

THERMATIC FAN KITS Installation Instructions

SUITABLE FOR DAVIES, CRAIG 8", 9", 10", 12", 14", 14HP", 16" FANS

**PLEASE READ ALL THESE INSTRUCTIONS THOROUGHLY BEFORE YOU START WORK.
DON'T RUSH - ENSURE YOU HAVE FULL UNDERSTANDING OF THE WORK AHEAD BEFORE YOU
COMMENCE. ENSURE YOU HAVE ALL TOOLS AND COMPONENTS REQUIRED.**

1. PREAMBLE

Congratulations on purchasing a Davies, Craig Thermatic Fan Kit. This Fan Kit is suitable for both air-conditioning condenser and engine radiator cooling. We trust you've selected the most suitable model for your application. If you have any questions please contact Davies, Craig direct on (03) 9369-1234 or info@daviescraig.com.au

2. KIT REQUIREMENTS

This kit includes all parts necessary for condenser cooling. If you wish to cool the vehicle radiator you should purchase one of Davies, Craig's Thermatic Switches Parts: #0401 or #0444 from your retailer or on line from the Davies, Craig website, www.daviescraig.com.au. If you wish to cool both radiator and condenser cores you should purchase a Thermatic Switch & Relay Kit #0404 which contains a Thermatic Switch, #0401 and an extra relay and wiring loom or the Digital Electronic Switch #0444.

3. FAN ORIENTATION

All Davies Craig fans are reversible and may be mounted either **upstream** (in front of radiator/condenser) or **downstream** (on the engine side of the radiator/ condenser).

NOTE: ALL THERMATIC FANS ARE FACTORY ASSEMBLED TO BE MOUNTED UPSTREAM (in front of radiator/condenser)

If there is insufficient space in front of the radiator/condenser, the fan may be mounted downstream, provided four steps are taken before mounting.

For **downstream** mounting

- (i) Remove the clip or undo the hex nut from the centre of the fan blade.
- (ii) Remove the fan blade from the motor shaft, turn it over and replace. In every case the instruction, printed on the blade, 'this side must face front of vehicle' or 'this side must face rear of vehicle' must be followed.
- (iii) Re-secure the fan blade
- (iv) Before mounting the fan to the face of the radiator/condenser, note the direction of the arrow on the fan blade and when wiring, ensure the fan rotates in the direction of the arrow in all cases.

Optimum Thermatic Fan performance (forced air flow) will be achieved by mounting the fan directly to the surface of the respective condenser and radiator core.

If you are having your fan fitted by a professional, please ask that these instructions are read in full and understood before installation.

Vehicles used for towing caravans and large trailers may need to retain the standard belt-driven fan, at least in summer, with the electric fans fitted in the upstream position.

Air-conditioned cars should be fitted with a condenser fan such as the 9" or 10" if one is not already fitted. The 12" and 14" are suitable for cooling condensers on large sedans and wagons and the 14"HP or 16" is suitable for condenser cooling on large commercial vehicles.



4. INSTALLATION OF FANS

There are four stages involved in the installation of your Davies, Craig Fan(s).

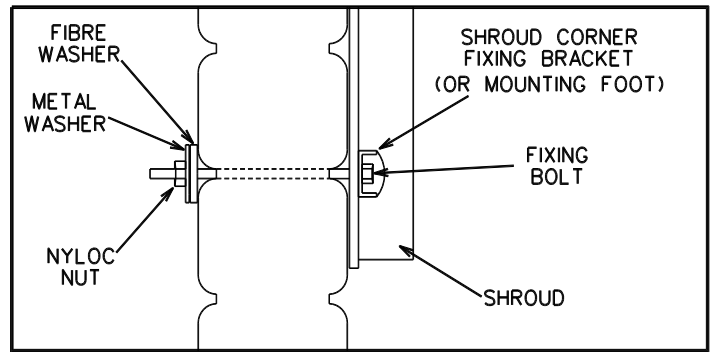
- a) Mounting the fan assembly.
- b) Installation of the Thermatic Switch.
- c) Wiring.
- d) Setting the Thermatic Switch.

