

INSTALLATION INSTRUCTIONS

COOLANT EXPANSION TANK

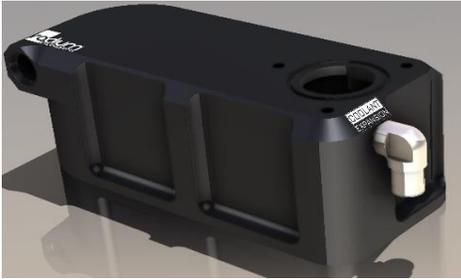
OEM LOCATION, LOTUS 2ZZ-GE

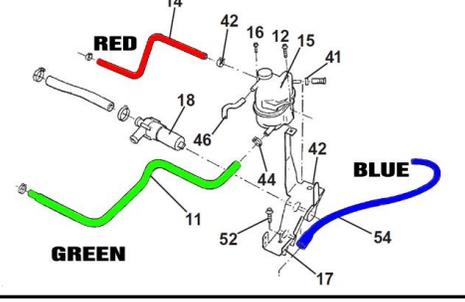
Document: 19-0132
Support: info@radiumauto.com

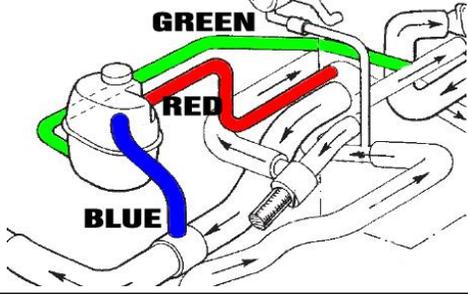
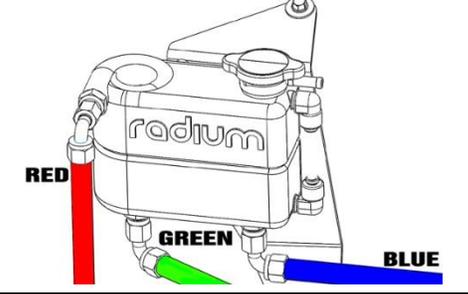
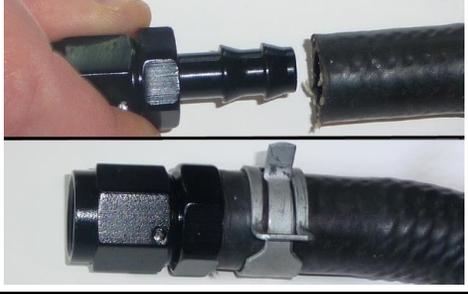
WARNINGS:

DO NOT WORK ON THE COOLANT SYSTEM WHEN THE ENGINE IS AT OPERATING TEMPERATURE.
WAIT UNTIL THE ENGINE HAS COOLED AND THERE IS NO LONGER PRESSURE IN THE SYSTEM.

QUICKLY CLEAN UP ANY COOLANT THAT HAS SPILLED AS IT IS POISONOUS.

STEP	TOOLS NEEDED	INSTRUCTIONS	PHOTO
1	8mm wrench	Unwrap both halves of the coolant tank and clean out any residual packaging material. Grab the top half of the coolant tank (shown) and 1 of the push-to-connect NPT elbows provided in the kit. Apply PTFE thread paste then hand tighten the elbow fitting into the port shown. Now add an additional 1.5 to 3 turns until it faces directly downwards, as shown. NOTE: The tapered pipe threads are preimpregnated with Teflon so no addition lubrication is required.	
	PTFE thread paste		
2	8mm wrench	Grab the bottom half of the coolant tank (shown) and the other push-to-connect NPT elbows provided in the kit. Hand tighten the elbow fitting into the port shown. Now add an additional 1.5 to 3 turns until it faces directly downwards, as shown. NOTE: The tapered pipe threads are preimpregnated with Teflon so no addition lubrication is required.	
	PTFE thread paste		
3		Push-in and fully insert the clear sight tubing into the elbow fitting on the bottom half of the coolant tank.	
4	Anti-seize	Place the gasket between the 2 tank halves. Lneup and fully seat the opposite side of the clear sight tube into the opposing elbow. Install the 7 socket head bolts. It is recommended to use anti-seize on the threads to prevent galling. Tighten all screws evenly until snug in a crisscross sequence, then torque to 53 in-lbs (6 Nm). NOTE: After the tank is heat cycled, check the gasket for leaks and retorqure if needed.	
	4mm Allen wrench		
	Torque wrench		

