



INSTRUCTIONS

-J00803

REV 07-15-03

Kit Number 87166-99A

TLE/TLE-ULTRA SIDECAR ATTACHMENT KIT

WARNING

ONLY FLT Model Harley-Davidson Motorcycles are suitable for sidecar use. Consult your Harley-Davidson Dealer. Use of vehicles other than FLT models for this purpose could result in death or serious injury.

General

This kit is designed and provides the mechanical components required to attach the TLE/TLE-Ultra Sidecar to 1999 and later FLT Model Motorcycles. This kit also contains the components and procedures required to install the Steering Damper Kit (Part Number 87142-83A). See Service Parts Page Illustration for kit contents.

NOTE

- *Configuring Turn Signal/Security System Modules (TSM, TSSM) - See following two notes:*
- *2000 to 2002 models equipped with the following Part No. modules should be configured to sidecar use:*
 - 68920-01, 68920-01A*
 - 68922-00, 68922-00A*
 - 68924-00, 68924-00A*
- *On 2003 model motorcycles or motorcycles with later TSM, TSSM configurations, have your Harley-Davidson dealer install a Bank Angle Sensor Switch kit, Part No. 88115-03 and configure the TSM/TSSM for sidecar use. Instruction Sheet -J02377 contains the kit installation instructions and the procedure to reprogram the TSM/TSSM to sidecar operation. The TSM/TSSM will not function properly if not switched to sidecar operation.*
- *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.*
- *An FLT (Touring Model) 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.*

WARNING

The rider's safety depends on the correct installation of this kit. If the following installation procedures are not within your capabilities, or if you do not have the correct tools, have your Harley-Davidson dealer perform this installation. Failure to do the installation correctly could result in death or serious injury.

PRE-INSTALLATION MODIFICATIONS

Before installing the Sidecar Attachment Kit, the following three modifications must be made according to the instructions provided in this Instruction Sheet:

Longer Clutch Cable

The stock clutch cable must be removed and replaced with the longer clutch cable from kit. The new clutch cable will be routed down the left side of the bike versus the right.

Oil Pressure Sender Modification

On motorcycles equipped with oil pressure gauges, the oil pressure sender must be reoriented (downward) using a 90° elbow and close nipple.

Rear Master Cylinder and Rear Brake Pedal Assemblies

The existing rear master cylinder must be modified using components supplied in this kit. This upgrade is necessary for the additional brake (from sidecar). Also, on 2002 and later models, the brake pedal must be replaced with brake pedal supplied in this kit to avoid contact between the sidecar frame and brake pedal. These points are covered in detail later in the Instruction Sheet.

STOCK CLUTCH CABLE REMOVAL

1. Refer to applicable FLT Service Manual and remove right side footboard and entire exhaust system.
2. Refer to applicable FLT Service Manual procedures and remove stock clutch cable.

NEW CLUTCH CABLE INSTALLATION

See Service Parts Illustration. Obtain Clutch Cable (57) from kit. Refer to applicable FLT Service Manual and follow instructions to connect clutch cable to clutch hand lever.

1. For FLHT/C/CU, follow instructions in applicable Service Manual to route clutch cable through fairing.

NOTE

Prior to performing the next step on FLHR/CI 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.

2. See Figure 1. Continue to route clutch cable down along left frame downtube.
3. See Figures 2 and 3. Continue to route cable down behind regulator, over engine stabilizer link and diagonally under crankcase to clutch release cover on right side of transmission.

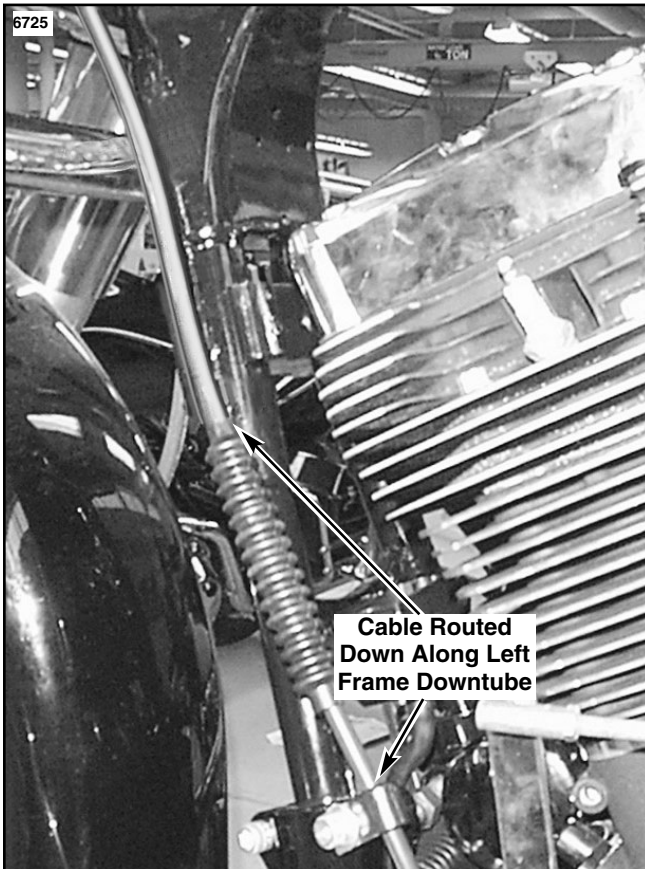


Figure 1. Route Cable Down Along Left Frame Tube (Left Side Shown)