CONDENSER COOLING ONLY

1. If you've purchased the Thermatic Fan to cool the A/C condenser, it should be mounted **upstream**.

RADIATOR COOLING

2. Remove the original belt driven fan and shroud. After removing fan from the pulley, replace the bolts in the water pump hub. You may need washers (not provided) to replace the thickness of the belt driven fan.
3. Decide which surface of the radiator you wish to mount the fan(s). If you are fitting two fans it may be necessary to fit the larger of the two upstream and the smaller downstream, with as little overlap as possible.
4. Pay particular attention to the markings/arrows on the fan hub regarding the direction the fan should face. These instructions must be followed closely, whether you choose upstream or downstream mounting. **Please note;** the direction of rotation is indicated by the arrow on the fan hub. Once the fan has been installed the arrow may not be visible.
5. Position the fan(s) directly on the surface of the radiator/condenser. Take care that the fan and shroud does not foul any struts, engine pulleys, bonnet latches etc., including when the bonnet is closed.
6. For 8", 9", 10" and 12" fans, check that the wires exit the motor downwards (i.e.: at 6 o'clock), to ensure any condensation formed in the motor can drain.
7. Depending on the space available and the presence of a condenser core, you may prefer at this point to remove the radiator from the vehicle to ease the fitting procedure.
8. Separate the condenser/radiator fins at the four points where the mounting bolts are to be passed through the radiator between the tubes. Use a pencil or "Phillips head" screwdriver to separate the fins, being careful not to damage the tubes.



9. Fix the fans(s) to the radiator/condenser using the long bolts and nuts provided, together with the fibre and steel washers as per above diagram.

NOTE: Long bolts are supplied to accommodate thick cores. Ensure that the protruding bolts do not foul any other radiator cores or engine parts. Trim with bolt cutters if necessary.

10. Before wiring, spin the fan by hand to ensure free and unobstructed rotation.

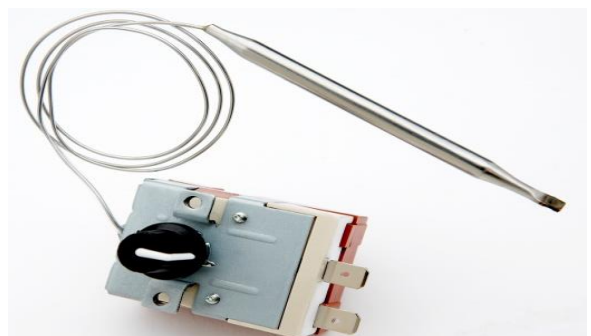
THERMATIC SWITCHES

Davies Craig offers four Thermatic Switches to suit various Thermatic Fan applications;

The Digital Electronic Thermatic Switch, Part #0444. This Switch will operate two Thermatic Fans, either twin fans for the radiator core or one on the radiator and one on the condenser core. (12 Volt Only)



The Mechanical Thermatic Switch, Part #0401 - Suit 12v & 24v





WARNING: Do not use the vehicle's engine management system or wiring connected to the management system as an ignition source as it may cause failure of the management system and/or the electrical system. The ignition source must be a steady positive supply of 12 or 24V DC.

If in doubt about any aspect of these instructions consult your retailer or Davies, Craig P/L direct on: (03) 9369-1234 or e-mail info@daviescraig.com.au

IMPORTANT NOTES

Four Wheel Drives - monitor engine temperature closely when using off-road at low forward speeds in hot weather. If you wish, supplement cooling with the Davies, Craig EWP – Electric Water Pumps.

Towing of heavy boats and caravans can cause overheating. Thematic fans can help to solve this, particularly if mounted in front of the radiator and, if necessary, used in conjunction with the standard belt driven fan, or an EWP.

Air-conditioned vehicles normally require a condenser fan in conjunction with the standard belt driven fan.

It is possible to eliminate the belt driven fan all together by using a combination of Thematic Fans suitable to your vehicle, as set out on the 'Model Selection Guide', with an air-conditioner condenser fan. This will give you all the benefits of electric cooling.

