

Trike Conversion Installation Guide
Kawasaki Vulcan 900
Classic, Classic LT, and Custom Models
2007 and Up
Solid Axle Suspension
02/07/2013



CAUTION:

-Failure to make the proper adjustments will potentially lead to serious personal injury and/or property damage and may void the warranty.

-Champion does not guarantee fit form or function to any of their trike kits if altered or aftermarket components were added to the original bike design.

-All dealers or installers should make proper adjustments with the customer before delivery. Champion is not responsible for additional adjustments made under warranty.

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1 General Information

The Champion Trike Conversion Kit is designed with the utmost consideration for safety, quality and ease of installation. The kit comes complete with all necessary hardware and fasteners. It is recommended that the installer obtain an OEM service manual for the vehicle on which the Trike kit is to be installed. Please review the installation instructions before installing the kit.

1.1 Installation Information

The information contained in this installation guide is intended for use by technicians of advanced to professional skill levels. Attempting installation without the proper training, tools and equipment may result in damage to the vehicle, cause unsafe conditions, or cause personal injury to you and/or others.

a. Altered or Changed from OEM Warning

CAUTION: Champion trike kits are designed for installation on unmodified motorcycles as from the OEM. Champion does not guarantee fit, form, or function, on any of their trike kits if installed with altered or aftermarket parts differing from the original bike design.

1.2 For Your Safety

Because this guide is intended for technicians of advanced to professional skill levels, we do not provide warnings about many basic shop safety practices. If you have not received shop safety training or do not feel confident about your knowledge of safety practices, we recommend that you do not attempt to perform the procedures described in this guide.

Some of the most important general safety precautions are given below. Champion Trikes cannot warn you of every conceivable hazard that can arise. Only you can decide whether or not you should perform a given task.

1.3 Important Safety Precautions

a. Make sure you have a clear understanding of all basic shop safety practices and that you wear appropriate clothing and use safety equipment. Be especially careful of the following:

- Read all directions before you begin, and make sure you have the tools, the parts and the skills required to perform the tasks safely and completely.
- Protect your eyes by using proper safety glasses, goggles or face shields anytime you hammer, drill, grind, pry or work around pressurized air or liquids, and springs or other stored-energy components.
- Use other protective wear when necessary, for example gloves or safety shoes. Handling hot or sharp parts can cause severe burns or cuts.
- Protect yourself and others when you have a vehicle up in the air. Anytime you lift a vehicle, either by hoist or a jack, make sure that it is securely supported.

b. Make sure the engine is turned off before you begin work.

- Carbon Monoxide poisoning from exhaust gases: Be sure there is adequate ventilation whenever you run the engine.
- Burns from hot parts: Let the engine and exhaust system cool before working on those areas.
- Injury from moving parts: If running the engine, keep hands, fingers and clothing away from moving/rotating parts.



- c. Gasoline vapor and hydrogen gases from batteries are explosive. To reduce the possibility of fire or explosion, be careful when working near gasoline and batteries.
- d. Use only nonflammable solvent, not gasoline, to clean parts
- e. Never drain or store gasoline in an open container.
- f. Keep all cigarettes, sparks or flame away from the battery and all fuel related parts.

1.4 Specifications

Overall Length (w/ EZ-Steer)	106"
Overall Width:	54.5"
Wheel Base (w/ EZ-Steer)	67"
Max Load Capacity:	500 lb
Tire Size (15"):	205 / 60 / R15
Wheel Size (15") (4 lug)	Offset +35 mm 15x7JJ 4x4.5
Tire Pressure:	20-25 PSI
Suspension:	"Zero-Flex" Swing Arm utilizing OEM shock plus Air Bag
Rear Axle/Differential:	Champion lightweight rear axle/differential utilizing OEM drive belt
Brakes:	Original front plus 2 high performance disc brakes at rear
Storage Capacity:	2 cubic feet (1 full-face helmet plus additional storage)

2 Removal of Original Parts

Champion does not change components that will affect or change the emission characteristics of the motorcycle.

2.1 Secure and raise motorcycle at least 10 inches.

2.2 Remove the following from the vehicle for installation. See OEM manual for detailed instructions.

- Disconnect battery leads
- Seat (both front and rear)
- Top Box (if equipped)
- Saddle Bags
- Mufflers (and chrome covers over muffler joints if needed)
- Saddlebag Rails (if so equipped)
- Top Box Frame and Chrome Covers (if equipped)
- Side Body Panels
- Rear Wheel
- Rear Caliper