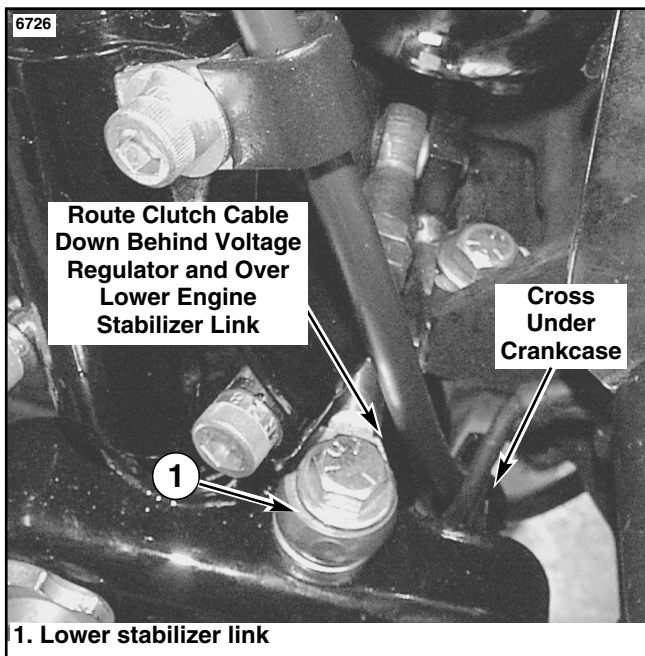


Figure 2. Revised Lower Clutch Cable Routing

4. Follow procedures in applicable FLT Service Manual and install clutch cable fitting into clutch release cover.

NOTE

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

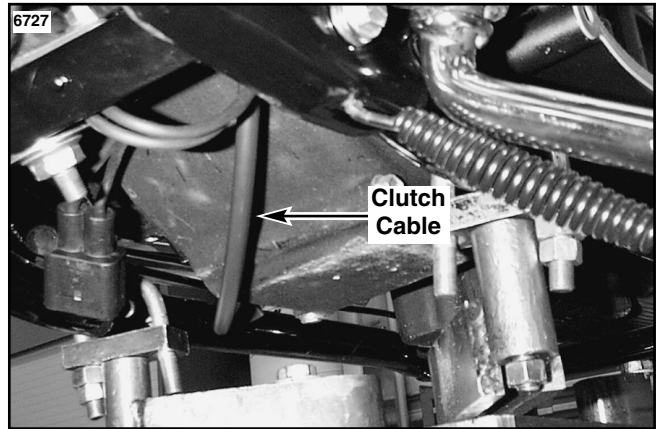


Figure 3. Clutch Cable Routing Under Crankcase (Shown From Left Side Under Jiffy Stand)

CAUTION

Clutch cable and brake line may make contact as shown in Figure 4. Contact between the cable and brake line could result in premature clutch wear (due to cable hanging up). To avoid contact between the brake and clutch cables, perform Steps a and b.

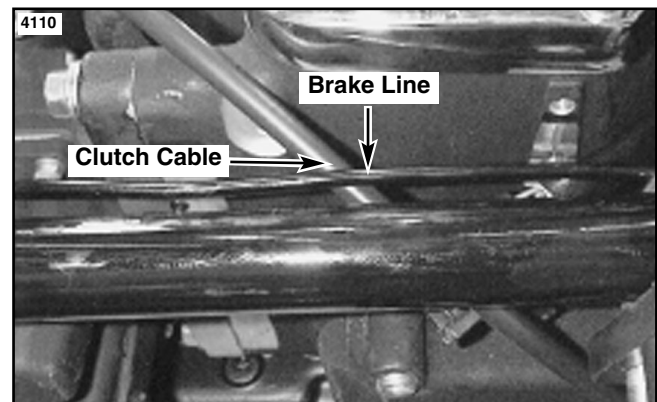


Figure 4. Contact Between Clutch Cable And Brake Line (Right Side View)

- a. See Figure 5. Open the cable clips shown and gently move brake line out of clips and down along inside of lower frame tube.
- b. Check that clutch cable does not touch brake line. See Service Parts Illustration. Obtain two Cable Straps (59) from kit and install under wiring harness, then around frame tube and brake line to secure brake line in new location.

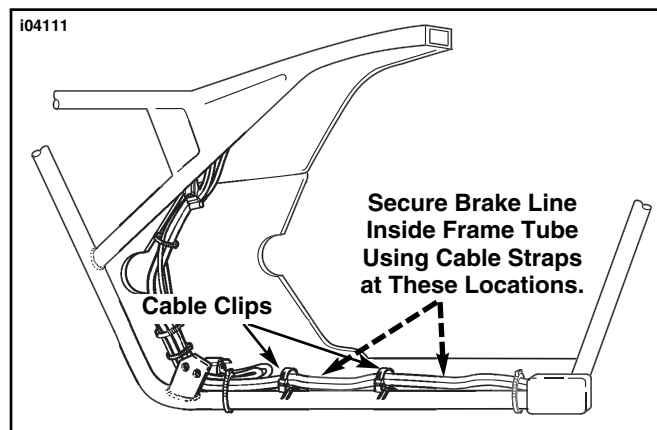


Figure 5. Relocating And Securing Brake Line

RELOCATING OIL PRESSURE SENDING UNIT

NOTE

If motorcycle is not equipped with oil pressure gauge, proceed to "Master Cylinder Assembly/Rear Brake Pedal Modification."

