

# INSTALLATION INSTRUCTIONS







## FUEL PUMP HANGER







### NISSAN R35 GT-R

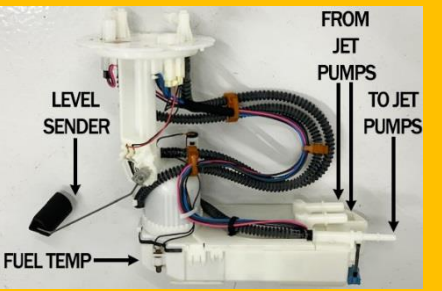





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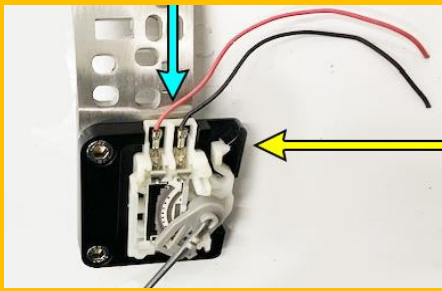
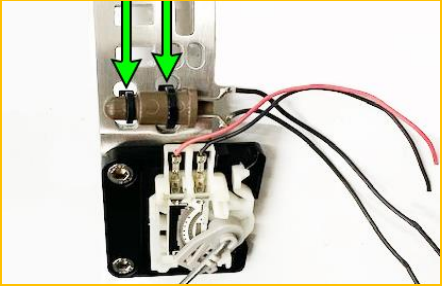

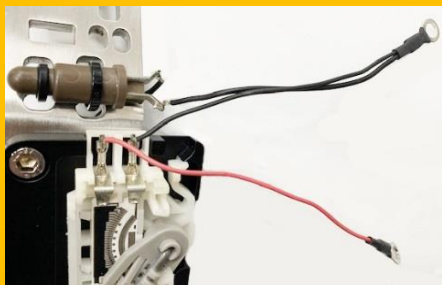


COLOR LEGEND FOR EACH STEP		CAUTION
20-055X-0X FUEL HANGER, NISSAN R35 GT-R	Follow ORANGE areas for ALL pumps	<p>Only a qualified technician following applicable safety procedures should perform the installation of this product. One must have knowledge in repair and modification of fuel systems and general vehicle modifications to install this product.</p> <p><b>Gasoline and other fuels are flammable and can be explosive.</b></p> <p>Only install in a well-ventilated location to minimize buildup of fuel vapors.</p> <p>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.</p>
20-055X-0X FUEL HANGER, NISSAN R35 GT-R	Follow YELLOW areas for brushed pumps ONLY	
20-0552-00 FUEL HANGER, NISSAN R35 GT-R	Follow BLUE areas for brushless pumps ONLY	<p><b>WARNING</b></p> <p>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.</p>
20-0551-0X FUEL HANGER FEED KIT, NISSAN R35 GT-R	Follow GREEN areas below	

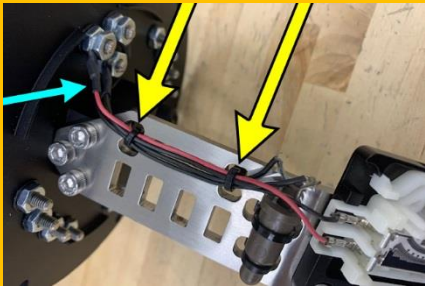





STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1		<i>Note: It is recommended to run the fuel tank dry or drain the tank to reduce fuel spills for an easier and safer installation.</i>	
		Lean and move the front RH side seat all the way forward. Although not absolutely necessary, removing the front RH seat for optimal working space makes installation easier.	
		As shown, pull the rear RH seat lock forward and lift up to release. Remove the lower rear seat from vehicle.	
2	Flat Head Screwdriver	For each of the 4 fasteners, spin a quarter turn to release the fuel pump access panel.	
3		To unplug the electrical connectors, press the thumb tabs and gently pull to release.	
		Push the rubber grommet through the fuel pump cover, slide the harnesses through, and set the cover aside.	
4	10mm Socket 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.	
		Open the hood and disconnect the battery's negative terminal.	
		<b>CAUTION:</b> Disconnecting the battery may cancel fault memories of some control units. Consequently, before disconnecting the battery, always cross examine any fault memories.	

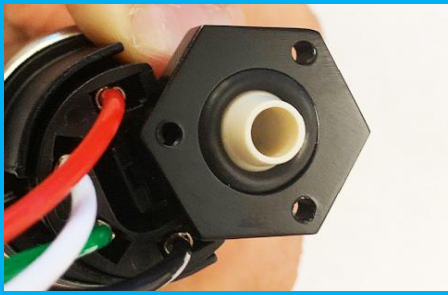

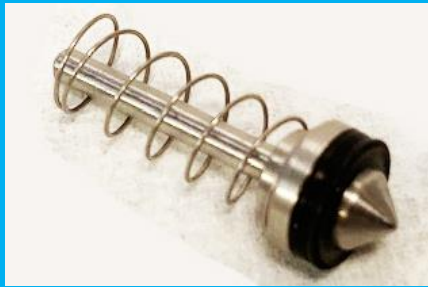



5		Once the fuel tank access cover is removed, it is recommended to clean the plastic module and surrounding area. This will prevent loose dirt from accidentally falling into the tank.	
	Rag	Find the fuel pump SAE quick connections on the top of the OEM fuel pump module.  Have a rag handy as fuel will spill out of these hose connections.  Push the SAE quick connect hose ends further onto the pump module fittings and simultaneously squeeze the locking tabs together. Pull the female SAE quick connect fitting away to release.	
	Pick	Carefully pry the SAE quick connect locks off the OEM pump module.  Reinsert the locks into the SAE quick connect hose ends.  NOTE: These will "click" back into place.	
	8mm Wrench 8mm Socket Phillips Screwdriver	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.  The OEM bolts will NOT be reused.	
	9	Remove the hold-down ring (shown). This will not be reused.	
10	Bucket Rags	NOTE: The OEM pump module is 2-pieces connected by wires and convoluted tubing.  Have a bucket and rags nearby to catch fuel spills.  Carefully pull the top portion of the OEM 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.  Eventually the top portion 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.  Pull the tubing and wires out until the lower portion is ready to be dislodged.	

