



R O A D S M I T H
TRIKE CONVERSIONS BY
THE TRIKE SHOP



Please thoroughly review the instructions before and during installation. Keep in mind that this product was designed to be installed by trained dealer technicians. If you are a do-it-yourselfer, be patient, trust your common sense, and if necessary call your dealer or contact The Trike Shop at 800-331-0705 if you run into any problems you cannot solve.

APPLICATION: Trike conversion kit for Harley-Davidson Touring motorcycles
PRODUCT: HDT
VERSION: 2009 model year only
GENERAL NOTES: Please don't attempt any shortcuts.

DRIVE BELT CAUTION!

- DO NOT TWIST, KINK, OR OTHERWISE DAMAGE THE BELT DURING INSTALLATION
- DAMAGING THE BELT DURING INSTALLATION WILL DRASTICALLY SHORTEN ITS SERVICE LIFE!

TOUR PACK INSTALLATIONS:

- If your bike is equipped with a tour-pack, the kit MUST be ordered as such. The difference in the kit is the body is cut larger to accommodate the bracket system that holds the tour pack.
- If you purchased an unpainted kit, the body can come marked for both if requested.

This kit is designed to fit stock FLHTC/FLHTCU motorcycles of the years 2009 to current. The conversion will also fit other FLH motorcycles, but those bikes come equipped with different styles of turn signals (i.e. RoadKing). If your motorcycle does not have the FLHTC style turn signals, you must purchase them from a local HD dealer. Below are the part numbers and quantity necessary.

- | | | |
|-----|-------------|----------------|
| (2) | #68713-94A | LAMP ASSEMBLY |
| (4) | #73191-96 | CONTACT SOCKET |
| (2) | #73152-96BK | SOCKET HOUSING |
| (4) | #2692WB | SCREW |

These instructions are specific for Tour body installations.

These instructions refer to diagrams and pictures which are located in the latter pages.

These instructions assume you are installing a body painted from the factory. If not, you are required to install the weather-strip and carpeting onto the conversion body. The hardware kits accommodate either a painted or unpainted body. Please call if any questions.

For torque specifications not listed, please follow SAE standards.
Unless otherwise noted, use medium strength Loctite on all bolts.

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1. CHECK THE ENTIRE MOTORCYCLE FOR PROPER OPERATION AND/OR FLAWS BEFORE STARTING THIS CONVERSION PROCESS
2. DISCONNECT THE BATTERY
3. HOW THE HDT CONVERSION CHASSIS IS SHIPPED TO YOU
 - a. See [Pic. #1](#)
 - b. Double check the parts list against what you received in the shipping crate.
4. REMOVE THE FOLLOWING ITEMS FROM THE MOTORCYCLE
 - a. Seat: (save - if the seat has a strap, discard it)
 - b. Side covers: (save)
 - c. Tour pack: (save the tour pack and mounting hardware)
 - d. Saddlebags and mounts: (discard)
 - e. Passenger footrests: (save)
 - f. Mufflers (save)
 - i. Discard the four 5/16"x 1/2" muffler mounting bracket bolts
 - ii. Save all other muffler mounting hardware: (2) brackets, (4) lock-washers (2) rubber isolators (2) clamps
 - iii. Note the position of the rubber isolators
 - g. Rear wheel and brake caliper: (discard)
 - i. Discard the banjo bolt & sealing washers
 - ii. Leave the rubber brake hose on the bike (remove it from the clips on the swing arm)
 - h. Swing arm assembly: (discard)
 - i. Supporting the engine/transmission assembly before removing the pivot shaft and Left side mounting bracket will save time during re-assembly
 - ii. Remove and save the cup washers and nuts from the stock pivot shaft
 - iii. Discard the stock pivot shaft
 - iv. Save the left side swingarm mounting bracket and rubber swingarm mounts-
 - v. NOTE- the right side rubber mount can remain in place
 - vi. Discard the stock bolts and lockwashers from the left side swingarm mounting bracket.
 - i. Tail light assembly:
 - i. Save the lens and base (discard the tail light to fender mounting screw)
 - j. Turn signals: (save)
 - i. Remove the turn signals from the cross bar
 - ii. Save the turn signals and the Allen screws
 - iii. Discard the cross bar
 - k. Tail light extension harness: (discard)
 - i. Unplug it and remove it from underneath the fender
 1. It's the black plug underneath the seat
 - l. Kick stand (discard)
5. CUTTING THE REAR FENDER
 - a. Mark the rear fender: ([Pic#2 & 3](#))
 - i. Using the top edge of the tail light opening as a guide, extend it to approx. 3 1/2" from the center of the fender
 - ii. Now create a line from there to just under (approx. 1/4") the chrome fender bracket cover
 - iii. Cut the fender along your lines to the tail light opening - leave the tail light mounting tab.
 - iv. De-burr the edge and install the push on rubber trim ([Bag #2](#)) from the kit ([Pic. #4](#))
 - v. The fender cut is not critical. The trike body completely covers it

6. CHANGE THE BELT

- a. Using your HD service manual as a guide, replace the stock belt with the Gates belt provided in the kit. Listed below are some common torque specifications.