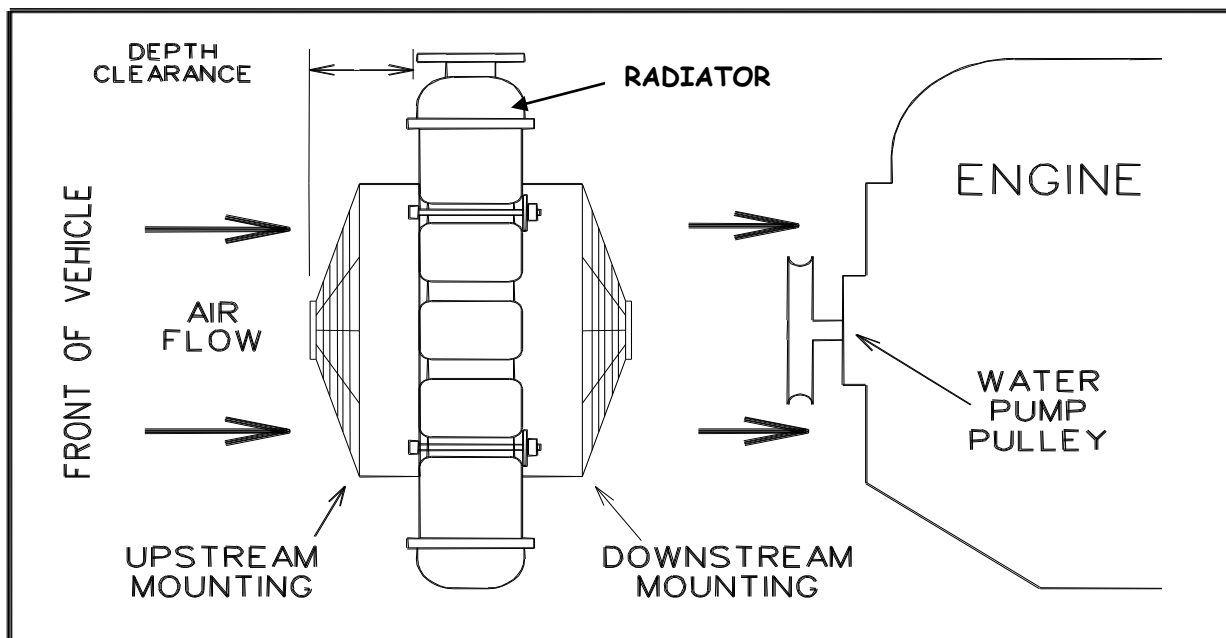
If overheating persists there may not be enough coolant flow. The Davies Craig EWP (Electric Water Pump) will solve the problem. More details are on our website. www.daviescraig.com.au.

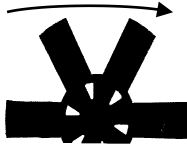
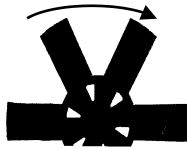
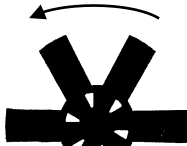

TROUBLE SHOOTING:

The following notes are designed to help you overcome the most common problems experienced by customers with Thematic fans:

- 1. FAN RUNS NORMALLY BUT ENGINE OVERHEATS, CHECK:**
 - a. Correct model is fitted
 - b. Thermal Switch is set correctly
 - c. Fan blade facing the right way and rotating in direction of the arrows and in accordance with chart.
 - d. Fan/s connected to full 12V power source.
 - e. Fan too far from face of radiator
 - f. Other cooling system problems
- 2. FAN RUNS WHEN CAR TRAVELLING AT MEDIUM TO HIGH SPEEDS, CHECK:**
 - a. Adjustment of thermal switch
 - b. Is the vehicle towing?
 - c. Other cooling system faults
- 3. FAN DOES NOT RUN OR RUNS SLOWLY, CHECK:**
 - a. Fuses
 - b. Adjustment of thermal switch –set too high!
 - c. Wiring integrity
 - d. Connect motor(s) directly to battery then trace wiring towards switch if motor(s) runs.
 - e. Check earth connections.

FAN ROTATION AND POLARITY



| DAVIES CRAIG Fan Models | | UPSTREAM | DOWNSTREAM |
|--|---------------------------------|---|--|
| DCSL-8 DCSL-9 DCSL-10 DCSL-12 DCSL-16 DCSL-14HP | MOTOR - EARTH WIRE | BLUE or RED | BLACK |
| | FAN ROTATION |  |  |
| DCSL-14 | MOTOR-EARTH WIRE & FAN ROTATION | BLACK  | BLUE or RED  |

NOTE: Rotation as viewed from front of vehicle must be clockwise in all cases, except DCSL-14 which rotates anti-clockwise.

