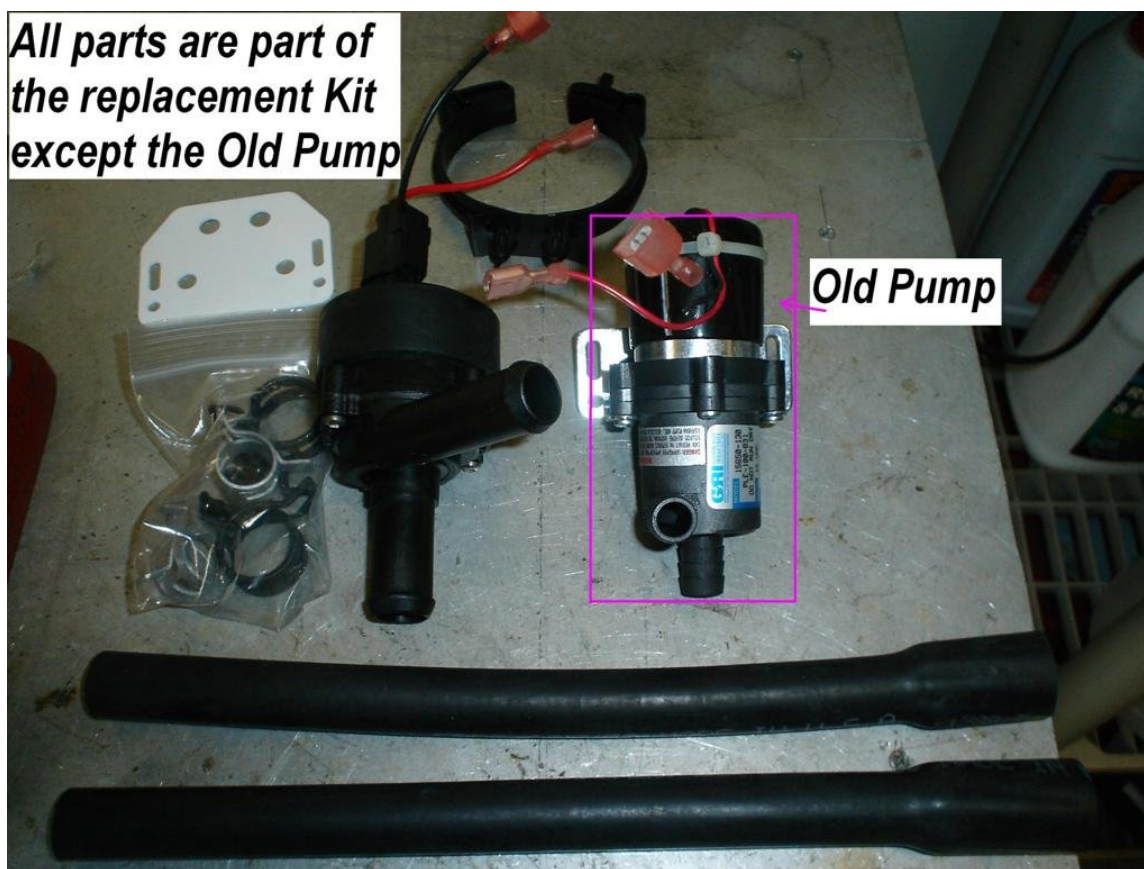




## 2010 43QGP Allegro Bus

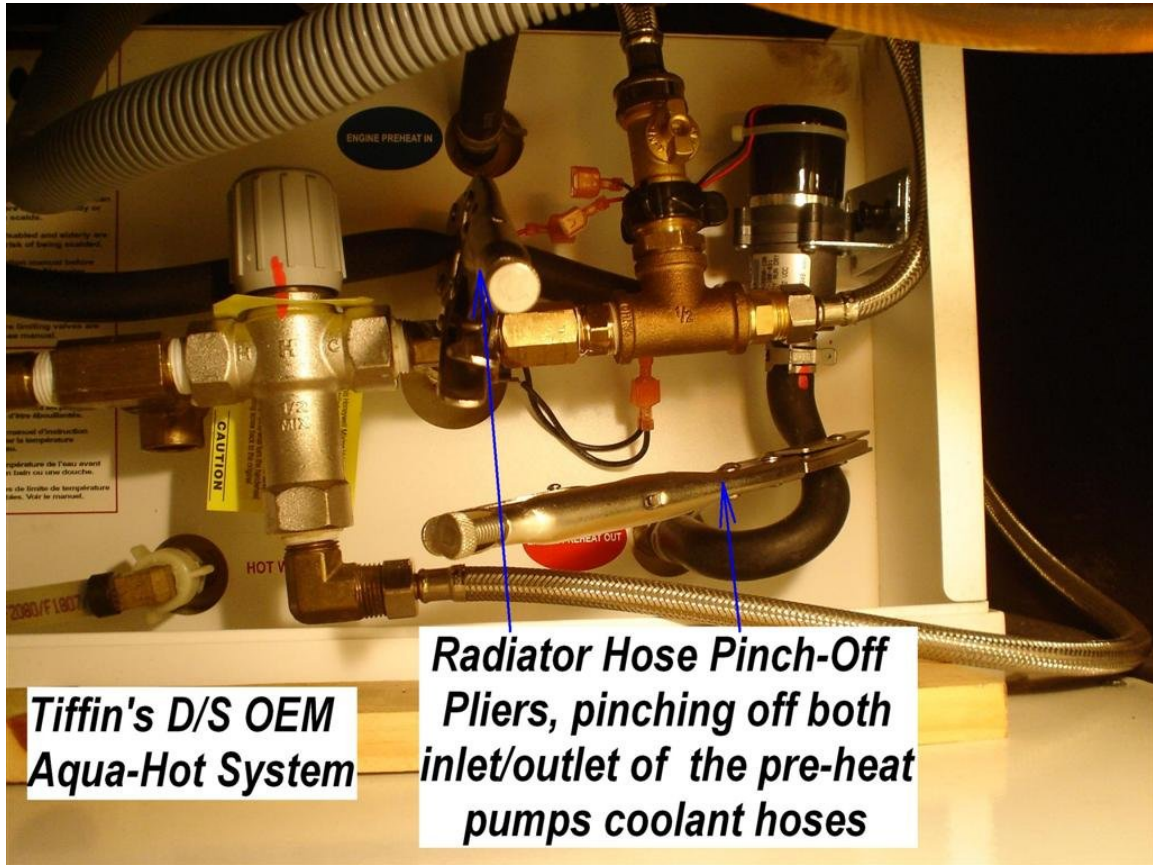
12/3/2011

**FORTY-SECOND** - coach modification, **INSTALLING A NEW AQUA-HOT ENGINE PRE-HEAT PUMP.** This is one modification I would not have made if there had not been an existing problem needing repair. With colder weather upon us I attempted to use the engine coolant pre-heat feature of our Aqua-Hot a couple of weeks ago. The next morning checking the temperature of the engine coolant it was obvious the coolant had not been heated during the night by the Aqua-Hot system. Further testing of the Aqua-Hot showed the pre-heat pump motor was not turning to circulate the coolant. I contacted Tiffin, they told me they would ship repair parts, after a couple of weeks, several phone calls and waiting a new pump assembly arrived.



