
APPLICATION: Trike conversion kit for Harley-Davidson Softail motorcycles

PRODUCT: HDST-V

VERSION: #1

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!

These instructions are specific for "V" 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 tail lights, wiring, weatherstrip, carpeting, etc. 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 HDST-V 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)
 - b. Passenger footrests: (save the pegs & pivot bolt, discard the clevis and mounting bolts)
 - c. Exhaust system: (discard)
 - d. Rear wheel and brake caliper: (discard)
 - i. Save the banjo bolt & sealing washers
 - ii. Leave the rubber brake hose on the bike (remove it from the clips on the swing arm)
 - e. Swing arm assembly and shocks: (discard)
 Save the stock pivot shaft and spacers
 (on 1999 and earlier bikes, discard the pivot bolt assemblies)
 - f. Tail light assembly: (discard)
 - g. Turn signals: (discard)
 - h. Tail light extension harness: (discard)
 - i. Unplug it and remove it from underneath the fender
5. CUTTING THE REAR FENDER
 - a. Mark and cut the rear fender:
 - 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 from the kit (See pic #2)
 - iv. The fender cut is not critical. The trike body completely covers it
6. CHANGE THE BELT

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 - 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.
 - b. **NOTE:** on 1999 and earlier bikes, a 1/2" offset kit must be installed when changing the belt

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

7. REMOVE THE CONVERSION BODY FROM THE CHASSIS:

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- a. Discard the mounting hardware
 - b. If the kit was ordered with the reverse option
 - i. Raise the reverse lever
 - ii. Lift the body forward and up to clear the reverse lever
8. REMOVE THE PARTS SHOWN (Pic #3) from the trike chassis (trailer hitch/body mount and sway bar)
- a. Note the location of the hardware for re-assembly
 - b. If the kit was ordered with the reverse option, remove the reverse lever/bracket assembly from the frame and swingarm and set it aside for re-installation later.
 - i. Save the (2) 5/16" X 1" reverse lever mounting bracket bolts and lock nuts
 - ii. Remove the reverse cable assembly from the swing arm by removing the "L" shaped rear cable anchor from the swingarm (Allen head screw (save) (keep track of (save) the alignment pin located between the rear cable anchor and the swingarm for re-installation later)

The reverse cable assembly is already adjusted when you receive it. Only minor adjustment may be necessary after final assembly. Minor adjustments can be made by turning the knob on the end of the reverse lever.

9. REMOVE THE SWING ARM ASSEMBLY FROM THE TRIKE CHASSIS (Pic #4)
- a. Leave the two upper support arms attached to the swing arm rails
10. REMOVE THE DIFFERENTIAL ASSEMBLY
- 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 front return spring anchor from the adjuster block(leave the spring on the reverse motor bracket)
 - iii. Remove the right side reverse motor pivot block from the swing arm rail to separate the reverse motor assembly from the swing arm
 - iv. Keep track of the wave washers (one on each end of the pivot shaft) (Pic. #5)
11. REMOVE THE REAR CROSS BAR FROM THE CHASSIS (Pic. #6)
- a. Note the location of the hardware for re-assembly
12. SEPARATE THE FRONT AND REAR SWING ARM SECTION AS SHOWN (Pic. #7)
13. TRIKE CHASSIS STRIPPED AND READY FOR INSTALL (PIC #8)
14. SLIP THE CHASSIS THROUGH THE BELT

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15. ATTACH THE TRIKE CHASSIS TO THE BIKE CHASSIS
- Refer to diagram numbers- A-100-778, A-100-777, or A-100-591 for year specific swing arm pivot area frame mounting spacer layouts

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Refer to diagram number A-100-779 for stock tire width specific upper frame mounting bracket orientation
Also refer to (PIC # 9 for 7" wide fender) OR (PIC #10 and diagram #A-100-780 for 9 1/2" wide fender)
Note: picture #10 has the fender removed for picture clarity- the fender must be in place before installing the upper frame mounting brackets.

16. CONNECT THE STOCK BRAKE LINE TO THE HEX FITTING ON THE TRIKE CHASSIS (Pic. #11)
17. BLEED THE REAR BRAKES
 - a. Use the TOP bleeders only
18. INSTALL THE SWING-ARM FRONT SECTION (Pic #12)
Do not tighten the bolts yet
19. INSTALL THE REAR SECTION OF THE SWING ARM
 - a. (See Pic. #13)
 - b. Push the rear swing arm rails 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.
20. REPLACE THE CROSSBAR
 - a. (See Pic. #14)
 - b. Start the (4) 3/8" x 1" bolts and locknuts
21. INSTALL LEFT AND RIGHT SWING-ARM SUPPORT RODS
 - a. (See Pic. #15)
 - b. Raise the swing-arm to install the support rods
 - c. Tighten the crossbar bolts and the swing arm support rod bolts
(The top of the support rods go to the outside of the crossbar brackets)
 - d. Now tighten the front swing arm mounting bolts
22. 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 (one on each end)
 - d. Replace the return spring anchor (with the spring attached to it) and the reverse motor bracket into the adjuster block.
23. INSTALL THE DIFFERENTIAL ASSEMBLY AND INSTALL THE BELT ON TO THE SPROCKET
 - a. (See Pic. #17)
24. INSTALL THE SWAY BAR ASSEMBLY
 - a. (See Pic. #18)
 - b. Tighten the end links first
 - c. Then the pivot bushings last
25. TIGHTEN THE BELT
 - a. (See Pic. #19) (you may notice that the photo is of an FLH installation- it does not matter as the procedure is identical)
 - b. Tighten the two front swing arm mounting bolts
 - c. 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

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- d. While holding tension on the hex crossbar
 - i. Tighten the (4) nuts on the rear swing-arm
 - ii. Tighten the bolts on the cams
 - iii. Tighten the left side swing-arm rail-to-hex crossbar center bolt
- e. Rotate the sprocket a few times to check the belt tracking
 - i. Make sure the belt is not rubbing anything

26. INSTALL THE DRIVE AXLE ASSEMBLIES

- a. (See Pic. #20)
- b. Both axles and ends are the same, no inside, outside, etc.
- c. Using a cross pattern, tighten to 28+ ft-lb.

