



INSTALLATION INSTRUCTIONS

NISSAN 370Z

FUEL HANGER SURGE TANK

Document: 19-0213

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.





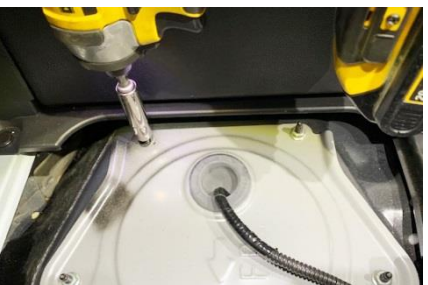

WARNING


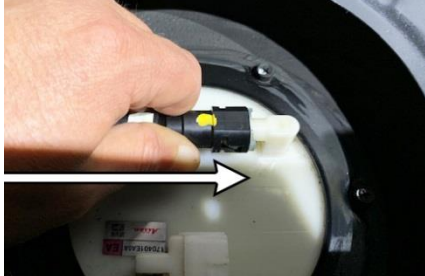

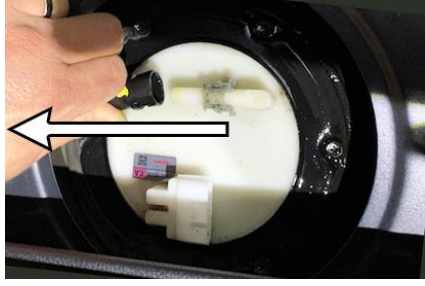

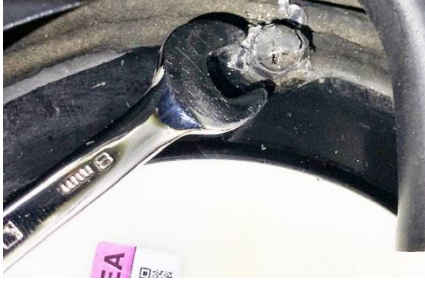
The fuel system is under pressure! Do not loosen any connections until relieving the fuel system pressure.






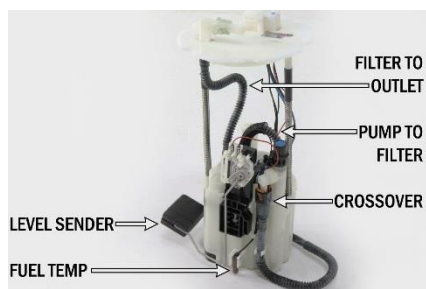
Consult a service manual for instructions on relieving fuel pressure safely. This product is designed for off-highway and racing use only.

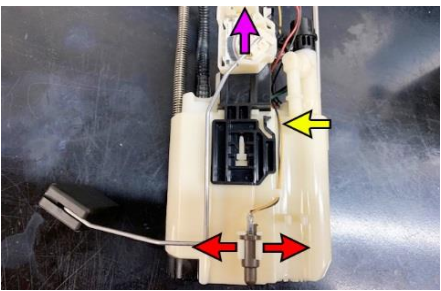

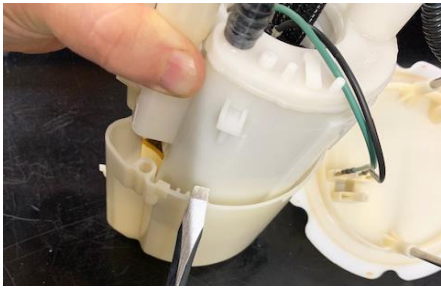



Fuel system components may not be legal for sale or use on emissions controlled motor vehicles. Consult local, state, and federal laws.







STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1	Flat Blade	<i>Note: It is recommended to run the fuel tank dry or drain the tank to reduce fuel spills for an easier and safer installation.</i>	
		Lean and move the seats all the way forward. Although not absolutely necessary, it is recommended to remove the seats for optimal access and working space. First, pop-off the plastic caps that protect the mounting bolts, as shown.	
2	14mm Socket	Remove the 8 mounting seat bolts.	
3		Tip the seats up and unplug the electrical connectors. Dislodge the wiring loom plastic stays from the seat.	
		Carefully remove seats from vehicle.	
4	90 Degree Pick	Using a small pry tool, dislodge the snap-in clips and lift up and remove both RH and LH parcel shelves.	

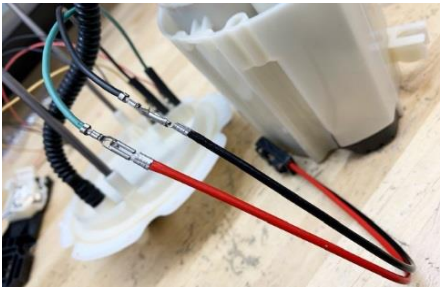





5		To expose the fuel tank access panels, pull the sound deadening sheets out from under the shelves. Note the "R" (pictured) and "L" for reinstalling in the proper orientation later.	
6		For optimal fuel pump access, the front plastic cover (shown) will be removed in the next couple of steps.	
7	Phillips Screwdriver	To remove the front plastic cover, first the rear portion of the center console will need to be lifted up. Remove the 2 screws on both sides, as shown.	
8	Flat Blade	To remove the front plastic cover, remove the 4 front most fasteners. The door sills and rear plastic side walls will need to be popped out of place. The next few steps (not discussed) will depend on the model variances such as model year, roadster, coupe, etc.	
9	10mm Socket Wrench	Remove the four M6 nuts (8 total) that secure each fuel tank access cover.	
10		Lift up each fuel tank access cover and rotate being careful to not stress the wires.	