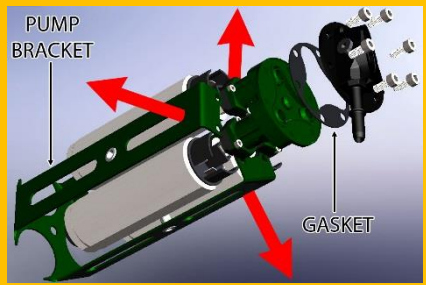

11		<p>The lower portion of the OEM fuel pump module is fastened to the bottom of the fuel tank.</p> <p>Reach into the fuel tank and feel for the release lever at the bottom front of the OEM fuel pump module. Pull this lever up and simultaneously nudge the module towards the front of the vehicle. Once the module slides roughly 3" forward, it will release from the bottom of the fuel tank.</p>	
12		<p>To remove the lower portion of the fuel pump module from the fuel tank opening, it must be rotated as shown.</p>	
13		<p>There are three SAE quick connect fittings that attach the fuel pump module to the integrated venturi jet pumps inside the tank.</p> <p>Just like the previous SAE quick connects, push the fittings further onto the connector, squeeze the locking tab, and simultaneously pull cautiously to release.</p>	
14	Pick	<p>As before, reattach the SAE locks to the convoluted tubing hose ends until they click back into place.</p>	
15	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>	
16		<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 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><b>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.</b></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>	

17		Study the picture to understand the important components within the OEM unit.	
18		Unplug the white 3-pin (4-wire) electrical connector from the underside of the module.	
19		To unsnap the fuel level sender, gently push the upper right locking tab inwards and simultaneously push upwards to release.	
20		Gently pry the locking tab to release the fuel temperature sensor probe from the module.	
21	Flat Head Screwdriver	To release the fuel temperature probe wiring, unsnap the 3 wire loom/tubing clamps. Pull all associated wiring out of the module holder stays and mesh loom.	
22		The fuel level sender and fuel temperature probe is all that will be reused.	

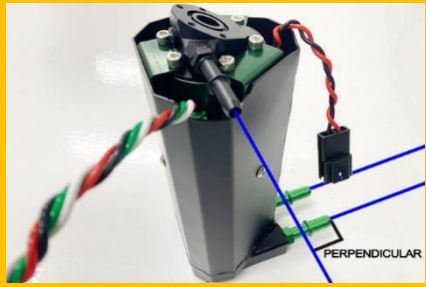





23	Wire Cutter	Cut the 2 fuel level sender wires as close to the white OEM connector as possible. NOTE: These 2 wires will be just long enough in later steps. They will need to be extended if not cut long enough.		
		Insert the OEM fuel level sender into the Radium fuel level sender adapter and push downwards (blue arrow) until the finger lock (yellow arrow) snaps in place.		
24	Wire Cutter	Cut the 2 fuel temperature probe wires near the white OEM connector.		
		As shown, place the probe onto the bracket and secure using the provided cable zip ties.		
25	Wire Stripper	Strip the insulation off the red fuel level sender wire. Insert a small section of heat shrink over the wire. Crimp-on one of the small gauge ring terminals. Apply heat to shrink the tubing over the crimped area as shown.		
	Wire Crimper			
	Heat Gun			
26	Wire Cutter	Line up the black fuel level sender wire to either one of the black fuel temperature probe wires. NOTE: because the probe measures resistance, wire polarity is not important. Cut the fuel temperature probe wire to the same end length as the black fuel level sender wire.		
	Wire Stripper			
	Wire Crimper			
	Heat Gun			
27	4mm Allen Wrench	To install the fuel sensor bracket to the fuel hanger hat, secure using the three M5x.8mm bolts.		
	3/8" Wrench			
				Secure the ring terminal with the red wire to the fuel hanger hat wiring stud labeled "LEVEL".
				Secure the ring terminal with the merged black wires to the fuel hanger hat wiring stud labeled "GROUND".
28	Wire Cutter	Line up the last unterminated fuel temperature sensor wire to the "TEMP" wiring stud and cut to length. Strip the insulation off and insert a small section of heat shrink over the wire. Crimp-on one of the small gauge ring terminals. Apply heat to shrink the tubing over the crimped area.		
	Wire Stripper			
	Wire Crimper			
	Heat Gun			
	3/8" Wrench	Secure this ring terminal to the fuel hanger hat wiring stud labeled "TEMP".		

29	Diagonal Cutter	To free up undue wire stress, the ring terminals may need to be bent up, as shown (blue arrow).	
		Using the provided cable zip-ties, secure the 4 wires to the bracket (yellow arrows).	
		<b>If the fuel pump hanger was purchased with "pumps included", skip steps 30-XX.</b>	
30	3/8" Wrench	NOTE: There are 2 different style pumps that can be installed into this fuel pump hanger; standard 2 wire brushed pumps and 4 wire brushless pumps.  For standard 39mm pumps (Walbro GSS342 255LPH, AEM 50-1200 E85, etc.), install the appropriate number of fuel pump wire connectors to the bottom side of the fuel hanger hat. Use the center 2 stud terminals labeled "2-wire pump". Twisting the 2 wires together as shown will allow additional flexibility.  For Ti Automotive E5LM brushless pumps, the wires will be installed to the bottom side of the fuel hanger hat in later steps when installing into the tank.  To cover all scenarios, the following steps will be installing 1 standard brushed pump, 1	
31	4mm Allen Wrench	Disassemble the lower portion of the fuel pump hanger, as shown.	
	3mm Allen Wrench		
32		<b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b>  Inspect the fuel 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.	
33		<b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b>  To install the check valve, first slide the black collar over the pump outlet with the flat surface upward, as shown.	
34		<b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b>  Next, slip the stainless steel retainer under the hose barb ridge closest to the end of the fuel pump outlet opening. <b>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.</b>  As shown, pull the collar up to confirm the C-shaped retainer locks into place.	







35	Petroleum Oil	<b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b>	
		Place the included O-ring on the pump outlet. Apply a petroleum-based lubricant to the O-ring.	
		Slide the black collar upward and tuck the O-ring into the groove, as shown.	
36		<b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b>	
		Place the O-ring onto the check valve plunger groove, as shown.	
37		<b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b>	
		Place the provided spring around the plunger rod, as shown.	
38		<b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b>	
		Insert the plunger rod through the internal center hole of the green adapter fitting, as shown.	
39	2.5mm Allen Wrench	<b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b>	
	Thread Locker	Apply a high strength thread locking compound to the threads on the 3 included bolts. Line up the green fitting holes to the black fitting threads.	
40		<b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b>	
		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.	