27. FOR TRIKES WITH REVERSE

- a. Install the reverse lever/cable assembly onto the trike frame (See Pic. #21)
(Please note that there are two sets of holes in the lever mounting plate: the two forward holes are for the "tour" body, the two rear holes are used for the "V" body)
- b. Replace the rear cable anchor (with the cable still attached) on to the swingarm bearing cap (See Pic. #22)(If you notice that the photo is of an FLH installation- it does not matter as the
- c. Be sure to replace the locating pin between the rear cable anchor and the swingarm bearing cap
- d. Install the clevis onto the reverse motor assembly. (See Pic #23) (If you notice that the photo is of an FLH installation- it does not matter as the procedure is identical)
- e. 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
- f. When the adjustment procedure is complete
 - i. Install the cotter pin
- g. Install the reverse wiring
 - i. Refer to Diagrams #A-100-577-A and Diagram #A-100-577-B

28. REPLACE THE BODY MOUNT/TRAILER HITCH ASSEMBLY

- a. (See Pic. #24)
- 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.

29. INSTALL THE EXHAUST SYSTEM (Pic #25)

- a. Softail kits require the use of a Samson dual exhaust system and dresser style mufflers
- b. Install the Samson exhaust system plus the supplied exhaust extension pipes. The extensions slip between the exhaust headers and the mufflers.(do not use the Samson exhaust hanger brackets)
- c. Install the provided 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

30. BODY PREPARATION

UN-PAINTED KIT BODY PREPARATION – (steps 31 & 32 are factory installed on painted kits)

31. INSTALL THE TAIL LIGHTS

- a. Install the provided 5mm studs a few turns in to the tail lights
 - i. Use loc-tite (PIC #26)

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- ii. Install the lights – 5mm nuts and flat washers
- iii. Attach the wiring to the trunk walls (PIC #27)
 - 1. Use 10-24 screws, nuts, and plastic “P” clamps,
- b. Note the plugs for the license plate light (PIC #28)
- c. Plug in the left and right tail light harnesses to the flat four plug as directed in diagram #A-100-775
 - i. Be sure to pull the insulating caps over the connectors
 - ii. Fold the wires over and zip tie them to prevent them from coming unplugged (PIC #29)

32. RUBBER EDGE TRIM

- a. Install the push-on rubber edge trim on the inside opening of the body
- b. Thoroughly clean the edge before installing the trim
- c. The rubber trim has pre-applied glue in it
- d. During installation, lightly tapping on the trim helps to break the membrane on the glue for better adhesion
- e. If ordered with the reverse option, install the reverse boot now, start with the top center bolt, then follow with the rest

33. INSTALL THE BODY - NO REVERSE

- a. With the help of an assistant
 - i. Carefully set the body onto the chassis
 - 1. Roll 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.

34. INSTALL THE BODY – WITH REVERSE

- a. Raise the reverse lever, then
 - 1. 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
 - i. Then down on to the front body mounts first, Then set the rear of the body on to the chassis

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

- a. Route the tail-light harness to keep it out of sight and protected from moving parts
- b. Plug in the harness to the mating plug on the fender
 - i. Check the function of all lights
 - ii. After checking the lights, double check the wiring harness routing, and zip tie it as needed
- c. Install the front and rear body mount bolts 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(in the trunk) 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

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3. A somewhat firm push on the door to make it latch is normal as over time the weather stripping will conform to its mating surface

36. INSTALL THE PASSENGER FOOTPEG MOUNTING BRACKETS (PIC #33)
 - a. Install the passenger footpeg mounting brackets on to the chassis
 - b. Install the stock footpegs onto the mounting brackets using the provided pivot brackets and related hardware