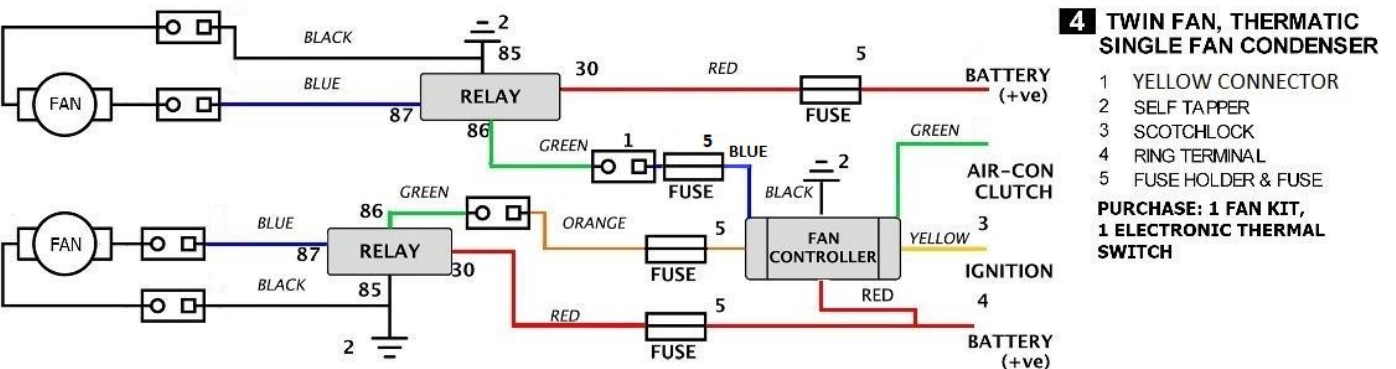
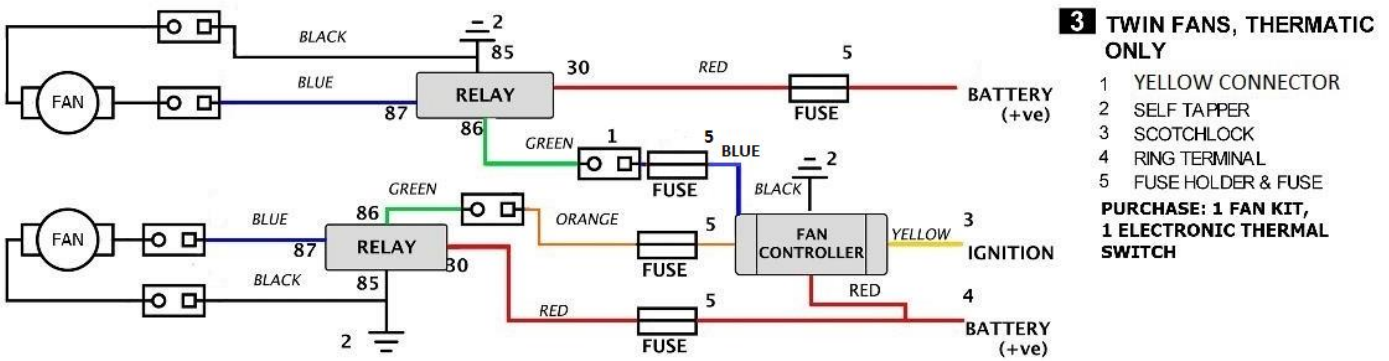
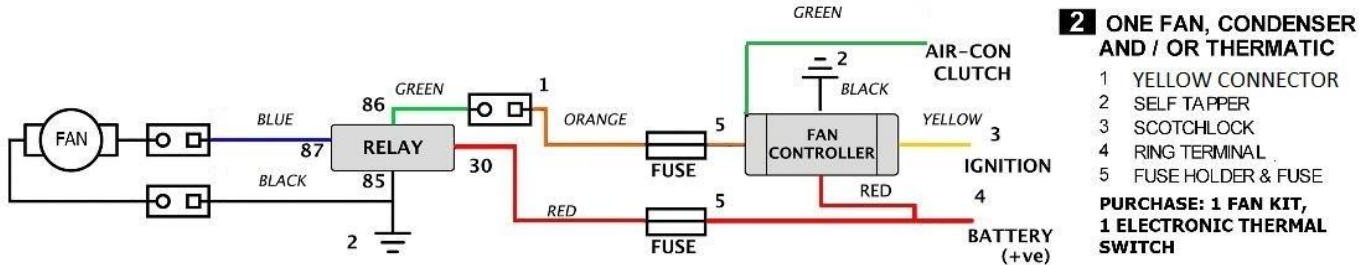
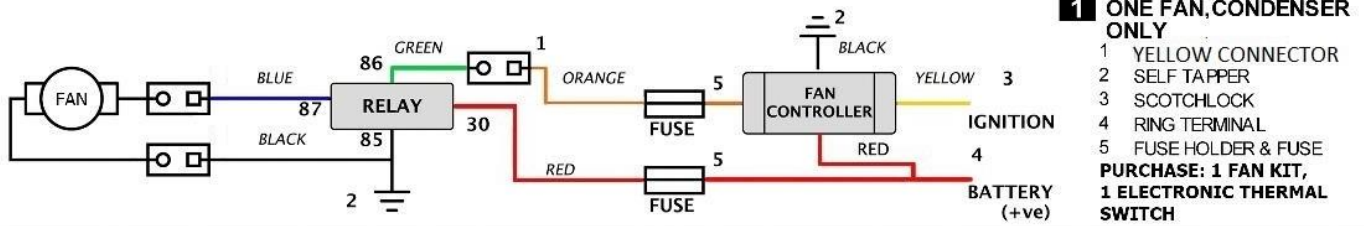
Colour of motor earth lead depends on fan location upstream or downstream.

