



INSTALLATION INSTRUCTIONS





FUEL PUMP HANGER





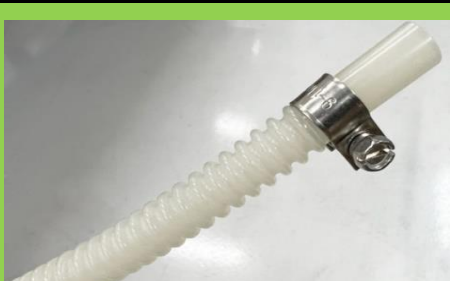
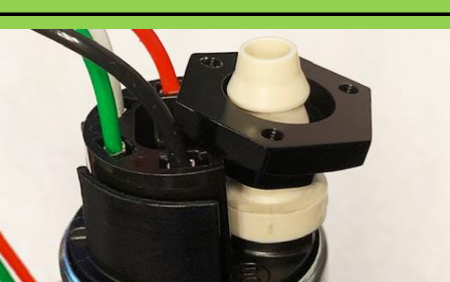
14-19 CORVETTE


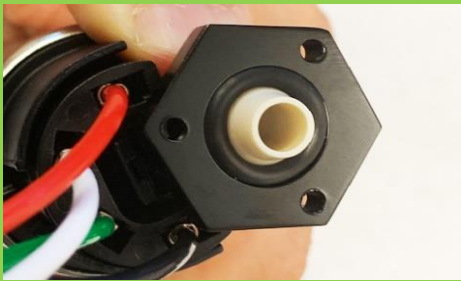




Document: 19-0352




Support: info@radiumauto.com


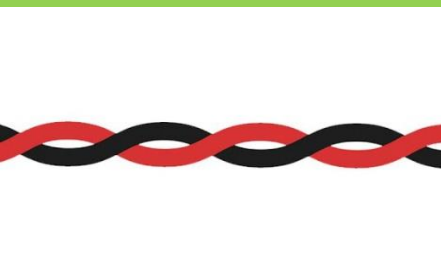




COLOR LEGEND FOR EACH STEP	CAUTION
20-1010 FUEL HANGER ONLY Follow YELLOW areas	Only a qualified technician following applicable safety procedures should perform the installation of this product. One must have knowledge in repair and modification of fuel systems and general vehicle modifications to install 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.
20-0937 DUAL PUMP ADD-ON ONLY Follow ORANGE areas	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.
20-1010 FUEL HANGER and 20-0937 ADD-ON Follow GREEN areas	WARNING
20-1011-(03/05) HANGER PLUMBING KITS Follow BLUE areas	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	19mm Wrench	If installing a fuel pump with a small outlet barb (Walbro GSS342, AEM 50-1200, etc.), the 8.5mm barb adapter (shown right) will need to be installed. First, uninstall the preassembled 10mm barb adapter (shown left).	
2	Oil Lubrication	If installing a fuel pump with a large outlet barb (Walbro F90000267 / F90000274 / F90000285, Ti Automotive E5LM, etc.), the preinstalled 10mm barb adapter fitting is correct and nothing needs to be changed.	
	19mm Wrench		
3	3/8" Socket Wrench	If installing a Ti Automotive E5LM brushless pump, remove the preinstalled harness. If installing a Walbro GSS342, AEM 50-1200, etc. pump, replace the preinstalled pump 1 harness with the other in the kit. Pictured are both variations of the pump 1 wire harness.	
	3/8" Wrench		
4	3/8" Socket Wrench	P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY Install the appropriate fuel pump harness provided in the kit. NOTES: 1. If installing a Walbro GSS342, AEM 50-1200, etc. there are 2 different length harnesses for pump 1 and 2. Use the short harness for pump 2. Later, the extension harness will be used. 2. Connect the red wire to the pump 2 "+" stud. 3. Connect the black wire to the pump 2 "-" stud. 4. If installing a Ti Automotive brushless fuel pump, skip this step.	
	3/8" Wrench		







5	1/4" Allen Wrench	<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
		To add a second fuel pump, first remove the plug shown.	
6	Oil Lubrication	<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
	16mm Wrench	Install the 3/8" SAE quick connect male fitting, as shown.	
7		The convoluted tube (shown) is the "FUEL RETURN" line. In a later step, it will be connected to the bottom fuel hat port.	
		NOTES:	
		1. For single pump applications, it will be fixed to the pump 1 assembly and inserted into the fuel pump 1 collector box.	
		2. For dual pump applications, it will be fixed to the pump 2 assembly and inserted into the fuel pump 2 collector box. But it will be plugged in during fuel tank installation.	
8		There are 2 "loose" convoluted tubes included with 20-1010. -1 convoluted tube is for a large outlet fuel pump. -1 convoluted tube is for a small outlet fuel pump.	
		There are 2 "loose" convoluted tubes included with 20-0937. -1 convoluted tube is for a large outlet fuel pump. -1 convoluted tube is for a small outlet fuel pump.	
9		Prior to installing the convoluted tubing to the fuel pump outlet barb, loosely place an EFI clamp onto the end.	
		NOTES:	
		-For small tubing use one of the small provided EFI clamps.	
		-For large tubing use one of the large provided EFI clamps.	
10		<u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u>	
		<i>The Ti Automotive E5LM 4-pin wiring connector MUST be installed to the fuel pump terminals first.</i>	
		Inspect the fuel pump outlet hose barb. If deformed or damaged, the Radium check valve pump adapter will NOT attach properly. To install the check valve, first slide the black collar over the pump outlet with the flat surface upward, as shown.	

