

INSTALLATION INSTRUCTIONS

FUEL HANGER SURGE TANK

350Z/G35/G37/M37/M56/Q50/Q60/Q70

Document: 19-0224

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.






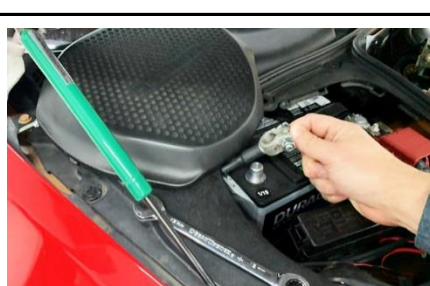
No sparks, open flames, smoking or other ignition sources are to be present. Draining and removal of all fuel from the fuel system is recommended. Proper eye and personal protection is required at all times during installation.


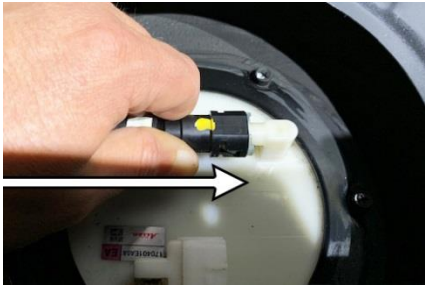

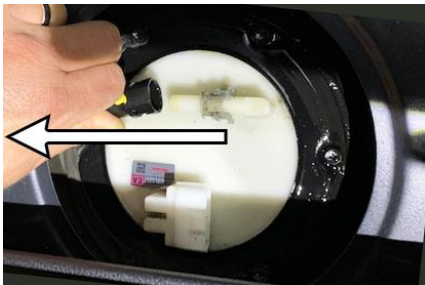


WARNING


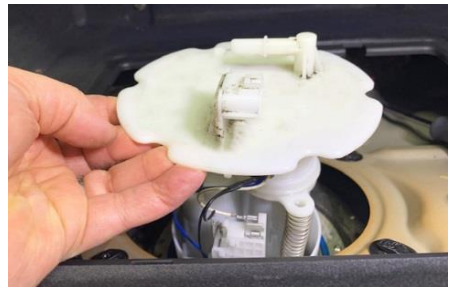



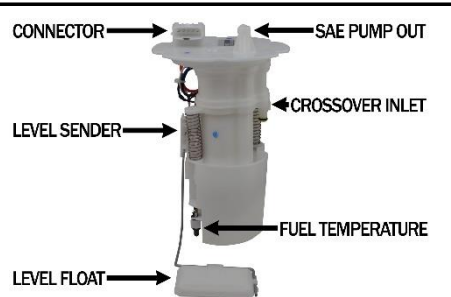
The fuel system is under pressure! Do not loosen any connections until relieving the fuel system pressure.

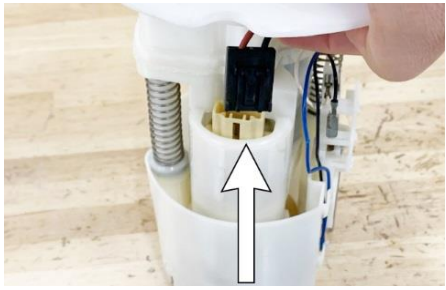
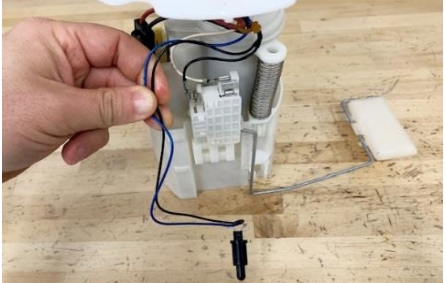

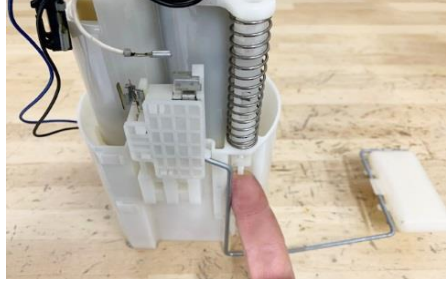


Consult a service manual for instructions on relieving fuel pressure safely. This product is designed for off-highway and racing use only. Fuel system components may not be legal for sale or use on emissions controlled motor vehicles. Consult local, state, and federal laws.


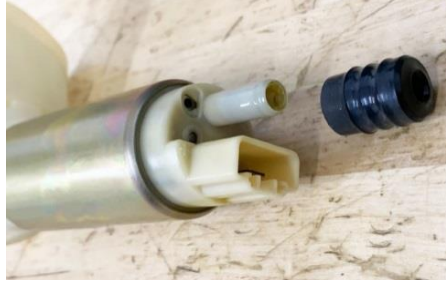




STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1		<p>NOTES:</p> <ol style="list-style-type: none"> 1. Because there are RHD and LHD variations of this vehicle, the terms "driver-side" and "passenger-side" will NOT be referenced. As depicted, these instructions will always reference "LH" and "RH". 2. These instructions are performed on a Nissan 350Z. However, the other compatible vehicles will be similar. 3. This document covers all current and previous generations of this system. Radium P/Ns: 20-054X-0X, 20-083X-0X and 20-183X 4. It is recommended to run the fuel tank dry or drain the tank to reduce fuel spills for an easier and safer installation. 	
2	14mm Socket	<p>Lean and move the 2 seats all the way forward.</p> <p>NOTE: Although not absolutely necessary, it is recommended to remove the seats for optimal access and working space. Remove the 8 mounting seat bolts.</p>	
3		<p>Tip the seats up and unplug the electrical connectors. Dislodge the wiring loom plastic stays from the seat.</p> <p>Carefully remove seats from vehicle.</p>	
4		<p>Open the compartment behind the RH seat. Pull out and remove the panel shown.</p>	

