



INSTRUCTIONS

-J04690

REV. 2009-05-15

TLE/TLE-ULTRA SIDECAR ATTACHMENT KIT

GENERAL

⚠ WARNING

TLE and TLE-Ultra sidecars can only be installed on Touring Model family motorcycles. Use of sidecars on motorcycles other than those specified adversely affect handling and reduce braking efficiency, which could result in death or serious injury. (00103a)

Kit Number

87166-09

Models

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

Additional Parts Required

Separate purchase of LOCTITE® 243 Threadlocker and Sealant - Blue (99642-97), LOCTITE 565 Thread Sealant (99818-97) and DOT 4 brake fluid (99953-99A) are required for installation of this kit.

If equipped with lower fairings, the right lower fairing must be replaced with a non-vented version for sidecar applications. Refer to the painted parts manual for additional information.

If equipped with an oil cooler, the oil cooler system must be removed to allow adequate clearance for the sidecar connection components. Separate purchase of an oil filter adapter (26352-95A) is required for proper installation of this kit.

The TLE-Ultra sidecar utilizes the same attaching kit as the TLE sidecar however, additional wiring harnesses (included with TLE-Ultra sidecar) need to be installed to connect the sidecar light harness and radio. Refer to the instructions in the sidecar service manual for harness installation procedures.

A service manual and sidecar service manual are available from your Harley-Davidson dealer. Use the service manuals in conjunction with this instruction sheet to properly install this kit.

NOTICE

D.O.T. 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. (00239b)

⚠ WARNING

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

⚠ WARNING

The rider's safety depends upon the correct installation of this kit. Dealer installation is required for vehicles equipped with ABS brakes. Proper installation of this kit requires the use of special tools available only through a Harley-Davidson Dealer. An improperly serviced brake system can adversely affect brake performance, which could result in death or serious injury. (00578b)

Special Tools Required

For vehicles equipped with oil pressure gauges, a 1-1/16 inch open-end crowfoot wrench (Snap-On FC34A or equivalent) is required for installation of this kit.

Kit Contents

See Figure 16 and Table 1.

REMOVAL

NOTES

Refer to the service manual for more information on these generalized steps.

Save all removed parts (unless otherwise noted) for installation of this kit or for motorcycle operation without the sidecar.

1. **For TLE-Ultra Models:** Remove both lower fairings.
2. Remove the bolt and lockwasher securing the right passenger footrest bracket and remove the bracket with footrest.
3. Remove the three right side exhaust heat shields. Some models may require removal of the right side exhaust pipes.
4. Remove stock clutch cable.
5. Remove rear master cylinder/rear brake pedal assembly. Remove rear brake pedal from master cylinder assembly. Remove and save rubber pedal pad and brake pedal. Discard cotter pin.
6. Cut the cable straps holding front oxygen sensor connector to frame bracket.
7. Remove wire harness/brake line clip from right lower frame tube.

INSTALLATION

New Clutch Cable Installation

1. Refer to the service manual and follow instructions to remove stock clutch cable.
2. Refer to the service manual and follow instructions to connect the new clutch cable to clutch hand lever.
3. **For FLHT/C/CU:** Follow the instructions in the service manual to route new clutch cable through fairing.
4. **For FLHR/C Models:** Capture the cable in a clamp at the left upper passing lamp bolt.
On FLTR models, capture the cable in a clamp at the left upper bolt securing the speedometer and tachometer housing to the upper fork bracket.
These locations are identical with stock cable routing.
5. See Figure 1. Route clutch cable down along left frame downtube (1).
6. Continue to route cable down between left front engine isolator and crankcase. Clutch cable will cross to the right side of motorcycle beneath the crankcase, to the clutch release cover on the right side of the transmission.
7. Install clutch cable fitting into clutch release cover. Refer to the service manual.

NOTES

The final positioning and attachment of the clutch cable and clutch cable adjustment will be performed after sidecar mounts have been installed.

Verify that the clutch cable and the rear brake line do not make contact. Damage could result.

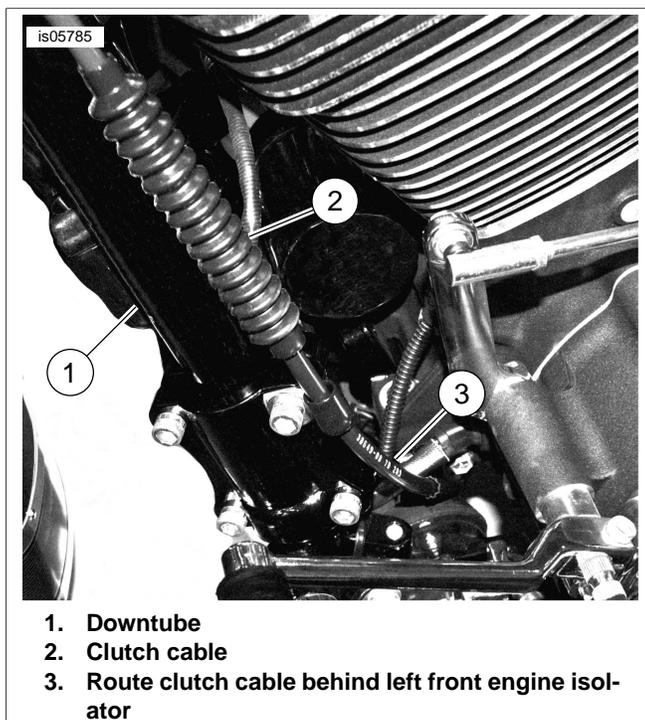


Figure 1. Route Clutch Cable

Relocating Oil Pressure Sending Unit

NOTES

Perform this procedure on all models equipped with an oil pressure gauge or large gauge style sending unit (as shown in Figure 2). All other models proceed to "Master Cylinder Assembly/Rear Brake Pedal Modification."

