



INSTALLATION INSTRUCTIONS

CORVETTE FUEL PUMP HANGER


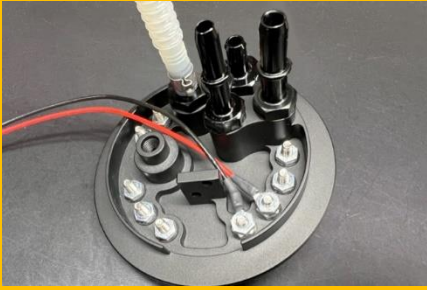




MID 2003-2013


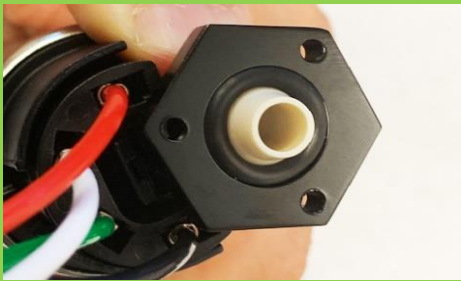




Document: 19-0312

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COLOR LEGEND FOR EACH STEP		CAUTION
20-0980 FUEL HANGER ONLY	Follow YELLOW areas	<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>Gasoline and other fuels are flammable and can be explosive.</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>
	20-0937 DUAL PUMP ADD-ON ONLY	
20-0980 FUEL HANGER and 20-0937 ADD-ON	Follow ORANGE areas	
	20-0981/20-0983 HANGER PLUMBING KIT	
20-0981/20-0983 HANGER PLUMBING KIT		WARNING
Follow BLUE areas		<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>







STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1	19mm Wrench	If installing a fuel pump with a small outlet barb (Walbro GSS342, AEM 50-1200, etc.), uninstall the adapter barb shown.	
2	Oil Lubrication	If installing a fuel pump with a small outlet barb (Walbro GSS342, AEM 50-1200, etc.), install the loose 8.5mm barb fitting (shown) provided in the kit.	
	19mm Wrench		
3	3/8" Socket Wrench	<p>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.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. Connect the red wire to the pump 1 "+" stud. 2. Connect the black wire to the pump 1 "-" stud. 4. Leave no wiring harness if installing a Ti Automotive E5LM. 	
	3/8" Wrench		
4	3/8" Socket Wrench	<p>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</p> <p>Install the appropriate fuel pump harness provided in the kit.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 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		


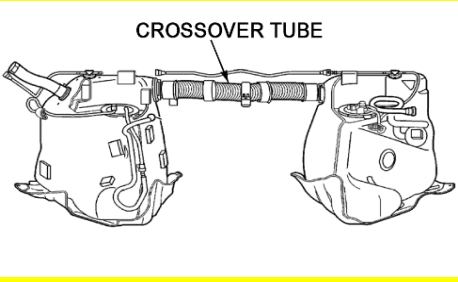




5	1/4" Allen Wrench	<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
		To add a second fuel pump, first remove the plug shown.	
6	Oil Lubrication	<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
	16mm Wrench	Install the 3/8" SAE quick connect male fitting, as shown.	
7		The preinstalled convoluted tube (shown) that is connected to the underside of the fuel hat is the "FUEL RETURN" line.	
		NOTE: This will be inserted into the fuel pump 1 collector box in a later step.	
8		There are 2 "loose" convoluted tubes included with 20-0980. -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		
	Flathead 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		Do not install the M4x0.7mm button head screws (yet) on the collector boxes' opposing side (not shown).	
22		When installing the pump 1 mount, orient the stainless steel bracket (as shown) with respect to the fuel hat.	