1. Locate the latch on connector to oil pressure sender (next to lower right frame downtube). Raise latch on connector and gently pull to disconnect connector from oil pressure sender.
2. Remove the oil pressure sender using a 1-1/16 inch open end Crow Foot (Snap-On FC34A).
3. See Service Parts Illustration (39) and Figure 6. Obtain the 90 degree brass elbow and brass close nipple from kit. Coat threads on nipple with PIPE SEALANT WITH TEFLON and install to 90 degree brass elbow. Install elbow into oil pressure sender threads and tighten completely. Aim elbow so open threaded end faces downward.
4. Coat threads of oil pressure sender with PIPE SEALANT WITH TEFLON and thread into 90 brass elbow. Using a 1-1/16 inch open end Crow Foot, tighten to 96-120 **in-lbs** (11-14 Nm).
5. Install connector on oil pressure sender unit.

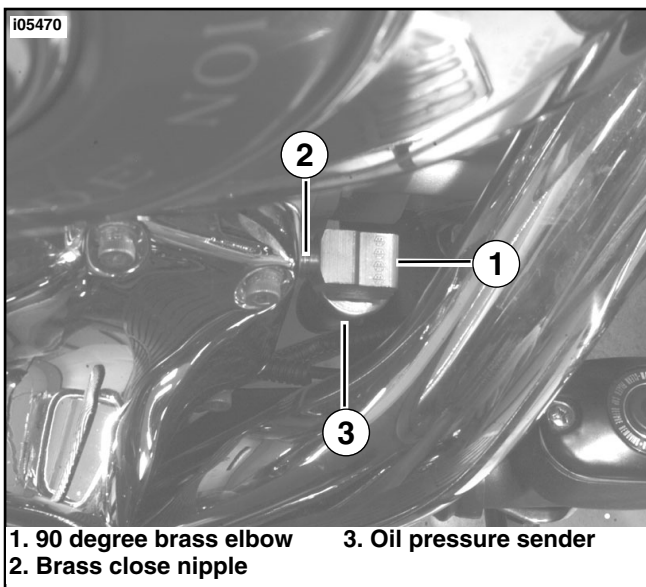


Figure 6. Relocate Oil Pressure Sender

MASTER CYLINDER/REAR BRAKE PEDAL ASSEMBLY MODIFICATIONS

NOTE

2002 and later models require that brake pedal be replaced with shorter brake pedal supplied in kit.

1. Refer to the applicable FLT Service Manual and remove master cylinder/rear brake pedal assembly. Remove rear brake pedal from master cylinder assembly. Remove and save rubber pedal pad and cotter pin. Discard brake pedal and cotter pin.
2. Thoroughly clean exterior of master cylinder assembly with denatured alcohol.
3. Gently lift rubber boot from groove in plastic reservoir and slide boot off reservoir.

4. Grip boot end of reservoir with finger tips and with thumbs push on threaded end of cartridge body to remove cartridge body from reservoir. Use hand pressure only. Exercise care to keep cartridge body free of dirt and grease. Discard reservoir.
5. Carefully remove two O-rings from outside of cartridge body. Exercise caution to avoid scratching O-ring grooves.
6. See Service Parts Illustration. Obtain the new Reservoir Adapter with O-rings (46) from kit. Lubricate O-rings with D.O.T. 5 SILICONE HYDRAULIC BRAKE FLUID and carefully install in grooves on cartridge body.
7. Wipe bore of new reservoir adapter with D.O.T. 5 SILICONE HYDRAULIC BRAKE FLUID.
8. Insert cartridge body into reservoir adapter indexing tab on adapter in slot on threaded end of cartridge. Use hand pressure only. Cartridge body is fully installed when adapter contacts large retaining ring.
9. Slide dust boot as necessary to seat lip in groove of reservoir adapter.
10. See Service Parts Illustration. Obtain new brake pedal (21) from kit. Install rubber pedal pad (removed from old brake pedal in Step 1). Follow instructions in Service Manual and using a new cotter pin, install brake pedal from kit to master cylinder assembly.
11. Set brake pedal/master cylinder assembly aside, it will be installed later.

Install Remote Master Cylinder Reservoir

1. See Service Parts Illustration and Figure 7. Obtain Bracket (43), Remote Reservoir (41), two Flatwashers (50), two Lockwashers (52) and two Screws (38) from kit. Orient reservoir as shown and attach to reservoir bracket. Tighten securely. Do not install hose yet.

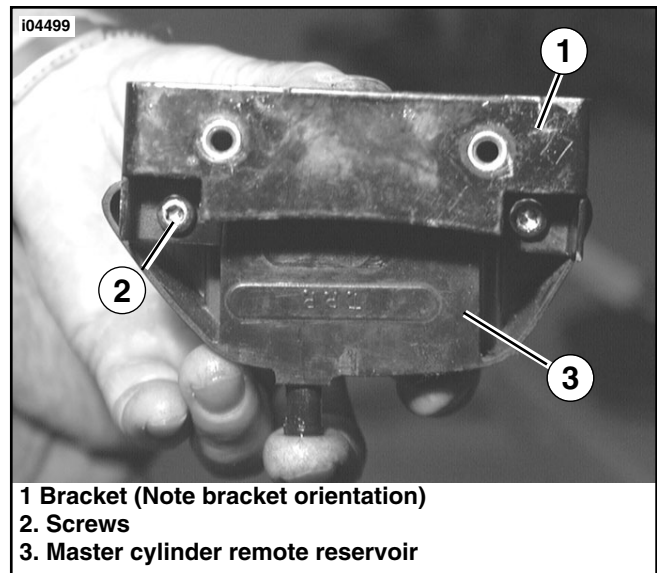


Figure 7. Mount Reservoir To Bracket

2. See Service Parts Illustration and Figure 8. Obtain two Bolts (40) and two Lockwashers (51) from kit. Orient Reservoir/Bracket on engine side of frame downtubes and install to frame crossmember as shown.