1. Remove cable strap securing oil pressure wire harness to frame.
2. Locate the latch on connector to oil pressure sender (next to lower right frame downtube). Raise latch on connector and disconnect connector from oil pressure sender.
3. Remove the oil pressure sender using a 1-1/16 inch open-end crowfoot wrench.
4. See Figure 16. Coat threads of elbow (44) with Loctite 565 and install into crankcase oil pressure sender threads.
5. See Figure 2. Install elbow (1) until snug so open end is in the five-o'clock position (2). Do not over-tighten or crankcase may be damaged.
6. Coat threads of oil pressure sender with Loctite 565 and install into 90 degree brass elbow. Use a 1-1/16 inch open-end crowfoot and tighten to 96-120 **in-lbs** (11-14 Nm).
7. Install connector on oil pressure sender unit. Verify that slight clearance to the right engine isolators is present. Adjust position of elbow as required to provide clearance.

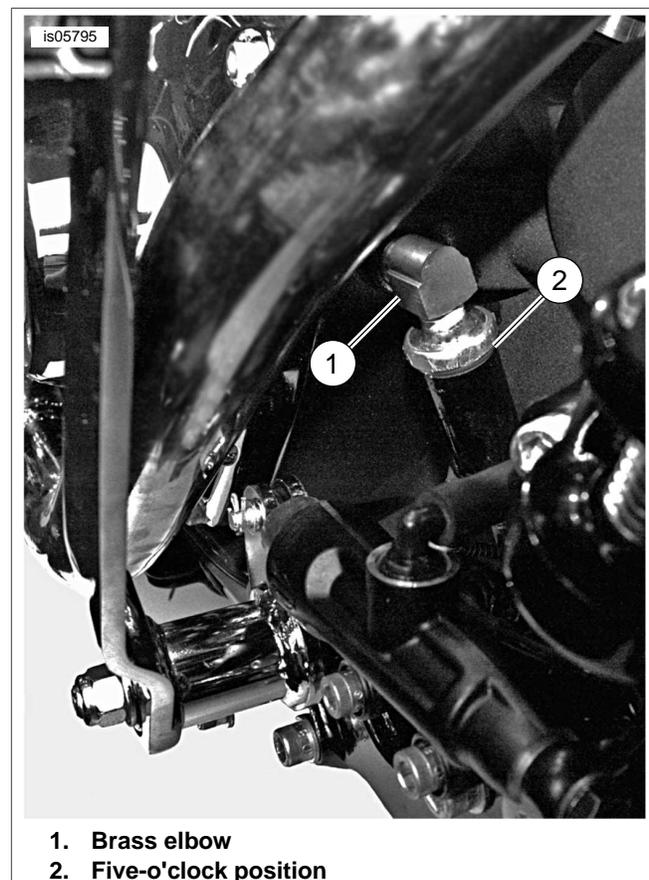


Figure 2. Relocate Oil Pressure Sensor

Master Cylinder/Rear Brake Pedal Assembly Modifications

NOTE

This kit requires that the brake pedal be replaced with shorter brake pedal and new rear master cylinder supplied in kit.

1. Refer to the service manual and remove rear master cylinder/rear brake pedal assembly. Remove rear brake pedal from master cylinder assembly. Remove and save rubber pedal pad, brake pedal and bolts used to attach master cylinder to frame. Discard cotter pin.
2. See Figure 16. Install rubber pedal pad (removed earlier) on new brake pedal (25). Follow instructions in service manual and using a new cotter pin (7), install brake pedal to master cylinder assembly and sidecar master cylinder assembly (45). Set assembly aside for later installation.

Remove Voltage Regulator and Mounting Studs

1. Refer to the service manual and remove the voltage regulator.
2. Drive the original equipment voltage regulator studs out of the frame. Deburr the holes with a 1/4-inch drill bit. Clean any debris from the holes and surrounding area.

Install Lower Frame Crossbrace

1. Remove forward wire harness/brake line clip from right lower frame tube.
2. See Figure 3. Orient lower crossbrace as shown.
3. See Figure 4. Loosely install two crossbrace caps with ribs on caps toward the center of the motorcycle using bolts and washers (2 and 3) with one drop of Loctite 242 on each bolt. Note that right cap is installed under wire harness and brake line.
4. Tighten outer bolts (3) on each side to 90-110 **in-lbs** (10-12 Nm).
5. Tighten inner bolts (2) on each side to 90-110 **in-lbs** (10-12 Nm). 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. Repeat for the other cap.
6. See Figure 3. Verify that crossbrace remained in proper position.
7. See Figure 5. Position a brake line guide (1) 0.063-0.250 inch (1.6-6.4 mm) from crossbrace. Adjust brake line so that it is positioned in the outer groove in the guide. Install cable strap (Item 24, Figure 16) around frame tube securing brake line in the guide. Do not capture wire harness in these cable straps. Verify that brake line does not contact right crossbrace cap.
8. Install cable strap to secure the harness to the frame tube just rearward of frame crossbrace.