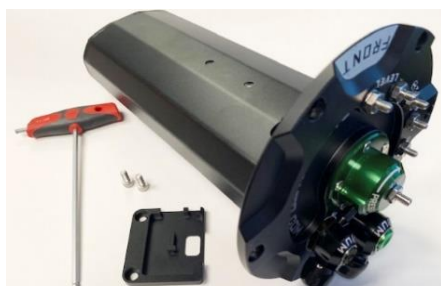

11	10mm Wrench	To unplug the electrical connectors, press the thumb tab and gently pull to release. Push the rubber grommets through each cover, slide the harnesses through, and set the covers aside.	
		To depressurize the fuel system, start the engine and allow it to stall. Remove the key from the ignition. Unscrew the gas tank filler cap temporarily to relieve any residual pressure. Open the hood and disconnect the battery's negative terminal. CAUTION: Disconnecting the battery may cancel fault memories of some control units. Consequently, before disconnecting the battery, always cross examine any fault memories.	
		Once the fuel tank access covers are removed, it is recommended to clean the area. This will prevent loose dirt from accidentally falling into the tank.	
12	Bucket	Have a bucket and rags nearby to catch fuel spills.	
		Find the fuel pump SAE quick connection on the RH side of the fuel tank.	
		First, push the female fitting further onto the male SAE quick connect, as shown.	
13		Next, simultaneously squeeze the locking tabs together.	
14		Finally, pull the female SAE quick connect fitting away to release.	
15	Pick	Carefully remove the SAE lock from the fuel pump module and reinsert into the fuel feed hose. NOTE: It will "click" back into place.	
16	8mm Wrench	<p>The following steps will cover installation of an aftermarket pump into the factory fuel pump hanger. This is necessary because the pump will be used to keep the Radium fuel hanger surge tank full, which will be installed in the opposite side of the fuel tank.</p> <p>NOTE: If the vehicle already has an aftermarket pump installed (320 LPH @ 3 Bar minimum), skip the following steps and resume on step 44.</p> <p>The fuel pump resides in the RH side of the fuel tank. Use a socket or end wrench to remove the screws.</p> <p>Note that the OEM fuel pump module is spring-loaded. Once the 6 screws are removed, the fuel pump module will pop upwards.</p>	
	8mm Socket		
	Phillips Screwdriver		

17		Temporarily remove the hold-down ring (shown). This will be reused.	
18		<p>Carefully pull the OEM fuel pump module upwards. Do not use excessive force as the convoluted hose and/or wiring may need to be pushed inwards to prevent the module from catching the gas tank opening.</p> <p>Eventually the pump module will be high enough where it will need to be rocked back and forth to allow the fuel level float to clear the gas tank opening.</p>	
19	Pick	<p>Next, there will be a crossover hose coming from the LH side of the tank that mates to the siphon jet pump SAE quick connect.</p> <p>Just like the previous SAE quick connect, push the fitting further onto the connector, squeeze the locking tab, and simultaneously pull (cautiously) to release.</p> <p>As before, reattach the SAE lock to the crossover hose until a "click" is felt.</p>	
20	Bucket	<p>To reduce potential spills, immediately place the OEM fuel pump assembly into a container such as a bucket.</p> <p>Remove the assembly from the vehicle and place on a workbench. Pour out the remaining fuel from the OEM basket into the bucket.</p> <p>WARNING: Fuel is highly flammable and should be stored in an approved fuel can. Keep away from direct sunlight, high moisture areas, and extreme temperatures.</p>	
21		<p>Go back and inspect the blue seal O-ring and replace if needed. Nissan P/N: 17342-CE800.</p> <p>If there is still residual fuel in the gas tank, it is a good idea to remove it completely. Pictured is an inexpensive battery-operated liquid transfer pump that works great for this step.</p> <p>Next, place an object over the fuel tank opening to prevent foreign debris from entering the fuel system while the module is getting prepared.</p>	
22		Study the picture to understand the important components within the OEM unit.	

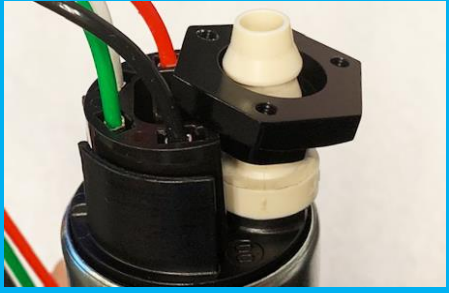

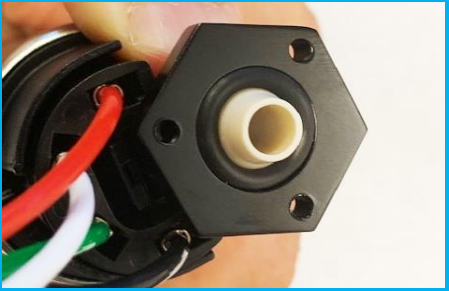



23		Gently pry the locking tabs (shown red) to release the fuel temperature sensor probe from the module.	
		To unsnap the black fuel level sender, gently push the locking tab inwards (shown yellow) and simultaneously push in the direction shown with the purple arrow to release the black level sender.	
		Pull all associated wiring out of the module holder stays.	
24	Pliers	Find the white C-shaped plastic retainer for the bottom of the sprung stainless rod. Pop this plastic retainer out.	
		Carefully pull the OEM module apart. These 2 pieces will still be tethered together by electrical wires and convoluted tubing.	
		As shown, be sure not to lose the plastic retainer, spring, and spring spacer as these will be reused.	
25	Flat Blade	To separate the lower bucket from the fuel pump assembly, there are locking tabs which need to be spread apart. Take your time and be extra careful to not break the plastic locks.	
		Once both sides are free, rock the 2 pieces back and forth while simultaneously pulling apart.	
26	Diagonal Cutter	Cut the convoluted tubing that routes from the fuel pump outlet to the post pump fuel filter. This tubing will be replaced later.	
	Razor Blade	NOTE: do NOT cut the convoluted tubing that attaches the post pump filter to the top plate.	
		Very carefully slit this same convoluted tubing right where it attaches to the barb that enters into the post pump fuel filter.	
27		Pull the convoluted tubing off the fuel filter barb and discard.	
28		Gently pull the electrical wiring connections off the fuel pump terminals.	