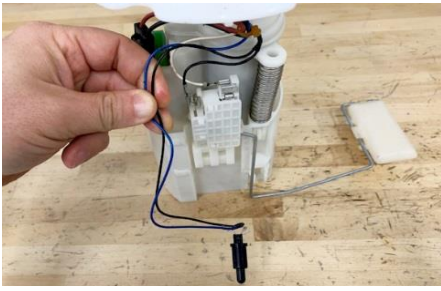
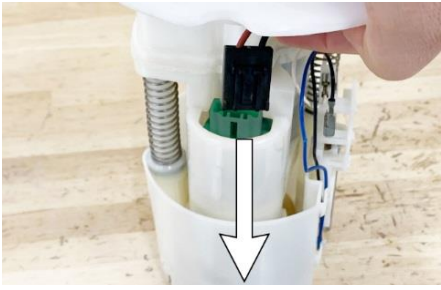


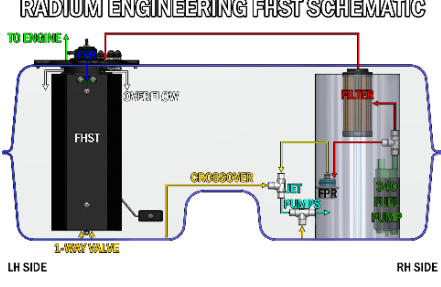

5	Flat Head Screwdriver	Using a small pry tool, dislodge the plastic panel. Lift up and remove the RH shelf from the vehicle.	
6	Flat Head Screwdriver	Using a small pry tool, dislodge the LH plastic panel. Lift up and remove from the vehicle.	
7		To expose the fuel tank access panels, pull the sound deadening out from both sides. NOTE: LH insulation and RH insulation are different.	
8	Phillips Head Screwdriver	To dislodge the access panels, spin each of the plastic fasteners a quarter-turn. Next, lift each fuel tank access cover up and rotate being careful to not stress the wires. Push the electrical wiring harness grommets through each access panel.	
9		To unplug the electrical connectors, press the thumb tabs and gently pull to release.	
10	10mm Wrench	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. As shown, 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 issues.	



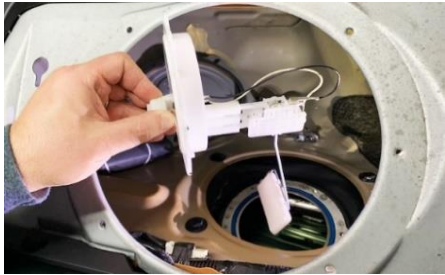



11	Cleaner	It is now recommended to clean both plastic modules and the surrounding area. This will prevent loose dirt from accidentally falling into the gas tank.	
12	Bucket	Have a bucket and rags nearby to catch fuel spills. Find the fuel pump SAE quick connection on the RH side of the fuel tank. First, push the female fitting further onto the male SAE quick connect, as shown.	
13		Simultaneously squeeze the locking tabs together.	
14		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>NOTE: If the vehicle already has an aftermarket 320 LPH @ 3 Bar pump (minimum) installed, skip the following steps and resume on step 39.</p> <p>The RH side of the fuel tank where the fuel pump resides will first be opened. Ideally, an 8mm socket wrench will make removing the 6 hex bolts 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.</p> <p>Note that the OEM fuel pump module is spring-loaded. Once the 6 bolts are removed, the fuel pump module will pop upwards.</p>	
	8mm Socket		
	Phillips Screwdriver		


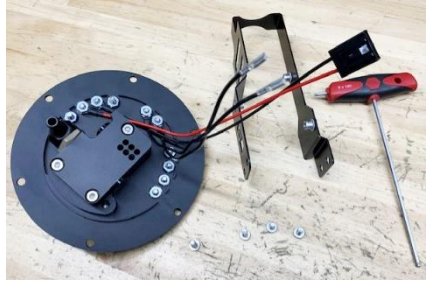

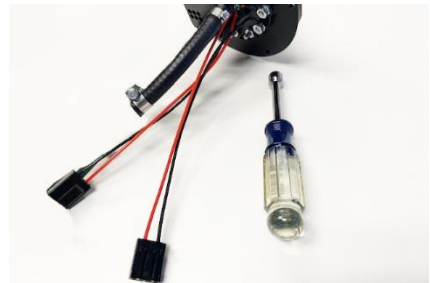


17		<p>Temporarily remove the hold-down ring (shown). This will be reused.</p> <p>NOTE: Because the following steps will deal with the RH side of the gas tank, do not open the LH side of the gas tank yet.</p>	
18		<p>Carefully pull the OEM fuel pump module upwards. Do not use excessive force as the convoluted 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 from the LH side of the tank that mates to the siphon jet pump connection.</p> <p>Pry and pull cautiously to release.</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>	
21		<p>Go back and inspect the blue seal O-ring and replace if needed. Nissan P/N: 17342-CE800.</p> <p>It is a good idea to remove any residual fuel in the gas tank. Pictured is an inexpensive battery-operated liquid transfer pump.</p> <p>Next place an object over the fuel tank opening to prevent foreign debris from entering the fuel system while the module is prepared.</p>	
22		<p>Study the picture to understand the important components within the OEM fuel pump unit. NOTE: The 4 door sedan fuel pump unit will slightly differ.</p>	



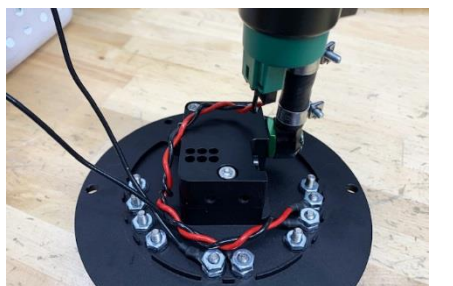



23		Push in the fuel pump connector locking tab and simultaneously pull the electrical connector gently upwards to release.	
24		Gently pry the locking tabs apart to release the fuel temperature sensor probe from the module. Pull all associated wiring out of the module holder stays.	
25		Carefully pull the 2 wire terminals off the fuel level sender, as shown.	
26		Find the white plastic retainer underneath the sprung rod. As shown, pull up to release.	
27		Carefully pull the OEM module apart. Do not lose the springs. NOTE: The 4 door sedan (not pictured) will have 4 release tabs.	
28	Flat Head Screwdriver	As shown, pry the white plastic retainer off the bottom portion of the fuel pump. This will not be reused.	