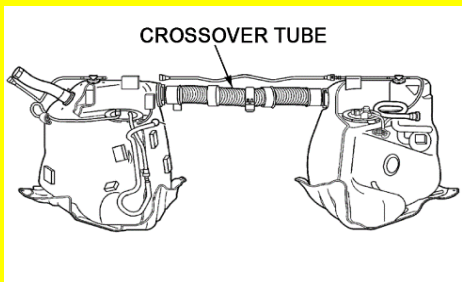



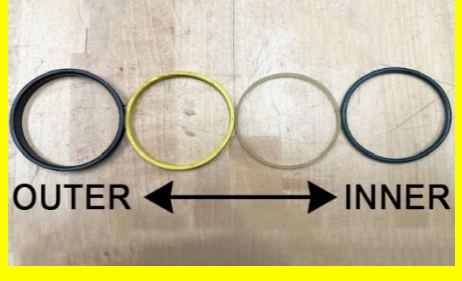

11		<u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u>	
		Next, slip the stainless steel retainers under the hose barb ridge closest to the end of the pump outlet opening. Be patient as this will take a little bit of work.	
		Pull the collar up to confirm the retainers lock into place as depicted.	
12	Oil Lubrication	<u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u>	
		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.	
13		<u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u>	
		As shown, place the O-ring onto the check valve plunger groove. Next, place the provided spring around the plunger rod.	
14		<u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u>	
		Insert the plunger rod through the internal center hole of the green adapter fitting, as shown.	
15	2.5mm Allen Wrench	<u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u>	
	Thread Locker		
	Oil Lubrication	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.	
	1" Wrench		
		After tightening all bolts evenly, inspect the internal side of the barb fitting. When installed properly, the plunger should be slightly sticking out of the center hole at rest.	
16	Oil Lubrication	Lubricate the fuel pump barbs and the inside of the convoluted tubing.	
	Heat Gun		
	Screwdriver	Quickly and carefully apply heat to the end of the tubing and insert over the end of the fuel pump outlet. Do NOT overheat the tubing. Tighten the clamp, as shown.	







17		Find the provided fuel pump clamps and the M4x0.7mm socket head screws. NOTE: All clamp halves are identical.	
		For single pump applications, use 2 of the clamp halves and 4 of the socket head screws.	
		For dual pump applications, use all 4 clamp halves and 8 of the socket head screws.	
18	3mm Allen Wrench	When securing the clamps to the fuel pump(s), note that there is a specific orientation and distance requirement, as shown.	
		NOTES:	
		1. For orientation, this can be 180 degrees out and still correct.	
		2. This distance is measured from the bottom face of the clamp to where the sock filter bottoms out on the fuel pump.	
		3. If installing a E5LM pump, place the small O-ring(s) around the body of the pump first. These pumps are 1.5" outer diameter (compared to 39mm). These O-rings will make up for the gap.	
19		Install the sock filter(s) onto the fuel pump inlet(s).	
		NOTE: Walbro GSS342 fuel pumps shown.	
20	2.5mm Allen Wrench	Insert the pump assembly down into the collector box. There are 2 holes on each side (4 total) of the collector box. Only the "outer" 2 holes will be used in this step. For an installed reference, pump 1 will be located on the LH side and pump 2 (if applicable) will be installed on the RH side of the OEM fuel tank (when installed).	
		Shown is the pump 1 collector box. For orientation, note where the pump outlet hose is in the picture (shown red). Same applies for the pump 2 collector box. Do NOT torque these screws yet.	
21		NOTE: Do not install the M4x0.7mm button head screws (yet) on the collector boxes' opposing side (not shown).	
22	3mm Allen Wrench	<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
	8mm Wrench		