29	Flat Blade	While pushing the 2 plastic locks outwardly, simultaneously spin the fuel pump counterclockwise (from top view) to disengage it from the plastic locks.	
30		Pull the fuel pump out from the bottom of the assembly, as shown. NOTE: The OEM fuel pump does not flow enough to be used with the Radium Engineering FHST system so it cannot be reused.	
31	Diagonal Cutter	For the high flow replacement fuel pump to be connected and fit, there are some minor modifications required. First, cut away the internal plastic tabs from the assembly that was used to lock the OEM fuel pump in place. Discard all cut pieces.	
32		The FHST system was designed using an AEM 50-1200 as a "lift" pump. This pump is compatible with the OEM post pump filter and it can use alternative fuels such as ethanol and methanol. NOTE: there are many other aftermarket fuel pumps that can work. However, the fuel pump must flow at least 320LPH @ 43.5psi (3Bar) or 340LPH @ 40psi. The system WILL work with a higher flowing pump. Install the foam sleeve included with the AEM 50-1200 fuel pump kit, as shown.	
33	9/32" Nut Driver	Slide the fuel pump up into the OEM module. It is ideal to rotate the fuel pump so the outlet barb is the furthest away from the post pump filter inlet. This will permit a large radius for the convoluted tubing. Fully tighten the provided EFI clamp to secure the included convoluted tubing to the fuel pump outlet barb. Attach the opposing end to the OEM post pump filter inlet barb, as shown.	
34	Crimper	Find the 2 flat blade terminals in the kit and the flying lead wiring harness from the fuel pump kit. Crimp the terminals onto each of the wires from the fuel pump connector, as shown.	

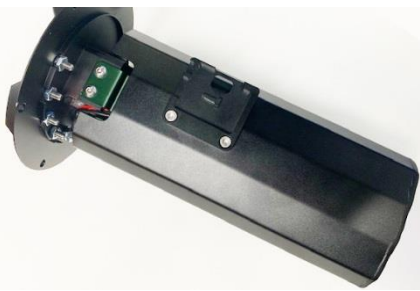
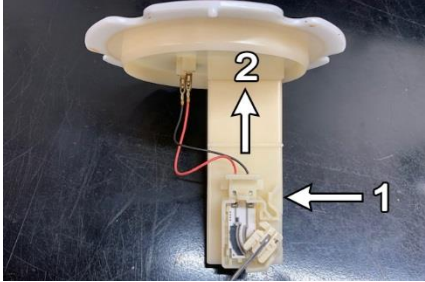
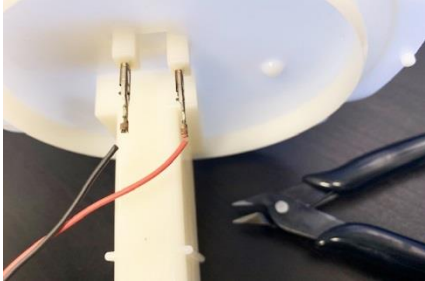

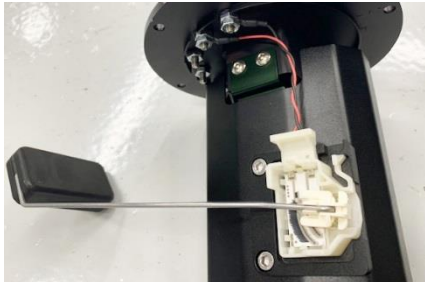
35	Electrical Pick	<p>First, slide each heat shrink tube over each fuel pump wire.</p> <p>Next, insert the flat blade male terminals into the OEM fuel pump wiring female terminals. Make sure the 12V green wire goes to the 12V red wire. Make sure the black ground wire goes to the black ground wire.</p> <p>OEM Green Wire ----> New Red Wire OEM Black Wire ----> New Black Wire</p> <p>Before proceeding, gently tug each wire connection apart to see if they lock together. If not, carefully pry the OEM terminals' metal locking tabs up. This will permit the terminals to lock together.</p>		
	Heat Gun	Slide the shrink tubing over the terminals and apply heat as shown.		
36				
37		<p>Push down to plug the connector into the fuel pump. Make sure it locks in place.</p>		
38		<p>Press the sock filter onto the fuel pump inlet. Install the locking star washer in place, as shown.</p> <p>Be sure the fuel pump is positioned high enough into the OEM module. If not, the OEM bucket will not lock onto the assembly in the next couple steps.</p>		
39		<p>Depending on how the fuel pump is positioned and what filter sock is used, there is a good chance one side of the filter sock will need to be flipped up as the OEM bucket is being reinstalled.</p>		
40		<p>Carefully insert the assembly back down onto the OEM bucket until it snaps in place.</p>		