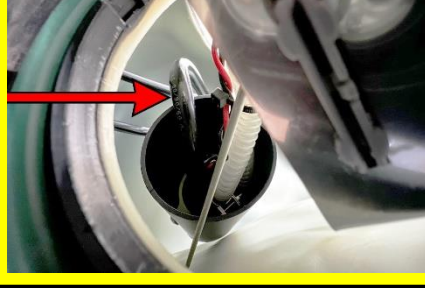
23	19mm Wrench	For best access, remove the "FUEL RETURN" fitting/tubing.	
	3mm Allen Wrench	Using the 2 provided M5x0.8mm button head screws, secure the stainless steel pump 1 bracket to the fuel hat as shown.	
		NOTES:	
		1. Do NOT mistakenly install the stainless steel bracket on the opposing side of the fuel hat mounting boss.	
		2. A ball-end Allen wrench is recommended.	
24	3mm Allen Wrench	<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
	8mm Wrench	Find the M5x0.8mm button head screw and 1 of the M5x0.8mm flange nuts. Secure to the hole found in the stainless steel pump 1 bracket.	
		As shown, there will be 3 "studs". This is necessary for securing the stainless steel pump 2 bracket (in a later step).	
25	Wire Stripper	<u>TI AUTOMOTIVE E5LM FUEL PUMP ASSEMBLY ONLY</u>	
	Wire Crimper	-Flying lead pump harnesses (not included) are required. This is typically provided by the pump manufacturer.	
	Heat Gun	-Install the included ring terminals and heat shrink as shown.	
	3/8" Socket Wrench	-When securing to the terminals, reference the fuel hat labeling.	
	3/8" Wrench	Green Wire = "BRUSHLESS-G" 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.	
26		To permit additional flexibility, 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.	
27	Heat Gun	<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
	Flathead Screwdriver	Install the properly barb sized SAE quick connect fitting to the fuel pump 2 tubing. Secure using the appropriately sized EFI clamp.	
		For Walbro GSS342, AEM 50-1200 style connections ONLY, plug in the extension harness (shown) to fuel pump 2 now.	
		NOTE: Be sure you are using the fuel pump 2 collector box. This is determined by which side of the collector box has screws or not. The fuel pump 2 collector box is shown.	
28	2.5mm Allen Wrench	<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
		NOTE: There are 2 different pump brackets included. One is for the C7 Corvette. The other is for the C6 Corvette (shown).	
		Insert the pump 2 stainless steel bracket into the pump 2 collector box. Lineup the 2 collector box holes with the stainless steel bracket and fuel pump mount threads. Secure all 4 screws.	






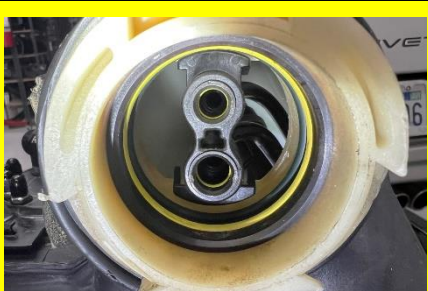
29	2.5mm Allen Wrench	Insert the pump 1 stainless steel bracket into the pump 1 collector box. Lineup the 2 collector box holes with the stainless steel bracket and fuel pump mount threads. Secure all 4 screws.	
30	Heat gun	<p>Plug in pump 1. NOTE: This connection will differ depending on the fuel pump type installed (Walbro GSS342 shown).</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. Tighten the clamp.</p>	
	Oil Lubrication		
	Flathead Screwdriver		
31	3mm Allen Wrench	Install the fuel level sensor bracket to the pump 1 stainless steel bracket.	
	7mm Wrench		
32		<p>Insert the "FUEL RETURN" tubing into the pump 1 collector box.</p> <p>NOTES:</p> <p>1. For single pump applications, both the crossover tube (inside the OEM fuel tank) and the "FUEL RETURN" tube will be feeding the pump 1 collector box.</p> <p>2. For dual pump applications, the "FUEL RETURN" tube will be feeding the pump 1 collector box and the crossover tube (inside the OEM fuel tank) will be feeding the pump 2 collector box.</p>	
33		The fuel will need to be drained from the vehicle. This can be done in many different ways. It is common to simply connect a line from the fuel system in the front of the vehicle to a fuel jug.	
34		<p>Jump a wire from the fuel pump relay to the battery.</p> <p>NOTE: The C5 fuse box (shown) is different than the C6.</p>	