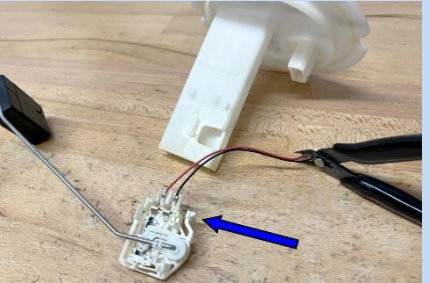
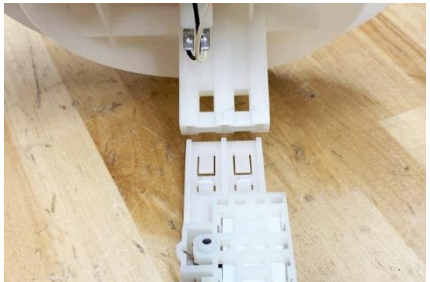
29		Remove the black rubber filter sock retainer. This will not be reused.	
		Pull the fuel pump out of the bottom of the unit, as shown.	
30		Remove the black rubber seal (shown) from the fuel pump outlet barb. This will be reused.	
		NOTE: The OEM fuel pump does not flow enough to be used with the Radium Engineering FHST system so it cannot be reused.	
31		The FHST system was designed using AEM as a "lift" pump. NOTE: The 4 door sedan must use the shorter AEM 50-1220 fuel pump. The 2 door cars should use the AEM 50-1200 pump. These pumps are 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 (or 340LPH @ 40psi or 320LPH @ 3Bar). The system WILL work with a higher flowing pump.	
		Install the OEM black rubber seal over the barb of the new fuel pump outlet, as shown.	
32	Oil Lubrication	Apply oil to the OEM black rubber seal.	
33		Slide the fuel pump up into the OEM module.	
		NOTE: to mate properly, the fuel pump outlet must be correctly orientated.	
34		Install the sock filter onto the fuel pump inlet. NOTE: The 4 door sedan must use the OEM sock filter.	
		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.	
		Depending on how the fuel pump is positioned and what filter sock is used, there is a chance the filter sock will need to be flipped up as the OEM bucket is being reinstalled.	

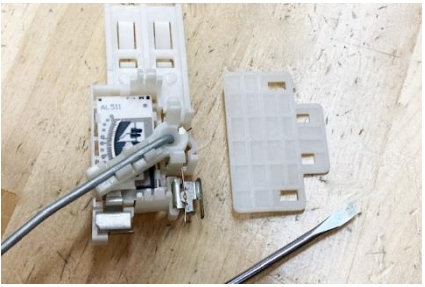

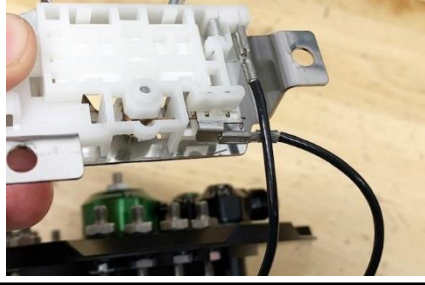
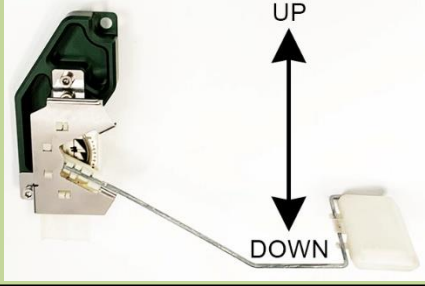
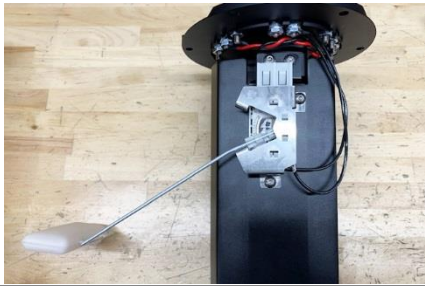

35		<p>Place the springs in place and carefully insert the assembly back down onto the OEM bucket until it snaps in place.</p> <p>Push to reinstall the fuel level sender terminals.</p> <p>Snap the fuel temperature sensor probe in place. Route the fuel temperature sensor probe wires and clip in place as before.</p>	
36		<p>Push down to plug the electrical connector into the fuel pump. Make sure it locks in place.</p>	
37		<p>Before reinstalling the fuel pump module (shown), find the OEM crossover tubing and pull it out of the gas tank.</p> <p>Tilt the fuel pump module to allow the fuel level float into the gas tank first. Next, reconnect the OEM crossover tube fitting. Lastly, reposition the fuel pump module and drop it down into the gas tank.</p>	
38	<p>8mm Socket Wrench</p> <p>Phillips Head Screwdriver</p>	<p>Reinstall the OEM hold-down plate. Push the assembly down while screwing in the 6 OEM bolts.</p> <p>NOTE: Do NOT plug in the wiring connector or install the SAE quick connect tube.</p>	
39		<p>Reference the picture to understand how the Radium Engineering FHST system will work.</p>	
40		<p>Back to the LH side of the fuel tank, move the fuel tank cover (shown) away from the access area.</p>	

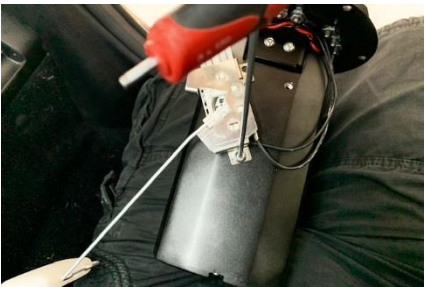

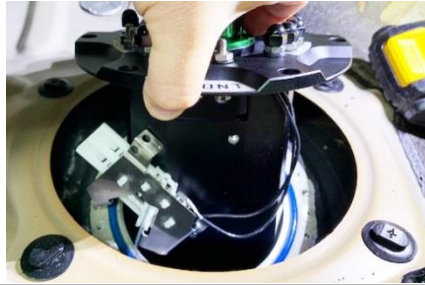
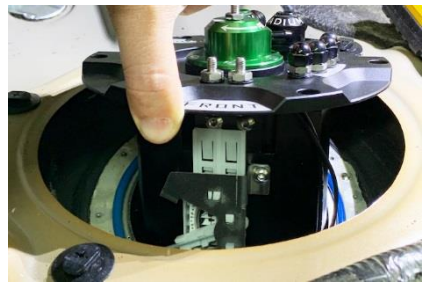
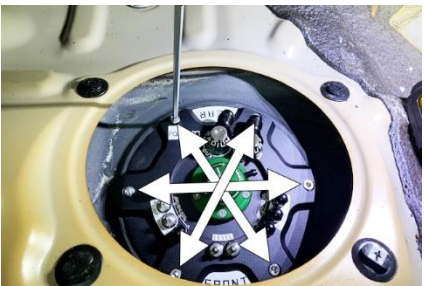