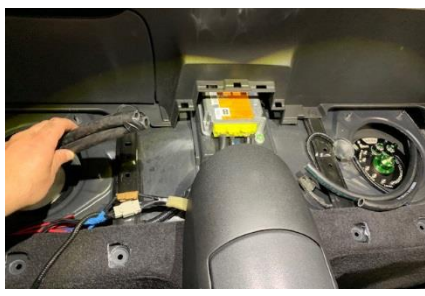
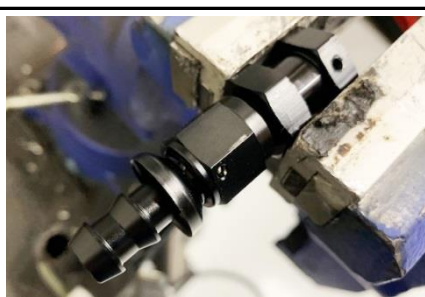
41		Reinstall the OEM fuel temperature probe and fuel level sender. Make sure all wiring is tucked into the unit for reinstallation.	
42		Before reinstalling the fuel pump module, pull the OEM crossover SAE quick-connect fitting out of the tank. If not performed already, reinstall the orange SAE locking retainer, as shown.	
43	8mm Socket Wrench Phillips Head Screwdriver	Tilt the fuel pump assembly to allow the float into the tank first. Reinstall the OEM hold-down plate. Push the assembly down while screwing in the 6 OEM bolts. Do NOT plug in the wiring connector or install the SAE quick-connect tube. This completes the installation of an aftermarket high flow pump into the factory fuel pump hanger.	
44		Reference the picture to understand how the Radium Engineering fuel hanger surge tank system will work. If the fuel hanger surge tank kit was purchased with fuel pump(s) included, skip Steps 45-66.	
45	4mm Allen Wrench	Remove the two M5 bolts and fuel level sender mount from the canister, as shown.	
46	3mm Allen Wrench	On the opposing side, remove the two M5 bolts that attach the canister to the FHST assembly, as shown. Next, slide off the FHST canister and set aside.	

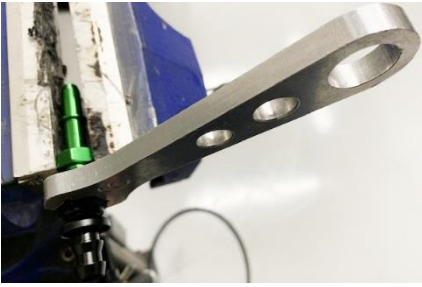

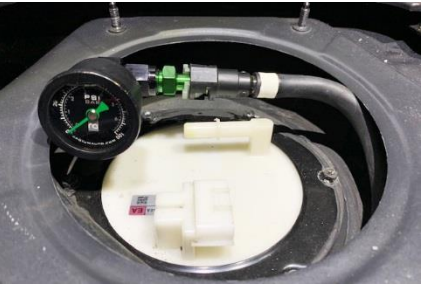



47	1/4" Allen Wrench	If installing 2 fuel pumps, remove the preinstalled 6AN ORB plug, as shown.	
48	Petroleum Oil	If installing 2 fuel pumps, find the provided 90 degree fitting.	
	22mm Wrench	NOTES:	
	4mm Allen Wrench	1. Depending on the manufacture date, the 90 degree fitting will be either green (shown) or silver.	
		2. Before securing, apply lubrication to the O-ring.	
		3. To tighten, the green fitting requires a 22mm wrench. The silver fitting requires a 4mm Allen wrench.	
49	4mm Allen Wrench	The barbed silver fitting is shown.	
		NOTE: The brushless E5LM fuel pump FHST kit includes a similar 90 degree fitting but has a female 6AN instead.	
50	3/8" Socket Wrench	ALL PUMPS (excluding brushless Ti Automotive E5LM fuel pump)	
		If installing 2 pumps, attach the second fuel pump connector included to the corresponding "PUMP2" wiring studs. Red wires are positive (+). Black wires are negative (-).	
51	9/32" Socket	ALL PUMPS (excluding brushless Ti Automotive E5LM fuel pump)	
	Petroleum Oil	The provided submersible fuel hose should be the following lengths for each fuel pump.	
	Hose Cutter	Walbro GSS342 255LPH 4.29" (109.5mm) long sections Walbro F90000274 E85 4.31" (109.5mm) long sections Walbro F90000285 E85 4.31" (109.5mm) long sections AEM 50-1200 E85 4.23" (107.4mm) long sections	
		Apply lubrication and install the submersible hose to the fuel pump barb(s). Install and tighten the included EFI clamp(s). NOTE: For Walbro F90000267/274/285/295 fuel pumps, use the large EFI clamps provided. Insert the other med-sized EFI clamp(s) over the hose(s). Slide the hose onto the 90 degree barb fittings. Do not tighten the EFI clamps yet.	
52		BRUSHLESS TI AUTOMOTIVE E5LM FUEL PUMP ONLY	
		Inspect the pump outlet hose barb. If deformed or damaged, the Radium check valve pump adapter will NOT attach properly.	
		The Ti Automotive E5LM 4-pin wiring connector MUST first be installed to the electrical terminals, as shown.	





