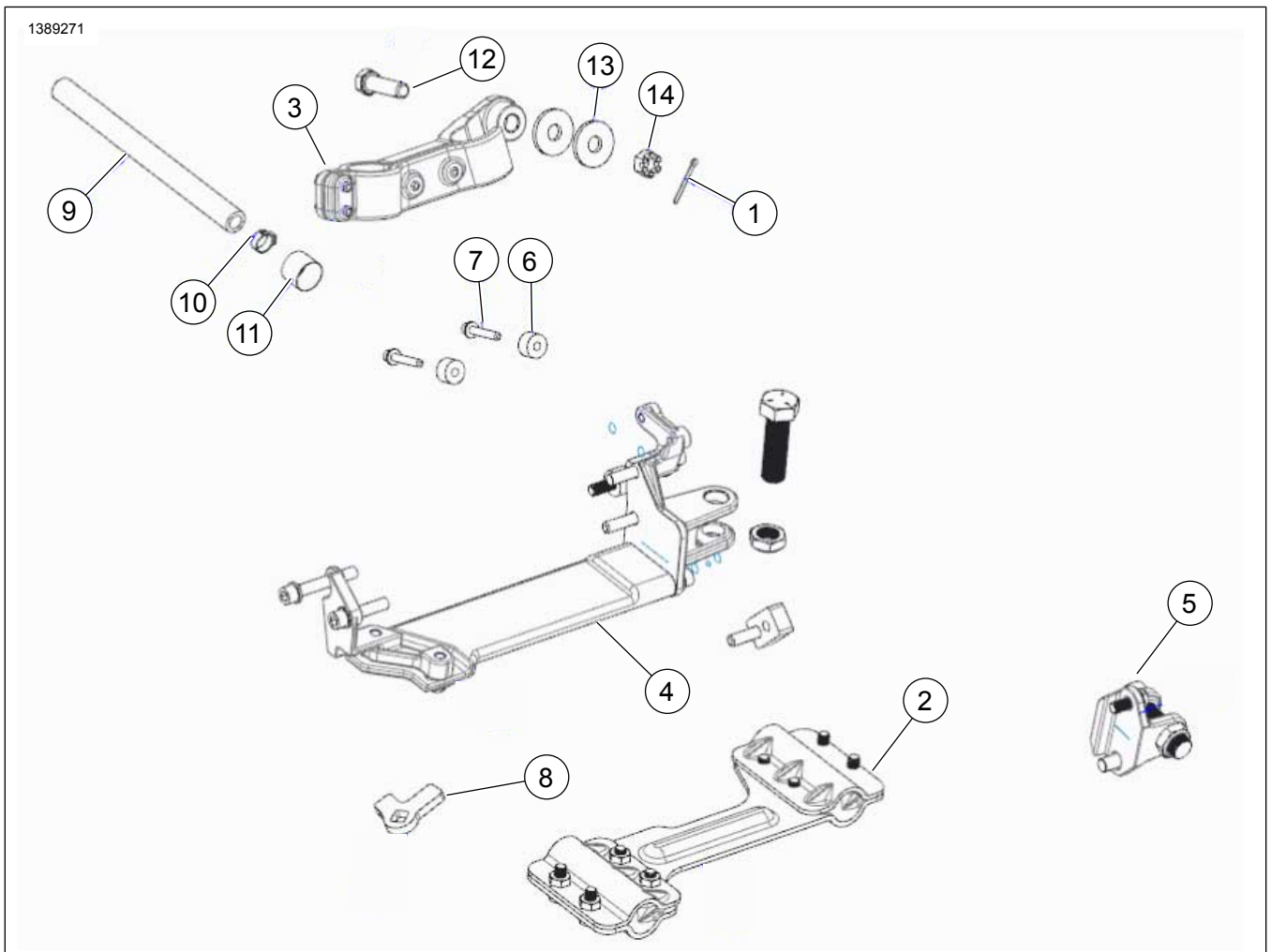


Figure 3-4. Mounting Kit

Table 3-4.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02264741	Cotter pin	1			
2	02389273	Frame stiffener	1			
3	02389802	Top mount	1			
4	02389852	Front mount	1			
5	02389926	Rear mount	1			
6	02429200	Spacer	2			
7	02429306	Screw, 1/4-20x1 1/2"	2			
8	02435579	Jiffy stand inhibitor plate	1			
9	02443068	Oil cooler hose	1			
10	02443146	Crimp clamp, 1/2"	1			
11	02443147	Clamp sleeve, 1/2"	1			
12	02551008	Screw, 1/2-13x1 3/4", clevis	1			
13	02551009	Washer, 1/2IDx1 1/2ODx.156TH	2			
14	02551051	Nut, 1/2-13, slotted	1			

