

**Trike Conversion Kit
ROADLINER,
STRATOLINER, &
STRATOLINER DELUXE**

**Installation
Instructions**

Revised 4 - 2017

California Sidecar Parts & Technical Support
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Warnings and considerations:

- 1. Disclaimer** - These instructions assume a level of understanding of motorcycle repair and maintenance beyond that of a “beginner” and/or “novice” and California Sidecar cannot be liable for an installer’s failure to understand or follow these instructions as written. Likewise, California Sidecar cannot be responsible if any of the steps are omitted or shortcuts are taken, or parts other than those supplied by California Sidecar, are used in installing this trike kit.
- 2. “WARNINGS”** are all printed in bold type and capitalized. They mean to use extreme care in a given step so as not to damage the part, motorcycle, and/or yourself.
- 3. Always wear safety glasses** when using hand and/or power tools.
- 4. When working in and around the fuel system, always work in a well-ventilated area, free from sparks and open flames.**
- 5. All directional references to the “right side” and the “left side” are as you were seated on the motorcycle.**
- 6. All directional references to “forward” mean to the front of the motorcycle while “back” means the rear of the motorcycle unless otherwise stated.**

Recommended Lubricants:

- 1. Fluorinated grease for splines**
- 2. Thread locking compound (Loctite 242 minimum).**
- 3. High temperature Silicone sealant.**

Torque values of fasteners:

- 1. 3/8-16 x 1 3/4 SHCS. 45 FT.-LBS. Frame mount**
- 2. M10 x 1.25 x 40 SHCS. 54 FT.-LBS. Frame mount**
- 3. Pivot shaft 90 ft-lbs**

Maintenance Schedule: VANTAGE

| Frequency (miles) | Daily | 4k | 8k | 12k | 16k | 20k | 24k |
|---------------------------|-------|----|----|-----|-----|-----|-----|
| Item | | | | | | | |
| Belts | I | I | I | I | I | T | I |
| Brake Pads and Rotors [1] | | I | I | I | I | I | I |
| Half Shaft Boots | | L | L | L | L | L | L |
| Wheel Bearings [2] | | I | I | I | I | I | I |
| Wheels and Tires | | I | I | I | I | I | I |
| All Lighting | I | | | | | | |
| Tire Pressure [3] | I | | | | | | |
| Brake fluid | | I | I | R | I | I | R |

I: Inspect: clean, lubricate, and/or replace as necessary.

R: Replace

L: Lubricate with Silicone Spray

T: Tension

NOTE:

[1] Minimum pad thickness is 0.04 inches (1.02mm)

[2] Wheel bearing torque 200 FT.-LBS.

[3] Rear tire pressure 15" & 16" WHEELS 28 PSI

17" WHEELS 25 PSI

At higher odometer readings, repeat at frequency intervals established here.

Note:

This Schedule is in addition to the Yamaha Maintenance Schedule

NOTICE:

The remote door opener installed on this unit has a very small electrical draw on your motorcycle battery. If your trike will be unriden for more than 2 weeks you should remove the 15 amp fuse from the red fuse holder located under your seat or right side cover. Another option is using a battery tender.

Disassembly of motorcycle:

- 1. Place the motorcycle on the lift and secure.**
- 2. Remove driver and passenger seat.**
- 3. Unstrap the ECM and unplug the rear fender harness.**
- 4. Disconnect negative battery terminal.**
- 5. Remove the tool kit and its tray along with its hardware. Save for reinstallation.**
- 6. Remove the three seat mounts. Save for reinstallation.**
- 7. Remove five SHCS from the right side fender strut
Remove fender strut.**
- 8. Remove the front three SHCS from the left side fender strut. Remove the fender and strut together.**
- 9. Save two fender strut sleeves for reassembly.**
- 10. Remove two muffler mounting bolts and loosen clamp to remove muffler and mount.**
- 11. Remove all fluid from the rear brake system.**
- 12. Cut two ties from the heat shielding and release the other two and unwrap heat shield from brake line.**
- 13. Remove caliper and brake line. Saving the banjo bolt for reinstallation.**
- 14. Remove rear axle, wheel and side stand bracket.**
- 15. Cut the two wires for the sidestand switch and connect them together and secure them to the frame.**
- 16. Remove rear horn bracket. Save for reinstallation.**
- 17. Remove passenger peg mounts.**
- 18. Remove swingarm pivot shaft nut but not the shaft.**
- 19. Loosen rear engine mount nut.**
- 20. Loosen exhaust stud nuts and remove drivers floorboard fasteners.**
- 21. Remove rear shock/connecting arm bolt. Be aware of the sleeve on head of bolt. Save for reinstallation.**
- 22. Remove pivot shaft, shock and swing arm assembly.**

23. Remove six outer SHCS from the belt cover and remove cover.
24. Remove two HHCS and two SHCS from the left rear engine mount.
25. Remove the belt.

