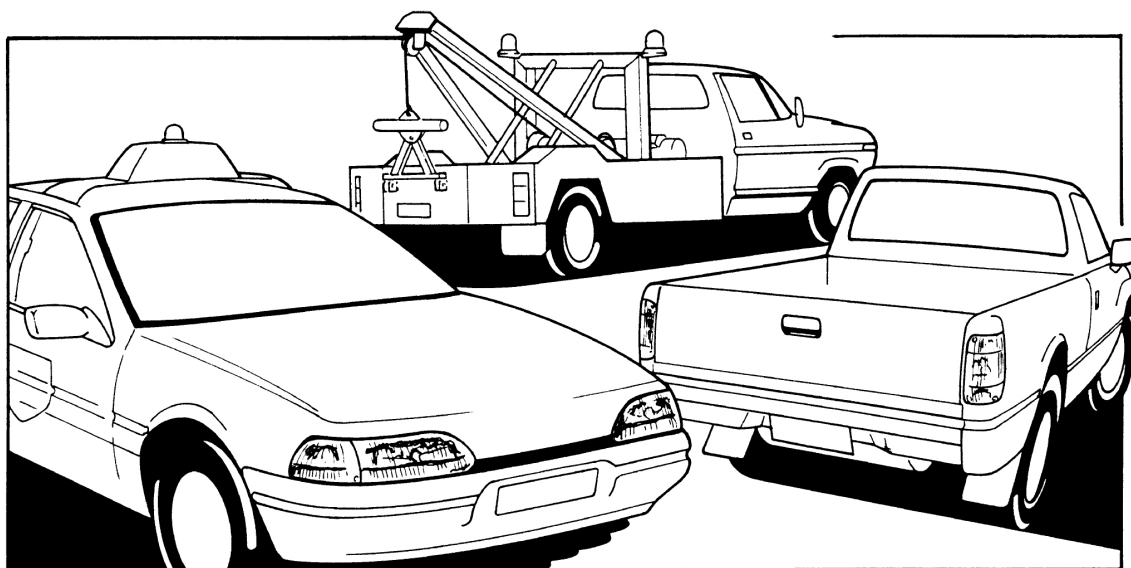


Vehicle Standards Information

VSI.14 | Rev 2 | 1 April 1998

14

LPG fuelled vehicles



Introduction

LPG has been used in vehicles for many years. Strict safety standards ensure that LPG as a motive power, is as safe as petrol and diesel fuels. These standards plus the availability and cost of LPG make it an attractive option for use in motor vehicles.

Who can install LPG systems?

Only a business licensed by the Motor Vehicle Repair Industry Council (MVRIC) is permitted to install, repair or adjust automotive LPG equipment. The tradesperson performing the installation, repair or service must hold a Tradesmans Certificate issued by the MVRIC for such work. LPG installations must comply with a code published by Standards Australia (known as SAA Automotive LP Gas Code, AS1425). In New South Wales, one of the requirements for LPG installations is that the installer must fit an identification plate ("compliance plate") to certify that the LPG system met the requirements of the code when it was installed.

The Australian Liquefied Petroleum Gas Association Ltd (ALPGA), telephone (02) 9319 4733, maybe able to assist you with information about suitable licensed installers near you.

What are the registration requirements for vehicles fitted with LPG?

New converted vehicles

After an LPG installation is completed, the installer must fit a “compliance plate” and give the owner of the vehicle a completed “Certificate of Compliance” showing that the installation is in safe working order. An example of a “Certificate of Compliance” is shown below. You must notify TfNSW so that registration records can be amended. In most cases, this can be done through staff at Service NSW Centre. You will need to present the “Certificate of Compliance” and the “Certificate of Registration” for the vehicle when doing this. However, to avoid any inconvenience, you should first check that the vehicle identification details (engine number, chassis number and registration number) on the “Certificate of Compliance” match those shown on your “Certificate of Registration” for the vehicle. If these details do not correspond, you might need to have the LPG installer correct any errors on the “Certificate of Compliance” or have your registration records amended to reflect any other changes to your vehicle (eg change of engine number).

It is important, particularly for insurance purposes, that the registration details are correctly recorded.