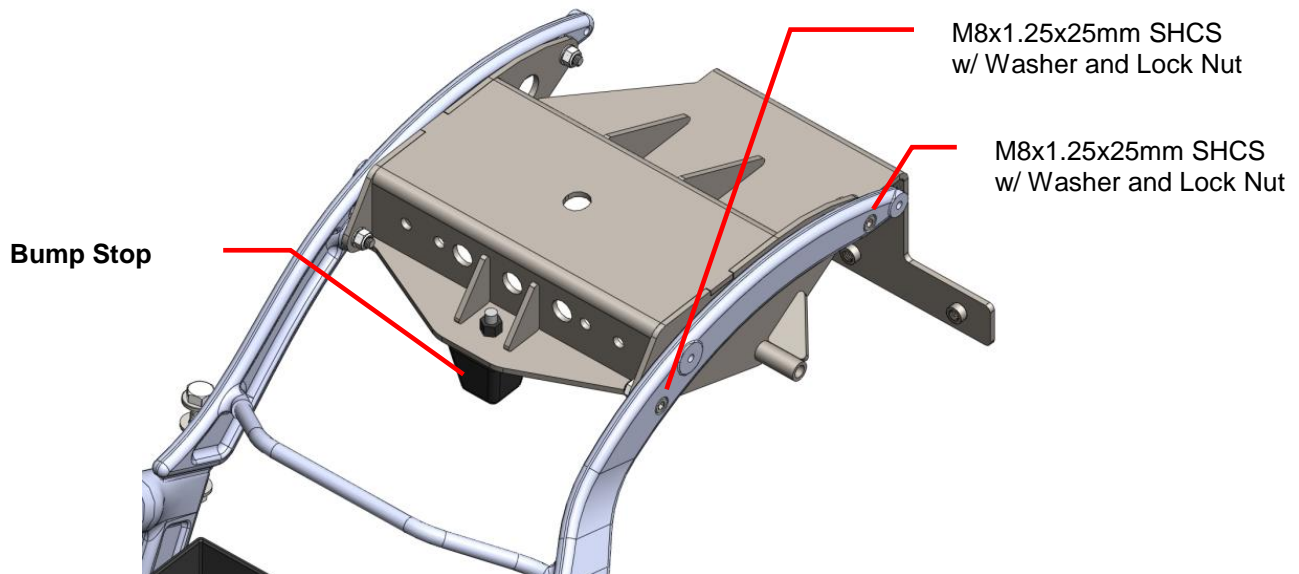
NOTE: Prior to disconnecting the line at the caliper, depress the foot brake and secure it in the down position (zip-tie to floor board). This will prevent fluid flow when the rear brake caliper is removed.

- Rear Brake Line (disconnect line at master cylinder)
- Rear Fender (Remove the passenger seat catch with bolts from the fender)
- Swing Arm
- Remove Shock Linkage from Swing Arm
- Rear Shock

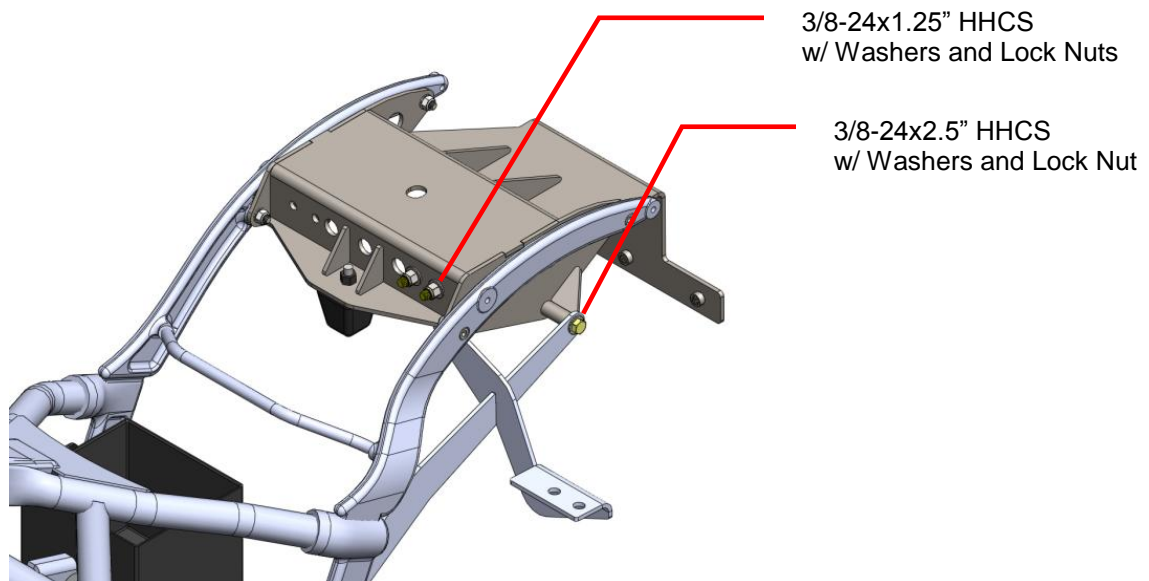
INSTALLING TRIKE CONVERSION KIT

2.3 Install Top Frame

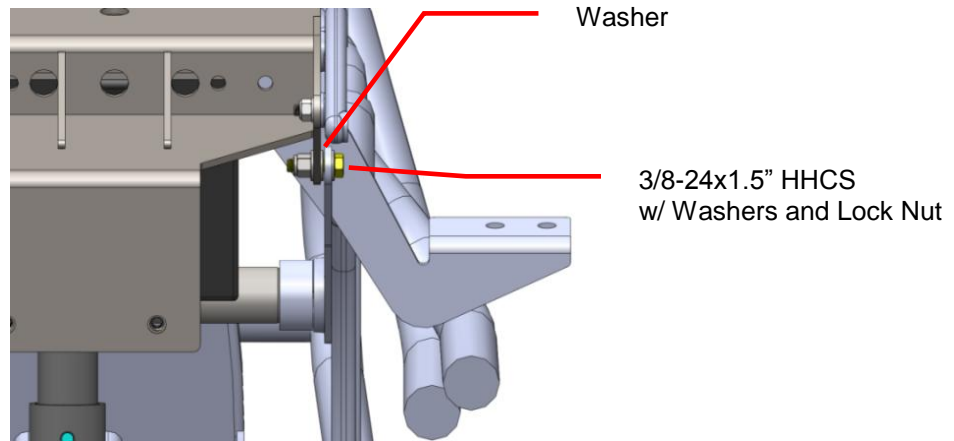
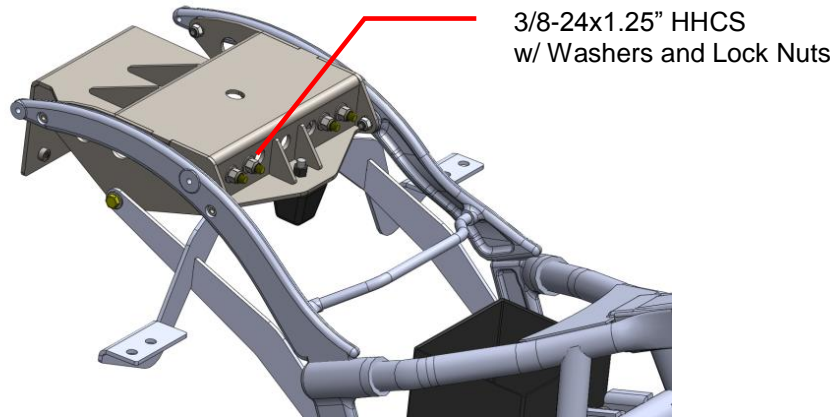
- a. Attach bump stop to Top Frame. Torque to 30 ft-lbs.
- b. Bolt Top Frame to motorcycle sub-frame using the supplied M8x1.25x25mm socket head cap screws w/ washers and nylock nuts. Torque to 18 ft-lbs.