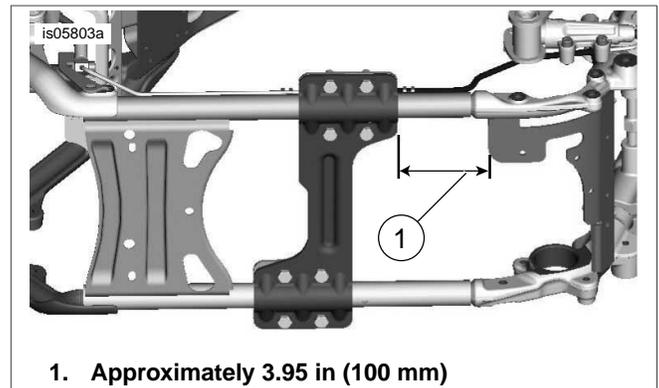


Figure 3. Position Crossbrace (view from under frame)

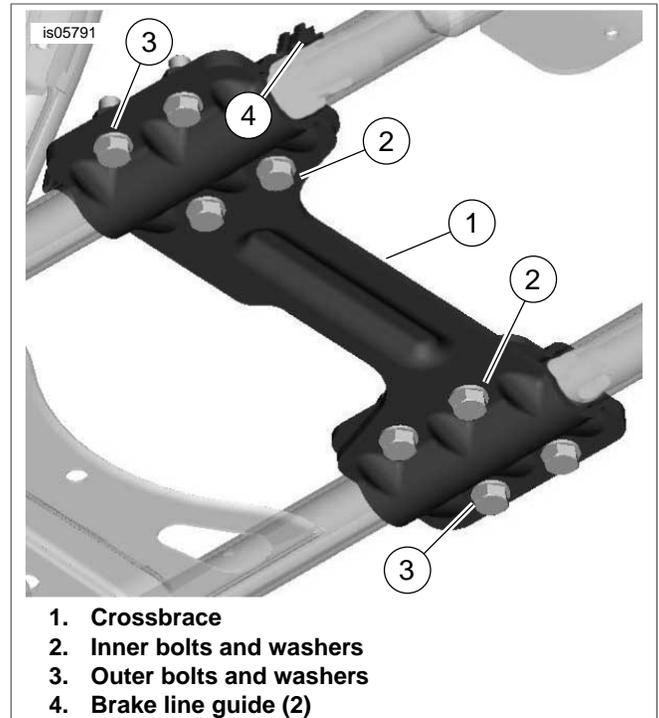


Figure 4. Install Crossbrace (view from under frame)

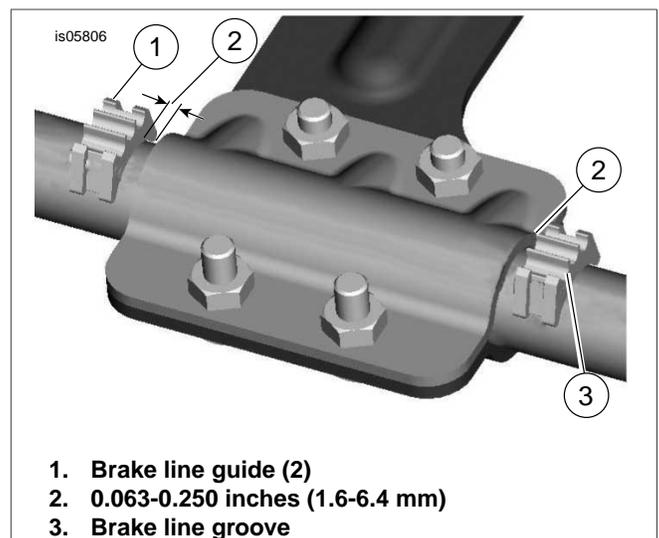


Figure 5. Install Brake Line Guides

Install Upper Mount

1. See Figure 6 and Figure 7. Obtain the rear half of upper mount (1) from kit. Position the clamp on the back of the frame downtubes. The mount is self-aligning and is located correctly when the grooves in the mount mate fully and cleanly with the frame tubes. Slide the clamp up or down on the frame tubes until it is correctly aligned.
2. Install the front half of the upper mount (2) to the rear half with bolts (7) and washers (8). Secure the clamp halves to the frame tubes by tightening bolts to 50-60 ft-lbs (68-81 Nm).