DANGEROUS GOODS (GAS INSTALLATIONS) REGULATION, 1982			
WorkCover Authority (NSW)			
CERTIFICATE OF COMPLIANCE - AUTOGAS INSTALLATION			
Certificate No.....			
This certifies that.....the holder			
(NAME)			
of..... Licence No. 46/			
(TYPE OF TRADESMAN'S CERTIFICATE IE. LPG/CNG)			
employed by..... Repairers No. 44/			
(NAME OF REPAIRER)			
has tested an Autogas (LPG/CNG)* installation fitted to a			
Vehicle*/Vessel*/Machine*			
Type (Vehicle/Machine)			
Make & Model			
Engine No.Reg'd No.			
Chassis No.			
Owned by			
Address			
..... Postcode			
and is satisfied that the installation (together with the gas containers and gas			
metering devices connected to it) are in safe working order.			
The following gas containers are connected to the installation:-			
Type	Capacity	WC	Serial No.
.....	WC
Date of installation/test*.....Signed.....			
*delete where not applicable ©			

Certificate of compliance

LPG vehicles already in service

When renewal of registration is due, LPG vehicles should be presented for inspection at an Authorised Safety Check Inspection Station (ASCIS) which has an authorised LPG examiner. An Inspection Report will be issued upon satisfactory examination of the LPG system and a payment of an inspection fee. Because the inspection of an LPG system requires more attention from the examiner, the inspection fee is slightly higher than that for a non-LPG vehicle. Details of the nearest AIS which may inspect vehicles fuelled by LPG may be obtained by contacting TfNSW Technical Enquiries on the telephone numbers listed below:

Interstate vehicles fitted with LPG fuel systems

Any LPG fuelled vehicle registered in another State or Territory and submitted for registration in NSW may be accepted provided that:-

- a) a metal plate is attached in a prominent position near the installation, showing the following details:
- statement that the installation complies with Australian Standard AS1425 SAA Automotive LP Gas Code, and
 - the date the installation was commissioned, and
 - the State or Territory where the installation took place, and
 - identification number of the suitably qualified person responsible for the installation.

Note: *If no such plate is attached, the owner or operator of the vehicle will be required to take it to a licensed LPG installer who will test and (if required) modify the system and attach the approved identification plate.*

- b) The installation must also pass a Safety Check Inspection conducted by an LPG Authorised Examiner at an AIS Station.

What do LPG compliance plates look like?

- a) Vehicles with LPG systems installed by a Licensed LPG Installer will be fitted with an **LPG compliance plate** which provides the information shown on the samples below and on page 4. The compliance plate is normally fitted adjacent to the pressure vessel, which is usually installed in the boot of passenger cars, or is attached near the vehicle's original ADR compliance plate (usually found on the firewall in the engine compartment).

○	WORKCOVER AUTHORITY (NSW) This Autogas Installation is designed for use with LIQUEFIED PETROLEUM GAS	○
Certificate of Compliance No. _____		
Installed by _____ (Lic. No.)		
Repairer/ W'shop _____ (Rep. No.)		
Date of Original Installation ____ / ____ / ____		
Date of Retest ____ / ____ / ____		
Chassis No. _____		
Engine No. _____		
○		○

LPG compliance plate

Note: This style of plate can also be fitted if a previously installed LPG fuel system has either been re-examined or re-tested after the original installation.

In any case, where a system is retested or repaired, the last repairer should complete or enter the details on the existing plate if provisions allow, or attach a new plate.

Acceptable alternative style plates for earlier LPG installations

This plate is acceptable
on installations after 1
July 1983

DEPARTMENT OF INDUSTRIAL RELATIONS	
THIS AUTOGAS INSTALLATION IS DESIGNED FOR USE WITH LIQUEFIED PETROLEUM GAS	
CERTIFICATE OF COMPLIANCE No.	_____
TESTED BY	_____ (CERTIFICATE No.)
REPAIRER	_____ (LICENCE No.)
DATE OF TEST	_____
CHASSIS No.	_____
ENGINE No.	_____

This plate is acceptable
for LPG installations up
to 30 June 1983

DEPARTMENT OF INDUSTRIAL RELATIONS	
THE LPG INSTALLATION IN THIS VEHICLE WAS CARRIED OUT BY	
LICENSED INSTALLER No.	_____
TO COMPLY WITH SAA CODE 1425	
CHASSIS No.	_____
DATE FITTED	_____