TOP MOUNT KIT

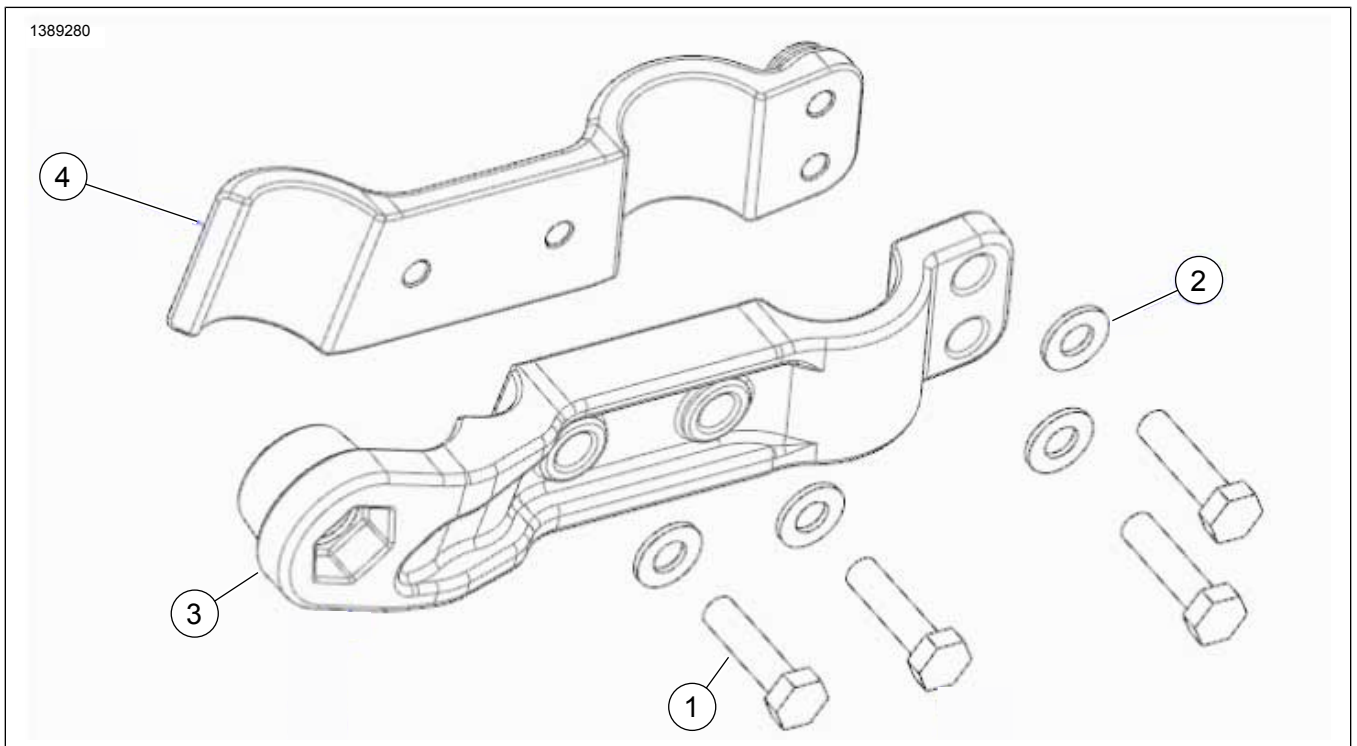


Figure 3-5. Top Mount

Table 3-5.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02404668	Screw, 5/16-18x1 1/4"	4			
2	02404674	Washer, 5/16"	4			
3	02408387	Bracket, front	1			
4	02408392	Bracket, rear	1			

