



GENESIS

O F F R O A D

Toyota 4Runner Dual Battery System

181-T4RDBK



Installation Instructions for 2010+ Toyota 4Runner



Before you Begin

Please read through these instructions thoroughly. To avoid mistakes and lost time, follow the sequence shown. Leave the battery posts covered during installation to avoid accidentally shorting out the batteries.

Parts List	Qty	Tools Needed
Battery Tray	1	7/16", 1/2" socket/wrench
Top Plate	1	10, 12mm socket/wrench
Smart Isolator	1	Ratchet with extension
High Amp Power Bus Bar	1	Center punch
Ground Bus Bar	1	25/64" Drill bit
Dust Cover	1	Touchup paint
Wiring Harness	1	
Fuse Box Relocation Brackets	2	
Relocation Bracket Bolts 6mm x1	2	
1/2" Lid Bolts	4	
Nutserts	4	
7/16" Stainless Bolts/Washers	4	
Nutsert install hardware:	1	
Grade 8 Bolt, 7/16"		
Grade 8 Thick Washer		
Serrated Flange Nut, 1/2"		



1. Use a 10mm socket to loosen the factory battery post clamp bolts and the hold down bracket.

2. Remove the factory battery and the plastic battery tray.



3. Use the provided brackets to move the fuse box backwards to gain some clearance. Remove the 3 10mm bolts holding the fuse box in place.



4. To gain some slack on the factory wires, remove the 10mm bolt from the silver bracket, then use a pry tool to pop loose several clips securing the wires.



5. Move the fuse box forward and install the new relocation bracket using the factory bolt into the stock hole.



6. Move the fuse box backwards and install the other relocation bracket using the factory bolt in the stock hole.



7. Use a razor blade to cut off the alignment tab from the side of the fuse box. This will allow the fuse box to sit flush up against the fender once it is moved backward.



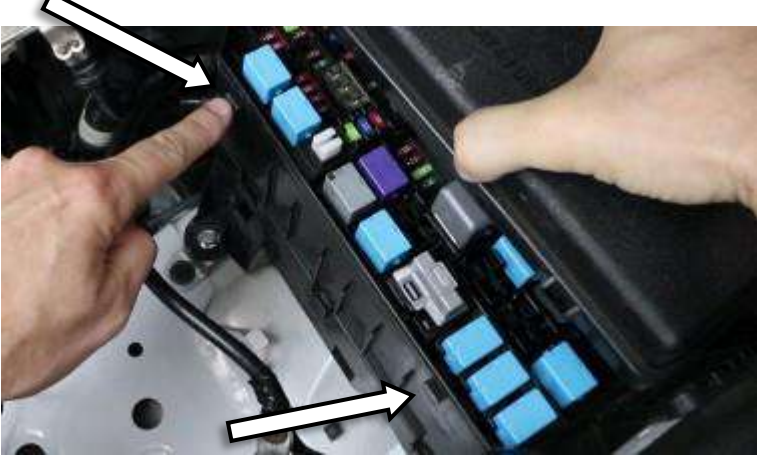
8. Move the fuse box into position over the new relocation brackets. Install the 2 provided bolts loosely first, then tighten both with a 10mm socket.



9. Loosen the factory 10mm ground bolt on the fender and rotate the lug 90 degrees up to avoid interference with the new batteries, then retighten the bolt.



10. Use a screwdriver or pry tool to bend the factory battery tie down tab backwards (towards the fuse box). It only needs to move a little to clear the bottom side of the new battery tray.



11. Once the kit is fully installed, it may be difficult to remove the fuse box cover. You may use a razor blade to cut these 2 small tabs off the side of the fuse box. This will allow the cover to lift straight up to be easier to remove.



12. This a/c line may touch the bottom corner of the cranking battery. If it does, you can carefully bend the aluminum hard line back away from the batteries.



13. Drop in the new battery tray. You may need to push the factory wires towards the fender. The tray needs to go towards the fender as far as possible to leave clearance for the oil fill tube.