- b) Vehicles with LPG systems installed by the vehicle manufacturer may be fitted with a vehicle manufacturer's LPG certification plate. Vehicles may also be fitted with LPG certification plates made by the vehicle manufacturer's approved LPG installer. Typical examples are shown below:

Trekford VEHICLE ENGINEERING	
THE L.P.G. SYSTEM COMPLIES WITH ADR44/01 & AS1425-1989	
INSTALLED BY LICENCED WORKSHOP No.AFR 00050	
V.I.N.	_____
ENGINE No.	_____ DATE / /
L.P.G. SERIAL No.	_____

LPG INSTALLATION HOLDEN COMMODORE MODEL VS STYLE SEDAN	
INSTALLATION REFERENCE NO. _____	
DATE OF INSTALLATION ___/___/___ STATE/TERRITORY _____	
THIS INSTALLATION COMPLIES WITH ADR44/01, AS1425-1989 AND	
<input type="radio"/>	GM HOLDENS AUTOMOTIVE INSTALLATION REQUIREMENTS <input type="radio"/>
ODOMETER	_____
V.I.N.	_____
ENGINE NO.	_____
WORKSHOP	_____ (LICENCE NO.)
FITTER	_____ (CERTIFICATE NO.)

What other LPG identification signs are required?

Every vehicle converted to run on LPG **must** also have affixed to the front and rear licence plate, a red retroreflective label with white or black lettering on a red background, as shown in the sample at right. These labels must be at least 25mm square and are available from all licensed LPG installers.

Note: In case of an emergency or accident, this label provides an indication to the Fire Brigade and other rescue officers as to the type of fuel carried on the vehicle.

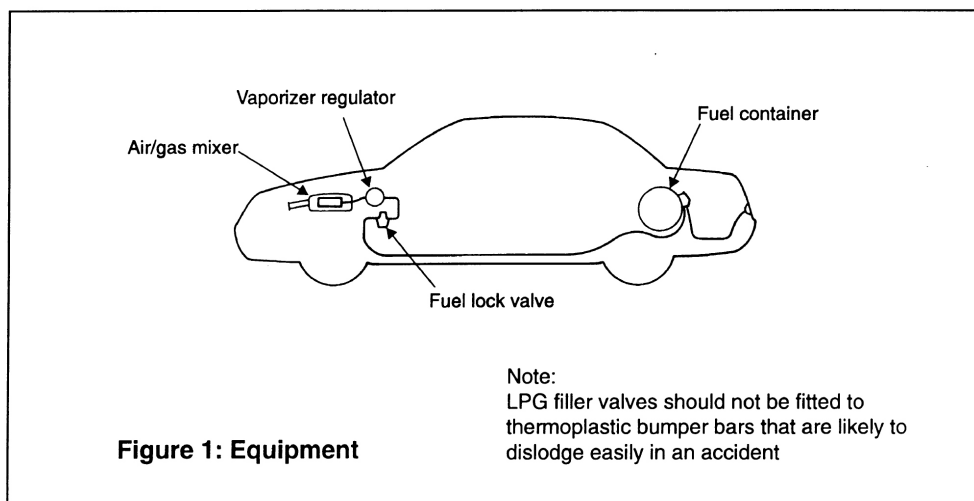
LPG fuel systems

Petrol vehicles that are converted to operate on LPG can be equipped to run alternatively on LPG or petrol, or on LPG only.

Equipment for LPG vehicles

The four main component parts fitted to the vehicle are:

- Fuel container for storing the liquid LPG together with valves and equipment to control the flow of LPG entering and leaving the container.
- Fuel lock valve (or filter and fuel lock) which prevents the flow of fuel when the engine stops.
- Vaporizer regulator (or convertor) which regulates the outlet gas pressure in accordance with engine demands.
- An air/gas mixer that measures air flow and meters the flow of gas into the engine.



LPG fuel containers

The LPG fuel container is a tested pressure vessel which is designed and constructed in accordance with strict Australian Standards. During manufacture it is subjected to controlled heat treatment and stress relief to the weld affected areas. It is therefore imperative that no welding, soldering, brazing or extreme heating of the cylinder takes place after the manufacture of the vessel.

