



INSTALLATION INSTRUCTIONS

FUEL HANGER SURGE TANK CAN-AM MAVERICK

Document: 19-0442

Support: info@radiumauto.com

CAUTION

Only a qualified technician following applicable safety procedures should perform the installation of this product.
One must have knowledge in repair and modification of fuel systems and general vehicle modifications to install this product.
Gasoline and other fuels are flammable and can be explosive.
Only install in a well-ventilated location to minimize buildup of fuel vapors.
No sparks, open flames, smoking or other ignition sources are to be present. Draining and removal of all fuel from the fuel system is recommended.
Proper eye and personal protection is required at all times during installation.

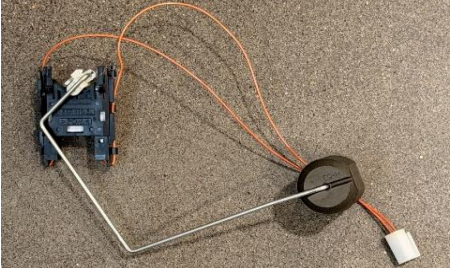
WARNING

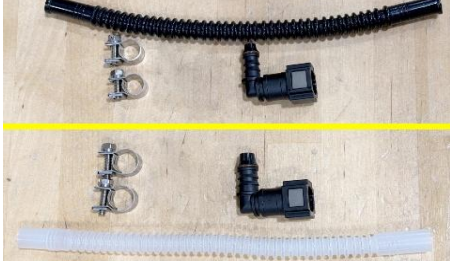
The fuel system is under pressure! Do not loosen any connections until relieving the fuel system pressure.
Consult a service manual for instructions on relieving fuel pressure safely. This product is designed for off-highway and racing use only.
Fuel system components may not be legal for sale or use on emissions controlled motor vehicles. Consult local, state, and federal laws.

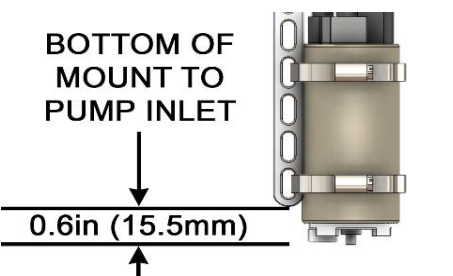
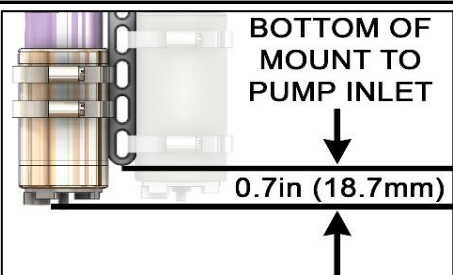
STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1		The terms "driver-side" and "passenger-side" will NOT be referenced. As depicted, these instructions will always reference "LH" and "RH" areas of the vehicle.	
2	T30 Torx 10mm Wrench Push-Pin Pliers	The pump is located under the RH dash panel and is accessible from the exterior (w/out windshield). For the Maverick X3, remove the exposed Torx screws (1, 2, 3). Flip the fuel fill panel to access the nut on the 4th screw. Open the glove box to access the 5th screw. Lastly, remove the 2 push pins (blue arrow) and lift the dash panel out, as shown.	
3	T25 Torx 10mm Wrench	For the Maverick R, the center panel can be flipped up and the RH panel can be unclipped. Remove the screw behind the RH A-pillar and the 2 nuts on the inner portion of the fuel tank access cover. Remove the lower cap around the A-pillar to expose the last nut. With these fasteners removed, it will look as shown.	
4	7mm Socket Wrench T30 Torx	In later steps, electrical will be routed just to the RH side of the fuel tank behind the front RH fender. Remove all of the related exterior hardware. Disconnect the filler from the fuel tank coupler.	