41	8mm Wrench	Remove the 6 OEM bolts.	
	8mm Socket	<p>NOTE: Ideally an 8mm socket wrench will make removing the 6 hex bolts easiest. However, there will likely be a liberal amount of sealant on the hold down ring. Many times this was applied poorly from the factory and finds its way to the hex bolts. In this case, an open-ended wrench or Phillips head screwdriver may be necessary.</p>	
	Phillips Screwdriver		
42		As shown, remove the hold down ring.	
		<p>NOTE: The 6 OEM bolts and LH hold down flange will NOT be reused on this side of the tank.</p>	
43	Bucket	To reduce potential spills, immediately place the LH fuel level sender into a container such as a bucket. Remove from the vehicle and place on a workbench.	
44		Go back and inspect the blue seal O-ring and replace if needed. Nissan P/N: 17342-CE800.	
		It is a good idea to remove any residual fuel in the gas tank. Pictured is an inexpensive battery-operated liquid transfer pump.	
		Next place an object over the fuel tank opening to prevent foreign debris from entering the fuel system while the module is getting prepared.	
45	3mm Allen Wrench	If the FHST kit was purchased with fuel pump(s) included, skip Steps 45-60.	
		Remove the three M5 bolts and fuel level sender mount from the canister, as shown.	
46		Slide off the FHST canister and set aside.	
		<p>NOTE: depending on the generation, the fuel pressure regulator on the top hat may look different.</p>	





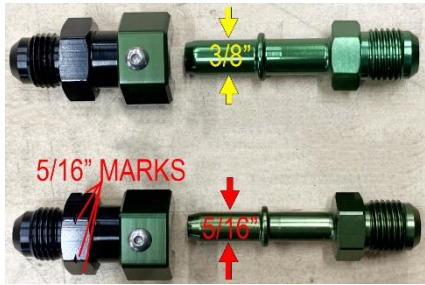

47	1/4" Allen Wrench	<p>If installing 2 fuel pumps, remove the preinstalled 6AN ORB plug, as shown.</p> <p>If installing 1 fuel pump, leave the preinstalled 6AN ORB plug in place.</p>	
48	3mm Allen Wrench	<p>To remove the pump bracket, unscrew the four M5 bolts.</p> <p>NOTE: these bolts are slightly shorter than the similar bolts removed from the canister. Set the bracket aside.</p>	
49	Petroleum Oil	<p>If installing 2 fuel pumps, find the provided 90 degree fitting. Before securing, apply lubrication to the O-ring.</p>	
	4mm Allen Wrench		
50	3/8" Socket Wrench	<p>If installing 2 pumps, attach the second fuel pump connector included to the corresponding wiring studs for the second pump. Red wires are positive (+). Black wires are negative (-).</p> <p>See the following steps for wiring Deatchwerks DW440 brushless fuel pump(s).</p>	
51	Diagonal Cutter	<p>Deatchwerks DW440 brushless fuel pump(s) ONLY</p> <p>Cut the harness provided with the DW440 pump in the location shown. This will provide maximum wire lengths.</p> <p>Strip all 4 wire ends.</p>	<p>CUT ALL WIRES HERE</p> 
	Wire Strippers		
52	Wire Crimper	<p>Deatchwerks DW440 brushless fuel pump(s) ONLY</p> <p>Slide the provided heat shrink over each wire. Crimp the provided ring terminals to the end of each wire. Slide the heat shrink over the crimped area. Apply heat to shrink the insulation.</p> <p>Connect each ring terminal to the corresponding internal terminals while noting the external "BRUSHLESS W-R-B-G" labeling on the top side of the FHST.</p> <p>W = White Wire R = Orange Wire B = Black Wire G = Blue Wire</p>	
	Heat Gun		
	3/8" Socket Wrench		







53	Petroleum Oil	The fuel tubing will need to be installed between the pump and fitting under the fuel hat. First, apply oil lubrication to all associated barbs and to both inner ends of the tubing. Gently apply force to push it onto the fuel pump outlet barb.	
		NOTES: 1. Fuel pump hose barbs can fracture if not treated with extra care. 2. Extra tubing is provided in case of damage during assembly.	
		For many 300/320/340LPH pumps, low heat is required to temporarily soften the tubing. If this is the case, be careful not to over-heat and melt the tubing. If the tubing becomes too soft and deformed, replace with a new piece.	
54	9/32" Nut Driver	The submersible fuel tubing is pre-cut to an exact length to match the specific pump noted in the kit. For proper fitment, the tube must be pushed as far down the pump outlet as possible. Care must be taken not to kink the tubing. If too much force is applied, replace the tube.	
		As shown, secure using one of the EFI hose clamps.	
		If applicable, repeat this process for the second pump.	
55	Petroleum Oil	Slide a second hose clamp onto the tubing attached to the fuel pump. Use lubrication as previously mentioned and push the tube over the barb until it is fully seated. NOTE: Do NOT apply heat on this side of the tubing connection. It is NOT required.	
		Do not tighten this hose clamp yet. The fuel pump will first need to be rotated into the proper position.	
		Plug in the fuel pump connector(s).	
56	3mm Allen Wrench	Reinstall the fuel pump mounting bracket (4 short bolts).	
	Flat Head Screwdriver	Install the worm-drive clamps around the fuel pump body(s) and the slots in the fuel pump mounting bracket.	
		NOTE: To allow the fuel pump(s) to temporarily rotate, do not torque the worm-drive clamp bolts yet.	
57		Rotate the fuel pump(s) until the outlet(s) are inline with the 90 degree barbs and the fuel pump body(s) are just touching the mounting bracket.	
		With respect to the fuel pump inlet and outlets, this will be ~35 degrees as depicted.	
		NOTE: Unlike the small base 39mm fuel pumps (Walbro GSS342, etc.) the large base 39/50 DCSS fuel pumps (Walbro F90000274, etc.) will contact the lower portion of the fuel pump mounting bracket. This is by design and is normal.	
58	Phillips Head Screwdriver	Once the orientation is correct, tighten all fuel pump related clamps.	
	Flat Head Screwdriver		


