

# INSTALLATION INSTRUCTIONS

## FUEL HANGER SURGE TANK (FHST)

### NISSAN SKYLINE R32 GT-R



Document: 19-0259

Support: info@radiumauto.com

**COLOR LEGEND FOR EACH STEP**

20-074X-XX FUEL HANGER, R32 GT-R

Follow **YELLOW** areas

20-0703-03/20-0703-05 PLUMBING KIT

Follow **GREEN** areas

**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.**



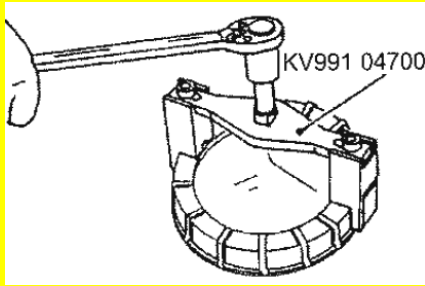


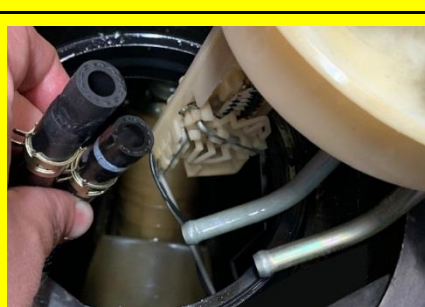
Only install in a well-ventilated location to minimize buildup of fuel vapors.




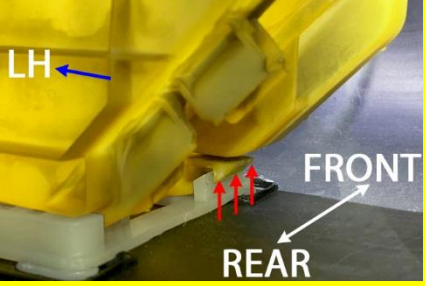

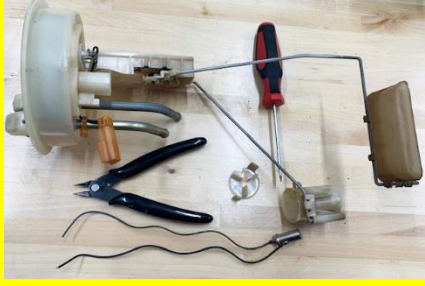
No sparks, open flames, smoking or other ignition sources are to be present. Draining and removal of all fuel from the fuel system is recommended. Proper eye and personal protection is required at all times during installation.

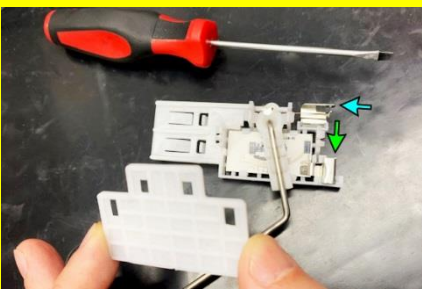
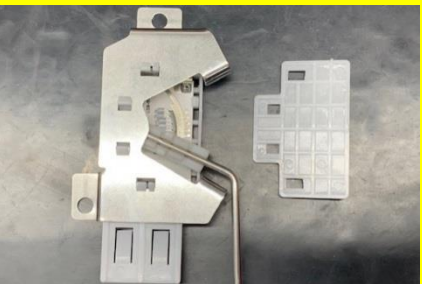

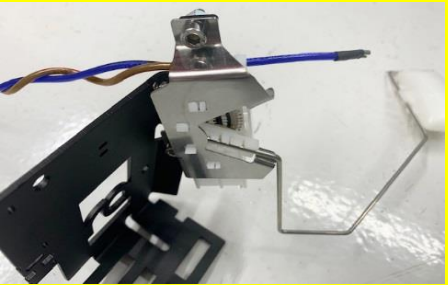

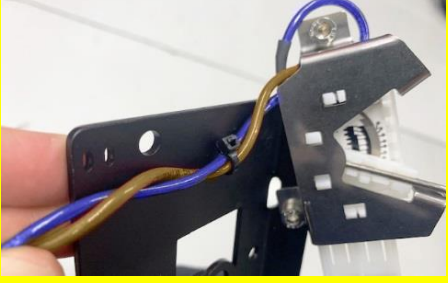
**WARNING**




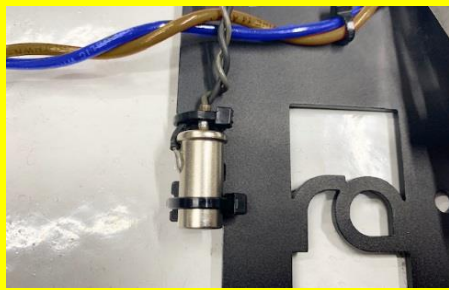
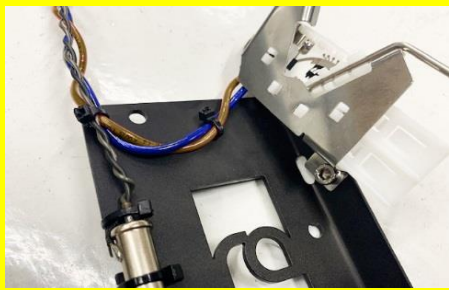
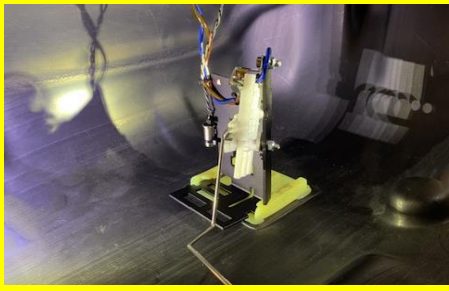
The fuel system is under pressure! Do not loosen any connections until relieving the fuel system pressure. Consult a service manual for instructions on relieving fuel pressure safely. This product is designed for off-highway and racing use only. Fuel system components may not be legal for sale or use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