- c. Install LHS body mount using 3/8-24x1.25" hex head cap screws w/ washers and nylock nuts. Then use a 3/8-24x2.5" hex head cap screw, washers, and nylock nut. Torque all hardware to 45 ft-lbs.

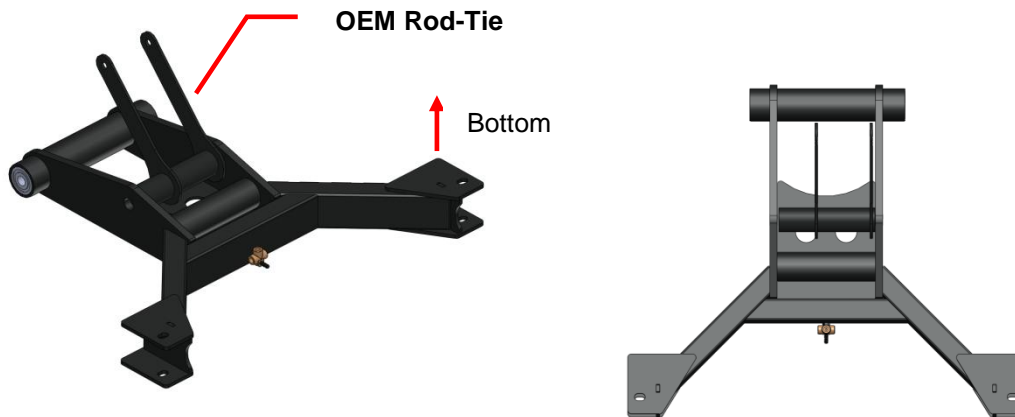


- d. Install the RHS body mount using 3/8-24x1.25" hex head cap screws, washers, and nylock nuts. Place one washer between the Top Frame and RHS body mount. Then use a 3/8-24x1.25 hex head cap screw, w/ washers, and nylock nut. Torque all hardware to 45 ft-lbs.

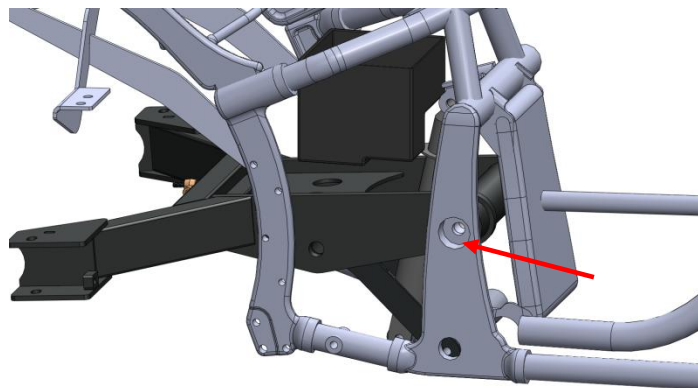


2.4 Install Swing Arm

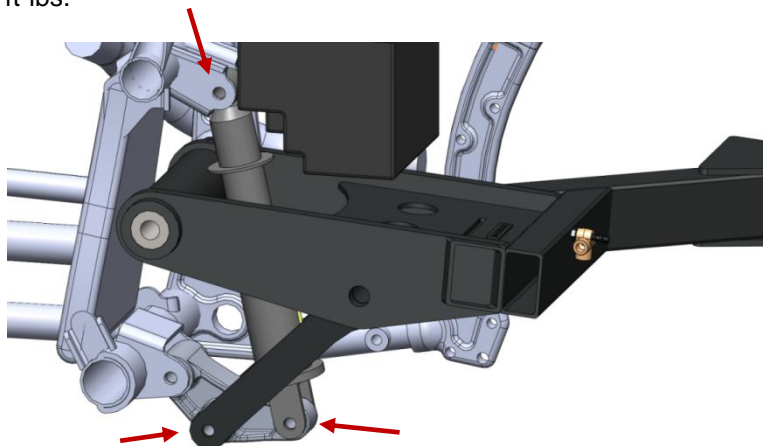
- Remove the rod-tie from the OEM swing arm.
- Insert the rod-tie w/ OEM bushing into the new Champion swing arm using the OEM bolt and nut. Torque to 72 ft-lbs.



- Using OEM hardware, install Champion's swing arm into swing arm pivot. Torque to 80 ft-lbs.

