SSR Spare Tire Kit Installation

Simple Engineering, LLC

It's highly recommended that you read these instructions all the way through before beginning the installation. Doing so will most likely save some rework.

Installation concept

In order to carry a full sized spare tire under the SSR, two key actions have to be accomplished. First, the battery has to be relocated to an area outside the frame, allowing enough room for the full size spare to go between the tailpipes. Second, a compatible winch assembly has to be installed to allow the spare to be hoisted in place.

Parts in the Kit:

1. Two piece drop-down battery box
2. Battery clamp hardware(2 rods, a washer and nut)
3. Adapter plate with aluminum standoffs (attached to #1)
4. M10-1.5 bolts (2 ea), washers (2 ea) and lock nuts (2 ea) attaching #3 to #1
5. #14 x 1.25" case hardened "Tek" screws (4 ea plus one extra)
6. Drill driver tool for Tek Screw installation
7. GM Tire Hoist
8. 10mm GM mount bolts (3 ea)
9. 10mm GM "U" nuts (3 ea)
10. Aluminum fascia support bracket
11. New (long) Battery Ground Cable
12. 2 ton Scissors Jack
13. ½" drive ratchet
14. ½" drive breaker bar
15. ½" drive extension
16. ½" drive 19mm socket
17. ½" drive 10mm socket
18. Hub cap removal tool (paint can opener)
19. Canvas tool and jack bag

Tools Recommended:

- Floor Jack (you can use the included scissors jack, if you want)
- Jack Stand
- 7, 8, 10, 13 and 15mm socket and ratchet with 4" and 12" extensions
- 3/8" (or ½") Electric Drill
- 2 Large "C" clamps (or equivalent)
- Small hand saw (Back saw or Hack saw)
- Heat Gun

Procedures:

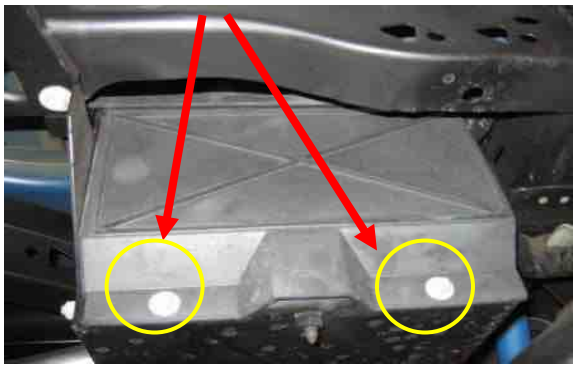
1. Block the left front tire and jack up the right rear of the SSR until the rear wheel is off the ground. Place a jackstand under either the frame (preferred) or axle for safety.

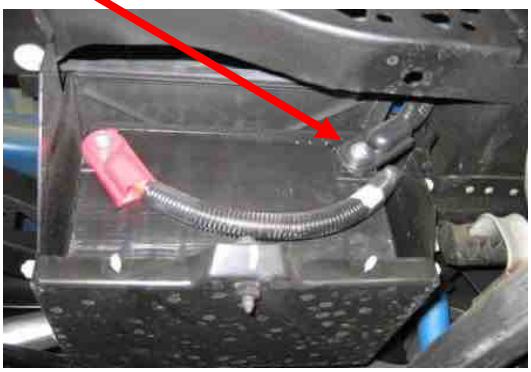
2. Remove the right rear tire.

3. Remove the two fasteners that hold the liner to the rear fascia and free it up from the rear fascia. You'll need to slip a piece of string or bungee cord through the bottom hole in the liner and tie it forward in order to give you access to the area aft of the shock absorber mount.

4. **THIS IS IMPORTANT!**
   - Lower both windows before disconnecting battery. Without power, the windows will not be able to "index" and allow the doors to be opened.
   - Disconnecting the battery will erase some of the PCM settings, such as short term and long term airflow trim tables. These will be restored by the PCM automatically. Radio and seat position presets should not be lost.