Primary cover screws	7-9 (ft-lb)
Primary chain-case to engine and trans bolts	18-21 (ft-lb)
Compensating sprocket nut	150-165 (ft-lb)
Clutch hub nut	70-80 (ft-lb)
Primary chain slack (cold)	5/8" - 7/8"
Belt tension	10 lbs force with 1/4" - 3/8" deflection
Swing arm pivot bolt	50 (ft-lb)

7. REMOVE THE CONVERSION BODY FROM THE CHASSIS:

- a. Discard the hardware
- b. If the kit was ordered with the reverse option
 - i. Raise the reverse lever
 - ii. Un-snap and open the Velcro seam on the reverse boot
 - iii. Lift the body forward and up to clear the reverse lever

8. REMOVE THE PARTS SHOWN (Pic. #5) from the trike chassis

- a. Note the location of all hardware for re-assembly
- b. If the kit was ordered with the reverse option, remove the reverse lever assembly from the frame
 - i. Save the (2) 5/16" X 1" bolts and lock nuts
 - ii. The reverse lever/cable assembly stays with the swing arm for now

9. REMOVE THE SWING ARM ASSEMBLY FROM THE TRIKE CHASSIS (PIC#6)

Leave the swingarm support bars connected to the swingarm

- a. Discard the shipping hardware (PIC #7 & 8)
 - i. Thru-bolt
 - ii. Sleeve
 - iii. Washers
 - iv. Nuts
 - v. Spacers
- b. If the kit was ordered with the reverse option, remove the reverse lever and cable assembly now
 - i. Disassemble the reverse cable-end to remove it from the swingarm
 - ii. Remove the clevis, clevis lock nut, and the cable housing jam nut (Pic. #9)

The reverse cable assembly is already adjusted when you receive it. Before disassembly, note the position of the hardware for later re-assembly

10. REMOVE THE DIFFERENTIAL ASSEMBLY (Pic. #10)

- a. The swing arm rails and bearing clamp blocks are match numbered (to identify mating parts)
- b. If the kit was ordered with the reverse option
 - i. Remove the reverse motor assembly from the swing-arm
 - ii. Remove the right side reverse motor pivot block to separate the reverse motor assembly from the swing arm

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- iii. Keep track of the wave washers (one on each end of the pivot shaft) (Pic. #11)
11. REMOVE THE REMAINING PARTS FROM THE CHASSIS (Pic. #12)
 - a. (2) Front frame mounting plates
 - b. Rear cross bar with trailer hitch/body mount supports attached
 - i. Just break the nuts loose so they can rotate
 12. SEPARATE THE FRONT AND REAR SWING ARM SECTION AS SHOWN (Pic. #13)
 13. ASSEMBLE SWING ARM PIVOT SHAFT ASSEMBLY
 - a. See Diagram [A-100-647-09](#)
 - b. NOTE: Use the stock nuts and cup washers on both ends of The Trike Shop provided pivot shaft
 - c. Install the (2) bronze shouldered bushings (from BAG #1) in to the transmission pivot shaft bore as shown in diagram [A-100-647-09](#)
 - d. Install and tighten (1) stock cup washer and nut on The Trike Shop pivot shaft before installation
 14. INSTALL THE SWING-ARM FRONT SECTION
 - a. Install the front section as shown in diagram [A-100-647-09](#) and (Pic #14)
 15. INSTALL THE STOCK SWING-ARM MOUNTING BRACKET AND THE TRIKE SHOP FRONT FRAME MOUNTING PLATES
 - a. LEFT SIDE See (pic #15)
 - b. Remove the 3/8" bolt connecting the left rear frame tubes- discard the bolt- save the washer
 - c. Use (2) 7/16" x 1/4" stainless steel socket head cap screws and (1) 3/8 x 2" bolt (from bag #2) (re-use the stock washer on this bolt) to attach the left side frame mounting plate and the stock swing arm mounting bracket – use Loctite only, no lock-washers
 - d. When installing the swing-arm mounting bracket and Trike Shop front frame mounting plate, ensure that index tabs on the swing-arm mounting bracket(left side) & frame (right side) fully engage the slots in the rubber transmission mounts
 - e. Tighten the (2) socket head cap screws, the 3/8" bolt and the pivot shaft nut now
 - f. Now back off just the socket head cap screws and the 3/8" bolt about one turn
 - g. (Pic. #16) shows the left front chassis mounting plate and the front of the swing-arm installed before installing the cup washer and nut
 - h. RIGHT SIDE
 - i. Remove the lower exhaust shield- (save)(pic #17)
 - ii. Remove & discard the two plastic hole plugs by the right side swingarm pivot
 - iii. Remove the 3/8" bolt connecting the right rear frame tubes- discard the bolt- save the washer.
 - iv. Use (2) 7/16" x 1" stainless steel socket head cap screws and (1) 3/8" x 2" bolt (from bag #2) (re-use the stock washer on this bolt) to attach the right side frame mounting plate (pic #18)
 - v. Install these three bolts on the right side but do not tighten yet (pic #19)
 16. SPEEDO-HEALER WIRING
 - a. Install the Speedo-Healer wiring and module as directed below and the Speedo-Healer instructions
 - i. NOTE: Connect the red (+) to switched 12v and the black (-) to ground
 - ii. NOTE: The speedometer pick-up sensor is located on the back of the transmission (the three-wire Delphi style plug)
 - iii. NOTE: The pickup wire color is white/green (the middle wire in the plug)

