



Solo Motorsports Installation Guide Stage 2 Kit (Rear)

1. ***Make sure your gas tank is close to empty before starting this installation.***
2. **Disconnect the battery ground cable**
3. **Remove the back bumper**
4. **Remove the rear sway bar assembly**
 - 4.1. Remove the rear sway bar links, sway bar, and any sway bar U-bolts, brackets and hardware from the rear axle and frame.
5. **Remove the rear shocks**
6. **Remove the strap that holds the E-brake cables to the bottom of the frame**
 - 6.1. This usually requires a 1/2" socket.
7. **Remove the nuts from the front leaf spring pivot points**
8. **Remove the nuts from the rear leaf spring pivot points**
9. **Remove the nuts from the shackle to frame pivot points**
10. **Securely put vehicle up on jackstands**
 - 10.1 Chalk front wheels
11. **Remove the rear wheels, upper brake line clip, and speed sensor**
 - 11.1. Position a floor jack directly under the rear differential.
 - 11.2. Lift the wheels to where the tires just lift off of the ground and remove the wheels.
 - 11.3. Remove the top of the rear axle vent line from the frame
 - 11.4. Slowly lower the rear axle as much as you can and stop lowering just before the rear brake line gets tight and starts to stretch.
 - 11.5. Remove the clip that holds the rear brake line to the frame.
 - 11.6. If you have a speed sensor in your rear axle. Disconnect the plug going to the speed sensor.
 - 11.7. Continue to slowly lower the rear axle until it hangs freely off of the floor jack.
 - 11.8. Support the axle on jack stands. **The spring must still be dropped in a relaxed position with minimal tension on them.**
 - 11.9. Position a jack stand under the rear yoke or driveshaft to keep the axle from rolling forward when the leaf springs are removed.
 - 11.10. Remove the U-bolts and spring plate from one side of the vehicle.
 - 11.10.1. Note the direction of the bends in the spring plate. It has to be reinstalled the same direction that it comes off.
 - 11.11. Using a floor jack under that side of the axle, slightly lift the axle off of, and remove, the jack stand.
 - 11.12. Slowly lower the floor jack until the leaf spring separates from the axle and factory wedge.

- 11.13. Remove the factory wedge.
- 11.14. Remove the front leaf spring pivot bolt and the rear shackle to spring hanger pivot bolt.
- 11.15. Remove the leaf spring and shackle as one unit.
- 11.16. Reposition the axle back onto the jack stand.
- 11.17. Repeat steps 8.9 to 8.15 on the other side.
- 12. Check that the factory wedges fit over the center pins of the Q80 leaf springs.**
 - 12.1. If they do not, then using a drill and usually a 11/16" drill bit, drill the holes on the factory wedges open until they fit over the center pins. Drill the holes about an 1/8" deeper than they already are.
- 13. Check that the spring plates fit over the center pin nuts of the Q80 leaf springs.**
 - 13.1. If they do not, then using a drill and usually a 13/16" drill bit, drill the holes on the spring plates open until they fit over the center pin nuts.
- 14. Remove the rear shackle hanger**
 - 14.1. Remove the rivet heads with a grinder.
 - 14.2. Punch the rivets through the frame with an air hammer or hammer and punch.
 - 14.3. Remove the shackle hanger.
 - 14.4. Using a drill and 1/2" drill bit, drill the rivet holes in the frame open to 1/2".
- 15. Disconnect the filler hose from the gas tank**
 - 15.1. Remove the hose clamp that secures the filler hose to the gas tank.
 - 15.2. Gently remove the filler hose from the gas tank filler. Be careful not to damage the filler hose. They get brittle and can crack easily.
- 16. Partially drop the gas tank**
 - 16.1. Place a floor jack under the center of the gas tank support/skid plate.
 - 16.2. Loosen and almost completely remove the four nuts and bolts in front of the gas tank that hold the gas tank support/skid plate to the frame crossmember. Leave the nuts attached to the bolts by four or five threads.
 - 16.3. Remove the four nuts and bolts that hold the gas tank support/skid plate to the rear frame crossmember.
 - 16.4. Slowly lower the gas tank until you have enough room to get your hands into the inside of the frame rail. Check to make sure that the vent line and wires attached to the top of the gas tank are not being stretched and are not too tight.
- 17. Install the shackle conversion L-bracket and factory shackle hanger. If you are using our 4130 shackle hanger go directly to step 17**
 - 17.1. Using a drill and 1/2" drill bit, drill the four rivet holes in the factory shackle hanger open to 1/2".
 - 17.2. Line up the top two rivet holes of the shackle hanger with the bottom two rivet holes in the frame and bolt up with the supplied 1/2" hardware. Do not completely tighten these bolts yet. You will need them loose enough to where they can still have play to help line up the next holes.
 - 17.3. Line up the bottom two rivet holes of the shackle hanger with the two holes of the shackle conversion L-bracket on the side that has the logo cut into it and bolt up with the supplied 1/2" hardware. The logo should be towards the front of the

vehicle during installation. If the logo is not towards the front, then use the other L-bracket and make sure the logo is towards the front of the vehicle.

- 17.4. Tighten the 1/2" hardware to 80 ft. lbs.
- 17.5. Using a drill and 1/2" drill bit, drill the remaining 1/2" holes of the L-bracket on the bottom of the frame. There is a chance that some of these holes will overlap other already existing holes from prior installations of parts like a trailer hitch. Do not worry. Just run a 1/2" drill bit through both holes and make sure you have a washer under the nut and the head of the bolt.
- 17.6. Install the rest of the 1/2" hardware and tighten these and any of the hardware from the previous steps to 80 ft. lbs.
- 17.7. Repeat steps 12.1 to 12.6 on the other side.