41	Disconnect Tool	Find the SAE quick connect junction just above the LH fuel tank. Squeeze the lock and pull to release the fitting shown.	
		Follow the fuel feed line to the metal fitting junction point. To remove, push the included plastic disconnect tool in as far as it can go. It might be necessary to use pliers to insert it fully. While inserting the plastic tool, push the fuel hose further onto the fuel pipe. The hose will release from the pipe given enough effort and patience. Some fuel will drain out, be prepared.	
42	Screwdriver	Find the crossover tube in the top area between the fuel tanks. It is comprised of a convoluted stainless steel outer tubing and internally houses the auxiliary fuel feed pipe and the auxiliary fuel return pipe for the venturi jet pump. NOTE: The venturi jet pump siphons fuel from the RH tank to the LH tank.	
		First, use a flat head screwdriver to pop the black plastic lock collar away from the LH tank. Next, twist the metal collar counterclockwise to release the outer shell of the crossover tube from the LH tank.	
43		The depiction at the left is the inner workings of the crossover tube. There are 2 male tubes of different sizes. The depiction at the right is the inner workings of the LH (or RH) fuel tank. There are 2 female mating tubes for the crossover tube.	
		NOTE: This step is very difficult and time consuming. Even though the outer portion of the crossover tube is disengaged, these inner connections will still be attached. Carefully (and continuously) pull this junction apart until they fully disengage.	
44	13mm Socket	Remove the metal LH fuel tank mounting shield.	
45		Carefully drop the LH fuel tank.	
		Now is a good time to clean the top. This will prevent debris from accidentally falling inside the tank.	
46		Pull the fuel feed hose from the tank.	


47	Hammer	<p>To unplug the electrical connector from the fuel hat, press the thumb tab to unlock and simultaneously pull to release. Set this sub harness aside. It will be modified in a later step.</p> <p>Carefully strike the lock ring with a blunt object in a counterclockwise direction.</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 crossover feed line. NOTE: This sends fuel to the venturi jet pump.</p> <p>Squeeze and pull the SAE quick connect lock to release the fitting.</p>	
50		<p>Carefully pull the OEM fuel pump unit higher just enough to expose the crossover return line. NOTE: This receives fuel from the venturi jet pump.</p> <p>Flip up the loop connection to release the tube from the assembly.</p>	
51		<p>Carefully pull the OEM fuel pump unit straight up until the fuel level float is exposed. Carefully rotate the assembly to free the float from the fuel tank.</p> <p>Properly dispose the fuel inside the canister. Set the assembly onto a work bench.</p> <p>Inspect the OEM fuel tank O-ring gasket and replace if necessary. GM P/N: 21008100</p>	
52		<p>Dislodge and unplug all wires to get the fuel level sensor out.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. The fuel level sensor is the only part that will be reused from the OEM pump assembly. 2. There are 2 different types of fuel level sensors: <ol style="list-style-type: none"> a. 2003-2006: wires come out of the bottom of the sensor. b. 2007-2013: wires come out of the top of the sensor. 	