37. REPLACE THE SEAT USING STOCK HARDWARE

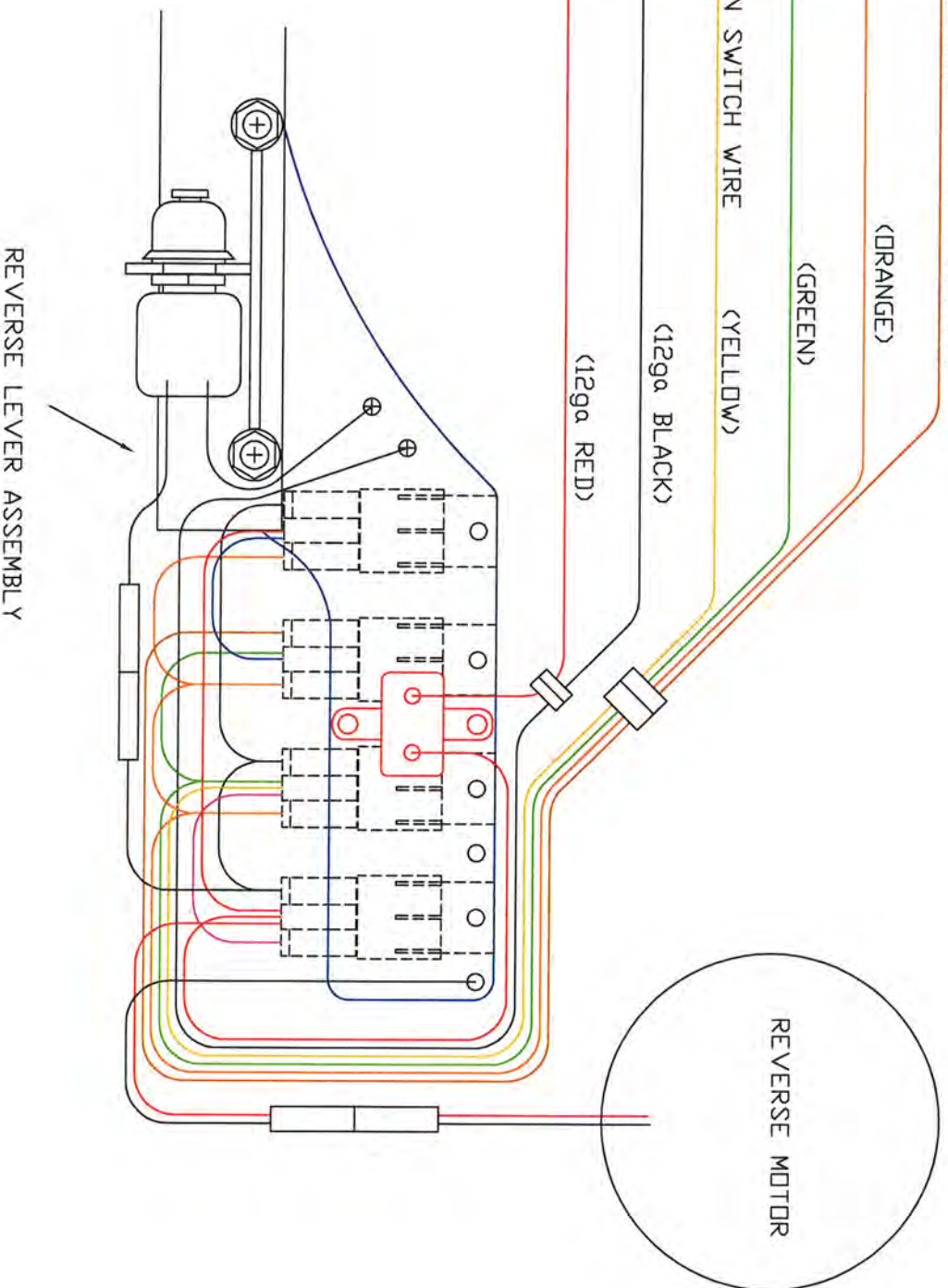
38. CHECK THE TORQUE ON THE LUG NUTS (70-75 FT LBS)

39. TEST DRIVE

A-100-577-A (REV C)

DISCONNECT BATTERY

- 1/4" MALE SPADE TO TAN NEUTRAL LIGHT WIRE (T-TAP) (BROWN)
- 1/4" MALE SPADE SWITCHED 12V (ORANGE)
- A-975 FEMALE SPADE TO HORN+ (GREEN)
- MCT-2A MALE SPADE EXTENDS HORN SWITCH WIRE (YELLOW)
- 1/4" RING TER. GROUND (12ga BLACK)
- 5/16" RING CONNECTOR (TD STARTER BATT+ POST) BATT+ (12ga RED)



A-100-577-B

HDT REVERSE WIRING GUIDE

DISCONNECT BATTERY

BROWN

LOCATE TAN (NEUTRAL LIGHT) WIRE, IN H.D. HARNESS, CONNECT 'T' TAP TO TAN WIRE, PLUG IN BROWN WIRE FROM REVERSE LEVER TO 'T' TAP

ORANGE

PLUG IN ORANGE WIRE FROM REVERSE LEVER TO ORANGE PIGTAIL ON TRIKE SHOP TAIL LIGHT HARNESS. NOTE: WHEN WIRING REVERSE ASSY. (WITH NO BODY/TRIKE SHOP TAIL LIGHT HARNESS IN PLACE) YOU MAY TEMPORARILY CONNECT ORANGE WIRE FROM REVERSE LEVER TO BATT+ TO VERIFY OPERATION. MAKE FINAL CONNECTION AFTER INSTALLING BODY W/TAIL LIGHT HARNESS.

GREEN

ROUTE GREEN & YELLOW WIRES (FOLLOWING LEFT SIDE WIRING BUNDLE UNDER FUEL TANK) TO HORN, UNPLUG STOCK HORN + WIRE (YELLOW) FROM HORN, PLUG IN GREEN WIRE TO EXPOSED + TERMINAL ON HORN.