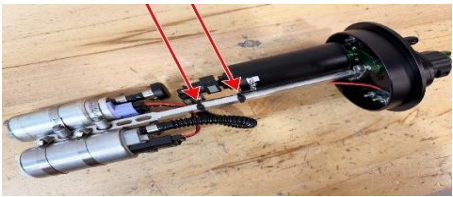
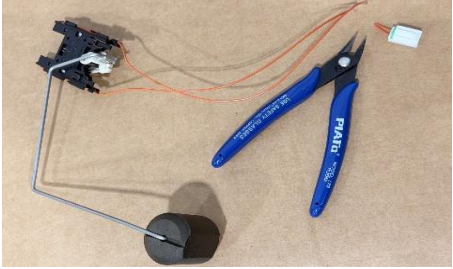
5		Remove the front RH fender from the UTV.	
6	10mm Socket Wrench	There is a steel plate that covers the pump module. Remove the inner and outer screws. As shown, remove the thick stamped steel plate from the vehicle. NOTE: For the Maverick R, a magnet will help retrieve the inner bolt.	
	Wobble Swivel		
	Magnet		
7	Screwdriver	Now is a great time to clean the area to prevent debris from falling into the fuel tank. Now unplug the fuel pump module electrical connector. For early models, pull the white lock back, then depress the tab to release. For later models, first remove the white locking tab.	
8		To release any residual pressure in the fuel lines, start the vehicle and allow the engine to stall.	
9		The location of the battery depends on the model. For the Maverick X3, it is located behind the RH seat. For the Maverick R it is located behind the LH seat, as shown. NOTE: For 4-seaters, it is behind the rear seats. First, slide the seat forward.	
10	13mm Socket	Remove the 2 bolt and nut fasteners at the lower front corners of the seat.	
	13mm Wrench		

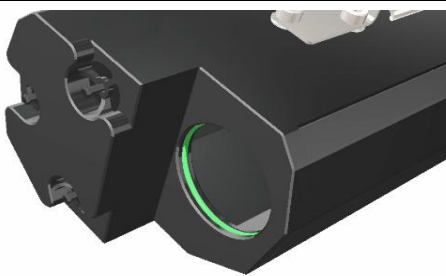
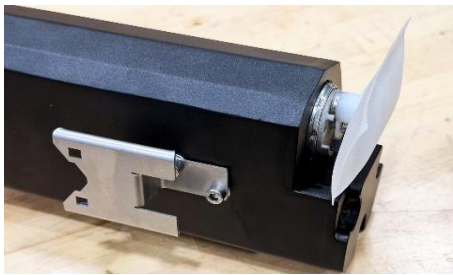
11	18mm Socket	Remove the 2 rear nuts at the lower rear corners of the seat. For 2-seaters, these are accessible from behind the seat. For 4-seaters, these are accessible through holes (shown) that are underneath the seat padding	
12	16mm Socket	Remove the seat harness bolt(s). NOTE: The location of the seat harness hardware will depend if it is a 2-seater or a 4-seater.	
13	10mm Socket	Now remove the seat from the vehicle. NOTE: For 2-seat Maverick R models, first unplug the seat belt electrical connector under the seat. Unlatch and open the plastic battery cover. Remove the negative terminal from the battery. CAUTION: Do not lose the washer.	
14	Flat Blade	Find the fuel feed line on top of the fuel pump module. Pull the blue locking tab outwards, as shown.	
15	Rag	Place a rag down and pull the feed line up. CAUTION: Fuel will spill from this connection. Move the electrical connector and the fuel feed connector out of the way.	
16	Marker	Prior to removing the fuel pump module, mark the roll cage in a location (shown red) that lines up with the arrow embossed on the fuel hat (shown red). NOTES: 1. This properly indexes the internal fuel level float. 2. The Maverick R has an indicator embossed on the fuel tank so this step is not necessary.	

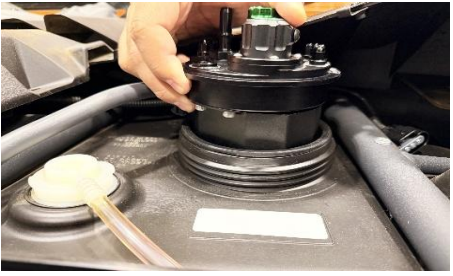
17		To remove the lock ring, a spanner tool is recommended. Aftermarket tools are relatively inexpensive and can be found online from companies such as Lisle, OEMTools, Ryco, etc.	
		For this application, Radium Engineering successfully uses Lisle P/N: 63000 (shown).	
18		NOTES:	
		1. Pushing down on the fuel hat, while spinning the lock ring, will free up resistance and help prevent side loading.	
		2. Be ready as the fuel pump module is spring-loaded and will pop up when the lock ring is released.	
19	Bucket	To remove the pump module, first pull up.	
		Then, twist and pivot the assembly back and forth to get the fuel lines, filter sock, and level float out of the tank, as shown.	
		Finally, lift out and transport the fuel pump module assembly to a clean workbench.	
20		Inspect the OEM gasket and replace, if necessary.	
		Can-Am P/N: 293250514	
21	Flat Blade	The fuel level sensor float will be reused from the OEM pump module.	
		To remove, first pry the fuel bucket tabs to separate the assembly, as shown.	
22		Push the 2 black fuel level sensor locking tabs inwards and simultaneously lift upwards to remove.	