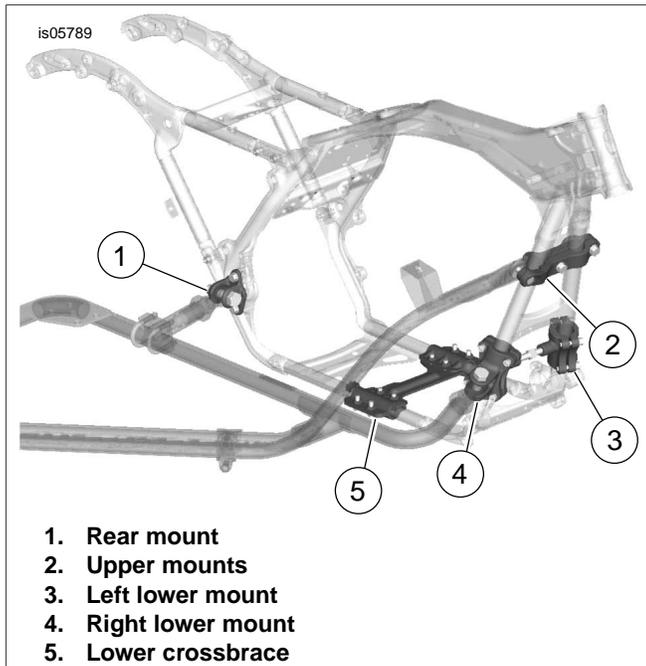


Figure 6. Crossbrace and Mounts Locations

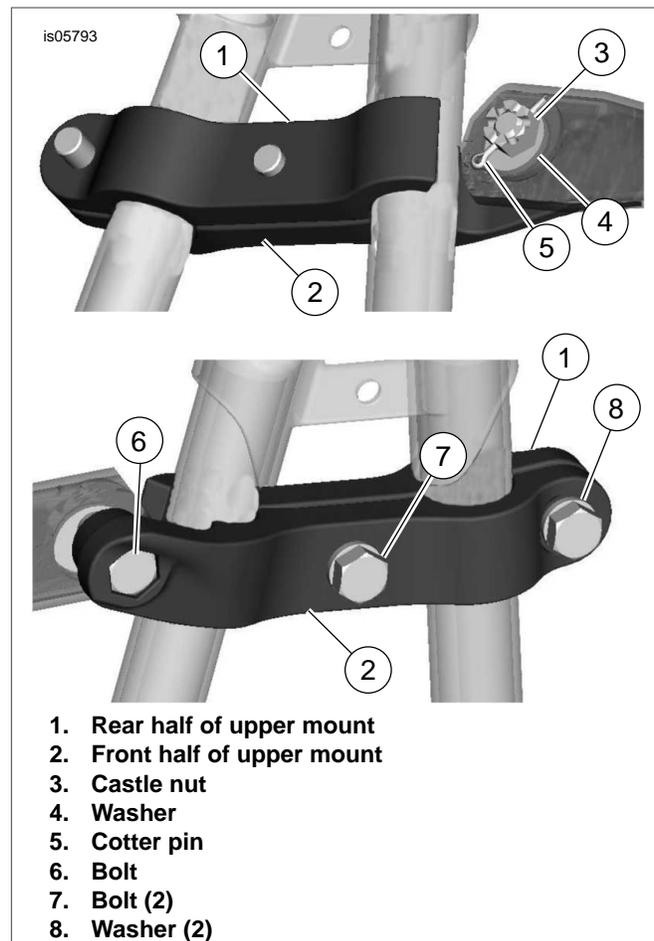


Figure 7. Install Upper Mounts

Install Front Lower Mount

NOTE

When installing the front lower mount, it may be necessary to remove the oil filter to gain clearance for the lower mount during installation. Install the oil filter after lower mount installation.

1. See Figure 8. Completely thread the stabilizer adjuster (1) into the lower right stabilizer (3) and lower left stabilizer (7). The right stabilizer has right hand threads; the left stabilizer has left hand threads.
2. Place the stabilizer assembly between the frame downtubes and tighten the stabilizer adjuster just enough to hold the assembly in place.
3. Position the right mounting bracket (6) on the right frame downtube opposite the right stabilizer (3) and insert four bolts (4) through mount and stabilizer. Finger-tighten bolts.
4. See Figure 16. Obtain the backing plate (29), four bolts (11) and flat washer (14). Install backing plate using four bolts, however use fourth bolt in upper right hand side with washer (14) and clamp (23) and secure clutch cable in place as shown (see Figure 1). Tighten bolts finger-tight.
5. Refer to the service manual and follow instructions to install voltage regulator using two hex head capscrews (6) (installed from below the frame), flat washers (15) and lock nuts (19).

6. Tighten the screws to 70-100 in-lbs (7.9-11.3 Nm). Verify that the cap screws have pulled completely into the hole in the frame.

NOTES

Check that clearance between lower front mount assembly and regulator is 0.0625-0.125 inch (1.6-3.2 mm).

Do not raise the lower front mount anymore than needed to obtain 0.0625-0.125 inch (1.6-3.2 mm) clearance at regulator. Raising front mount higher may cause contact with the rear brake reservoir.

7. Move entire front mount assembly up if there is less than 0.0625-0.125 inch (1.6-3.2 mm) clearance at voltage regulator.

NOTE

Do not over-tighten stabilizer adjuster. Frame down tubes could be forced apart.

8. Turn the stabilizer adjuster with a wrench so the stabilizers press, not pull, firmly against the frame down tubes.
9. Alternate tightening the eight backing plate bolts to maintain equal gaps. Tighten to 35-40 ft-lbs (47.5-54.2 Nm).
10. Check that clearance between lower front mount assembly and regulator is 0.0625-0.125 inch (1.6-3.2 mm). Adjust if necessary.
11. Verify that the front oxygen sensor harness is routed out-board of the lower mount to prevent contact with the exhaust pipe and heat shield hardware.