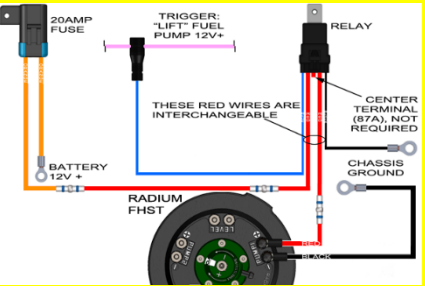
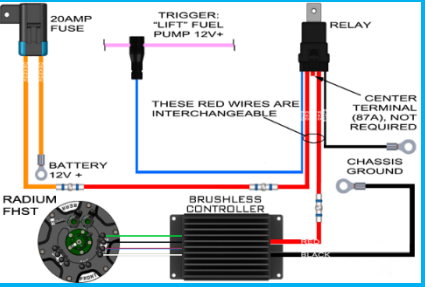
53		<p><u>BRUSHLESS TI AUTOMOTIVE E5LM FUEL PUMP ONLY</u></p> <p>To install the check valve, first slide the black collar over the pump outlet with the flat surface upward, as shown.</p>	
54		<p><u>BRUSHLESS TI AUTOMOTIVE E5LM FUEL PUMP ONLY</u></p> <p>Next, slip the stainless steel retainer under the hose barb ridge closest to the end of the pump outlet opening. NOTE: If purchased prior to March 2020, the retainer will be C-shaped (as shown). If purchased after March 2020, the retainer will be 2-piece half circles.</p> <p>As shown, pull the collar up to confirm the C-shaped retainer locks into place.</p>	
55	Petroleum Oil	<p><u>BRUSHLESS TI AUTOMOTIVE E5LM FUEL PUMP ONLY</u></p> <p>Place the included O-ring on the pump outlet. Apply a petroleum-based lubricant to the O-ring.</p> <p>Slide the black collar upward and tuck the O-ring into the groove, as shown.</p>	
56		<p><u>BRUSHLESS TI AUTOMOTIVE E5LM FUEL PUMP ONLY</u></p> <p>Place the O-ring onto the check valve plunger groove, as shown.</p>	
57		<p><u>BRUSHLESS TI AUTOMOTIVE E5LM FUEL PUMP ONLY</u></p> <p>Place the provided spring around the plunger rod, as shown.</p>	
58		<p><u>BRUSHLESS TI AUTOMOTIVE E5LM FUEL PUMP ONLY</u></p> <p>Insert the plunger rod through the internal center hole of the green adapter fitting, as shown.</p>	








59	2.5mm Allen Wrench	BRUSHLESS TI AUTOMOTIVE E5LM FUEL PUMP ONLY	
	Thread Locker	Apply a high strength thread locking compound to the threads on the 3 included screws. Line up the green fitting holes to the black fitting threads.	
		After tightening all bolts evenly, inspect the internal side of the green fitting. When installed properly, the plunger should be slightly sticking out of the center hole at rest, as shown.	
60	9/16" Wrench	BRUSHLESS TI AUTOMOTIVE E5LM FUEL PUMP ONLY	
		Be sure the 6AN female banjo fitting is installed to the port on the underside of the fuel hat. Install the 6AN male check valve to the 6AN female banjo fitting, as shown.	
61	Diagonal Cutter	BRUSHLESS TI AUTOMOTIVE E5LM FUEL PUMP ONLY	
	Wire Stripper	Cut the fuel pump wires to length and strip the ends.	
	Wire Crimper	Slide the provided heat shrink to each wire.	
	Heat Gun	Crimp the provided ring terminals to the end of each wire.	
	3/8" Wrench	Slide the heat shrink over the crimped area.	
		Apply heat to shrink the insulation, as shown.	
	Connect each ring terminal to the corresponding wire color terminal. R = Red G = Green W = White B = Black		
62		Rotate the fuel pump(s) until the connection(s) are straight, as shown.	
		ALL PUMPS (excluding brushless Ti Automotive E5LM fuel pump)	
		Once the orientation is correct, tighten the upper fuel pump EFI hose clamp(s).	
63	Flathead Screwdriver	For kits manufactured after 2020, secure the pump(s) to the bracket using the provided worm drive clamps, as shown.	
		Install the fuel pump filter(s). NOTE: the FHST requires a pliable filter sock such as the following:	
		1. Radium P/N: 14-0143	
		2. Radium P/N: 14-0543 (for brushless E5LM pumps)	
		3. AEM fuel pump filter socks (shown)	
64		If not already performed, plug in the fuel pump connector(s). If installing dual Walbro F90000267/274/285 pumps, the large electrical connectors must be properly positioned for fitment purposes. Place one connector at the front and the other connector at the rear of the assembly.	
		Fold the filter sock(s) downward and insert the fuel pump assembly into the canister. Clearance is tight.	




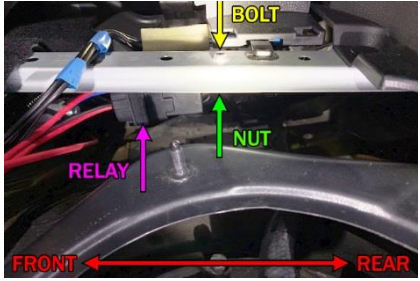
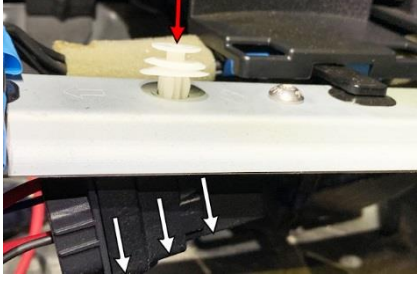

65	3mm Allen Wrench	To secure the canister, reinstall the two 3mm hex button head screws.	
	4mm Allen Wrench	Reinstall the fuel level mount as shown using the two 4mm hex socket head screws.	
66	8mm Wrench	Next, the LH side of the fuel tank will be opened.	
	8mm Socket	Ideally a 8mm socket wrench makes removing the 6 hex bolts the easiest. However, there will likely be a liberal amount of sealant on the hold down ring. Many times this was applied poorly from the factory and finds its way to the hex bolts. In this case, an open-ended wrench or Phillips head screwdriver may be necessary.	
	Phillips Screwdriver	Note: The 6 OEM bolts and hold down flange will NOT be reused.	
67		Carefully remove the LH fuel level sender module from the gas tank and place on a workbench.	
		To remove the OEM fuel level sender from the module, push in the side locking tab (1) while simultaneously pushing upwards (2).	
68	Wire Cutter	Cut the fuel level sender wires right at the female spade terminals (as shown). This will provide the maximum amount of the slack needed in the following steps.	
		NOTE: the LH fuel level sender will be reused. The LH OEM module will not be reused.	
69	Wire Stripper	Strip 1/4" of insulation off the end of the two OEM fuel level sender wires.	
	Wire Crimper	Cut two 1/2" sections of the included small heat shrink and insert over each wire.	
	Heat Gun	Crimp the included small gauge ring terminals to each wire. Slide the heat shrink over the crimped area and apply heat to shrink into place. It is suggested to twist the wires together as shown.	
70	3/8" Wrench	To install the OEM fuel level sender onto the mount, insert and push down to lock into place.	
		Put the ring terminal from the black wire onto the nearest stud. Put the ring terminal from the red wire on the furthest stud. Polarity is not important. Position the wires to leave slack and tighten the locking nuts.	
		Work bench assembly complete. <i>NOTE: Extra electrical connection parts may be included in the kit and can be used as spares. Also, the kit may contain two black plastic electrical connectors with pins. These are not used in this kit and can be discarded.</i>	