DO NOT REMOVE DRIVE SPROCKET

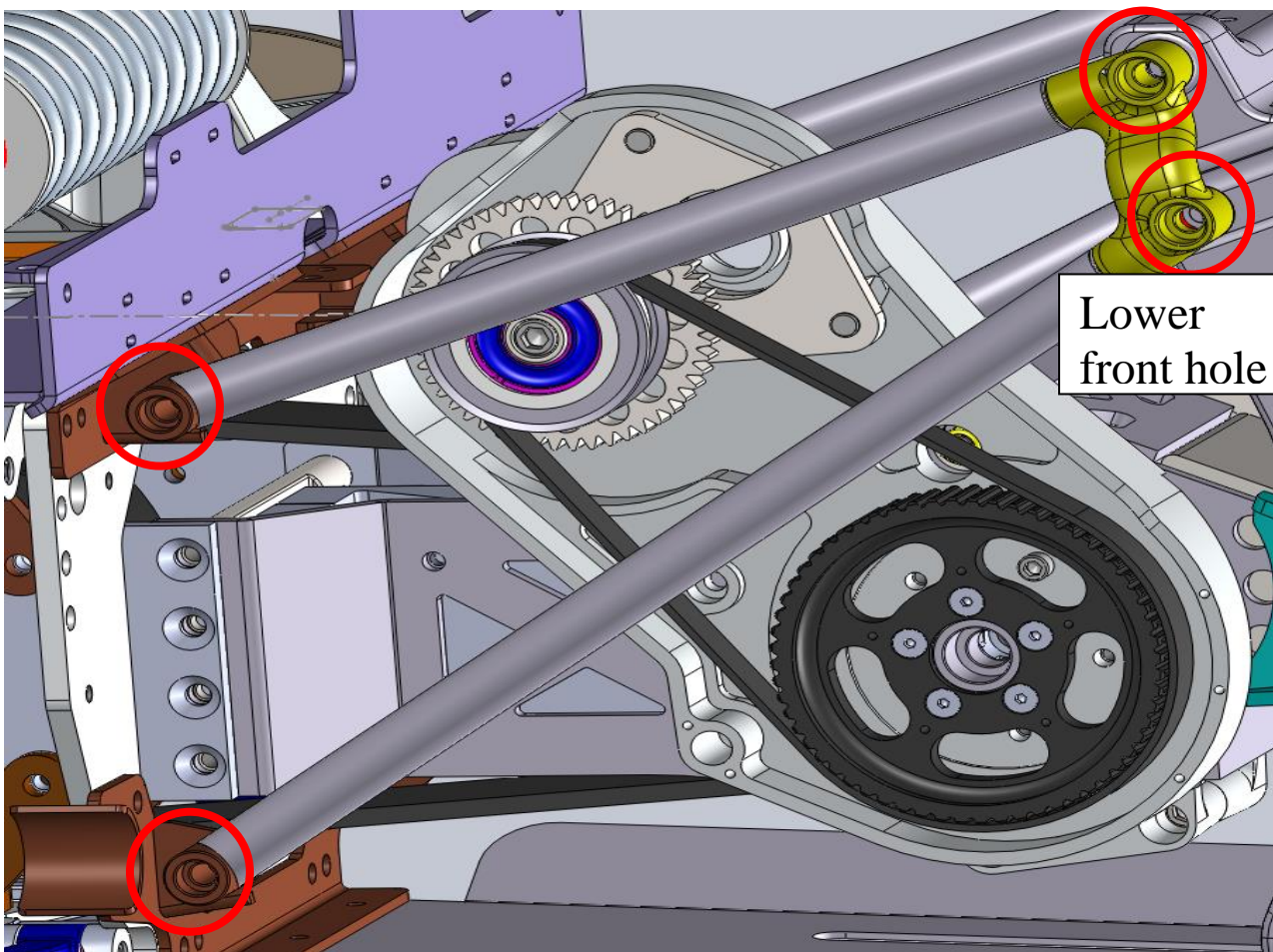
Reassembly of the motorcycle:

1. Install **NEW CSC** drive belt.
2. Reinstall the left rear engine mount and spacers with two HHCS and two SHCS. Tighten the two HHCS but leave the two SHCS loose.
3. Reinstall the belt cover with six SHCS.
4. Install the supplied Shock Spacer in place of the rear shock /connecting arm, reusing bolt, sleeve, and nut previously removed. Tighten both bolts.
5. Reinstall the horn bracket. Drivers floorboard. And retighten the exhaust studs.

Install ELECTRIC REVERSE wire harness now if equipped. Refer to separate installation instructions.

Rear Suspension Unit Installation:

1. Place the rear suspension unit onto a floor jack.
2. Slide unit into place as far forward as possible.
3. Install **NEW CSC** drive belt onto sprocket.
4. Align pivot shaft holes. Apply a light coat of grease on pivot shaft and install from right to left. Install washer and nut, leave loose.
5. Install one fender strut sleeve into the inside of the lower front hole on each frame brace.



6. Install the Right frame mount by inserting two 3/8 - 16 SHCS into the upper and lower tabs of the suspension unit. It may be necessary to raise or lower kit to align the fasteners.

7. Using two m10 x 1.25 – 40 SHCS thread them into the rear upper and lower tapped holes in the motorcycle frame. Use thread locking agent.
8. Repeat for the Left side.
9. Using four 3/8 flat washers and four 3/8 nyloc nuts tighten all fasteners in sequence below.
 - a. 4 M10 SHCS upper Frame Mounts 54 FT.-LBS.
 - b. 4 3/8 SHCS lower Frame Mounts 45 FT.-LBS.
 - c. 2 SHCS left loose on the motorcycle frame.
 - d. Pivot Shaft 90 FT.-LBS.
10. Now that the Rear Suspension is mounted. Finish the Reverse wiring installation. Refer to separate installation instructions.

Brake Line Installation:

1. Route new Rear Brake Hose with the bent banjo fitting towards the Rear Brake Master Cylinder. The Rear Brake line will be routed the same as stock.
2. Using the OEM Banjo Bolt and two new Crush Washers. Install the bent banjo fitting onto the Rear Master Cylinder. Torque to specification.
3. Route the Rear Brake Hose along the Frame.
4. Reuse Cable Ties and rewrap heat shield onto the brake line.
5. Route the Rear Brake Hose to the inside of the Frame and onto the Distribution Block.
6. Using the provided Banjo Bolt and two Crush Washers, install the straight banjo fitting onto the Distribution Block.
7. Using Cable Ties, secure the Rear Brake Hose to the Frame.

