

# Is my leaded car a lemon?

The end is nigh for leaded petrol, so what will your not-so-new car run on now? Stewart Ballingall charts the options.

If you own a pre-1986 car running on leaded fuel, the imminent end of leaded petrol means a change will be necessary. The good news is that you won't have to replace your vehicle, and in most cases won't even need to make any mechanical modifications. The solution will simply switch to leaded replacement petrol (LRP).

It is expected most motorists will not notice any difference between the two fuels. Evidence from Europe, where a number of countries already use LRP, supports this claim. To ensure a smooth transition, it is planned that LRP will be sold from the same bowser where you currently get leaded fuel.

Price should not be an issue. Leaded petrol currently attracts a fuel excise 2.2 cents greater than unleaded fuel because of its lead content. This additional excise should not apply to LRP. However, petrol manufacturers are claiming this benefit will be offset by the extra cost of producing the new fuel. Thus, LRP should be priced about two cents per litre more than unleaded, like leaded fuel currently is. RACV will monitor pricing of LRP when it is introduced in Victoria.

Despite the fact no firm date has been set for the compul-

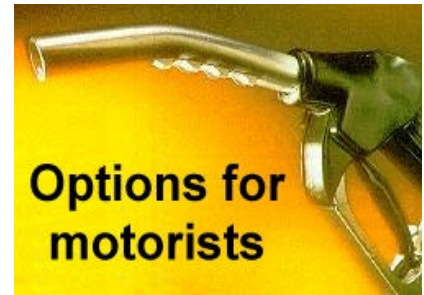
sory end of leaded petrol nationally, major petrol companies are planning to replace leaded petrol with LRP in the not-too-distant future. Victoria can expect to see it on sale in the next year or two.

LRP is now a fact of life in Western Australia, where leaded fuel ceased to be sold from 1 January. This was ahead of any decision by the Federal Government, which is waiting on an assessment by Environment Australia regarding the feasibility of a national phase-out date for leaded fuel of 2003.

Leaded fuel is being phased out worldwide, due to the health problems that lead is known to cause with humans. Studies have found a connection between the exposure of children to lead and reductions in their intellectual performance. The exposure of adults to lead has also been linked to elevated blood pressure, causing hypertension, heart attacks and premature deaths.

Although petrol is not the main contributor to lead related health problems, concerns about human exposure to lead has seen Australia – along with many other countries – progressively reduce the level of lead of leaded petrol.

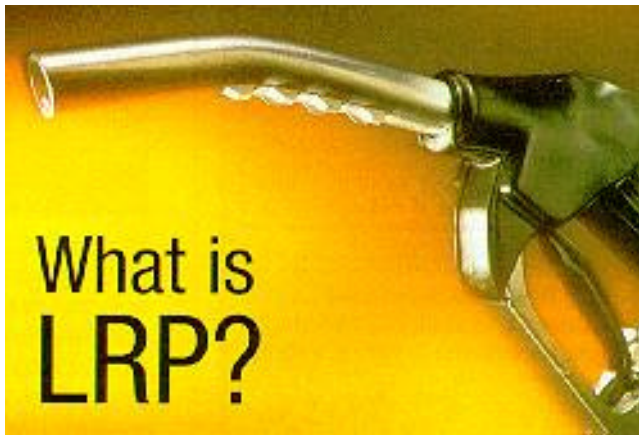
Many countries have already abolished the sale of leaded petrol, including the



United States, Japan, New Zealand, Germany and Austria. The rest of the European Community will drop leaded petrol some time this year.

When the time comes that leaded petrol is phased out in Victoria, motorists with vehicles built before 1986 will have the following options:

1. Use the new lead replacement petrol.
2. Use unleaded petrol (ULP). Up to 30 per cent of leaded vehicles can operate satisfactorily on ULP and do not suffer VSR or other ill-effects. RACV recommends motorists check with the vehicle manufacturer first.
3. Use premium ULP. This is more expensive at the pump, and care regarding VSR needs to be exercised.
4. Use an octane enhancing additive in ULP to prevent knocking. Although this is a common practice in New Zealand, RACV does not believe it is not cost effective, and it does not address the VSR issue.
5. Modify the engine. This is the most expensive option. Leaded engines can be modified to run on ULP, a re-conditioned ULP engine can be installed, or a dedicated LPG conversion can be done.



Lead in petrol serves two main functions. It is used to increase the octane level, and thus prevent knocking in engines. Knocking occurs when the fuel mixture explodes early, and can result in serious engine damage. Lead is also added to prevent valve seat recession (VSR) of the exhaust valves. Valves in engines designed for leaded fuel are relatively soft. Lead oxide formed by the combustion of lead alkyls prevents VSR by forming a thin layer of lead oxide on the valve and valve seat faces.

Lead replacement petrol (LRP) uses anti-VSR additives, which may include phosphorous, potassium, sodium or manganese. During fuel combustion, the additive burns and forms an oxide coating on the exhaust valve seats. This provides similar protection to lead oxide.

The new fuel will have the same octane level as leaded petrol, which will be obtained by blending in more high-octane components.

Depending on how sales of LRP go in Western Australia, one manufacturer has suggested LRP could go on sale in Victoria as early as the middle of this year (2000). RACV will monitor what happens in WA.

New Zealand abolished the sale of leaded petrol in 1996. However, it was not replaced with LRP, as is planned in Australia. NZ motorists with vehicles unable to run on unleaded petrol have the option of using a lead replacement additive in their tank of petrol to ensure against VSR. The most common aftermarket lead replacement additive in NZ is Valve-master. This is a phosphorous-based product, sold either in a small container for single use, or in a bottle for multiple uses.

RACV believes LRP, with the lead replacement additive already included rather than have the motorist add the treatment, is the best way to go. Reports from NZ indicate many motorists do not use the additives in the correct quantity or as frequently as required, because they don't feel any short-term difference in engine performance. Using these additives in such an uncontrolled manner can result in serious engine damage.

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