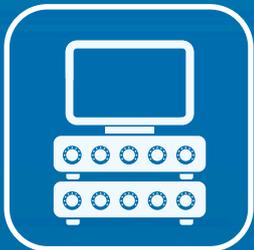
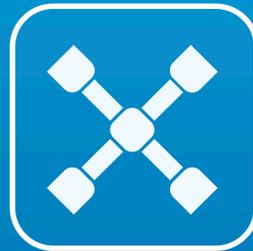
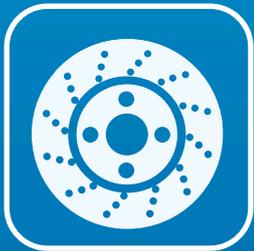


MAINTENANCE SPECIAL REPORT



#Where do I start?

By keeping (and accessing) notes

The starting point for a good fleet maintenance program is keeping detailed and up-to-date records of the vehicles and assets.

“First and foremost you need to gather the correct information when the asset comes on board into the organisation,” said Andrew Railz, director of fleet consultancy Railz Asset Management. “I don’t believe a lot of people do that very well,” he said, adding, “It makes it very difficult to go and order parts and things when you don’t have that information.”

The asset register should include obvious details such as the make and model of the vehicle, its VIN, warranty, engine oil specification, recommended coolant and other fluids, and parts requirements.

The next step in developing a maintenance program is to consider the utilisation of the vehicle:

- # Is it going to have high usage? It will need more frequent checks.
- # What type of environment will it be operating in? A dusty or steep terrain will demand more checks than a well-paved urban environment.
- # Will it be carrying heavy loads? Obviously that’s going to require more frequent attention.

- # Will it have noteworthy idling time? If so, don’t space out service intervals based on kilometres travelled.
- # What is the criticality of the vehicle to the organisation? If you can’t hire a replacement vehicle quickly and you can’t afford a breakdown then you’ll want to keep a close and careful eye on it.

Other considerations that will determine the maintenance program are:

- # Will you be using genuine or non-genuine parts?
- # Do you intend to use oil analysis or other condition-based monitoring techniques?
- # Can it be serviced in a workshop nearby, or would it be better to use a mobile service?
- # Will the vehicle have a dedicated driver or be a pool vehicle?

In order to complete a good preventative maintenance (PM) program you are also going to need to have systems in place that identify and manage defects and common maintenance problems.

“To me your maintenance program is never fixed,” said Railz. “If you have a system for identifying common failures in your assets then you’ll add additional checks on your PM list to take care of problem items.”

You’ll also need a way of measuring performance to determine if you have an efficient and effective PM program. One key performance measure could be the mean time between failures. Another could be to measure time for completing repairs against industry standard repair times.

Of course, the program should be built around the needs of the business to ensure that servicing is scheduled at times of least demand on the vehicle.

For those fleets with onsite workshops it’s important in our world of rapidly changing technology to have continuous training of workshop staff.



Top 5 reasons why cars break down

Do cars still break down? According to the RACV the most common reasons for breakdowns are the same today as they were in the 1990s.

Flat batteries are the main reason people call for roadside assistance. With the improvement in vehicle technology fleet managers thought this would have changed by now. The electrical systems have improved; technology has changed; and features that turn the lights off automatically are now standard on most vehicles, but they are still going flat.

Sure there are a lots of older vehicles on the road that don't have the latest technology. But with the average age of vehicles in Australia hovering at ten years, the auto-off feature should be common in vehicles post 2006; so why are flat batteries still such a big problem?

The answer is poor maintenance. Batteries need replacing. And they don't always last three years which is the average time most fleets keep their vehicles.

It's a problem made worst because of extended service schedules that mean vehicles only visit their mechanic once a year. If the annual service is during summer the battery may pass a test. Then winter comes and the colder weather makes it fail.

So ANZAC day is a good reminder to get the batteries checked on all vehicles in your fleet older than two years to avoid the inconvenient breakdown.



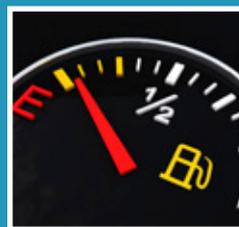
FLAT BATTERY

47%



WHEEL CHANGE

10%



OUT OF FUEL

8%



LOCK OUT

7%



OTHER

28%

The list of breakdown reasons from the RACV Business Care brochure.

