Stag cooling system mods

STAG BY TRIUMPH

By James Ostergaard

Mods performed include.

- Overflow bottle replaced by expansion bottle.
- Davies, Craig EWP115 Electric Water Pump fitted.
- EWP/Fan Digital Controller fitted.
- Removed original fan & fitted a Davies, Craig 16” Thermatic electric fan.
- Air bleed on rear of right hand head.
- Air gaps around radiator blocked off.
- Air flow blocked inside the front guards.

Basics first

- Flush radiator & remove residual casting sand from the block

Overflow bottle replaced by expansion bottle.

- Discard old overflow bottle & cut off the bracket.
- Install new expansion bottle at the highest point under the bonnet.
- New expansion bottle has a level sensor.

Remove the old overflow bottle

New expansion bottle

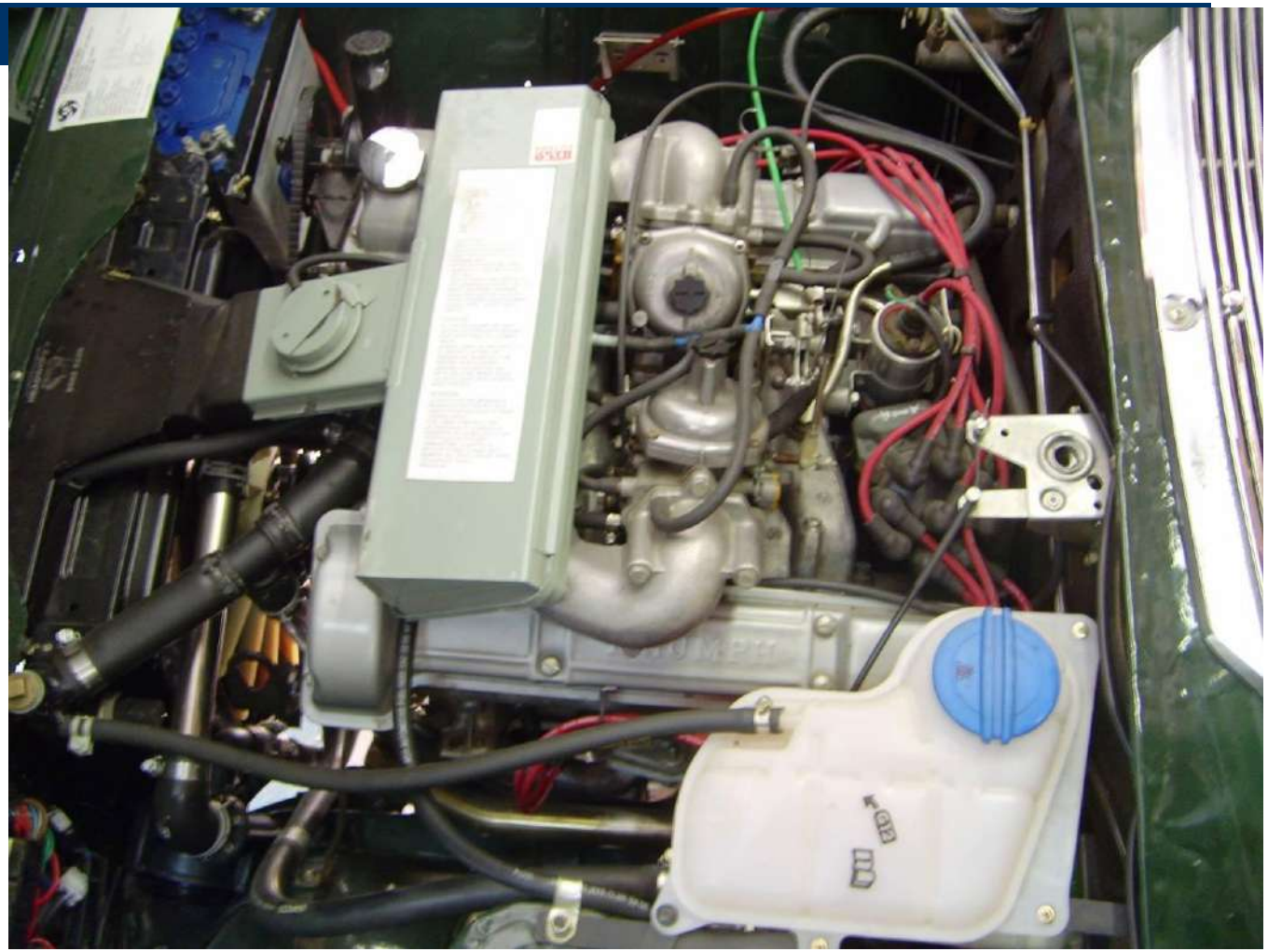
Price

from VW

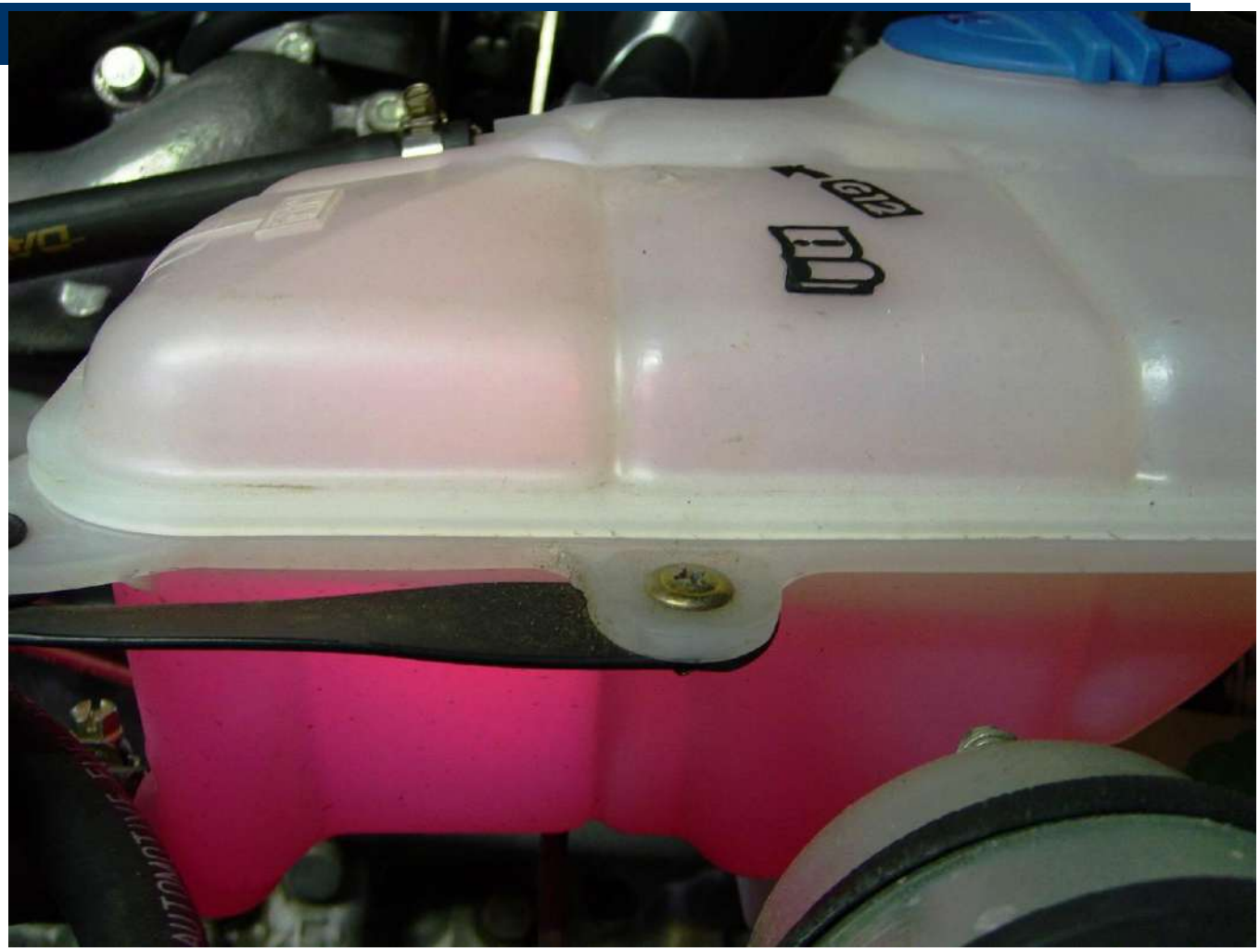
$57.62

In June 08

Expansion bottle mounted high



Easy to see coolant level



1.5 Bar Pressure cap (21.75 psi)

Price

from VW

$19.42

In June 08

Electric water pump & digital controller.

- The Electric Water Pump takes the place of the original Stag water pump, and does a much better job.
- EWP/Fan Digital Controller runs the EWP in pulse mode until the engine reaches operating temp.
- EWP/Fan Digital Controller runs EWP after engine shut down to prevent **heat soak.**
- EWP/Fan Digital Controller operates the Thermatic electric fan.

EWP115 Electric Water Pump & Digital Controller. (DIY kit)