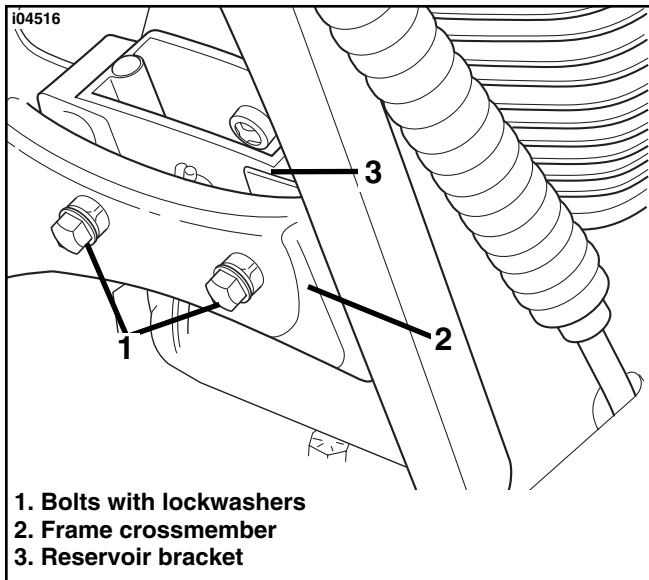


Figure 8. Install Reservoir/Bracket to Frame Crossmember

1. Bolts with lockwashers
2. Frame crossmember
3. Reservoir bracket

Install Upper Mount

1. See Service Parts Illustration. Obtain the rear half of Upper Clamp (7) from kit. Position the clamp at the rear 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. See Service Parts Illustration. Obtain the front half of the Upper Clamp (6), Bolt (12) and Lockwasher (13) from kit. Place the front upper clamp in position and align with rear half. Secure the clamp halves to the frame tubes by tightening bolt to 50-60 ft-lbs (68-81 Nm).

Install Front Lower Mount

NOTE

When performing the following Step, note that stabilizers are marked with an "R" and "L" to indicate right and left respectively. The Right stabilizer is equipped with right-hand threads; the Left Stabilizer is equipped with left-hand threads.

1. See Service Parts illustration. Obtain the Stabilizer Adjuster (22), Left Stabilizer (4) and Right Stabilizer (3). Thread the stabilizer adjuster into the right and left stabilizers. The stabilizers are marked with an "R" and "L" to indicate right and left respectively. The right stabilizer has right hand threads - the left stabilizer, left hand threads.
2. See Figure 9. Place the stabilizer assembly between the frame downtubes from the backside and position the assembly so 1/16 inch clearance exists between assembly bottom and regulator. When clearance is correct, tighten the stabilizer adjuster just enough to hold the assembly in place.
3. See Service Parts Illustration. Obtain the Lower Front Mount (2) and four Bolts (15) from kit. Position the lower front mount on the right frame downtube opposite the right stabilizer and insert four bolts thru mount and stabilizer. Finger tighten bolts.

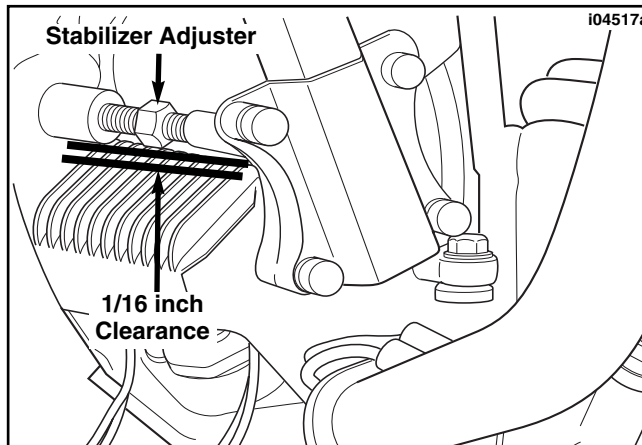


Figure 9. Position Stabilizer Adjuster

4. See Service Parts Illustration and Figure 10. Obtain the Backing Plate, four Bolts (48), Flatwasher (53) and Clutch Cable Clamp (42) from kit. Install backing plate using four bolts however use fourth bolt in upper right hand side with clamp and secure clutch cable in place as shown. Tighten bolts finger tight.

NOTE

Check that clearance between lower front mount assembly and regulator is 1/16 inch and that clearance exists between backing plate and front alignment stabilizer.

CAUTION

Do not raise lower front mount anymore than needed to obtain 1/16 inch clearance at regulator. Raising front mount higher will cause difficulty servicing oil filter.

5. Move entire front mount assembly up if there is interference with front alignment stabilizer or less than 1/16 inch clearance at voltage regulator.

CAUTION

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

6. With a wrench, turn the stabilizer adjuster so the stabilizers press, not pull, firmly against the frame down tubes.
7. Tighten the four backing plate to mount bolts to 35-40 ft-lbs (47.5-54.2).