FRONT MOUNT KIT

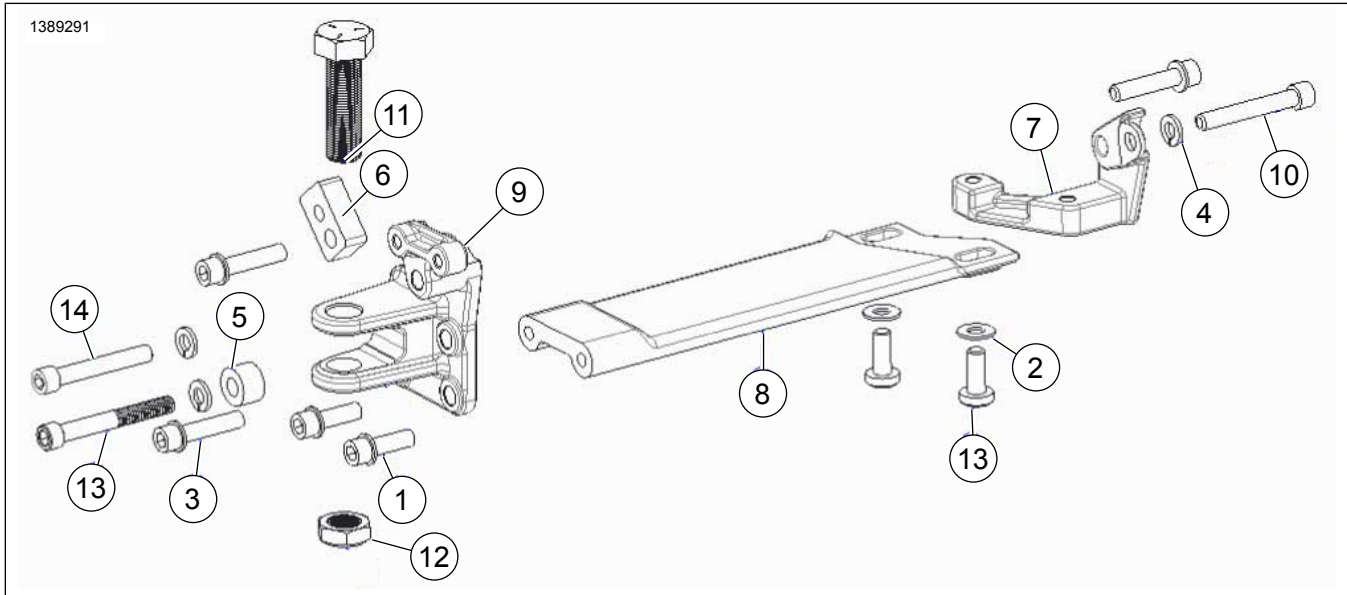


Figure 3-6. Front Mount

Table 3-6.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02404621	Screw, 3/8-16x1 1/4"	2			
2	02404903	Washer, 3/8IDx13/16ODx1/16TH	2			
3	02405048	Screw, 3/8-16x1 3/4"	3			
4	02405076	Washer, 3/8IDx11/16ODx3/32TH	3			
5	02405127	Footboard spacer, front	1			
6	02405128	Footboard spacer, rear	1			
7	02408380	Bracket, bottom left	1			
8	02408383	Bracket, bottom center	1			
9	02408384	Bracket, bottom right	1			
10	02411114	Screw, 3/8-16x2 1/2"	1			
11	02510314	Screw, 3/4-16x2 1/2"	1			
12	02510315	Lock nut, 3/4-16	1			
13	02540440	Screw, 3/8-16x3"	1			
14	02540606	Screw, 3/8-16x2 1/2"	1			
15	02553741	Screw, 3/8-16x1"	2			

REAR MOUNT KIT

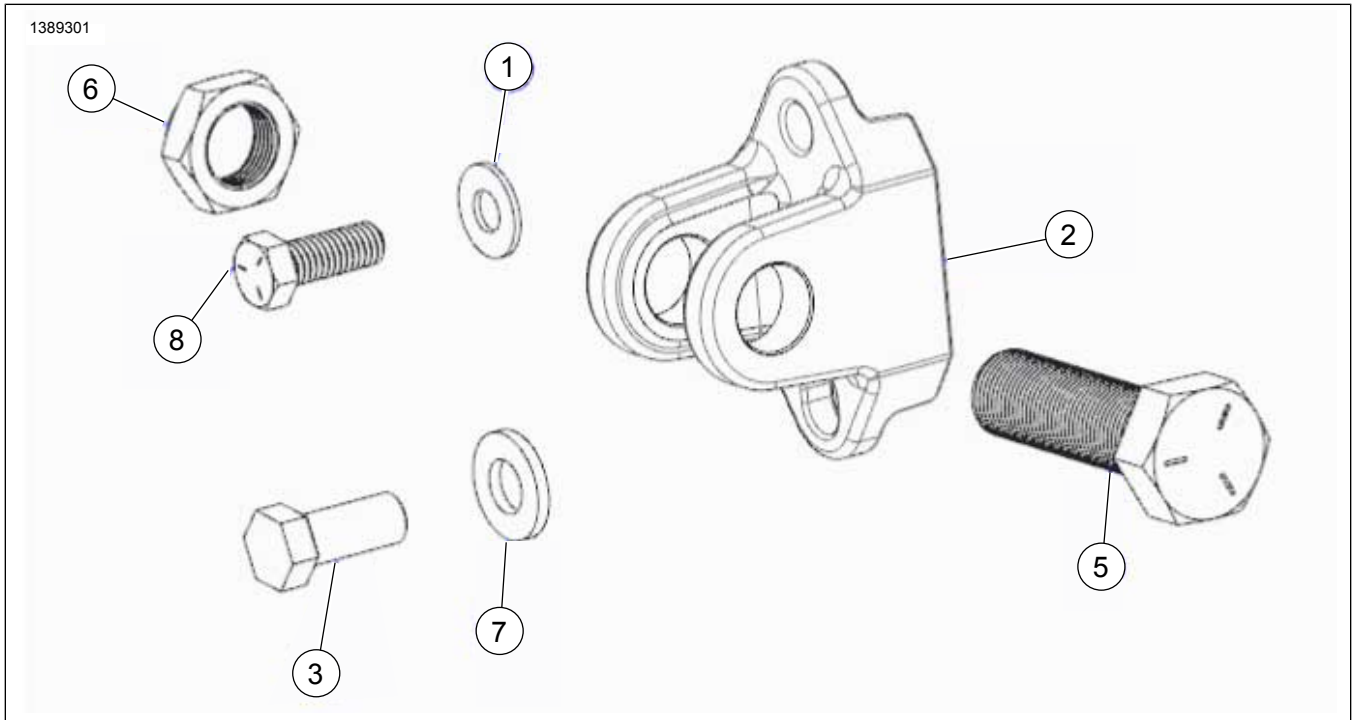


Figure 3-7. Rear Mount Kit

Table 3-7.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02404903	Washer, 3/8IDx13/16ODx1/16TH	1			
2	02408378	Bracket, rear	1			
3	02509477	Screw, 7/16-14x1"	1			
4	02509768	Drill-tap-kit	1			
5	02510314	Screw, 3/4-16x2 1/2"	1			
6	02510315	Lock nut, 3/4-16	1			
7	02540571	Washer, 7/16IDx15/16ODx7/64TH	1			
8	02540574	Screw, 3/8-16x1"	1			