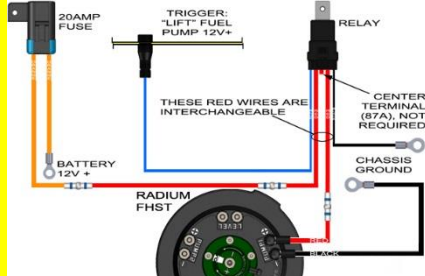
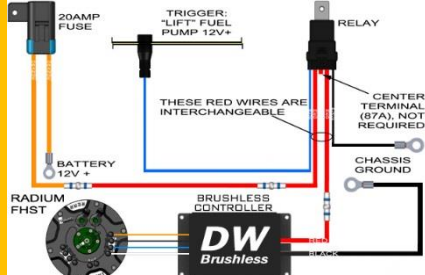



59		Install the fuel pump filter(s).										
		NOTE: the FHST requires a pliable filter sock such as Radium Engineering P/N: 14-0143 (shown).										
60	3mm Allen Wrench	When installing the fuel pump assembly into the canister, fold the filter sock(s) downward into the canister. Clearance will be tight.										
		On the front and rear, lineup up the 3 outer canister holes with the 3 internal fuel pump mounting bracket rivet nuts. Place the fuel level sender bracket over the 2 holes and reinstall the 2 button head screws as well the 1 button head screw on the opposing side.										
61		There are 3 different Radium Engineering adapters for the various Nissan fuel level sensors. An adapter for the fuel level float shown in the center is included in the FHST kit.	<p>FUEL LEVEL COMPATIBILITY</p> <table border="0"> <tr> <td>REQUIRES 20-0596</td> <td>NOTHING EXTRA REQUIRED</td> <td>REQUIRES 20-0896</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>WHITE FLOAT</td> <td>BLACK FLOAT</td> </tr> </table>	REQUIRES 20-0596	NOTHING EXTRA REQUIRED	REQUIRES 20-0896					WHITE FLOAT	BLACK FLOAT
	REQUIRES 20-0596	NOTHING EXTRA REQUIRED		REQUIRES 20-0896								
												
		WHITE FLOAT		BLACK FLOAT								
		If your OEM sender unit is like the left or right examples, 1 of the other 2 fuel level adapters (20-0596 or 20-0896) will need to be purchased separately. Use the pictures to match your OEM unit.										
	NOTE: The LH OEM fuel level sensor will be reused. The LH OEM top hat will not be reused.											
62a	4mm Allen Wrench	<u>20-0896 INSTALLATION ONLY.</u> Install the black billet mount (shown) to the collector box now. The orientation (up and down) is depicted. To secure, use the provided screws pictured.										
		NOTES: 1. Do NOT install the OEM level sensor to the black billet mount yet. This will be performed when the entire assembly is halfway inserted into the fuel tank. 2. Unlike 20-0596, the stainless steel bracket included with the FHST kit is NOT needed when installing 20-0896.										
62b	Cutter	<u>20-0896 INSTALLATION ONLY</u> To release, squeeze the locking tab on the side of the sensor (blue arrow).										
	Wire Strippers	Cut the 2 wires leaving as much slack as possible with the sensor. For each wire: strip off 1/4" of insulation, slide on a short piece of small heat shrink, crimp on a small ring terminal, slide the heat shrink over the crimped area, and heat the tubing until it fully shrinks.										
	Wire Crimpers											
	Heat Gun	Remove the level sensor wires/terminals preinstalled with the FHST and replace them with these 2 wires/terminals. Wire polarity does not matter.										
		<u>Skip to Step 67B</u>										
63	Flat Head Screwdriver	Depending on the OEM unit, this step may be slightly different. These next few steps do not apply for vehicles that require the 20-0896 fuel level adapter.										
		Gently pull the 2 wire terminals off the LH side OEM fuel level sender. Use a prying tool to unlock the 2 locking tabs that mate the fuel level sender to the module. While prying, pull the fuel level sender from the fuel hat to separate, as shown.										

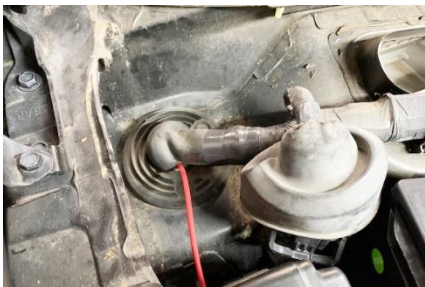






64	Flat Head Screwdriver	NOTE: The front plastic portion of the OEM fuel level sensor will be replaced by the Radium Engineering fuel level sensor mounting bracket.	
		To remove, carefully pry the 4 locking tabs and pull off.	
65		Snap-in the Radium Engineering fuel level sender mounting bracket, as shown.	
		NOTE: The late model float is shown. The early model float installs similarly.	
66		Fully insert the dangling fuel level wire terminals from the FHST to the OEM fuel level sensor.	
		NOTE: Because the fuel level sensor just produces a calculated resistance, polarity does not matter (pins are interchangeable and be swapped around with no adverse affects).	
67a	3mm Allen Wrench	<u>20-0596 INSTALLATION ONLY</u> <i>Install the green billet mount to the collector box now. The orientation (up and down) is depicted. Use the collector box screws provided in the FHST kit.</i>	
		NOTES: 1. The screws provided with 20-0596 will be used to secure the stainless steel bracket to the green mount in the next step.	
67b	3mm Allen Wrench	Loosely install the fuel level sensor to the collector box. Picture may vary.	
		NOTES: 1. In a couple steps, the fuel level sensor bracket will be loosened and adjusted. 2. As shown, be sure the 2 fuel level sensor wires stay clear of the swinging float.	
68		Install the provided acorn nuts to the unused wiring terminals. This will make it apparent which terminals need to be connected after the FHST is installed into the gas tank.	
		Work bench assembly complete.	