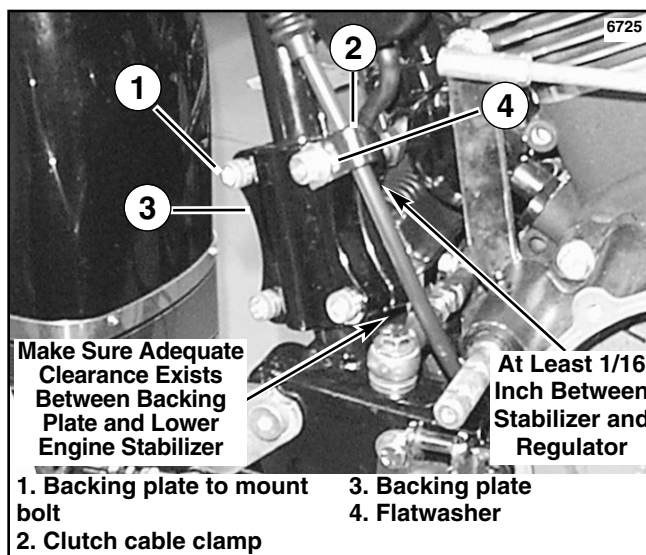


Figure 10. Install Backing Plate To Stabilizer (Left Side)

Installing Rear Mount

NOTE

See Figure 11. The Rear Mount requires only two bolts for installation. The clevis opening for installing the connector rod end (bearing) from sidecar frame has been made wider to allow access to the swingarm pivot shaft nut without removing the mount. Therefore, a spacer (See Service Parts Illustration #54) is used with the connector rod end (bearing) when connecting the sidecar frame pivot mount to the rear mount.

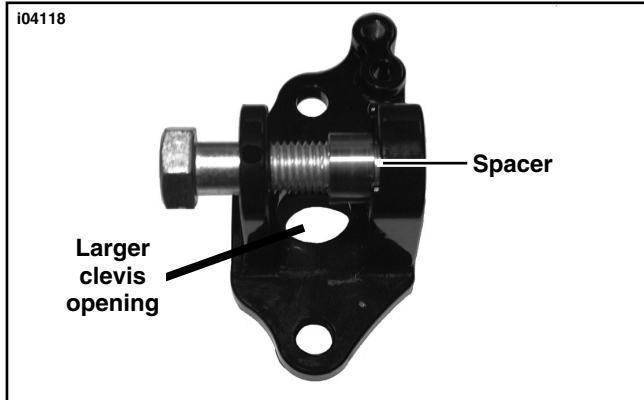


Figure 11. Rear Mount

1. If not already removed, remove right side cover and both saddlebags.
2. See Service Parts Illustration. Loosen and remove the screw with P-clamp (20) attaching rear brake line to right passenger footrest bracket. Retain screw and P-clamp to attach brake line to rear mount. Remove the bolt and lockwasher securing the right passenger footrest bracket and remove the bracket with footrest.
3. Remove the chrome plug from the right rear swing arm bracket.
4. Remove the two bolts (w/lockwashers) to free the right rear swingarm bracket from frame and remove bracket. Save swingarm bracket for future installation and save bolts and lockwashers for installation of rear mount. See Service Parts Illustration and Figures 12 and 13. Position the rear mount (1) over the two mounting holes and be certain roll pin enters the alignment hole shown in Figure 13 for the 2002 or earlier rubber mount. On 2003 and later mounts, the roll pin must enter the rubber mount's groove shown in Figure 13.

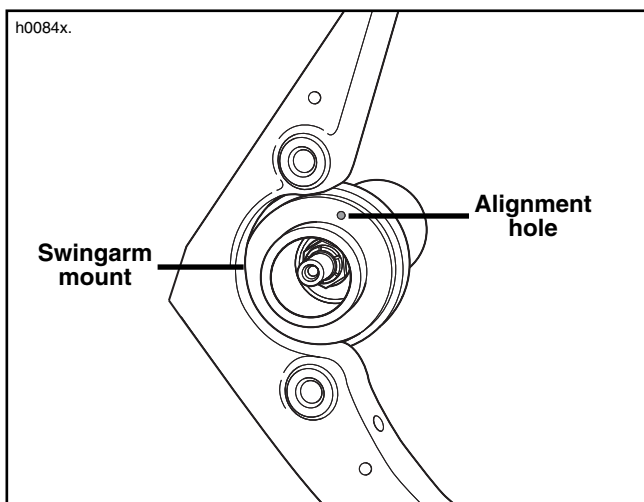


Figure 12. Swingarm Mount (2002 and earlier models)

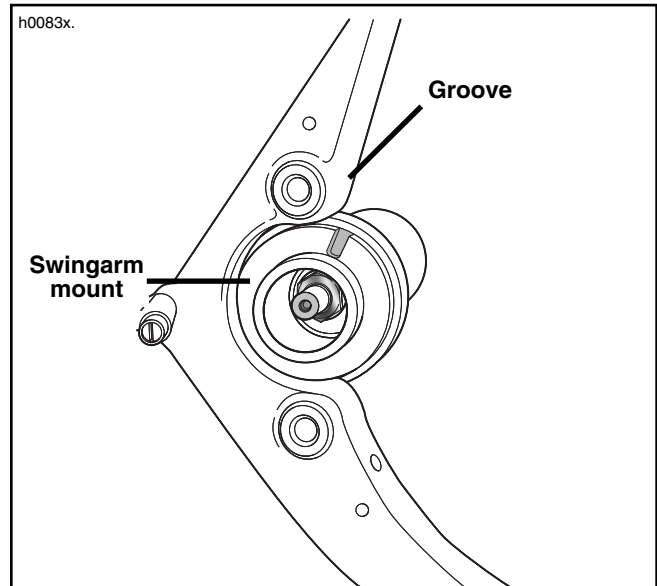


Figure 13. Swingarm Mount (2003 and later models)

