



ROADSMITH  
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: #2 for 1995-2008 model years 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 1995 to 2008. 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

1995 models have the older style taillight assembly which is not compatible with the tail light bases that are supplied in the kit. You must purchase one taillight lens assembly and the plug assembly for the turn signal wiring from your local HD dealer. Below are the part numbers and quantity necessary.

(1)	#68140-04	TAIL LIGHT LENS
(4)	#73191-96	CONTACT SOCKET
(2)	#73152-96BK	SOCKET HOUSING

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 weatherstrip and carpeting on the conversion body. The hardware kits accommodate either a painted or unpainted body.

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

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)
    - i. Replace the two rear bracket-to-fender mounting bolts after removing saddlebag brackets) (Pic. #2)
  - e. Passenger footrests: (save)
  - f. Exhaust system: (save)
    - i. Leave the front cylinder header pipe on
    - ii. Save all muffler mounting hardware: (2) brackets, (4) bolts with lock-washers (2) rubber isolators
    - iii. Note the position of the rubber isolators
  - g. Rear wheel and brake caliper: (discard)
    - i. Save the banjo bolt & sealing washers
    - ii. Discard the banjo bolt on 2008 & newer bikes
    - iii. 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 mounting brackets will save time during re-assembly
    - ii. Remove and save the cup washers and nuts from the stock pivot shaft
      1. 2002 and newer bikes
        - a. (2) cup washers
        - b. (2) nuts
      2. 1995 through 2001 bikes
        - a. (1) nut
        - b. (1) cup washer
    - iii. Discard the stock pivot shaft
    - iv. Save the left and right swingarm mounting brackets and rubber swingarm mounts
    - v. Discard the swingarm mounting bracket bolts and lock-washers
  - i. Tail light assembly:
    - i. Save the lens
    - ii. Discard the base
  - 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
    - ii. On 1995 and 1996 bikes the plug is under the left side cover.
      1. For these bikes, save the harness to splice in the plug to The Trike Shop harness
      2. These bikes have the older style plug

- I. Kick stand and mounting bracket: (discard)
  - i. Removing the kickstand and the kickstand mounting plate leaves a void of approximately 1/8" between the left front drivers floorboard mounting bracket and the frame
  - ii. Use the (4) 5/16" washers from Bag #8 when you re-assemble the floorboard mounting bracket to compensate for the discarded kickstand bracket

5. CUTTING THE REAR FENDER

- a. Mark the rear fender: (Pic. #3)
  - i. Starting at the top of the fender opening radius, pull tape (keeping it level) around the corner of the fender to intersect the top corner of the tail light opening
  - ii. Cut the fender along your line to the tail light opening - leave the tail light mounting tab.
  - iii. De-burr the edge and install the push on rubber trim (Bag #3) from the kit (Pic. #43)
  - iv. The fender cut is not critical. The trike body completely covers it
  - v. On some older bikes the front of the fender may need to be trimmed to clear The Trike Shop's swing arm.

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. #4) from the trike chassis

- a. Note the location of the 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. #41):

- a. Discard the shipping hardware (Pic. #5)
  - 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. #42)

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. #6)
  - 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
    - iii. Keep track of the wave washers (one on each end of the pivot shaft) (Pic. #7)
11. REMOVE THE REMAINING PARTS FROM THE CHASSIS (Pic. #8)
  - 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. #9)

ALL Kits come with appropriate hardware to assemble the swing arm pivot area on 1995 and newer bikes

- a. 1995-2001 bikes – locate parts in BAG #2 in kit box
- b. 2002-newer bikes – locate parts in BAG #1 in kit box
- c. Select the correct hardware bag from the kit for the year of the bike
- d. Discard the hardware that doesn't apply to the bike year

13. ASSEMBLE SWING ARM PIVOT SHAFT ASSEMBLY – 1995 THROUGH 2001 BIKES
  - a. See Diagram A-100-646
  - b. Assemble The Trike Shop provided pivot shaft as shown using
    - i. (2) stainless steel washers and
    - ii. (1) nut (from BAG #2) on one end of shaft.
  - c. Use the stock nut and cup washer on the remaining end of The Trike Shop provided pivot shaft.
    - i. Use the two remaining 1/8" thick bronze thrust washers (from BAG #2) between the swing arm and the transmission as shown in diagram A-100-646
  - d. Install and tighten the two stainless steel washers and nut on The Trike Shop pivot shaft before installation
14. ASSEMBLE SWING ARM PIVOT SHAFT ASSEMBLY - 2002 AND NEWER BIKES
  - a. See Diagram A-100-647
  - b. 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
  - d. Install and tighten (1) stock cup washer and nut on The Trike Shop pivot shaft before installation
15. INSTALL THE SWING-ARM FRONT SECTION
  - a. Install the front section as shown in diagram A-100-646 or A-100-647
16. INSTALL THE STOCK SWING-ARM MOUNTING BRACKETS AND THE TRIKE SHOP FRONT FRAME MOUNTING PLATES
  - a. See Pic. #10