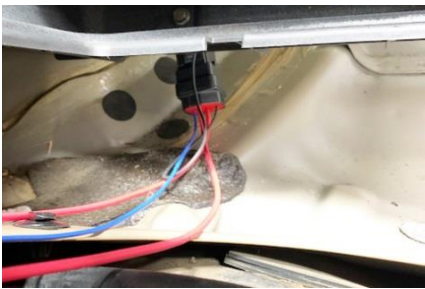
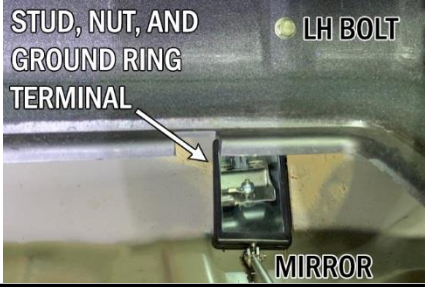




69	3mm Allen Wrench	Before installing, make sure the OEM O-ring gasket is in place.	
		Temporarily remove the upper fuel level sender mounting bolt and loosen, but do NOT remove, the lower mounting bolt.	
		Next, rotate the fuel level sender assembly as shown. NOTE: FHST insertion is not possible with the fuel level sender fully secured to the canister.	
70	3mm Allen Wrench	To avoid dropping the fuel level sender mounting bolt into the gas tank, here are a couple pro tips:	
	Masking Tape		
		1. Use a non "ball-tip" 3mm Allen Wrench. Standard tip Allen wrenches hold bolts better.	
		2. Use a piece of tape to make the tool-to-bolt fitment snug.	
		3. If ever lost, this is a 12mm long stainless steel button head bolt with M5x0.8 threads. It can be found at most local hardware stores.	
71		Tip the FHST assembly so the float is inserted first.	
		Now rotate the FHST back to a normal vertical position and hold it in place.	
72	3mm Allen Wrench	Rotate the fuel level sender assembly back to normal and resecure both mounting bolts.	
		Slowly lower the FHST assembly into the gas tank. Note the "FRONT" and "REAR" labels on top of the FHST for proper orientation.	
73	4mm Allen Wrench	Lineup the mounting holes and torque the provided M5x.8mm bolts in a cross pattern to 53 inlbs (6 Nm).	
74	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" fuel hose into 2 pieces. One hose should be 6" (152mm) longer than the other. NOTE: They will be cut to exact lengths in later steps.	
		Insert both hoses through the back LH side of the tank. Install the longer hose on the inside, as shown.	




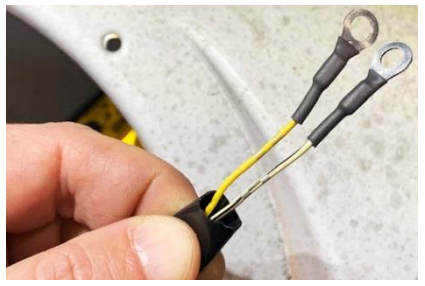


75		From underneath, the hoses will route well above the exhaust system and differential as shown. The hoses should rest on top of the horizontal fuel tank seam.	
76		Carefully pull the hoses up and out from the RH opening. There should now be loose hoses from both fuel tank openings, as shown.	
77	Petroleum Oil	Find 45 degree PushLok hose end provided in the kit and lubricate the barbs. From the LH fuel tank opening, fully insert the 45 degree hose end to the longer (inner) hose. Install a straight hose end on the other shorter (outer) hose.	
78	11/16" Wrench	The longer (inner) hose will connect to the OEM fuel feed line on the RH side in a later step. Install this hose to the 6AN male "OUT" fitting. The shorter (outer) hose will connect to the OEM fuel pump module on the RH side in a later step. Install this hose to the 6AN male "IN" fitting. NOTE: The "IN" fitting can NOT be replaced. This fitting utilizes a calculated orifice that is necessary for proper venturi jet pump operation. After installing, pull the out the slack of the hoses.	
79		There are 2 different sets of SAE quick connect fittings provided. Measure the OEM SAE quick connect to determine if the vehicle needs the 5/16" or 3/8" adapters. FITTING IDENTIFICATION: Female 5/16" fitting: Visible hex marks Female 3/8" fitting: No hex marks Male 5/16" fitting: Measure diameter shown (smaller) Male 3/8" fitting: Measure diameter shown (larger)	
80	11/16" Wrench Hose Cutter Petroleum Oil	Secure the included SAE quick connect female fitting into a vice with aluminum jaws. Screw in one of the provided straight PushLok hose ends. Tighten with a non marring aluminum wrench. Identify the hose which comes from the "IN" label on the FHST. Line this hose up to the SAE quick connect on the OEM fuel pump module. Cut the hose to length taking into consideration the adapter fittings. Lubricate the barbs on one of the PushLok hose ends and fully insert into the hose, as shown.	

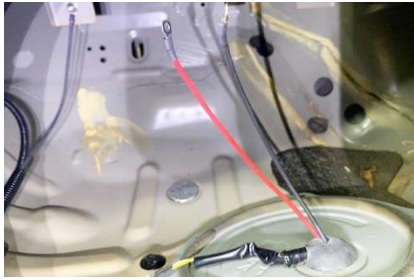
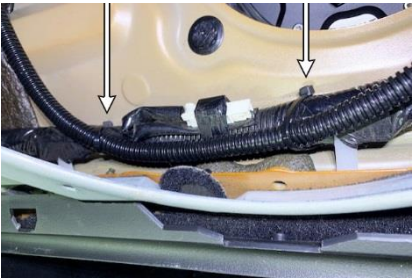