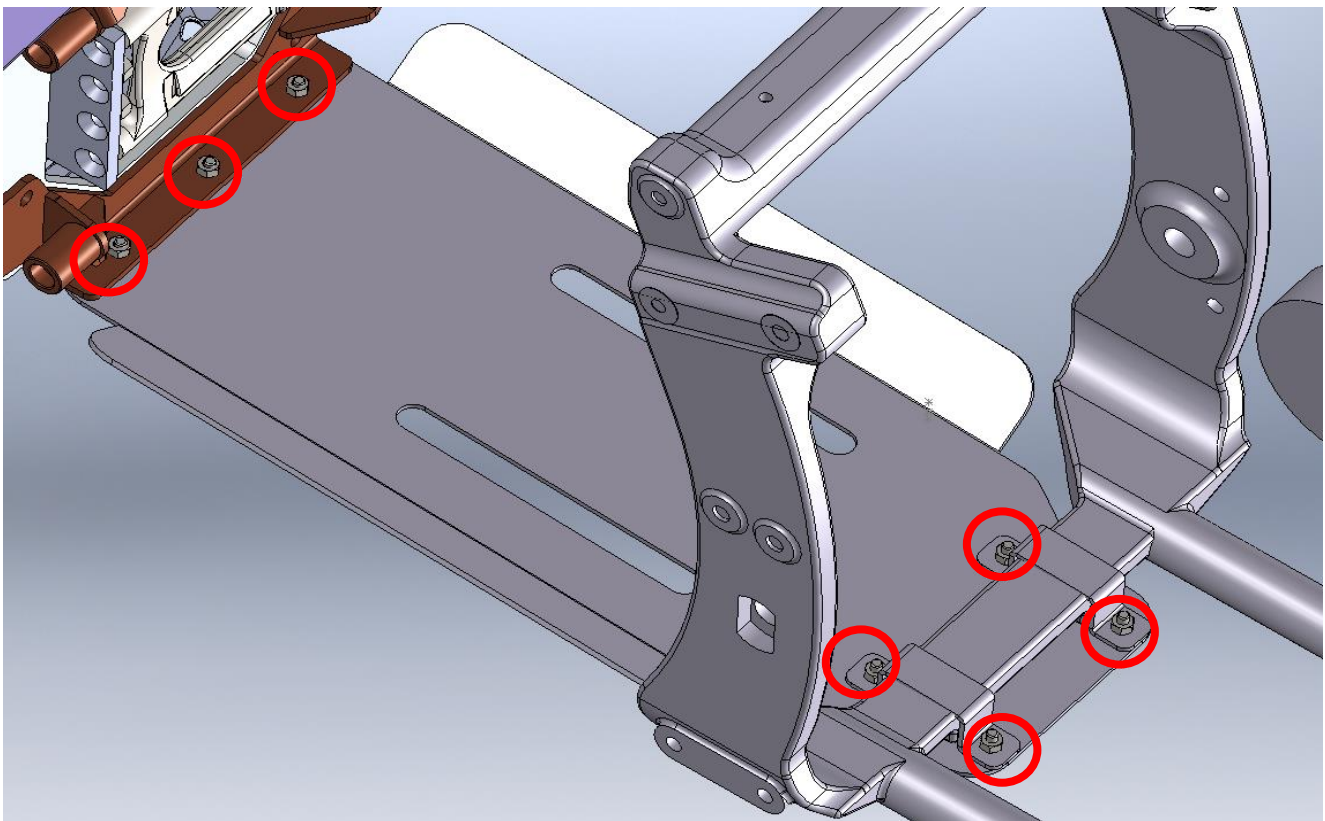
Brake bleeding procedure:

- 1. Fill Rear Brake Master Cylinder Reservoir.**
- 2. Using a vacuum bleeder, follow this procedure **carefully**.**
 - a. Rear caliper rear bleed valves outsides first then insides on each side.**
 - b. Rear caliper front bleed valves outsides first then inside on each side.**
- 3. Hand bleed the system using the above sequence. Until all air is removed from the lines.**
- 4. Allow the bike to set for a minimum of 20 minutes and recheck the pedal travel.**
- 5. If there is excessive pedal travel on the first pump, repeat steps 3 and 4.**



Gravel Pan Installation:

1. Stick the 2 x 3/4 foam between the four front holes on the Gravel Pan.
2. All HHCS installed on the Gravel Pan should have the washers on the bolt heads.
3. Install the Gravel Pan under the tab on the Lower Rear Mount with three 1/4 - 20 x 3/4 HHCS three flat washers and three nyloc nuts.
4. Raise the front of the Gravel Pan and secure with two strap clamps and four 1/4 - 20 x 3/4 HHCS, four flat washers and four nyloc nuts. Install all HHCS from the bottom upwards.
5. Align and tighten all fasteners.

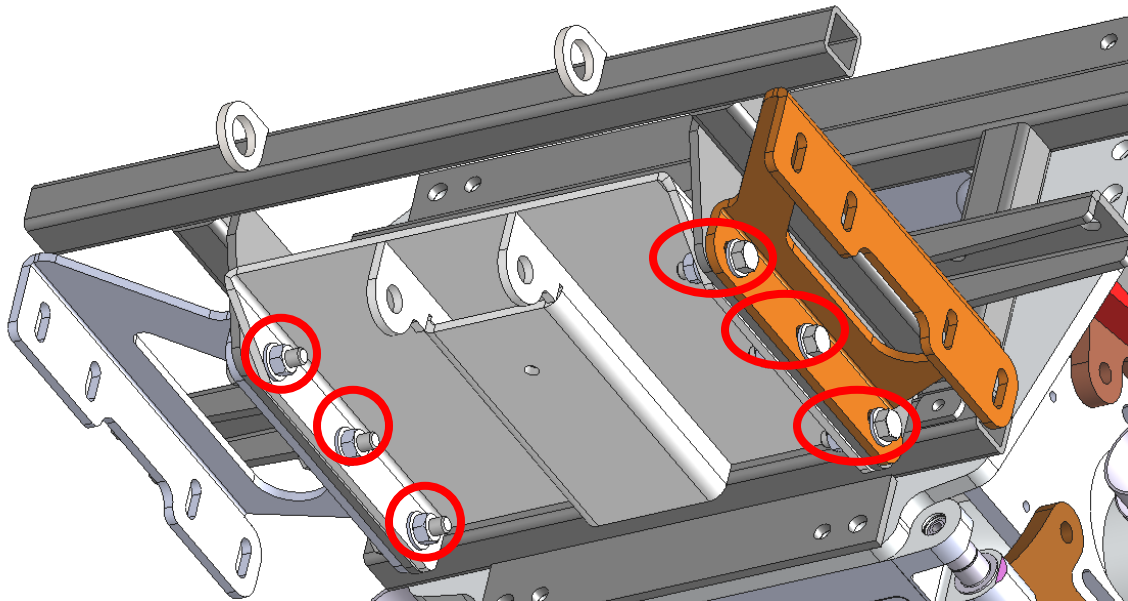


Exhaust Mount Installation:

1. Place the Left Exhaust Mount against the left side of the Body Frame.
2. Using the lower holes. Install three 5/16 - 18 x 1 1/4 HHCS and three 5/16 flat washers thru the Exhaust Mount and the Body Frame from the outside in.
3. Install Trailer Hitch now if equipped.