Remove Stag pump & keep housing

Price

From Triumph spares

12 vane $300

Housing $150 in June 99

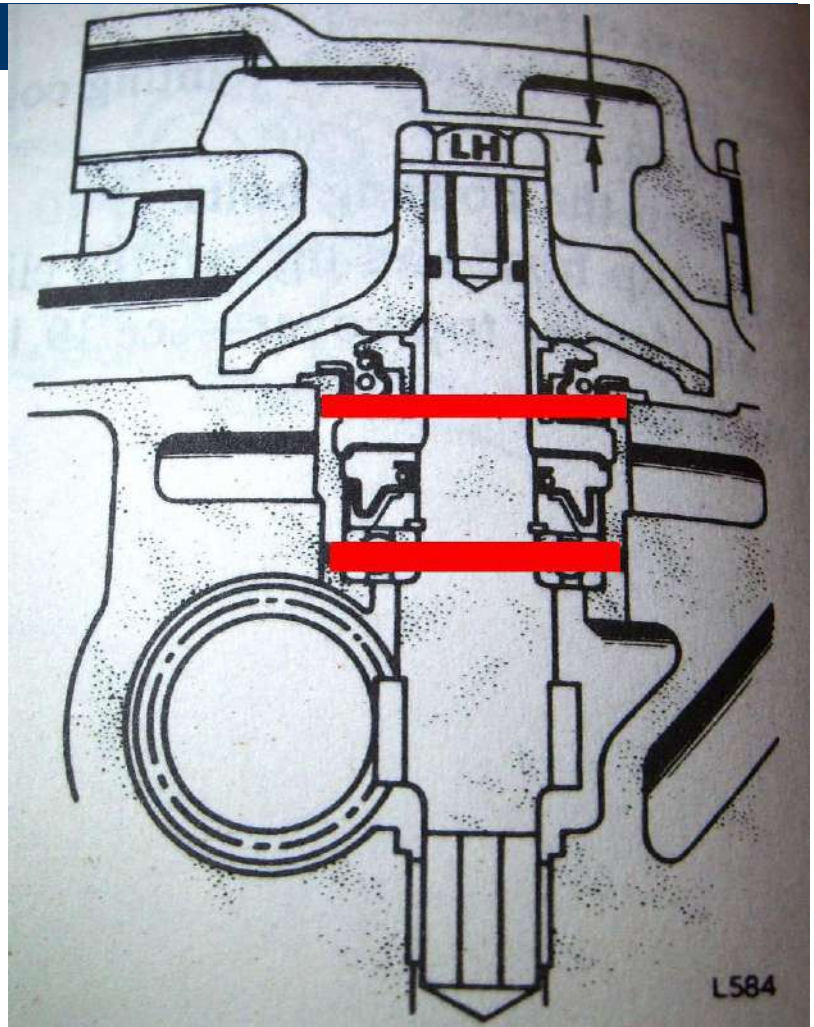
Plug water pump holes

Use Welch plugs

2 plugs required

1 x 43mm aprox.

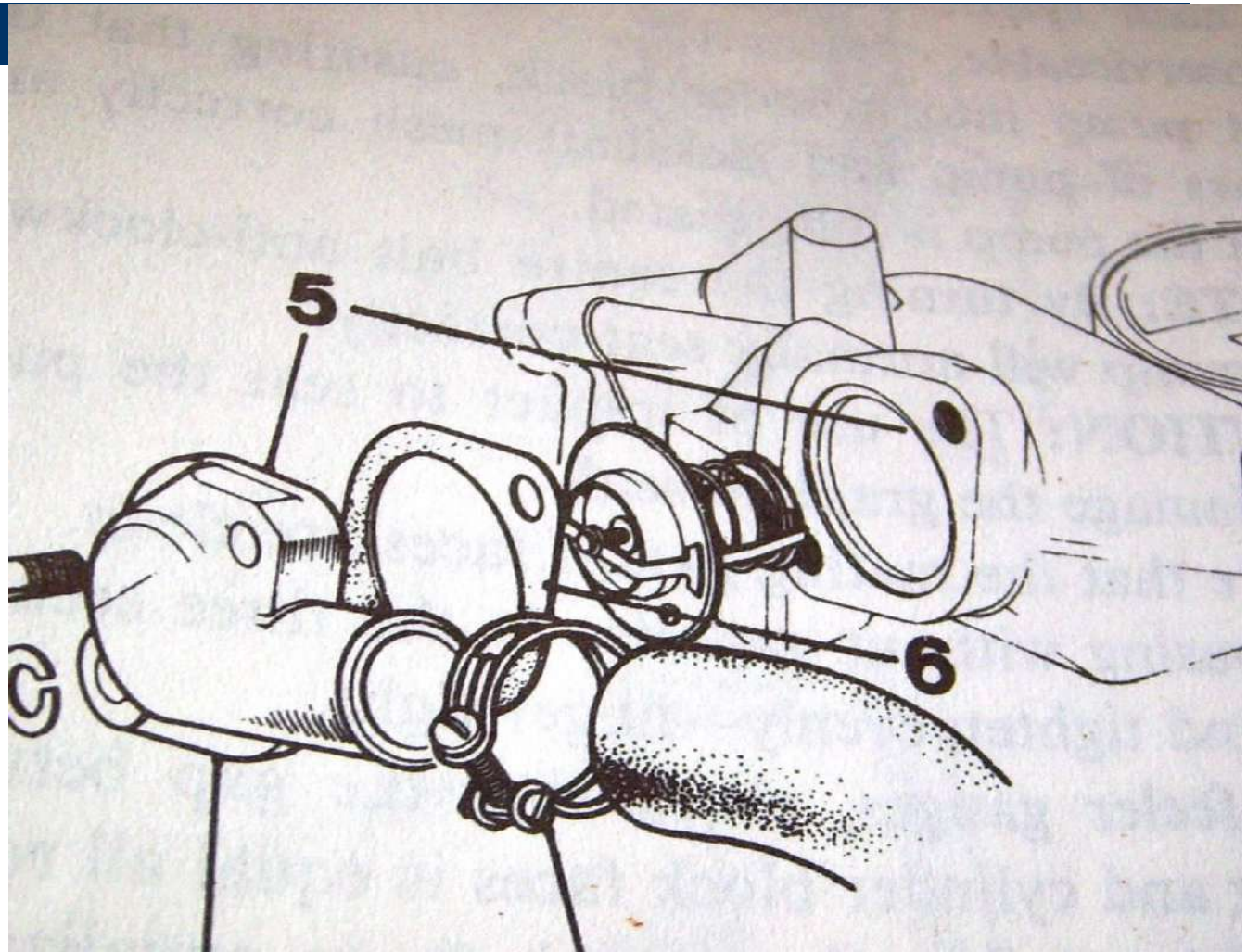
1 x 45mm aprox.