5		NOTE: if there is ever a leak from the threaded portion of an elbow, follow this procedure below.		
		a. First, the 2 halves of the tank will need to be disassembled. To remove the clear sight tubing from the (push-to-connect) elbows, push and hold the retaining lock flush, then pull away to release the tube.		
		b. Rotate (tighten) the leaking elbow fitting 360 degrees.		
		c. Reassemble the coolant tank as described above.		
6		Make sure the area shown in the picture is free of dirt and debris before proceeding.		
		Place the included O-ring into the groove around the fill neck opening.		
7	3mm Allen wrench	Place the included fill neck receiver onto the tank, oriented to best fit the application.		
	Thread locker			
				Apply a medium strength thread locker and install the 3 included socket head bolts using a 3mm Allen hex wrench, as shown. Torque to 48 in-lbs. (5.4Nm).
8	Lubrication oil	Before installing the 3 included adapter fittings, lubricate the O-rings with light oil. Secure the two 10AN ORB to 6AN male fittings into the bottom ports and the 6AN ORB to 6AN male fitting to the side port.		
	3/4" wrench			
	1" wrench			
				NOTE: The tank's internal chambers are divided vertically down the middle for the swirl mechanism, but small passages on the top and bottom allow water to flow throughout the complete tank.
9	Pliers	Before uninstalling, note the functions of the colored hoses shown. Red (14): Hot water air-bleed coming out of the cylinder head. Green (11): Coolant returning from the tank to the thermostat housing. Blue (54): Radiator air-bleed and bypass when thermostat is closed.		
	10mm wrench			These hoses and the overflow tube (46) will be reused. Place a tray and shop towels under the factory coolant tank (15) . Using pliers, slide the spring clamps (41, 42, & 44) down off the coolant tank barbs. One by one, gently pull off all 3 hoses. Unscrew the 2 upper M6 bolts (12 & 16) .
10	Cutting dikes	Remove the tank from the vehicle.		
	10mm wrench			Next, the steel bracket assembly (17) will be discarded. Cut the zip ties that are holding the 2 coolant lines in place. Unplug the electric hot soak water pump. Unscrew the M6 bolt (42) , shown at right, that clamps the water pump (18) . Remove the factory M8 bolt (52) near the left side motor mount. This bolt will be reused.
	13mm wrench			
				Carefully lift the steel bracket out without disrupting the water pump that is still attached and plumbed to the engine.

11	13mm wrench	Peel the water pump rubber sleeve off the OEM bracket.	
	17mm wrench	Locate the Radium water pump mount, clamp, M8 bolt, and M8 nut in the kit. Loosely assemble the parts as shown. Rewrap the electric water pump with the OEM rubber sleeve and slide the assembly around the pump.	
		Tighten the included bolts to the two empty M10x1.25 threaded bosses on the transmission case (pictured). Tighten the M8 bolt/nut.	
		Reconnect the electric hot soak water pump.	
12		If not already, install the 2 provided rubber grommets to the coolant tank mounting bracket exactly as shown.	
13	Thread locker	<p>The mounting bracket will be secured to the coolant tank using the 3 inner slotted bolts holes. Apply a medium strength thread-locker to the three M6 bolts. Secure the bracket to the coolant tank using a 4mm Allen hex wrench.</p> <p>Insert the supplied M6 washer bolt through the upper rubber grommet. Using a 10mm wrench, secure the M6 washer bolt to the hidden roll bar mount. Find the included 1-3/4" OD clamp and wrap it around the 2 hoses that were secured by the zip ties previously cut. Slide the factory M8 bolt through the clamp and rubber grommet and secure to the motor mount boss.</p>	
	4mm Allen wrench		
	10mm wrench		
	13mm wrench		
14		Gently bend the clamp into an oval D shape so it does not disrupt flow through the 2 large hoses.	
		Push the factory overflow tube onto the Radium neck barbed fitting. It is a bit too big for the barb so use the opposite end. Note: if the engine overheats, coolant will flow out of this port. A long hose (not included) can be attached instead and routed down to the rear of the car.	
15	Hose cutter	<p>Locate the three black 90 degree hose ends in the kit. Before assembling the hose ends to the factory hoses, note how the lines will be routed (pictured). It is necessary to cut the factory "blue" hose shorter to help eliminate a potential air lock.</p> <p>Make sure all 3 hoses flow downwards away from the tank to allow proper air bleeding. Also, be sure to leave enough slack for engine movement.</p>	
16	11/16" wrench	<p>To assemble all 3 included 90 degree hose ends to the factory hoses, simply push the barbed end into each hose, straight hose end shown as example. Make sure the hose is all the way against the hose end nut. Reuse the factory spring clamps to secure the connection, as shown.</p> <p>Using a non-marring 11/16" open end wrench, carefully tighten the "green" and "blue" hose ends to the Radium Coolant Tank port fittings. Note: The "red" hose end will be tightened after the tank is filled with coolant to aid in air bleeding.</p>	
	Pliers		

17	Coolant	Lotus recommends a 50/50 mix of Havoline XLC Extended Life Coolant.	
		When filling the coolant tank, unscrew the rear air bleed plug (pictured). Note: If filling the entire system, there is also an air bleed plug near the radiator and is accessed under the front right removable panel. Opening these bleed screws alleviates a potential air lock.	
		Fill the system slowly until each bleed location spews coolant.	
18	11/16" wrench	Once the tank sight tube registers half full, screw the "red" hose end back into the tank. Note: The level will naturally rise as the engine warms up from heat expansion.	
		Start the engine and monitor the digital coolant display on the dash. Note: There will be no coolant reading until the engine heats up. If the temperature continues to climb towards 212F (100C), there is a trapped air bubble(s). This is common in the 2ZZ-GE. An effective remedy is using a coolant re-filler, such as OTC P/N: 75260 (pictured).	