18. Install the 4130 shackle hanger

- 18.1. Line up the four holes on the side of the 4130 shackle hanger with the four factory shackle hangers rivet holes on the side of the frame. Install the supplied 1/2" hardware and tighten to 80 ft. lbs.
- 18.2. Using a drill and 1/2" drill bit, drill the remaining 1/2" holes of the 4130 shackle hanger on the bottom of the frame. There is a chance that some of these holes will overlap other already existing holes from prior installations of parts like a trailer hitch. Do not worry. Just run a 1/2" drill bit through both holes and make sure you have a washer under the nut and the head of the bolt.
- 18.3. Repeat steps 13.1 and 13.2 on the other side.

19. Resecure the gas tank

- 19.1. Using a floor jack, lift the gas tank back into the factory position.
- 19.2. Reinstall the four nuts and bolts that hold the gas tank support/skid plate to the rear frame crossmember.
- 19.3. Retighten the four nuts and bolts in front of the gas tank that hold the gas tank support/skid plate to the frame crossmember.
- 19.4. Check to make sure that the vent line and wires attached to the top of the gas tank are not being pinched and are in their proper position.

20. Reconnect the filler hose to the gas tank

- 20.1. Reconnect the filler hose to the gas tank filler. Be careful not to damage the filler hose. They get brittle and can crack easily.
- 20.2. Reinstall the hose clamp that secures the filler hose to the gas tank.
- 20.3. Check for cracks in the filler hose and replace if necessary.

21. Assemble shackles

- 21.1. Grease the inside of the barrels of the shackles.
- 21.2. Insert the delrin bushings into the shackle barrels, making sure that they seat completely.
- 21.3. Grease the inside of the delrin bushings.
- 21.4. Using a vise or large C-clamp, press the center sleeves into the delrin bushings.

22. Attach the shackle to the leaf springs

- 22.1. Determine which end of the leaf spring is the front and which end is the rear.
 - 22.1.1. The distance from the leaf spring center pin to the front eye is shorter than the leaf spring center pin to the rear eye. The front eye of the leaf

spring has two springs wrapped around the bushing whereas the rear only has one.

- 22.2. Apply anti-sieze to the shanks of all the supplied 9/16" bolts.
- 22.3. Attach the shackle to the rear eye of the leaf spring using the supplied 9/16" hardware. Install the bolts to where the head of the bolt faces the frame when installed on the vehicle. Do not fully tighten. Final torque to all pivot bolts will be done when the truck is back on the ground.
- 22.4. Locate the supplied Q80 reducer spacers and have them ready for leaf spring installation on the ground by the front leaf spring frame pivot.
- 22.5. Install the leaf spring and shackle as one unit.
 - 22.5.1. Get the leaf spring and shackle into the general position on the vehicle.
 - 22.5.2. Install the supplied 9/16" hardware into the rear shackle hanger and shackle. Make sure the head of the bolt faces the outward. Do not fully tighten. Final torque to all pivot bolts will be done when the truck is back on the ground.
 - 22.5.3. Move the front eye of the leaf spring out of the way enough to insert the Q80 reducer spacers into the bolt holes on the inside of the front leaf spring frame pivot.
 - 22.5.4. Line up the front leaf spring and frame pivot holes and install the supplied 9/16" hardware. Make sure the head of the bolt faces the outward. Do not fully tighten. Final torque to all pivot bolts will be done when the truck is back on the ground.

Repeat steps 17.3 to 17.5.4 to the other side.

23. Reinstall the factory wedge in between the axle and the leaf spring.

- 23.1. If the leaf spring is already sitting on the axle, use a floor jack to lift the leaf spring off of the axle until you have enough room to insert the factory wedge.
- 23.2. Make sure that the thick end of the factory wedge faces the back of the vehicle.
- 23.3. Make sure that the alignment pin of the factory wedge locates into the hole of the spring pad on the axle.
- 23.4. Make sure that the center pin of the leaf spring locates into the hole of the factory wedge.

24. Install the spring plates and U-bolts

- 24.1. Set the spring plates over the leaf spring center pin nut.
 - 24.1.1. Make sure that the spring plates are installed in the same direction that they came off.
- 24.2. Apply anti-sieze to the threads of the U-bolts.
- 24.3. Install the supplied U-bolts, washers, and nuts. Evenly run the nuts down the threads of the U-bolts making sure that every end of the U-bolt has about the same amount of thread showing. Snug up but do not fully tighten the nuts yet.
- 24.4. Make sure that the U-bolts are sitting straight up and down and perpendicular to the axle. If they are not, then tap and straighten with a hammer.
- 24.5. Evenly and in a criss-cross pattern, tighten the U-bolts to 75-115 ft. lbs.

25. Install the new brake line and bleed the brakes

- 25.1. If you have a speed sensor in your rear axle, then reconnect the plug to the speed sensor and zip-tie the speed sensor wire to the new brake line. Check to make sure that the speed sensor wire has enough play to keep from getting tight.
- 26. Reconnect the top of the rear axle vent line to the frame**
 - 26.1. Replace with a longer vent line if the original one is too tight.
- 27. Install wheels**
- 28. Safely take the vehicle off of the jack stands and lower onto the ground**
- 29. Tighten all 9/16" leaf spring and shackle pivot bolts to 115 ft. lbs.**
- 30. Retighten all U-bolts to 75-115 ft. lbs.**
- 31. Reinstall the strap that holds the E-brake cables to the bottom of the frame**
- 32. Install the new rear shocks**
- 33. Reinstall the back bumper**
- 34. Reconnect the battery ground cable**