Remove original thermostat

- The EWP/Fan Digital Controller replaces and becomes the new ‘thermostat’.

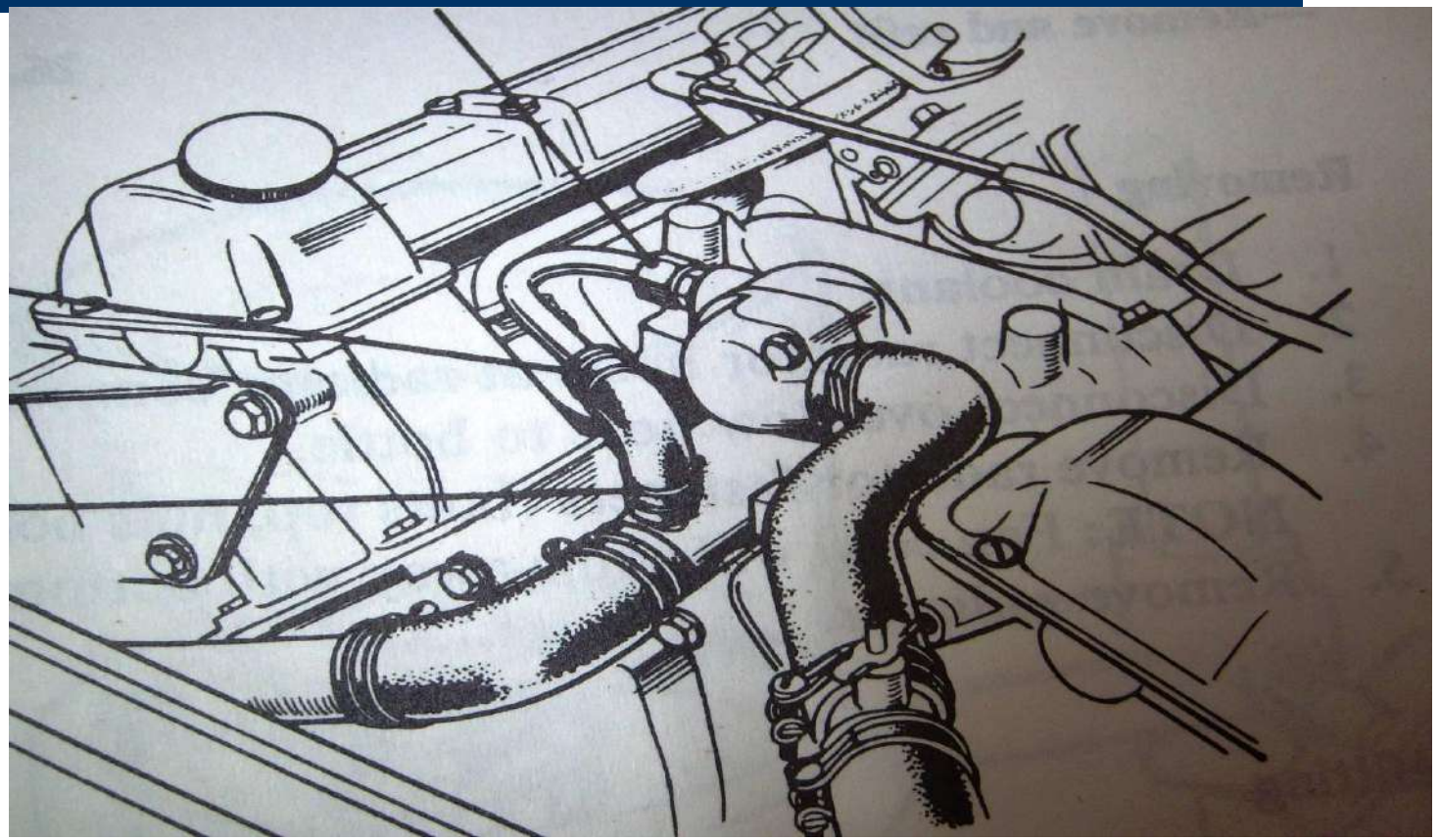
Remove original thermostat



Block off original bypass

- The Digital Controller unit takes over the job of the bypass.
- If the bypass is no blocked, hot coolant will circulate constantly & may cause overheating.