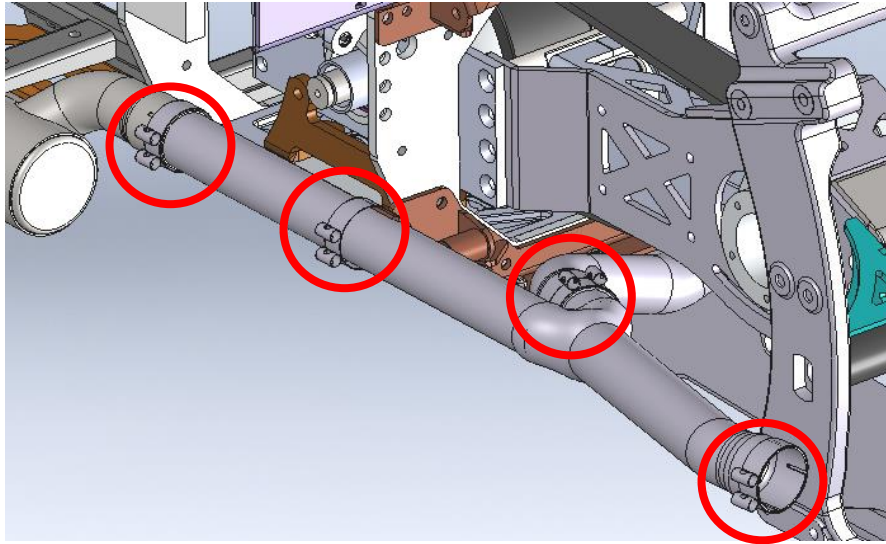
NOTE: If trailer hitch is installed it will be necessary to trim the bottom center of the body for clearance of the tongue.

4. Loosely install three 5/16 flat washers and three 5/16 - 18 nyloc nuts.
5. Install the right side with the same procedure.
6. Tighten the six fasteners.

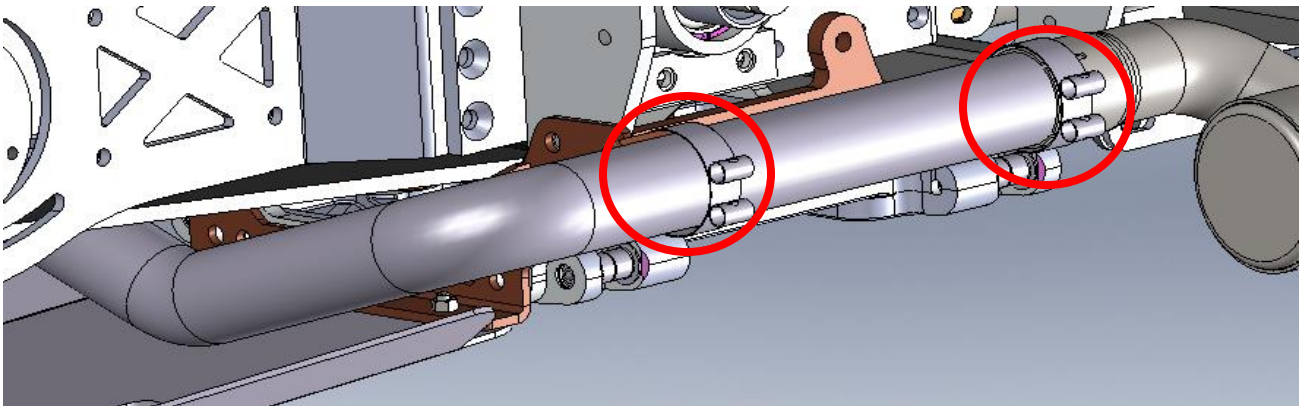


Exhaust Tailpipe and Muffler Installation:

1. Place the one large muffler clamp onto the front of the exhaust splitter and install onto the head pipe.



2. Slide the Left Rear Tailpipe onto the splitter with a clamp.



3. Place one new Exhaust Clamp onto each of the Tailpipes for the mid mount and one on each muffler and slide the mufflers onto the Left and Right Tailpipes.
Note: Insure there is a 1/2 inch air gap around the inner C.V. joint
4. Loosely install four 5/16 - 18 x 3/4 HHCS with 5/16 flat washers into the mufflers.
5. Tighten all clamps but leave the muffler bolts loose for vertical alignment later.

Link to CSC Belt Tensioning video:

<http://www.californiasidecar.com/support.html>

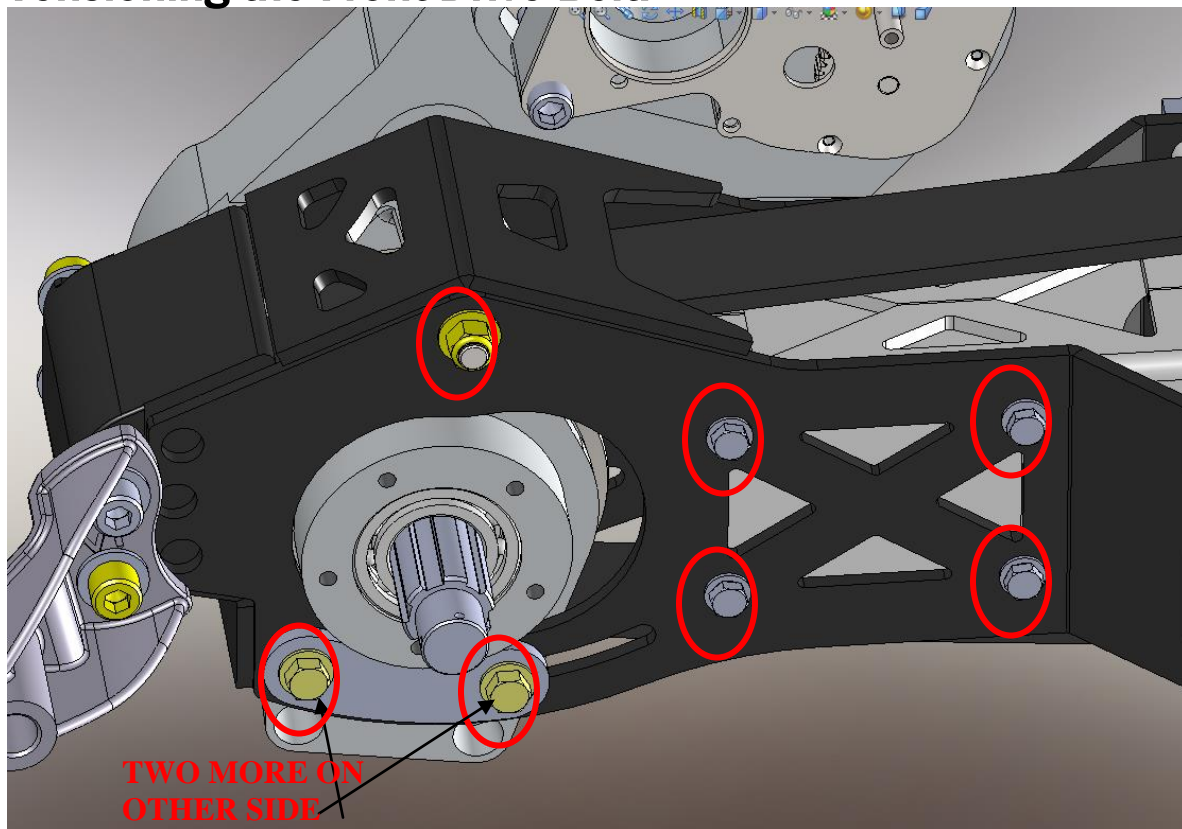
Setting up the Sonic Tension Meter:

1. Turn power on, Push Select then 1.
2. Using the charts below in Front and Rear belt tensioning push Mass then the numbers, Width and so on.
3. For the Rear belt push Select then 2. Reverse belt can be number 3 and so on.

Using the Sonic Tension Meter:

1. Using the Sonic Tension Meter.
2. The microphone placement over the belt is critical.
 - a. The microphone should be in the middle of the belt width-wise.
 - b. The microphone should be equally in-between the two Sprockets.
 - c. The microphone should be between $\frac{1}{4}$ and $\frac{1}{2}$ an inch above or below the Belt.
3. Ensure that the correct setting is displayed on the LCD screen.
4. Push MEASURE then gently tap the Belt with a wrench while holding the microphone in the correct position. A measurement in Lbs. of single span tension should display. If not continue tightening the Belt until a reading is displayed.
5. In noisy environments the Sonic Tension Meter may display errant numbers. If so use in a quieter area.
6. Always take at least THREE readings of the Belt tension and average the THREE readings to determine the actual tension of the Belt.

Tensioning the Front Drive Belt:

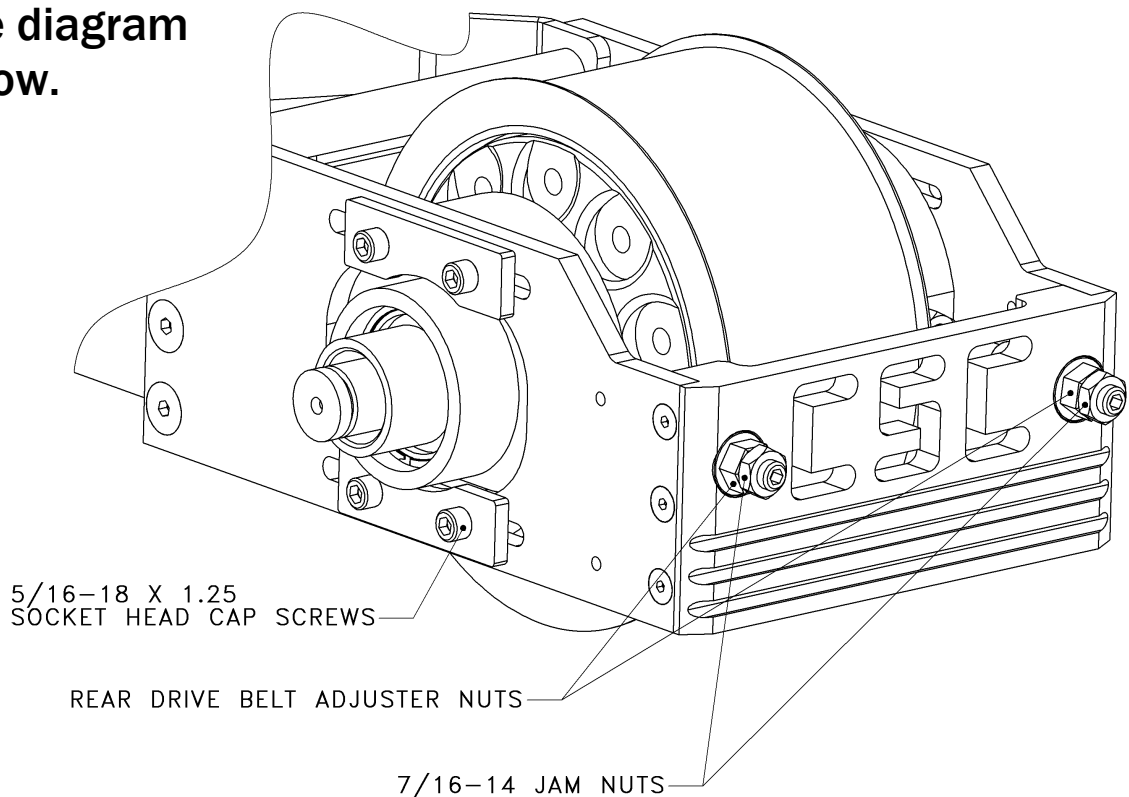


1. Loosen the four HHCS in the rear only on the left side. Next loosen the four clamping HHCS two per side and the one upper pivot shaft nyloc nut.
2. Tighten the Rear Drive Belt adjuster nuts until the slack is taken up on the Front Drive Belt.
3. Use the correct setting on the Sonic Tension Meter.
MASS 007.9g/m
WIDTH 037.0 mm/R
SPAN 0342 mm
4. Check Front Drive Belt tension.
37mm Belt: 130 – 150 lbs. of single span tension.
5. Once the correct belt tension is achieved tighten all fasteners previously loosened in step 1. Eight HHCS and one nyloc nut.
6. Verify belt tension.