5. Check the left pivot shaft rubber mount to be sure it is in place.
6. Refer to Figure 14. Install upper and lower rear mount bolts w/lockwashers (removed in last step) to secure rear mount to frame. Tighten bolts to 34-42 ft-lbs (46-57 Nm).
7. Using stock bolt and washer saved during removal of passenger footboard, install passenger footboard to threaded hole in upper portion of mount as shown. Tighten bolt to approximately 15-18 ft-lbs (20.3-24.4 Nm).
8. Obtain Screw with P-clamp (20) removed in Step 2. Secure brake line to mount at threaded position shown. Tighten screw securely.

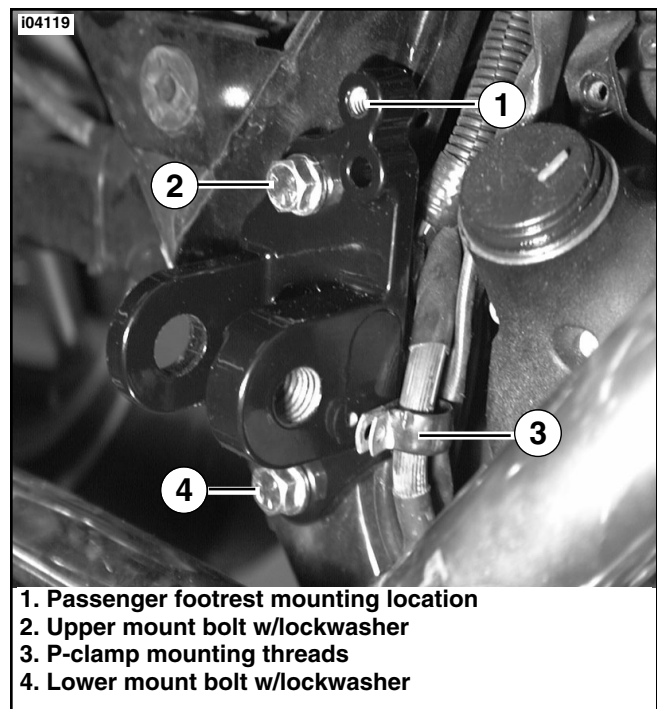


Figure 14. Install Rear Mount and Hardware

Attaching Steering Damper Bracket

NOTE

The Steering Damper Bracket will have plastic plugs installed into the 3 tapped holes in the lower triple clamp. Prior to performing Step 1, remove the plastic plugs.

1. See Service Parts Illustration. Obtain the Steering Damper Bracket (27), three Screws (34) and three Washers (35) from kit. Using the Illustration as a guide, install the Steering Damper Bracket to lower triple clamp. Tighten the screws to 96-120 **in-lbs** (10.8-13.6 Nm).
2. Refer to the Sidecar Service Manual for instructions for attaching and adjusting the steering damper.

Installing Tee Fitting to Frame Bracket

1. See Figure 15. Carefully remove stoplamp switch from existing fitting at frame bracket. Clean threads.
2. See Service Parts Illustration. Obtain new Brake Line Tee Fitting (8) from kit. Coat male threads of fitting with Loctite Pipe Sealant with Teflon. Thread tee into frame bracket fitting and tighten so that right angle opening is vertical (facing upward).
3. Coat threads of stoplight switch with Loctite Pipe Sealant with Teflon. Thread switch into end of tee.
4. See Service Parts Illustration. Obtain Plug (9) from kit and save. If sidecar is not being attached, install plug in the right angle opening.

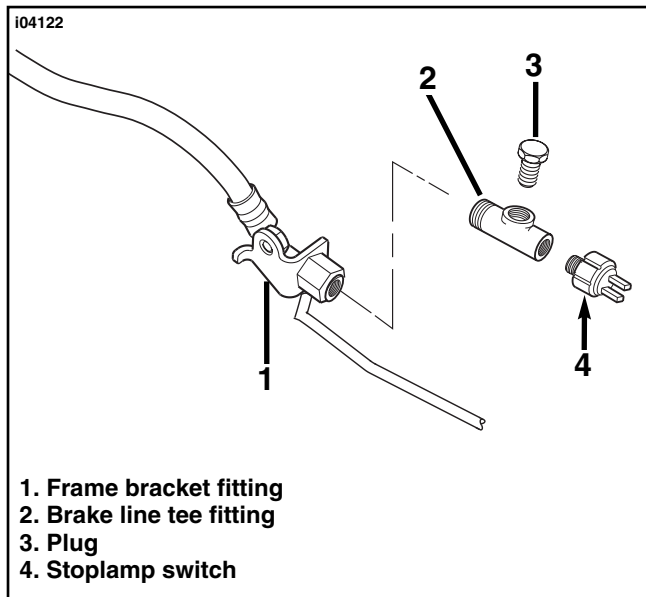


Figure 15. Modifying Brake Line Connection

Clutch Cable Placement and Adjustment

1. See Figure 16. Remove stock t-stud clip that secures stator wires on left end of front engine bracket behind voltage regulator.
2. See Service Parts Illustration. Obtain large Clip (37) from kit. Capture stator wires and clutch cable in larger clip and install clip on t-stud.
3. Refer to applicable FLT Service Manual and perform the Clutch Adjustment procedure.