53	Electrical Pick	For fitment purposes, the maximum amount of wire will need to be salvaged. First, remove the TPA (Terminal Position Assurance) from the connector.	
54	Electrical Pick	Find the terminals for the fuel level sensor wires. Pry the internal locking tab and simultaneously pull each wire out of the connector.	
55	Cutter	Cut each terminal off leaving the maximum amount of wire.	
56	Wire Strippers	To permit additional flexibility, twist the wires. NOTE: Be careful to not add any excessive stress to the end of the wires. This could result in a solder failure.	
	Wire Crimpers		
	Heat Gun		
		Strip 1/4" (6mm) of insulation off the 2 wires. Slide a short piece of small heat shrink over each wire. Crimp 2 small ring terminals to the wires. Slide the heat shrink over the crimped area. Heat the tubing until they fully shrink.	
57		Temporarily install the sensor to the bracket. NOTE: Do NOT mistakenly install it to the outside of the bracket. The fuel level sensor should slide down the inner side of the bracket, as shown.	
		Route the wires up to the 2 fuel level sensor studs.	
		Using the provided cable zip ties, secure the fuel level sensor wires, pump 1 wires, and both tubes to the pump 1 bracket. Be sure the fuel level float will maintain full travel without obstruction.	
58	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		
		NOTE: there is no polarity with this "resistance" type sensor so it cannot be improperly wired. It is best to use the longest wire for the stud furthest away.	

59		Now slide the fuel level sensor off the bracket and let it hang.	
		NOTE: When installing into the tank, the fuel level sensor must be secured to the assembly while inside the tank.	
60	Oil Lubrication	P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY	
		The dual pump assembly will look as pictured.	
		NOTE: Now is the time to prelubricate the internal O-rings found in the SAE quick connector.	
61	Oil Lubrication	Clean the tank and install the fuel tank O-ring gasket. Pull the crossover feed and crossover return lines out of the tank.	
		NOTES:	
		1. As shown, safety wire can aid in preventing the lines from falling back into the tank.	
		2. Lubricate the internal O-rings found in the crossover feed line SAE quick connector.	
62		These next few steps are easier with an assistant.	
		Insert the fuel level sensor into the tank first and hold it in place. Now insert the pump 1 assembly.	
		NOTE: Both the fuel level sensor and pump assembly MUST BE positioned to the left side of both crossover lines.	
63	Cutter	Slide the fuel level sensor down the inner side of the bracket.	
		NOTE: Do NOT install it on the outer side of the bracket.	
		Find the small cable zip tie included in the kit. Insert the tail end through the small slot on the bracket just above the sensor. Cinch the cable zip tie tight. NOTE: This prevents the fuel level sensor from sliding off.	
64		For single pump applications ONLY, insert the black internal crossover return line into the pump 1 collector box.	
		NOTE: For dual pump applications, this internal crossover hose will be inserted into the pump 2 collector box.	

65		Find the black crossover feed line that was previously inside the tank. Push the fitting into the SAE quick male connector until a "click" is felt.	
66		<p><u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u></p> <p>Pull the pump 1 assembly up just enough out of the tank to fit the pump 2 assembly into the tank.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. The pump 2 assembly must be positioned to the right side of: fuel level sensor, pump 2 assembly, black crossover feed line. 2. The pump 2 assembly must be positioned to the left side of: black crossover return line. 	
67		<p><u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u></p> <p>Plug in the second pump electrical connector.</p> <p>NOTE: The Walbro GSS342 pump connector is shown. Other fuel pump connectors may differ in appearance.</p>	
68		<p><u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u></p> <p>Push the pump 2 SAE quick connector into the SAE quick male connector fitting until a "click" is felt.</p>	
69	8mm Nut Driver	<p><u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u></p> <p>Lineup the 3 holes in the pump 2 bracket with the 3 studs found on the pump 1 bracket.</p> <p>Mate these brackets and secure using the 3 provided M5x0.8mm flanged nuts.</p>	
70		Check to make sure the mating connector for the venturi jet pump feed and return lines are still positioned correctly inside the crossover tube.	