41	Petroleum Oil	<p>If not using a fuel pump slot, install the included plug(s) into the triple pump collector.</p> <p>For the brushless pump(s), install the check valve adapter(s) into the triple pump collector.</p> <p>For the standard pump(s), install the included barb(s) into the triple pump collector.</p>	
	1" Wrench		
	3/4" Wrench		
	1/4" Allen Wrench		
42	9/32" Nut Driver	<p>Lubricate all associated barbs and both inner ends of the tubing and install the pump(s) as shown. Do not tighten the EFI hose clamps. The fuel pump(s) will first need to be rotated into the proper position.</p> <p>NOTES:</p> <ol style="list-style-type: none"> <li>1. The submersible fuel tubing is pre-cut to an exact length to match the specific pump used. Walbro GSS342 (255) = long tubing. AEM pumps = short tubing.</li> <li>2. For 300/320/340LPH pump barbs, low heat is required to soften the tubing.</li> <li>3. It is NOT required to heat the non pump side of the tubing connection.</li> <li>4. Fuel pump barbs can fracture if not treated with extra care.</li> <li>5. Extra tubing is provided in case of damage during assembly.</li> </ol>	
	Petroleum Oil		
43	4mm Allen Wrench	<p>While opening the 3 pump bracket legs (shown red arrows), insert the pump assembly. Sandwich the round gasket between triple pump collector halves.</p> <p>Secure the pump bracket to the triple pump collector using the 6 provided socket head screws. NOTE: The orientation of the upper black portion of the triple pump collector is not important.</p> <p>Rotate the fuel pump(s) so the connector(s) are in the most outwardly position.</p>	
44		<p><b><u>For standard brushed pumps only</u></b></p> <p>Plug in the extension wiring connector.</p>	
45		<p>Not all fuel pump inlet filter socks are compatible with this fuel pump hanger. The following Radium Engineering variations are compatible.</p> <p><b><u>Standard Brushed Pumps:</u></b></p> <ul style="list-style-type: none"> <li>-14-0143 Fuel Pump Inlet Sock Filter, 11mm ID</li> <li>-Filter Socks included in AEM 50-1000 and 50-1200 (shown)</li> </ul> <p><b><u>Brushless Ti Automotive E5LM Pumps:</u></b></p> <ul style="list-style-type: none"> <li>-14-0543 Fuel Pump Inlet Sock Filter, 19mm ID</li> </ul> <p>Install the fuel pump inlet filter sock(s).</p>	
46		<p>Prior to entering the collector box, it might be necessary to fold the sock filters downward.</p>	

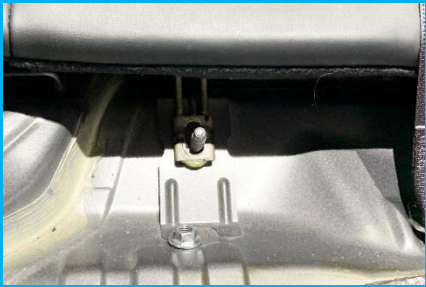








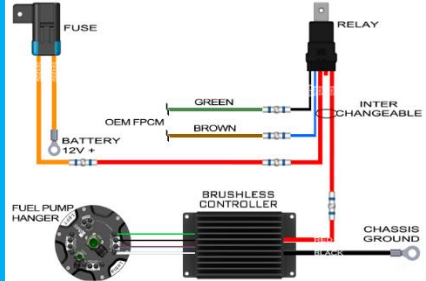

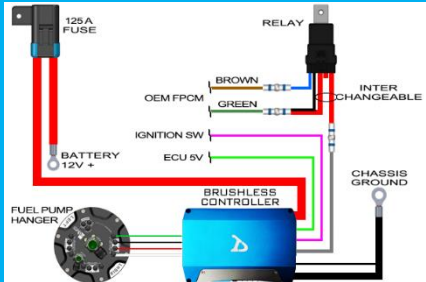

47	3mm Allen Wrench	<p>For proper orientation of the 2 mating components, be sure the upper and lower SAE quick connectors are perpendicular to each other (as depicted). There are 2 other possible scenarios which are incorrect.</p> <p>Secure the collector box to the fuel pump assembly using the 3 provided button head screws.</p>				
	Wire Cutter			<p><b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b></p> <p>Pull the brushless fuel pump wires upward. Measure from the top of the collector box and cut the 4 wires at a maximum length of 8 inches (203mm).</p> <p>NOTES:  1. If there is extra wire, do not discard it as it may be repurposed in later steps.  2. Some brushless controller kits may not provide excessive wire for the pump. If they end up being too short, the wires will need to be extended for easier installation in later steps.</p>		
	Wire Stripper				<p><b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b></p> <p>Strip all 4 wires. Insert the provided heat shrink over the 4 wires, as shown.</p>	
	Wire Crimper					<p><b><u>For brushless Ti Automotive E5LM fuel pumps only</u></b></p> <p>Crimp the small ring terminals onto the end of each wire.</p> <p>Slide the heat shrink up and cover the crimped areas. Apply heat to shrink, as shown.</p>
	Heat Gun					
10mm Socket						
						
						
						
						

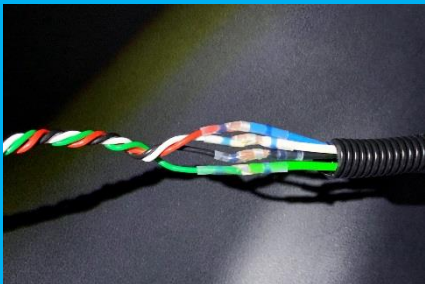
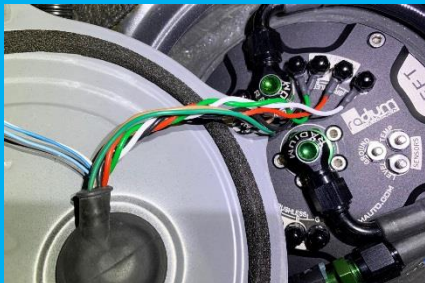
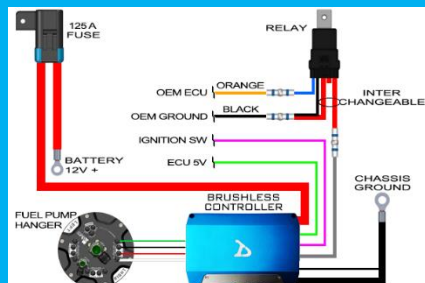
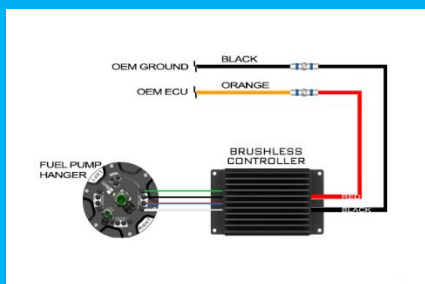