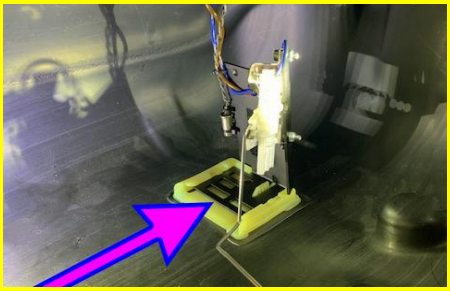





STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1		<b>20-074X-XX FHST, R32 GT-R INSTALLATION</b>	
		NOTES:	
		1. It is recommended to run the fuel tank dry to reduce fuel spills for an easier and safer installation.	
		2. To avoid confusion, these instructions will always reference "LH" and "RH" (as shown).	
		3. These instructions will primarily work from the rear.	
2		First, open the trunk. Remove the carpet and the cardboard plate to expose the fuel pump access cover (shown).	
		NOTE: Just to the RH side is an adhesive pad that protects the electrical loom.	
3	10mm Socket Wrench	Remove the 4 fuel tank access cover screws. Push the rubber grommet through the fuel tank access cover. To unplug the 2 electrical connectors on the fuel hat, press the thumb tabs and gently pull to release.	
		The fuel tank access cover is now free and can be moved out of the way.	
4		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.	

5	10mm Socket Wrench	Open the hood and disconnect the battery's negative terminal.	
		CAUTION: Disconnecting the battery may cancel fault memories of some control units. Consequently, always cross examine any fault memories first.	
6	Pliers	NOTE: It is recommended to clean the plastic module and surrounding area. This will prevent loose dirt from accidentally falling into the tank.	
	Phillips Screwdriver		
		The LH port is the fuel return hose. The RH port is the fuel feed hose. Loosen each clamp and pull off each rubber hose. Have a rag handy as fuel will spill out.	
7		The black fuel tank hold-down ring will need to be spun counterclockwise. Many technicians will use a hammer and flat chisel. However, it is recommended to purchase a spanner tool to avoid damage. These are relatively inexpensive and can be found online from companies such as Lisle, OEMTools, Ryco, etc.	
		Genuine Nissan P/N: KV991 04700 (shown).	
8		For this application, Radium Engineering successfully uses Lisle P/N: 63000 (shown).	
9		NOTE: the OEM fuel unit will come out in 2 pieces: fuel hat assembly and fuel pump assembly.	
		First, carefully pull the OEM fuel hat up just enough to expose the 2 electrical connectors. To unplug, press the thumb tabs and gently pull to release.	
10	Pliers	Next, remove the 2 internal hoses from the fuel hat barbs.	
	Bucket	Carefully pull the OEM fuel hat up until it reaches an interference point. From here it will need to be rocked back and forth to allow the fuel level float to clear the gas tank opening. Once removed, immediately place the fuel hat assembly into a fuel safe container on a workbench.	





11		Remove and inspect the fuel tank gasket. If still in good working order, it can be reused.	
		Replacement Gasket: Nissan P/N: 173425M303	
12	Fuel Jug	If there is still residual fuel in the tank, it should be removed completely. Pictured is an inexpensive battery-operated liquid transfer pump.	
		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.	
13		The entire fuel pump assembly will now be removed.	
		There is only 1 tab to unlatch before sliding the assembly off the bottom of the fuel tank. However, this tab is not visible and takes some strength to unlock.	
		First, note where the tab is in respect to the fuel pump assembly (see picture).	
14		This picture is taken from the inside of the tank at the bottom. Note the picture orientation with respect to the vehicle (LH, FRONT, REAR). The red arrows show the latch and the direction the tab needs to be moved for unlocking.	
		Just after squeezing the tab upwards (red arrows), slide the assembly to the LH side to release (blue arrow).	
15	Bucket	As shown, remove the fuel pump assembly and place into a fuel safe container. None of these parts will be reused.	
		Next, temporarily place an object over the gas tank opening to prevent foreign debris from entering the fuel system.	
16	Flathead Screwdriver	The low fuel level switch is located inside the small cylindrical plastic container on the fuel hat assembly. Pry the 2 opposing plastic lid tabs and pull out the switch. Salvage as much wire as possible. Cut the wires to the same length.	
	Electrical Cutter		

17	Flathead Screwdriver	Because the OEM fuel level sensor is integrated into the fuel hat assembly, a replacement is provided in the kit.	
		First, carefully pry the 4 locking tabs on the new sensor and remove the plastic piece as shown.	
		NOTE: As depicted with the blue and green arrows, there are 2 male spade connections perpendicular from one another.	
18		Find the included stainless steel fuel level sensor bracket.	
		To install, press down onto the fuel level sensor in the orientation shown. Make sure all 4 tabs latch in place.	
19	4mm Allen Wrench	Find the black sensor bracket included in the kit.	
	8mm Socket Wrench	Using the 2 provided M5x.8mm bolts and locking nuts, install the fuel level bracket to the sensor mount, as shown.	
20		NOTE: When wiring the sensor and switch, strain reliefs will be used to prevent the wires from damage, disconnection, etc.	
		Find the fuel level sensor (blue/brown wire) harness from the kit. First, insert the blue wire through the opening above the sensor. As shown in the next few steps the blue wire will be wrapped around the unit for strain relief.	
		Next, plug the brown wire female connector into the "horizontal" male connection of the fuel level sensor, as depicted.	
21		Next, wrap the blue wire around the sensor bracket and plug it into the "vertical" male connection of the fuel level sensor.	
22	Diagonal Cutter	Using 1 of the provided cable zip ties, secure the brown and blue wires to the sensor mount as shown. Be sure there is enough slack so the wires are not pulling on the fuel level sensor.	