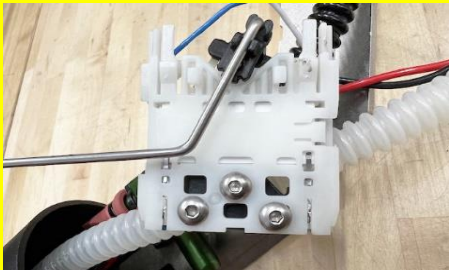


23	Wire Stripper	TI AUTOMOTIVE ESLM FUEL PUMP ASSEMBLY ONLY -Flying lead pump harnesses (not included) are required. This is typically provided by the pump manufacturer.	
	Wire Crimper	-Install the included ring terminals and heat shrink as shown.	
	Heat Gun	-When securing to the terminals, reference the fuel hat labeling.	
	3/8" Socket Wrench	Green Wire = "BRUSHLESS-G"	
	3/8" Wrench	White Wire = "BRUSHLESS-W"	
		Red Wire = "BRUSHLESS-R"	
		Black Wire = "BRUSHLESS-B" (<-this is shared with pump 2)	
		NOTE: If installing a second TI Automotive brushless fuel pump, perform this step on the second pump.	
24		To permit additional flexibility, it is recommended to twist the fuel pump wires.	
		NOTE: Be careful to not add any excessive stress to the end of the wires. This could result in crimp failures.	
25	Heat Gun	P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY	
	Screwdriver	Install the properly sized barb SAE quick connect fitting to the pump 2 tubing. Secure using the appropriately sized EFI clamp.	
		For Walbro GSS342 and AEM 50-1200 style connections (ONLY), plug in the extension harness to pump 2 now, as shown.	
		NOTE: Be sure you are using the pump 2 collector box. This is determined by which side of the collector box has screws or not. The pump 2 collector box is shown.	
26	2.5mm Allen Wrench	P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY	
	Oil Lubricant	Use the identical C7 Corvette bracket included in 20-0937. The other Corvette bracket in the kit will NOT be used. Insert it into the pump 2 collector box. Lineup the 2 collector box holes with the bracket and pump mount threads. Secure all 4 screws.	
		As shown, place the preassembled "FUEL RETURN" tubing all the way to the green pump mounts in the pump 2 collector box. Secure the tubing with the provided cable zip-ties. Next, prelubricate the internal O-rings in both the SAE quick connectors.	
27	2.5mm Allen Wrench	Insert the pump 1 stainless steel bracket into the pump 1 collector box. Lineup the 2 collector box holes with the stainless steel bracket and fuel pump mount threads. Secure all 4 screws.	
28		Plug in pump 1. NOTE: This connection will differ depending on the fuel pump type installed (Walbro GSS342 shown).	





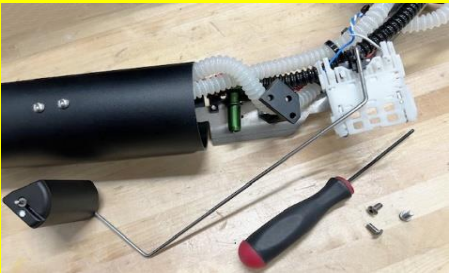

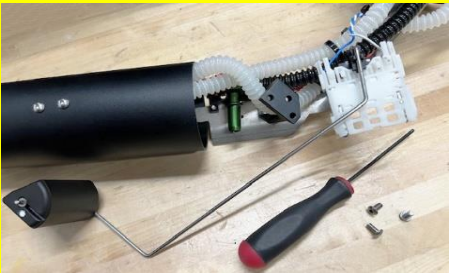



29	Heat gun	<p>Route the convoluted pump 1 tube through the black fuel level bracket (not pictured here).</p> <p>Lubricate the barbed fitting under the fuel hat for pump 1 and the inside of the convoluted tubing. Quickly and carefully apply heat to the end of the tubing and insert over the end of the barb. Do NOT overheat the tubing.</p> <p>Tighten the EFI clamp.</p>	
	Oil Lubrication		
	Screwdriver		
30		<p>Before starting work on the vehicle, it is best to run the engine out of fuel. If not possible, there are a few more difficult options below.</p> <p>1. Connect a line to the fuel hose in the engine bay (shown) to a fuel jug. Because the direct injected LT engines require pressure for pump priming, a TEE'd line has to be ran to the fuel rail as well.</p> <p>2. After removing the LH rear wheel liner, a tube can be shoved down the filler hose. Either pressurizing the fuel tank with air or plumbing an electric lift pump to siphon fuel into a jug.</p>	
31		<p>To depressurize the fuel system, first access the fuse box underneath the carpet in the trunk. Remove fuse 30 (fuel pump module).</p>	
32		<p>Next, locate the fuse box in the engine bay. Remove fuse 31 (fuel pump power module).</p> <p>Start the vehicle and allow the engine to stall.</p>	
33	10mm Socket	<p>After the fuel system has been drained and depressurized, disconnect the battery.</p> <p>Reinstall the 2 fuses.</p>	
34		<p>Loosen the lug nuts on the LH rear wheel.</p> <p>Install the OEM jacking pucks and safely lift the vehicle.</p> <p>Remove the LH rear wheel.</p>	



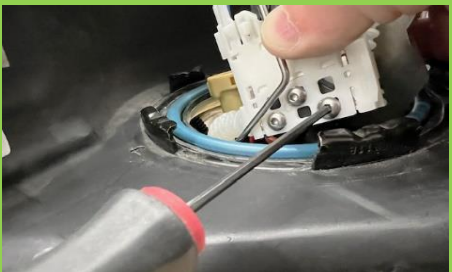
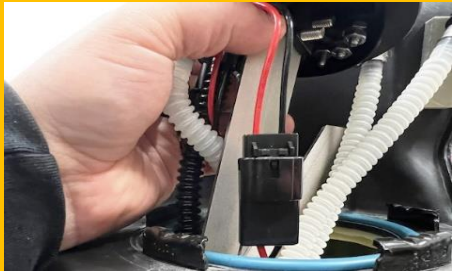


35	7mm Socket	Remove the LH brake duct then the LH wheel liner.	
	T15 Torx		
	10mm Socket		
36		From inside the LH rear wheel well, dislodge the electrical connector. Next, squeeze the thumb locking tab to unplug the connection, as shown.	
37	13mm Socket	<p>Loosen the fuel filler hose's upper mounting bolt and remove the lower bolt.</p> <p>Pull the filler neck down and outward.</p> <p>Loosen the hose clamp and pull off the rubber fill hose.</p> <p>Squeeze and pull to release the SAE quick connect vent fitting.</p>	
	8mm Socket		
38	13mm Socket	Remove the large center plate (shown) under the torque tube and exhaust system.	
	18mm Socket		
	15mm Socket		
39	18mm Socket	Remove the rear LH cross brace shown.	
40	13mm Socket	Remove the corresponding exhaust mid pipes.	
	14mm Socket		
	15mm Socket		