14. Drop in the aux battery first and slide it towards the fender. Adjust the tray position so the battery clears the headlight assembly. Add the main battery and adjust the position to clear the oil fill tube. The oil cap should be easy to remove and reattach. If the a/c line is touching the battery, bend it out of the way.



15. Once the tray is adjusted to clear everything, use a pencil or marker to make some alignment marks. This will help ensure the tray does not move when you remove the batteries to drill the mounting holes.



16. Carefully remove the cranking battery, then hold the tray still while you slide the aux battery to the left so it can be removed as well. Try not to move the battery tray. Double check your alignment marks to ensure the tray is still in the correct position.



17. Check the position of the 4 legs. They should all be on the flat part of the factory sheet metal. Make sure the round bolt holes in the legs do not overlap any factory holes. This will ensure the new nutserts have full contact around the new holes to be drilled. If needed, reinstall the batteries and adjust the position of the tray.



18. Use a center punch tool to mark the holes to be drilled for the new nutserts. Use a small pilot bit first, then use a **25/64"** bit to drill the holes. **Note it is critical to use the correct size drill bit so the nutserts will clamp properly. Do not drill the holes oversized.**



19. Clean up the shavings with a vacuum, then cover the bare steel edges with a touch up paint pen (or similar) to prevent rust, then drop in the 4 new nutserts.



20. Use the provided hardware to install the nutserts. Use a $\frac{1}{2}$ " wrench to hold the flange nut still while tightening the grade 8 bolt with a $\frac{7}{16}$ " socket into the nutsert. It will initially be difficult to get the bolt started, then once the nutsert starts to compress it will be easier to tighten. You should feel the nutsert bottom out against the sheet metal when fully installed.



21. Reinstall the battery tray and secure it in place with the provided $\frac{1}{4}$ "x20x1" bolts and wide washers using a $\frac{7}{16}$ " socket on an extension. The holes in the legs are slightly oversized to allow for minor adjustments of the tray position.



22. Reinstall the aux battery first and slide it towards the fender. Then install the cranking battery. The posts should be towards the outside corners. Double check your clearance on all sides. If necessary, you can remove the batteries, loosen the 4 bolts, and adjust the tray slightly.



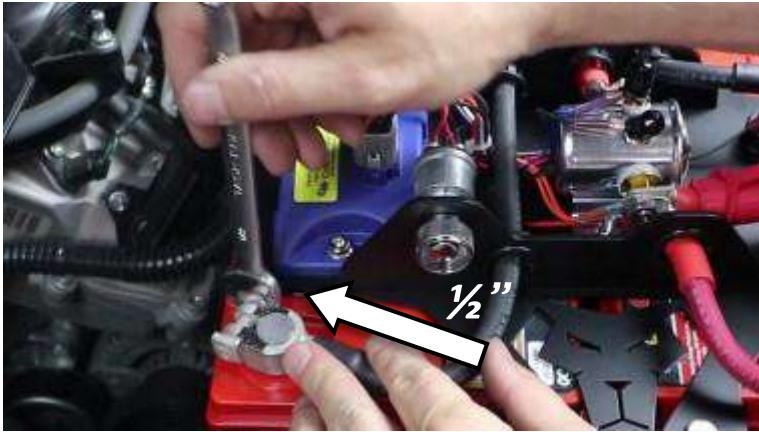
23. Make sure your battery posts are covered, then set the top plate down on the batteries, with the lion head logo facing forward. Secure the top lid using the 4 provided serrated flange bolts with a 1/2" wrench. **Note there may be a gap between the top plate and the tray. This is normal. Do not over tighten the bolts.**



24. The factory positive post clamp may be difficult to lift over the battery post. Loosen the 12mm nut on top to gain some slack. Secure the post clamp using a 10mm wrench. Now remove the 12mm nut, attach the new positive wire, and reinstall the 12mm nut.