23	Wire Stripper	Insert the provided Raychem heat shrink butt connectors over each of the OEM low fuel level switch wires.	
		If not already, strip 3/16" of insulation off the end of each wire.	
24		Find the included low fuel level switch (black wire) harness in the kit.	
		Insert each wire into Raychem butt connectors. The wires should overlap at the cylindrical solder joint, as shown.	
25	Heat Gun	Heat the wires until the solder melts.	
		After the solder has cooled and solidified, gently pull each wire to be sure the connection was made properly.	
26	Diagonal Cutter	Insert the low fuel level switch onto the designated location of the sensor mount.	
		As shown, secure using 2 of the provided cable zip ties.	
27	Diagonal Cutter	Using another cable zip tie, secure all 4 sensor wires to the sensor mount, as shown.	
28		Insert the sensor mount assembly into the bottom of the fuel tank in the position and orientation shown.	






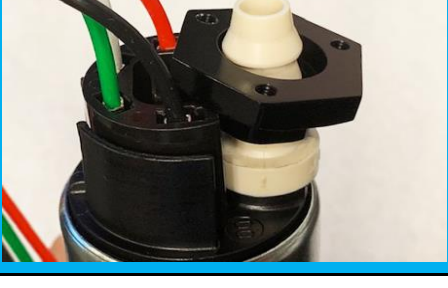
29		As shown, slide the sensor mount to the RH side of the vehicle until it locks into place.	
		Set the wire connectors outside of the fuel tank.	
30	Phillips Screwdriver	For this step, find the following from the kit. 1. 90 degree SAE quick connect fitting 2. Convoluted fuel tubing 3. EFI hose clamp: a. For the convoluted tubing and 90 degree fitting found in 20-0740 FHST kits, use the #11 EFI clamp. b. For the convoluted tubing and the 90 degree fitting found in the 20-0741 and 20-0742 FHST kits, use the #12 EFI clamp.	
		Briefly place either end of the convoluted tubing in boiling water. Quickly place the EFI hose clamp over the tubing and the SAE quick connect fitting into the tubing. After securing the connection, the assembly will look as shown.	
31	Phillips Screwdriver	If using a Walbro 39/50 DCSS (F90000267 or F90000274 or F90000285 or F90000295) as a lift pump, the other end of the convoluted tubing will need to be heated to fit over the large diameter pump outlet barb.  Use the other EFI hose clamp in the kit to secure the convoluted tubing to fuel (lift) pump.	
	Heat Gun		
32		Install the filter sock onto the lower inlet of the lift pump.	
		The recommended filter sock for the lift pump is Radium Engineering P/N: 14-0143.	
		Insert the lift pump into the collector box.	
33	Flathead Screwdriver	Position the lift pump so the filter sock is at the bottom of the collector box.	
		As shown, secure the lift pump to the collector box using the large worm drive clamp in the kit.	
34		Plug in the lift pump using the provided lift pump extension harness (shown).	

35	4mm Allen Wrench	<p>PRO TIP: To avoid accidentally dropping the M5x0.8x12mm screws into the fuel tank in the next step, attach them to the 4mm Allen wrench using tape.</p>	
	Tape		
36	4mm Allen Wrench	<p>Drop the collector box in the fuel tank BEHIND the sensor, as shown.</p> <p>Secure the collector box to the sensor mount using the provided M5x0.8x12mm screws. The 2 mounting hole locations are shown.</p>	
37		<p>If applicable, be sure to remove the tape from the screws.</p> <p>Next, set the convoluted tube fitting and lift pump connector outside of the fuel tank.</p>	
38		<p>Reference the part number description on the product box.</p> <ol style="list-style-type: none"> <li>If a "pumps included" kit was purchased, skip steps 39-76.</li> <li>Follow Steps 39-49, 73-76 if installing: <ul style="list-style-type: none"> <li>-Walbro F90000274 (267/285) Fuel Pump</li> </ul> </li> <li>Follow Steps 39-41, 50-57, 73-76 if installing any of the following: <ul style="list-style-type: none"> <li>-Walbro GSS342 255LPH Fuel Pump</li> <li>-AEM 50-1200 E85 Fuel Pump</li> </ul> </li> <li>Follow Steps 39, 58-76 if installing: <ul style="list-style-type: none"> <li>-Ti Automotive ESLM Brushless Fuel Pump</li> </ul> </li> </ol>	
39	3mm Allen Wrench	<p>To remove the collector box, first unscrew the 3 perimeter bolts around the sides.</p> <p>Next, pull and separate the collector box from the assembly.</p>	
40	3/8" Socket Wrench	<p>Determine how many fuel pumps will be installed.</p> <p>Attach the corresponding number of fuel pump connectors to the wiring studs underneath the top hat using the included lock nuts.</p> <p>NOTE: The red wires are positive (+) and black wires are negative (-).</p>	


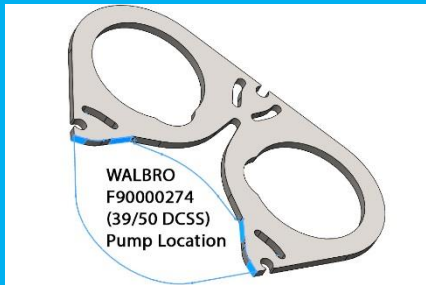
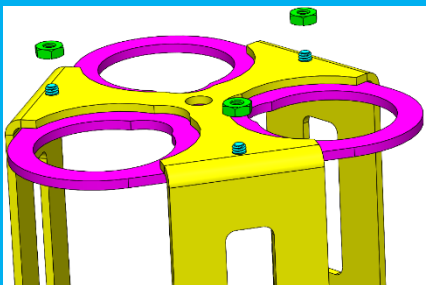
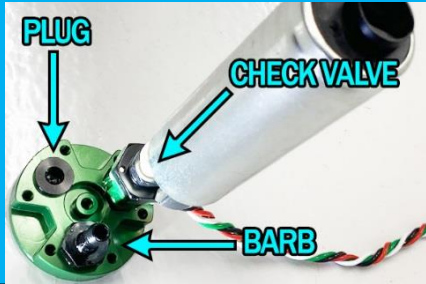