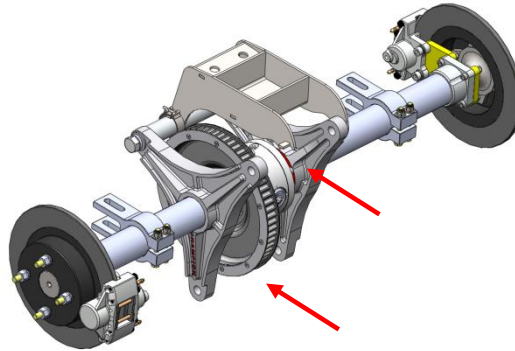


- Use the OEM hardware to connect the rod-tie and shock to uni-track arm. Connect shock to frame. Torque all hardware to 44 ft-lbs.

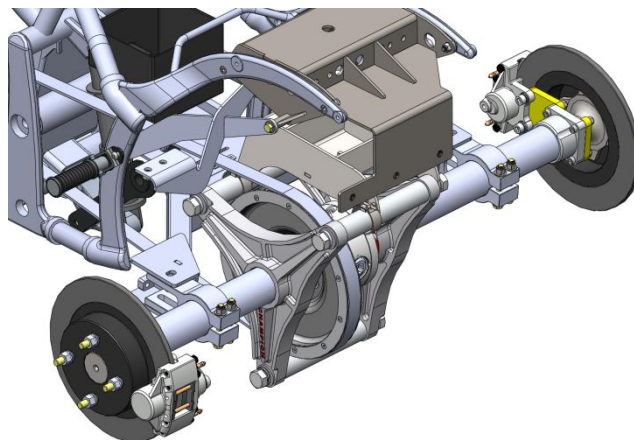


2.5 Install Rear End Assembly

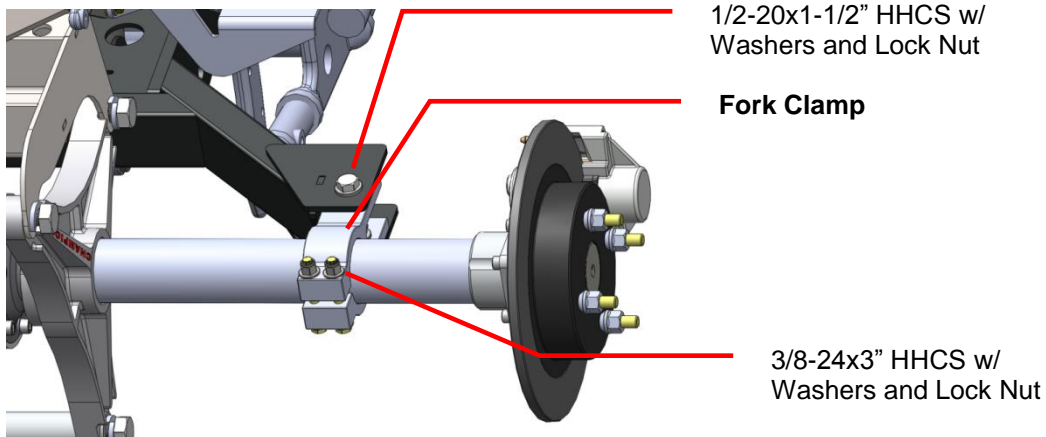
- a. Loosen the 2" t-bolt clamp and remove 2 of the 3 cross tubes.



- b. Pass rear end assembly through belt drive. Then reattach both cross tubes and torque to 150 ft-lbs. Torque t-bolt clamp to 7 ft-lbs.



- c. Position the fork clamps as seen below and attach rear end using supplied 1/2-20x1-1/2" hex head cap screws, washers and lock nuts. Then loosen all fork clamp 3/8-24x3" hex head cap screws on rear end assembly. Keep all bolts loose for belt drive adjustment.

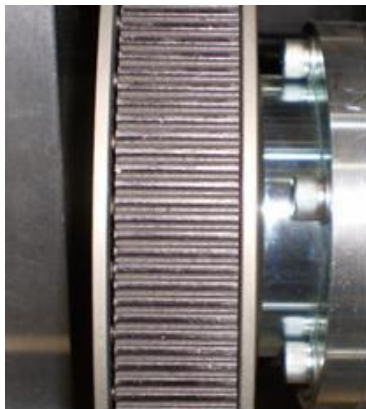


2.6 Align and Tension Drive Belt

- a. Install M10x1.25x55mm hex head cap screws w/ nuts to swing arm alignment tabs.
- b. Set the belt tension and alignment by moving the solid drive train unit forward or rearward as necessary using the adjuster bolts. Belt tension can be measured by total vertical movement and should be approximately $\frac{3}{4}$ "-1" with a new belt.

Tip: Measure from the adjuster bolt tabs to the face of the fork clamp on each side to get the alignment close. Then perform the next step.

- c. To check the alignment, turn the sprocket by hand in the forward direction, noting whether the belt runs in the center of the pulley. If the pulley runs on the right side plate of the pulley, use the right hand adjuster bolts to move the right wheel rearward until the belt runs in the center. If the belt runs on the left side plate of the pulley, use the left adjuster bolts to move the left wheel rearward. Make small adjustments and recheck the alignment.
- d. Once the belt is aligned, torque the two front M10 jam nuts to 40 ft-lbs and double check belt alignment. If alignment is off, please repeat alignment process.
- e. Tighten all fasteners left loose for belt adjustment.
 - Torque the four $\frac{3}{8}$ " fasteners to 45 ft-lbs.
 - Torque the four $\frac{1}{2}$ " fasteners to 70 ft-lbs.
- f. Recheck belt tension and alignment after tightening the fasteners.