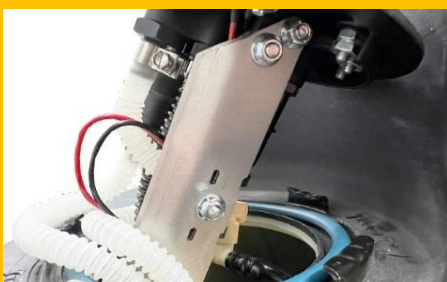




41		Reach up and find the crossover tube at the top between the fuel tanks. It is comprised of convoluted stainless steel outer tubing and internally houses 2 smaller O-ring sealed tubes. There are spring clamps that secure the crossover tube to each fuel tank. Only the LH side of the crossover tube will need to be disconnected.	
		NOTE: This next step can be time consuming and difficult.	
42	13mm Socket	Loosen the 5 bolts from the metal LH fuel tank shield (shown).	
		Squeeze the LH crossover tube spring clamp and push it all the way towards the left (up against the tank). Pull the tube away from the tank to release the crossover. NOTE: Unlike previous Corvette tanks, this crossover tube does not need to be twisted.	
		Fully remove the metal LH fuel tank mounting shield bolts. Be prepared as the tank will now want to drop down.	
43	Rag	When the fuel tank is lowered just enough to reach on top of the fuel hat, squeeze the SAE quick connect fuel feed line connector (shown) and pull to release.	
		NOTE: Be prepared as fuel will likely spill from this connection.	
44		Carefully drop the LH fuel tank and set it on the ground.	
		To unplug the electrical connector from the fuel hat, press the locking thumb tab and simultaneously pull to release. Set this sub harness aside. It will be modified in a later step.	
45		When the LH tank was removed, there is a chance that some of the internal sealing parts could have come dislodged.	
		To properly reseal these parts, there is a specific sequence when installing. Start from the inner (right) gasket and move to the outer (left) gasket. NOTE: Make sure the outer piece fully snaps in place.	
46		The proper installation of the 4 parts is shown.	







47	Hammer	<p>Now is a good time to clean the top of the fuel hat and the surrounding area. This will prevent debris from accidentally falling inside the tank.</p> <p>Carefully strike the lock ring with a blunt object in a counterclockwise direction to dislodge.</p>	
	Blunt Object		
48		<p>The OEM fuel tank lock ring will be reused.</p>	
49		<p>Carefully pull the OEM fuel pump unit up just enough to expose the white vent line connection.</p> <p>Squeeze and pull the SAE quick connect lock to release. Push this connector down into the tank prior to the following step.</p>	
50		<p>Carefully pull the OEM fuel pump unit high enough to expose the black crossover line.</p> <p>Squeeze and pull the SAE quick connect lock to release.</p>	
51		<p>Once the fuel level float is exposed, carefully rotate the assembly to free it from the fuel tank.</p> <p>Properly dispose the fuel inside the OEM pump canister. After it is clean, set the assembly onto a work bench.</p> <p>Inspect the OEM fuel tank O-ring gasket seal and replace if necessary. GM P/N: 15776433.</p>	
52		<p>NOTE: The fuel level sensor is the only part that will be reused from the OEM pump assembly.</p> <p>Depress the locking thumb tab and pull to release the fuel level sensor electrical connector from the OEM top hat.</p>	






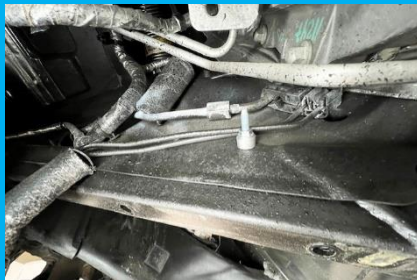
53		Carefully press in the 2 tall locking tabs and simultaneously lift the sensor upwards to release.	
54	Cutter	When cutting the 2 fuel level sensor wires, leave the maximum amount of wire for the sensor. The longer these wires are, the easier the following steps will be. However, it is not a bad idea to leave just enough wire if ever needing to reuse this OEM connector.	
55	Wire Strippers	To permit additional flexibility, twist the wires. NOTE: Be careful not to add any excessive stress to the end of the wires. This could result in a solder failure.	
	Wire Crimpers		
	Heat Gun		
56	2.5mm Allen Wrench	Find 3 of the provided M4x0.7mm stainless steel button head screws in the kit.	
		Temporarily install the OEM fuel level sensor to the black mounting bracket, as shown.	
57	3/8" Socket Wrench	Install the fuel level sensor wires underneath the fuel hat electrical studs. Secure using the provided locking nuts.	
	3/8" Wrench		
58	Oil Lubrication	Lubricate the internal "FUEL RETURN" SAE quick connect O-rings. For single pump applications (only), install female SAE quick connect to the male "FUEL RETURN" fitting now.	
		NOTES:	
		1. For single pump applications, both the green venturi jet pump and the "FUEL RETURN" tube will feed the pump 1 collector box.	
		2. For dual pump applications, the return fuel from the green venturi jet pump will feed the pump 1 collector box. The "FUEL RETURN" tube will feed the pump 2 collector box.	