81	Petroleum Oil	Lubricate both the male (OEM fuel pump module) and female portion (internal O-rings) of this SAE quick connection. Carefully insert the female adapter over the male portion.	
	5/64" Allen Wrench	CAUTION: Because the OEM fuel pump module is plastic, make sure there is no side loading created from the hose as it could potentially break.	
		As shown, install the SAE quick connect lock using the small provided screw.	
82	11/16" Wrench	NOTES:	
	Vice	1. The included fuel pressure gauge can be installed in the front or the rear of the vehicle. If the gauge will be installed in the rear, see the following step.	
		2. This kit does NOT include adapters to accommodate gauge installation in the front of the vehicle. The installer must come up with a way to adapt the gauge in the fuel system in the engine bay.	
		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 the provided 90 degree PushLok hose end. Tighten with non marring aluminum wrenches.	
83	PTFE Plumber's Paste	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.	
	7/16" wrench	Next, secure the included SAE quick connect male fitting into a vice with aluminum jaws.	
	11/16" Wrench		
	Vice		
84	Petroleum Oil	Lubricate the male portion of the SAE quick connect fitting.	
		As shown, fully insert the SAE quick connect male fitting into the OEM feed hose until a "click" is felt.	
85	Hose Cutter	Identify the hose which comes from the "OUT" label on the FHST.	
	Petroleum Oil	Line this hose up to the fitting from the previous steps. Cut the hose to length taking into consideration the eventual routing of the hose with the hose end.	
		Lubricate the barbs on the provided 90 degree PushLok hose end and fully insert into the hose, as shown.	
86	11/16" Wrench	Screw in the 6AN 90 degree hose end and tighten, as shown.	
	7/8" Wrench		

87		<p>Tuck the adapters in the front area and the hose around the RH fuel tank opening.</p> <p>Rear mounted fuel pressure gauge variation shown.</p>	
88a		<p>ALL PUMPS (excluding brushless Deatschwerks DW440 fuel pump)</p> <ol style="list-style-type: none"> The attached picture is an electrical representation for the following steps. An independent fuse and relay must be used to drive each FHST pump. In order to get the vehicle running, a relay and fuse are provided. Radium Engineering P/N: 17-0031 can be purchased if installing an additional pump. 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. 	
88b		<p>BRUSHLESS DEATCHWERKS DW400 FUEL PUMP ONLY</p> <ol style="list-style-type: none"> Pictured is an electrical representation for the following steps. An independent fuse and relay must be used to drive each brushless controller. For (dual) brushless Deatschwerks DW400 fuel pump configurations, an additional Radium Engineering P/N: 17-0031 can be purchased for the second pump. 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. 	
89	<p>12mm Socket</p> <p>Drill</p> <p>Vice</p>	<p>On the RH strut tower near the battery and fender, press the fuse box locking tab and pull the fuse box up and off the steel mounting bracket, as shown.</p> <p>Next, remove the 12mm hex bolt that secures the OEM ring terminal near the 12V "+" battery post.</p> <p>Next, detach the provided flying lead fuse from the holder. Place the fuse holder mount in a vice. Carefully enlarge the existing mounting hole to 7mm. Reinstall the flying lead fuse to the holder.</p>	
90	<p>10mm Socket</p>	<p>NOTE: because most vehicles are unique, extra bolts and washers are provided to help relay and fuse holder mounting. The instructions below are specific to the 350Z.</p> <p>Reusing the OEM fuse box mount bolt, secure the new fuse holder to the strut tower, as shown.</p>	
91	<p>Flat Head Screwdriver</p>	<p>The power wire from the fuse needs to route through the firewall.</p> <p>From the engine bay, unclip and remove both the RH battery cover and the RH cowl just under the windshield, as shown.</p> <p>From the interior, unclip the RH kick panel and RH door sill.</p>	







92	Electrical Pick	From the engine bay, puncture a small hole in the RH firewall rubber boot (shown).	
		There are 2 sections of red wire in the kit. Find the longer red wire and send it through the hole. Pull the slack from the inside.	
93		In the Radium Engineering wiring diagram from a few steps back, note the different locations of the included Raychem solder butt connectors.	<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>
		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.		
94	Wire Stripper	Using a solder butt connector, splice either fuse wire to the red wire, as shown.	
	Heat Gun	Pull the wire from inside but leave some slack for strain relief.	
95	Wire Stripper	Strip the other 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.	
	Wire Crimper		
	Heat Gun	Install the new ring terminal over the OEM battery terminal and secure with the OEM bolt.	
	12mm Socket	Cut the provided small diameter plastic wire loom to length and slide over the wires on each side of the new fuse, as shown.	
	Scissors		
96		As shown, route the red power wire along the door under the plastic panels and into the RH fuel tank access area. 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.	
		Reinstall the flying lead connector to the relay.	


98	10mm Socket	Mount the relay(s). This will differ depending on the vehicle. The 350Z is described below. For the 350Z, just behind the OEM fuel pump module there will be 2 fastened M6 bolts. Because they protrude on the opposite end (cannot be seen). Hang the relay to the stud on the RH side (your left). This location will prevent having to extend the blue relay wire. Secure with the included M6 nut.	
		NOTES:	
		1. Be careful as the sheet metal edges are sharp.	
		2. Single pump FHST with 1 relay shown.	
		3. For dual pump FHST, the installer will need to find another area to mount the additional relay (not included).	
99	Wire Stripper	Strip the black (ground) relay wire. Find the ring terminal in the kit that has a 1/4" hole. Fold the copper wire over and crimp it to the ring terminal. Secure this ring terminal to the stud on the LH side (your right).	
	Wire Crimper		
		NOTES:	
		1. Be careful as the sheet metal edges are sharp.	
		2. Because you cannot visually see the stud, this step can be tricky.	
100	Diagonal Cutter	Grab either one of the red relay wires (does not matter which) 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		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 BLACK/YELLOW stripe power wire which already has this feature.	
		Carefully cut the electrical tape from the OEM fuel pump harness and find the BLACK/YELLOW stripe power wire in the area depicted.	
		Unscrew the grey end from the included black Posi-Tap connector. Insert the OEM BLACK/YELLOW stripe power wire into the slotted end of the Posi-Tap connector, as shown.	
102		Screw the center section of the Posi-Tap connector back on making sure the wire gets pierced, as shown.	
103	Wire Stripper	Grab the blue wire flying lead from the relay. Strip the insulation back to expose 3/8" of copper wire.	
		Slide the Posi-Tap collar end piece over the blue wire. 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.	
		Temporarily reinstall the fuel pump access cover to make sure this trigger wire does not get excessively stretched.	