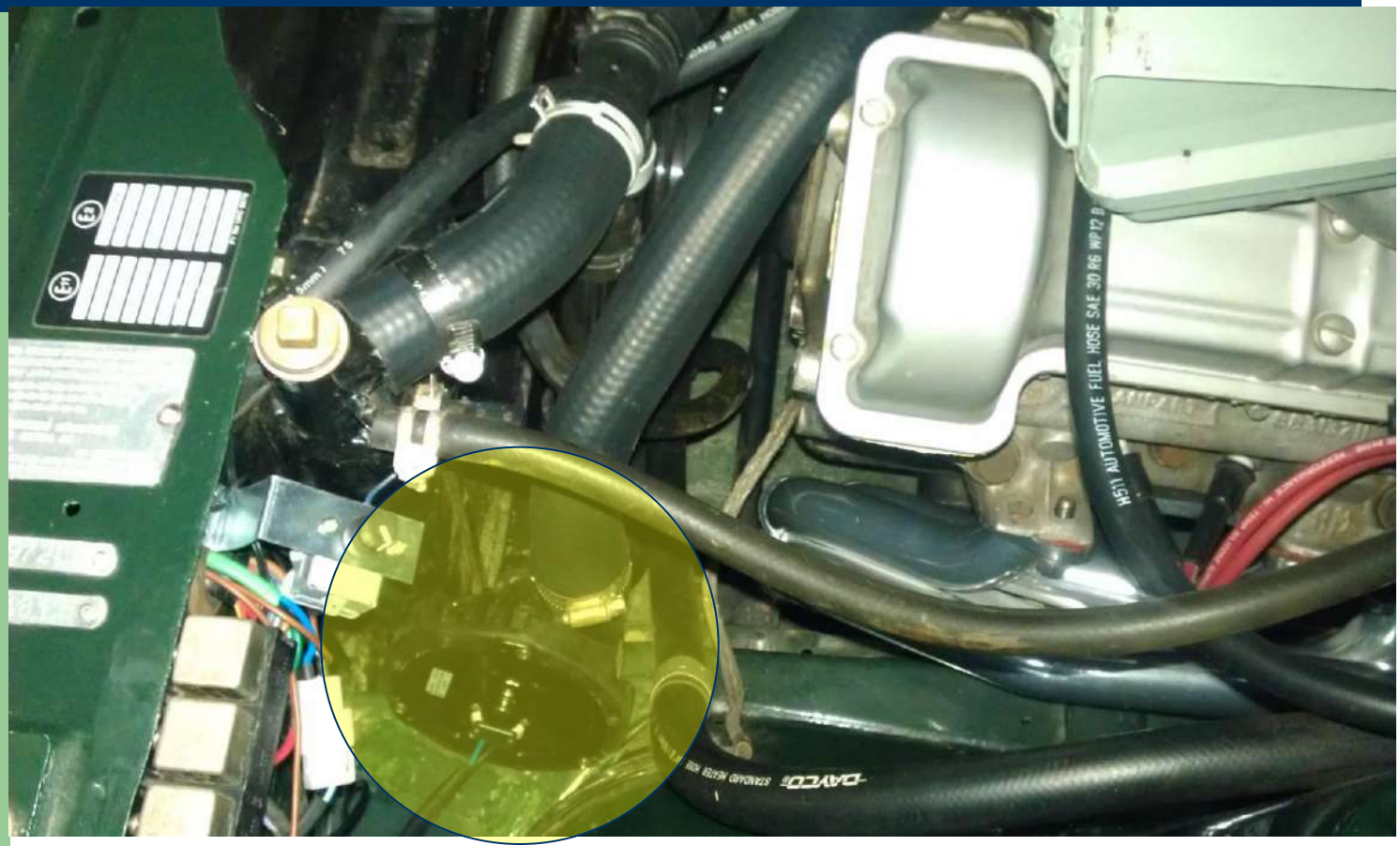
Block off original bypass



EWP location in a Stag

- The EWP115 needs to be mounted as low as possible in the system.
- The Electric Water Pump was fitted into the bottom radiator hose & rests where the original overflow bottle was removed.

EWP location in a Stag



Holden V6 hoses may be useful

Price

from Burson

$ 13.18 ea.

Heater return on suction side of pump

- A “T” piece was fabricated from stainless to make the heater work properly.