71		Carefully lower the pump assembly down into the tank. As shown, orient the fuel hat so the C5 C6 guide lines are colinear with the fuel tank guide lines.																
72	Hammer	Carefully strike the lock ring in a clockwise direction.																
		REGARDING THE CORVETTE ZR1 ONLY: <i>A fuel pressure sensor (on the feed line) and a boost signal is sent to the engine control module (ECM). The ECM commands the fuel pump control module (FPCM). The FPCM sends the appropriate output to the OEM brushless fuel pump to achieve the desired fuel pressure.</i> <i>Because of the fuel system complexity found in the Corvette ZR1, wiring and plumbing will NOT be detailed below. For Corvette ZR1 owners, consult your tuner for properly integrating this system into your vehicle.</i>																
73	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.																
		NOTE: If installing a brushless fuel pump, the large gauge (AWG) wires may or may not need to be cut. This depends on how the brushless fuel pump controller is wired. Discuss with your tuner.																
74	Wire Stripper	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.																
75	Wire Crimpers	Slide a short 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.																
	Heat Gun	Slide a short 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.																
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>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 +"	BLACK	LARGE	"STANDARD PUMP 1 -"
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	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	Oil Lubrication	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		To begin assembling the return hose, lubricate the barbs on the provided 90 degree PushLok hose end. As shown, fully seat the hose end into the provided 3/8" (6AN) hose.	
		NOTE: PushLok hose ends do NOT require hose clamps.	
81	Oil Lubrication	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Screwdriver	Slide the EFI clamp onto the other side of the return hose.	
		Lubricate the barbs and O-ring on the SAE quick connect fitting. As shown, fully seat the fitting.	
		Secure the fitting to the hose with the EFI clamp.	
82	11/16" Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Oil Lubrication	Secure the 6AN 90 degree hose end to the return port fitting on the fuel hat.	
		Prelubricate the internal O-rings found inside the SAE quick connect fitting.	

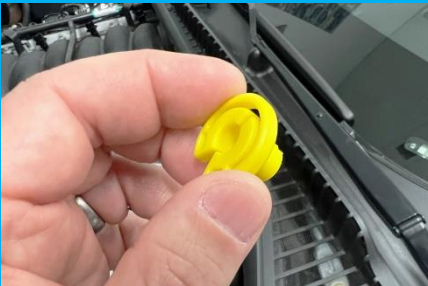




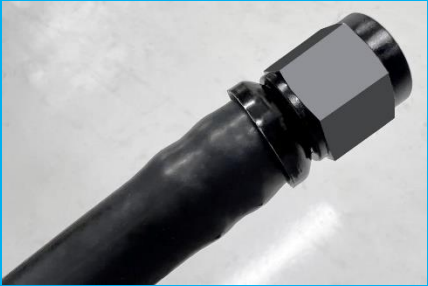
83	7/8" Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Find the 8AN PTFE hose provided in the kit. Secure the 90 degree hose end to the feed port fitting on the fuel hat.	
84		The fuel tank requires at least 2 people when reinstalling. It is important to position all of the loose ends. This will prevent accidentally pinching components.	
		PRO TIP: Using tape, attach a long string or wire to the OEM fuel pump connector, as shown.	
85		<u>P/N: 20-0937 DUAL ADD-ON INSTALLATION ONLY</u>	
		If a sub harness was made for the second pump, it is ideal to run the wires up the torque tube tunnel. Furthermore, it is recommended to send these wires through the hole in the sheet metal where the large crossover tube comes through, as shown.	
86	13mm Socket	As the fuel tank is raised, the fuel feed and fuel return hoses need to be positioned at the rear and pointing towards the exhaust and near the OEM fuel feed line, as shown.	
	7mm Socket		
		Secure the metal mounting shield. Reconnect the large crossover tube, both inner and outer SAE quick connect vent fittings. Reattach and secure the fuel filler hose. Plug in the OEM fuel pump connector.	
		Install all other components in reverse order.	
87		NOTES: 1. Radium Engineering P/N: 20-0574 is an optional product that permits the venturi jet pump to properly siphon fuel if fuel pressure is ever adjusted less than 50psi. 2. If installed, fuel pressure will bleed off when the engine is turned OFF. To prevent this phenomenon, consider purchasing 20-0534. For those installing the plumbing kit, see the following steps. 3. For more info and installation for 20-0574 FPR BYPASS, MID 2003-2013 CORVETTE go to the product page at radiumauto.com .	
88	Oil Lubrication	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Adjustable Wrench	The OEM fuel feed line will be repurposed as a return line.	
	1" Wrench		
		Point the new SAE quick connect "return" hose towards the OEM hard line. Fully press the fitting on until a "click" is felt.	