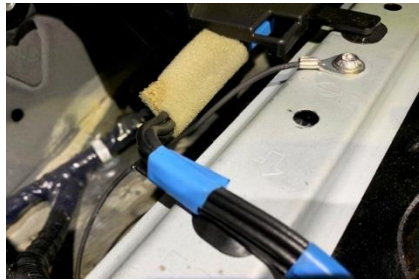
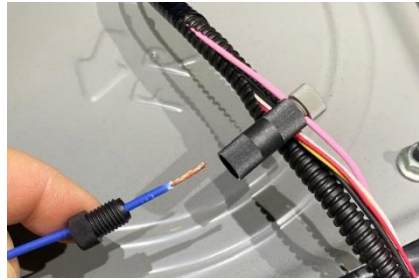
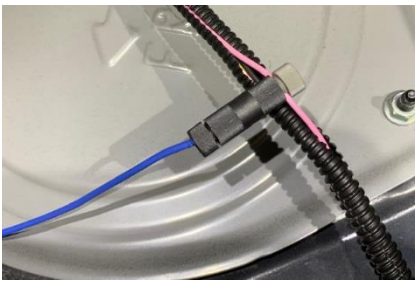



71		First, make sure the OEM O-ring gasket is installed on the LH side fuel tank opening.	
		Next, tip the FHST assembly to insert the fuel level float in first.	
72	4mm Allen Wrench	Rotate the assembly back to normal and slowly lower into the gas tank. Note the "FRONT" and "REAR" labels on top of the FHST for proper orientation.	
	Torque Wrench	Lineup the mounting holes and torque the provided M5x.8mm bolts in a cross pattern to 53 inlbs (6 Nm).	
73	Hose Cutter	The next couple of steps route hoses from one side of the tank to the other and will require 2 people. First, safely raise and support the vehicle. Next, cut the provided 3/8" hose in half. Insert both hoses through the back LH side of the tank.	
74		From underneath, make sure the hoses route on the inside of the LH fuel tank strap. Tip: Tape the ends of the hoses together, as shown. This will make the next step easier.	
75		From underneath, the hoses will route well above the exhaust system and differential. The hoses should rest on top of the horizontal fuel tank seam. On the RH side, the hoses will run inside of the fuel filler tube. Carefully pull the hoses up and out from the RH opening. There should now be loose hoses from both fuel tank openings, as shown.	
76	11/16" Wrench	Secure the included SAE quick connect female fitting into a vice with aluminum jaws.	
	Vice	Screw in one of the provided PushLok hose ends. Tighten with a non marring aluminum wrench.	




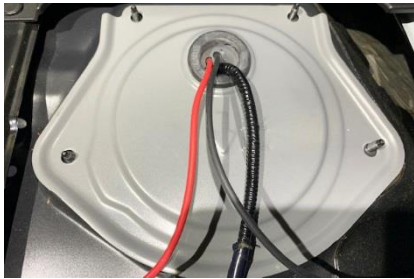

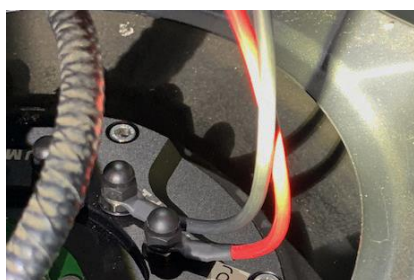
77	11/16" Wrench	<p>The included fuel pressure gauge can be installed in the front or the rear of the vehicle.</p> <p>If the gauge will be installed in the rear, see the following step. If the gauge will be installed in the front, know that this kit does NOT include adapters for this. The installer must come up with a way to adapt it in the fuel system in the engine bay.</p> <p>For eliminating a gauge install in the rear, first secure the included SAE quick connect male fitting into a vice with aluminum jaws. Screw in one of the provided PushLok hose ends. Tighten with a non marring aluminum wrench.</p>	
	Vice		
78	PTFE Plumber's Paste	<p>For installing the provided fuel pressure gauge in the rear of the vehicle, first apply thread sealant to the gauge's NPT threads. Hand tighten the gauge into the included inline adapter then add 1.5 to 3 turns.</p> <p>Next, secure the included SAE quick connect male fitting into a vice with aluminum jaws. Screw in one of the provided PushLok hose ends. Tighten with a non marring aluminum wrench.</p>	
	7/16" wrench		
	11/16" Wrench		
	Vice		
79	Petroleum Oil	<p>Pull the OEM fuel feed line up and rotate it to the inside of the fuel tank opening.</p> <p>Lubricate the male portion of the SAE quick connect fitting. As shown, fully insert it into the OEM feed hose until a "click" is felt.</p>	
80	Hose Cutter	<p>Find the hose which comes from the pump "OUT" label on the FHST. Line this hose up to the 6AN male fitting from the previous step. Cut the hose to length taking into consideration the hose end shown.</p> <p>Lubricate the barbs on one of the PushLok hose ends and fully insert into the hose, as shown.</p>	
	Petroleum Oil		
81	11/16" Wrench	<p>Screw in the 6AN hose end and tighten, as shown.</p>	
	7/8" Wrench		
82		<p>Tuck the adapters in the back of the RH fuel tank opening. Rear mounted fuel pressure gauge variation shown.</p>	




