

INSTALLATION INSTRUCTIONS

FUEL PUMP HANGER TOYOTA MK5 SUPRA



Document: 19-0277

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COLOR LEGEND FOR EACH STEP

20-0760 FUEL HANGER, MK5 SUPRA

Follow **YELLOW** areas

20-0761-03/20-0761-05 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.

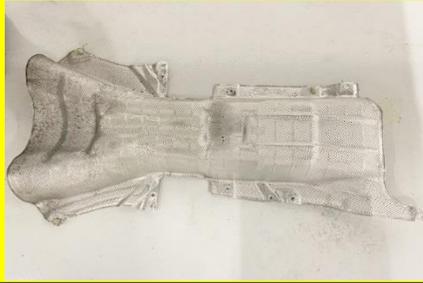
Proper eye and personal protection is required at all times during installation.

WARNING

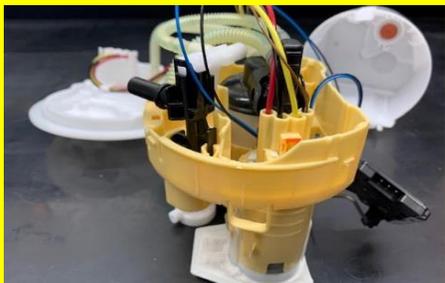
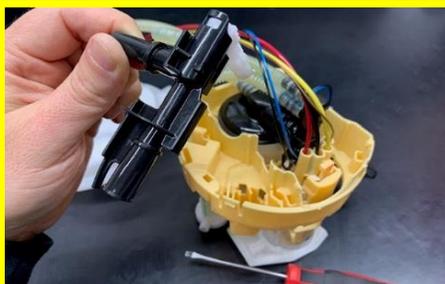
The fuel system is under pressure! Do not loosen any connections until relieving the fuel system pressure.

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.

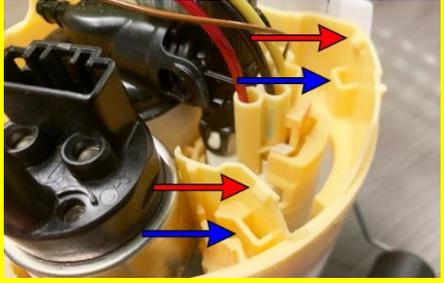
STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1		20-0760 INSTALLATION	
		ATTENTION!	
		BECAUSE PUMP ACCESS IS AT THE BOTTOM OF THIS TANK (AS SHOWN), FUEL MUST BE COMPLETELY REMOVED BEFORE PROCEEDING. THIS SHOULD NOT BE IGNORED AS FUEL WILL SPILL OUT CONTINUOUSLY.	
2		ATTENTION!	
		THIS INSTALLATION REQUIRES A SPECIAL TOYOTA/BMW REMOVAL LOCK RING TOOL. LPHUMEX P/N: G2116 IS AN AFTERMARKET VARIATION THAT RADIUM ENGINEERING USES SUCCESSFULLY.	
3	Car Lift	Safely raise the vehicle.	
	8mm Socket Wrench	NOTE: The fuel pump access hole is on the RH side just in front of the rear wheels facing the differential.	
	10mm Socket Wrench		
		Dislodge the rear undercarriage panels to gain access to the rear subframe brace.	
4	13mm Socket Wrench	Remove the rear subframe brace.	
	10mm Socket Wrench		
	E14 Torx Wrench		

5	Varies	Remove the exhaust system.	
6	10mm Socket Wrench	Remove the heat shield near the fuel tank.	
7		<p>The tank MUST currently be empty. If not, the following is a pro tip:</p> <p>Insert a long small diameter hard tube all the way down into the fuel filler. Rotate and push to avoid interference with internal edges. Insert the opposing side of the tube into a fuel safe container. Use shop air to pressurize the tank. This will automatically create a siphoning effect. After the flow stops, start the engine to allow the internal venturi jet pump to crossover more fuel to the RH side of the tank. Repeat this process until the tank is empty.</p>	
8		<p>To unlock the fuel pump connector, slide the red clip. Next, depress the thumb tab and pull away to unplug.</p> <p>To depressurize the fuel system, start the engine and allow it to stall.</p> <p>Remove the key from the vehicle and unscrew the gas tank filler cap temporarily to relieve any residual pressure.</p>	
9	10mm Socket Wrench	<p>Open the trunk. From the RH side, flip the carpet over to expose the battery. Disconnect the negative battery terminal.</p> <p>CAUTION: Disconnecting the battery may cancel fault memories of some control units. Consequently, before disconnecting the battery, always cross examine any fault memories.</p>	
10	Pick	First, dislodge the red lock ring from the fuel feed fitting.	
	Rag	Next, dislodge the white connector and pull to release. Have a rag handy as fuel may spill from this connection.	