FRAME STIFFENER KIT

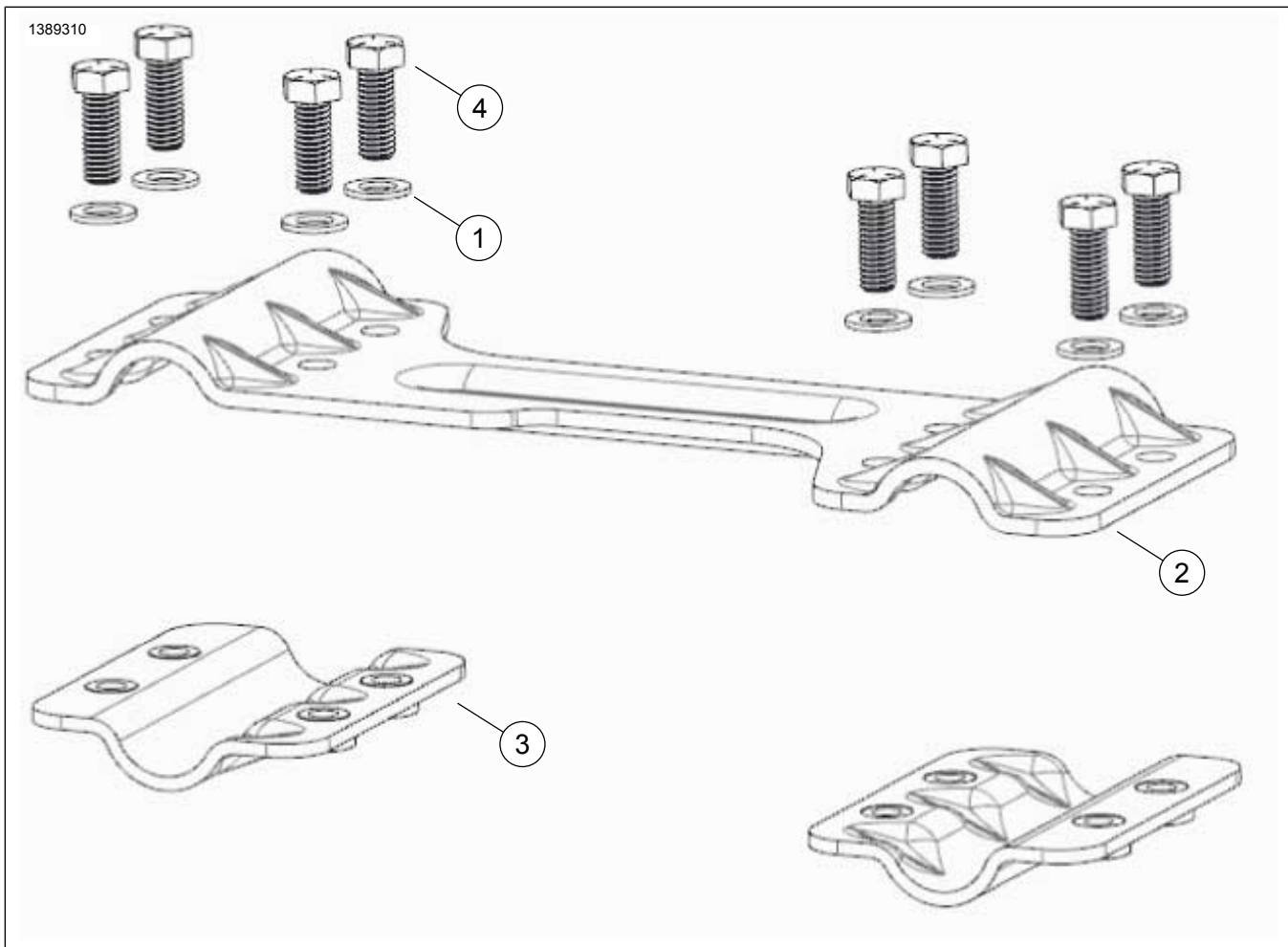


Figure 3-8. Frame Stiffener Kit

Table 3-8.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02254395	Washer, 3/8IDx11/16ODx1/16TH	8			
2	02256743	Frame stiffener (87329-09)	1			
3	02370641	Brace plate	2			
4	02540574	Screw, 3/8-16x1"	6			