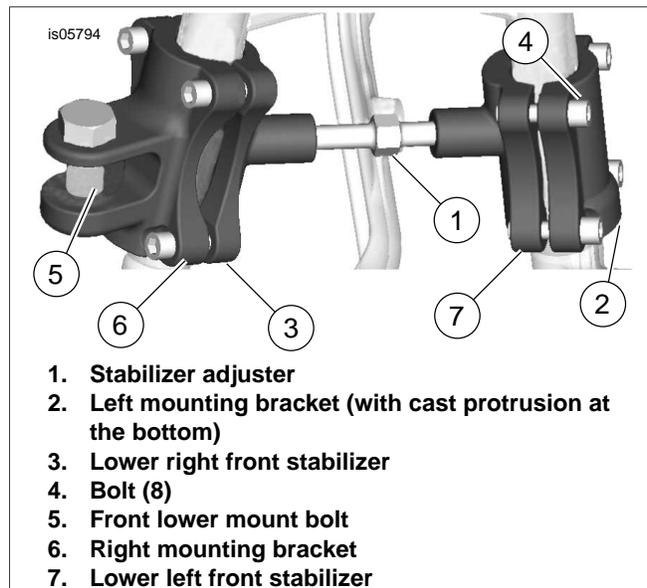
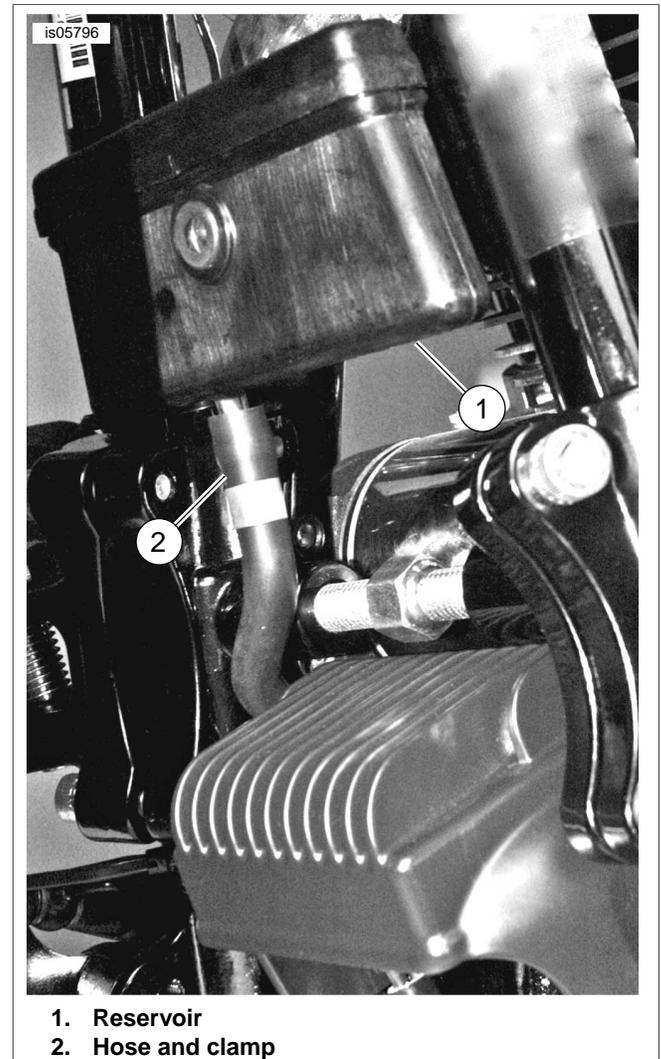


Figure 8. Install Front Lower Mount

Install Remote Master Cylinder Reservoir

1. See Figure 16. Obtain remote reservoir (46), two flat washers (48), two lock washers (47) and two socket head screws (49) from kit.
2. See Figure 9. Orient reservoir (1) on wheel side of frame downtubes and install to frame crossmember as shown. Tighten the reservoir mounting screws securely. Do not install hose and clamp (2) at this time.

3. Verify clearance between reservoir and stabilizers installed in previous step. If contact exists, the stabilizers must be repositioned closer to voltage regulator.

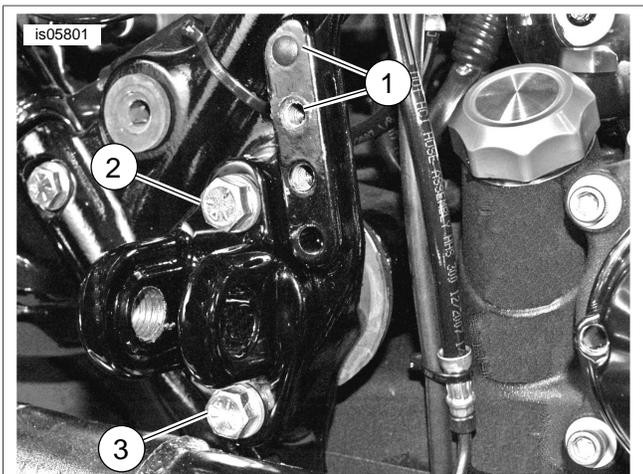


1. Reservoir
2. Hose and clamp

Figure 9. Brake Cylinder Reservoir

Install Rear Mount

1. If not already removed, remove right side cover, both saddlebags and right passenger footrest and bracket.
2. Remove the plugs from the holes in the right side frame boss.
3. See Figure 10. Position the rear mount over the two mounting holes. Install upper and lower mounting bolts and washers (2 and 3) to secure mount to frame. Tighten bolts to 34-42 ft-lbs (46-57 Nm).
4. Install footboards/footrests following the instructions in the service manual.



1. Passenger footrest mounting locations
2. Upper mount bolt with lockwasher
3. Lower mount bolt with lockwasher

Figure 10. Install Rear Mount and Hardware

Attaching Steering Damper Bracket

NOTE

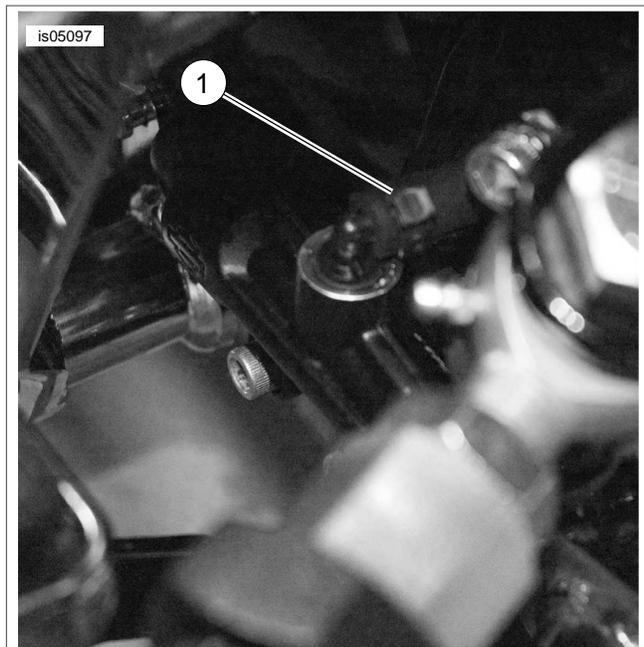
Remove plastic plugs from the three tapped holes in the lower triple clamp if equipped.