104	Wire Stripper	Find the shorter section of red wire included in the kit. Grab the other red relay wire and connect them using one of the Raychem solder butt connectors, as shown. Route this red wire around the backside of the RH compartment and into the LH compartment. Stay away from potential chaffing areas.	
	Heat Gun		
105	Scissors	Tuck both red wires away from the fuel pump access cover. Cut the provided small diameter plastic wire loom to length and install onto the blue wire.	
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. Find the ring terminals in the kit that have 3/16" holes and is used for 22-18 AWG wire. Slide on short pieces of heat shrink to each wire. Crimp both ring terminals to the exposed wires. Slide the heat shrink over the crimped areas and apply heat.	
	Wire Crimper		
	Heat Gun		
	Scissors		
108	Diagonal Cutter	Strip the insulation off the provided black wire. Find a ring terminal in the kit that has a 1/4" hole and is used for 12-10 AWG wire. Crimp the ring terminal to the black wire. Install to the ground location shown using the included M6x1.0mm bolt.	
	Wire Stripper		
	Wire Crimper		
	4mm Allen Wrench		
109	Electrical Pick	Temporarily place the access cover plate back over the 4 fasteners. Poke 2 holes through the LH OEM rubber grommet. Push the red wire from the relay and the black ground wire from the previous step through the holes, as shown. Flip over the OEM fuel tank access cover.	

110	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.	
111	Diagonal Cutter	Use the provided cable zip ties to secure the new wiring harness to the OEM wiring harness, as shown.	
112		Install the ring terminals to the fuel pump studs. Red wire(s) are positive (+). Black wire(s) are negative (-).	
		Install the wires to the fuel level terminals on the FHST. Polarity is not important.	
		Tighten all acorn nuts.	
		NOTE: there will be extra parts in the kit that will NOT be used.	
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	The FHST must be calibrated as it is NOT preassembled to a specific fuel pressure. Nissan VQ35 fuel pressure is 3.5 bar (50.8 psi). There are 2 different regulator variations depending on the FHST generation purchased.	
	3/32" Allen Wrench	To increase fuel pressure on the regulator depicted, tighten the set screw. To reduce fuel pressure, loosen the set screw. Once adjusted, lock the set screw in place with the jam nut. NOTE: The included gold orifice is only required if minimum base pressure cannot be achieved.	
		For newer generation regulators, simply turn the adjustment knob clockwise to increase fuel pressure and counterclockwise to decrease fuel pressure.	
115	Threadlocker	OEM Nissan fuel pressure is constant (it does not deviate).	
	1/8" Allen Wrench	For factory fuel pressure, do not connect a vacuum line to the regulator. NOTE: For newer generation regulators, install the plug (shown). Apply a wicking medium-strength threadlocker (such as Loctite 294) to the threads.	
		If a 1:1 rising rate is required, connect an intake manifold vacuumline (not supplied) to the regulator. NOTE: Always remove the vacuum line when setting static fuel pressure.	

116		<p>WARNING: A common aftermarket modification is to drill the fuel pressure regulator return orifice in the OEM pump module larger. For proper saddle tank crossover operation with the FHST, do NOT perform this modification.</p> <p>Left picture: modified FPR Right picture: stock FPR</p> <p>If your OEM FPR is modified, the good news is the FHST will stay full and send fuel to the engine until there is no more in the tank. However, the fuel level gauge will drop faster and register EMPTY for a longer period.</p>			
	117	<p>WARNING: A common aftermarket modification is to drill the venturi jet pump orifice in the OEM pump module larger. For proper saddle tank crossover operation with the FHST, do NOT perform this modification.</p> <p>Left picture: modified venturi jet pump Right picture: stock venturi jet pump</p> <p>If your OEM venturi jet pump is modified, the good news is the FHST will stay full and send fuel to the engine until there is no more in the tank. However, the fuel level gauge will drop faster and register EMPTY for a longer period.</p>			
		118	<p>Use the rest of the provided electrical loom to cover the wires in areas where chafing may occur. RH side shown.</p>		
			119	<p>Use the rest of the provided electrical loom to cover the wires in areas where chafing may occur. LH side shown.</p>	
				120	<p>Reinstall all components in reverse order.</p> <p>INSTALLATION COMPLETE</p>
121					<p>3/8" Wrench</p> <p>3/32" Allen Wrench</p> <p>5/64" Allen Wrench</p> <p>20-0806 FUEL HANGER FPR BLOCK-OFF</p> <p>Loosen the jam nut then the set screw to release the preload on the integrated fuel pressure regulator spring.</p> <p>As shown, loosen the 5 perimeter screws slowly in a crisscross fashion.</p> <p>Remove the cap. NOTE: The five #5-40 screws will be reused.</p>

122		<p>20-0806 FUEL HANGER FPR BLOCK-OFF Remove the diaphragm, spring, and spring hat (shown).</p>	
123	7/16" Socket Wrench	<p>20-0806 FUEL HANGER FPR BLOCK-OFF Unscrew the internal orifice (shown).</p>	
124	<p>Oil Lubrication 4mm Allen Wrench</p>	<p>20-0806 FUEL HANGER FPR BLOCK-OFF Lubricate the O-ring found on the included plug. Install the plug as shown.</p>	
125		<p>20-0806 FUEL HANGER FPR BLOCK-OFF Install the included O-ring into the groove, as shown.</p>	
126		<p>20-0806 FUEL HANGER FPR BLOCK-OFF Lineup the 5 holes on the cap as shown.</p>	
127	5/64" Allen Wrench	<p>20-0806 FUEL HANGER FPR BLOCK-OFF Install the cap using the original #5-40 screws.</p>	

128	1/4" Allen Wrench	20-0806 FUEL HANGER FPR BLOCK-OFF	
		Remove the plug found in the FPR port.	
		A 6AN ORB adapter fitting (not provided) and a fuel pressure regulator will need to be installed into the system.	
		INSTALLATION COMPLETE	