The two terminals on the thermal switch are equivalent. It does not matter which goes to ignition and which goes to the relay. When the switch closes it just connects the two terminals.

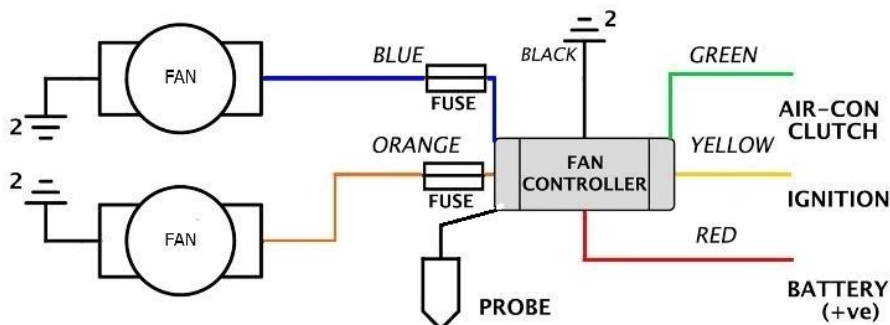
These installation instructions will suit most applications but there are circumstances surrounding some engine designs, environments, and the nature of system involved, which may require other installation arrangements not outlined here. Frequently Asked Questions are listed on our website www.daviescraig.com.au Davies Craig Pty Ltd appreciates customer feedback. Emails can be directed to info@daviescraig.com.au or Telephone +61 (0) 3 9369 1234.

DAVIES, CRAIG PTY. LTD. THERMATIC FAN WIRING DIAGRAM WITH #0444
 (FOR USE WITH THE ELECTRONIC THERMAL SWITCH ONLY)

WIRING DIAGRAMS 1-4 ARE FOR USE WITH A DAVIES CRAIG THERMATIC FAN ONLY



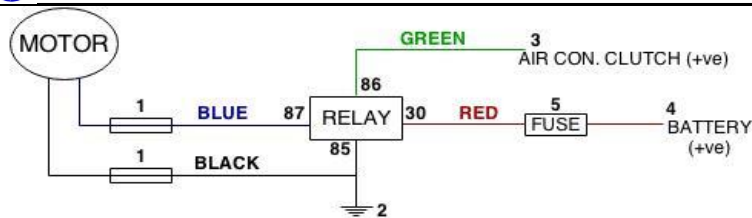
IF YOU ARE USING THE THERMAL SWITCH WITHOUT A DAVIES CRAIG THERMATIC FAN KIT, FOLLOW THE DIAGRAM BELOW.