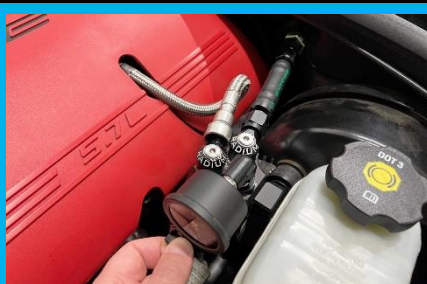
89	Oil Lubrication	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Adjustable Wrench	Lubricate the O-rings on the provided 10AN ORB to 8AN male fittings.	
	1" Wrench	As shown, secure the fittings to the fuel filter ports.	
90	Oil Lubrication	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	1" Wrench	Only follow this step if 20-0574 FPR BYPASS was installed.	
	7/8" Wrench	To maintain fuel pressure after the engine is turned OFF, purchase: (1X) 14-0152 8AN ORB TO 8AN ORB (1X) 20-0534 UNIVERSAL CHECK VALVE	
		Remove the O-ring found on one of the 10AN ORB to 8AN ORB fittings provided in the fuel hanger plumbing kit. As shown, install the O-ring to the 20-0534 check valve. Install 14-0152 and 20-0534 to the fuel filter inlet port.	
91	4mm Allen Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Thread Locker	When installed, the green outlet will be pointing towards the front of the vehicle. Place the fuel filter into the large billet clamp. As shown, position it all the way back (do not center the filter).	
		Secure the other half of the clamp using the provided M5x0.8mm socket head screws and a medium-strength thread locker.	
92	10mm Socket	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Temporarily remove the OEM M6x1mm nut from the fuel/brake line retaining carrier shown. This is located on the LH side of the tunnel just on the opposing side of the sheet metal from the fuel tank.	
93	10mm Socket	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Insert the fuel filter assembly in place. Not visible, but hand tighten the fuel filter assembly using the OEM M6x1mm nut. Do NOT tighten yet.	
94	Scissors	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Cut the provided black thermal sleeve in half.	
		As shown, slide one half of the thermal sleeve over the short PTFE hose that routes between the fuel pump hanger outlet and the fuel filter inlet. Slide the other half of the thermal sleeve over the long PTFE included in the kit.	

95	7/8" Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Adjustable Wrench	As shown, install the 8AN PTFE hose from the fuel hanger to the fuel filter inlet fitting.	
96	8mm Socket	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	13mm Socket	The long 8AN PTFE hose will be routed from the fuel filter outlet to the fuel pressure regulator in the engine bay.	
97	7/8" Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Adjustable Wrench	Install the straight hose end on the long 8AN PTFE hose to the fuel filter outlet fitting.	
98	10mm Socket	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Rotate the fuel filter mount for best fitment. When properly oriented, tighten the OEM M6x1mm nut.	
99	8mm Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Wrap the provided rubber cushioned p-clamps around the long hose. Using 2 of the OEM M6x1mm bolts, install the p-clamps to the LH side of the tunnel. Be sure to thread the bolts downwards. This will effectively make vertical studs.	
100		<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		The 2 rubber cushioned p-clamps will look as shown.	