59		Using the zip ties, secure the fuel sensor wires, pump 1 wires, pump 1 tubing, and return tube (single pump applications only) to the pump 1 bracket. Be sure the fuel level float will maintain full travel without obstruction.	
60		For single pump applications only Cut the return tubing (shown) for best fitment. Insert the return tube into the pump 1 canister.	
61		Confirm one last time that the fuel level float will maintain full travel without obstruction.	
62	Cutter	Carefully pull the internal white vent tube and black crossover tube outside of the OEM fuel tank.	
63	2.5mm Allen Wrench	Cut and discard the cable zip-tie that secures these 2 OEM convoluted tubes together.	
64		NOTE: Without cutting this cable zip-tie, the following steps would be nearly impossible.	
63		When installing the fuel hanger into the tank, the fuel level sensor must be secured to the assembly while partially inside the tank.	
64		Unscrew the 3 fuel level sensor screws from the mount. As shown, temporarily allow the sensor to hang. During this time be sure to avoid too much stress on these wires.	
64		Set the OEM fuel tank gasket seal in place.	
64		As shown, pull the black internal crossover SAE quick connector out of the fuel tank. NOTE: The black internal crossover SAE quick connector is larger than the white internal vent SAE quick connector (used later).	

65		<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
		Insert the pump 2 assembly into the fuel tank first.	
		Make sure the pump 2 assembly is to the RH side of the OEM vent lines and the OEM crossover line. As shown, stand up the pump 2 assembly while not allowing anything to fall into the fuel tank.	
66		These next few steps are much easier with an assistant.	
		Insert the pump 1 assembly into the tank. This must be positioned to the left of: the pump 2 assembly (if equipped), OEM crossover line, and OEM vent lines. Hold it in place. As shown, do NOT insert the fuel level float in just yet.	
		Fully seat the black internal OEM SAE quick connect crossover to the venturi jet pump, exactly in the orientation shown.	
67	2.5mm Allen Wrench	Drop the pump 1 collector into the tank and hold it in place. Now insert the fuel level float and hold it in place.	
		Secure the fuel level sensor back to the pump 1 assembly mount. Be careful not to drop the 3 screws into the tank.	
68		<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
		Plug in the pump 2 electrical connector.	
		NOTES:	
		1. Your fuel pump connector may differ than what is shown.	
		2. For brushless pumps, secure the ring terminals to the appropriate studs (not pictured here).	
69		<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
		As shown, push the large fuel return connector into the SAE quick connect fitting until it "clicks" in place.	
70		<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
		As shown, push the pump 2 connector into the SAE quick connect fitting until it "clicks" in place.	



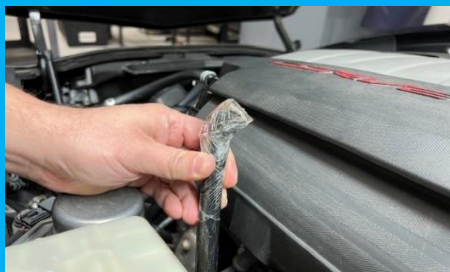



71	8mm Nut Driver	<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>																
		Lineup the 3 holes in the pump 2 bracket with the 3 studs found on the pump 1 bracket. Mate these brackets together and secure using the 3 provided M5x0.8mm flanged nuts.																
72		As shown, push the white OEM vent connector into the SAE quick connect fitting until it "clicks" in place.																
		Carefully lower the pump assembly down into the tank.																
73	Hammer	As shown, orient the fuel hat so the "[C7 ONLY]" guide lines are colinear with the fuel tank guide lines. NOTE: for dual pump applications, turn the fuel hat as far as possible in the clockwise direction. As shown, it might not line up exactly with the lines and that is OK. To reinstall the OEM fuel tank lock ring, spin it clockwise.																
	Blunt Object																	
74	Electrical Cutter	Cut the OEM sub harness at the fuel hat connector. Leave just enough wire in case this connector ever needs to be reused. Unravel the electrical tape to expose roughly 3-4 inch (76mm-100mm) of wire. As shown, strip 1/4" (6mm) of insulation off the wires.																
	Wire Stripper																	
75	Wire Crimpers	Slide a piece of small heat shrink over the 2 small wires. Crimp 2 small ring terminals to the wires. Slide the heat shrink over the crimped area. Heat the tubing until they fully shrink. Slide a piece of large heat shrink over the other wires. Crimp the large ring terminals to the wires. Slide the heat shrink over the crimped area. Heat the tubing until they fully shrink.																
	Heat Gun																	
76		Fuel hat wiring for the fuel level sensor and a standard (non-brushed) fuel pump using the factory wiring is shown.	<table><tr><th>OEM WIRE</th><th>GAUGE (AWG)</th><th>RADIUM ENGINEERING FUEL HAT ETCH LABEL</th></tr><tr><td>BLUE</td><td>SMALL</td><td>"LEVEL ~~~~" (either terminal)</td></tr><tr><td>BLACK</td><td>SMALL</td><td>"LEVEL ~~~~" (either terminal)</td></tr><tr><td>GREY</td><td>LARGE</td><td>"STANDARD PUMP 1 +"</td></tr><tr><td>YELLOW/BLACK</td><td>LARGE</td><td>"STANDARD PUMP 1 -"</td></tr></table>	OEM WIRE	GAUGE (AWG)	RADIUM ENGINEERING FUEL HAT ETCH LABEL	BLUE	SMALL	"LEVEL ~~~~" (either terminal)	BLACK	SMALL	"LEVEL ~~~~" (either terminal)	GREY	LARGE	"STANDARD PUMP 1 +"	YELLOW/BLACK	LARGE	"STANDARD PUMP 1 -"
	OEM WIRE			GAUGE (AWG)	RADIUM ENGINEERING FUEL HAT ETCH LABEL													
	BLUE			SMALL	"LEVEL ~~~~" (either terminal)													
	BLACK			SMALL	"LEVEL ~~~~" (either terminal)													
	GREY			LARGE	"STANDARD PUMP 1 +"													
	YELLOW/BLACK			LARGE	"STANDARD PUMP 1 -"													