SUSPENSION KIT

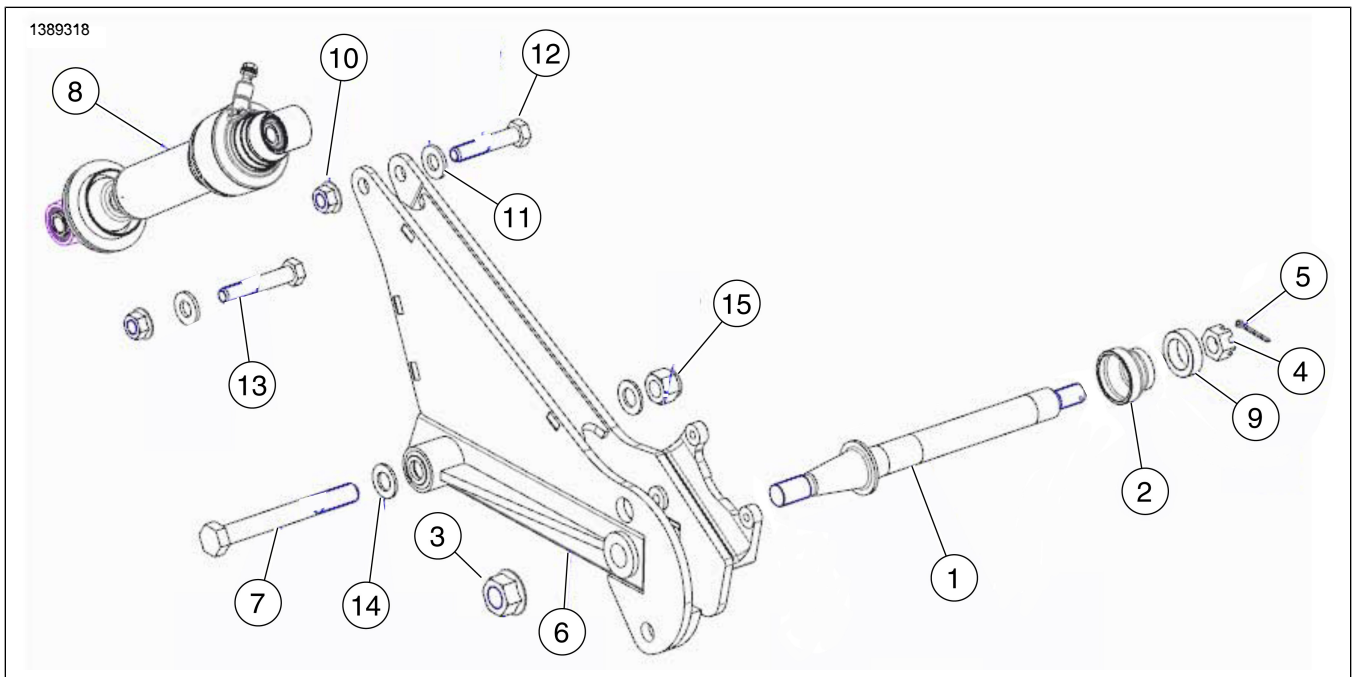


Figure 3-9. Suspension Kit

Table 3-9.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02251437	Axle	1			
2	02251734	Wheel spacer, inner	1			
3	02251748	Nut, 3/4-16, flanged	1			
4	02251820	Nut, 5/8-16, slotted	1			
5	02264741	Cotter pin	1			
6	02310923	Swingarm	1			
7	02370731	Screw, 5/8-18x5 1/2"	1			
8	02390370	Shock absorber	1			
9	02428753	Fender spacer	1			
10	02442975	Locknut, 1/2-13, flanged	2			
11	02442977	Washer, 1/2IDx1 5/64ODx3/32TH	2			
12	02442979	Screw, 1/2-13x 2 1/2"	1			
13	02442986	Screw, 1/2-13x 2 3/4"	1			
14	02540420	Washer, 5/8IDx1 1/8ODx7/8TH	2			
15	02540426	Locknut, 5/8-18	1			