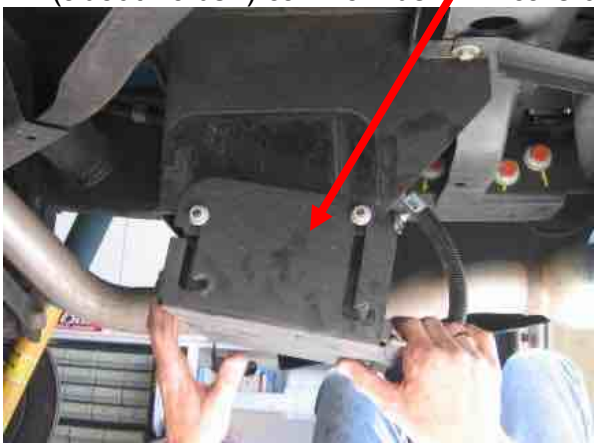
5. Remove the battery cover and disconnect negative (first) and then the positive battery cable.





6. Loosen the 4 battery box nuts so you can drop the battery into the lowered position.

7. Drop the battery box into the lowered position and remove the hold down. The battery (about 40lbs!!) can now be ……carefully removed from the carrier.



8. Remove the 4 bolts that hold the battery box in place and remove the box from the truck.

9. Remove the angled rear fascia brace (the one that was held in place by one of the battery box bolts) that is bolted to the back side of the license plate area. Install the aluminum brace that is in the kit and bolt it securely in place. Note that the aluminum is 6061 and will hold its shape, even after you "tweak" it a little to make it fit just right.

10. Remove the original ground cable from the battery and then pull the positive battery cable through the space between the frame and body into the area behind the rear wheel…. All the way up to the metal clamp that holds it on the top of the frame. Do not remove the metal clamp.

11. Install the three 10mm "U" nuts into the frame. One in the center of the diagonal crossmember (left photo, looking forward), one in the bottom of the rear crossmember (right photo, looking right) and the third on the inboard side of the right frame rail above the exhaust hanger bracket (right photo, looking right).

12. Put the GM tire hoist as far into the corner of the SSR as possible (left photo), so that you can get the mounting tab into the slot in the diagonal crossmember. Patience and perseverance is key here. If you get it positioned just right, the hoist will slip into the slot perfectly and you can install the bolt (right photo)…. Don't tighten it yet.


13. Pull the hoist out of the corner, get it positioned over the nut plates and install the two 10mm bolts. You can now tighten all three of the hoist bolts.

14. Install the new ground cable to the studs on the frame and body. I let the cable lay across the top of the shock absorber as shown in the left photo and then routed the positive cable above it as shown in the right photo. This will look and lay different with the fender liner still in place, but you'll figure it out. The positive cable must be above the ground cables.


15. Reposition the wiring and deck lid release cable at the rear of the area. The top photo is the stock positioning and the second two (below it) show you the new positioning. The objective of this step is to get the wiring and release cable out of the way of the battery box during installation. You can use some masking or duct tape to temporarily hold the release cable out of the way. Please note that you will need to disconnect the taillight bulb and put the wire harness on the other side of the release cable to achieve this routing.

16. Position the Battery Box bracket assembly on the outside of the frame rail, resting on the exhaust hanger bracket, midway in the space available. This should give you adequate (about ¼") clearance from the truck body just to the rear and you should have at least ¼" clearance to the body above the bracket. **It is very important to have clearance between the Battery Box and the body to allow for normal truck body movement on the frame.** Don't allow the aft side of the battery box (hidden from view in this photo) to be in contact with the painted part of the rear body mount (yellow circle area). This is where you will need to be sure of the ¼" clearance.

17. Clamp the bracket assembly to the frame of the truck and install the 4 stainless Tek screws into the frame with an electric drill and the 3/8" hex driver.

18. Install your battery into the carrier box. Use the two stainless rods to secure the battery. The one with the "eye" goes across the top. For some batteries, you will have to take out your trusty back saw or hack saw and slice the carrier ears off your battery to get it to fit. Don't worry, they're not structural……

19. Slide the carrier box up into the bracket you just mounted to the frame. Stop at the first latching position and attach the positive battery cable as shown in the left photo. Do not overtorque. Install the negative battery terminal and route the negative battery cable as shown in the right photo. Note that some negative cable installations may need to have their routing a little more direct, in order to reach the battery post. This is due to some variability in the cable manufacture. Your negative battery cable connection and boot will look like the positive one, except black. (the photo below is quite old) Do not overtorque the nut.