All containers must be securely affixed to the vehicle.

Where a container is required to be fitted with a sub-compartment it must be so constructed that any gas which might leak from any fittings cannot pass into any other enclosed space such as passenger and luggage compartments. Container sub-compartments should not be removed from cylinders even if the container is mounted under the floor of the vehicle.

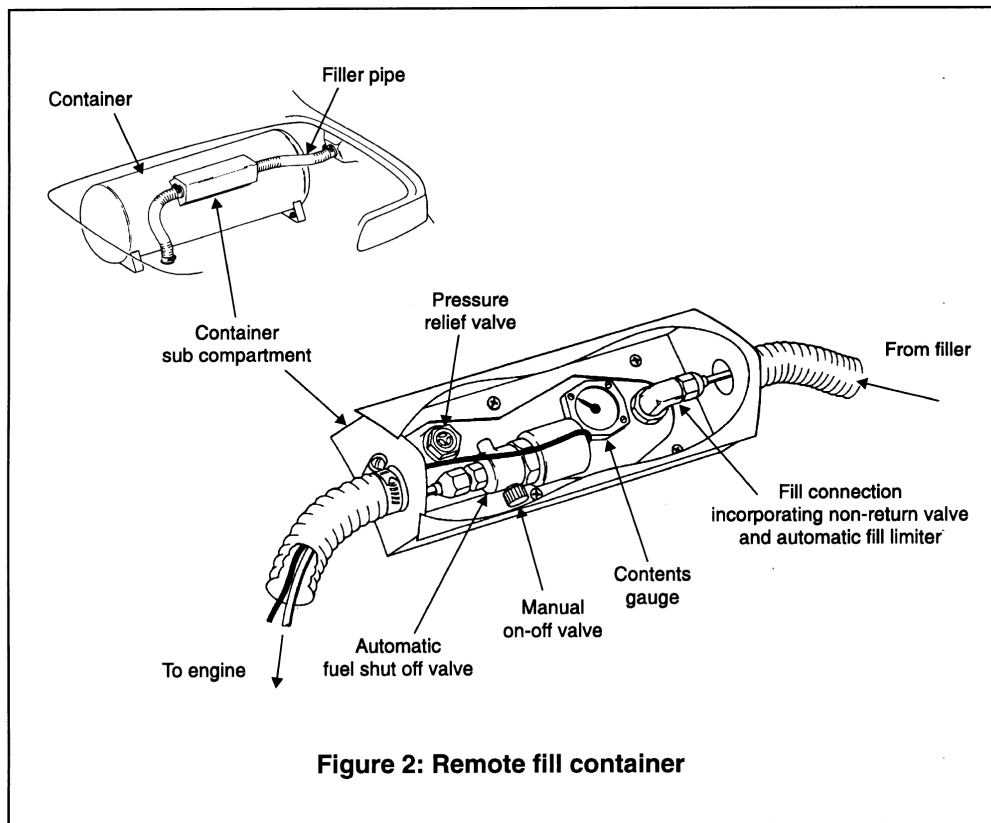
Protection of LPG containers in vans

Where a container is located in a loading area of a van it must be enclosed, to prevent any object being carried by the vehicle from damaging the LPG container or its associated attachments.

Remote fill container

These types of containers have their fittings enclosed in a gas tight sub-compartment and their filling connections are remote from the container. The filler valve is usually mounted on an external body panel and is connected to the container by a pipe protected and sealed in a heavy duty conduit. A vent is fitted to the sub-compartment so that any accumulated vapour will drain away outside the vehicle.

This type of installation is required on all vehicles that were converted on or after 1 April 1980, where the container is located inside the body shell.