- b. Use (4) 7/16" x 1 1/4" bolts from Bag #3 – use Loctite only, no lock-washers
- c. When installing swing-arm mounting brackets and Trike Shop front frame mounting plates, ensure that index tabs or pins on swing-arm mounting brackets fully engage slots or holes in rubber transmission mounts
- d. Tighten the (4) 7/16" x 1-1/4" bolts and the pivot shaft nut now
- e. Pic. #10 shows the front chassis mounting plates and the front of the swing-arm installed

17. SPEEDO-HEALER WIRING – 2007 OR NEWER BIKES

- a. If the bike is 2007 or newer, install the Speedo-Healer wiring and module as directed in the Speedo-Healer instructions
  - i. The speedometer pick-up sensor is located on the back of the transmission (the three-wire Delphi style plug)
- b. Most bikes have ample space to mount the module under the right side cover (Pic. #11) Otherwise, mount it in any other reasonably accessible location
- c. We will program the Speedo-Healer later

18. SEE Pic. # 12 – TRIKE CHASSIS STRIPPED AND READY FOR INSTALL

19. SLIP THE CHASSIS THROUGH THE BELT

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**DAMAGING THE BELT DURING INSTALLATION WILL DRASTICALLY SHORTEN ITS SERVICE LIFE**

20. 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. #13
- b. 1-3/8" long spacer from Bag #3 goes between the plate and the bike's frame
- c. Tighten all related bolts:
  - i. (2) 1/2" bolts
  - ii. (6) 3/8" bolts

21. CONNECT THE STOCK BRAKE LINE TO THE HEX FITTING ON THE TRIKE CHASSIS (Pic. #38)

- a. For 1995 through 2007 bikes - use the stock banjo bolt and sealing washers
  - i. For 2008 and newer bikes – must use the provided banjo bolt (3/8"-24 thread)

22. BLEED THE REAR BRAKES

- a. Use the TOP bleeders only

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

- a. See Pic. #14
- b. Tighten the bolt for now, we will adjust the stabilizer link later

24. INSTALL THE REAR SECTION OF THE SWING ARM

- a. See Pic. #15
- 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.

25. FOR TRIKES WITH REVERSE

- a. See Pic. #16

- b. Replace the motor assembly, but NOT the cable
  - c. Make sure that the two wave washers are on the reverse pivot shaft on each end
26. INSTALL THE DIFFERENTIAL ASSEMBLY AND INSTALL THE BELT ON TO THE SPROCKET
- a. See Pic. #17
  - b. Let the assembly hang (temporarily)
27. INSTALL THE CROSSBAR
- a. See Pic. #18
  - b. Start the (4) 3/8" x 1" bolts and locknuts
28. INSTALL LEFT AND RIGHT SWING-ARM SUPPORT RODS
- a. See Pic. #19
  - b. Raise the swing-arm to install the support rods
  - c. Tighten the crossbar bolts and the swing arm support rod bolts
  - d. The top of the support rods go to the inside of the crossbar brackets
29. INSTALL THE SWAY BAR ASSEMBLY
- a. See Pic. #20
  - b. Tighten the end links first
  - c. Then the pivot bushings last
30. TIGHTEN THE BELT
- a. See Pic. #21
  - 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
31. CENTERING THE SWING-ARM
- a. See Pic. #22
  - 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
32. INSTALL THE DRIVE AXLE ASSEMBLIES
- a. See Pic. #23
  - b. Both axles and ends are the same, no inside, outside, etc.
  - c. Using a cross pattern, tighten to 28+ ft-lb.
33. FOR TRIKES WITH REVERSE
- a. See Pic. #24
  - b. 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 their original position
        - a. If needed, refer to Diagram A-100-652
    - ii. Tighten the lock nuts on the cable housing – Pic. #25
    - iii. Install the jam nut and clevis onto the cable end

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APPLICATION: Trike conversion kit for Harley-Davidson Touring motorcycles

PRODUCT: HDT

VERSION: 2

GENERAL NOTES: Please don't attempt any shortcuts.