YELLOW

PLUG IN YELLOW WIRE TO PREVIOUSLY UNPLUGGED STOCK HORN + WIRE (YELLOW)

12ga BLACK

CONNECT 12ga BLACK WIRE TO GROUND STUD IN FRONT OF BATTERY- (USE GROUND STUD WITH PLAIN BLACK WIRES ONLY- NOT BLACK/GREEN-)

10ga RED

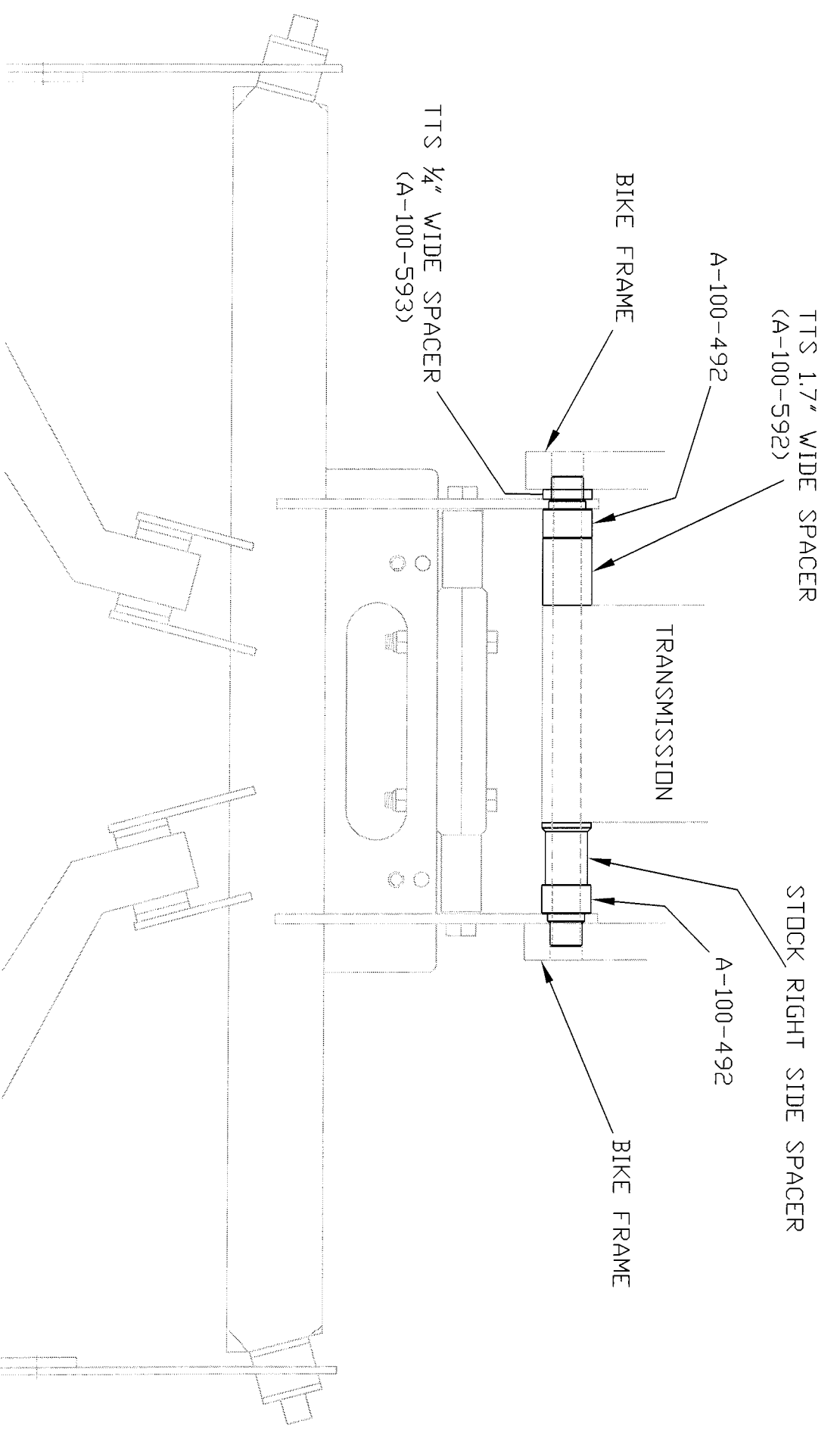
CONNECT TO BATT+ TERMINAL ON STARTER- ROUTE WIRE VERY CAREFULLY-(UNPROTECTED BATT+)
(NOTE: 10ga RED WIRE IS ENCLOSED IN BLACK PLASTIC WIRE LOOM)

REVERSE
MOTOR

ZIP TIE WIRES TO TAB ON END OF REAR FENDER, CONTINUE TO ROUTE ALONG FRAME, OUTSIDE OF FENDER (ZIP TIE), PLUG IN TO MATING PLUG ON REVERSE LEVER.
NOTE: BE SURE TO LEAVE ENOUGH SLACK IN WIRE TO ALLOW REVERSE MOTOR TRAVEL.