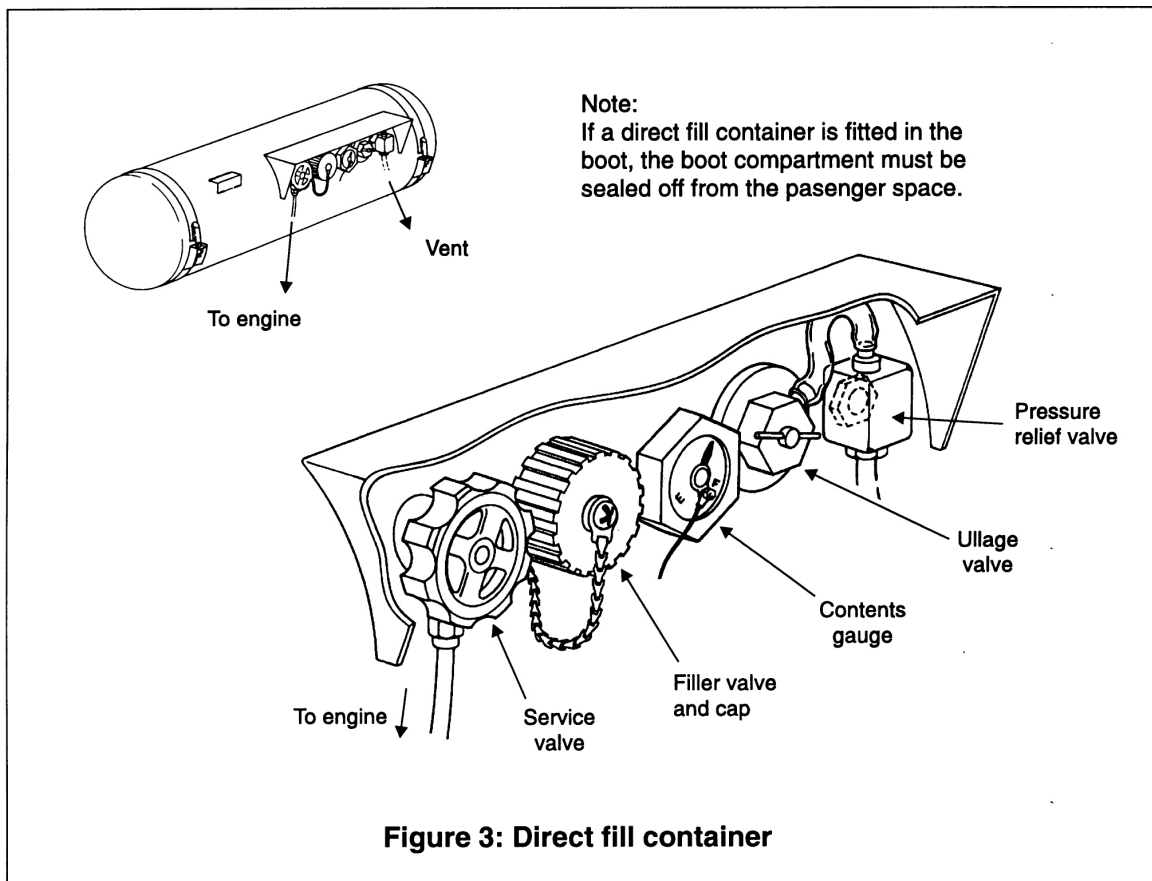


Direct fill containers

A direct fill container is one where the filler nozzle is connected directly to the filler valve mounted on the container (refer figure 2). This type of installation is only acceptable on:

- conversions completed prior to 1 April 1980, if the container is located inside the vehicle body shell (eg. inside the boot); or
- vehicles where the container is located outside the vehicle body shell (eg. mounted on the chassis rail).

When the container is located inside the body shell, the passenger space must be completely sealed from the space occupied by the pressure vessel. A vent must also be provided at the lowest point to permit any leaking gases to escape. There must not be any electrical device or apparatus, such as electric windscreen wiper motors, electrically operated radio aerials, electric fuel pumps or stereo systems fitted in the same area occupied by the fuel container.



Automatic fuel shut-off device (AFSOD)

Amendment No.3 to AS1425 requires that vehicles fitted with LPG installations from 1 January 1994 must also be fitted with an AFSOD. The device, which is required as an added safety measure, is automatically set to prevent the flow of liquid to the service line and the vaporizer unless the vehicle ignition switch is on and the engine is turning. The AFSOD must be located near the LPG container in a protected position and can be incorporated in the service valve. Retro-fitting an AFSOD is highly recommended and encouraged.

What are my obligations regarding periodic inspections of LPG tanks?