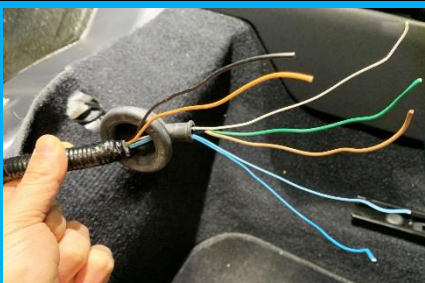
53	<p>Petroleum Oil</p>	<p>Push the two straight OEM female fittings over the new 12mm male fittings until a "click" is felt.</p> <p>NOTES:</p> <ol style="list-style-type: none"> <li>1. Either hose can be used for either port. Ports are interchangeable.</li> <li>2. Lubricate the male portion of the SAE quick connect fittings first.</li> </ol>	
54		<p>As shown, lower the fuel pump assembly into the tank.</p>	
55	<p>Petroleum Oil</p>	<p>Push the small OEM SAE quick connect female 90 degree fitting over the upper male fitting shown until a "click" is felt. Lubricate the male portion of the SAE fitting first.</p> <p>NOTE: It is normal that the lower pump assembly is not secured and centered. Once the top fuel hat is installed it will self-correct.</p>	
56		<p>Loosely install the 2 provided all-thread studs, as shown.</p> <p>NOTE: These will be removed in later steps.</p>	
57		<p>Seat the included sealing O-ring down in the center groove, as shown.</p>	
58		<p>Grab the top fuel hat assembled from earlier steps.</p>	


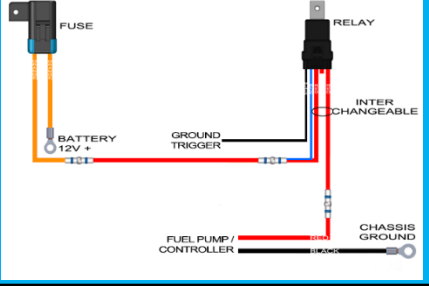
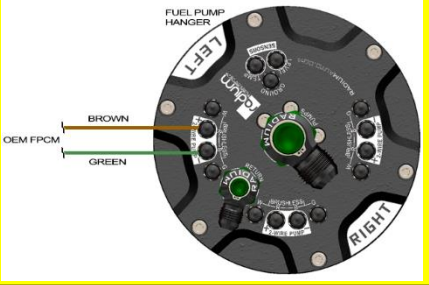


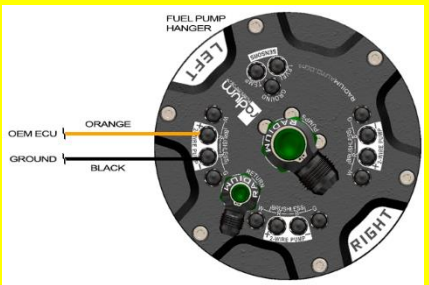
59		<p>Insert just the fuel level float into the tank in front of the collector box assembly. Keep the rest of the fuel top hat outside the tank.</p>	
60	3/8" Wrench	<p><b>For standard brushed pumps</b> Secure the male and female 2 pin fuel pump connectors together.</p> <p><b>For brushless Ti Automotive E5LM pumps</b> Secure the 4 fuel pump ring terminals to the corresponding studs, as shown.</p>	
61		<p>Tilt the assembly upright. Shove the fuel pump wires down and away from the O-ring merge collector.</p> <p>As shown, slowly lower the fuel top hat into the tank.</p>	
62		<p>As the assembly gets lower, make sure the fuel pump wires are clear of the O-ring merge collector.</p> <p>Lineup and allow the 2 all-thread studs to penetrate the appropriate holes in the fuel top hat, as shown.</p>	
63		<p>Be sure the four O-rings are installed underneath the heads of the four M5x0.8x20mm bolts, as shown.</p>	
64	4mm Allen Wrench	<p>First, install the M5x0.8x20mm bolts into the 2 open counter bores. Do not torque.</p> <p>Replace one of the all-thread studs with a M5x0.8x20mm bolt. Do not torque.</p> <p>Replace the last all-thread stud with the last M5x0.8x20mm bolt. Do not torque.</p>	

65	4mm Allen Wrench	In a crisscross pattern, install the new replacement M5x0.8 bolts around the perimeter.	
		<b>IMPORTANT: The internal venturi jet pump tubing will fight you a little so take your time and not mistakenly cross-thread the hardware.</b>	
66	4mm Allen Wrench	Now that everything is secured, torque the 4 merge collector bolts in a crisscross pattern to 30 in-lbs. (3.4 Nm).	
67	Petroleum Oil	<b>Follow this step if connecting the fuel hanger to the OEM fuel hoses.</b>	
	Adjustable Wrench	Lubricate the O-ring and install the provided 10AN ORB to 6AN male fitting to the center port. An aluminum 25mm, 1 inch, or adjustable wrench (shown) can be used to prevent surface marring.	
		NOTE: If installing the <b>20-0551-0X FUEL HANGER FEED KIT, NISSAN R35 GT-R</b> , a different 10AN ORB fitting will be installed here. Please reference near the end of this manual, starting at Step 123.	
68	11/16" Wrench	<b>Follow this step if connecting the fuel hanger to the OEM fuel hoses.</b>	
	Adjustable Wrench	Secure the two included SAE quick connect fittings to the straight end of the provided PTFE hoses, as shown.	
		NOTES:	
		1. The -6AN PTFE hoses are identical.	
		2. The SAE quick connect fittings are identical.	
	3. Aluminum wrenches will prevent surface marring.		
69	11/16" Wrench	<b>Follow this step if connecting the fuel hanger to the OEM fuel hoses.</b>	
	13/16" Wrench	NOTE: The OEM fuel tubing with the SAE quick connect elbow fitting is the return line from the fuel pressure regulator.	
		Install the 90 degree PTFE hose fitting into the fuel top hat "RETURN" port fitting. To prevent excessive side loading, hold the banjo fitting while tightening the hose end.	
		As shown, wrap the PTFE hose around the perimeter of the fuel top hat and push the SAE quick connect fitting into the OEM return elbow fitting until a "click" is felt.	
70	11/16" Wrench	<b>Follow this step if connecting the fuel hanger to the OEM fuel hoses.</b>	
	13/16" Wrench	NOTE: The OEM fuel tubing with the straight SAE quick connect fitting is the fuel feed line.	
		Install the 90 degree PTFE hose fitting into the fuel top hat "PUMPS" port fitting. To prevent excessive side loading, hold the banjo fitting while tightening the hose end.	
		As shown, wrap the PTFE hose around the perimeter of the fuel top hat and push the SAE quick connect fitting into the OEM feed fitting until a "click" is felt.	
		<b>If wiring a brushless fuel pump/controller, follow steps 71-90</b>	
	<b>If wiring a standard brushed fuel pump, follow steps 91-98</b>		