Heater return on suction side of pump

Controller mounted in glove box

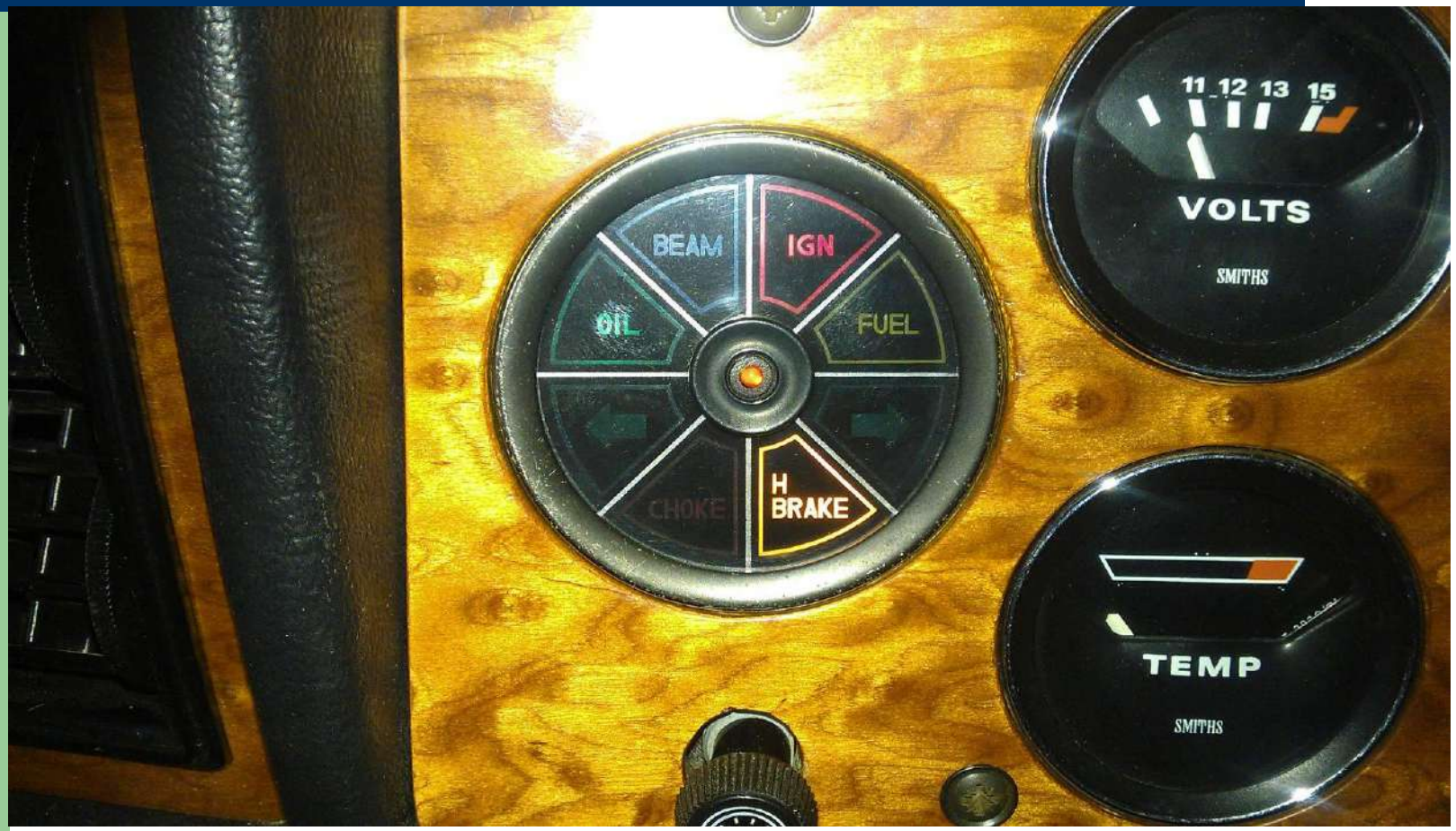
- Controller mounted in the glove box to preserve the original look of the interior.
- No cutting of the glove box was required.
- Wiring to Controller passes through an existing hole.
- Easy to get to for adjustment & observation.

Controller mounted in glove box

EWP warning LED

- The Electric Water Pump Controller warning light was installed into the middle of the warning light cluster, preserving the original look of the dash.