ELECTRICAL KIT

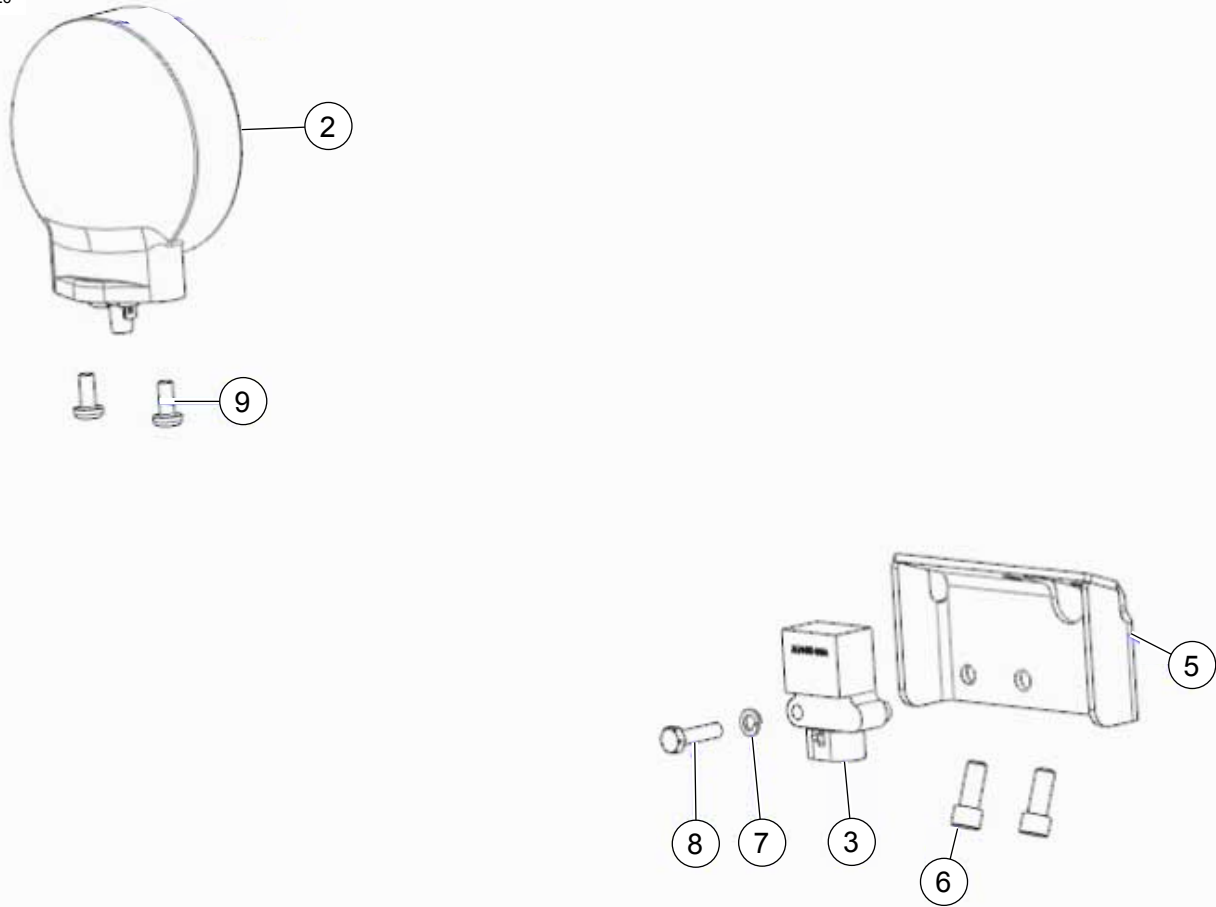


Figure 3-10. Electrical Kit

Table 3-10.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02308075	Sidecar harness	1			
2	02389933	Turn signal lamp	1			
3	02510272	Bank Angle Sensor (BAS)	1			
4	02510286	BAS harness	1			
5	02510301	BAS bracket	1			
6	02510310	Screw, 1/4-20x0.625", cap	2			
7	02510312	Spring washer	1			
8	02510313	Screw, 10-24x0.735"	1			
9	02511087	Screw, 10-24x7/16"	2			

BODYWORK KIT

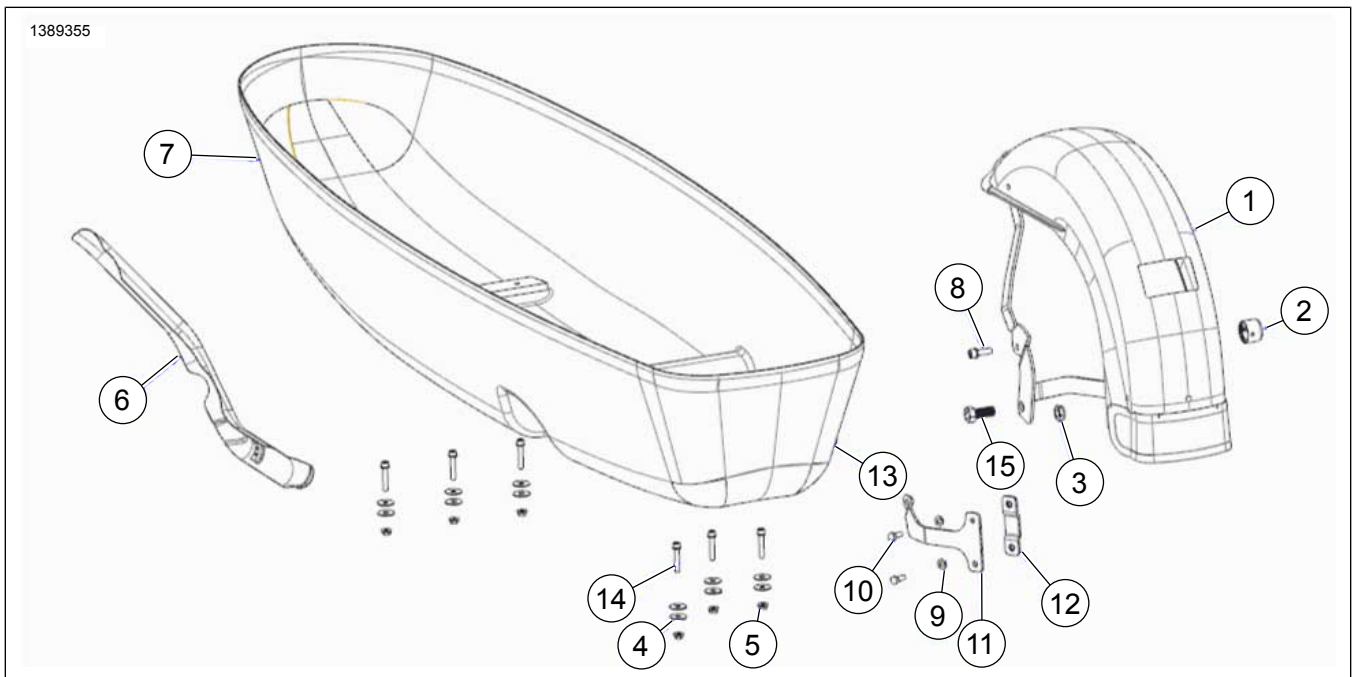


Figure 3-11. Bodywork Kit

Table 3-11.