Let the workshop come to you



For anyone in fleet management it's easy to see the benefit of having a maintenance service onsite but not everyone can afford to run their own workshop so mobile servicing may be an option.

"Certainly, the biggest benefit of mobile servicing is reduced vehicle downtime," said Martin Cuthbert, managing director of Silverwater, NSW-based Mobile Fleet Service (MFS).

"We specialise in tool-of-trade fleets such as air-conditioner mechanics and that kind of thing so if their vehicles are off the road it costs money," said Cuthbert, adding to be competitive with dealerships their pricing is similar at about \$200 a service. "The benefit is you are reducing the downtime dramatically."

MFS started about 25 years ago in Sydney and has witnessed a dramatic increase in the number of mobile maintenance service businesses being used by fleets and consumers. But Cuthbert says it's not so easy today with the investment required to buy the equipment to service a modern vehicle.

"Initially, there wasn't much set up cost to enter, so there were a lot of fly by nighters" says Cuthbert.

Today, there's huge logistical costs in having the right equipment and supplies to service the modern vehicle, including carrying as many as 12 different engine oils compared with two a decade ago. This is because original equipment manufacturers are changing to synthetic oils to meet stricter emission standards.



MFS has 10 vehicles on the road servicing fleets in the Sydney metropolitan area and their customers include large national businesses such as Telstra, Optus and Wormald. And a lot of referrals come via fleet management companies like Custom Fleet, LeasePlan and Toyota Fleet Management because they understand the increased productivity of bringing the workshop to the asset.

Cuthbert said a lot of planning is involved in servicing fleet companies. "We look at the history of the vehicle, we look at what's been done previously, we look at what it may be due for, we generally carry most parts on board, we have jacks and stands in the mobile vehicle, we carry spill kits in case of oil spills, and we carry all sorts of safety equipment."

After a quarter of a century of experience in the fleet maintenance

industry Cuthbert noted some of the big changes he's seen:

Service intervals have expanded on a lot of vehicles from 10,000 km to 15,000 km, and some out to 20,000 km, largely thanks to the advent of sophisticated synthetic engine oils. This has helped keep a lid on the annual cost of servicing a vehicle today, so has little changed from a decade ago.

The advent of Google and YouTube means that any professional driver can look up how to do basic vehicle checks. "You don't have to be a licensed motor mechanic to check tyres or oil and it's something any good professional driver should do. We live in an age of information technology where everything is checkable, so if you don't know how to do something, it's pretty accessible."

Costs of getting a service are going down, down

Does it cost more to service a car in 2017 compared with 10 years ago?

“It goes without saying that it’s difficult to compare apples with apples in a study like this as so much has changed with regards to technology, engines (drain intervals, improved componentry) etcetera,” said Mark Flintoft, product communications manager for GM Holden, adding, “It’s like comparing footy players from different eras.”

However, Flintoft had his people run back over the years to come up with some data that show service costs on the popular fleet vehicle, the Commodore VF have tumbled! Getting the petrol powered sedan serviced over a 105,000 kilometre, or 63-month interval today would cost a total of \$1853, compared with \$3263 for a comparative Commodore VE 10 years ago. Twenty years ago a service on the best comparable model of the day cost more than \$2000.

“I think it’s probably fair to say it’s relatively cheaper to service your car now – at least, it is at Holden,” Flintoft said. “A couple of years ago we launched our Lifetime Capped Price service program which covers every Holden ever built so that’s certainly helped keep costs down. While figures are one thing, I think it’s

important you take into account general inflation i.e. \$200 in 2007 is not the same as \$200 in 2017.

“Figures in the table show the first seven services for an automatic V6 Commodore. Please bear in mind the 2017 service interval is 9 months/15,000. In 2007 it was 12 months/15,000km. We’ve targeted 105,000km as the service target in this case – i.e. however many services it takes to get to 105,000km.”

Going back 20 years to 1997, Flintoft ran the prices for a 1997 VT V6 Auto Commodore. Again, service intervals have changed which is what makes it hard to compare. In 1997 intervals were 6 months or 10,000km.