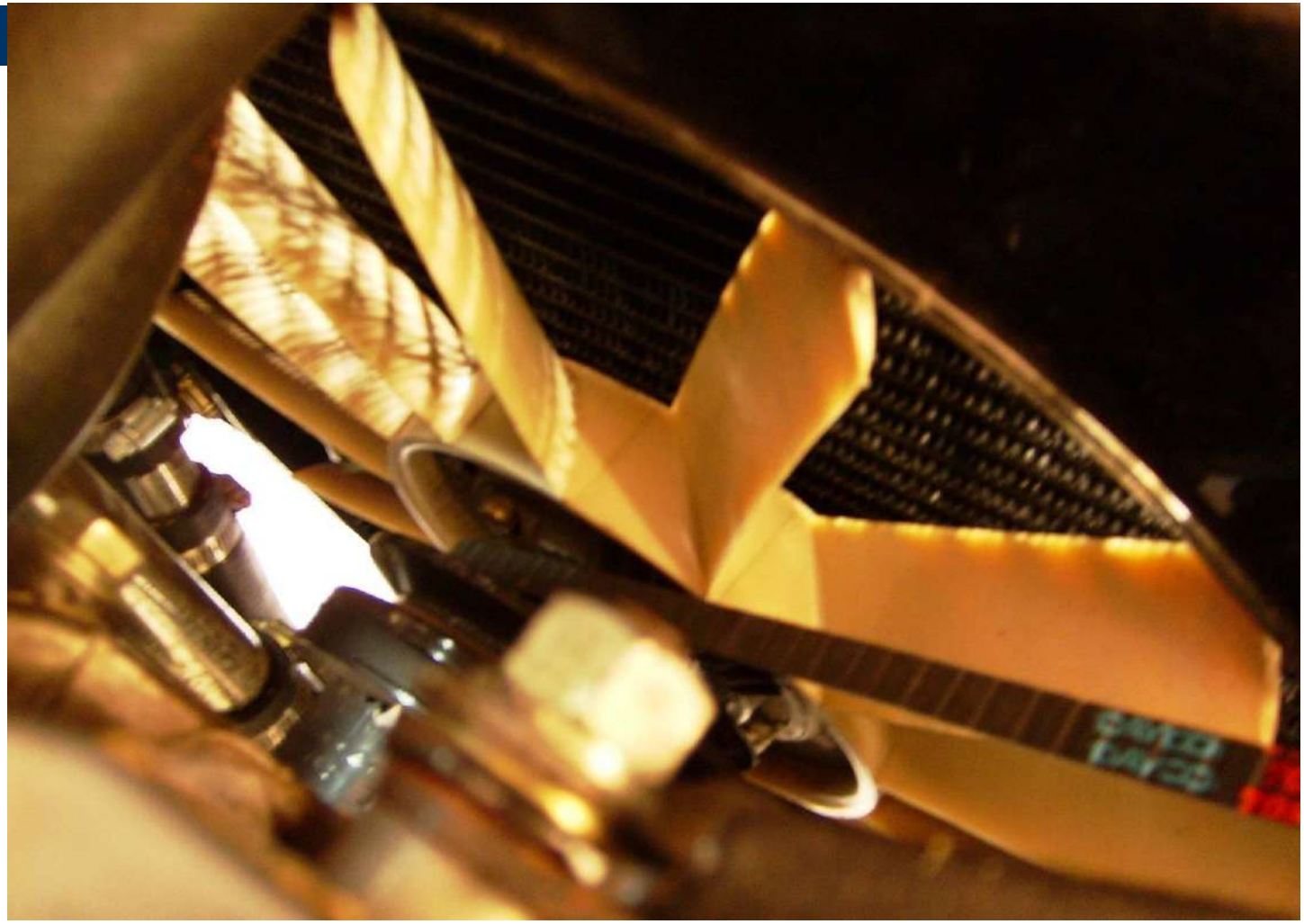
EWP warning LED



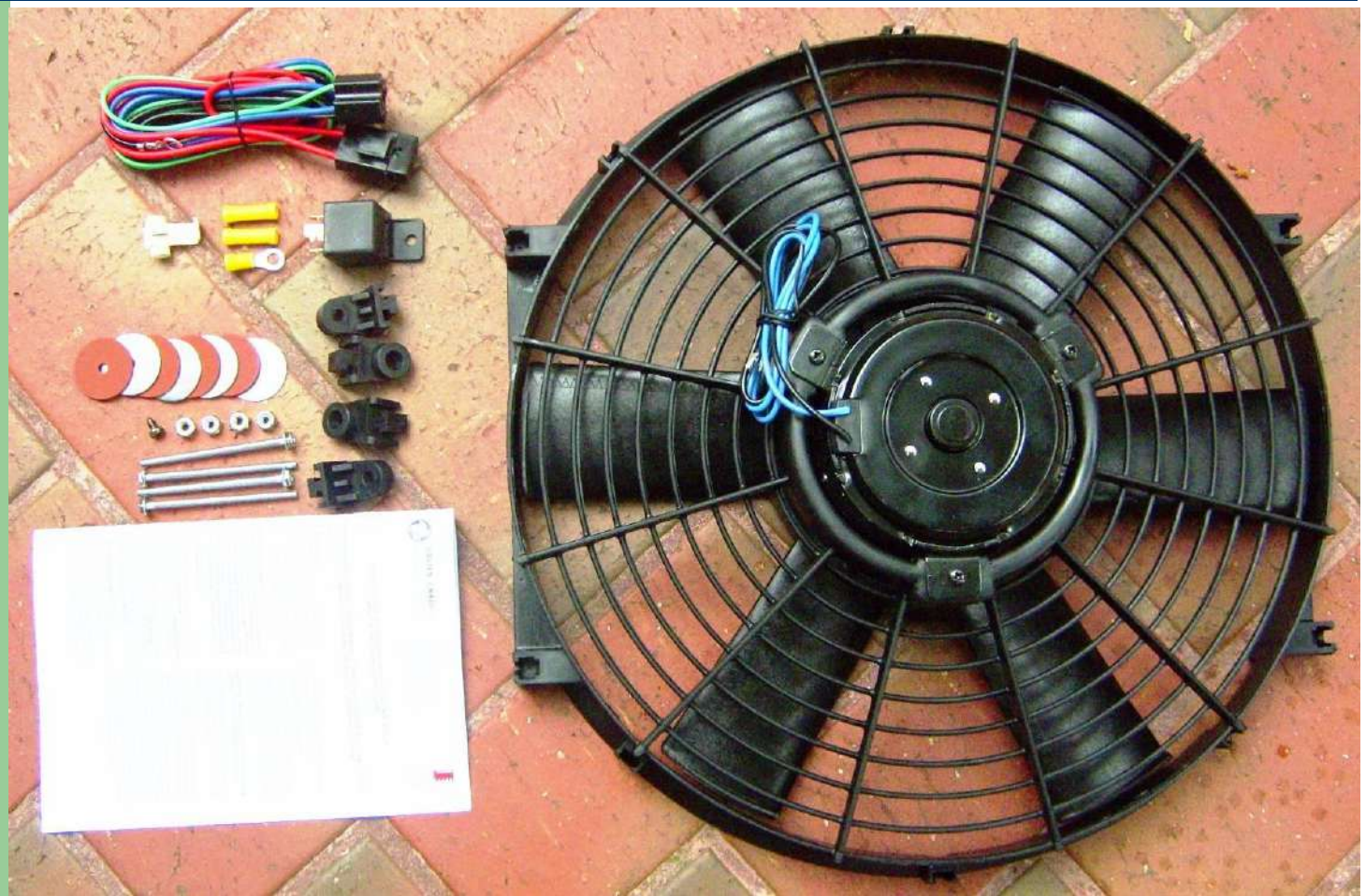
Original fan & viscous coupling

- Original fan, cowling & coupling is removed and replaced with a Davies, Craig Thermatic Fan 16” on the front of the radiator to increase air flow in traffic.
- This mod will increase horsepower & economy also.