77	8mm Wrench	Install the ring terminals to the corresponding fuel hat studs. Tighten all acorn nuts, but do not over torque.	
		NOTES:	
		1. There will be extra parts in the kit that will NOT be used.	
		2. Brushless pump wiring is very specific to the brushless controller used. Reference the manufacturer's manual for proper wiring.	
		3. If 2 brushless pumps are used, they will share the "BRUSHLESS B" terminal for their ground.	
78		<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
		Electrical is NOT provided for pump 2. A relay and fuse must be used to drive pump 2. Radium Engineering P/N: 17-0031 DIY FUEL PUMP WIRING KIT (shown) could be used. However, a modular sub harness is ideal to make installation easier in the Corvette.	
		NOTE: Brushless pump wiring is very specific to the brushless controller used. Reference the manufacturer's manual for proper wiring.	
79		<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
		To keep fuel temperatures down, it is recommended to stage the second pump. Triggering the relay will be up to the tuner. This can be accomplished in many ways. An ECU output or an adjustable pressure switch are common methods (Radium 20-0236 shown).	
80		To plug in EVAP, push the SAE quick connector down until it "clicks" in place.	
81	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	7/8" or 22mm Wrench	The OEM feed line will be repurposed as a return line. NOTE: The OEM feed line uses SAE quick connectors on both ends.	
		First, lubricate the O-ring, then install the provided SAE quick connect male fitting to the return port, as shown.	
82		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		On the OEM fuel line, find the fuel pressure sensor located adjacent to the fuel tank. Unplug the connector.	


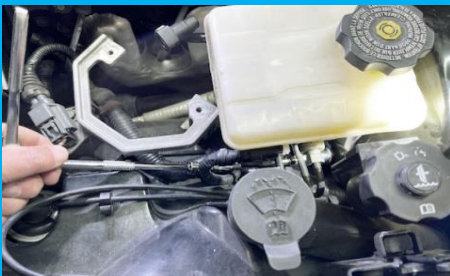
83	16mm Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	Rag	Unscrew the fuel pressure sensor. Be prepared as fuel will spill from this connection.	
84	17mm Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Be sure the O-ring on the OEM fuel line fitting is still in place and in good working order. Install the provided sealing cap, as shown.	
85		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		From inside the area where the fuel tank will be reinstalled, find the thru hole. Insert the long M6x1mm bolt (with encapsulated washer) inwards towards the center of the vehicle.	
86		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		While holding the bolt in place, insert the spacer on the opposing side.	
87	10mm Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	10mm Socket	Thread on one of the provided M6x1mm flange nuts and tighten.	
88		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		There will now be an M6x1mm "stud" spaced off the sheet metal, as shown.	




89	Scissors	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> Cut a 12" (305mm) section from the provided black thermal sleeve. Slide it over the short 8AN PTFE hose and install to the fuel feed outlet fitting, as shown.	
	7/8" Wrench		
90	13mm Socket	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> The fuel tank requires at least 2 people when reinstalling. It is important to position all of the loose ends. This will prevent accidentally pinching components. As the fuel tank is raised into position, begin to plug in all of the components. Secure the metal mounting shield. Reconnect the large crossover tube. Reattach and secure the fuel filler hose. Plug in the OEM fuel pump connector. Install all other components in reverse order.	
	7mm Socket		
91	8mm Socket	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> Find the large billet filter mount, the fuel filter bracket, three M5x0.8mm nuts and three M5x0.8mm socket head bolts. Secure the large billet filter mount to the filter bracket, as shown. Be sure not install the mount on the opposite side of the bracket.	
	4mm Allen Wrench		
92	13mm Socket	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> Temporarily remove 2 of the lower fuel tank mounting shield bolts (shown yellow). Insert the fuel filter bracket in place. As shown, secure the fuel filter bracket using 1 of the provided M6x1mm flange nuts (shown red) and the 2 OEM screws (shown yellow).	
	10mm Socket		
93	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> Find the fuel filter and the two 10AN ORB to 8AN male fittings in the kit. Lubricate the O-rings on the 10AN ORB to 8AN male fittings. As shown, secure the fittings to the fuel filter ports.	
	Adjustable Wrench		
	1" Wrench		
94	PTFE Paste	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> Find the 8AN male to 8AN female fitting with the 1/8" NPT sensor port and the male to male sensor adapter fitting. Apply PTFE paste to the tapered male threads. Hand tighten the sensor adapter to the sensor port. Now add an additional 1.5 to 3 turns.	
	13mm Socket		

