



Testing Times

Issue 25

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Welcome

Welcome to Edition 25 of Testing Times. Another varied collection of items for you in this issue although with an emphasis on vehicle lighting - always a complex area - but there are some other important items as well.

If you have comments on any of the articles here please e-mail to:

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Clear Rear Lamps

Lighting on vehicles has become a very complex issue. Once upon a time the requirements for lights were relatively simple – sometimes just a basic position and colour with a globe wattage specified. However, with the adoption of the UN/ECE Regulations in the Australian Design Rules (ADRs) and the ever changing appearance of lights (often just for style or fashion) it is now much harder to tell what meets the rules and what doesn't. New technologies such as gas discharge and LED systems also complicate the matter.

A recent trend has been to fit lamps that appear clear or un-coloured all over when not lit. Turn signals were the first in this trend with amber lens being replaced with clear lens and coloured (amber) globes being used. The next step for turn signals was amber globes with a silvered outer finish so that even the amber colour of the globe itself did not show in the reflector until the globe was lit. Also about this time “jewelled” lamp assemblies (often with clear outer lenses) became popular so that instead of just a dull red appearance for the tail and stop lights, the whole assembly sparkled and glittered when not lit.

Now, not only do original equipment manufacturers (OEMs) have a wide variety of rear lamp assemblies available, but the aftermarket has got into the act too. There are now all sorts of OEM and aftermarket complying variations as can be seen.



TAIL LIGHTS



HOLDEN MONARO VX VT FORD FALCON AU 98 - 02 TOYOTA CELICA EURO



MITSUBISHI LANCER 99 PEUGEOT 206 EURO HYUNDAI SANTE FE EURO



But the one thing that is common to all the above assemblies is that those parts of the lamp assembly that are required to show red light have retained an inner red lens. This is because no OEM has yet managed to make a complying stop/taillight using a coloured filament globe similar to the amber turn signal lamp globe.

Enter the LED lamp systems. Not only do LEDs use much less power, they are resistant to vibration and are long lasting. For these reasons they quickly became very popular on heavy vehicles. They also have a much faster response time (claimed to be a safety advantage for stop lights) and are now being used to achieve stylish and cosmetic changes on light vehicles.

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This is partially because high intensity LEDs which emit coloured light but are “water clear” when not lit have been developed as shown to the right. The correct colour can be generated and, unlike many rear lamp lenses, the colour does not deteriorate over time.



The illustration below shows two different versions of a BMW rear lamp assembly using LEDs for the stop light. Note that the tail light, which is not a LED system in both these versions, still retains a red lens cover.



The left hand version uses water clear high intensity red LEDs while the right hand version uses white LEDs and needs a red lens. These high intensity water clear LEDs have a narrow beam so a large number often along with individual reflectors (as can be seen above) are needed to meet the ADR light distribution requirements.

When water clear high intensity red LEDs are also used for the tail light, an even more striking appearance can be achieved with almost fully clear assemblies as shown below. The left hand assembly is for a Lexus and the right hand one for a BMW.



With LED based assemblies using clear lenses the only area that still requires a continuously visible colour is the red reflector as shown in the above three examples. Eventually someone may even figure out how to make a reflector that reflects red light but appears colourless in normal conditions.

Unfortunately some parts of the aftermarket industry are taking shortcuts to achieve this clear look by replacing the inner red lenses with a clear lens and inserting a red filament bulb.

The outer lens may even be the original clear OEM one complete with an “E” mark – a capital E inside a circle. As no OEM appears to have been able to produce a complying unit without a red inner lens, the “E” mark is almost certainly fraudulent.

The bottom line for testers looking at vehicles with aftermarket rear lamp assemblies is that:

- if it has to incorporate a reflector (some vehicles used red rear reflectors separate from the lamp assembly) it must appear red,
- if a filament globe is used for the stop and/or tail light they must have a red inner or outer lens – that is, clear lenses with red filament globes are not acceptable; and
- If LEDs are used:
 - the light distribution should be checked – stop lights must be visible from 45° to both sides of the lamp and tail lights must be visible from 45° towards the vehicle centreline and 80° to the outside; and
 - the brightness of the stop and tail lights should be compared with typical OEM rear lamps including the difference in light output between the stop and tail lights.

Motorcycle Lights

While we are talking about rear lamp assemblies, a common issue with motorcycles is also changing the lighting, particularly at the rear. Again it seems to be mainly for aesthetic reasons but it may make the motorcycle non compliant. Look at the example below.



The rear lamp assembly has been changed to one which appears to use water clear high intensity red LEDs. However, the LEDs are on a flat surface and do not appear to have individual reflectors and so might not meet the ADR light distribution requirements. In this case, the stop light must be visible from 45° to both sides of the lamp and the tail light visible from 80° to both sides of the lamp.

There are several other problems with this installation. Firstly, the original stalk mounted turn signal lamps have been removed. While the new rear lamp assembly does have small turn signals in the outer corners of the lamp area they also are unlikely to meet the ADR light distribution requirements which requires motor cycle turn signals to be visible from 20° towards the vehicle centreline and 80° to the outside. Turn signals on motor cycles are also required to be at least 300mm apart – that is why they are usually on stalks.

In addition, the assembly does not appear to have provision for number plate illumination and there is no red reflector.