23		Many aftermarket 39mm OD fuel pumps can be used for the surge tank's lift pump. However, the factory Maverick fuel pump can be used as well. They flow 155 LPH @ 3 bar.		
		In this case, remove the fuel pump from the OEM module. NOTE: Because the rubber grommet seal will NOT be used, pry it off the outlet, as shown.		
24	Lubrication	Find the following 3 parts in the kit; reverse diffuser, small EFI hose clamp, short black tube.		
	Heat Gun			
	Screwdriver	Lubricate the barb and the inside of one side of the black tube. Apply a small amount of heat to the tube. Slide the tube over the reverse diffuser barb and secure as shown.		
25	Lubrication	Find the other small EFI hose clamp and slide it over the black tube.		
	Heat Gun			
	Screwdriver	Lubricate the fuel pump outlet barb and the inside of the black tube. Apply a small amount of heat to the tube. Slide the tube over the fuel pump barb and secure as shown. NOTE: OEM fuel pump shown.		
26	4mm Socket Wrench	Remove the 4 screws and separate the surge tank from the fuel hat assembly.		
27	3/8" Socket	Install the appropriate connector terminals to the fuel hat for both pumps. The wire harnesses provided are for popular pumps including the OEM Can-Am pump.		
		NOTE: for brushless fuel pumps, use the provided terminals and heat shrink along with the wiring connectors that come with the pump.		
28		There are 2 sets of parts (SAE quick connector, convoluted tubes, EFI clamps) provided for surge pump plumbing. The correct set depends on the fuel pump outlet barb diameter that is used; 5/16" (8mm) or 3/8" (9.5mm). To confirm, measure the pump.		
		The small diameter set is shown on the top. The large diameter set is shown on the bottom.		

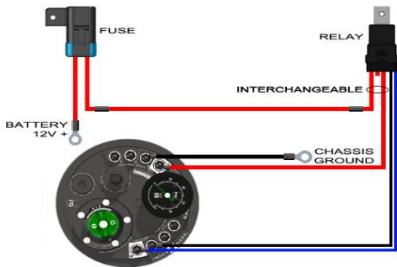
29	Lubrication	The following are "compatible" pumps that do not have an integrated check valve: Ti Automotive E5LM, Deatschwerks DW810, Fuelab 49614, Protec 11928.	 20-1534 CHECK VALVE, 6AN ORB TO 10MM BARB
30	Lubrication	Slide the EFI clamp over the convoluted tube.	
	Heat Gun		
	Screwdriver	Lubricate the SAE quick connect barb and the inside of one side of the convoluted tube. Apply a small amount of heat to the tubing. Slide the tube over the SAE quick connect barb and secure as shown.	
31	Lubrication	Slide the other EFI clamp over the end of the tube. Lubricate the pump outlet barb and the inside of the tubing. Apply a small amount of heat. Slide the tube over the fuel pump barb and secure, as shown.	
	Heat Gun		
	Screwdriver		
32	Screwdriver	Use 2 of the worm-drive clamps to secure the surge tank pump to the mount (opposite the filter). Loop the lower clamp through the mount's lower slot. Secure the pump at the exact height depicted.	 BOTTOM OF MOUNT TO PUMP INLET 0.6in (15.5mm)
33		Push the SAE quick connector from the convoluted tubing into the fuel filter inlet until it locks in place.	
34	Screwdriver	Use the other 2 worm-drive clamps to secure the lift pump. Secure the pump at the exact height depicted.	 BOTTOM OF MOUNT TO PUMP INLET 0.7in (18.7mm)