41		The provided tubing is pre-cut to an exact length to match the specific pump noted in the kit. For proper fitment, the tube must be pushed as far down the barbs as possible. Care must be taken not to kink the tubing. If too much force is applied, replace the tube.	
		NOTES:	
		1. Extra tubing is provided in case of damage during assembly.	
		2. The brushless ESLM fuel pump does not require tubing.	
42	Oil Lubrication	<b>WALBRO F90000274 FUEL PUMP ASSEMBLY ONLY</b>	
	3/4" Socket Wrench	Included are three 6AN ORB barbed fittings that permit up to three fuel pumps to be installed. Install the proper amount into the underside of the triple pump block, as shown.	
43	Oil Lubrication	<b>WALBRO F90000274 FUEL PUMP ASSEMBLY ONLY</b>	
	1/4" Allen Wrench	For single or dual pump applications, block-off the unused ports on the underside of the triple pump block using the included 6AN ORB plugs.	
		-If installing 1 surge pump, use 2 plugs (shown).	
		-If installing 2 surge pumps, use 1 plug.	
		-If installing 3 surge pumps, do NOT install any plugs.	
		NOTE: Lubricate all O-rings before installing any ORB fittings.	
44	9/32" Nut Driver	<b>WALBRO F90000274 FUEL PUMP ASSEMBLY ONLY</b>	
	Oil Lubrication	To install the submersible fuel tubing, first apply oil lubrication to all associated barbs and to both inner ends of the tubing.	
		Gently apply force to push the tubing onto the fuel pump outlet barb. Secure using the included EFI clamp, as shown.	
45		<b>WALBRO F90000274 FUEL PUMP ASSEMBLY ONLY</b>	
		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 (shown) until it is fully seated. Do not tighten this hose clamp yet. The fuel pump will first need to be rotated into the proper position.	
46	Phillips Screwdriver	<b>WALBRO F90000274 FUEL PUMP ASSEMBLY ONLY</b>	
		Rotate the fuel pump(s) until the inlets are concentric with the pump bracket, as shown.	
		Secure the upper EFI clamp(s) on the submersible tubing.	

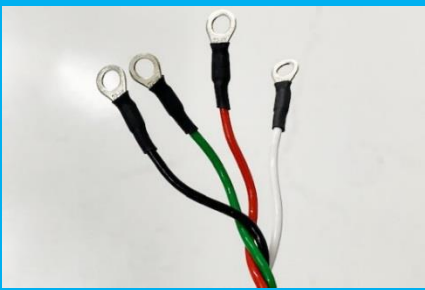
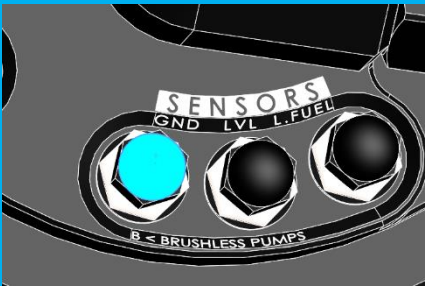
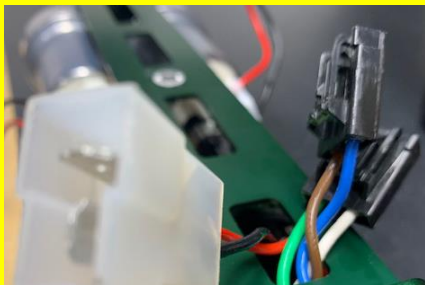





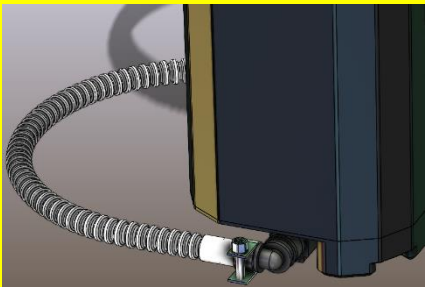
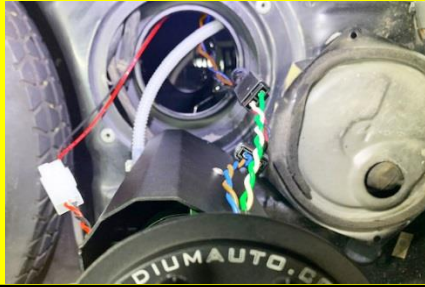




47		<b>WALBRO F90000274 FUEL PUMP ASSEMBLY ONLY</b>	
		Lineup the holes and place the upper portion of the lower filter mount on the fuel pump inlet(s).	
48	3/32" Allen Wrench	<b>WALBRO F90000274 FUEL PUMP ASSEMBLY ONLY</b>	
		The next step is best performed using a ball end Allen wrench.	
49	3/32" Allen Wrench	<b>WALBRO F90000274 FUEL PUMP ASSEMBLY ONLY</b>	
		Using three of the 5-40 threaded socket head bolts, secure the upper portion of the filter mount to the pump bracket.	
50	4mm Allen Wrench	<b>WALBRO GSS342/AEM 50-1200 FUEL PUMP ASSEMBLY ONLY</b>	
	1" Wrench	If installing 3 surge pumps skip this step.	
	Adjustable Wrench	If installing 1 or 2 pumps, remove the green pump bracket.	
		Unscrew the 10AN female coupler to separate the pumps from the fuel hat.	
51	Oil Lubrication	<b>WALBRO GSS342/AEM 50-1200 FUEL PUMP ASSEMBLY ONLY</b>	
	9/32" Nut Driver	Walbro GS342 255LPH fuel pumps require the included long tubing. AEM pumps require the provided short tubing. First apply oil lubrication to all associated barbs and to both inner ends of the tubing. Push the tubing onto the fuel pump outlet barb. Secure using the included EFI clamp, as shown.	
		NOTES:	
		1. Fuel pump hose barbs can fracture if not treated with extra care.	
		2. For many 300/320/340LPH pumps, low heat is required to 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 it with a new piece.	
52	Oil Lubrication	<b>WALBRO GSS342/AEM 50-1200 FUEL PUMP ASSEMBLY ONLY</b>	
	Phillips Screwdriver	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.	
		If applicable, repeat this process for the second pump.	