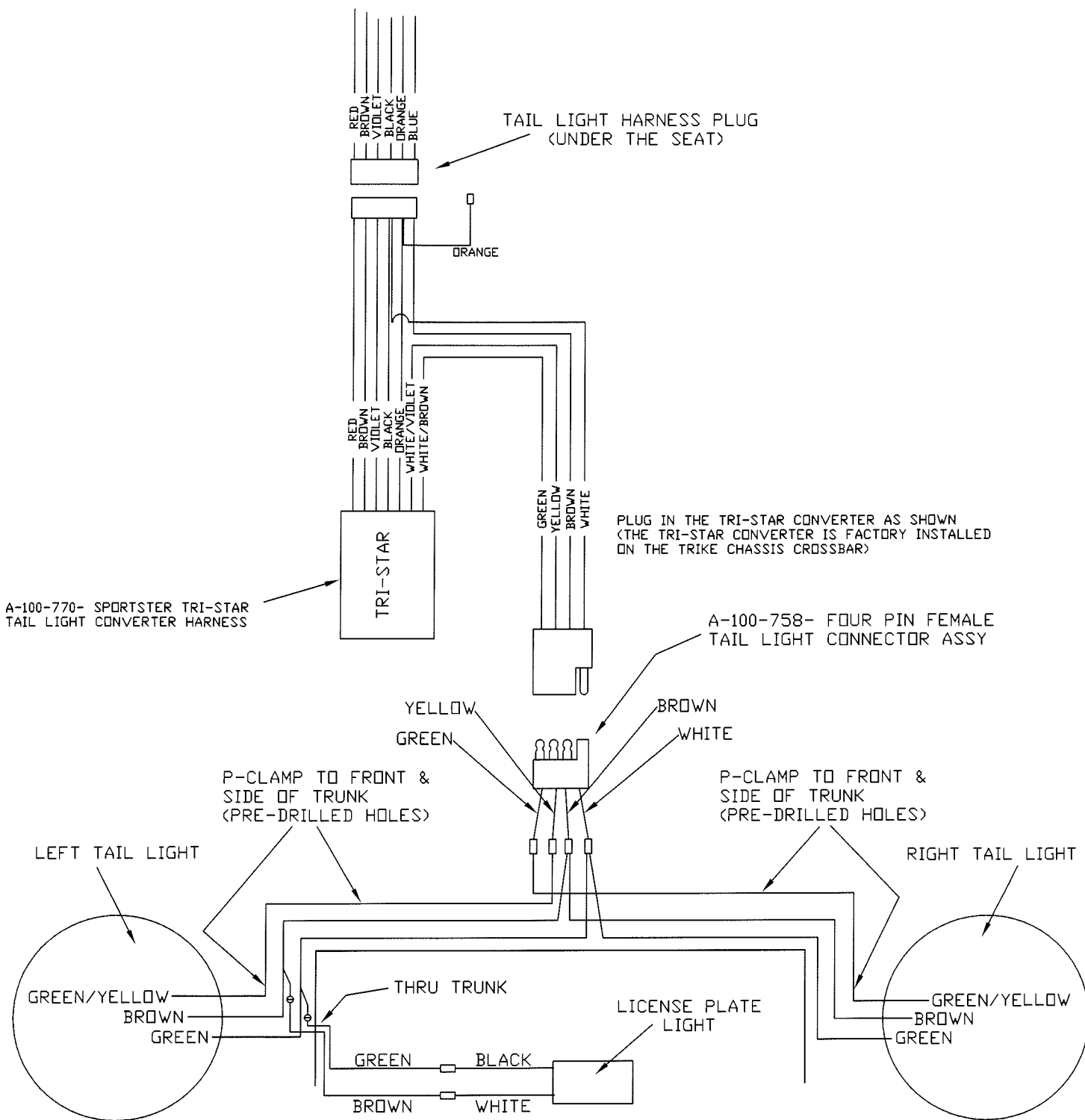
DIAGRAM #A-100-591 2008 AND NEWER SOFTAIL FRAME MOUNT SPACER LAYOUT

USE STOCK PIVOT BOLT



A-100-775

HDT "V" & SOFTAIL V-BODY TAIL LIGHT WIRING DIAGRAM



- INSTALL TAIL LIGHTS & LIC PLATE LIGHT ON BODY
- ATTACH LEFT & RIGHT TAIL LIGHT HARNESS TO SIDES & FRONT OF TRUNK
(USING PRE-DRILLED HOLES & SUPPLIED "P" CLAMPS & HARDWARE)
- PLUG IN LEFT & RIGHT TAIL LIGHT WIRES TO SUPPLIED FLAT FOUR PLUG AS SHOWN
(IT MAY BE NECESSARY TO SLIGHTLY CLOSE UP THE FEMALE CONNECTORS FOR A TIGHT
CONNECTION- AFTER PLUGGING THEM IN, ZIP TIE THE BUNDLE TO PREVENT UNPLUGGING)
- CONNECT SUPPLIED GREEN & BROWN WIRES TO LEFT SIDE TAIL LIGHT HARNESS PLUGS
- PUSH GREEN & BROWN WIRES THROUGH PRE-DRILLED HOLE IN LEFT SIDE OF TRUNK
- SPlice GREEN & BROWN WIRES TO LIC. PLATE LIGHT

DIAGRAM #A-100-777

2000 THRU 2007 SOFTAIL FRAME

MOUNT SPACER LAYOUT

USE STOCK PIVOT BOLT & HDWR.