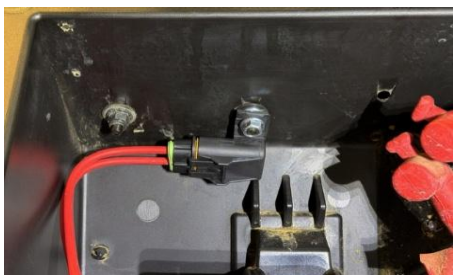
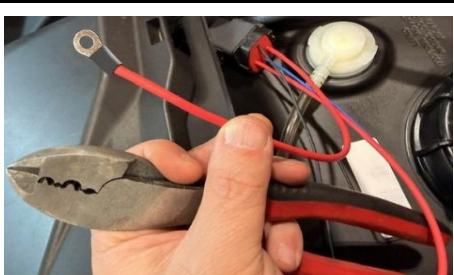
35		Loosely use 2 of the cable zip ties to secure the fuel pump wires to the mount (shown red arrows). Do not cinch the zip ties yet.	
36	Cutters	Loosely use the last cable zip tie to secure the fuel pump wires to the top of the mount, as shown. Cinch all zip ties and cut the tails off.	
37	Cutters	Cut the 2 fuel level wires close to the OEM connector. Leave just enough slack on the connector if ever needing to reverse the process.	
38	Wire Strippers	Install 2 small ring terminals and the provided heat shrink, as shown.	
	Wire Crimpers		
	Heat Gun		
39	3/8" Socket	Install the ring terminals to the fuel hat. NOTE: Because this is a resistance sensor, there is no polarity, i.e.: it cannot be wired backwards.	
40		Install the filter sock to the surge tank pump ONLY.	

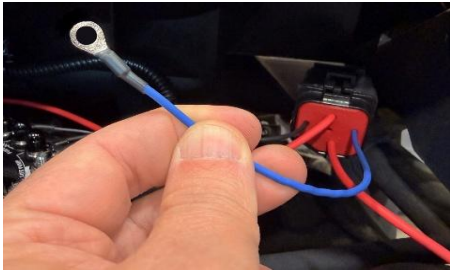
41	Oil Lubrication	Confirm there is a black O-ring (depicted as green) installed in the groove of the opening at the bottom of the surge tank canister. If not, press it into the groove.	
		Lubricate the O-ring.	
42	4mm Allen Wrench	Slide the surge tank over the pump assembly while keeping the level sensor outside the canister.	
		NOTES:	
		1. The convoluted tubing will create resistance.	
		2. Push the lift pump through the opening.	
		3. Reuse the 4 screws to secure the surge tank.	
43		As shown, install the filter sock to the lift pump.	
44		Slide the level sensor onto the bracket, as shown.	
45		As shown, temporarily slide the OEM fuel tank gasket up to the underside of the fuel hat.	
		NOTE: Once the fuel hat gets past the cowl (in the following step), the OEM gasket will be slid off and placed into the fuel tank opening.	
46		For the Maverick X3 (only), a second person is necessary to carefully pull the cowl upwards.	
		When inserting the FHST into the fuel tank, rotate the assembly to allow the float in first.	

47		As shown, slide the OEM gasket off the fuel hat.	
48		Install the OEM gasket into the fuel tank opening, as shown. Now fully seat the assembly to the fuel tank.	
49a		For the Maverick R fuel tank, rotate the assembly until the "INDEX MARK", etched on the fuel hat, lines up to the embossed indicator (depicted in green). NOTE: No other Can-Am Maverick fuel tanks have this embossed indicator.	 EMBOSSED INDICATOR
49b		For non Maverick R, rotate the assembly until the "INDEX MARK", etched on the fuel hat, lines up with the mark (previously) made on the roll bar. If this was mistakenly not performed, simply lineup the "ra" rectangle (depicted in green) so it is squared up while viewing it from the front right seat.	FRONT  REAR
50		To install the OEM lock ring, spin clockwise.	
51		For the 1/8" NPT port on the fuel hat, there are 2 options. The provided gauge can be installed which simplifies pressure adjustments. However, the gauge will not be visible when everything is back together. Alternatively, use the included 1/8" NPT plug.	

52	Plumber's Paste	PTFE paste must be applied to the tapered threads.	
53	See Description	For NPT threads, first hand tighten the fitting. Then, add 1.5 to 3 turns with a wrench.	
		Gauge Tool: 7/16" (or 11mm) wrench	
		Plug Tool: 3/16" Allen wrench	
54	Cutters	Cut the 4 OEM fuel module wires close to the connector. Leave just enough wire slack on the connector if ever needing to reverse the process.	
		Unravel some of the electrical tape and clip off an inch or so of the black corrugated wire loom sleeving.	
55		The OEM wire colors vary depending on the model and the year of the Can-Am Maverick.	
		Fortunately, the location of the wires within the connector are consistent.	
56	Wire Strippers	Install 2 small ring terminals to the small AWG fuel level wires. This sensor has no polarity	
	Wire Crimpers		
	Heat Gun	Install 2 small ring terminals to the large AWG fuel pump wires. These will be for the lift pump.	
		Use the provided heat shrink, as shown.	
57	8mm Socket	Place the ring terminals down on the appropriate studs.	
	8mm Wrench	Temporarily secure the ring terminals using provided anodized aluminum acorn nuts.	