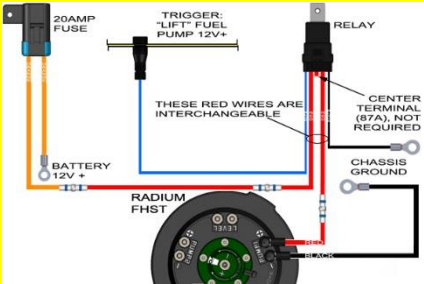

53	Oil Lubrication	<b>WALBRO GSS342/AEM 50-1200 FUEL PUMP ASSEMBLY ONLY</b>	
	1/8" Allen Wrench	<p>If using 1 or 2 pumps, screw the included plug(s) into the unused ports:</p> <ul style="list-style-type: none"> <li>-If installing 1 surge pump, use 2 plugs.</li> <li>-If installing 2 surge pumps, use 1 plug (shown).</li> <li>-If installing 3 surge pumps, do NOT install any plugs.</li> </ul> <p>NOTE: Lubricate all O-rings before installing any ORB fittings.</p>	
54	4mm Allen Wrench	<b>WALBRO GSS342/AEM 50-1200 FUEL PUMP ASSEMBLY ONLY</b>	
		<p>First, reassemble the triple pump block using just 2 screws as shown. It does not matter which pair of mounting holes are used.</p> <p>NOTES:</p> <ol style="list-style-type: none"> <li>1. The 6-bolt flange/gasket can NOT be improperly orientated as the bolt spacing is intentionally not symmetrical.</li> <li>2. Be sure the gasket is seated properly prior to tightening the bolts.</li> </ol>	
55	4mm Allen Wrench	<b>WALBRO GSS342/AEM 50-1200 FUEL PUMP ASSEMBLY ONLY</b>	
		<p>Install the aluminum bracket, as shown.</p>	
56		<b>WALBRO GSS342/AEM 50-1200 FUEL PUMP ASSEMBLY ONLY</b>	
		<p>Lineup the holes and place the upper portion of the filter mount on the fuel pump inlet(s).</p>	
57	3/32" Allen Wrench	<b>WALBRO GSS342/AEM 50-1200 FUEL PUMP ASSEMBLY ONLY</b>	
		<p>The next step is best performed using a ball end Allen wrench.</p> <p>Using three of the 5-40 threaded socket head bolts, secure the upper portion of the filter mount to the pump bracket.</p>	
58		<b>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</b>	
		<p>Inspect the fuel pump outlet hose barb. If deformed or damaged, the Radium check valve pump adapter will NOT attach properly.</p> <p>The Ti Automotive E5LM 4-pin wiring connector MUST first be installed to the electrical terminals.</p> <p>To install the check valve, first slide the black collar over the pump outlet with the flat surface upward, as shown.</p>	

59		<b><u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u></b>	
		Next, slip the stainless steel retainers under the hose barb ridge closest to the end of the pump outlet opening. Be patient as this will take a little bit of work.	
		Pull the collar up to confirm the retainers lock into place as depicted.	
60	Oil Lubrication	<b><u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY 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.	
61		<b><u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u></b>	
		Place the O-ring onto the check valve plunger groove, as shown.	
62		<b><u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u></b>	
		Place the provided spring around the plunger rod, as shown.	
63		<b><u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u></b>	
		Insert the plunger rod through the internal center hole of the green adapter fitting, as shown.	
64	2.5mm Allen Wrench	<b><u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY 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.	

65	Oil Lubrication	<b>TI AUTOMOTIVE ESLM FUEL PUMP ASSEMBLY ONLY</b>	
	1" Wrench	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.	
66	Cutter	<b>TI AUTOMOTIVE ESLM FUEL PUMP ASSEMBLY ONLY</b>	
		For those wanting a hybrid setup with standard brushed pump(s), parts will be needed. Reference the product page for more information. However, the brushless pump adapter bracket (shown) will need to be modified if a Walbro F90000274 pump (or any 39/50 DCSS pump) is used. For Walbro GSS342 and AEM 50-1200 style pumps, no modification is required.	
		Cut the bracket as shown for every Walbro F90000267/274/285 pump	
67	1/4" Socket Wrench	<b>TI AUTOMOTIVE ESLM FUEL PUMP ASSEMBLY ONLY</b>	
	5/64" Allen Wrench	Install the provided brushless pump adapter bracket (pink) to the main pump bracket (yellow).	
		Secure using the 5-40 threaded bolts (blue) and 5-40 threaded nuts (green). Hint: the button heads can typically be held in place with your finger while tightening the nut with a wrench.	
68	Oil Lubrication	<b>TI AUTOMOTIVE ESLM FUEL PUMP ASSEMBLY ONLY</b>	
	1" Wrench	If not using a fuel pump slot, install the included plug(s) into the triple pump block. For the brushless pump(s), install the check valve adapter(s) into the triple pump block.	
	3/4" Wrench		
	1/4" Allen Wrench	For those wanting a hybrid setup with standard brushed pump(s), install the barbed adapter (shown, not included).	
69		<b>TI AUTOMOTIVE ESLM FUEL PUMP ASSEMBLY ONLY</b>	
		Install recommended filter socks below for the respective pumps.	
		<b>BRUSHLESS ESLM PUMPS</b> -Radium P/N: 14-0543 (shown left)	
		<b>BRUSHED PUMPS</b> -Radium P/N: 14-0143 (shown center) -Filter sock included with AEM 50-1200 (shown right)	
70	Diagonal Cutters	<b>TI AUTOMOTIVE ESLM FUEL PUMP ASSEMBLY ONLY</b>	
	Wire Strippers	Cut the fuel pump wires to length and strip the ends.	
		Slide the provided heat shrink to each wire.	