83	Hose Cutter	Find the hose which comes from the "IN" label on the FHST. Line this hose up to the SAE quick connect on the OEM module. Cut the hose to length taking into consideration the adapter fittings shown.	
	Petroleum Oil		
84	Petroleum Oil	Lubricate both the male (OEM module) and female portion (internal O-rings) of this SAE quick connection. Carefully insert the female adapter over the male portion. CAUTION: Because the OEM module is plastic, make sure there is no side loading created from the hose as it could potentially break. As shown, install the SAE quick connect lock using the small provided screw.	
	5/64" Allen Wrench		
85	Hose Cutter	From the LH fuel tank opening, find the hose which connected to the OEM fuel feed line on the RH side. Line this hose up to the 6AN male "OUT" fitting. Cut the hose to length taking into consideration the hose end.	
	Petroleum Oil		
86	11/16" Wrench	Screw in the 6AN hose end. When tightening, use another wrench on the banjo portion to prevent side loading, as shown. Perform the last 2 steps for the "IN" fitting on the FHST. NOTES: 1. The "IN" fitting can NOT be replaced. This fitting utilizes a calculated orifice that is necessary for venturi jet pump operation. 2. Depending on the manufacture date, the "IN" fitting will be either black (shown) or silver.	
	13/16" Wrench		
87		ALL PUMPS (excluding brushless Ti Automotive ESLM fuel pump). 1. The attached picture is an electrical representation for the following steps. 2. An independent fuse and relay must be used to drive each high current FHST pump. 3. In order to get the vehicle running, a relay and fuse are provided. Radium Engineering P/N: 17-0031 can be purchased if using an additional pump. 4. These instructions focus on installing 1 fuse and 1 relay for 1 FHST pump on a LHD vehicle. The following process will differ for dual FHST pump configurations and/or RHD vehicles.	
88		BRUSHLESS TI AUTOMOTIVE ESLM FUEL PUMP ONLY 1. Pictured is an electrical representation for the following steps. For those installing an Injector Dynamics BPC1100 brushless controller kit, reference those specific instructions. 2. An independent fuse and relay must be used to drive each brushless controller. 3. For (dual) brushless Ti Automotive BKS1000 fuel pump configurations, an additional Radium Engineering P/N: 17-0031 can be purchased for the second pump. 4. These instructions focus on installing 1 fuse and 1 relay for 1 (non-brushless) FHST pump on a LHD vehicle. The following process will differ for single and dual brushless FHST pump configurations and/or RHD vehicles. 5. As of January 2020, the Ti Automotive BKS1000 kit has one dissimilar wire. Pair the 3 common color wires and connect the mismatched red to blue thru the (W)(R)(B)(G) FHST studs. -Ti Automotive Fuel Controller: White, Blue, Black, Green. -Ti Automotive Pump Connector: White, Red, Black, Green.	

89	12mm Socket	Remove the 12mm hex bolt that secures the OEM ring terminal near the 12V "+" battery post. On the RH strut tower near the battery and fender, remove the 10mm hex M6 bolt shown.	
	10mm Socket		
90	Drill	Detach the provided flying lead fuse from the holder. Place the holder in a vice. Carefully enlarge the existing mounting hole to 7mm. Reusing the OEM bolt, secure the fuse holder to the strut tower. Strip either fuse wire and slide on a short piece of heat shrink. Find the ring terminal in the kit that has a 3/8" hole and is used for 12-10 AWG wire. Crimp the ring terminal to the exposed wire. Slide the heat shrink over the crimped area and apply heat. Install the new ring terminal over the OEM battery terminal and secure with the OEM bolt. Cut the provided plastic loom to length and slide over the wire, as shown.	
	Vice		
	10mm Socket		
	Wire Stripper		
	Wire Crimper		
	Heat Gun		
	Scissors		
12mm Socket			
91		The power wire from the fuse needs to route through the firewall. From the engine bay, unclip and remove both the RH battery cover and the RH cowl just under the windshield, as shown. From the interior, unclip and remove the glove box, RH kick panel, and RH door sill.	
92	Electrical Pick	From the engine bay, puncture a small hole in the RH firewall rubber boot (shown). Send the included red wire through the hole while pulling from inside.	
93		In the Radium Engineering wiring diagram from a few steps back, note the different locations of the included Raychem solder butt connectors. To properly use the solder butt connectors: 1. Strip each wire insulation back. 2. Insert both wires into the butt connector ends and overlap them. 3. Use a heat gun. Be careful with the surrounding area as the internal solder will take a few minutes to melt. 4. Verify the connection is solid by giving it a tug. 5. For strain relief, always allow some slack in the wire so it does not pull.	<p>Position wires into Solder Splice, as shown.</p>  <p>1</p>  <p>2 Heat Solder Splice with heating tool or a butane gas heating tool.</p>
94	Wire Stripper	Using a solder butt connector, splice the other fuse wire to the red wire, as shown.	
	Heat Gun		