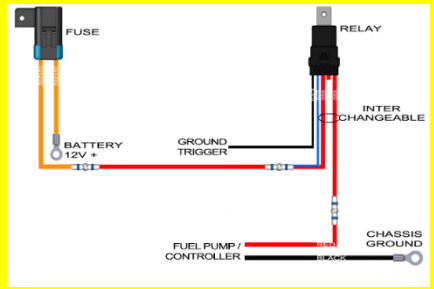
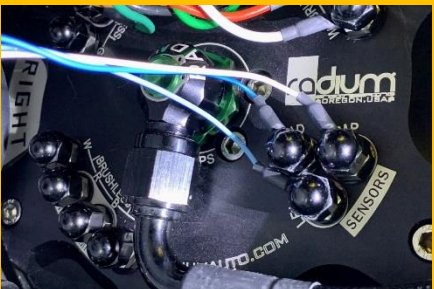

71	14mm Deep Socket	<b>For all brushless Ti Automotive E5LM pumps</b>	
		The brushless fuel pump controller will need to be mounted. This exact location will be up to the installer. Follow these following steps as an example of one area the controller could be placed.	
		<i>NOTE: This manual only covers the installation of the rudimentary Ti Automotive BKS1000 brushless controller kit. Because the programmable Injector Dynamics BPC1100 brushless pump kit is very unique with advanced options (CAN capable, multiple pump speed control modes, etc.), these instructions only cover basic principles. Refer to the BPC1100 instruction manual or contact Injector Dynamics for more specifics.</i>	
		As shown, remove the lower mounting bolt from the rear RH upper seat.	
72		<b>For all brushless Ti Automotive E5LM pumps</b>	
		Pull the seat out of the vehicle.	
73	Flathead Screwdriver	<b>For all brushless Ti Automotive E5LM pumps</b>	
		Open the truck.	
		Remove the 2 upper RH and LH plastic retaining clips that secure the carpeted panel behind the rear seats.	
74		<b>For all brushless Ti Automotive E5LM pumps</b>	
		Remove the panel behind the rear seats from the trunk.	
75		<b>For all brushless Ti Automotive E5LM pumps</b>	
		Gently pull the white Styrofoam out of the trunk. It is simply secured by double-sided tape.	
76	9/64" Drill Bit	<b>For brushless Ti Automotive BKS1000 fuel pump kit</b>	
	Drill	Shown is a great location for the Ti Automotive BKS1000 fuel pump controller. The self-tapping screws included in the Ti Automotive kit can be used.	
	1/4" Socket Wrench	NOTES:	
		1. To prevent having to extend all wires, a location closer to the fuel tank could be used.	
		2. Make sure to protect the wires anywhere they pass sharp edges.	

77		<b>For brushless Ti Automotive BKS1000 fuel pump kit</b>																				
		If mounting the Ti Automotive BKS1000 fuel pump controller as shown above, the OEM rear panel can be reused without modifications.																				
78		<b>For all brushless Ti Automotive BKS1000 fuel pump kit</b>																				
		<b>PRIMARY PUMP CONNECTION</b>																				
		OEM Operation: The 2 signals (BROWN and GREEN wires) are pulse-width modulated at 80Hz from the Nissan FPCM in 3 stages (33%, 66%, and 99%). Brushless fuel controllers cannot generally receive a pulse-width modulated signal. However, the OEM GREEN and BROWN wires may be used to a trigger a relay (not included, see 17-0031).																				
		Schematic of Ti Automotive BKS1000 wired to OEM FPCM shown.																				
79		<b>For brushless Injector Dynamics BPC1100 fuel pump kit</b>																				
		The Injector Dynamics BPC100 fuel pump controller (shown blue) is larger. Additional fabrication will be required and is not discussed in this manual.																				
80		<b>For brushless Injector Dynamics BPC1100 fuel pump kit</b>																				
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82	Wire Stripper	<b>For brushless Ti Automotive BKS1000 fuel pump kit</b>																				
	Heat Gun	For the Ti Automotive BKS1000 fuel controller, it is likely that the power wires will need to be extended.																				
		<i>NOTE: The high current Injector Dynamics brushless controller is not designed to use these 10AWG wires. Contact Injector Dynamics for specifics.</i>																				

83	Wire Stripper	<b>For all brushless Ti Automotive E5LM pumps</b>	
	Heat Gun	As shown, extending wires may be necessary.	
		<i>NOTE: As shown, one of the Ti Automotive BKS1000 fuel controller wires is blue. Connect this to the fuel pump's red wire. All other wire colors match up.</i>	
84	Wire Cutter	<b>For all brushless Ti Automotive E5LM pumps</b>	
	Wire Stripper	Unwrap the electrical tape and associated sleeving from the wires at the OEM rubber grommet. Before making the following electrical connections to the fuel hat, be sure to first reinstall the grommet to the OEM cover plate.	
	Wire Crimper	Push the 4 brushless fuel pump wires through the grommet and cut to length. Cut the included heat shrink to length and place over each wire. Strip and crimp the included ring terminals to each wire. Cover the crimped areas and apply heat to the shrink tubes.	
	Heat Gun		
		Install the provided acorn nuts.	
85		<b>For brushless Injector Dynamics BPC1100 fuel pump kit</b>	
		Read the following only if a brushless fuel pump will be used for secondary fueling. Schematic of the Injector Dynamics BPC1100 kit wired to the OEM ECU shown.	
		<b>SECONDARY PUMP CONNECTION</b>	
		OEM Operation: The ECU sends a 12V signal (ORANGE wire) when fuel demand is required. The OEM BLACK wire is chassis grounded. Because the Injector Dynamics BPC1100 has the capability to draw over 90 amps, the OEM ORANGE and BLACK wires can only be used to a trigger a relay (not included).	
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		<b>SECONDARY PUMP CONNECTION</b>	
		OEM Operation: The ECU sends a 12V signal (ORANGE wire) when fuel demand is required. The OEM BLACK wire is chassis grounded.	
		To leave the Ti Automotive BKS1000 fuel pump staged, connect the OEM ORANGE wire to the RED power wire from the controller. Connect the OEM BLACK wire to the BLACK ground wire from the controller. <i>NOTE: In our test, the Ti Automotive BKS1000 fuel pump kit never exceeds 15 amps. The OEM Nissan secondary fuel pump fuse is 15A. Alternatively, a relay can be installed as shown in the previous step.</i>	
87	Wire Cutter	<b>For all brushless Ti Automotive E5LM pumps</b>	
		The 2 pin OEM fuel pump connector (shown) controls the secondary fuel pump. If a secondary pump is installed, cut the wires leaving just enough if the OEM module ever needs to be reinstalled.	
88		<b>For brushless Ti Automotive BKS1000 fuel pump kit</b>	
		The OEM secondary fuel pump wires can be used to activate the brushless fuel controller. If this will be the case, pull the 2 secondary pump wires (ORANGE and BLACK) out of the rubber grommet, as shown.	