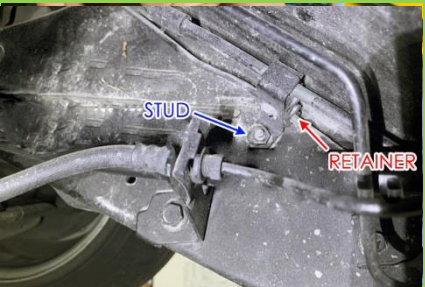


71	Wire Crimpers	<b>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</b>  Crimp the provided ring terminals to the end of each wire.  Slide the heat shrink over the crimped area. Apply heat to the shrink the insulation.	
	Heat Gun		
72	3/8" Wrench	<b>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</b>  Connect each ring terminal to the corresponding wire color terminal depicted on the top of the fuel hat.  R = Red, G = Green, W = White, B = Black  NOTE: The BLACK brushless fuel pump "ground" wires share the electrical stud for the sensor grounds.	
73		After plugging in the fuel pumps, route the wires in a manner that is conducive for reinstalling the collector box.  As shown, insert the 3 electrical connectors through the upper slot in the mounting bracket.	
74		There are 3 potential ways the collector box can be oriented. Reference the picture for the correct orientation.	
75		Make sure the 3 electrical connectors are free from the collector box. NOTE: optionally these wires can be twisted for improved flexibility, as shown.	
76	3mm Allen Wrench	Secure the collector box to the fuel pump assembly.  NOTE: Do not install the OEM fuel tank gasket to the FHST yet.	







77	Oil Lubrication	Place the FHST assembly next to the gas tank opening. Pull the 3 wire connectors and the lift pump tubing connector out of the tank.	
		Lubricate the SAE quick connect fitting on the bottom of the FHST assembly. Fully insert the tubing connection until a "click" is felt. This 90 degree connection should lay horizontal and face the direction shown.	
78		Connect all 3 electrical plugs.	
		-Lift Pump	
		-Level Sensor	
		-Low Fuel Sensor	
79		Tip the FHST assembly to the side to get the lift pump fitting into the gas tank first. Position the FHST back up right and begin to lower the assembly into the gas tank.	
		Because of the size of this assembly, the 3 electrical connectors should be placed strategically along the sides of the collector box.	
80		The OEM fuel tank gasket must NOW be installed.	
81		Lift the FHST up and wrap the gasket around the top lid.	
		Next, install the gasket to the opening of the fuel tank, as shown.	
82		Rotate the assembly so the fuel fittings are pointing forward and the car graphic etched into the fuel hat is oriented correctly.	
		Press down on the assembly. NOTE: Lubricating the inner wall of the OEM gasket may be required.	
		As shown, secure the OEM lock ring.	







83	Phillips Screwdriver	Reconnect and secure the OEM feed and return hoses.																			
	Pliers																				
84	Wire Cutters	Cut off the OEM connectors keeping as much wire as possible. Remove some of the wire loom then strip the wire insulation 3/16" back.																			
	Wire Strippers																				
85		<p>NOTES:</p> <ol style="list-style-type: none"> <li>The large gauge OEM fuel pump wires will be used to drive the "low current" lift pump.</li> <li>External brushless fuel pump wiring will not be covered in this manual. This procedure is very specific to the brushless fuel pump controller used. Reference the manufacturer's manual for proper wiring.</li> </ol>	<p><b>WIRE COLOR LEGEND</b></p> <table border="1"> <thead> <tr> <th>FUNCTION</th> <th>INTERNAL</th> <th>EXTERNAL</th> </tr> </thead> <tbody> <tr> <td>Pump Power</td> <td>Black/Red (Lg)</td> <td>Black/Yellow (Lg)</td> </tr> <tr> <td>Pump Ground</td> <td>Black (Lg)</td> <td>White (Lg)</td> </tr> <tr> <td>Sensor Ground</td> <td>Black (Sm)</td> <td>Black (Sm)</td> </tr> <tr> <td>Level Sensor</td> <td>White (Sm)</td> <td>Green/Blue (Sm)</td> </tr> <tr> <td>Low Fuel Switch</td> <td>Grey (Sm)</td> <td>Red/Blue (Sm)</td> </tr> </tbody> </table>	FUNCTION	INTERNAL	EXTERNAL	Pump Power	Black/Red (Lg)	Black/Yellow (Lg)	Pump Ground	Black (Lg)	White (Lg)	Sensor Ground	Black (Sm)	Black (Sm)	Level Sensor	White (Sm)	Green/Blue (Sm)	Low Fuel Switch	Grey (Sm)	Red/Blue (Sm)
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86	Wire Crimper	<p>Use the large diameter shrink tube and large AWG ring terminals to connect the 2 lift pump wires. Use the small diameter shrink tube and small AWG ring terminals to connect the 3 sensor wires.</p> <p>Cut each piece of shrink tube to length and insert onto each wire. Crimp a ring terminal to each wire. As shown, heat shrink into place.</p> <p>Install the ring terminals to the corresponding fuel hat studs. Tighten all acorn nuts. Do not over torque. NOTE: there will be extra parts in the kit that will NOT be used.</p>																			
	Heat Gun																				
87		<p>The picture is an electrical representation for the following steps.</p> <p>NOTES:</p> <ol style="list-style-type: none"> <li>An independent fuse and relay must be used for each FHST pump.</li> <li>To get the vehicle running, a relay and fuse are provided. Radium P/N: 17-0031 can be purchased if installing each additional pump.</li> <li>These instructions focus on installing 1 fuse and 1 relay for 1 FHST pump. The following process will differ for dual or triple FHST fuel pump configurations.</li> </ol>																			
88		<p>In the Radium Engineering wiring diagram, note the different locations of the included Raychem solder butt connectors.</p> <p>To properly use the solder butt connectors:</p> <ol style="list-style-type: none"> <li>Strip each wire insulation back.</li> <li>Insert both wires into the butt connector ends and overlap them.</li> <li>Use a heat gun. Be careful with the surrounding area as the internal solder will take a few minutes to melt.</li> <li>Verify the connection is solid by giving it a tug.</li> <li>For strain relief, allow some slack in the wire so it does not pull.</li> </ol>	<p>Position wires into Solder Splice, as shown.</p> 																		

