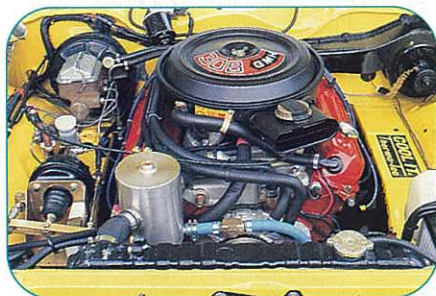




Directional flow controller.



Heavily modified 308 Torana engine was subjected to overheating problems, ill mannered running and poor fuel consumption. With full bypass system it runs a perfect temperature, fuel consumption is improved at least 20 per cent and it's now smooth and reliable.

## A better explanation

The Ecotherm system circulates the hot coolant from the cylinder head back into the engine via the external bypass, thus transferring heat from the hotter combustion chambers into the cooler area around the cylinder walls without passing through the radiator and rejecting heat into the air. As the engine temperature increases, the temperature of the coolant coming out of the cylinder head and running down the external bypass and into the new thermostat housing increases to the point when the thermostat cracks open.

At this point, cold coolant is admitted into the mixing chamber of the new thermostat housing from the bottom of the radiator. Coolant from the bypass is mixed with coolant from the radiator and when the combined temperature of these coolants is low enough, the thermostat closes again.

This way the temperature of the coolant being drawn into the engine is controlled by the temperature of the thermostat, not the temperature of the bottom of the radiator. The system avoids over-cooling of the cylinder walls and enables a more constant temperature throughout the engine — the result is more efficient combustion because less heat is rejected through the radiator. Benefits not yet mentioned include rapid warm up, smoother running and lower radiator pressure.

## Journalistic conclusion

Time spent analysing the Ecotherm system included discussions with customers, we looked at water pump efficiency and design, and read customer testimonials. Our conclusion is that the system works as claimed, however, there's more to it than meets the eye.

It appears that the majority of water pump manufacturers pay little attention to efficient design and as such even the Ecotherm system can be at risk if a faulty or poorly designed pump is fitted to an engine. Our photo captions will provide you with a better understanding.

Ecotherm is currently aiding an Australian water pump manufacturer with new designs to suit almost every engine, and from what we have been able to assess, an efficient pump is desperately needed.

Unbiased customer testimonials absolutely floored us with their praise for what on the surface appears to be a simple 'back-to-basics' system. All agreed that the system makes for much smoother running, marked fuel consumption improvements, increased engine torque and absolutely no sign of overheating or underheating.



Basic Ecotherm external bypass system incorporates a lower hose thermostat housing, directional flow controller (partially de-aerates bypassing coolant and is an adjustable means of controlling flow), junction block (facilitates priming for filling system and opportunity to observe rate of coolant) hoses and fittings.

"It's a miracle" was seen a few times in the testimonials. Some truck owners claimed that fuel consumption had dropped by more than 25 per cent, others claimed engines that had never run smoothly ran like a charm while delivering better power, and



Lower radiator hose thermostat housing.



Hoses are plumbed into inlet manifold water passage back to de-aerator.

others suggested that whereas an engine once coughed and spluttered when cold, with the Ecotherm system in place this complaint was a thing of the past.

## LPG — more power?

One of the most common complaints with LPG has been that an engine produces less power. Well, Ecotherm has developed a new system that takes full advantage of the external bypass system, a system that allows the engine to properly utilise LPG's octane advantage, provide more power as well as greatly improved fuel consumption.

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Torana system incorporates de-aerator which in effect removes any air or steam from cooling system.