58		The surge tank pump wiring will now be routed.	
59		This picture is an electrical representation for the following steps.	
60		Find the provided fuse holder.	
61	Wire Stripper	Strip 1/4" insulation off one of the wires.	
	Wire Crimper	Slide one of the large heat shrinks over the wire.	
	Heat Gun	Crimp one of the large ring terminals onto the wire.	
62	10mm Socket	Remove the locknut and washer on one of the vertical studs in the upper portion of the battery box.	
63	10mm Socket	Reinstall the washer and secure it using one of the provided M6x1mm flange nuts.	

64	10mm Socket	As shown, install the fuse holder to the new "stud" and secure using another of the M6x1mm flanged nuts included in the kit.	
65		Secure the ring terminal on the fuse holder to the battery terminal.	
66	Electrical Pick	The large red wire located in the center (terminal 87A) will NOT be used. To remove, first pry off the large red rubber seal and slide it along the 5 wires to dislodge it from the connector. Insert a pick into the center socket and pry the terminal loose from its internal lock. Simultaneously push the wire through the front of the connector, as shown. Discard the wire/terminal and reattach the large red rubber seal.	
67		Grab the included washer and the M6x1mm flanged bolt in the kit. As shown, drop them into the hole that is found just to the front right of the fuel tank opening.	
68	10mm Wrench	Place the relay mounting tab under the sheet metal and use one of the M6x1mm flanged nuts to secure. NOTE: Pictured from the front fender looking back.	
	10mm Socket		
69	Wire Stripper	Find one of the small ring terminals (with a large AWG barrel) and one of the large heat shrink tubes. Secure to one of the red wires on the relay.	
	Wire Crimper		
	Heat Gun		

70	8mm Nut Driver	Run this wire to the "FUEL SURGE TANK PUMP +" terminal and secure with one of the acorn nuts.	
71	Cutters	Find one of the small ring terminals (with a small AWG barrel) and one of the small heat shrink tubes.	
	Wire Stripper		
	Wire Crimper		
	Heat Gun	Lineup the wire to the "LIFT PUMP +" terminal. Cut to length and secure to the blue wire on the relay.	
		Stack this ring terminal on top of the factory wire that is also on this terminal.	
72	Cutters	Find one of the small ring terminals (with a small AWG barrel) and one of the small heat shrink tubes.	
	Wire Stripper		
	Wire Crimper		
	Heat Gun	Lineup the wire to the "LIFT PUMP -" terminal. Cut to length and secure to the black wire on the relay.	
		Stack this ring terminal on top of the factory wire that is also on this terminal.	
73	Wire Stripper	Find the 2ft long large gauge black wire in the kit. Now find the very large ring terminal (with a large AWG barrel) and one of the large heat shrink tubes.	
	Wire Crimper		
	Heat Gun		
		Assemble one end of the wire as shown.	
74	T30 Torx	Temporarily install the large ring terminal to the rivet nut on the RH tube chassis that is used for the thick steel plate.	
		Route the wire around the frontside of the FHST and towards the "FUEL SURGE TANK PUMP -" terminal.	
75	Cutters	Cut the wire to length. With the test Maverick at Radium Engineering, the cut length was 13" long.	
	Wire Stripper		
	Wire Crimper		
	Heat Gun	Find one of the small ring terminals (with a large AWG barrel) and one of the small heat shrink tubes.	
		Assemble the wire, as shown.	

76	T30 Torx	For testing purposes, secure the wire, as shown.	
	8mm Nut Driver	NOTE: The stamped steel plate can be installed later.	
77		Through the length of the UTV, route the large red wire between the red fuse wire and the red relay wire.	
78	Cutters	Use the non-insulated butt connectors and the large heat shrink tubing to attach the long red wire to the red flying leads on the fuse and the relay.	
	Wire Stripper		
	Wire Crimper		
	Heat Gun		
79	10mm Socket	Prior to priming the fuel pumps, be sure to insert the fuse into the fuse holder.	
		Reconnect the negative battery terminal.	
80	Thread Locker	Use a wicking thread locker, such as green Loctite, when installing the vacuum port fitting. a. For 1:1 pressure, install one of the vacuum fittings and route vacuum hose to the intake manifold. b. To mimic the factory "constant" pressure, screw the plug into the vacuum port, as shown.	
	1/8" Allen Wrench		
81		Switch the ignition to accessory mode. This will prime the fuel pumps for 2-3 seconds.	
		While observing the dashboard, add fuel to the tank and verify the fuel level gauge is working properly.	
		Start the engine and check for leaks.	