89	Wire Stripper	<p><b>For brushless Ti Automotive BKS1000 fuel pump kit</b></p> <p>Connect the OEM ORANGE wire to the RED controller wire.</p> <p><i>NOTE: The high current Injector Dynamics brushless controller is not designed to use these 10AWG wires. Contact Injector Dynamics for specifics.</i></p>	
	Heat Gun		
90		<p><b>For all brushless Ti Automotive E5LM pumps</b></p> <p>Read the following only if a third brushless fuel pump will be used.</p> <p><b>THIRD PUMP CONNECTION</b></p> <p>Because there are no OEM wires for this circuit, an independent fuse and relay must be installed. An existing OEM trigger, an adjustable pressure switch, or a programmable signal from an aftermarket ECU can be used to trigger the relay. This decision is up to the tuner.</p>	
91		<p><b>For standard brushed pumps only</b></p> <p><b>PRIMARY PUMP CONNECTION</b></p> <p>OEM Operation: The 2 signals (BROWN and GREEN wires) are pulse-width modulated by the Nissan FPCM. To leave this pump duty-cycled, following the connections below:</p> <p><b>OEM BROWN Wire: Connect to corresponding "2-WIRE +" terminal on Radium fuel hat.</b></p> <p><b>OEM GREEN Wire: Connect to corresponding "2-WIRE -" terminal on Radium fuel hat.</b></p> <p><b>NOTES:</b></p> <ol style="list-style-type: none"> <li>The OEM Nissan primary fuel pump fuse is 15A.</li> <li>AEM suggests a 15A fuse. However, the AEM pumps can exceed 15 amps when ran over ~80psi. If pushing this hard, consider installing a Radium DIY wiring kit (17-0031).</li> <li>In our test, the Walbro GSS342 (255LPH) fuel pump never exceeds 14 amps.</li> </ol>	
92	Electrical Pick	<p><b>For standard brushed pumps only</b></p> <p>Find the 5 pin OEM fuel pump connector. Two wires control the primary pulse-width modulated fuel pump and three signal wires are for the sensors. Cut all wires leaving just enough if the OEM module ever needs to be reinstalled.</p>	
	Wire Cutter		
93	Wire Cutter	<p><b>For standard brushed pumps only</b></p> <p><b>NOTE:</b> Before making the following electrical connections to the fuel hat, be sure to first reinstall the OEM rubber grommet to the OEM cover plate.</p> <p>Cut the included heat shrink to length and place over each wire. Strip and crimp the included ring terminals to each wire. Cover the crimped areas and apply heat to the shrink tubes.</p> <p>Install the provided acorn nuts.</p>	
	Wire Stripper		
	Wire Crimper		
	Heat Gun		
94		<p><b>For standard brushed pumps only</b></p> <p>Read the following only if a fuel pump will be used for secondary fueling.</p> <p><b>SECONDARY PUMP CONNECTION</b></p> <p>OEM Operation: The ECU sends a 12V signal (ORANGE wire) when fuel demand is required. The OEM BLACK wire is chassis grounded. To leave this pump staged, follow the connections below:</p> <p><b>OEM ORANGE Wire: Connect to corresponding "2-WIRE +" terminal on Radium fuel hat.</b></p> <p><b>OEM BLACK Wire: Connect to corresponding "2-WIRE -" terminal on Radium fuel hat.</b></p> <p><b>NOTES:</b></p> <ol style="list-style-type: none"> <li>The OEM Nissan secondary fuel pump fuse is 15A.</li> <li>AEM suggests a 15A fuse. However, the AEM pumps can exceed 15 amps when ran over ~80psi. If pushing this hard, consider installing a Radium DIY wiring kit (17-0031).</li> <li>In our test, the Walbro GSS342 (255LPH) fuel pump never exceeds 14 amps.</li> </ol>	















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	See chart for fuel pump wiring clarity.																					
99	Wire Cutter	To connect the fuel sensors, there are 3 wires to assemble.																				
	Wire Stripper	Cut the included heat shrink to length and place over each wire. Strip and crimp the included ring terminals to each wire. Cover the crimped areas and apply heat to the shrink tubes.																				
	Wire Crimper	<b>OEM DARK BLUE Wire: Connect to "SENSORS-GROUND" terminal on Radium fuel hat.</b> <b>OEM LIGHT BLUE Wire: Connect to "SENSORS-LEVEL" terminal on Radium fuel hat.</b> <b>OEM WHITE Wire: Connect to "SENSORS-TEMP" terminal on Radium fuel hat.</b>																				
	Heat Gun	Install the provided acorn nuts.																				
100	10mm Wrench	Reconnect the battery.																				
		Switch the ignition to the ON position to pressurize the fuel system. Confirm the new fuel pump(s) are properly operating. Check for leaks. If no leaks are found, start the vehicle. NOTE: The engine may run rough for a few seconds until all air is bled from the fuel system.																				
		Recheck for leaks.																				