1. See Figure 16. Obtain the steering damper bracket (35), three screws (4) and three washers (15) from kit. Install the steering damper bracket to lower triple clamp. Tighten the screws to 96-120 in-lbs (10.8-13.6 Nm).
2. Installation of the remaining parts and adjustment will be performed later as part of final assembly and is covered in the sidecar service manual.

Install Pedal/Master Cylinder Assembly

⚠ WARNING

On 2002 and later motorcycles, the existing brake pedal must be replaced with the pedal supplied in this kit. Failure to replace the original brake pedal could result in contact between the sidecar frame and brake pedal, limiting pedal travel. This decrease of full brake pedal travel can result in loss of control and death or serious injury. (00485b)



1. Lower hose clamp

Figure 11. Brake Reservoir Hose at Master Cylinder

1. See Figure 16. Refer to the service manual. Install the sidecar master cylinder (45) and brake pedal assembly with stock bolts. Verify that the fitting on the sidecar master cylinder is rotated to point inboard. If it is not, gently rotate it inboard.
2. Install banjo bolt with seal washers (53) into master cylinder. Tighten the bolt to 13-15 ft-lbs (17-20 Nm).

NOTE

Do not use excessive force installing hose on master cylinder. Damage to the fitting may occur.

3. Obtain hose (50) and two hose clamps (51) from kit. **See the label on the reservoir hose to identify the correct orientation of the hose to the reservoir and the master cylinder.** Route hose from master cylinder reservoir under stabilizer boss then back down under lower right front mount. See Figure 11 for routing at master cylinder.
4. See Figure 9 and Figure 11. Install hose clamps onto hose. Slide hose onto fitting at reservoir and master cylinder and secure hose clamps.
5. Refer to service manual and install exhaust components. Also install side cover, saddlebags, lower left fairing and other parts/assemblies removed during kit installation.

TLE-Ultra Sidecar

There are additional wiring harnesses that need to be installed to connect the sidecar light harness and the radio for the TLE-Ultra sidecar. See instructions in the sidecar service manual.

Wiring Harness Connections

NOTE

The sidecar harness is included with the sidecar and is not part of the connection kit.

See sidecar service manual for wiring harness connection procedures.

FINAL ASSEMBLY

Install Sidecar

Install the sidecar following the instructions in the sidecar service manual.

Modify the Jiffy Stand

NOTE

New stop will lock jiffy stand so that it does not contact the frame crossbrace, and will activate the jiffy stand switch on models equipped with that system. After installation, the stop will prevent the jiffy stand from being deployed.

1. See the service manual and remove bolt retaining jiffy stand stop.
2. Remove and retain stock jiffy stand stop for use if sidecar is removed in the future.
3. See Figure 12. Install new jiffy stand stop (1) 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).

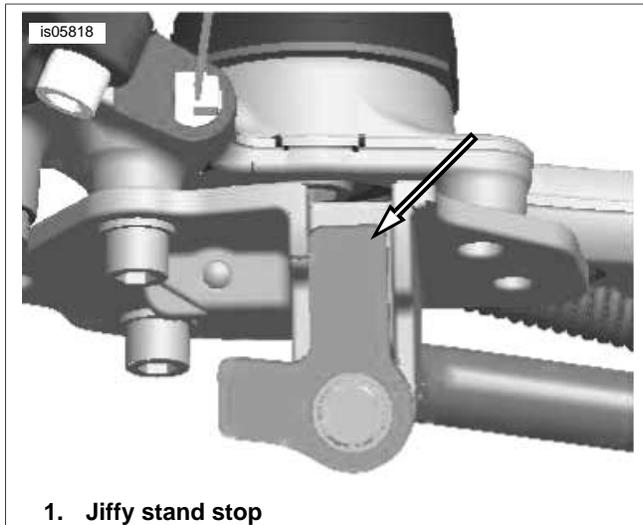


Figure 12. Install Jiffy Stand Stop

Install Brake Line

1. See Figure 13. Route the brake line from sidecar to the motorcycle in front of rear mount. The sidecar brake line will run along with the motorcycle brake line as it is routed to the rear caliper. Verify that sidecar brake line is clear of rear fender and rear wheel/tire.
2. See Figure 14. The sidecar and motorcycle rear brake lines stack up on the rear caliper using a double stack banjo bolt (4).
3. Install a gasket washer (1) on double stack banjo bolt (4).
4. Insert double stack banjo bolt through sidecar brake line banjo fitting.
5. Install second gasket washer (1).
6. Insert banjo bolt through motorcycle brake line banjo fitting.
7. Install third gasket washer (1) and install bolt into caliper.
8. See Figure 14. Position brake lines as shown and tighten the banjo bolt to 19-22 ft-lbs (26-30 Nm).

9. Secure the sidecar brake line to the rear motorcycle brake line with a cable strap. Install the cable strap between the two retention clips on the rear swing arm.