NOTE: Belt tension may increase once all bolts are tightened.

Tensioning the Rear Drive Belt:

1. See diagram below.



2. Tighten the Rear Drive Belt Adjuster nuts until the slack is taken up on the Rear Drive Belt.
3. Use the correct setting on the Sonic Tension Meter.
MASS 007.9 g/m
WIDTH 050.0 mm/R
SPAN 0442 mm
4. Check Rear Drive Belt tension.
50mm belt: 130 - 150 lbs. of single span tension.
5. In the next step you are going to run the engine. Please be aware of the safety of all those involved. Make sure you have at least two lug nuts on each rotor and that they are tight.
6. To finish alignment, the belt must have visual clearance between edge of belt and fence on front Rear Drive Sprocket. Check this by starting the engine and placing it in second gear and simply let the engine idle. Checking the alignment by eye and centering the belt as it spins. If

belt has correct clearance, go to step 8. If it does not have clearance, proceed to step 7.

7. Use the Left and Right Rear Drive Belt Adjuster Nuts to align belt in order to achieve the necessary belt clearance. NOTE: The belt will always track to the side of the sprocket that is the loosest. Repeat step 4.
8. Once the correct belt alignment and single span tension is achieved, tighten the eight 5/16 - 18 x 1 1/4 SHCS that go into the Carrier Bearing Support Housings.
9. Install two 7/16 - 14 hex jam nuts onto the Rear Drive Belt Tensioning Studs and tighten.
10. Verify belt tension and alignment.
11. If the tension is correct move on to next step. If not loosen clamping bolts and return to step 4.

Service Limits on Drive Belts:

1. Service limit on the Front Drive Belt is 130 - 150 lbs.
2. Service limit on the Rear Drive Belt is 130 - 150 lbs.

Suspension Setup:

Use this chart to select the correct spring preload.

Rotate the adjuster nut on the shock until the spring is set to the desired length. Now tighten the set screw on the adjuster nut or tighten the lock nut on the fully adjustable shock.

Load: Typical weight the customer adds to the stock trike. This includes riders, luggage, and weight of a trailer tongue.

When in doubt assume a higher weight than actual.

Length: Suggested length the spring should be adjusted to with the suspension completely unloaded and the preloader adjusted all the way out.

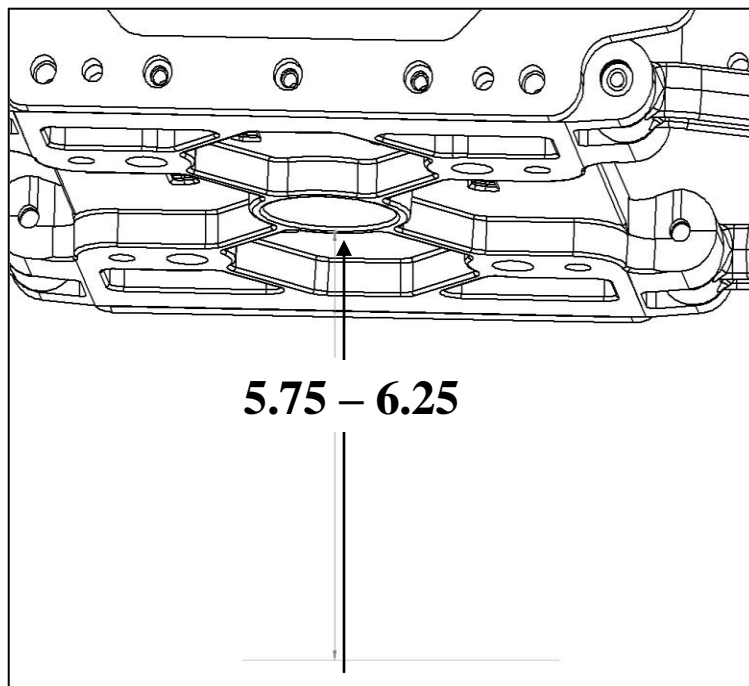
| VANTAGE | | | | | | | | |
|-------------------------------|------|---------|-------------------------|------|---------|-------------------------|------|----------|
| SHOCK with GREY SPRING | | | | | | | | |
| | LOAD | LENGTH | | LOAD | LENGTH | | LOAD | LENGTH |
| 250 LB/IN SPRING | 100 | 11 1/16 | 300 LB/IN SPRING | 100 | 11 1/4 | 350 LB/IN SPRING | 100 | 11 7/16 |
| | 200 | 10 7/8 | | 200 | 11 1/16 | | 200 | 11 1/4 |
| | 300 | 10 5/8 | | 300 | 10 7/8 | | 300 | 11 1/8 |
| | 400 | 10 5/16 | | 400 | 10 5/8 | | 400 | 10 15/16 |
| | 500 | 10 1/8 | | 500 | 10 7/16 | | 500 | 10 3/4 |
| | | | | 600 | 10 1/4 | | 600 | 10 5/8 |
| | | | | 700 | 10 1/2 | | | |
| | | | | 800 | 10 3/8 | | | |

| VANTAGE | | | | | | | | |
|------------------------------|------|---------|-------------------------|------|---------|-------------------------|------|----------|
| SHOCK with RED SPRING | | | | | | | | |
| | LOAD | LENGTH | | LOAD | LENGTH | | LOAD | LENGTH |
| 250 LB/IN SPRING | 100 | 13 1/16 | 300 LB/IN SPRING | 100 | 13 1/4 | 350 LB/IN SPRING | 100 | 13 7/16 |
| | 200 | 12 7/8 | | 200 | 13 1/16 | | 200 | 13 1/4 |
| | 300 | 12 5/8 | | 300 | 12 7/8 | | 300 | 13 1/8 |
| | 400 | 12 5/16 | | 400 | 12 5/8 | | 400 | 12 15/16 |
| | 500 | 12 1/8 | | 500 | 12 7/16 | | 500 | 12 3/4 |
| | | | | 600 | 12 1/4 | | 600 | 12 5/8 |
| | | | | 700 | 12 1/2 | | | |
| | | | | 800 | 12 3/8 | | | |