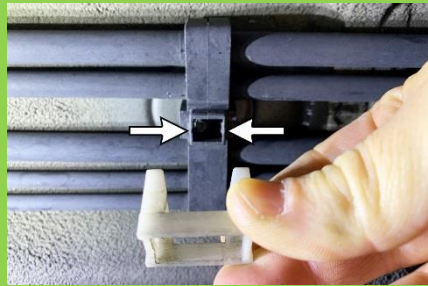



101		Carefully reinstall the fuel pump access panel. Optionally wrap any exposed wire with loom and electrical tape (not included). Reinstall all OEM components in reverse order. <i>NOTE: unless 20-0551-0X was purchased (see below), an external low micron post pump filter must be installed downstream. 20-055X-0X INSTALLATION COMPLETE</i>	
		<b>NOTES REGARDING THE VENTURI JET PUMP</b>	
		1. The Radium Engineering fuel hanger surge tank kit features a venturi jet pump integrated to the high pressure line. This transfers fuel into the collector box without restricting the return line. However, fuel pressure is bled-off when the pump(s) are inactive. If pressure needs to be maintained at the fuel rail with the engine OFF, a check valve will need to be installed on the fuel feed line. See Radium P/N: 20-0534-XX.	
		2. For the venturi jet pump to properly operate, 35 LPH of fuel will be diverted from the fuel pump outlet. Make sure adequate fuel pump flow capacity is available.	
102		<b>20-0551-0X FUEL HANGER FEED KIT, NISSAN R35 GT-R</b>	
		<b>NOTES:</b>	
		1. A proper vehicle lift is recommended	
		2. New fuel feed lines are included. The old OEM fuel feed line will be repurposed as the new return line. It is larger than the original return line and will free up any potential restrictions.	
		To depressurize the fuel system, remove the fuel pump fuse and start engine. Allow engine to stall to relieve fuel pressure. Remove ignition key.	
103	10mm Socket Wrench	Lift and remove the plastic battery cover located at the rear of the RH side of the engine.	
		Disconnect the negative battery terminal, as shown.	
		Caution: Disconnecting the battery (G1) may cancel the fault memories of some control units. Consequently, before disconnecting the car's battery, always investigate the fault memories.	
		Unscrew the gas tank filler cap temporarily to relieve any residual air pressure.	
104	Adjustable Wrench	Using petroleum oil, lubricate the O-rings on the provided 10AN fittings.	
		Secure the fittings to the fuel filter ports using a non-marring wrench.	
105	4mm Allen Wrench	Using the included nuts and bolts (x3), secure the lower portion of the fuel filter clamp to the mounting bracket.	
	8mm Socket Wrench		
106	4mm Allen Wrench	Place the fuel filter onto the lower clamp with the green "OUTLET" cap in the direction shown. Find the upper portion of the filter clamp and two M5 bolts provided in the kit. Clamp the fuel filter down to the mounting bracket.	


107	10mm Socket Wrench	Safely raise the vehicle.	
	Flat Head Screwdriver	Remove the rear most section of the front skid plate.	
108	Flat Head Screwdriver	A small flat head screwdriver and 10mm socket wrench will be required to remove all associated fasteners for the skid plate (shown).	
	10mm Socket Wrench		
109	12mm Wrench	From underneath, find the area (shown) along the right inner frame rail near the turbocharger. This area is far up and can somewhat be accessed from the top side in the engine bay as well.	
		Remove the two OEM painted M8x1.25mm bolts.	
110	14mm Wrench	Replace the 2 OEM bolts with the 2 provided M8x1.25 male to M6x1.0 male threaded adapters.	
111	10mm Wrench	Hang the included hose bracket to the two M6x1.0 studs. As shown, carefully install the provided M6x1.0 flange nuts.	
		NOTE: The fuel hoses (not included) will route from the filter to this location affectively securing them away from hot areas and moving components.	
112	10mm Socket Wrench	Find the OEM heat shield that covers the hard lines.	
		Remove the two M6x1.0 bolts in the areas shown.	

113	10mm Socket Wrench	Install the fuel filter bracket assembly over the top of the heat shield using the OEM bolts.	
114		There are three Y-adapters in the kit. These adapt a 10AN fitting to a pair of 6AN hoses. They are used to provide the necessary clearance and flexibility through the vehicle without introducing a pressure drop or sacrificing flow.	
115		<p>There are also 2 short PTFE hoses in the kit. One will have 45 degree hose ends on both sides. The other will have one 45 degree hose end and one 90 degree hose end on the opposing side.</p> <p>NOTE: there are 2 longer PTFE hoses included that will be discussed later.</p>	
116		<p>Loosely install one of the Y-adapters to the fuel filter outlet fitting.</p> <p>Run each PTFE hose through the passageway generated by the hose bracket. Next lineup each 45 degree hose end to the 6AN fittings from the Y-adapter.</p>	
117		Ideally the PTFE hose with the 90 degree hose end should be routed on the inner side.	
118		<p>Aftermarket fuel rails with 6AN male fittings installed in the front ports must be used with this fuel hanger feed kit.</p> <p>For a complete kit that also includes 2 FPDs and a FPR, purchase the following:  <b>20-0556-02 Fuel Rails, Nissan R35 GT-R (Qty1)</b>  <b>20-0556-PK Fuel Rail Plumbing, Nissan R35 GT-R (Qty1)</b></p> <p>NOTES:  1. Pictured is what these 2 kits look when installed WITHOUT this fuel hanger feed kit.  2. Consult these specific kit instructions in conjunction with the following for installation.</p>	







119	11/16" Wrench	<p>NOTE: If the <b>20-0556-PK Fuel Rail Plumbing, Nissan R35 GT-R</b> kit is already installed in the vehicle, a few minor changes are in order (as described in the next few steps).</p> <p>Install the two provided 8AN ORB to 6AN male fittings into the 2 front fuel rail ports. As shown, run the PTFE hose with the 90 degree hose end to the RH bank fuel rail and run the PTFE hose with the 45 degree hose end to the LH bank. After everything is position correctly, tighten all related hose ends.</p>	
	1" Wrench		
120		<p>Remove the SAE quick connect fitting from the OEM return line in the engine bay. Because the OEM return line will NOT be reused, carefully blow out any remaining fuel.</p> <p><b>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.</b></p> <p>As shown, install the provided rubber dust cap.</p>	
121	3/4" Wrench	<p>If using the fuel pressure regulator from the 20-0556-PK fuel rail plumbing kit, the adapter fittings should be installed in the ports shown.</p> <p>6AN ORB to 6AN male fittings (x3) 6AN ORB plug (x1) 8AN ORB plug (x1)</p>	
	1/4" Allen Wrench		
	5/16" Allen Wrench		
122	11/16" Wrench	<p>If using 20-0556-PK fuel rail plumbing kit, the pictured PTFE hose should be swapped around for the fuel hanger feed kit. The 90 degree hose end connects to the SAE adapter fitting. The straight hose end connects on the fuel pressure regulator fitting.</p>	
123	Snap Ring Pliers	<p>Prepare to install the 10AN ORB to 10AN male 90 degree banjo fitting into the fuel pump hanger "PUMPS" port.</p> <p>Remove the snap ring and carefully separate the 10AN banjo fitting, as shown.</p>	
124	Petroleum Oil	<p>Lubricate the O-ring and install hex fitting into the center "PUMPS" port.</p>	
	30mm Wrench		
	1-3/16" Wrench		
	Adjustable Wrench		


