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EWP® CONTROLLER INSTALLATION INSTRUCTIONS

FOR INSTALLATION OF DAVIES, CRAIG EWP® PUMP CONTROLLER FOR USE WITH THE EWP® (ELECTRIC WATER PUMP).

Congratulations on your purchase of the Davies, Craig EWP® Controller. The EWP® Controller is designed to control the operation of the EWP® by varying the speed of the EWP® with the temperature of the engine. Using the EWP® Controller in combination with the EWP® will allow the removal of the engine thermostat as well as the removal of the existing water pump impeller or deletion of the water pump pulley from the belt system of your engine. You will notice an increase in engine power and torque, especially at high engine speeds, and an improvement in fuel economy.

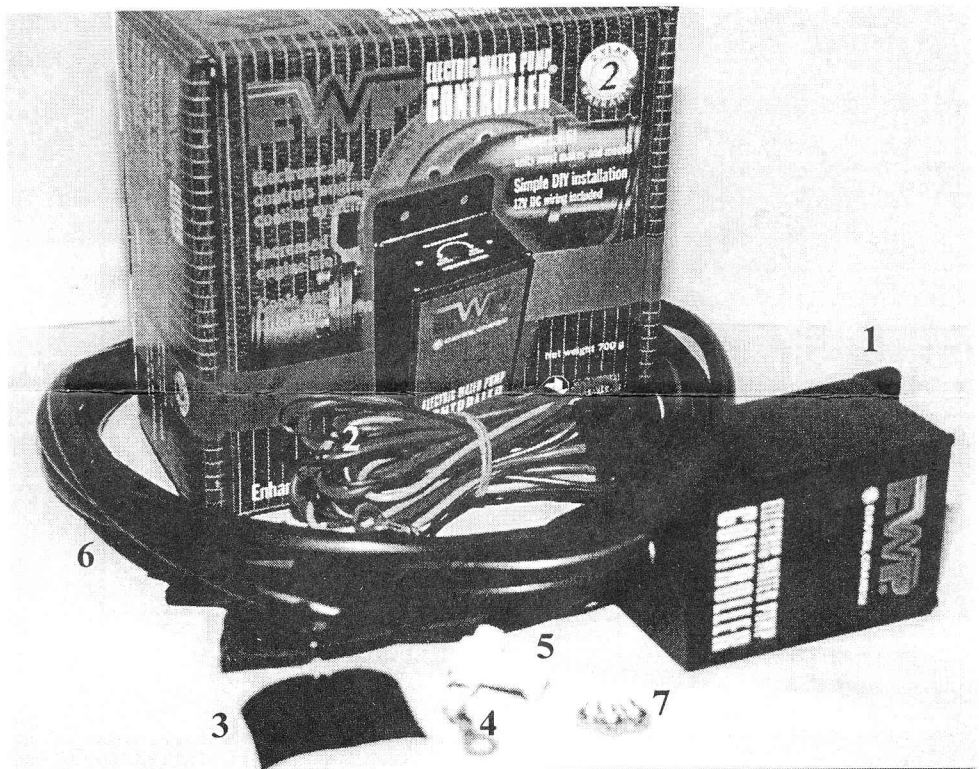
The controller has an adjustment screw on the top face that can be adjusted to either increase the engine temperature slightly for improved fuel efficiency, or decrease the engine temperature slightly for an increase in power. In combination with a Davies, Craig Thematic Fan® and adjustable Thermal Switch, the temperature of the whole cooling system can be customised to suit your requirements. Using a turbo-timer (not included) to run the ignition after shutdown combined with the removal of the engine thermostat, will allow the EWP® (and as another option, the Thematic Fan®) to run on eliminating heat soak.

PLEASE READ THESE INSTRUCTIONS IN THEIR ENTIRETY BEFORE YOU START WORK.

CONTENTS:

EWP® CONTROLLER AND HARDWARE COMPONENTS:

No.	P/No:	Description	Qty.
1.		EWP Controller Assembly	1
2.	8404	Controller Relay Harness	1
3.	8517	Sensor Seal	1
4.	0550	Ring Terminal	1
5.	0513	Scotchlock	1
6.	8406	EWP Controller Pump Harness	1
7.	0539	Self Tapper	3
8.		Length of Copper Wire (not shown)	



REPLACING THE MECHANICAL PUMP WITH THE EWP® AND EWP® CONTROLLER.