Meanwhile at Toyota, Mike Breen, manager public relations, was also able to dig into the records and highlight some of the changes that have occurred in the last decade.

Breen said the average time per service has increased a little to 1.62 hours in 2017 from 1.5 hours in 2008 when considering another popular



vehicle for sales teams – the 4-cylinder Camry. He also noted labour costs had risen over the decade by \$10 an hour. Another increase in price was due to engine oil which rose to \$8.20 a litre in 2017 from \$5.60 in 2008.

Breen said the average cost per service on the Camry in 2017 is \$277.20 for the first five services at intervals of 9 months or 15,000 km, whichever comes first, compared with \$217.63 in 2008 for the first four services.

2008 Pricing - 4 Cylinder Camry
4 services every 9 months or 15,000km
Cost for 4 TSA services \$870.50
Average cost per service \$217.63

2017 Pricing - 4 Cylinder Camry
5 services every 9 months or 15,000km
Cost for 5 TSA services \$1,386.04
Average cost per service \$277.20

1997 Commodore - VT V6 Auto	
10,000km	\$153
20,000km	\$197
30,000km	\$167
40,000km	\$311
50,000km	\$324
60,000km	\$197
70,000km	\$182
80,000km	\$411
90,000km	\$182
100,000km	\$338
TOTAL \$2462	

2007 Commodore - VE sedan 3.6L petrol automatic	
15,000km	\$339
30,000km	\$491
45,000km	\$500
60,000km	\$491
75,000km	\$451
90,000km	\$652
105,000km	\$339
TOTAL \$3263	

2017 Commodore - VF sedan 3.6L petrol automatic	
15,000km	\$239
30,000km	\$239
45,000km	\$239
60,000km	\$239
75,000km	\$299
90,000km	\$299
105,000km	\$299
TOTAL \$1853	

Through the windscreen

The car windscreen has gone through a tremendous revolution in the past two decades. It isn't just a piece of glass to see through anymore, or something that only protects you from the elements. It is also the place for an increasing itinerary of technology.

Today's new car comes with a range of so-called Advanced Driver Assistance Systems, or ADAS, such as cameras mounted on the windscreen to warn drivers of lane departures and activate emergency braking systems.

"The safest place for a camera is to have it behind the windscreen and out of the weather," said Steve Grech, technical training manager for O'Brien. "It's normally hidden behind the mirror area or near the mirror area, higher up so it has a better view."

It means there also have been big changes in technology required to remove and replace new windscreens when they are damaged.

Specialised tools and systems to calibrate the on-board technology are now crucial to ensure the cameras are aligned and do the job they were designed to do -- keep the driver and others safe and save lives.

Obviously, the costs of getting a windscreen replaced today is higher than it was a few decades ago, when the repairer needed basic tools to complete the installation.

"Nowadays we use an adhesive to bond the windscreen and most vehicles have a lot more variants," Grech said. "You might have a Mazda3, for example, which will have as many as five different types of windscreen. Some will be for the basic model, up to the top of the line model, and as you go up the range the more attachments there are to the

glass, and so the more expensive the glass will be."

Looking forward, we will see more hardware and functions attached and projected onto the windscreen and we will see more Head Up Display functions connecting the driver to the vehicle.

This was once the domain of jet fighters but will eventually become the norm in our motor vehicles so keeping up with the technology is a key driver in our industry.

Most damage to a windscreen starts from a stone chip and if the fleet driver gets to them early enough they can generally be repaired.

O'Brien, a unit of U.K.-based Belron, has been operating in Australia in glazing for over 90 years and its name is now synonymous with windscreen replacement. While O'Brien has a lot of competition in Australia, they are generally smaller operators.

Grech stated that about 15 percent of O'Brien's work was probably in repairing windscreens. This part of the business started over 25 years ago. Their technology kit to repair a windscreen is so complex it has been patented and the resin technology is developed by a dedicated R&D team who are constantly improving the formula which is exclusive to O'Brien.

Most damage to a windscreen starts from a stone chip and if the fleet driver gets to them early enough they can generally be repaired. The repair takes about 30 minutes compared with about an hour for a replacement.