125	Petroleum Oil	<p>Lubricate the two upper hex fitting O-rings. Lower the banjo down making sure to orient the 10AN male outlet towards the RH side of the vehicle. Carefully push the banjo fitting all the way down until the snap ring groove is visible. Reinstall the snap ring.</p> <p>NOTE: For best access, the acorn nuts and ring terminals may need to be removed.</p>	
	Snap Ring Pliers		
126		<p>Two fuel lines will now be installed from the fuel pump hanger to the fuel filter.</p> <p>Loosely install another 10AN to 6AN Y-adapter fitting to the "PUMPS" 10AN banjo fitting. NOTE: It will be easier to first remove the acorn nuts on the opposing sides of the Y-adapter fitting.</p>	
127	Lift	<p>Safely raise the car using a vehicle lift that permits easy access to the underside of the car.</p>	
128	10mm Socket Wrench	<p>Remove the undertray.</p>	
	12mm Socket Wrench		
129		<p>Pictured is the undertray removed from the vehicle.</p>	
130	Marker	<p>For the new lines to pass up to the fuel tank the rear outer tab needs to be modified. See the marked area pictured.</p>	

131	Jigsaw	Carefully cut out the small section pictured.	
132		Depending on the setup and the size of the lines, this cut area may need to be adjusted.	
133	Flat Head Screwdrivers	When the PTFE fuel hoses are routed, they will run just above the OEM hard lines (just behind the front RH tire).  Pictured is the front most OEM hard line retainer just behind the front RH tire. While pressing the 2 black tabs inward (shown), simultaneously pry the white retainer lock down.	
134	Flat Head Screwdrivers	Pry the black OEM retainer downwards to allow the OEM hard lines to drop down.	
135		Loosely screw in the last Y-adapter fitting included in the kit to the fuel filter inlet.	
136	12mm Socket Wrench	The RH side of the fuel tank will need to be freed just enough for two 3/8" (-6AN) hoses to pass from the upper side to the underside of the fuel tank.	
	14mm Socket Wrench		
	17mm Socket Wrench	To access the front RH fuel tank strap bolt, the rear aluminum transaxle brace mount, just in front of the fuel tank, needs to be removed. CAUTION: Carefully support the transaxle.	
	Transmission Stand		

137	17mm Socket Wrench	As shown, remove the front RH fuel tank strap bolt.	
138		The next step requires 2 people. First, find the 2 long PTFE hoses in the kit that have straight and 45 degree hose ends. The first person will send each PTFE hose from the top down while communicating with the second person underneath the vehicle.	
		For both PTFE hoses, the 45 degree hose ends will be sent down while the straight hose ends will stay in the cabin.	
		NOTE: The only way the 2 PTFE hoses will fit down the side of the fuel tank is with them passing as far to the front as possible next to the fuel tank pad, as shown.	
139	Pry Bar	While the first person is pushing each PTFE hose down the side of the fuel tank, the second person should be carefully prying the fuel tank downwards.	
		When the PTFE hoses appear (shown), pull out all of the slack.	
140		Near the front, pull the OEM hard line carrier down while directing each PTFE hose from the previous step over the top of the hard lines.	
		Loosely install the 45 degree hose ends to the fuel filter Y-adapter fitting.	
		Reinstall the OEM retaining mount and lock for the OEM hard lines.	
141		As shown, install each straight hose end to the fuel hanger Y-adapter.	
		Make sure the PTFE hoses have some slack so that undue stress is not put on the fittings.	
142	10mm Socket Wrench	There are 7 bolts along the outer RH side underneath the vehicle. Remove the 5 middle bolts. NOTE: The front and rear bolts are too far away to be useable.	



143	Utility Knife	Find the short rubber insulators in the kit. As shown, cut a slit down the length of one side of each insulator.	
		Install 5 of the insulators on one PTFE hose and 5 on the other PTFE hose.	
144	10mm Socket Wrench	While holding the new PTFE hoses in place, position each Radium retaining mount. As shown, lineup each insulator and secure the retaining mounts using the OEM fasteners.	
145		The OEM fuel return line will NOT be reused. Instead, the higher flowing OEM fuel feed line will be repurposed as the new return line. The OEM fuel feed line is identified as having a straight end (not a 90 degree elbow).	
		The PTFE hose and SAE quick connect male fitting (shown) that was included in the basic R35 GT-R fuel hanger kit will be reused. This will now connect the female OEM SAE fuel feed line to the fuel pump hanger "RETURN" fitting.	
146		The OEM fuel line will run counterclockwise around the fuel pump hanger. If routing under the feed lines as shown, be careful to not kink the line.	
147		Connect the PTFE hose as shown.	
148		Before securing the fuel tank strap, be sure the PTFE fuel lines will not be pinched by the fuel tank flange.	
		Reinstall the fuel tank strap and the aluminum transaxle brace mount.	

149	11/16" Wrench	<p>After everything is oriented and positioned properly, tighten all related hose ends.</p> <p>If applicable, reconnect all ring terminals and acorn nuts.</p>	
	1" Wrench		
150	10mm Wrench	<p>Reconnect the battery. Switch the ignition to the ON position to pressurize the fuel system. Confirm the new fuel pump(s) are properly operating. Check for leaks. If no leaks are found, start the vehicle. NOTE: The engine may run rough for a few seconds until all air is bled from the fuel system.</p> <p>Recheck for leaks.</p> <p>Reference your specific brand fuel pressure regulator instructions for proper calibrating. NOTE: OEM Nissan VR38DETT static fuel pressure: 3.8 bar (+/-0.2).</p> <p><b>20-0551-0X FUEL HANGER FEED KIT, NISSAN R35 GT-R INSTALLATION COMPLETE</b></p>	