1. Install preload adjuster now if equipped. Refer to separate installation instructions.

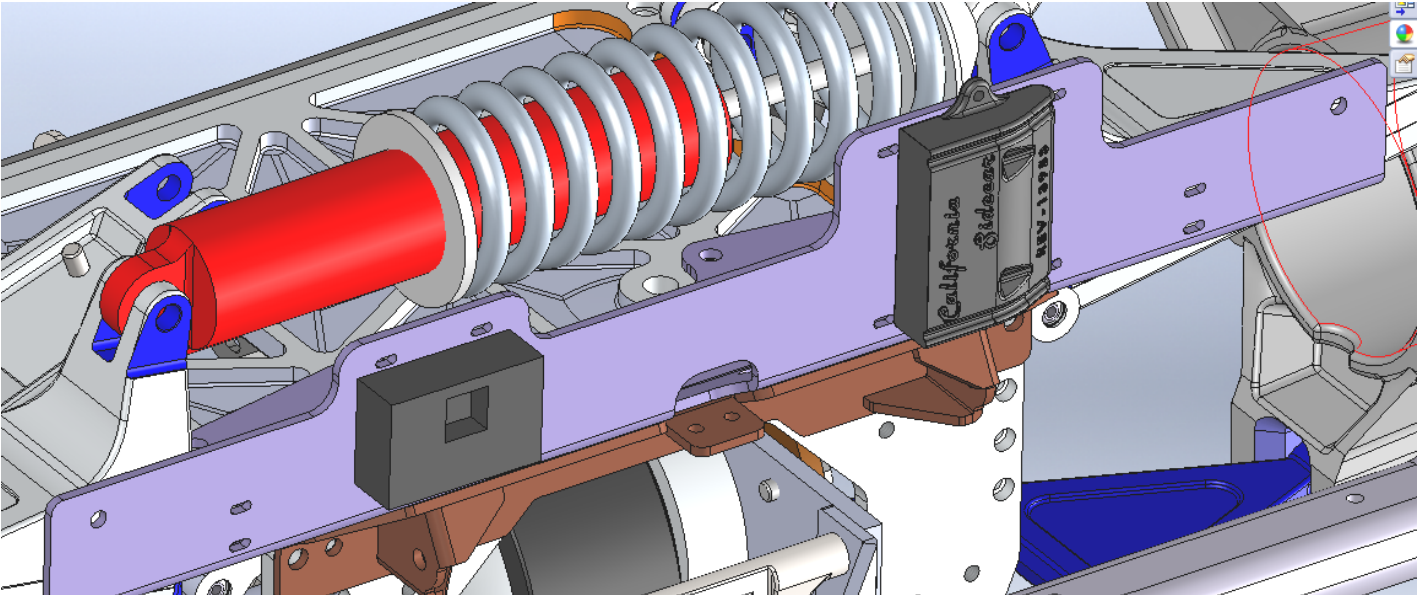
These lengths are only estimates. If you would like to confirm a correct setting, load the completed trike to the customer's typical riding situation and measure from the ground to the middle of the lower suspension plate. The center hole should be 5.75" – 6.25" from the ground.

Attention: This is the only suspension adjustment needed. All other settings are factory set and should not be tampered with. There is no need to remove trike from the lift to check camber, toe, or the drop links.



Trike Body installation:

- 1. If installing Electric Reverse or Ground Effects.
Install the controllers to the Upper Frame Mount with two sided tape and zip ties using slots provided.
Connect and route the wiring. Refer to separate installation instructions if necessary.**



- 2. Install the passenger seat hardware removed from the rear fender. Using four 5/16-18 x 1 BHCS and four fender washers and nyloc nuts. Be sure to seal the rear set of holes as they go into the trunk.**
- 3. Install the driver seat hardware using two of the same fasteners.**
- 4. Lower the body onto the trike with the front of the body pointing downward until it comes to rest onto the upper tray and body frame.**

Trike Body alignment:

- 1. The Trike Body can move left, right, forward, backward, up, down, and angled. Shimming with the provided 1/4 and 1/8 Rubber Washers may be required to get the Trike Body into alignment.**
- 2. Install the Well nuts into the lower holes in the body one on each side and one in the left and right side panel upper holes.**
- 3. Install the side panels onto the trike body using the OEM Yamaha bolts provided.**
- 4. Raise the front of the body to obtain the vertical location around the motorcycle frame under the seat area.**
- 5. Then slide the body front to back to get the horizontal location.**
- 6. With the body temporarily held into place, raise the adjustable 90° body support brackets until they seat against the body's inner liner.**
- 7. Tighten the two 5/16 – 18 x 3/4 HHCS and two 5/16 – 18 nyloc nuts on the Adjustable 90° Support Brackets.**
- 8. Center the Trike Body left to right with the tires and the mufflers.**

Securing the trike body:

- 1. Using a 5/16 twist drill, drill up through the Adjustable 90° Body Support Brackets.**

Note: A small section of Trike Body Carpet has not been glued at the location of the Trike Body Frame mounting tabs to allow removal of the bolts used in shipping, and installation of the Trike Body mounting hardware. The predrilled bolt holes may need to be enlarged or relocated for Trike Body attachment to the Trike Body Frame mounting tabs. If relocation is necessary, the preexisting holes will need to be sealed with silicone sealant.

- 2. Using a 5/16 twist drill, drill up through the Trike Body Frame mounting tabs.**
- 3. Insert two 5/16-18 x 1 1/4 HHCS, two 5/16 x 1 1/2 fender washers, and rubber washers if necessary through the holes drilled in step 3.**
- 4. Insert two 5/16-18 x 1 1/4 HHCS and two 5/16 x 1 1/2 fender washers through the adjustable 90° body support brackets.**
- 5. Install four 5/16-18 nyloc nuts and four 5/16 flat washers onto the four 5/16-18 x 1 1/4 HHCS screws and tighten.**
- 6. Re-align the Mufflers into the Trike Body cutout and tighten hardware.**
- 7. If trike is equipped with a trailer hitch. The body must be notched to clear tongue.**

Reassembly of the motorcycle:

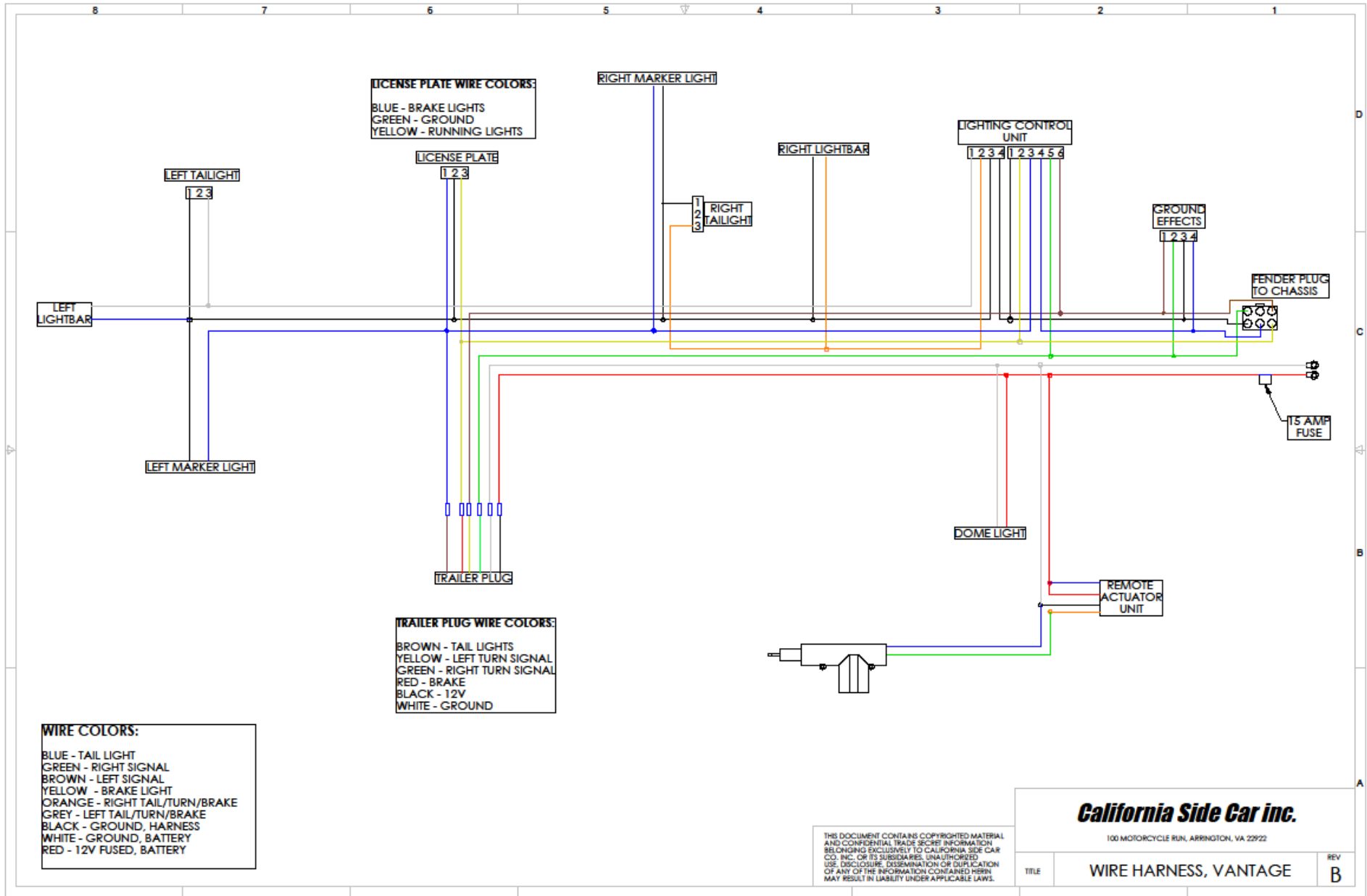
- 1. Reinstall the tool kit tray using OEM fasteners.**
- 2. Reinstall the passenger foot pegs, reusing OEM hardware on the left side and installing provided spacers and OEM bolts on the right.**
- 3. Connect Body Wiring Harness connector under the Frame to the Rear Fender Wiring Harness Connector.**
- 4. Connect the red wire with Fuse Holder to the Positive Battery terminal.**
- 5. Reconnect the negative battery terminal with the new white wire from the Trike Body Wiring Harness.**

Final Reassembly of the motorcycle:

- 1. Reinstall the wheel and tire assemblies with ten m12 x 1.5 ET conical lug nuts. Torque to 75 FT-LBS.**
- 2. Recommended tire pressure**
 - 15" & 16" wheels – 28 psi**
 - 17" wheels – 25 psi**

Refer to the Maintenance Schedule on p. 4 for details regarding future service inspections and maintenance.

**From all of us at California Sidecar.
Enjoy the ride.**



LICENSE PLATE WIRE COLORS:
 BLUE - BRAKE LIGHTS
 GREEN - GROUND
 YELLOW - RUNNING LIGHTS

LICENSE PLATE
 1 2 3

RIGHT MARKER LIGHT

1 2 3
 RIGHT TAIL LIGHT

RIGHT LIGHTBAR

LIGHTING CONTROL UNIT
 1 2 3 4 1 2 3 4 5 6

GROUND EFFECTS
 1 2 3 4

FENDER PLUG TO CHASSIS

15 AMP FUSE

DOME LIGHT

REMOTE ACTUATOR UNIT

TRAILER PLUG

TRAILER PLUG WIRE COLORS:
 BROWN - TAIL LIGHTS
 YELLOW - LEFT TURN SIGNAL
 GREEN - RIGHT TURN SIGNAL
 RED - BRAKE
 BLACK - 12V
 WHITE - GROUND

WIRE COLORS:
 BLUE - TAIL LIGHT
 GREEN - RIGHT SIGNAL
 BROWN - LEFT SIGNAL
 YELLOW - BRAKE LIGHT
 ORANGE - RIGHT TAIL/TURN/BRAKE
 GREY - LEFT TAIL/TURN/BRAKE
 BLACK - GROUND, HARNESS
 WHITE - GROUND, BATTERY
 RED - 12V FUSED, BATTERY

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| | | | |
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| TITLE | WIRE HARNESS, VANTAGE | REV | B |
|-------|-----------------------|-----|---|