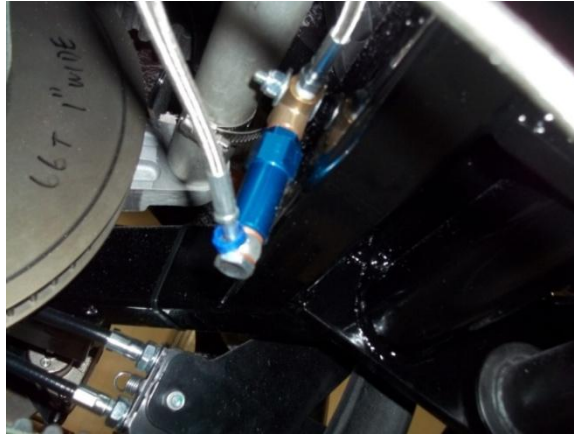
Belt off to the right side.



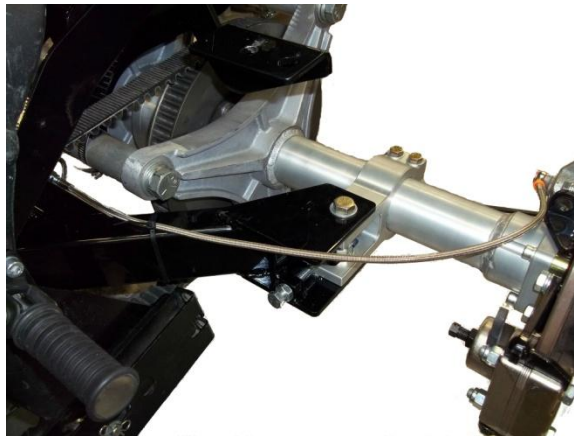
Belt centered correctly.

2.7 Install Brake Parts

- a. Connect blue brake pressure residual valve to t-block w/ crush washer. Torque to 18 ft-lbs.



- b. Attach 24.75" brake line to LHS of t-block. Connect banjo to caliper using banjo bolt and crush washers. Torque both ends to 18 ft-lbs. Use zip-tie to hold brake line as shown in the following picture.



- c. Connect 29" brake line to LHS of t-block. Connect banjo to caliper w/ banjo bolt and crush washers. Torque both ends to 18 ft-lbs. Use zip-tie to hold brake line as shown in the following picture.



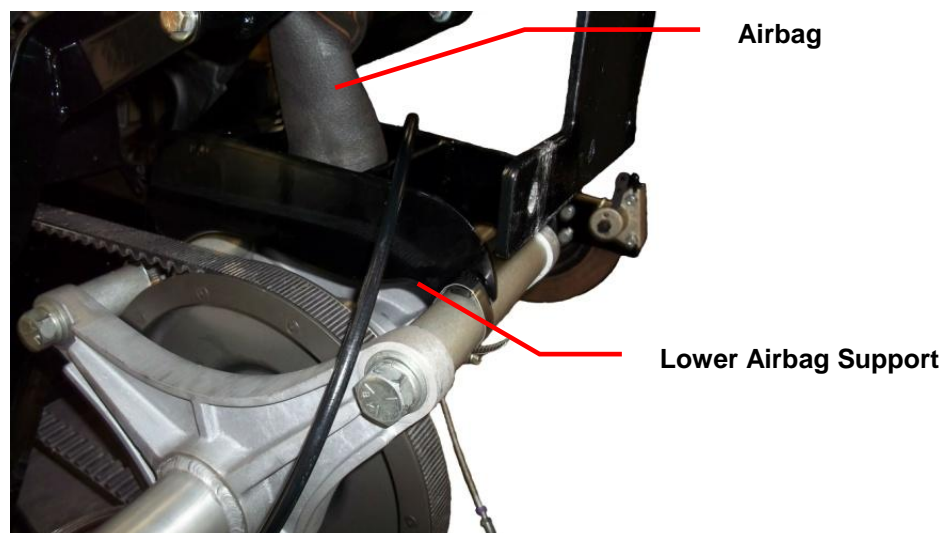
- g. Connect included Champion braided brake line with 90 deg. bend to OEM rear master cylinder using OEM banjo bolt and supplied crush washers. Position the banjo bolt as shown in the following picture.



- d. Route Champion brake line in the same location as the old OEM brake line. Connect Champion brake line to pressure residual valve using a 10mm banjo bolt and two crush washers. Torque both ends to 18 ft-lbs.
- e. Use brake fluid specified on the master cylinder and bleed rear brake system. Thoroughly bleed the system of any air using the upper bleeders on rear brake calipers. Then bleed bottom bleeder one time on both brake calipers.

2.8 Install Airbag

- a. Install airbag into Lower Airbag Support w/ 3/8-16x1" hex head cap screw, lock washer, and washer. Torque to 18 ft-lbs



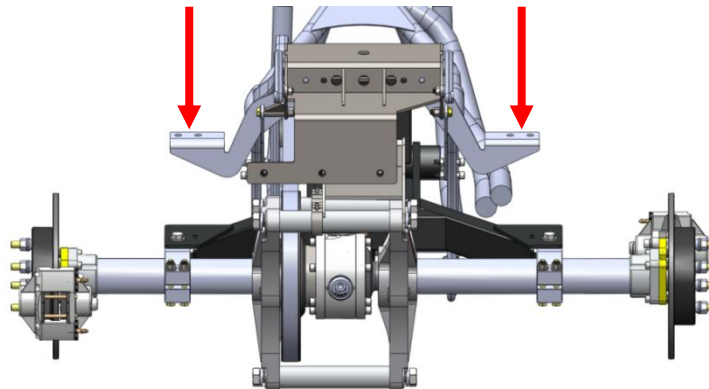
- b. Connect airbag to Top Frame using 3/4-16 jam nut. Torque to 45 ft-lbs.