11	Lock Ring Tool	An OEM Toyota/BMW lock ring tool is required.	
12		Spin the stainless steel lock ring counterclockwise to release.	
13	Rag	Pop off the fuel hat. Have a rag handy. NOTE: Take good measure in not allowing the orange fuel tank O-ring to be directly exposed to fuel as it will temporarily swell.	
		Dislodge the grey wire stay shown.	
		Depress the thumb tab to release just the single electrical connector shown. This connector will stay with the fuel tank as it is specific to the LH side fuel level sensor.	
14		There is a SAE quick connect crossover line attached to the fuel bucket. Squeeze the blue locks on either side of the fitting and pull to release.	
15		Locate the lever shown. Pull up to unlock.	
		Rock the bucket back and forth to release it from the bottom of the tank.	
		There maybe fuel still in the bucket. Rotate the bucket inside the tank to empty.	
16		To remove, the bucket must be rotated upside down as shown. Be careful as the RH fuel level float is attached to the bucket.	

17	Container	Drop the assembly into a fuel safe container and set on a bench.	
18	Cutter	Cut all wires from the underside of the fuel hat. Leave as much slack as possible.	
19	Utility Knife	Cut the OEM convoluted tubing from the fuel filter outlet barb.	
20	Flathead Screwdriver	As shown, pry the OEM bucket apart.	
21		Separate the 2 pieces.	
22	Flathead Screwdriver	As shown, pry the OEM venturi jet pump out of the bucket.	

23	Flathead Screwdriver	Pry the filter sock from the OEM fuel pump.	
24		Carefully cut a 39mm diameter (minimum) hole in the area shown. Be careful not to cut the hole too large.	
		NOTE: 39/50 DCCS fuel pumps are NOT compatible.	
25		Press-fit the new fuel pump in place.	
26		As shown, install the fuel pump filter socks.	
		Reinstall the bucket in reverse order.	
27		The next few steps involve securing the OEM venturi jet pump in a new location and creating a mounting solution for the new return line.	
		First, hold the OEM venturi jet pump and slide the provided jet pump adapter down through the slot.	
28		Next, insert the threaded portion of the jet pump adapter into the hole of the stainless steel bracket. Orientate as shown.	

29	12mm Socket Wrench	To secure the assembly, tighten the included deflector nut to the jet pump adapter threads.	
	17mm Wrench		
30		<p>Note the 2 mounting tab locations on the OEM basket where this assembly attaches.</p> <p>The blue arrows point to the holes. The red arrows point to the tabs.</p>	
31		Be sure each stainless steel tab slides into the hole and latches onto the tab, as shown.	
32		Be sure each stainless steel tab slides into the hole and latches onto the tab, as shown.	
33		The assembly will now be secure to the OEM basket.	
34	3/8" Socket Wrench	<p><u>IF INSTALLING A NEW STANDARD BRUSHED FUEL PUMP</u> (examples: Walbro GSS342, AEM 50-1200, etc.)</p> <p>-Use the provided 2-wire connector.</p> <p>-Secure the ring terminals to the appropriate electrical studs.</p> <p>-Red Wire: PUMP2 +</p> <p>-Black Wire: PUMP2 -</p> <p>-A second wrench may need to be used on the opposing side to prevent the stud from rotating.</p>	
	3/8" Wrench		

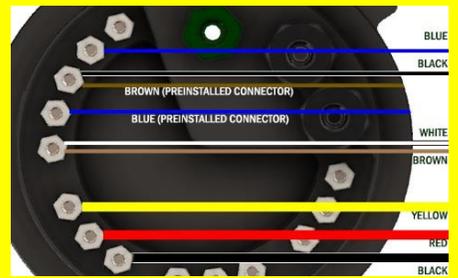
35	Wire Stripper	<p>IF INSTALLING A NEW BRUSHLESS FUEL PUMP (example: TI Automotive ESLM)</p> <p>-A flying lead pump harness (not included) is required. This is typically provided by the brushless pump manufacturer.</p> <p>-Install the ring terminals as shown.</p> <p>-A second wrench may need to be used on the opposing side to prevent the stud from rotating.</p>
	Wire Crimper	
	Heat Gun	
	3/8" Socket Wrench	
	3/8" Wrench	



36	Wire Stripper	<p>Install the provided ring terminals and heat shrink to the 7 OEM wires.</p> <p>NOTES:</p> <p>1. Use the large terminals and large heat shrink for the 3 pump wires.</p> <p>2. Use the small terminals and small heat shrink for the OEM other wires.</p>
	Wire Crimper	
	Heat Gun	