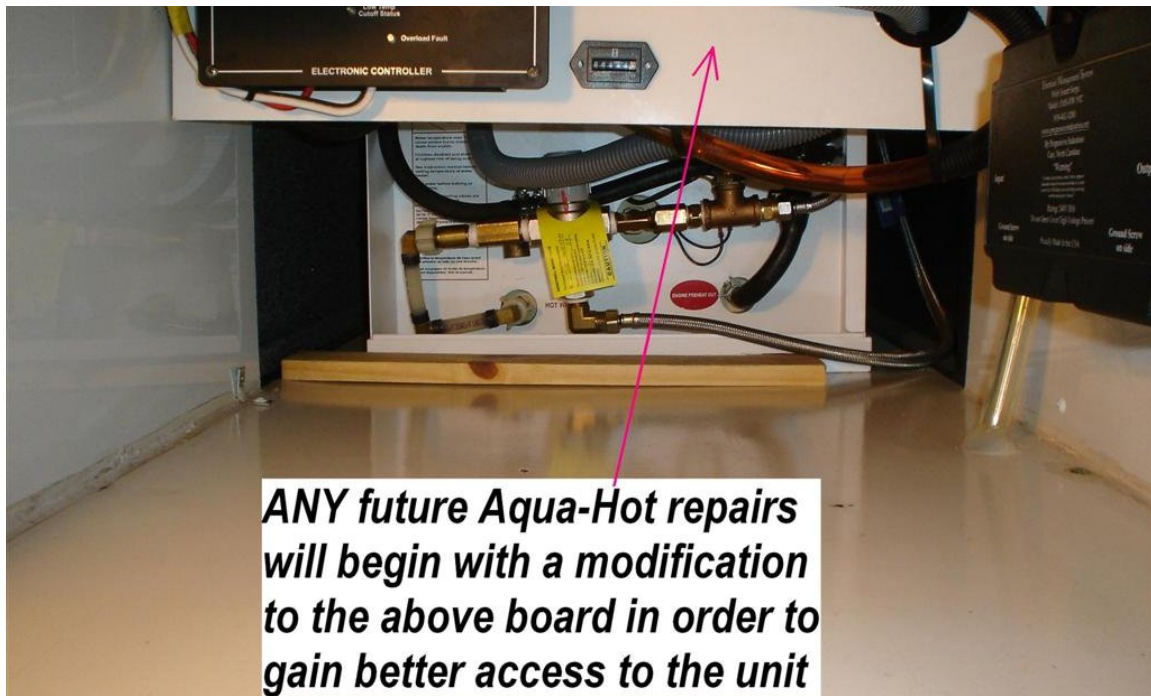
Note the difference in physical size of the two pumps also the inlet and outlet sizes. Neither of the two hoses above are a formed hose which creates

a problem during installation of the new pump. The new Aqua-Hot outlet hose requires cutting to just the right length in order not to crimp off the coolant flow, if the hose is left too long or cut too short a crimp will develop in the hose.



Note the use of two radiator pinch-off pliers they were used to prevent too much loss of the engines coolant. After finding the bottom formed pump hose required replacement that pair of pliers was moved to the inlet side of the Aqua-Hot. I found no way to prevent losing about 1/2 gallon of coolant unless the Aqua-Hot's boiler tubing for the engine coolant was drained. As stated this is not a planned modification. It appears the OEM coolant pre-heat pump/motor is/was a weak component which Aqua-Hot has replaced with a hopefully better motor and pump, the new unit is manufactured by Cooper. Why did Aqua-Hot send some of the parts they did in the kit is beyond me. The pre-heat pump is connected directly to the engine motor and heater hose. They did not send any connector fittings to connect the new hose to the chassis builder installed coolant heater hose. The clamps they did send for that hose could not clamp with enough pressure to prevent leaks. I needed to purchase a 1/2 brass splice and worm gear hose clamps to make

that one connection. The new hose between the pump and the Aqua-Hot boiler output should be a formed hose as care is required to get the hose length just right to prevent a kink in the hose.



Fifteen minutes to disassemble the Aqua-Hot OEM system, three hours to re-assemble and clean up after repairing the system. After taking the OEM magnetic drive pump/motor apart it is found to be non-repairable. The pumps magnet had attracted small metal particles from the engines coolant which clung to the magnet causing damage to the pump, I suspect this is a regular occurrence with the Aqua-Hot OEM pump/motor.