- b. Most bikes have ample space to mount the module under the right side cover (Pic. #20) Otherwise, mount it in any other reasonably accessible location
- c. We will program the Speedo-Healer later

17. SEE Pic. # 21 – TRIKE CHASSIS STRIPPED AND READY FOR INSTALL

18. SLIP THE CHASSIS THROUGH THE BELT

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19. ATTACHING THE TRIKE CHASSIS TO THE FRONT FRAME MOUNTING PLATES

- a. Attach the trike's chassis to the front frame mounting plates and the bike's upper shock mounting holes as shown in (Pic #22)
- b. NOTE: The two 1/4" thick chassis mounting plates go to the outside of the front frame mounting plates. (Pic #22)
- c. 9/16" long spacers from Bag #2 go between the plates and the bike frame upper shock mounting holes- use 1/2" x 1 1/2" bolts and flatwashers (bag#2) (see diagram #A-100-692)
- d. Tighten all related bolts:
 - i. (2) 1/2" bolts
 - ii. (6) 3/8" bolts
 - iii. All left and right frame mount plate bolts
 - iv. Replace the exhaust shield

20. CONNECT THE STOCK BRAKE LINE TO THE HEX FITTING ON THE TRIKE CHASSIS (Pic. #23)

- i. Use the provided banjo bolt (3/8"-24 thread)

21. BLEED THE REAR BRAKES

- a. Use the TOP bleeders only

22. INSTALL THE 3/8" x 1 1/4" BOLT & LOCKNUT THROUGH THE TAB ON THE TRIKE CHASSIS AND THE STABILIZER LINK

- a. See (Pic. #24)
- b. Tighten the bolt for now, we will adjust the stabilizer link later

23. INSTALL THE REAR SECTION OF THE SWING ARM

- a. See (Pic. #25)
- b. Push the rear swing arm all the way forward.
- c. For now, only snug the nuts and cam bolt nuts enough so that there is no slop, yet the swing arm can still be adjusted. We will tighten everything later.

24. FOR TRIKES WITH REVERSE

- a. See (Pic. #26)
- b. Replace the motor assembly, but NOT the cable
- c. Make sure that the two wave washers are on the reverse pivot shaft (one on each end)