The combination of the EWP® with the EWP® Controller will allow you to adjust the engine operating temperature. Lower the engine temperature for an increase in power or raise it slightly for better fuel efficiency.

Do not begin the installation of the EWP® Controller until after the EWP® has been installed. Refer to the EWP® Installation Instructions for details.

INSTALLING EWP® CONTROLLER (Refer Wiring diagram page 4)

1. The controller must be fitted inside the cabin. Locate a spot in the firewall where 4 wires will be able to pass through.
2. Mount the relay and wiring harness provided with the controller in an appropriate position such as near the fuse box. Ensure a good ground connection using the self tapping screw provided.
3. Connect the yellow wire from the relay wiring harness to the battery positive using the ring terminal provided.
4. Connect the green wire from the relay to an ignition source using the scotch-lock connector provided. **Warning:** Do not use the vehicle's engine management system or wiring connected to the vehicle's engine management system as an ignition source because it may cause failure of the management system and/or the electrical system. The ignition source must be a steady positive supply of 12-14VDC.
5. Pass the red wire from the relay wiring harness through in to the cabin to meet the controller box.
6. Connect the pump wiring harness to the pump and pass the blue and black wires through in to the cabin to meet the controller box.
7. Mount the controller box inside the cabin in an appropriate position so that there is access to the temperature adjustment screw. Ensure a good ground connection using the self tapping screw provided. (NOTE: The ground lead must be connected to a metal part of the chassis.) Pass the black sensor cable through the firewall and out to the thermostat housing. Check that the cable is long enough to reach. If not, move the controller position closer to the hole in the firewall.
8. Make sure engine ignition is off and connect the controller box leads to the leads from the pump and relay ensuring blue to blue, black to black, red to red.

INSTALLING EWP® CONTROLLER SENSOR (Refer Diagrams 1 & 2)

The sensor must be located in the engine thermostat position so that it can sense the actual engine block temperature. **NB: Wait for the engine coolant to cool down before removing the engine thermostat.**