20. Slide the carrier box to the upper position. Double check for clearances and security of the battery and cables. You are now finished with the battery.

21. Cut your string loose, or pull your bungee cord off the fender liner. We need to heat up the plastic liner to reshape it around the corner of the battery box. A low-heat propane torch can be used (be **VERY** careful not to melt the liner), but a heat gun is the recommended tool. Using a circular motion, heat a 6" area where the corner of the battery box is impacting the fender liner (we drew a circle on ours for reference). Once it is hot enough, put a towel under your hand and push really hard to shape the fender liner around the battery box. Repeat several times until it looks right. You will know that you are done when the two fascia fasteners line up without pushing anything into place.

22. Once you are satisfied with your “molding” around the corner of the battery box and that there is no stress on the fascia tabs, reinstall the two fasteners to the rear fascia. You will have a lump showing in the fender liner where the corner of the battery box is in contact. This is normal and to be expected. You will not have any clearance issues with the tire.

23. Re-install the rear wheel and let the truck down. You’re done.

24. Note that you will always have to remove the two fascia fasteners to get the battery out.

Recommended Wheel

Any 17” Trailblazer/Envoy (and a couple others) steel or alloy wheel with a “6 on 5” bolt pattern will fit the SSR. A 16” wheel will not clear the front brake calipers. There are several styles available. All of them have a benign offset for the SSR wheel wells. The spare wheel is best installed with the “pretty” side down. Be sure to put the valve stem at the very rear of the truck, so you can check the air easily. If you choose an aluminum wheel for a spare, I recommend you paint it flat black, so it becomes invisible under the truck.

Recommended Tire

The correct size tire is between **28.6”**(front tire) **and 28.9**”(rear tire) tall. You will find the 225/65-17 to be a good candidate for a starting point. I used a 225/65-17 Goodyear Integrity. A 235/65-17 is also a candidate, if it is less than 29” tall. Take your time selecting a tire that is the right height, as tire height varies from one brand to another. Please note that a tire 29” tall or larger will **not** fit between the Panhard bar (across the rear axle) and the trailer hitch receiver. If need be, you can lower the air pressure in the tire to about 10psi to get the tire to “nest” into the frame. This may be a reasonable compromise, as you have the air compressor behind the driver’s seat to inflate it to full pressure when you need to install the spare.

Using the Tire Hoist & Tools

The tire hoist is designed to be cranked up and down with the supplied 10mm socket and ratchet. You will need to access it from behind the right rear tire. The tool will go up and aft at a 45 degree angle to get onto the hoist drive. The tire is raised by turning the hoist to the left and lowered by turning the hoist drive right. Yes, this is backwards to what feels normal.

The tool kit includes everything you will need to change a tire. The drive on the jack is the same size as the wheel lugs. When you look at the back of the hub cap, you will see a picture of the valve stem for orientation.

Notes from Mike

I know that there are a few drawbacks to this kit….. You have to lay on your back to drop the tire. The tire is slightly visible from the rear. The right rear fender liner needs to be disconnected from the rear fascia to drop the battery out. It's difficult to find a jack location for the front.
Take the time to ponder the drawbacks and what you must do to accommodate each one. Try your jack and test your tools. You will find that the hub cap "tool" (paint can lid opener) is great. I would recommend that you put the tools, the jack, an old sheet or towel (to lay on) and a pair of gloves in the bag with the jack and tools.

You can use the ratchet and the 19mm socket on the jack to lift your truck. You can also use the breaker bar, if you need a little more leverage than the ratchet. The extension and breaker bar make a great lug wrench. Use the extension…. You'll like it. You should be able to easily get the 100ft/lbs of torque on the lugs with the breaker bar.

I'm always up for feedback on improvements to my instructions and the kit. Please forward any comments or criticisms to mike@simple-engineering.com.

If you are stumped on something, or need a little help, you can always call me on my cell at 480-225-2123.

My Best Regards,

Mike Moro
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