25. Attach the aux battery positive post clamp. Be sure the clamp is fully seated to the bottom of the post, then tighten with a 1/2" wrench.



26. Attach the cranking battery's negative post clamp. Be sure it is seated all the way to the bottom of the post, then tighten with a 1/2" wrench.



27. Attach the factory negative post clamp onto the aux battery. Wait until after the next step to tighten the clamp with a 10mm wrench.



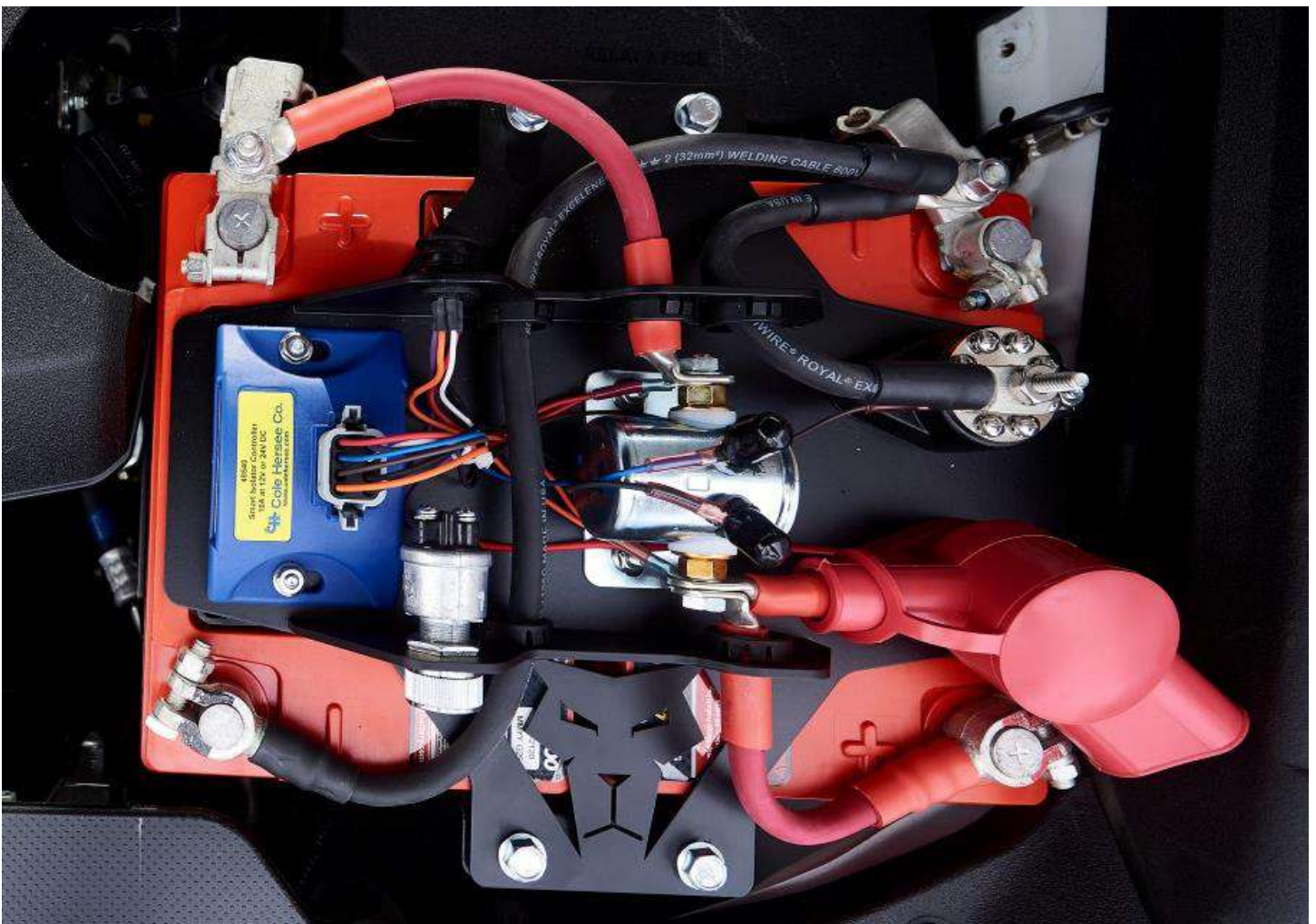
28. Remove the 12mm nut from the post clamp, then attach the short ground wire from the ground bus bar. Next attach the longer ground wire coming from the other battery's negative post. Reinstall the 12mm nut to secure these 2 wires. Tighten the post clamp with a 10mm wrench.