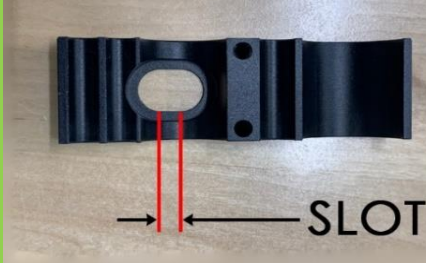
89		<p>NOTES:</p> <ol style="list-style-type: none"> <li>1. It is ideal for the fuel pump fuse to be mounted close to the battery.</li> <li>2. Shown is one location the FHST fuel pump relay could be mounted.</li> </ol>	
90	<p>4mm Allen Wrench 10mm Socket Wrench</p>	<p>FHST fuel pump relay shown mounted behind the sheet metal. To secure, use the provided M6x1mm button head bolt and M6x1mm nut.</p>	
91		<p>The power wire needs to be routed in a S-shape to get through the firewall. A coat hanger or welding rod can help this process.</p> <p>From inside, remove the RH kick panel and the grommet from the area shown. Next, remove the black foam piece from the engine bay side. Carefully pass the red wire through. Avoid chaffing on sharp edges nearby.</p>	
92		<p>Find a place to mount the fuse holder near the battery.</p> <p>After making all of the electrical connections, slide on the provided convoluted wire loom.</p>	
93		<p>Remove the RH door sill panel and the rear seats.</p> <p>Route the power wire along the path of the OEM wiring harness.</p> <p>Make all the corresponding connections in the trunk.</p>	
94		<p>Reconnect the battery. Turn the ignition switch ON. Start the engine and check for leaks. Reinstall the access panel. For protection, wrap any exposed wire and secure all wires using the provided cable zip ties. Reinstall all OEM components in reverse order.</p> <p>NOTE: The kit may include extra hardware that is not required.</p> <p><b>20-074X-XX INSTALLATION COMPLETE</b></p>	















53	10mm Socket Wrench	<b>20-0703-03/05 FUEL HANGER PLUMBING KIT INSTALLATION</b>	
	Screwdriver	As described in the instructions above, disconnect the battery and depressurize the fuel system.	
		The filter is located near the front RH strut tower. Disconnect the inlet and outlet soft fuel lines. Have a rag nearby to catch fuel spills.	
		Slide the fuel filter out from the OEM mounting bracket and remove from the vehicle.	
54	10mm Socket Wrench	Unbolt the OEM fuel filter mounting bracket (shown) from the unibody and remove from the vehicle. Nothing will be reused.	
55	10mm Socket Wrench	Safely raise the vehicle.	
		Starting from the front, locate the retainer underneath the fuel filter. This holds the fuel feed and fuel return hard lines. Unscrew the M6x1mm hex bolt and pry the hard lines from the retainer.	
56	10mm Socket Wrench	Moving towards the rear, find the next retainer. On most vehicles, there is a stud that protrudes through the retainer and a nut secures it to the unibody, as shown. If this is the case, this retainer will be reused. However, the 2 fuel lines will still need to be removed from the holders and the other lines should remain attached.	
		NOTE: If the vehicle still uses the long OEM clutch damper hard line, lowering it out of the way can help the following process. Remove the 2 mounting bracket bolts then pull the lines from the unibody.	
57	Flat Blade	Following the hard lines towards the rear of the vehicle, unsnap the next 7 retainers.	
		The simple retainer type pictured secures the lines together. Many times it does not interface with the unibody. Note where these are specifically located for when the new replacements will be installed.	
		NOTE: there is another OEM retainer that looks identical to this one. However, it is pressed into the unibody. Simply pry to unclip it from the floor board.	
58	10mm Socket Wrench	The retainer type shown is secured with a M6x1.0mm bolt.	




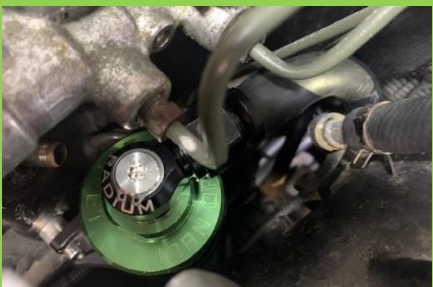

59	10mm Socket Wrench	The retainer type shown is secured with a M6x1.0mm bolt.	
60		Depending on the chassis, a couple of OEM retainers near the fuel tank will be reused. These are either too difficult to reach with the fuel tank installed or they are in a location not suitable for the large replacement fuel hoses to reside.	
61	Screwdriver	Disconnect and remove the OEM fuel feed and fuel return rubber hoses from the hard lines just in front of the gas tank.	
62	10mm Socket Wrench	Unbolt the last rear retainer. As shown, thread the OEM bolt back into the unibody to secure the adjacent bracket for the EVAP system.	
		After removing the feed and return hard lines entirely from the vehicle, be sure to reinstall the brake and EVAP hard lines into the OEM retainer holders that will be reused.	
63	5mm Allen Wrench	The Nissan (R32) Skyline requires the unique fuel filter position shown.  NOTES: 1. To get a collinear alignment between the OEM hard tube and filter inlet barb, use the long M6x1x25mm bolts and spacers. 2. The short M6x1x14mm Allen bolts will NOT be used. 3. When securing to the unibody, note the proper filter mount orientation with respect to the front and rear of the vehicle (as depicted).	<p>&lt;FRONT</p>  <p>REAR&gt;</p>
64		Depicted are the mounting spacers required for the R32 chassis only.	