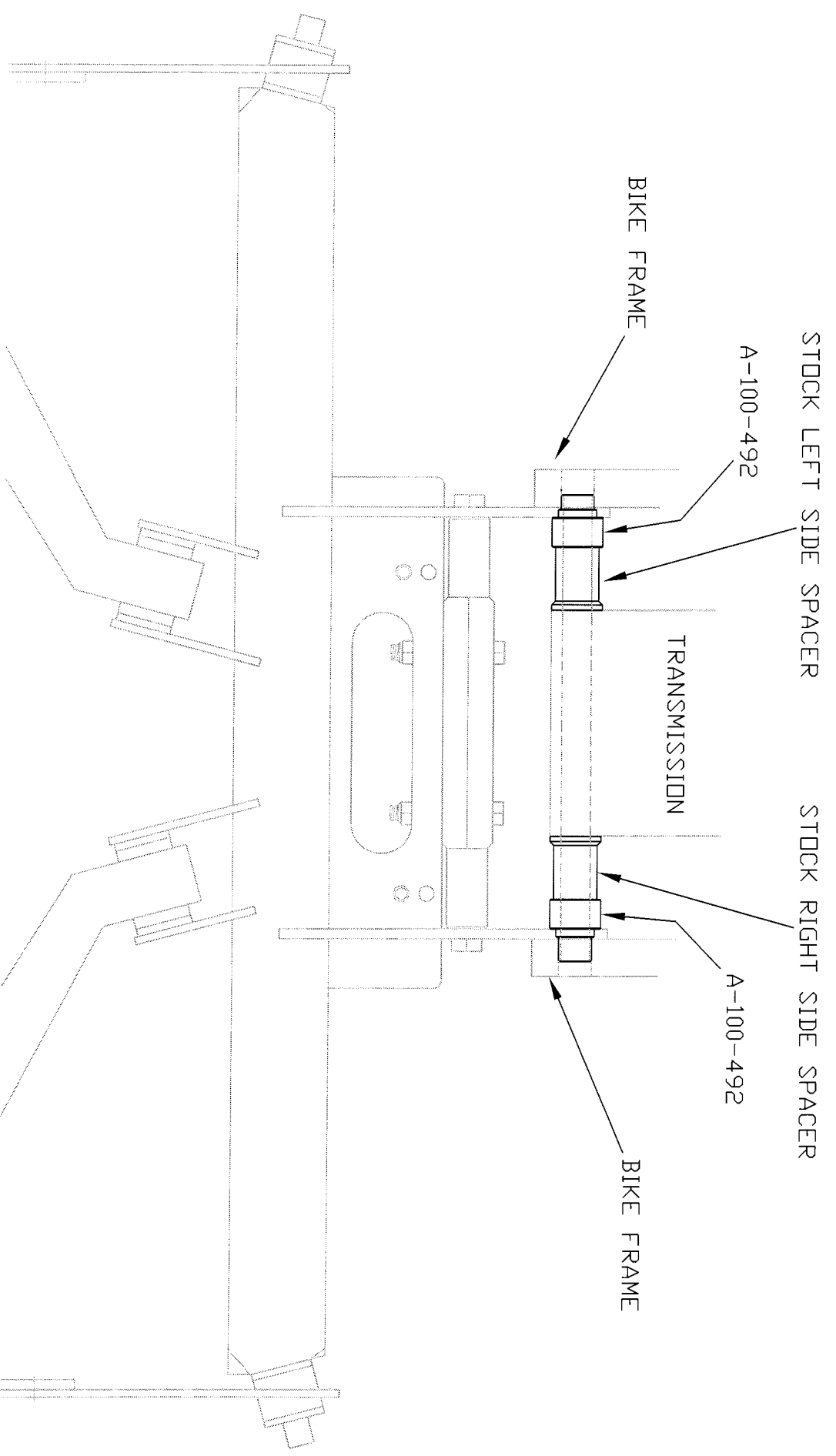


DIAGRAM #A-100-778

1997 THRU 1999 SOFTAIL FRAME

MOUNT SPACER LAYOUT