95	Scissors	Pull the wire from inside but leave some slack for strain relief.	
		Cut the provided plastic wire loom to length and slide over the wire, as shown.	
96		As shown, route the red power wire along the door towards the fuel tank. Be careful to stay away from potential chaffing areas.	
97	Electrical Pick	Find the included relay flying lead connector in the kit. 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.	
98	4mm Allen Wrench	Reinstall the flying lead connector to the relay.	
	10mm Wrench	Using the provided M6x1.0mm button head bolt and nut, install the relay underneath the aluminum brace shown. This brace is located to the RH side of the fuel tank opening. Do not torque the fasteners yet as they will be removed in an upcoming step.	
		NOTES:	
		1. Single pump FHST with 1 relay shown.	
		2. For dual pump FHST, the installer may choose to mount the additional relay (not included) near this area.	
99		When the interior is put back together there will be a white plastic trim retaining clip (shown red) that secures right where the relay is located. Simply push the relay downwards (shown white) just enough for the relay mounting tab to bend and clear the retaining clip.	
100	Diagonal Cutter	Grab either one of the red relay wires and the red wire from the fuse/battery. Cut these to length and install one of the Raychem solder butt connectors, as shown.	
	Wire Stripper		
	Heat Gun		

101	Wire Stripper	Strip the insulation off the relay's black (ground) wire.	
	Wire Crimper	Find the ring terminal in the kit that has a 1/4" hole and is used for 22-18 AWG wire. Crimp the ring terminal to the exposed wire.	
	4mm Allen Wrench		
	10mm Wrench	Remove the relay bolt and nut then secure with the ground ring terminal on top, as shown.	
102	Wire Stripper	For safety purposes, the FHST pump relay(s) must be triggered from a source that turns OFF when the engine stalls. The source should also have a priming feature used for quicker engine starts. Aftermarket ECUs utilize these outputs. Fortunately, the FHST pump relay(s) can be triggered from the OEM fuel pump's PINK power wire which already has this feature.	
		Unscrew both ends off the included black Posi-Tap connector. Insert the OEM PINK power wire in the wire loom into the slotted end of the Posi-Tap connector. Screw the center section back on making sure the wire gets pierced, as shown.	
		Grab the blue wire flying lead from the relay. Strip the insulation back to expose 3/8" of copper. Slide the Posi-Tap collar end piece over the blue wire provided in the kit.	
103		Insert the blue wire into the end of the Posi-tap connector. Smash the blue wire by tightening the collar end into the Posi-Tap connector, as shown.	
		See the online Posi-Tap tutorial videos for more information.	
104	Scissors	Place the plastic wire loom along the blue wire and cut to length. Slide the wire loom over the blue wire, as shown.	
105	Wire Stripper	Grab the other red relay wire and the previously cut red wire. Connect these wires using one of the Raychem solder butt connectors, as shown.	
	Heat Gun	Neatly route this wire towards the LH side fuel tank opening. Be careful to stay away from potential chaffing areas.	
106	Diagonal Cutter	Find the wiring harness connector for the LH side fuel level sender. Cut the 2 wires at the location shown.	

107	Wire Stripper	Strip the insulation off both fuel level sender wires.	
	Wire Crimper	Find the ring terminals in the kit that have 3/16" holes and is used for 22-18 AWG wire.	
	Heat Gun	Slide on short pieces of heat shrink to each wire.	
	Scissors	Crimp both ring terminals to the exposed wires.	
		Slide the heat shrink over the crimped areas and apply heat.	
108		Install the wires to the fuel level terminals on the FHST. Polarity is not important.	
		Hand tighten the insulating acorn nuts.	
109	Diagonal Cutter	Strip the insulation off the provided black wire.	
	Wire Stripper	Find a ring terminal in the kit that has a 3/8" hole and is used for 12-10 AWG wire.	
	Wire Crimper	Crimp the ring terminal to the black wire.	
	4mm Allen Wrench		
	10mm Wrench	Install to the ground location shown using the included M6x1.0mm bolt and nut.	
110	Electrical Pick	Temporarily place the access cover plate back over the 4 studs.	
		Poke 2 holes through the LH rubber grommet.	
		Push the red wire from the relay and the black ground wire from the previous step through the holes, as shown.	
111	Wire Stripper	Strip the insulation off both red (power) and black (ground) wires.	
	Wire Crimper	Find the ring terminals in the kit that have 3/16" holes and is used for 12-10 AWG wire.	
	Heat Gun	Slide on short pieces of heat shrink to each wire.	
	Scissors	Crimp both ring terminals to the exposed wires.	
		Slide the heat shrink over the crimped areas and apply heat.	
112		Install the ring terminals to the fuel pump studs. Red wire(s) are positive (+). Black wire(s) are negative (-).	
		Hand tighten all acorn nuts. Extra nuts are provided in the kit.	

113	10mm Wrench	Temporarily remove the new FHST fuel pump fuse(s). Reconnect the battery.	
		Switch the ignition ON a few times without starting the engine. This will prime the OEM unit's pump and fill the FHST.	
		Reinstall the fuse. It may take longer than usual to start the engine as air pockets are being bled from the system. Start and idle the engine. Check for fuel leaks.	
114	3/8" Wrench	<p>The FHST is NOT preassembled to a specific fuel pressure. To increase fuel pressure, tighten the set screw. To reduce fuel pressure, loosen the set screw. Once adjusted, lock the set screw in place with the jam nut.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. OEM Nissan VQ37VHR fuel pressure is static at 3.5 bar (50.8 psi) and does not deviate. 2. If wanting to mimic factory fuel pressure, leave the FHST nipple open to atmosphere. 3. If a 1:1 rising rate is required, connect an intake manifold vacuum/boost hose (not supplied) to the FHST nipple. This is common with forced induction tuning. 4. The included gold orifice is only required if minimum base pressure cannot be 	
	3/32" Allen Wrench		
115		Use the rest of the provided electrical loom to cover the power wires in areas where chafing may occur.	
116		<p>Reinstall all components in reverse order.</p> <p>INSTALLATION COMPLETE</p>	