ITEM	PART NUMBER	DESCRIPTION	QTY.	FITMENT INCLUDES	FITMENT EXCLUDES	FITMENT REQUIRES
1	02251792	Fender	1			
2	02251813	Fender nut (87705-79)	1			
3	02251839	Locknut, thin, 5/8-18	1			
4	02254371	Washer, 38IDx1 1/8ODx1/16TH	12			
5	02254373	Locknut, flanged, 5/16-18,	6			
6	02333732	Exhaust shields	1			
7	02403820	Sidecar tub	1			
8	02404621	Screw, 3/8-16x1 1/4"	1			
9	02404674	Washer, 5/16IDx11/16ODx1/16TH	2			
10	02407873	Screw, 5/16-18x7/8"	2			
11	02515520	Fender brace	1			
12	02538659	Fender support bracket, rear	1			
13	02540420	Washer, 5/8IDx1 1/8ODx7/8TH	1			
14	02540580	Screw, 5/16-18	6			
15	02540604	Screw, 5/8-18x1 1/2"	1			

NOTES

SUBJECT

PAGE NO.

4.1 TROUBLESHOOTING.....4-1

NOTES

HANDLING

Install and attach the sidecar following the procedure in INSTALL SIDECAR (Page 2-18), beginning with the installation and making basic adjustments.

Road test the motorcycle and sidecar and readjust as necessary. If problems still exist, Refer to Table 4-1. or Table 4-2.

▲ WARNING

Overloading the motorcycle/sidecar can adversely affect stability, handling and braking efficiency, which could result in death or serious injury. Distribute weight so axle and tire capacities are not exceeded. (00105a)

NOTE

- Do not exceed the weight limits of the Tour-Pak.
- All additional weight should be added to the sidecar when loading the vehicle.
- If only one passenger is carried, the passenger must be in the sidecar.
- If two passengers are carried, the heavier passenger should be in the sidecar and the lighter passenger on the motorcycle.
- Do not operate the vehicle with both rider and passenger on motorcycle and no load added to the sidecar.

ALIGNMENT

Toe-In

Sidecar wheel toe-in gives the sidecar a slight bias toward the motorcycle to counteract the drag of the sidecar. Too much toe-in will cause rapid tire wear. Not enough toe-in will cause the motorcycle/sidecar to pull excessively to the right.

NOTE

- Toe-in depends on rider preference. H-D suggests 1 degree increments of change.
- When the toe-in adjustment has been made, lift the sidecar off the ground, then gently lower again to relax the suspension system and allow for the drag.

Set toe-in at Dimension: $\frac{3}{4}$ -1 in (19-25 mm).

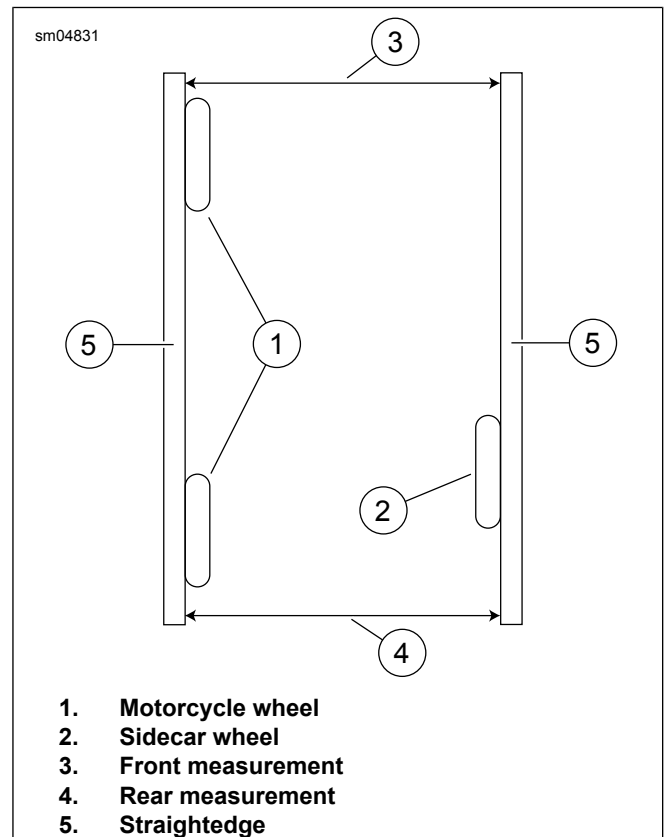


Figure 4-1. Toe-in Adjustment

Lean-Angle

The purpose of lean-angle is to counteract the drag of the sidecar. Too much lean-angle will result in excessive pull to the right. Too little lean-angle will result in excessive pull to the left. Make this adjustment WITHOUT the rider. As the rider weight is applied, the vehicle lean-angle will shift toward 0 degree or a neutral position. Rider weight can alter the set-up angle and therefore, vehicle handling.