The Dangerous Goods Act, which is administered by the WorkCover Authority, NSW requires LPG tanks to be stamped indicating the date on which the tanks were last inspected. These inspections must be conducted every ten years. As such, owners must ensure that the LPG tank is inspected before a period of ten years has elapsed after the date indicated on the tanks. This date will be checked by authorised LPG examiners at the time of inspection for renewal of registration.

When the inspection of an LPG tank is required, the owner should enlist the services of either a Licensed Boiler Inspector or an Approved Gas Cylinder Testing Station (as approved by Standards Australia for the type of cylinder to be tested). Details regarding the location of your nearest testing station may be obtained from the WorkCover Authority NSW. LPG installers may also be able to assist you with this information. The nearest Licensed Boiler Inspector may be located through your local telephone directory.

What are the pollution control equipment requirements for LPG vehicles?

Usually, no re-testing of engine exhaust emissions is required for LPG conversions if a vehicle is intended to operate primarily on LPG. However, catalytic converters and associated emission and engine control systems of any vehicle originally operating on unleaded petrol must remain operational. In the case of vehicles which are capable of using either petrol or LPG, all emission control systems, fuel emission systems and devices and engine control and management systems, including catalytic converters and oxygen sensors, if originally fitted, must remain operational. Allowances are made for minor air cleaner and carburetion/injection modifications required to fit the conversion. The heated air intake system and original air cleaner can be removed and replaced by a new unit if it is compatible and recommended by the system manufacturer.

From January 1994, new LPG installations on vehicles originally designed to operate with a closed loop engine management system, that is, one which monitors the exhaust emissions and adjusts the amount of fuel being delivered to the engine, must also be installed with a closed loop engine management system for the LPG fuel system that results in exhaust emission levels for LPG operation that are not inferior to the levels produced by the original vehicle.

What if the vehicle structure needs to be modified?

Where the installation of LPG equipment involves major structural alterations such as removal of portions of a sub-frame, floorpan or roof support pillar, it is possible that the vehicle's structural strength may have been downgraded. In such cases, it is recommended that an Engineering Signatory experienced in chassis/body design be consulted to ensure that the modified vehicle is safe. Vehicle Standards Information Sheet No. 15 lists persons available for consultation. Generally, the LPG installer will attend to the approval of structural alterations.

Can I use the LPG fuel on my vehicle for other purposes?

It is illegal to use automotive LPG in cylinders for any other purpose other than for fuel in motor vehicles unless specific approval is given by the WorkCover Authority, NSW.

Further information

NSW Legislation

- *Road Transport (Vehicle Registration) Regulation 2017*

legislation.nsw.gov.au

Service NSW (SNSW)

To register a vehicle, apply for a permit and to apply for a driver or rider license

To locate your nearest SNSW office

<https://www.service.nsw.gov.au/> | T 13 77 88

Transport for NSW

For Information & advice related to vehicle registration, permits & driver/rider licenses

roads-waterways.transport.nsw.gov.au | T 13 22 13

TfNSW Technical Enquiries

For Information & advice related to vehicle construction, modification and registration requirements in NSW

PO Box 1120, Parramatta NSW 2124

E technical.enquiries@transport.nsw.gov.au | T 1300 137 302 | F (02) 8837 0037

TfNSW Vehicle Safety Compliance Certification Scheme (VSCCS)

For Information & advice related to VSCCS Licensed Certifiers.

VSCCS | E vsccs@transport.nsw.gov.au | T 1300 336 206

Department of Infrastructure, Transport, Regional Development and Communications

For information related to building or importing road vehicles for use in road transport within Australia; also for information on & to access Australian Design Rules (ADRs) & associated Circulars; Vehicle Standards Bulletins (VSBs)

GPO Box 594 Canberra ACT 2601

infrastructure.gov.au | T 1800 815 272 | F (02) 6274 6013

National Heavy Vehicle Regulator

For Information & advice related to the construction and modification of heavy vehicles (ie those with a GVM or ATM exceeding 4.5tonnes); requirements for heavy vehicle permits & exemptions.

PO Box 492, Fortitude Valley Q 4006

nhvr.gov.au E info@nhvr.gov.au | T 1300 696 487 | F (07) 3309 8777