NOTE : FAN 1 IS THE ORANGE WIRE
 FAN 2 IS THE BLUE WIRE

PLEASE CHECK THE FAN POLARITY BEFORE CONNECTING TO THE SYSTEM

DAVIES, CRAIG THERMATIC FAN WIRING DIAGRAMS WITH #0401 SWITCH

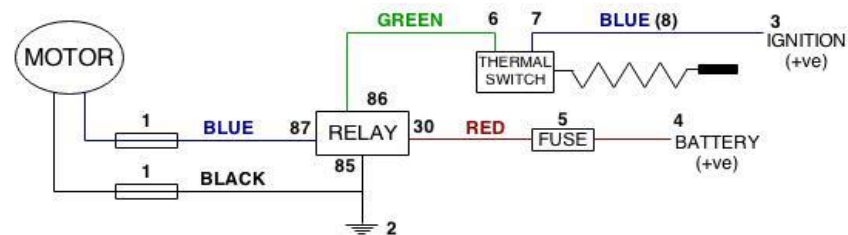


1 ONE FAN, CONDENSER ONLY

- 1 BLUE CONNECTOR (FROM FAN KIT)
- 2 SELF TAPPER (FROM FAN KIT)
- 3 SCOTCHLOCK (FROM FAN KIT)
- 4 RING TERMINAL (FROM FAN KIT)
- 5 FUSE HOLDER & FUSE (FROM FAN KIT LOOM)

PURCHASE: 1 FAN KIT

WARNING: ENSURE IGNITION SOURCE IS NOT CONNECTED TO THE ENGINE MANAGEMENT SYSTEM

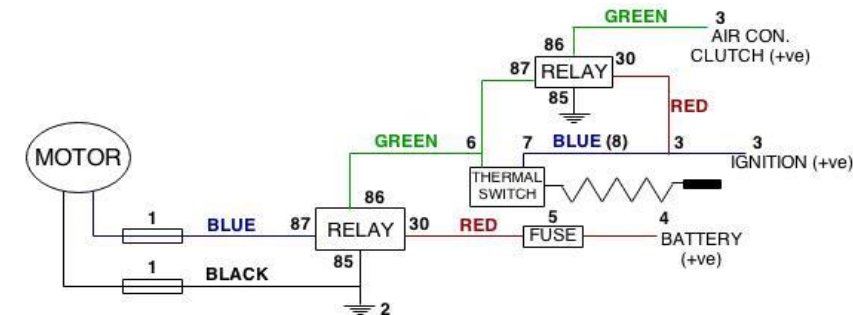


2 ONE FAN, THERMATIC ONLY

- 1 BLUE CONNECTOR (FROM FAN KIT)
- 2 SELF TAPPER (FROM FAN KIT)
- 3 SCOTCHLOCK (FROM FAN KIT)
- 4 RING TERMINAL (FROM FAN KIT)
- 5 FUSE HOLDER & FUSE (FROM FAN KIT LOOM)
- 6 FEMALE SPADE BLUE (FROM THERMAL SWITCH KIT)
- 7 FEMALE SPADE BLUE (FROM THERMAL SWITCH KIT)
- 8 COILED BLUE WIRE (FROM THERMAL SWITCH KIT)