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- 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
      - 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 #44
  - f. Install the reverse wiring
    - i. Refer to Diagrams #A-100-577-A and Diagram #A-100-577-B
    - ii. Pic. #26 shows the reverse wiring “T” tap installed 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
34. INSTALL THE BODY MOUNT/TRAILER HITCH ASSEMBLY
- a. See Pic. #27
  - 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.
35. INSTALL THE EXHAUST SYSTEM
- a. See Pic. #28
  - b. Use the stock exhaust system plus the supplied exhaust extension pipes. 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. The mufflers should end up being parallel to each other
  - e. Tighten clamps carefully and adjust pipes as needed
36. PREPARATION FOR BODY INSTALLATION
- a. Remove the two chrome rear frame rail covers
  - b. Remove and discard the air shock fitting assembly and hoses
  - c. Replace the two front tour pack mounting bracket bolts (Torx – under chrome covers) with
    - i. (2) 5/16" X 1" hex head bolts (Bag #10)
    - ii. Re-use the spacers under Torx bolts - they can now be tightened without removing the chrome covers
  - d. If a tour-pack equipped bike is being converted, AND the kit was ordered with the reverse option, clearancing of the chrome rear frame rail covers is needed
    - i. See Pic. #39 and Pic. #40
    - ii. This is needed to allow the tour pack mounting rack to be rotated up approximately 90 degrees
    - iii. Doing this allows the trike body to be installed with the reverse lever installed on the frame.
  - e. Replace the chrome covers using the stock Phillips head screws (rear holes) and the (2) 1/4" x 3/4" chrome button-head screws and chrome washers in the forward holes (Bag #9)
37. BODY PREPARATION
- a. Install the two provided tail light bases on to the trike body using the hardware from BAG #4

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- i. See Pic. #29
    - ii. In test fitting the bases, you will notice that they do 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
    - iii. 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. #30
    - i. Install the #8-32 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)

#### 38. 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
  - i. 1/4" p-clamps and
  - ii. 1/4" locknuts from bag #5 (Pic. #31)
- d. Attach the harness to the trunk walls (Pic. #31) using the
  - i. screws
  - ii. plastic cable clamps and
  - iii. nuts from Bag #5

#### 39. RUBBER EDGE TRIM

- a. See Pic. #32
- 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

#### 40. INSTALL THE BODY - NO REVERSE

- a. Slightly raise the tour pack rack (just a couple of inches)
- b. 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. Rolling the body forward to set on top of the front body mounts first
      - a. Then set the rear of the body on to the chassis.
  - ii. Push the tour pack rack back down to the stock license plate bracket and
    1. Ensure that the (2) front tour pack rack mounting bolts are tight.

#### 41. INSTALL THE BODY – WITH REVERSE

- a. See Pic. #33
- b. Rotate the tour-pack-rack forward about 90 degrees (straight up)
- c. Raise the reverse lever, then
  1. Keeping track of the tail-light wiring harness (tape it to the top of the body) and with the help of an assistant
    - a. Roll the body forward over the extended reverse lever, guiding the lever through the hole in the body (Pic. #34)
      - i. Then down on to the front body mounts first
        1. Then set the rear of the body on to the chassis
    2. Push the tour pack rack back down to the stock license plate bracket (Pic. #35) and ensure that the two front tour pack rack mounting bolts are tight.

#### 42. 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 #7) 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

#### 43. PROGRAM THE SPEEDO HEALER USING THE GUIDE PROVIDED

#### 44. TRIM THE SIDE COVERS

- a. See Pic. #36
- b. Using the provided side cover marking templates cut the side covers along the line
- c. Carefully test fit the covers to the frame and body and trim and de-burr as needed
- d. Install the covers now
- e. See Pic. #37 - you need about 1/2" of clearance between the side cover and the body

#### 45. REPLACE THE TOUR PACK (STOCK HARDWARE)

- a. Do not replace the rear tour pack bolt as it may contact the trike body
- b. If there is a ground wire present, re-route it to a suitable location.

#### 46. REPLACE THE SEAT USING STOCK HARDWARE

#### 47. REPLACE THE PASSENGER FOOTRESTS USING STOCK HARDWARE

#### 48. REPLACE THE CHROME SWING ARM BRACKET COVERS (PUSH ON)

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

#### 50. TEST DRIVE