The provision and location of lights and their visibility are all important issues and if in doubt refer to VSI 10 and get the tape measure out.

Diesel/LPG conversions

The addition of LPG injection to diesel vehicles is seen as a way to provide additional power and possibly economy. In these systems the LPG is injected in relatively small quantities compared to the quantity of diesel injected. However, this can still have significant implications for the emissions from the engine.

Victoria's vehicle modification guidelines/approvals require that all LPG installations must comply with the technical requirements of the version of the Australian Standard AS1425 current at the time of conversion and have an approved Automotive Alternative Fuels Registration Board (AAFRB) compliance plate fitted. In the case of these LPG supplementary injection systems to diesel engines, AS/NZS 1425:2007 requires that the kits be certified to the applicable emissions ADR. In the case of light vehicles manufactured from 1 January 2003 this means ADR 79. To date only a few LPG supplementary injection systems have been confirmed as achieving compliance with this emission requirement.



Therefore, at the moment, before completing the roadworthy inspection, you should request the owner to obtain confirmation from the installer of the system that the system fitted has been certified as meeting the emission requirements. If confirmation is not obtained, then the vehicle should be failed.

In the case of vehicles manufactured prior to January 2003, the installation kit fitted must comply with the relevant emission standards as at the vehicle's date of manufacture.

Expiry of Tester's Licence

As a result of a review of the LVT licence renewal process there is no longer any grace period for licences that are not renewed on time and the licence expires. Further, licences that expire do not have an automatic right of renewal and it may require a complete new licence application with associated costs to re-instate it.

Once a licence expires tests must not be conducted as any certificates issued could be considered as fraudulent. It is the licence holders' responsibility to ensure that renewals are paid on time.



To assist LVTs renew their licences before they expire, in future, renewal notices will be sent out earlier than previously. However, if for some reason you do not receive a renewal it is still your responsibility to pay on time. Why not check your renewal date now (it is printed on your licence)? Then mark it up somewhere prominently so you will always have a constant reminder.

Checked The Website Lately?

www.vicroads.vic.gov.au/lvt

Did you know there is a listing of all testers on VicRoads' website? It would be helpful if you could check your own listing for accuracy and advise if there are any errors. Phone numbers change, streets get renumbered and there are still a few sites for which there are no Melways references yet.



Please send any advice to roadworthy@roads.vic.gov.au

The website is being set up to be the first place to look for forms and general information about the roadworthy scheme. It is proposed that all the free material you normally have to contact VicRoads to get will be available to download from the website. Any comments on what else you need to access would be welcome.



Alcohol Interlocks & Driving Restrictions

If you or your testing mechanic has been to court after driving with one drink too many, it can cause problems well after the driver's licence is reinstated.



After an alcohol offence many people are only allowed to drive if an alcohol interlock is fitted to the vehicle. If this is the case

for you or your testing mechanic, it means that roadworthy tests on vehicles without interlocks cannot be carried out because the road test component cannot be legally performed. Testing mechanics with driving restrictions on their driver's licence must inform their employer so they can use another accredited mechanic for roadworthy testing.

Is Your Driver's Licence Current?

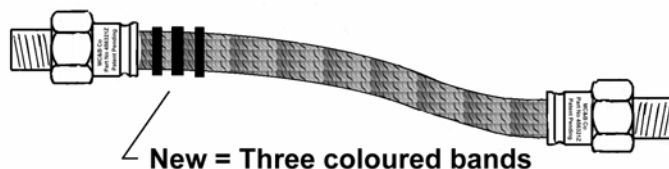
When it comes to driver's licences and road testing, you must have a current licence or it may have very expensive consequences for you and the boss if anything goes wrong on a road test. Every RWC issued listing a person that does not have a driver's licence (or an appropriate licence) as the testing mechanic provides evidence that an offence has been committed. It's just not worth the risk.



Ford Brake Hoses

It has been reported that some BA Falcons and Territories have had problems with rear brake hose failures. Some claim that the front hoses may also be a problem on these vehicles too. It is not clear what the exact problem is and there does not appear to be any external evidence of a pending failure. It may be that the hoses are just a little bit shorter than ideal and when they get a few kilometres on them they can fail. Ford acknowledges that there could be a problem and dealers are automatically replacing the rear brake hoses on an identified group of BA through to BFII Falcons during routine service. In addition, Ford has just implemented a mandatory recall action for all SX and SY Territory models (excluding the Turbo) built from 1 February, 2004 to 31 December 2008 inclusive to replace the front brake hoses. However, it is important that you keep an eye out for the ones that don't get picked up this way.

The original Falcon rear hoses had two coloured plastic rings while the replacement hoses have three coloured rings. Note that there are also different part numbers for vehicles fitted with traction control.



For the Territory there will be a mandatory recall action sticker placed on all vehicles that have been rectified. This sticker will carry the Campaign Number: S0901

NOTE: Any brake hose on any vehicle, irrespective of make, that has excessive tension on it under any normal suspension movement should be fully investigated.

Note:

*All supplies can be obtained from
VicRoads' Bookshop
Ground Floor, 60 Denmark Street
KEW VIC 3101
Phone (03) 9854 2782
Fax (03) 9854 2468*

Open weekdays between 8.30am and 4.30pm