"Obviously it's much cheaper and the resin that we use makes the windscreen strong again."

"The result always depends on how fresh the damage is," Grech said, adding that the finished appearance will also be better if it is done quickly.

A repair can be done by a mobile service unit though new vehicle windscreen replacements which are very complex and when calibration of the ADAS is required it needs to be done in one of O'Brien's 56 Australian branch workshops.

The good news is that while technology may have forced up the price of a new windscreen, it has also probably helped cut the rate of damage as our congested cities have also played their part in reducing damage because we don't drive as fast as we used to.

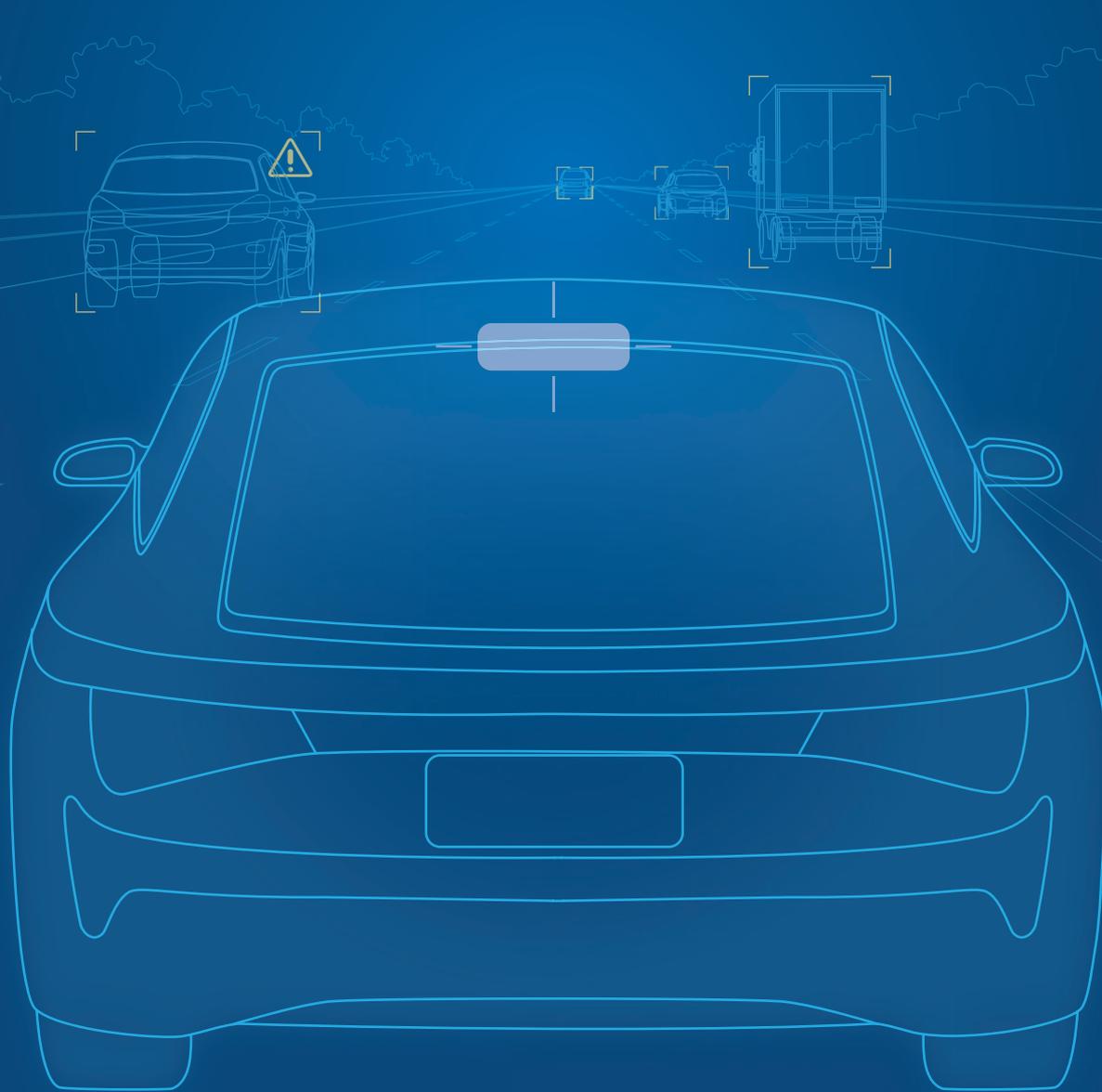
So next time you hear that 'beep beep beep' on the lane departure warning signal, you can appreciate a little more how much goes into ensuring it keeps on keeping you safe.