OEM WIRE COLOR LEGEND		
FUEL HAT LABEL	INTERNAL	EXTERNAL
PUMP1 W	Black (1g AWG)	Green (1g AWG)
PUMP1 R	Red (1g AWG)	Blue (1g AWG)
PUMP1 G	Yellow (1g AWG)	Orange (1g AWG)
B-BRUSHLESS PUMPS	Brown (5m AWG)	Black (5m AWG)
SENSORS GND	White (5m AWG)	Green/Blue (5m AWG)
SENSORS LL+	Blue (5m AWG)	Yellow/Green (5m AWG)
SENSORS LL-	Black (5m AWG)	Yellow/Blue (5m AWG)
SENSORS RL+	Blue (5m AWG)	Yellow/White (5m AWG)
SENSORS RL-	EMPTY	EMPTY

37		Place the ring terminals around the corresponding studs underneath.



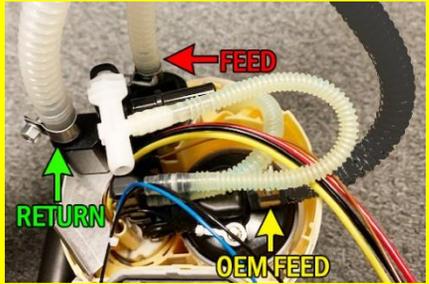
38	3/8" Socket Wrench	Secure using the provided lock nuts. NOTE: It is possible that a second wrench will need to be used on the opposing side to prevent the stud from rotating.
	3/8" Wrench	

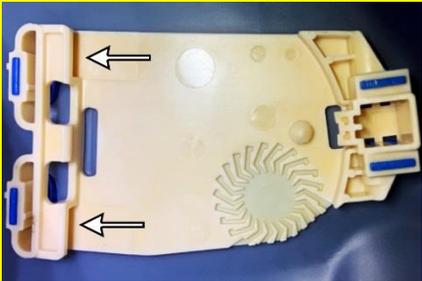
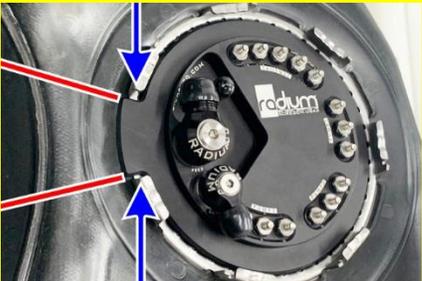


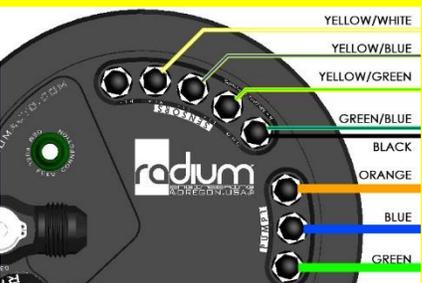
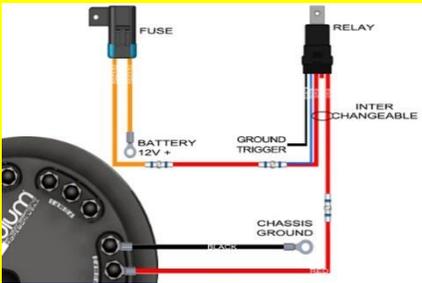
39	Phillips Screwdriver	<p>Using a heat gun or boiling water, apply heat to the ends of the provided convoluted tubing. Quickly insert the tubing over the barbs on the underside of the fuel hat. Secure using the included EFI clamps.</p> <p>NOTES:</p> <p>1. The shorter tube (shown in black) should be installed to the green bulkhead adapter fitting for the OEM feed.</p> <p>2. The ESLM brushless pump has a large diameter barb on the pump outlet. If this pump was installed, it is required to use the large diameter convoluted tubing that is included. Also, the barb fitting in the "feed" port must be changed to the large barbed fitting provided in the kit.</p>
	Heat Gun	



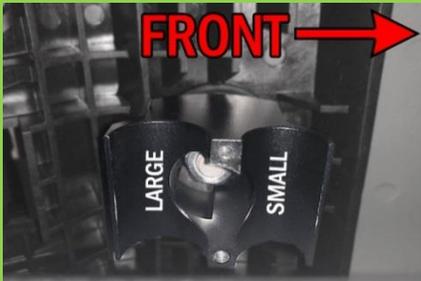
40	Phillips Screwdriver	<p>Using a heat gun or boiling water, apply heat to the ends of the provided convoluted tubing. Quickly insert the tubing over the barbs on the underside of the OEM basket. Secure using the included EFI clamps.</p> <p>If not already, plug in the new fuel pump connector.</p>
	Heat Gun	