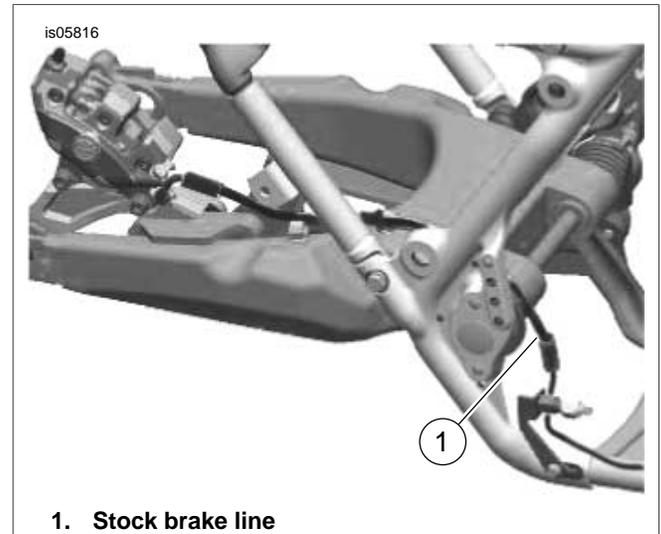


Figure 13. Stock Brake Line Routing (non-ABS brake system shown)

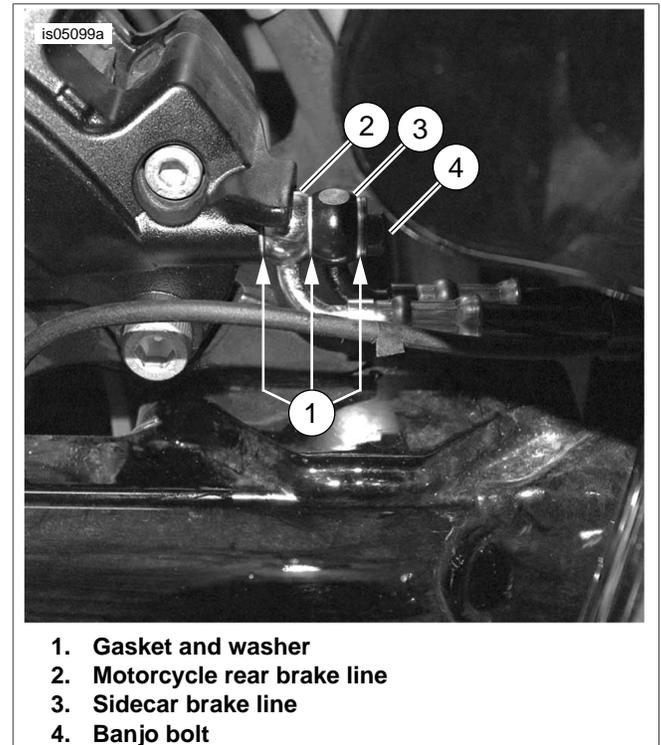


Figure 14. Brake Line Stack Up

Return to Service

1. See Figure 15. Install two cable straps (1) between the brake reservoir and frame bracket to secure front oxygen sensor connector (3) to the back of the frame bracket.

WARNING

Be sure that sidecar brake is functioning properly. An improperly functioning sidecar brake can adversely affect vehicle handling, which could result in death or serious injury. (00109a)

2. Refer to service manual. Fill reservoir with **DOT 4 brake fluid** and bleed sidecar and rear motorcycle brakes.
3. See Figure 16. Install reservoir gasket (39), cover (26) and screws (49). Tighten the reservoir cover to 6-8 in-lbs (0.7-0.9 Nm).

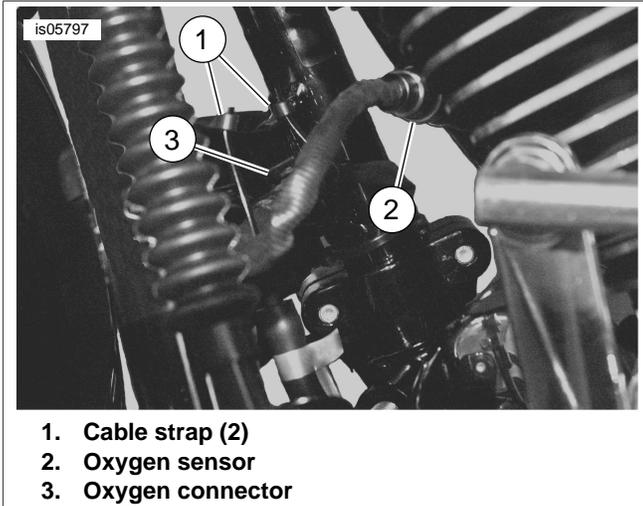


Figure 15. Secure Oxygen Sensor Connector

⚠ WARNING

Use only Harley-Davidson approved tires. See a Harley-Davidson dealer. Using non-approved tires can adversely affect stability, which could result in death or serious injury. (00024a)