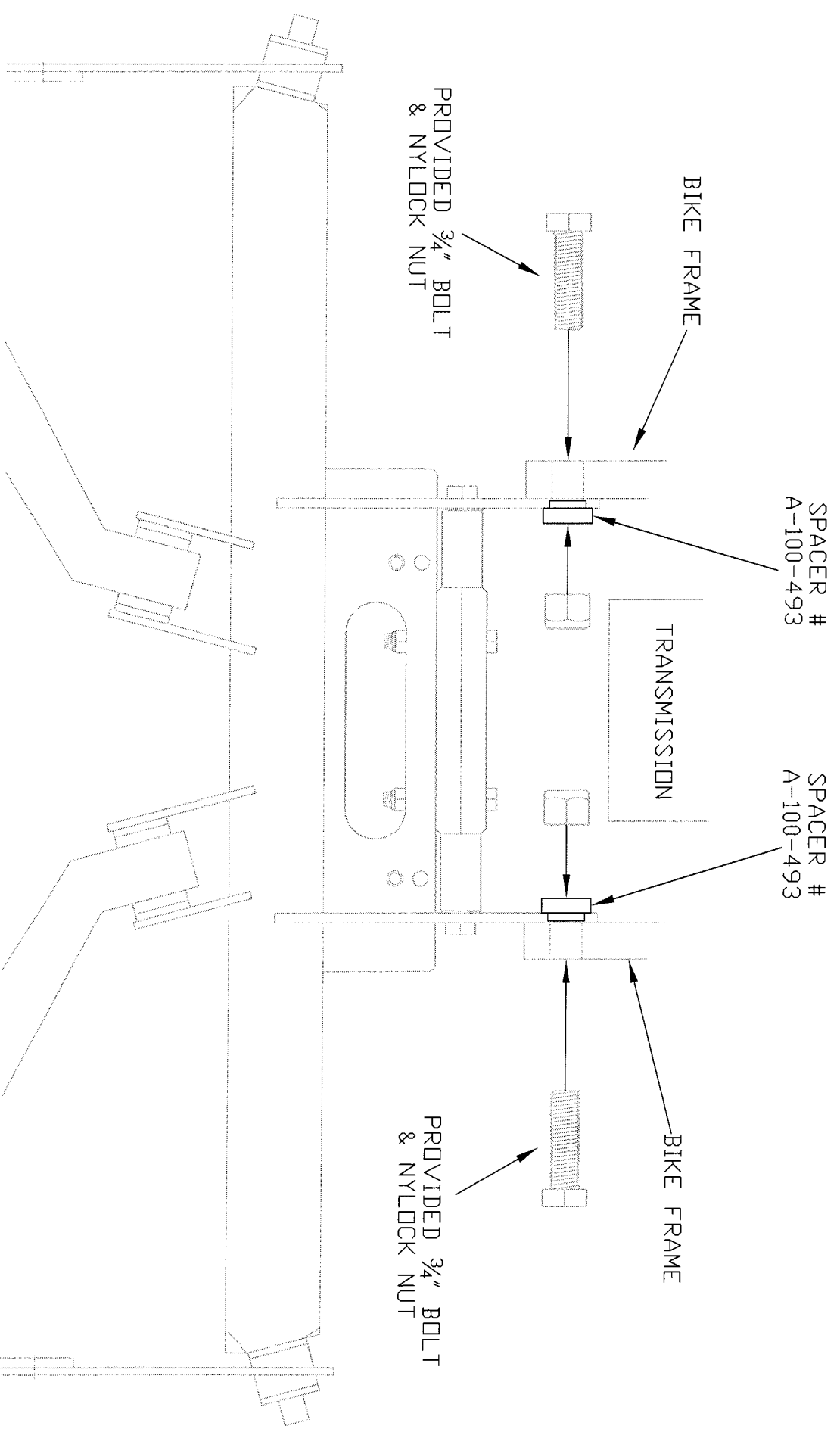
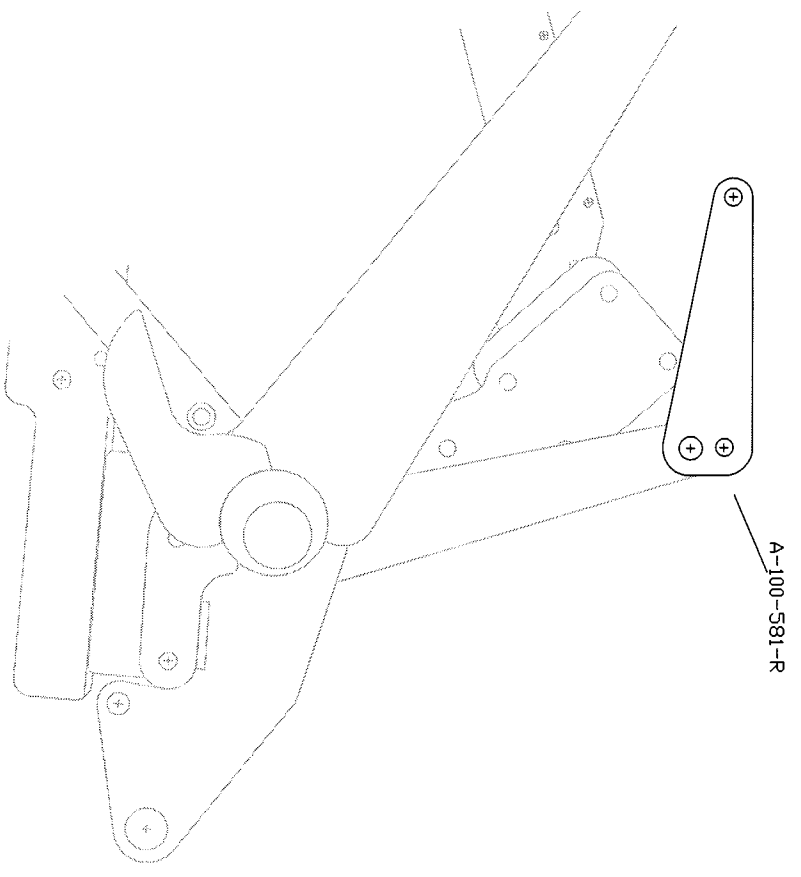
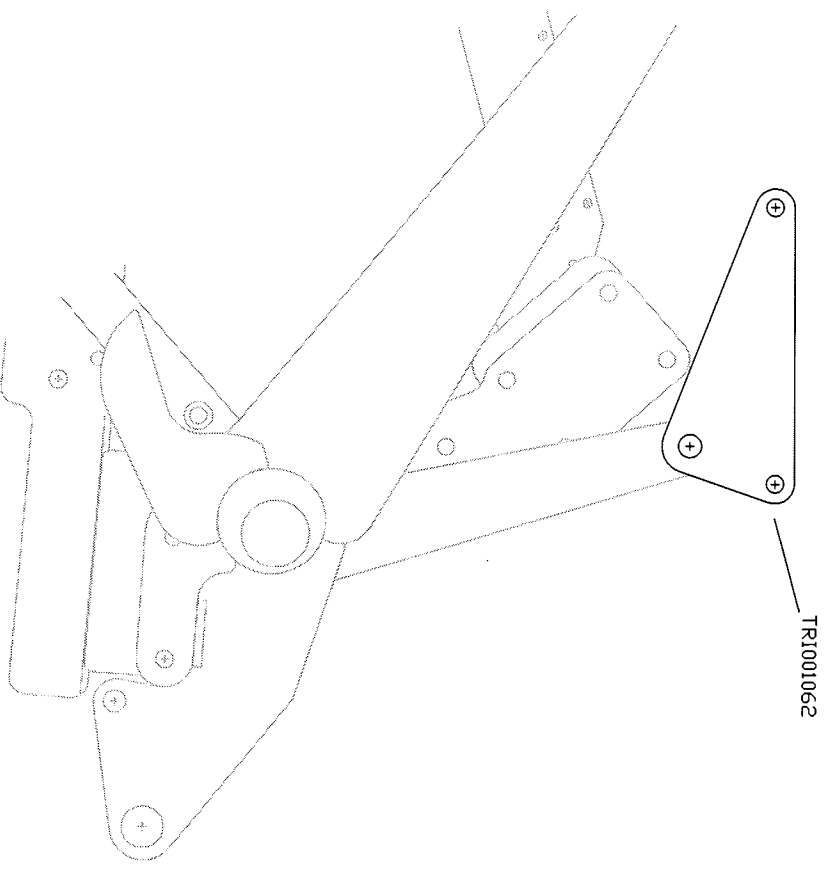