2.9 Install Body

- a. Remove OEM seat latch from OEM rear fender then attach seat latch onto Champion's body using M06x1.0x45mm socket head cap screws, w/ washers and nylock nuts.



- b. Temporarily place Champion's body onto both side body mounts. Attach seat to verify seat release. Use 1" OD washers between the seat latch and Champion's body if height adjustment is required.



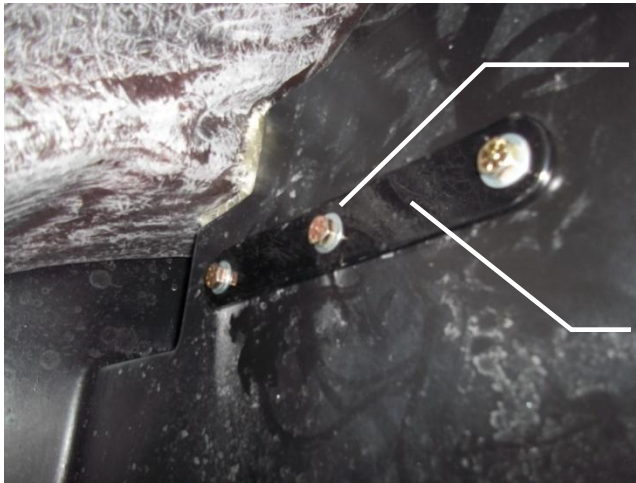
- c. Align body to frame. Use 3/8-16 nylock nuts w/ washers. Torque hardware to 45 ft-lbs.



- d. Guide the airbag inflation valve through body. Torque to 12 ft-lbs.



- e. Place inner liner back plate inside trunk. Use the 3/8-16x1.5" hex head cap screws w/ washers. Torque to 45 ft-lbs.



3/8-16x1.5" HHCS w/ Washers

Back Plate

2.10 Install Passenger Foot Peg

- a. For LHS foot peg, use M8x1.25x45mm button head cap screw, w/ washers, and nylock nuts to attach LHS body mount and foot peg. Torque to 18 ft-lbs.



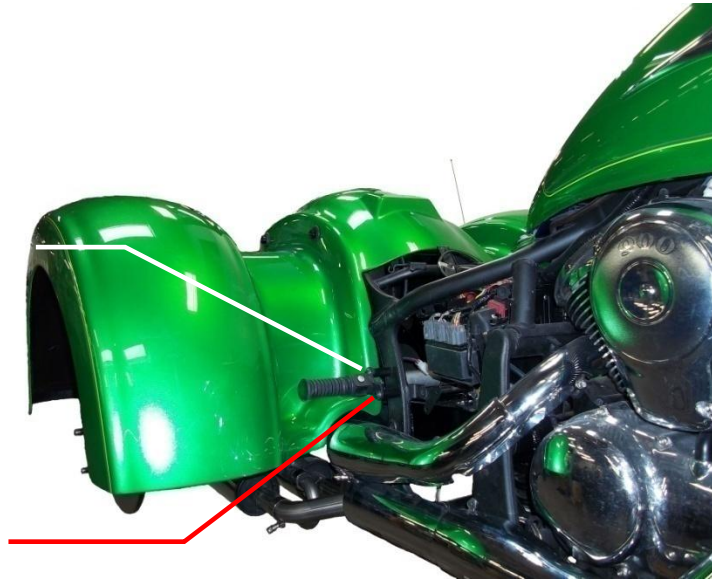
M8x1.25x45mm BHCS, w/ Washers, and Nylock Nut

M8x1.25x45mm BHCS, w/ Washers, and Nylock Nut

- b. Attach RHS foot peg and RHS body mount using included 1.4" spacers, M8x1.25x80mm button head cap screw, w/ washers, and nylock nuts. Torque to 18 ft-lbs.

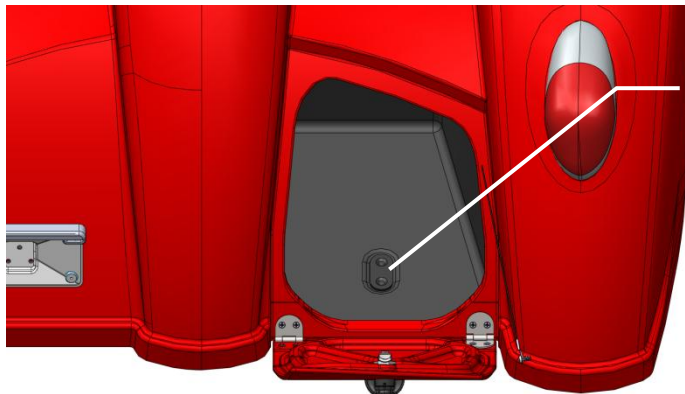
M8x1.25x80mm BHCS, w/
Washers, and Nylock Nut