The windscreen on a modern motor vehicle has always been a critical part of the safety system designed into the vehicle by the manufacturer in regards to airbag deployment and structural support, it now has many new technologies including cameras and Lidar, Head up display incorporated in, around and attached to the windscreen.

Correctly installed windscreens that take the ever evolving technology into account is critical to maintain the safety features and structural integrity in your vehicle. This technology growth is here to stay and we need to stay abreast of it as we move to more automated functions in vehicles and inevitably the driverless vehicle age.

Advanced Driver Assistance Systems and Windscreen Recalibration

Many modern vehicles are now equipped with driver safety assistance technology. The majority of camera systems are either attached to the inside of the windscreen or mounted on the roof and look through the windscreen. In both cases, the camera system must be recalibrated after windscreen installation.



Find out about our recalibration services at obrienauglass.com.au or call **13 16 16**



YOUR TYRES ARE YOUR WHEEL OF FORTUNE

Tyres are one of the biggest consumables costs for a fleet, so having a tyre management plan is important for managing the budget. It's also a top priority for the safety of the vehicle.

"Your tyres are one of the most important safety features on your car – they are the only thing that connects your car to the road," said Travis Smith, Kmart Tyre & Auto Service national fleet sales manager. "We recommend rotating and balancing your tyres every six months or 10,000kms, whichever comes first."

Kmart launched a mobile tyre service unit in early 2017 to meet increasing fleet customer demand for onsite checks that cut downtime and help ensure safety of the fleet.

"Both fleet managers and their drivers regularly tell us reduced turnaround times are increasingly important and our new mobile tyre offer will be able to ensure vehicle downtime is minimised."

The Institute of Public Works Engineering Australasia (IPWEA) says in its Plant and Vehicle Management Manual that low air pressure is the number one cause of tyre wear in the public works industry.

"Major tyre manufacturers estimate that a 10 PSI variance is enough to cost a minimum of 7-10 percent in tread wear, but could cause a loss of as much as 30 percent of tyre life. In addition, it is the highest contributing factor to rapid and uneven wear. "

"If you are riding around on a flat tyre you are going to damage the side wall and the tread will wear unevenly," said Martin Cuthbert Managing Director Mobile Fleet Service.

Tyre retailers also recommend rotating tyres, ensuring that the ones with the most tread remaining are at the rear of the vehicle, and having them checked by a professional regularly for uneven wear or damage. Any vehicle that is travelling over rough terrain, or gutters, should be checked more regularly for wheel alignment.

"It might save you some money; they might notice something out of the ordinary" confirms Cuthbert.

Andrew Railz, a director of fleet consultancy Railz Asset Management said a lot depends on not only how the vehicle is used, but who is using it. If a vehicle doesn't have a dedicated driver it is often subject to neglect and can be a risk to the organisation.



Where that's the case a fleet maintenance program may stipulate that any tyres that will reach the legal minimum (1.6mm of tread) before the next service, say in six months, should be changed.

Research from the UK shows that almost three quarters (73%) of the UK's police, fire and ambulance services change the tyres on their vehicles at a tread depth of 2.6mm to 3mm; which is something Australian fleet managers should consider adopting to reduce the risk of bald tyres.

Other tyre tips from the IPWEA manual include:

- Spare tyres should be kept in a dark place.
- Tread depth and pressures should be measured at least every two weeks. Tread depth indicates when tyres need rotating or replacing.
- No vehicles should be fitted with alternative tyres without approval from the manufacturer. This is important because of the impact incorrect tyres have on wear and tear on the vehicle and safety considerations.
- Over inflation will accelerate tread wear even more than under-inflation.
- When calling for tenders, have an option for fitment and management.
- Record all tyre and rim movements.
- Provide advice for operational managers to improve tyre wear.