PURCHASE: 1 FAN KIT, 1 THERMAL SWITCH KIT P/NO: 0401

WARNING: ENSURE IGNITION SOURCE IS NOT CONNECTED TO THE ENGINE MANAGEMENT SYSTEM

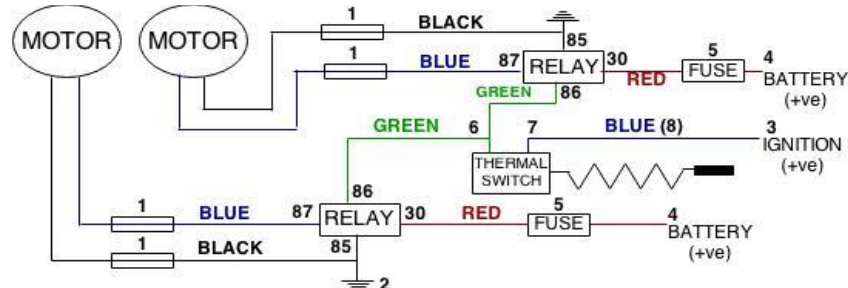


3 ONE FAN, CONDENSER AND / OR THERMATIC

- 1 BLUE CONNECTOR (FROM FAN KIT)
- 2 SELF TAPPER (FROM FAN & THERMAL SWITCH KIT)
- 3 SCOTCHLOCK (FROM FAN & THERMAL SWITCH KIT)
- 4 RING TERMINAL (FROM FAN KIT)
- 5 FUSE HOLDER & FUSE (FROM FAN KIT LOOM)
- 6 FEMALE SPADE BLUE (FROM THERMAL SWITCH KIT)
- 7 FEMALE SPADE BLUE (FROM THERMAL SWITCH KIT)
- 8 COILED BLUE WIRE (FROM THERMAL SWITCH KIT)

PURCHASE: 1 FAN KIT, 1 THERMAL SWITCH & RELAY KIT P/NO: 0404

WARNING: ENSURE IGNITION SOURCE IS NOT CONNECTED TO THE ENGINE MANAGEMENT SYSTEM

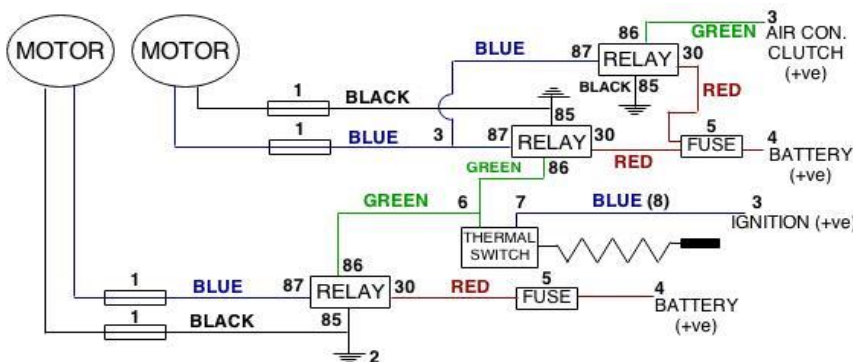


4 TWIN FANS, THERMATIC ONLY

- 1 BLUE CONNECTOR (FROM FAN KITS)
- 2 SELF TAPPER (FROM FAN KITS)
- 3 SCOTCHLOCK (FROM FAN KITS)
- 4 RING TERMINAL (FROM FAN KITS)
- 5 FUSE HOLDER & FUSE (FROM FAN KITS)
- 6 FEMALE SPADE BLUE (FROM THERMAL SWITCH KIT)
- 7 FEMALE SPADE BLUE (FROM THERMAL SWITCH KIT)
- 8 COILED BLUE WIRE (FROM THERMAL SWITCH KIT)

PURCHASE: 1 FAN KIT, 1 THERMAL SWITCH KIT P/NO: 0401

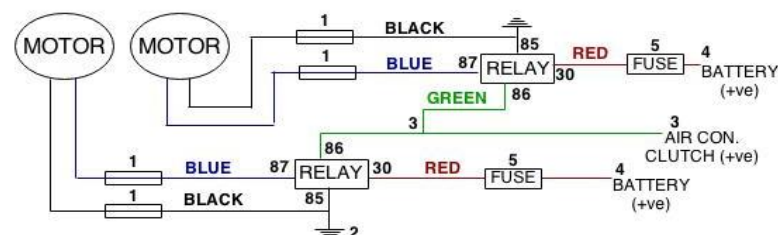
WARNING: ENSURE IGNITION SOURCE IS NOT CONNECTED TO THE ENGINE MANAGEMENT SYSTEM



5 TWIN FAN, THERMATIC SINGLE FAN CONDENSER

- 1 BLUE CONNECTOR (FROM FAN KITS)
- 2 SELF TAPPER (FROM FAN & THERMAL SWITCH KIT)
- 3 SCOTCHLOCK (FROM FAN KITS)
- 4 RING TERMINAL (FROM FAN KITS)
- 5 FUSE HOLDER & FUSE (FROM FAN KITS)
- 6 FEMALE SPADE BLUE (FROM THERMAL SWITCH KIT)
- 7 FEMALE SPADE BLUE (FROM THERMAL SWITCH KIT)
- 8 COILED BLUE WIRE (FROM THERMAL SWITCH KIT)