95	16mm Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> Install the provided O-ring to the sensor adapter and secure the OEM fuel pressure sensor, as shown. Not shown here, but secure this sensor assembly to the black fuel filter inlet fitting.	
	7/8" Wrench		
	Adjustable Wrench		
96	8mm Socket	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> Before installing the fuel filter assembly and routing the long fuel feed hose, be sure the large center plate under the torque tube and the mid pipes (shown) are removed.	
	13mm Socket		
97	7/8" Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> Lift the fuel filter assembly under vehicle to the RH side of the LH fuel tank. NOTE: When installed, the silver outlet will point forward. Secure the 8AN PTFE hose (from the fuel hanger outlet) to the sensor adapter. Plug in the OEM sensor connector.	
	Adjustable Wrench		
98	4mm Allen Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> Rotate the filter so the sensor is at the highest point then place it into the mount. To prevent exhaust interference, position the filter all the way back within the mount. Secure the filter clamp using the provided M5x0.8mm socket head screws and a medium-strength thread locker.	
	Thread Locker		
99	Scissors	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> Cut a 3" and a 7" section from the thermal insulating sleeve. These will be used in later steps. Now, cut the remaining thermal sleeve in half. Slide each of these remaining sections over the ends of the long 8AN PTFE hose, as shown.	
100		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u> As shown, route this long 8AN PTFE hose along the LH side of the torque tube above the heat shielding.	



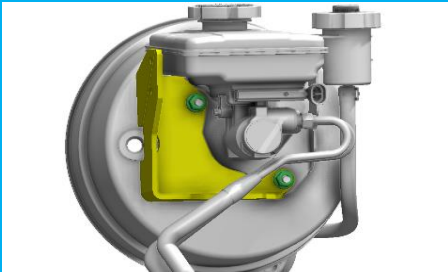



101	Small Pry Bar	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	7mm Socket	If needed, the heat shield insulation can easily be removed. Generally this is not required.	
102		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		To keep this fuel line (yellow) as far away from the steering shaft (red), run it against the frame rail, as shown.	
103		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Insert the 8AN PTFE hose up next to the LH side of the engine.	
104	10mm Socket	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Remove the 2 isolation screws (shown) that mount the OEM vacuum pump.	
105		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Disconnect the SAE quick connector from the vacuum pump. Unplug the brake booster sensor connector. Next, gently pull the sensor from the brake booster grommet.	
106	Cutter	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		The next few steps will permit the space needed for the regulator. First, cut the vacuum tubing (shown red) and remove the assembly from the engine. Discard the remainder from the check valve. NOTE: To move the vacuum tubing out of the way, the brake booster sensor hose barb will be rotated 180 degrees. This will effectively move the vacuum tubing assembly from above the brake booster to below the brake booster.	







107	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Find the 200mm long black tubing. There is an extra piece in case the first one gets destroyed during installation.	
		As shown, lubricate the TEE barbs (from the sensor) and the inner area of the 200mm tubing.	
108	Heat Gun	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Carefully heat the end just enough to soften the tubing. CAUTION: Do not melt the tubing.	
		Quickly use a tremendous amount of force to fully seat the tubing onto the barb.	
109	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	Heat Gun		
		Find the 81.5mm long black tubing. There is an extra piece in case the first one gets destroyed during installation.	
		As shown, lubricate the check valve (shown) barbs and the tubing. Carefully heat the end just enough to soften the tubing. Quickly use a tremendous amount of force to fully seat the tubing onto the barb.	
110		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Find the 3" long cut piece of the thermal insulation from the earlier step. As shown, slide it over the tubing.	
111	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	Heat Gun		
		Lubricate the end of the 81.5mm tube and the other TEE barb (from the sensor). Carefully heat the end just enough to soften the tubing. Quickly use a tremendous amount of force to fully seat the tubing onto the TEE barb.	
		Find the 7" long cut piece of the thermal insulation from the earlier step. As shown, slide it over the tubing.	
112	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	Heat Gun		
		Lubricate the check valve barbs and the inner area of the 200mm tubing. Carefully heat the end just enough to soften the tubing. CAUTION: Do not melt the tubing.	
		Quickly use a tremendous amount of force to fully seat the tubing onto the check valve barb.	







113	13mm Socket	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	Extension	Remove the inner OEM nut that secures the brake master cylinder to the brake booster.	
114	13mm Socket	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	Wobbly	Remove the outer OEM nut that secure the brake master cylinder to the brake booster.	
	Extension		
115		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Do not loose these OEM M8x1.25mm flange nuts as they will be reused.	
116	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	1/4" Allen Wrench	Prior to installing the 6AN ORB plug to the low pressure port shown, lubricate the O-ring.	
	7/8" Wrench		
	Vice	Prior to installing the 8AN ORB to 8AN male fitting to the high pressure port shown, lubricate the O-ring.	
117	PTFE Thread Paste	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Apply plumber's paste to the tapered 1/8" NPT threads on the fuel pressure gauge and the 1/8" NPT threads on the street elbow, as shown.	
118	11mm Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	Adjustable Wrench	Install the gauge to the 1/8" NPT street elbow. Install the street elbow to the 6AN ORB to 1/8" NPT adapter fitting.	
	Oil Lubrication		
	3/4" Wrench	Lubricate the O-ring and install the 6AN ORB to 1/8" NPT adapter fitting to the high pressure port shown. Rotate the 1/8" NPT until the gauge points in the direction shown.	