65	Oil Lubrication	Lubricate the O-rings on the provided 10AN ORB to 8AN male fittings. Secure this straight adapter fitting (shown on bottom) to the fuel filter inlet port. Secure the swivel banjo fitting (shown on top) to the fuel filter green outlet port.	
	5mm Allen Wrench		
	1" Wrench		
	Adjustable Wrench		
66	4mm Allen Wrench	Insert the fuel filter into the lower mount so the green outlet is positioned at the top. Slide the filter within the mount for optimal fitment. Be sure to keep clear of the master cylinder.	
		Loosely tighten the filter using the upper clamp and the two M5x0.8mm Allen bolts.	
67	1" Wrench	Install the provided 8AN and 6AN adapter fittings to the fuel hat "PUMP" and "RETURN" ports, respectively.	
	3/4" Wrench		
68		For added hose clearance, the front end of the access hole will need to be slightly bent upwards.	
		Simply pull the sheet metal upwards with your hand as shown until the provided straight hose ends clear.	
69		The provided 1/2" (8AN) and 3/8" (6AN) hoses will be inserted from the trunk. Each hose will start from their respective fuel hat port fittings and run towards the front of the vehicle.	
		First, route the hoses on top of the gas tank towards the front of the vehicle.	
70		Be sure the vehicle is safely on a proper lift as the following steps would be difficult laying on the ground.	
		From underneath, pull the hoses downwards.	

71	Oil Lubrication	Once the end of the hoses at the rear get close to the fuel pump hat ports, install the provided 6AN and 8AN straight hose ends.	
		First, apply oil lubrication to the barbs. Then, fully insert each hose onto the respective hose ends. NOTE: PushLok hose ends do NOT require clamps.	
72	11/16" Wrench	Install the hose ends to their respective port fittings. Do NOT over tighten -AN fittings.  NOTE: Aluminum wrenches will prevent surface marring.	
	7/8" Wrench		
73	Cutters	Route the fuel hoses in the same manner as the OEM hard lines.  To secure the hoses away from the exhaust and moving parts of the suspension use one of the provided cable zip-ties.	
74	2.5mm Allen Wrench	Starting from the rear moving forward, install the retainer mounts that secure to the unibody first.  NOTE: 1. Some retainers just secure the lines together. Those can be installed last. 2. Shown is the first replacement retainer that will be used moving forward.	
	5mm Allen Wrench		
75		Find the one black retainer in the kit that has a machined slot as depicted.	
76		Find the rubber push-in plug in the kit shown.	

77	Drill	Find the hole in the unibody where the one OEM retainer pressed into the floor board. Without fully inserting, test to see if the rubber plug will fit snug in the hole.	
		If too tight, this hole might need to be slightly enlarged. WARNING: Do not use a drill larger than 21/64" (or 8.25mm).	
78		Lineup the slotted retainer to the hole as shown.	
79		Press the rubber plug into the hole, as shown.	
80	4mm Allen Wrench	There is one 2-way retainer that uses a M6x1mm countersink bolt. This will be installed closest to the front of the vehicle (under the fuel filter).	
81	2.5mm Allen Wrench Cutter	Find the locations where the OEM retainers did not secure to the unibody. Secure the lines with a retainer in these areas.  Lastly, to prevent the hoses from sagging near the front, use one of the provided cable zip-ties.	
82	10mm Socket Wrench	If the OEM clutch damper hard line (shown) was dropped down, the mount can now be reinstalled and secured.	

83		If still installed in the vehicle, the HICAS line retainer kit could be purchased (sold separately). See install picture.	
		RADIUM 20-0627 HICAS LINE RETAINER KIT, NISSAN	
84	Hose Cutter	Temporarily install the provided 45 degree PushLok hose end to the fuel filter inlet fitting. Mock up the 1/2" feed hose to the hose end barbs and cut to length.  For added space and ease of installation, it might be easier to temporarily remove the fuel filter from the mount.  Install and fully seat the PushLok hose end into the 1/2" feed hose. Use a liberal amount of lubrication. NOTE: PushLok hose ends do NOT require clamps.	
	Oil Lubrication		
85	7/8" Wrench	Install the hose end to the fuel filter inlet port. Reinsert the fuel filter into the mount and loosely install the billet filter clamp.	
	4mm Allen Wrench		
86	4mm Allen Wrench	Slide the filter into position for best fitment and secure.	
87	7/8" Wrench	This kit is designed for aftermarket fuel rails. If connecting to the OEM fuel rail (as shown), extra RADIUM parts will be required.  (1x) 14-0413 8AN FEMALE TO 8.5MM BARB (2x) 18-0032 EFI HOSE CLAMP (1ft) 5/16" PCV/FUEL HOSE, 5AN <i>Purchase from <a href="http://www.radiumauto.com">www.radiumauto.com</a> only</i>	
	Phillips Screwdriver		
88	Oil Lubrication	Terminating the fuel feed hose to an aftermarket fuel rail will be dependent on the vehicle application. An 8AN male fitting (not included) is required to be fitted to the fuel rail.  Lubricate, then fully insert the provided 90 degree 8AN hose end into the remaining section of 1/2" hose. NOTE: PuskLok hose ends do NOT require clamps.	

89	7/8" Wrench	As shown, install the PushLok hose end to the 8AN male fitting on the fuel rail.		
90	Hose Cutter	Route the hose to the 8AN male fuel filter outlet fitting. Lineup the straight PushLok hose end and cut the hose to length.		
91	Oil Lubrication	Lubricate, then fully insert the provided straight 8AN hose end into the remaining section of 1/2" hose. NOTE: PusKlok hose ends do NOT require clamps.		
92	7/8" Wrench	As shown, secure the straight PushLok hose end to the fuel filter outlet fitting.		
93	Hose Cutter	Terminating the return hose to the FPR (fuel pressure regulator) will be dependent on the vehicle application.		
	11/16" Wrench			NOTES: 1. For aftermarket FPRs, an extra 6AN 90 degree PushLok hose end is included. 2. For OEM Nissan FPRs, an extra EFI clamp (shown) is provided. Be sure to cinch the clamp until it bottoms out.
	9/32" Nut Driver			
94	10mm Socket Wrench	Reconnect the battery. Switch the ignition to the ON position to pressurize the fuel system. 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.  Carefully reinstall the fuel pump access panel. Reinstall all OEM components in reverse order. <b>INSTALLATION COMPLETE</b>	