PURCHASE: 2 FAN KITS, 1 THERMAL SWITCH & RELAY KIT P/NO: 0404



6 TWIN FANS, CONDENSER ONLY

- 1 BLUE CONNECTOR (FROM FAN KIT)
- 2 SELF TAPPER (FROM FAN KITS)
- 3 SCOTCHLOCK (FROM FAN KITS)
- 4 RING TERMINAL (FROM FAN KITS)
- 5 FUSE HOLDER & FUSE (FROM FAN KITS)

PURCHASE: 2 FAN KITS

Note: Colour of motor leads depends on fan location (upstream/downstream)

If in doubt, refer to the rotation and polarity chart.

The two terminals on the thermal switch are equivalent. It does not matter which goes to the ignition and which

WARRANTY

We warrant that for a period of two years or 2000 hours continuous running (whichever is the lesser) from the date of purchase, we shall carry out, free of cost, any repairs that are reasonably necessary to correct any fault in the operation of your Davies, Craig product provided that such a fault is directly attributable to a defect in the workmanship or materials used in the manufacture of the part(s) and is not due to installation other than described in these instructions. Labour and consequential costs are excluded.

DAVIES, CRAIG PTY. LTD.

REGISTER YOUR WARRANTY AT:

www.daviescraig.com.au





A History of Service

How did a small Australian company grow to become a world leader in its field? The answer is simple. **Innovation.**

The ability to create new solutions to problems and a commitment to technology, service and quality has made Davies, Craig one of Australia's most successful exporters, providing class-leading automotive cooling products to markets around the world.

Fanning the Winds of Change

In 1971, belt-driven fans were the only option for automotive cooling. Searching for a more efficient method, Australian engineers Daryl Davies and Bill Craig created the Thermatic® Fan.

Davies, Craig was formed to manufacture the new electric Thermatic® Fans, and has since developed a comprehensive range, covering most makes of vehicle. In 1999 it released the revolutionary universal fit EWP®80 Electric Water Pump, supported by the brushless Electric Booster Pump (EBP®). In 2005 the company launched the EWP®110 which offered increased capacity for larger engines. The release and success of the lightweight, more compact, more powerful EWP®115, and the EWP®/Fan Digital Controller confirmed Davies, Craig as leaders in cooling technology.

Technology Creating Solutions

Whatever your automotive cooling needs, Davies, Craig has the electric Thermatic® Fan, viscous fan clutch, transmission oil cooler, electric water pumps and the system to manage most engine cooling requirements.

The ability to quickly adapt to the specific engine cooling requirements of both new and existing customers has been a major factor in our success.

Today Davies, Craig tailor-made cooling systems

are supplied as original equipment to automotive manufacturers throughout the world. Davies, Craig was established to satisfy a market need and our ongoing investment in Research and Development will ensure we continue to provide better and more efficient products.

Our facilities include a fully-computerised wind tunnel and balancing machine which provides a fan performance measurement service to the industry. An electronically-controlled cooling system, complete with radiator, fan, Electric Water Pump and programmed heat source, simulates the daily conditions experienced by any car on the road.

As part of its continuous improvement program Davies, Craig invested heavily in two state-of-the-art product testing machines. To further scrutinise ever-increasing sales volumes of our Electric Water Pumps, a Mass Flow Leak Tester and Pressure Decay Tester have been installed in the production line. The Mass Flow Leak Tester is a one-step process designed to pick up any abnormalities in the EWP®80 pump. This specific high-pressure test determines whether there are any abnormalities such as leaks and provides an excellent high-quality test standard and review process. The Pressure Decay Tester will monitor pressure over a given time to determine to any deterioration in pressure of the EWP®115 pump. Both test methods yield finer accuracy and are valuable additions to our EWP® production process.

With increased demands on pump performance and durability, the Electric Water Pump is fast becoming a more popular mode of engine cooling management as the benefits of independent electric water pump operation is becoming more apparent.

Products Replacing a Belt-driven Fan

At higher speeds, most cars do not require the services of an engine-driven fan, so why waste fuel driving an unnecessary mechanical fan? Davies, Craig electric fans can reduce fuel consumption by up to 15% in six-cylinder cars.