Original fan & viscous coupling removed



Davies, Craig Electric Fan 16 inch.



Fan with brackets

- Fan brackets were fabricated to easily remove & refit the fan assembly in the vehicle.
- Brackets were also used because this size electric fan has the kick of a mule when it comes on.

Fan with brackets

Air bleed on the back of RH head

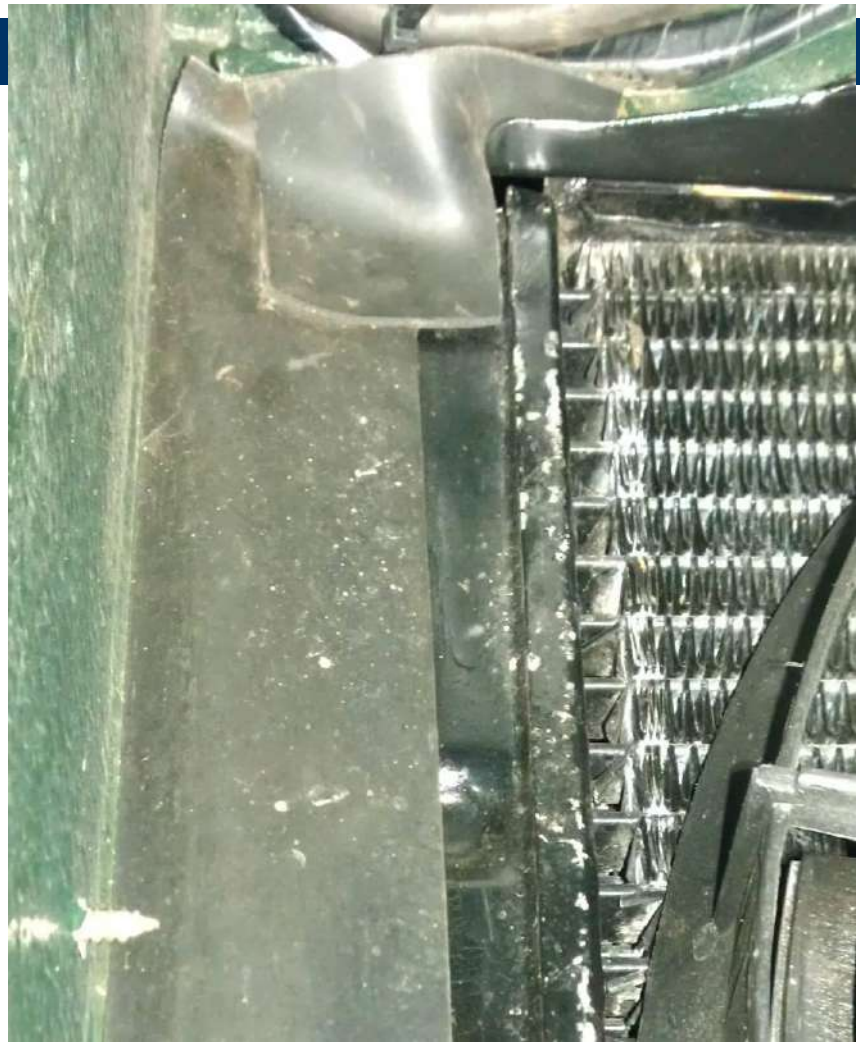
- Tap a thread for a hose union into the plate at the back of the right hand head, and run a hose to a “T” in the heater hose or to the top radiator hose.

Air bleed on the back of RH head

Block up air gaps around radiator

- Void area in the front wings were blocked with foam rubber, trimmed to the correct shape.
- Air gaps around the radiator were blocked up with 60mm x 3mm strips of rubber, glued to the radiator tanks.
- These mods force air through the radiator rather than around it.

Block up air gaps around radiator



Use a high quality coolant

Price

from VW

$10.94 ea

In June 08

Boiling point of coolant

- With a 50% mix raises the boiling point for this cooling system up to 145°C.

Boiling point of coolant

Freeze and Boil Protection Chart (°F and °C)		
Percentage of cooling system capacity	Protects from:	
	Freezing down to:	Boiling up to:
33.3%	0°F (-17.8°C)	220°F (104.4°C)
40%	-12°F (-24.4°C)	222°F (105.6°C)
50%	-34°F (-36.7°C)	226°F (107.8°C)
60%	-62°F (-52.2°C)	231°F (110.6°C)

Note:

Boiling points at sea level with no system pressure. Boiling points increase by 3° F (1.7°C) for each pound of pressure (PSI) (0.07 bar) maintained by the cooling system pressure cap. A 21¾ psi (1.5 bar) pressure cap raises boiling point by approx. 65° F (37° C)