41	Wire Cutter	<p>Cut the 2 LH fuel level connector wires from the tank. Strip the wires and crimp the 2 included blade terminals using a tool such as Molex 63811-1000. Assemble the included mating connector as shown. NOTE: the sensor does not have polarity so wires can be crossed and readings are unaffected.</p> <p>Plug this connector into the blue/brown wire mating connector on the fuel hat.</p>	
	Wire Stripper		
	Wire Crimper		
42		<p>The next few steps require patience.</p> <p>Note the 2 protrusion tabs shown on the lower side of the OEM basket.</p>	
43	Flashlight	<p>For installation, these 2 protrusions (picture above) need to first be lined up and inserted into the slotted areas (shown) inside the fuel tank.</p>	
44		<p>When reinserting the OEM basket into the fuel tank be sure to insert the fuel level float first.</p> <p>Find the OEM crossover tube in the fuel tank. Push this SAE quick connect female fitting into the male fitting on the OEM jet pump until a "click" felt.</p>	
45	Flashlight	<p>Confirm that the 2 protruding tabs are lined up and inserted into the 2 slots described above.</p> <p>Next, pivot the basket downwards to the bottom of the tank and lineup the tab on the opposing side. As shown, pull the lock down to secure.</p>	
	Mirror		
46		<p>Install and hold the fuel tank O-ring gasket onto the tank opening. Replacement Toyota P/N: 77169WAA01</p> <p>When installing, orient the fuel hat so it fits between the 2 fuel tank tabs shown. NOTE: The Radium Engineering logo will be legible (not be upside down).</p>	

47		To install the OEM lock ring, the fittings will need to be swivelled in the positions shown.	
48		Press the factory fuel line onto the "OEM FUEL FEED CONNECTION" fitting until a click is felt.	
49	<p>Wire Stripper</p> <p>Wire Crimper</p> <p>Heat Gun</p> <p>3/8" Socket Wrench</p>	<p>Cut the OEM connector leaving as much wire as possible. Remove wire loom to strip the wires. Install the provided ring terminals and heat shrink to the 8 OEM wires.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. Use the large terminals and large heat shrink for the 3 pump wires. 2. Use the small terminals and small heat shrink for other OEM wires. 3. Do not overtorque the acorn nuts and risk spinning the terminal. 	
50	<p>Wire Stripper</p> <p>Wire Crimper</p> <p>Heat Gun</p> <p>3/8" Socket Wrench</p>	<p>NOTES:</p> <ol style="list-style-type: none"> 1. The relay, fuse, wiring, etc (shown) are not included but are required. 2. For safety purposes, the new fuel pump will need to be triggered from a source that turns OFF when the engine stalls. 3. Assuming this fuel pump will be used for port injection, an adjustable switch (such as RADIUM 20-0236) or an aftermarket ECU lowside output is ideal. 4. A wiring schematic example is depicted for the optional RADIUM 17-0031 fuel pump relay kit. Connect the trigger device (adjustable pressure switch, ECU, etc.) to the "ground trigger" shown. 5. Do not overtorque the acorn nuts and risk spinning the terminal. 	
51		<p>External fuel feed and fuel return plumbing are NOT included.</p> <p>Optionally, the 20-0760-03/05 FUEL HANGER PLUMBING KIT (pictured) can be used. The installation instructions are discussed below.</p>	
52	<p>10mm Wrench</p>	<p>Reconnect the battery. Turn the ignition switch ON. Start the engine and check for leaks. Reinstall all OEM components in reverse order.</p> <p>20-0760 INSTALLATION COMPLETE</p>	

53	Car Lift	20-0761-03/05 FUEL HANGER PLUMBING KIT INSTALLATION As described in the instructions above, disconnect the battery and depressurize the fuel system. The provided fuel filter will be mounted underneath to the LH side of the transmission. Safely raise the vehicle. Dislodge the rear undercarriage panels.	
	8mm Socket Wrench		
	10mm Socket Wrench		
54	Oil Lubrication	Lubricate the O-rings on the provided 10AN ORB to 8AN male fittings. As shown, secure the fittings to the fuel filter ports.	
	Adjustable Wrench		
	1" Wrench		
55	10mm Wrench	Insert the upper fuel filter mount through the two studs. As shown, secure the upper filter mount using the provided M6x1mm nuts.	
56	4mm Allen Wrench	Orient the fuel filter so the green outlet is pointing towards the front of the vehicle. Center the fuel filter into the upper mount (front to back). Line up the lower filter mount to the upper filter mount. Secure the filter using the provided M5x0.8mm socket head screws and medium strength thread locker.	
	Thread Locker		
57		Gently pry and pull the OEM fuel tubes from the 6 plastic retainers underneath the vehicle.	
58		In a counterclockwise fashion, spin the plastic retainers off the threaded studs, as shown.	