DIAGRAM #A-100-779

A-100-581-L & A-100-581-R=
SOFTAIL W/200 TIRE (9½" WIDE FENDER) UPPER FRAME MT
BRKTS
(TOUR AND 'V' BODY)
(ASSORTED MODELS- 2006 & NEWER)



TR1001062
SOFTAIL (7" WIDE FENDER) UPPER FRAME MT BRKTS
(TOUR AND 'V' BODY)
(ALL 05 & OLDER, ASSORTED MODELS 06 & NEWER)

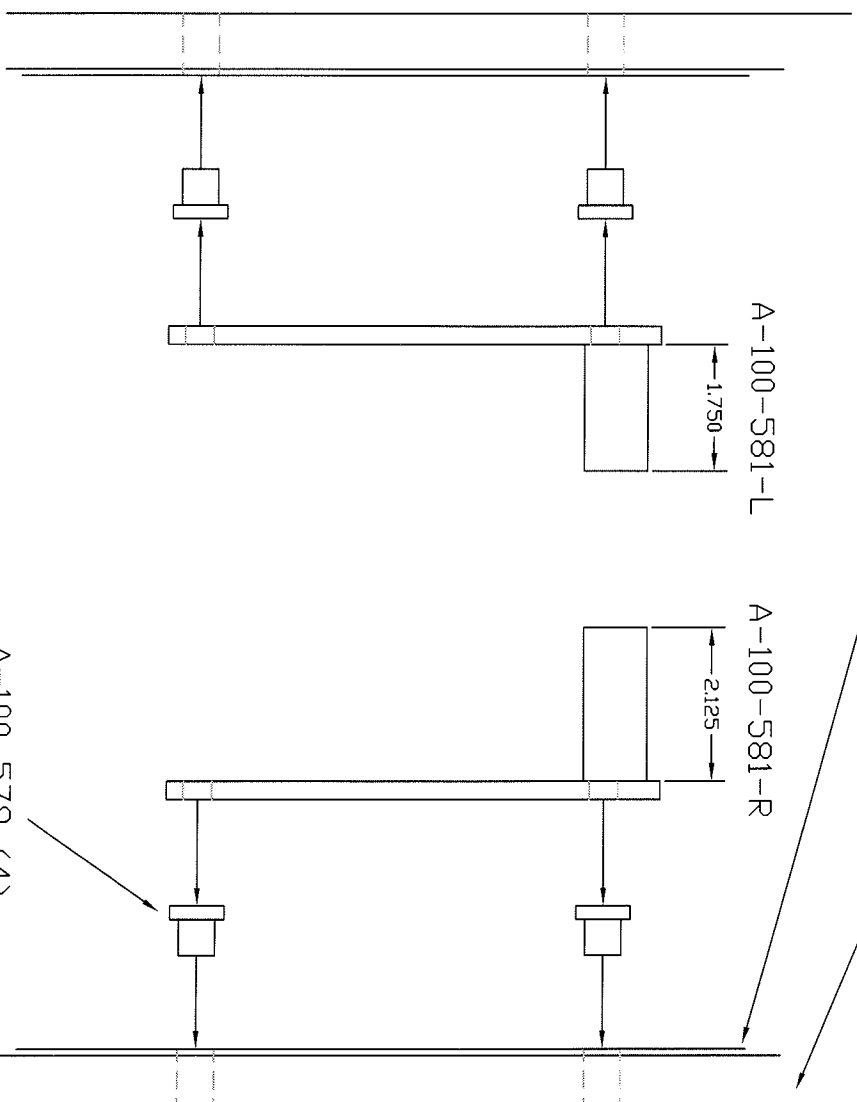


A-100-780

SOFTAIL "200" TIRE UPPER FRAME MOUNTING BRACKET INSTALLATION DIAGRAM

INSTALL THE FOUR FENDER STRUT SLEEVES (A-100-579) THRU THE STOCK FENDER AND IN TO THE FENDER STRUTS FIRST, THEN BOLT ON THE LEFT AND RIGHT UPPER FRAME MOUNTING PLATES- DO NOT TIGHTEN UNTIL ALL FRAME MOUNTING HARDWARE IS IN PLACE.

STOCK FENDER AND FENDER STRUTS



A-100-579 (4)

FENDER STRUT SLEEVES