See Figure 4-2. Set motorcycle lean-angle 1 degree TOWARD sidecar.

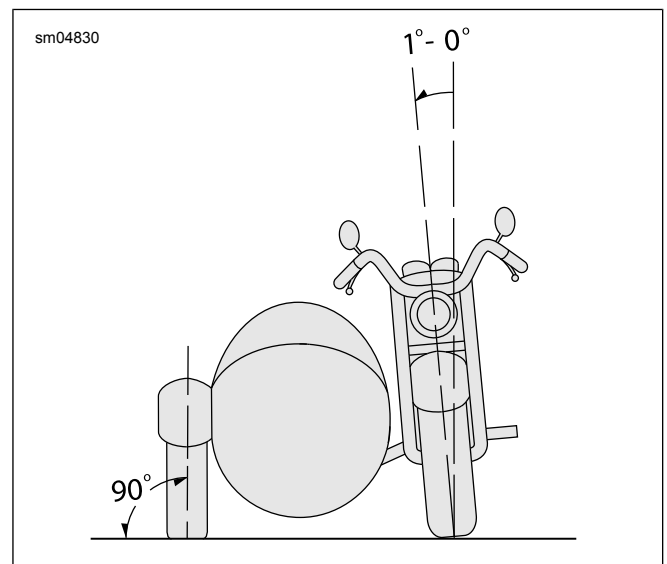


Figure 4-2. Motorcycle Lean-angle

SETUP ADJUSTMENTS

For adjustment procedures, see Adjustments in INSTALL SIDECAR (Page 2-18).

Table 4-1. Alignment

ALIGNMENT PROBLEMS	SOLUTIONS
Motorcycle/Sidecar pulls to right on level road and left turns require high steering effort.	Motorcycle lean-angle should be adjusted AWAY from sidecar.
Motorcycle/Sidecar pulls to left on level road and right turns require high steering effort.	Motorcycle lean-angle should be adjusted TOWARD sidecar.
Sidecar lifts easily on right-hand turns.	1. Check for correct toe-in. 2. Add weight to sidecar.
Motorcycle/sidecar wobbles.	1. Check/replace steering damper. 2. Check for correct tire pressure and tire condition. 3. Balance front wheel. 4. Check rear fork bushing/bearings for excessive play.

Table 4-2. Troubleshooting

PULLS RIGHT	PULLS LEFT	HARD TO TURN RIGHT	HARD TO TURN LEFT	SIDECAR LIFTS EASILY	SIDECAR WOBBLER	EXCESSIVE TIRE WEAR	SIDECAR BODY BOUNCE	SOLUTION
X			X					Adjust lean-angle AWAY from sidecar.
	X	X		X				Adjust lean-angle TOWARD sidecar.
					X			Replace worn/damaged shocks.
					X			Replace with stiffer shocks.
					X			Replace steering damper.
					X			Check/repair front fork bearings.
					X			Balance front wheel.
		X	X		X	X		Check/adjust tire pressure.
					X			Replace rear fork bushings.
					X			Tighten sidecar frame fasteners.
				X			X	Add weight to sidecar.
						X		Decrease toe-in.
X								Increase toe-in.

Torque Values

FASTENER	TORQUE VALUE		NOTES
Axle nut, inner	85–90 ft-lbs	115–122 N·m	2.3 FRAME AND FRAME COMPONENTS, Assemble Swingarm
Fender support brace bolt	30–35 ft-lbs	40.7–47.5 N·m	2.3 FRAME AND FRAME COMPONENTS, Fender Brace
Frame stiffener bolts, inner	89–106 in-lbs	10–12 N·m	2.2 INSTALL SIDECAR MOUNTS, Frame Stiffener
Frame stiffener bolts, outer	89–106 in-lbs	10–12 N·m	2.2 INSTALL SIDECAR MOUNTS, Frame Stiffener
Left hand lower mount and footrest bolts	35–40 ft-lbs	47–54 N·m	2.2 INSTALL SIDECAR MOUNTS, Lower Mount
Lower mount center bracket bolts	35–40 ft-lbs	47–54 N·m	2.2 INSTALL SIDECAR MOUNTS, Lower Mount
Rear mount lower bolt	34–42 ft-lbs	46–57 N·m	2.2 INSTALL SIDECAR MOUNTS, Rear Mount
Rear mount upper bolt	30–36 ft-lbs	40–49 N·m	2.2 INSTALL SIDECAR MOUNTS, Rear Mount
Reservoir mount screw, rear	15–20 ft-lbs	20.3–27.1 N·m	2.5 BRAKE SYSTEM, Rear Brake Reservoir
Right hand bracket bolts, lower frame mount	35–40 ft-lbs	47–54 N·m	2.2 INSTALL SIDECAR MOUNTS, Lower Mount
Right hand footrest bracket bolts	30–35 ft-lbs	41–48 N·m	2.2 INSTALL SIDECAR MOUNTS, Right Hand Footrest
Steering damper bracket mounting screws	97–124 in-lbs	11–14 N·m	2.1 PREPARE MOTORCYCLE, Steering Damper
Upper mount bolts	16–20 ft-lbs	22–27 N·m	2.2 INSTALL SIDECAR MOUNTS, Upper Mount

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