59		Remove all 6 plastic retainers shown.	
60	13mm Socket Wrench	Find where the front of the fuel tank secures to the. This is located directly above the drive shaft.	
		As shown, remove the washer nut. This will NOT be reused.	
61	13mm Socket Wrench	Find the black half of the 2 position retainer in the kit. There is a location for a large hose and a small hose.	
		Orient the retainer so the large hose position is towards the rear of the vehicle and the small hose position is towards the front of the vehicle.	
		Secure using the provided M8x1.25mm flange nut.	
62	10mm Socket Wrench	Find the 6 black halves of the 4 position retainers in the kit.	
		Orient the retainers so the largest hose position is towards the middle of the vehicle.	
		Secure using the provided black flange nuts.	
63	Oil Lubrication	Find the straight 6AN PushLok hose end and the 3/8" hose provided in the kit. Lubricate the hose barbs and fully seat the hose.	
		NOTE: PushLok hose ends do NOT require hose clamps.	
64	Oil Lubrication	Find the straight 8AN PushLok hose end and the 1/2" hose provided in the kit. Lubricate the hose barbs and fully seat the hose.	
		NOTE: PushLok hose ends do NOT require hose clamps.	

65	11/16" Wrench	As shown, install the hose ends to the respective 6AN and 8AN fittings on the fuel hat.	
	7/8" Wrench		
66	2.5mm Allen Wrench	<p>NOTES:</p> <ol style="list-style-type: none"> 1. To make this process easier, remove the driveshaft. 2. If leaving the driveshaft installed, use a ball-end Allen wrench to prevent cross-threading. <p>Install the green half of the 2 position retainer clamp. Secure using 2 of the provided M3x0.5mm bolts.</p>	
67	2.5mm Allen Wrench	<p>When routing the hoses to the LH side, the 3/8" hose will go to the outside and the 1/2" hose will go to the inside position of the hose retainers. Begin installing the hose retainers.</p> <p>NOTE: In between the 2 position and the first (rearward) 4 position retainer, the hoses will criss-cross, as shown.</p>	
68	Hose Cutter	<p>Temporarily screw on a straight 8AN PushLok hose end to the fuel filter inlet fitting, as shown. Cut the 1/2" hose to length.</p> <p>NOTE: When the 1/2" hose breaks off to the fuel filter it will skip 2 of the hose retainers. The 3/8" hose will continue and pass through all retainers.</p>	
69	Oil Lubrication	<p>Lubricate and fully install a straight 8AN PushLok hose end into the 1/2" hose provided in the kit. NOTE: PushLok hose ends do NOT require hose clamps.</p> <p>Install the hose end to the filter and tighten.</p>	
	7/8" Wrench		
	Adjustable Wrench		
70	Oil Lubrication	<p>Lubricate and fully install a straight 8AN PushLok hose end into the loose 1/2" hose that was cut off. NOTE: PushLok hose ends do NOT require hose clamps.</p> <p>Send both the 3/8" and 1/2" hose up in the engine bay.</p> <p>Install the 8AN hose end to the fuel filter outlet and tighten.</p>	
	7/8" Wrench		
	Adjustable Wrench		

71	2.5mm Allen Wrench	Finish installing the last of the hose retainers.	
72	Hose Cutter	<p>Terminating the feed hose will be dependent on the fuel rail (not included) brand. Recommended: Radium Engineering P/N: 20-0753 PORT INJECTION KIT, MK5 SUPRA</p> <p>An 8AN 90 degree PushLok hose end (shown) is included specifically for connecting to a 8AN male fuel rail fitting.</p>	
	7/8" Wrench		
73	Hose Cutter	<p>Terminating the return hose will be dependent on the fuel pressure regulator (not included) brand. Recommended: Radium Engineering P/N: 20-0623-00/1 DMR, 8AN ORB</p> <p>A 6AN 90 degree PushLok hose end (shown) is included specifically for connecting to a 6AN male fuel pressure regulator fitting.</p>	
	11/16" Wrench		
74	10mm Socket Wrench	<p>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.</p> <p>Carefully reinstall the fuel pump access panel. Reinstall all OEM components in reverse order.</p> <p>INSTALLATION COMPLETE</p>	