25. INSTALL THE CROSSBAR AND THE LEFT AND RIGHT SWINGARM SUPPORT RODS

- a. See (Pic. #27)
- b. Start the (4) 3/8" x 1" bolts and locknuts

- c. Raise the swing-arm to install the support rods
 - d. Tighten the crossbar bolts and the swing arm support rod bolts
 - e. The top of the support rods go to the outside of the crossbar brackets
26. INSTALL THE DIFFERENTIAL ASSEMBLY AND INSTALL THE BELT ON TO THE SPROCKET
- a. See [\(Pic. #28\)](#)
27. INSTALL THE SWAY BAR ASSEMBLY
- a. See [\(Pic. #29\)](#)
 - b. Tighten the end links first
 - c. Then the pivot bushings last
28. TIGHTEN THE BELT
- a. See [\(Pic. #30\)](#)
 - b. Using a 1" wrench on the hex crossbar, rotate the crossbar to the desired belt tension
 - i. *10 lbs force with 1/4" - 3/8" deflection*
 - c. While holding tension on the hex crossbar
 - i. Tighten the (4) nuts on the rear swing-arm
 - ii. Tighten the bolts on the cams and
 - iii. Tighten the left side swing-arm rail-to-hex crossbar center bolt
 - d. Rotate the sprocket a few times to check the belt tracking
 - i. Make sure the belt is not rubbing anything
29. CENTERING THE SWING-ARM
- a. See [\(Pic. #31\)](#)
 - b. Using the stabilizer link, center the swing-arm assembly between the outer axle flanges and the swing arm rails.
 - c. The measurement needs to be the same on each side.
 - d. Tighten the stabilizer adjustment jam nuts
30. INSTALL THE DRIVE AXLE ASSEMBLIES
- a. Both axles and ends are the same, no inside, outside, etc.
 - b. Using a cross pattern, tighten to 28+ ft-lb.
31. FOR TRIKES WITH REVERSE
- a. See [\(Pic. #32\)](#)
 - b. Temporarily install the reverse lever/cable assembly onto the trike frame
 - i. Install the cable into the bracket under the left swing-arm rail
 - 1. Replace all related hardware to it's original position
 - a. If needed, refer to Diagram [A-100-652](#)
 - ii. Tighten the lock nuts on the cable housing – [\(Pic. #33\)](#)
 - iii. Install the jam nut and clevis onto the cable end
 - c. Install the clevis onto the reverse motor assembly
 - d. Gently raise the reverse lever to engage the gear into the sprocket
 - i. Ensure the gears mesh
 - ii. Adjust the knob on the end of the lever so that just before the lever is fully extended, slight resistance is felt
 - e. When the adjustment procedure is complete
 - i. Tighten the jam nut on the clevis
 - ii. Install the cotter pin
 - iii. Install the spring (from the reverse bag)
 - 1. Put one end of the spring through the nut on the reverse motor assembly

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2. Install the other end of the spring onto the groove in the post on the swing-arm adjuster block
 3. Slightly close-up the hook of the spring around the post – see (Pic #34)
 - f. Install the reverse wiring (we suggest removing the fuel tank)
 - i. Refer to Diagrams #A-100-577-A and Diagram #A-100-577-B
 - ii. (Pic. #35) shows the reverse wiring “T” tap installed (from the reverse bag) on the tan neutral light wire in the bike’s harness
 - iii. You can find the tan neutral light wire in this general area on all FLH (Harley touring) bikes
32. INSTALL THE BODY MOUNT/TRAILER HITCH ASSEMBLY
 - a. See (Pic. #36)
 - b. Install the front of the body-mount / trailer-hitch assembly first.
 - c. Install the rear mounting bolts through the support arms, to the body-mount / trailer-hitch as shown and tighten all related bolts.
33. INSTALL THE EXHAUST SYSTEM
 - a. See (Pic. #37)
 - b. Use the stock exhaust system plus the supplied exhaust extension pipes and clamps. The extensions slip between the stock exhaust and the mufflers.
 - c. Install the stock muffler’s hangers and rubber mounts into the openings on the body-mount / trailer-hitch assembly
 - d. Replace the (4 discarded)stock 5/16”x 1/2” muffler hanger bolts with (4) 5/16” x 3/4” bolts from bag #3
 - e. Install the 1/4” chrome spacers (bag #3) between the mufflers and the hanger brackets
 - f. Tighten the four muffler hanger bolts now- not the muffler clamps yet.
34. PREPARATION FOR BODY INSTALLATION
 - a. Temporarily remove the two rear 3/8” bolts connecting the support arms to the body mount/trailer hitch assembly. This will allow the rear of the body mount/trailer hitch assembly to drop about 2”.
 - b. If equipped with the reverse option
 - i. To install the body the reverse lever must be temporarily separated from the frame
 - ii. Unplug the wiring and remove the two reverse lever mounting bolts from the frame - set the lever/cable assembly down on the frame.
35. BODY PREPARATION
 - a. Install the two provided tail light bases on to the trike body using the hardware from BAG #4
 - i. In test fitting the bases, notice that they may not sit flush with the body. To make them fit flush with the body, grind off the lower outside corners of the tail light bases(pic #38)
 - ii. After you are content with the fit, install the bases on to the body
 - b. After lightly bolting down the bases, drill a 3/16” hole through the bases and the body at the location shown in (Pic. #39)
 - i. Install the #8-32 (bag #4) stainless screws to draw down and hold the tail light bases
 - c. Install the turn signals using the stock fasteners
 - i. Make sure that the turn signals are square with the tail light lenses - adjust them as needed before tightening (adjusting the turn signals may require slight grinding of the mounting screw holes in the body)
36. TAIL-LIGHT WIRING HARNESS AND ASSOCIATED WIRING
 - a. See Diagram #A-100-645
 - b. Connect the wiring as shown
 - c. Attach the harness to the tail light mounting bolt using the 1/4” p-clamps and 1/4” locknuts from bag #5 (Pic. #40)