M8x1.25x80mm BHCS, w/
Washers, and Nylock Nut



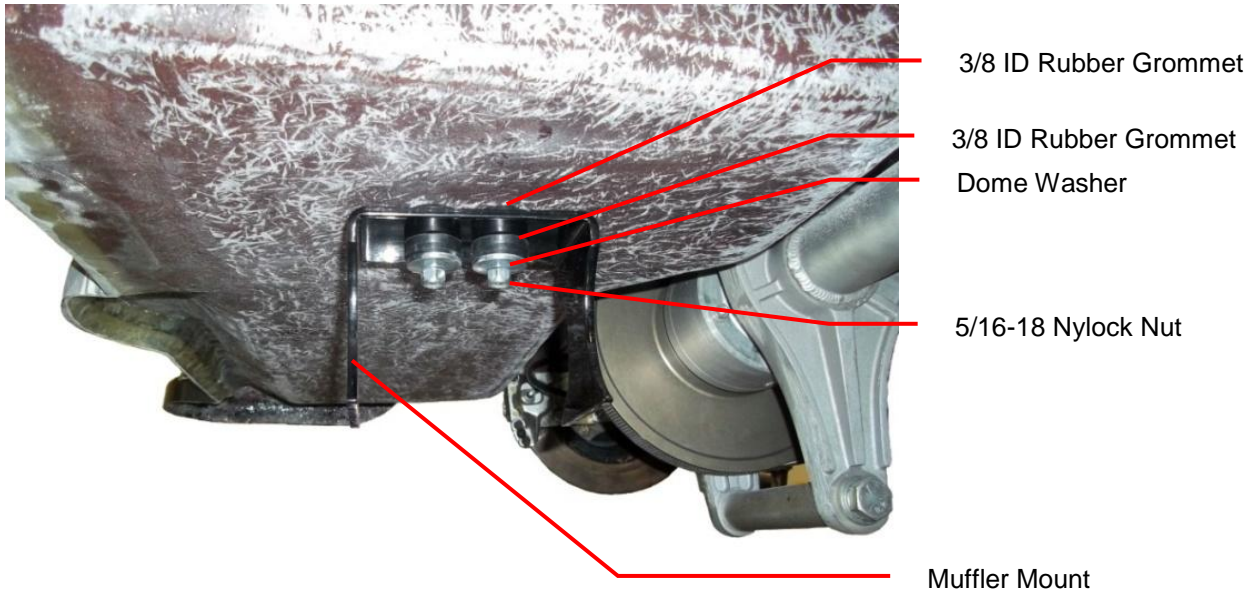
2.11 Install Exhaust Parts

- a. Place exhaust plate inside trunk.



Exhaust Plate

- b. Attach exhaust muffler mount using 5/16-18x2" flat head cap screws, rubber grommets, dome washers, and nylock nuts. Torque to 25 ft-lbs.

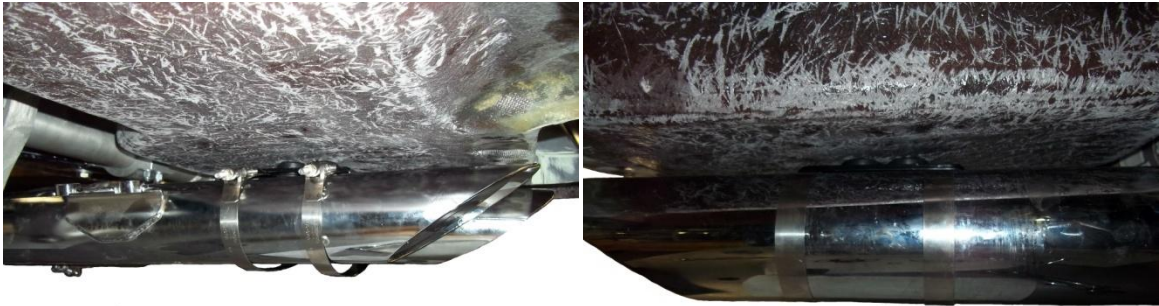


- c. Modify both OEM exhaust mufflers by cutting the exhaust pipe 2-3/4" from the front of the exhaust muffler as shown in the picture below. Loosely attach OEM header pipes.

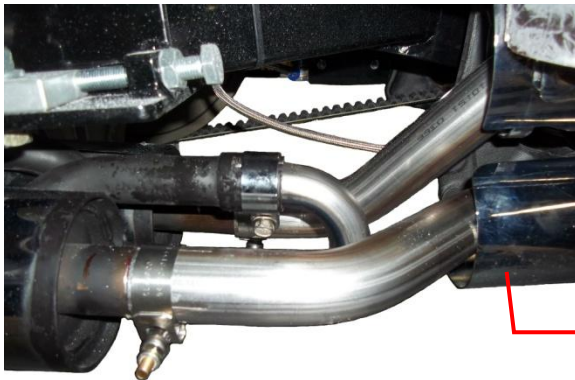


- d. Loosely connect both crossover tubes by using two 1-1/16" to 1-5/32" t-bolt clamps.

- e. Use two 7" t-bolt clamps and tighten clamps until mufflers can be held by muffler mount. Keep clamps loose for exhaust pipe adjustment.



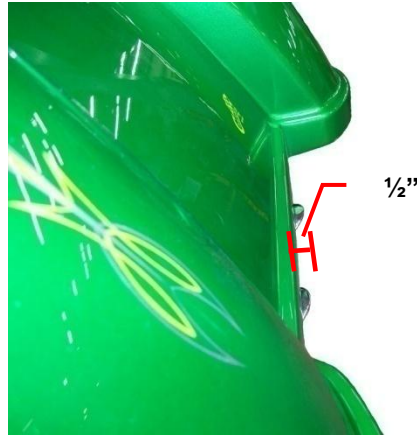
- f. Reinstall exhaust chrome covers onto OEM header pipes. Slide chrome extension cover.