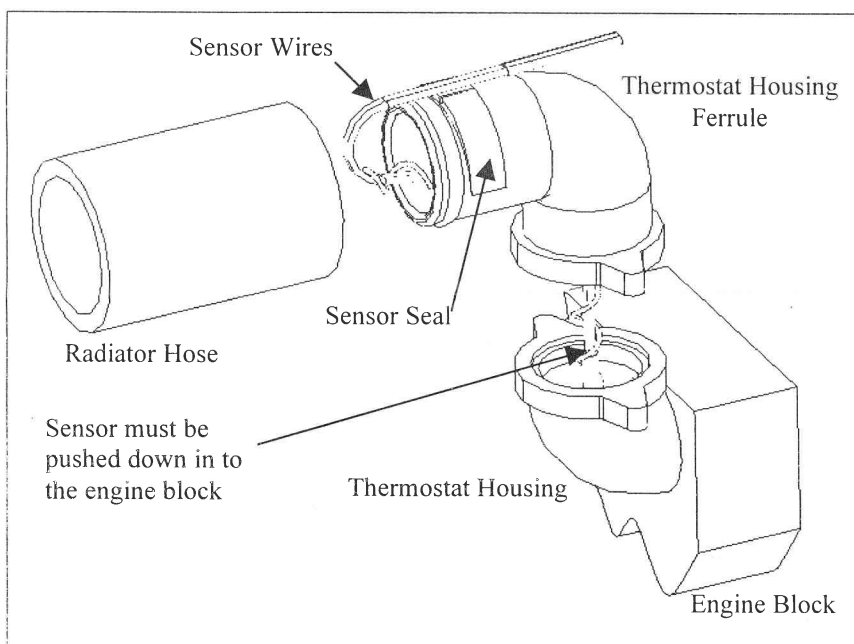


Figure 1

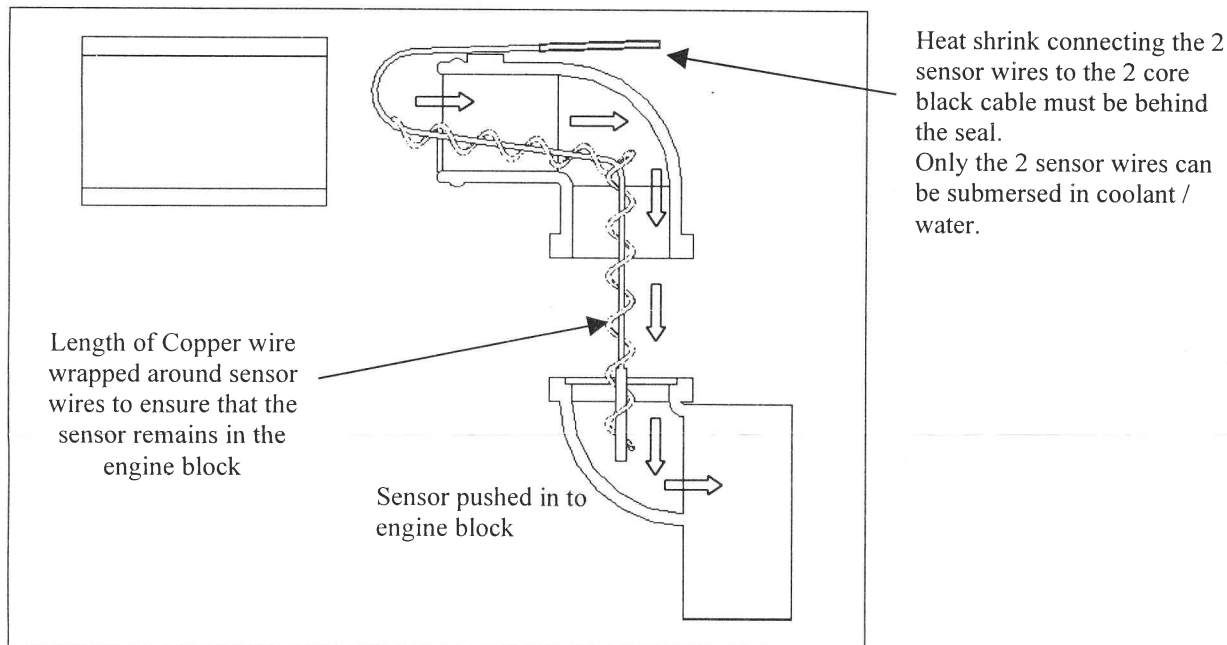


Figure 2

1. Remove the engine thermostat from the thermostat housing.
2. Pass the sensor down through the thermostat housing ferrule.
3. Wind the length of wire provided around the sensor and up the two wires and bend in to shape to push down through the thermostat housing ferrule and in to the engine block. Leave just enough of the two black sensor wires free to pass over the seal. Ensure that only the separate black silicon wire at the end of the sensor cable will be in contact with the coolant.
4. Re-fit the thermostat housing ensuring that there is no damage to the thermostat-housing gasket. A small amount of silicon wiped over the gasket will ensure a good seal.
5. Place the sensor rubber seal just behind the lip on the thermostat housing ferrule and push the two wires from the sensor in to position on the seal.
6. Holding the seal in position, push the radiator hose over the thermostat housing ferrule and tighten the hose clamp. NB: It may be necessary to wind electrical tape around the wires, seal and ferrule to hold the seal in place while re-fitting the radiator hose.

BLEEDING THE EWP[®]

1. Fill the cooling system with appropriate coolant.
2. Disconnect the pump wiring harness from the motor of the electric pump. Cut the blue and black wires from the extra wiring harness that came in the pump packaging, close to the relay holder, and discard the remainder. Loosely connect the blue wire to the battery positive and the black to -ve. With the radiator cap off, connect the pump to the connector at the end of the blue and black wires from the battery and run for 5 - 10 minutes to ensure that there is no air trapped in the cooling system. Continue to fill with coolant as the air is removed from the system. Disconnect the wires from the battery and pump and discard. Re-connect the pump to the wiring harness and controller. Re-fit the radiator cap before starting the engine.

Warning: Some vehicles may require special bleeding procedures to remove air from the cooling system not described here. The EWP[®] must be completely flooded with coolant at all times to achieve the life specification of the EWP[®] and to preserve warranty.

RUNNING THE EWP[®]

Run the engine and monitor the engine temperature, which should take slightly longer than usual to reach steady state. Adjust the temperature of the engine using the small adjustment screw on the top face of the controller box. Generally, running the engine slightly colder will increase the power and running the engine slightly hotter will improve the fuel efficiency. If the ignition is left on (or if a turbo timer is connected) after a hot shut down, the pump will continue to run and prevent engine heat soak.