- d. Attach the harness to the trunk walls (Pic. #40) using the 10-24 screws and 5/16" plastic cable clamps and nuts from Bag #5
- e. Install the license plate frame and the license plate light (bag #7)

37. RUBBER EDGE TRIM –(this section applies to un-painted bodies only.)

- a. See (Pic. #41)
- b. Install push-on rubber edge trim on the inside opening of the body
- c. Thoroughly clean the edge before installing the trim
- d. The rubber trim has pre-applied glue in it
 - i. During installation, lightly tapping on the trim helps to break the membrane on the glue for better adhesion

38. INSTALL THE BODY

- a. Keeping track of the tail light wiring harness (tape it to the top of the body), and with the help of an assistant
 - i. Carefully set the body onto the chassis
 - 1. install the body by rotating it enough to slide the rear tour pack opening under the tour pack rack while placing it on top of the front body mounts
 - a. Then rest the rear of the body on to the chassis.
 - b. Lift the body mount/trailer hitch assembly to replace and tighten the rear mounting bolts
 - c. Now tighten the muffler clamps carefully- making sure that the mufflers stay aligned and are not touching anything

39. ROUTING THE TAIL-LIGHT HARNESS AND SECURING THE BODY

- a. Route the tail-light harness between the fender and the chrome rear frame rail extension
- b. Plug in the harness to the mating plug on the fender
 - i. Check the function of all lights
 - ii. After checking the lights, check the wiring harness routing, and zip tie it as needed
- c. Install the front and rear body mount bolts (Bag #8) through the pre-drilled holes in the body
 - i. The pre-drilled body mount holes should be very close - there should not be much adjustment needed
 - ii. Install the front bolts pointing up - install the rear bolts pointing down
 - iii. Put the washers between the fastener and the fiberglass
 - iv. Before tightening the bolts
 - 1. check the body position
 - a. adjust if needed then
 - i. tighten all six body mount bolts
 - v. After bolting down the body, open and close the door
 - 1. Making sure that the door latches on the second detent of the latch
 - 2. Adjust the latch if needed
 - 3. A somewhat firm push on the door to make it latch is normal as over time the weather stripping tends to conform to its mating surface
 - 4. if equipped with the reverse option, guide the end of the reverse lever through the hole in the body, replace the mounting bolts, and plug in the wiring
 - 5. (NOTE): remove the left rear wheel to access the reverse lever/plugs

40. PROGRAM THE SPEEDO HEALER USING THE GUIDE PROVIDED

41. TRIM THE SIDE COVERS

- a. See (Pic. #42)
- b. Using the provided side cover marking templates cut the side covers along the line

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- c. Remove the rear upper sidecover mounting peg from both sidecovers (grind off all raised area flush to the cover)
- d. Carefully test fit the covers to the frame and body and trim and de-burr as needed
- e. Install push on rubber edge trim (if desired) (bag #2)
- f. Install the two ½" x ½" bolts (bag #6) into the rear upper sidecover grommets (1 on each side) (pic #43)
- g. Stick one set of adhesive backed self lock fasteners (bag #6) to each bolt
- h. Make sure the ground area on the covers is clean, peel the film off of the fasteners, (already on the bolt heads), install the cover making sure to start the two remaining pegs first, then firmly push on the area over the fastener to seat the adhesive. (pic #44)
- i. See (Pic. #45) - you need about ½" of clearance between the side cover and the body

42. CONNECT THE BATTERY

43. REPLACE THE FUEL TANK- (IF IT WAS REMOVED)

44. REPLACE THE TOUR PACK (STOCK HARDWARE)

45. REPLACE THE SEAT USING STOCK HARDWARE

46. REPLACE THE PASSENGER FOOTRESTS USING STOCK HARDWARE

47. REPLACE THE ROUND CHROME SWING ARM BRACKET COVERS (PUSH ON)

48. CHECK THE TORQUE ON THE LUG NUTS (70-75 FT LBS)

49. TEST DRIVE