Chrome Extension Cover

- g. Slide Champion exhaust extensions into OEM header pipe ends (longer extension is used on the RHS muffler). Slide the provided 1.5" t-bolt clamps on the extension ends. Keep all the clamps slightly loose until the mufflers are adjusted.

- h. Adjust the extensions and mufflers until the best fit is achieved. Exhaust tip should stick out 1/2" from body. Make sure the mufflers are at the same angle relative to the body frame otherwise the gap around the muffler to the body may differ.

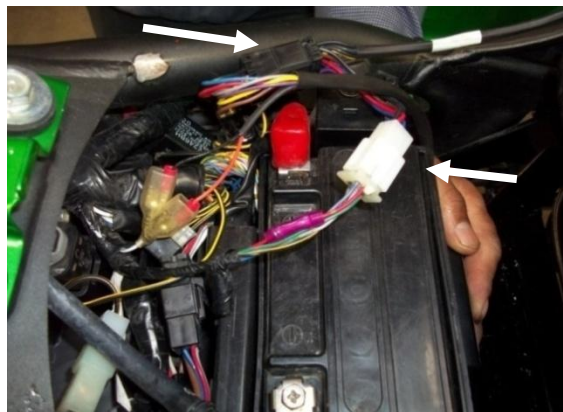


- i. Now tighten the exhaust hanger hose clamps, OEM exhaust clamps, and the supplied t-bolt clamps on the exhaust extensions.

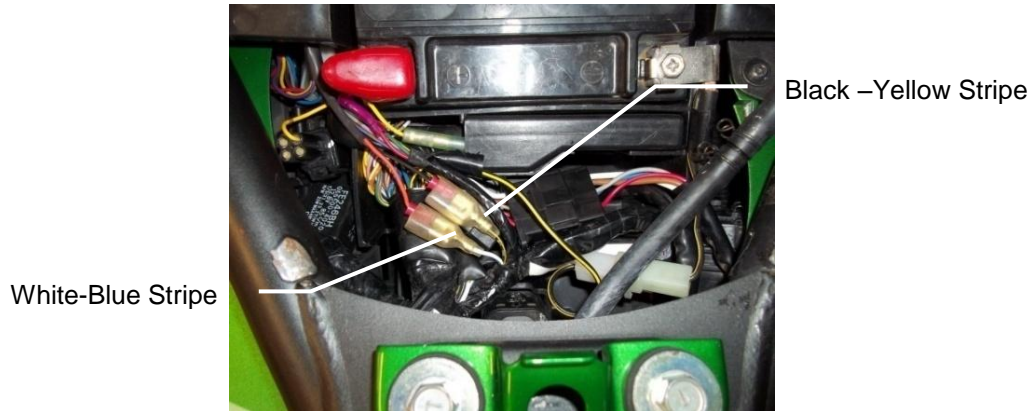
Note: The installation/alignment of the body is an iterative process to find the correct position of body in relation to the wheels. The seven holes already in the body are primarily for shipping purposes. These holes may line up with the pre-drilled body frame holes when the body is fitted, but may need to be elongated to align body.

2.12 Electrical

- a. Connect OEM black connector to Champion's black connector. Connect the OEM white connector to Champion's white connector.



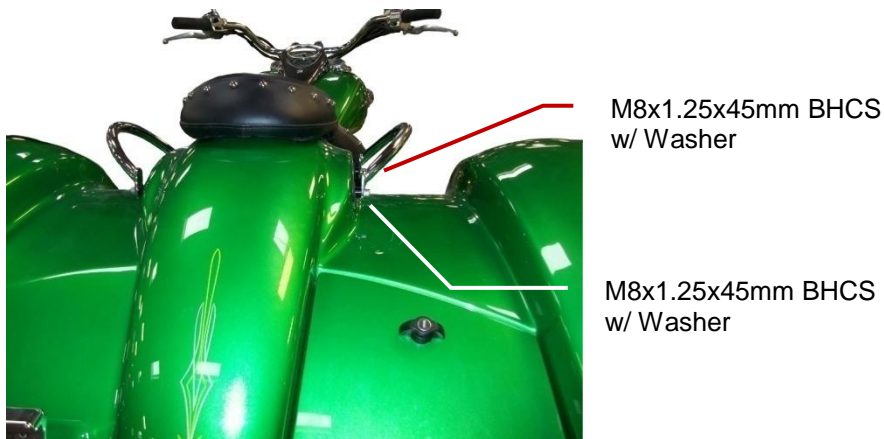
- b. Attach Champion's black wire to OEM black-yellow stripe wire. Now attach the orange wire to the OEM white-blue stripe wire. See picture below.



- c. Verify all lights work properly before attaching seat.

2.13 Install Passenger Grab Rails

- a. Insert 4 rubber grommets into cutouts near seat. Use black spacers with the provided M8x1.25x45mm button head cap screws, w/ washers. Torque to 18 ft-lbs.



2.14 Wheel and Tire Installation

- a. Install wheels and torque to 75 ft-lbs.
- b. Set tire pressure to 20-25 psi.



3 Suspension Adjustment

3.1 OEM Shock

- a. The OEM shock has an adjustable spring perch that can be rotated to increase or decrease spring preload.
- b. Champion recommends adjusting the spring perch to the highest spring preload position.

3.2 Air Bag

- a. The Air Bag pressure should be adjusted to accommodate for the weight of the riders and cargo.
- b. Use the Schrader Valve located under the seat to adjust the Air Bag pressure appropriately.
- c. Champion recommends setting the pressure to 20 psi as a general starting point, then adjust it as needed.