119	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	3/4" Wrench	Prior to installing the 6AN male fitting to the high pressure port shown, lubricate the O-ring.	
120	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	4mm Allen Wrench	Prior to installing the SAE quick connect fitting to the low pressure port shown, lubricate the O-ring.	
121	Threadlocker	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	1/8" Allen Wrench	To mimic the factory "constant" fuel pressure, screw the plug (shown) into the vacuum port.	
122	7/8" Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Install the long 8AN PTFE hose end to the 8AN fitting on the fuel pressure regulator.	
123		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Pry to remove the SAE quick connect lock from the OEM braided fuel feed hose.	
124	Rag	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Pull the supplied removal tool into the OEM SAE quick disconnect connection to dislodge, as shown. Catch and dispose of any spilled fuel from this area.	

NOTE: this OEM hard line will now be used for the return.

125	T30 Torx	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		To remove the LH engine cover, loosen the 2 screws and pull away from the engine.	
		NOTE: dry sump engine cover shown.	
126	Masking Tape	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Apply tape to the hex areas of the 2 supplied M6x1mm flange nuts and the 2 OEM brake master cylinder nuts.	
		NOTE: This will prevent the hex nuts from falling off the wrench and dropping into the engine bay in the following steps.	
127		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Place the mounting bracket (shown yellow) under the master cylinder and attach to the brake booster studs.	
		NOTES:	
		1. Loosely screw on the OEM nuts. Do NOT tighten!	
		2. For manual transmission vehicles, place the mount on top of the OEM clutch reservoir bracket.	
128	4mm Allen Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	10mm Wrench		
		Slide the 2 long M6x1mm button head bolts through the fuel pressure regulator and through the mounting bracket.	
		Tighten using the 2 provided M6x1mm flange nuts.	
129	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Lubricate the brake booster grommet. Push and fully seat the OEM sensor barb back into brake booster.	
130		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Push and fully seat the OEM feed hose onto the fuel pressure regulator SAE quick connect fitting, as shown.	
		NOTE: This is now the low pressure return hose.	

131		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		NOTE: The clearance between the Radium Engineering banjo fitting on the fuel pressure regulator and the OEM braided hose is very tight. If this connection needs to be removed, the provided plastic SAE tool can work. However, we strongly recommend purchasing a multi-piece style of SAE quick connect tool, such as Lisle 3500 (shown).	
132	T30 Torx	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Make sure the fuel pressure regulator mounting bracket nuts are still loose, then reinstall the LH engine cover.	
		NOTE: dry sump engine cover shown.	
133	13mm Socket	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	Extension	Now the 2 brake master cylinder nuts can be permanently secured to the brake booster.	
	Wobbly		
134		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		For mounting, reinstall the 2 OEM screws for the OEM vacuum pump. Reinstall the SAE quick connector to the OEM vacuum pump.	
135		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		WARNING: The vacuum tubing cannot touch the exhaust.	
		Using a cable zip tie, it is recommended to secure the vacuum tubing to the brake lines in the area depicted. This will effectively pull the vacuum tubing away from the LH exhaust header.	
136	Oil Lubrication	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	5/64" Allen Wrench	Find the included SAE quick connect to 6AN male fitting. Remove the small #5-40 screw and the green lock.	
		As shown, lubricate the internal O-rings.	

137	Vice	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	11/16" Wrench	Find the short 6AN PTFE hose and secure to the SAE quick connect adapter, as shown.	
138	5/64" Allen Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Slide this SAE quick connect adapter to the fitting on the engine. Using the small #5-40 screw, reinstall the green lock.	
139	11/16" Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Install the opposing side of the short 6AN PTFE hose to the high pressure port on the fuel pressure regulator.	
140	Grinder	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		If reinstalling the LH engine cover, a minor modification is required.	
141	Deburring Tool	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		The modification can be performed entirely from the underside of the engine cover. When done well, there will be no visible signs of a modification from the exterior.	
142	Adjustable Wrench	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
	7/8" Wrench	Secure the 8AN PTFE hose end to the fuel filter outlet, then position the thermal sleeves for best protection.	
	WARNING: While these feed hoses are wrapped in a protective stainless steel braid with a PCV cover and use high temp resistant PTFE, it is important to keep heat away. As shown, make sure the fuel filter is secured to the filter mount as far back as possible.		

143	Cutter	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		As shown, secure the PTFE hose away from the exhaust system using a cable zip tie.	
144	Cutter	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		As shown, secure the PTFE hose away from the exhaust system using a cable zip tie.	
145	10mm Socket	<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Reinstall the battery. Switch the ignition to the ON position to prime the fuel pump(s). Check for leaks.	
146		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		Because each engine may require a unique fuel pressure, the installer/tuner will need to do research in determining the desired fuel pressure for the specific vehicle.	
147		<u>P/N: 20-1011-03/05 FUEL HANGER PLUMBING KIT ONLY</u>	
		After all leaks are cleared, reinstall the LH engine cover. INSTALLATION COMPLETE	