29. Tuck the factory ground wire under the top lid so it is out of the way. Double check all your post clamps to ensure they are tight.



30. To reuse the factory positive cover, use a razor to cut a notch for the new red wire to come out of the side.



Final installation.

Smart Isolator Specifications

- The batteries will be automatically connected together when either battery is above 13.2v (plus or minus 0.1v) for 2 minutes.
- Batteries will be isolated when they drop below 12.7v (plus or minus 0.1v) for 1 minute.

Caution - the silver solenoid may be hot while the batteries are connected.

This is completely normal, and not a cause for concern.

Characteristic	Min	Typical	Max	Notes
Normal input voltage	9v		16v	Unit functions within this range
Continuous current		200 A		750 A inrush
Connect voltage		13.2v		After 2 minutes at this level
Disconnect voltage		12.7v		After 1 mintue at this level
Quiescent current		5mA	8mA	Relay off, start signal input open or grounded.
Operating temp range	-40 C		+85 C	
Ingress protection		IP65		Per IEC
Vibration, Shock				Per SAE J1455
EMI/RF				Per SAE J1455 & J1113

Boost Button

- The momentary push button allows you to manually connect the batteries.
- If the cranking battery is too low to start the engine, press the boost button one time to connect the batteries, aux helps start the engine, if it has enough power.
- The boost feature requires 9.0v on the cranking battery to link the batteries together. If the cranking battery is below 9.0v, you can manually link the batteries together with jumper cables, or swap positions of the batteries.

Connecting Accessories

- Connect high-amp accessories (winch, stereo amp, etc) to the large center studs on the power and ground bus bars.
- Connect low-amp accessories (LED lights, CB, etc) to any of the 8 small screws on the power and ground bus bars.
- All accessories on the power and ground bus bars will be powered from the aux battery when the smart isolator separates the batteries. This prevents your accessories from draining the cranking battery.

Connecting Jumper Cables, Trickle Chargers, or Solar Panels

- Jumper cables can be connected to the factory positive (on cranking battery) and the factory negative (on aux battery). This gives you the most direct path to the alternator and starter for maximum efficiency.
- Connect trickle charger or solar panels the same way. It will charge your cranking battery first, then link the batteries together and the trickle charge will flow through the isolator to charge the aux battery. See Smart Isolator functions above.

Expand your system with these great options!

G Screen Monitoring System

This 1" LCD can be added at any time. Simply plug the harness into the port on the lid, no wiring required.

- Dual battery voltage display
- In-cab Boost feature
- Isolator status -
 - Boost On = batteries connected
 - Boost Off = batteries isolated
- Air Pressure Monitoring (sensor kit sold separately)



Digital Air Pressure Sensor

Turn your G Screen into an air pressure gauge.

- Sensor screws into an on-board air tank
- Single wire harness plugs into G Screen
- Instantly adds new PSI screen
- No air hoses to run or wiring to figure out



Aux Power Outlets

Add an extra 12v outlet or dual USB charging outlets where you need them.

- 12v outlet is great for powering a fridge - connect to the power and ground bus bars to protect your cranking battery
- Dual USB outlets are perfect for charging phones, iPads, cameras, etc.
- Kit includes one outlet and a 20' wire harness with 20 amp in-line fuse and high-quality terminals