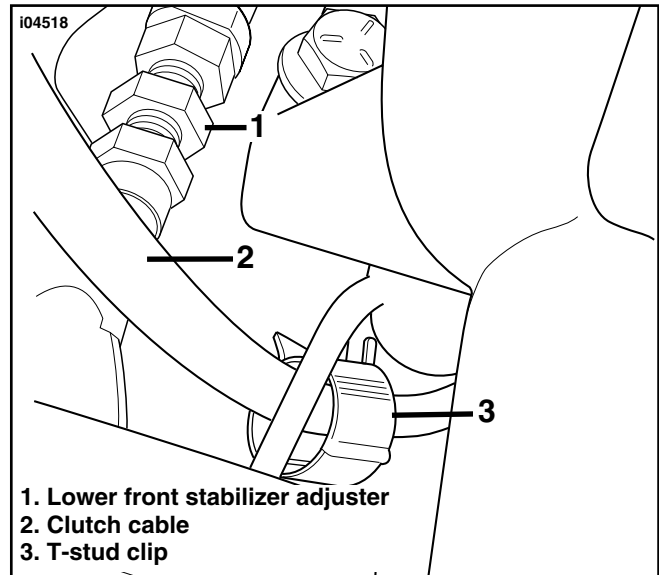


Figure 16. Clutch Cable Attachment

Installing Pedal/Master Cylinder Assembly

WARNING

On 2002 and later motorcycles, the existing brake pedal must be replaced with the pedal (#21) (Part Number 42407-87C) 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 could result in loss of control and death or serious injury.

1. Refer to FLT Service Manual and follow instructions to install the modified master cylinder and brake pedal assemblies. The fitting on the reservoir adapter must point inboard.

CAUTION

Do not use excessive force installing hose on reservoir adapter. The fitting on adapter may break off if excessive force is applied.

2. See Service Parts Illustration and Figure 17. Obtain Hose (44) and two Hose Clamps (36) from kit. See Figure 18. Route hose from master cylinder reservoir over stabilizer then back down under lower right front mount. See Figure 19 for routing at master cylinder.

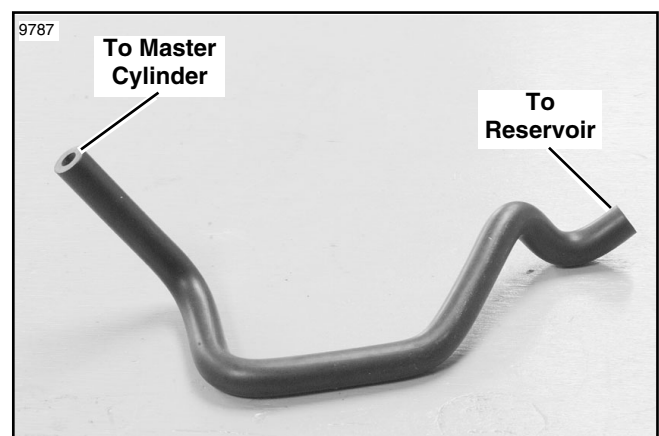


Figure 17. Reservoir-To-Master Cylinder Hose

3. Install hose clamps as shown in Figures 18 and 19.
4. Refer to FLT Service Manual, fill reservoir with **D.O.T. 5 SILICONE HYDRAULIC BRAKE FLUID** and bleed rear brake system.
5. Install reservoir gasket, cover and screws.

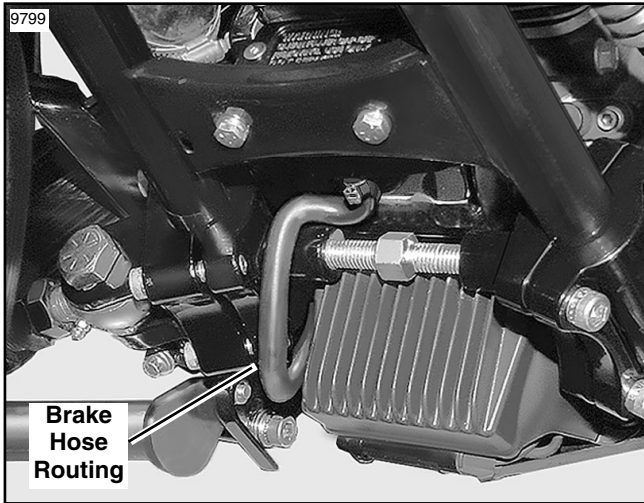


Figure 18. Routing Brake Reservoir Hose

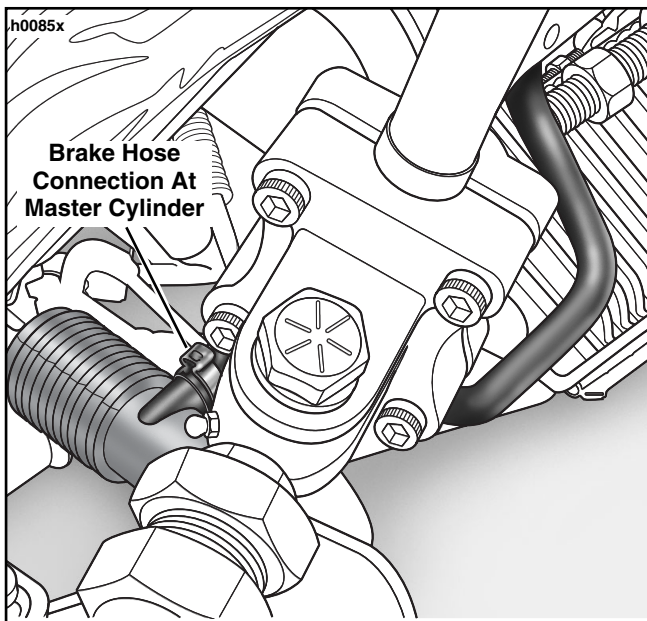


Figure 19. Brake Reservoir Hose At Master Cylinder

Install Exhaust System and all other Items Removed To Allow Connection Kit Installation

Refer to FLT Service Manual and install exhaust system. Also install side cover, saddlebags and other parts/assemblies removed during kit installation.