101	Threadlocker	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	1/8" Allen Wrench	<p>To mimic the factory "constant" fuel pressure, screw the plug (shown) into the vacuum port. To get a 1:1 fuel pressure ratio install one of the other fittings provided to a vacuum source.</p> <p>Use a wicking thread lock, such as green Loctite.</p>	
102	Oil Lubrication	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	1/4" Allen Wrench	<p>Prior to installing the 6AN ORB plug to the low pressure port shown, lubricate the O-ring.</p> <p>Prior to installing the 8AN ORB to 8AN male fitting to the high pressure port shown, lubricate the O-ring.</p>	
	7/8" Wrench		
103	Oil Lubrication	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	3/4" Wrench	<p>Prior to installing the 6AN ORB to 1/8" NPT adapter to the high pressure port shown, lubricate the O-ring.</p>	
104	PTFE Thread Paste	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		<p>Apply plumber's paste to the tapered 1/8" NPT threads on the fuel pressure gauge and the street elbow, as shown.</p>	
105	Adjustable Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		<p>Install the 1/8" NPT street elbow so it points forward, as shown.</p>	
106	Adjustable Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		<p>Install the fuel pressure gauge as shown.</p>	

107	Oil Lubrication	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	4mm Allen Wrench	Prior to installing the SAE quick connect fitting to the high pressure port shown, lubricate the O-ring.	
		Prior to installing the 6AN male fitting to the low pressure port shown, lubricate the O-ring.	
108	13 or 15mm Socket	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Wobbly	Remove the 2 OEM nuts that secure the brake master cylinder to the brake booster.	
	Extension		
109	13 or 15mm Socket	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Wobbly	Place the fuel pressure regulator mount under the brake master cylinder and attach to the brake booster studs.	
	Extension	NOTE: For manual transmission vehicles, place the mount on top of the OEM clutch reservoir bracket.	
		Loosely thread the outer nut on first. Do NOT tighten.	
110	13 or 15mm Socket	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Wobbly	Loosely thread the inner nut. Tighten both nuts.	
	Extension		
111	4mm Allen Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Mount the fuel pressure regulator using the long M6x1mm button head bolts.	
112	7/8" Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Attach the 8AN PTFE fuel line to the 8AN male fitting underneath the fuel pressure regulator.	

113		<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Using the provided SAE quick connect tool (shown), disconnect the OEM braided fuel feed hose from the hard line on the firewall.	
		NOTE: this OEM hard line will now be used for the return.	
114	5/64" Allen Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Oil Lubrication	Remove the green lock from the provided SAE quick connect fitting. Lubricate the internal O-rings.	
115		<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		As shown, slide the provided SAE quick connect fitting over the OEM hard line.	
116	5/64" Allen Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Using the small screw, reinstall the green lock.	
117	Tape Measure	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Hose Cutter	Find the 2 straight 6AN PushLok hose ends included in the kit. Temporarily screw one onto the SAE quick connect fitting and the other to the fuel pressure regulator fitting.	
		As shown, measure the required hose length. Cut the provided 6AN rubber hose to length. Remove the hose ends.	
118	Oil Lubrication	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Lubricate the PushLok barbs on the hose ends. As shown, fully seat each hose end into the cut hose.	
		NOTE: Hose clamps are NOT required for PushLok hose ends.	

119	11/16" Wrench	<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
	Adjustable Wrench	When installing the newly made return hose, hold both sides to prevent undue stress on the opposing fitting.	
120		<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Push and fully seat the OEM feed hose from the fuel rail onto the fuel pressure regulator SAE quick connect fitting.	
121		<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		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).	
122		<u>P/N: 20-0981/20-0983 FUEL HANGER PLUMBING KIT ONLY</u>	
		Back under the vehicle, position the thermal sleeve where the header comes closest to the PTFE fuel line. WARNING: While this feed hose is manufactured from high temperature resistant PTFE and is wrapped in a protective stainless steel braid with a PCV cover, it is important to keep heat away.	
123	10mm Socket	<u>P/N: 20-0981/20-0983 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.	
124		<u>P/N: 20-0981/20-0983 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.	
		INSTALLATION COMPLETE	