SERVICE PARTS

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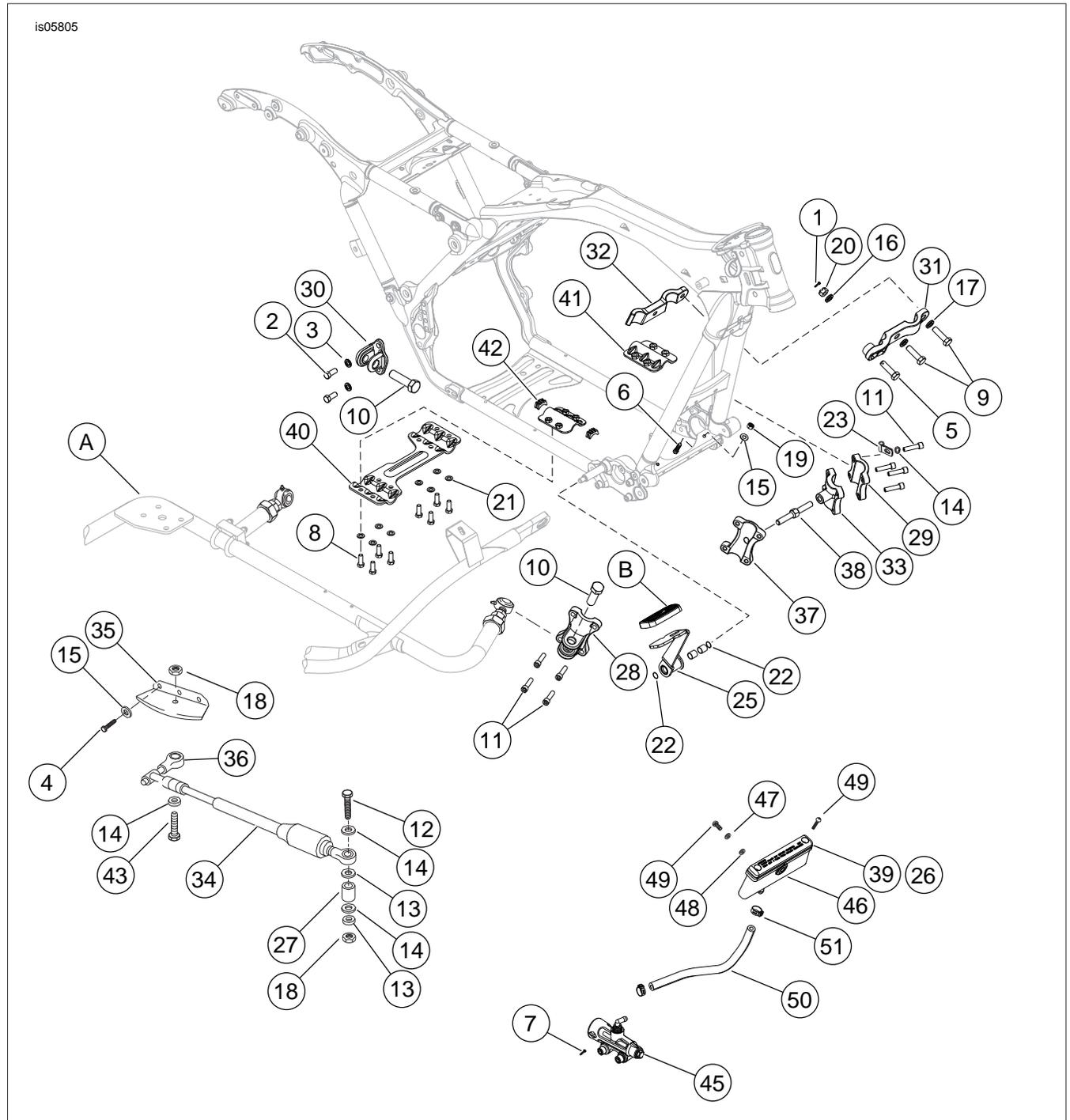


Figure 16. Service Parts: Sidecar Connection Kit

SERVICE PARTS TABLE

Table 1. Service Parts Table: Sidecar Mounting

Item	Description (Quantity)	Part Number	Item	Description (Quantity)	Part Number
Kit 87166-09					
1	Cotter pin	559	31	Clamp, outer front	87131-09
2	Screw, 7/16-14 x 1.0 inch (2)	3854	32	Clamp, inner front	87132-09
3	Lockwasher, 7/16 inch (2)	7039	33	Stabilizer mount, left lower front	87137-09
4	Screw, 1/4-20 x 0.625 inch (3)	3892	34	Steering damper	87141-83
5	Bolt, 1/2-13 x 1.75 inch	3902A	35	Bracket, steering damper	87143-83
6	Bolt, 1/4-20 x 1.25 inch (2)	3993	36	Ball joint, rod end	87144-83
7	Cotter pin	515	37	Stabilizer mount, lower front, right	87148-09
8	Screw, 3/8-16 x 1.0 inch (8)	2879W	38	Stabilizer adjuster	87156-83
9	Bolt, 1/2-13 x 1.75 inch (2)	4052	39	Gasket, reservoir	42455-07
10	Screw, 3/4-10 x 2.25 inch (2)	4151	40	Bracket, lower crossbrace	87329-09
11	Screw, 3/8-16 x 1.5 inch (8)	4356	41	Cap assembly, lower crossbrace (2)	87330-09
12	Screw, long, 3/8-16 x 2.75 inch	4420	42	Guide, triple brakeline (2)	42891-07
13	Washer, 13/32 x 1-1/32 x 1/8 inch (3)	6519	43	Bolt, short, 3/8-16 x 1.50 inch	4721
14	Washer, 3/8 inch (4)	6701	44	Elbow (not shown)	26337-99B
15	Washer, 1/4 inch (5)	6703	45	Master cylinder assembly	42735-08A
16	Washer, 17/32 x 1-1/2 x 9/64 inch	6723	46	Reservoir	41804-07A
17	Lockwasher, 0.50 inch (2)	7068	47	Lockwasher, #10 (2)	7069
18	Locknut, 3/8-16 inch (2)	7601	48	Washer, #10 (2)	6716
19	Locknut, flange, 1/4-20 inch (2)	7716	49	Screw, socket head, #10-24 x 0.50 inch (4)	2528
20	Nut, 1/2-13 inch	7843	50	Hose	42365-08
21	Washer, 3/8 inch (8)	6812	51	Clamp (2)	10038A
22	O-ring (2)	11364	52	Cable, clutch control (not shown)	38649-08A
23	Clamp, clutch cable retainer	42327-70	53	Gasket, brake line (not shown)	41751-06A
24	Cable strap (10) (not shown)	10006	54	Bolt, banjo (not shown)	4848A
25	Brake pedal assembly, rear	42631-08	55	Stop, jiffy stand (not shown)	50034-09
26	Cover, reservoir	45057-07			
27	Spacer, mounting	59938-72	Items referenced in text but not included in kit:		
28	Mounting bracket, right	87122-09	A	Sidecar frame	
29	Mounting bracket, left	87123-09	B	Stock rubber brake pedal pad	
30	Bracket, rear	87114-09			