NOTE

Highlighted hardware, Items 10, 11, 14, 16, 17, 24, 25, 26, 28, 29, 30, 31, 32, 33 and 54 are used for attaching the sidecar to the motorcycle. See Sidecar Service Manual for installation procedures regarding the highlighted items.

Installing Right Passenger Footboard

Fasten the footboard to the rear mount assembly (item 1, Service Parts illustration) using the footboard attaching hardware. Adjust footboard to suit the passenger and install and tighten bolt to 15-18 ft-lbs (20.3-24.4 Nm).

Steering Damper Mounting Kit, Part Number 87142-83A

The contents of this kit are listed as item numbers 26 through 35 on the Service Parts Page Illustration. To install the steering damper bracket, follow the procedure "Attaching Steering Damper Bracket" above. Installation of the remaining parts and adjustment is covered in the Sidecar Service Manual.

NOTE

The steering damper (25) and rod end (26) have M10 x1.5 metric threads.

TLE Ultra Sidecar

The TLE-ULTRA SIDECAR utilizes the same attaching kit as the TLE sidecar. There are, however, additional wiring harnesses that need to be installed to connect the sidecar light harness and the radio. 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.



Service Parts

Part No. 87166-99A

Date 2/03

TLE Sidecar Attaching Kits

Item	Description/Qty *	Part Number	Item	Description/Qty*	Part Number
1	Rear mount kit, includes item (54)	87114-93A	36	Clamp, hose (2)	10038A
2	Lower front mount, right side	87122-83A	37	Clip, large	10108
3	Stabilizer, right side	87148-92	38	Screw, #10-32x3/4 inch Torx (2)	2576
4	Stabilizer, left side	87137-92	39	Kit, oil sender relocation consists of 90 degree elbow and close nipple	26337-99
5	Plate, backing (left)	87123-83	40	Screw, 1/4-20x1/2 inch (4)	3728
6	Clamp, upper front kit	87131-99	41	Reservoir, brake fluid	41804-84A
7	Clamp, upper rear	87132-92	42	Clamp, clutch cable	42327-70
8	Tee, brake line	87113-83	43	Bracket, brake reservoir	42354-99
9	Plug, 3/8-24	42311-58	44	Hose, brake reservoir to master cyl.	42365-02
10	Bolt, 1/2-13x2-1/4 inch	3902	45	Cover, reservoir gasket	42455-80
11	Cotter pin	559	46	Kit, brake reservoir adapter	42457-95
12	Bolt, 1/2-13x1-3/4 inch	4052	47	Screw, #10-32x5/8 inch hex socket (2)	42534-90
13	Washer, lock, 1/2 inch ID	7068	48	Bolt, 3/8-16x1-1/2 inch (4)	4356
14	Washer, 17/32x1-1/2x9/64 inch	6723	49	Cover, reservoir	45057-82
15	Bolt, 3/8-16x1-3/4 inch (4)	4357	50	Washer, flat #10 (2)	6716
16	Bolt, 3/4-10x2-1/4 inch	4151	51	Washer, lock 1/4 inch ID (2)	7036
17	Bolt, 3/4-10x2-3/4 inch.	4045	52	Washer, lock, #10 (2)	7069
18	Bolt, 7/16-14x1-1/4 inch (stock Part)	3782	53	Washer, flat 3/8 inch ID	6701
19	Washer, lock, 7/16 ID inch (stock Part)		54	Spacer, rod end bearing	87181-02
20	P-clamp w/screw	(Use Stock)		Cable, clutch control (not shown)	38649-98
21	Assy, brake pedal (use stock pad)	42407-87C		Clamp (not shown)	10036
22	Stabilizer adjuster	87156-83		Strap, cable (2) (not shown)	10006
23	Brake pedal pad (stock)				
24	Locknut, 1/2-13	7843			
25	Steering damper	87141-83			
	Steering damper mounting kit	not sold			
	The Steering Damper Mounting Kit consists of items 26 through 35				
26	Rod end	87144-83			
27	Bracket	87143-83			
28	Spacer (2)	59938-72			
29	Bolt, 3/8-16x1-3/4 inch (2)	4720W			
30	Locknut, 3/8-24 (2)	7601			
31	Washer, flat 3/8 inch ID (3)	6701			
32	Washer, flat 13/32x1 1/32x1/8 inch (3)	6519			
33	Bolt, 3/8-16x2-3/4 inch	4420			
34	Screw, (3)	3892			
35	Washer, 1/4 inch ID (3)	6703			

* If quantity is not shown, kit contains one (1).

NOTE

Highlighted (**bold type**) hardware, Items 10, 11, 14, 16, 17, 24, 25, 26, 28, 29, 30, 31, 32, 33 and 54 are used for attaching the sidecar to the motorcycle. See Sidecar Service Manual for installation procedures regarding the highlighted items.



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