



## LPG AND YOUR RESPONSIBILITY AS A LEADER

Liquefied Petroleum Gas (LPG) Safety

# Leader Support Guide

For the sake of a 75 second check  
don't take the risk of being accused of negligence or  
carelessness if there is an lpg accident  
or a person suffers lpg burns

Very few people need to be told how dangerous LPG can be if there is a sudden leak or escaping liquid LPG gets onto someone's skin. A recent hall check of several Groups' LPG equipment showed they all needed urgent servicing or hose replacements!

If the Groups had used the equipment and there was an accident involving LPG the Leaders could have been accused of negligence.

### DO YOU

- Know, and use, the five 15 second checks that should be carried out before the use of LPG equipment?
- Teach your youth members what to look for and how to carry out LPG checks before going to camp?
- Supervise the youth member's checks?
- Keep a log of the dates of LPG equipment checks and re-certification?

**You do! That's terrific!**

### HERE IS A QUICK REFRESHER TO HELP YOU

#### 1. THE 15 SECOND CYLINDER CHECK

1. Is it in date? Every ten years it must be retested at a testing station. Check year stamp on top or lower rim.
2. Does it have any significant rust?
3. Does it have any significant 'dings' especially on the welds?
4. Is the cylinder valve free of dirt and damage?
5. Cylinders (bottles) in the 1 – 4 kg range have a 3/8 left hand thread which fits most 'Companion' style fittings. Large gas cylinders from 4.5 – 9 kg have a large left handed 'POL' outlet. Remember they all have a **left-hand-thread which** tightens anticlockwise, however, some **Primus** LPG equipment is right-hand-thread (clockwise to tighten).

#### 2. THE 15 SECOND HOSE CHECK

1. Is the hose free from cracks and signs of deterioration? We replace cylinders but often forget this vital pressure component after all a new hose is very inexpensive and have a service life of about 5 years. Always replace a worn or damaged hose immediately.
2. Where the hose joins on to the connectors are there any signs of damage, dirt or deterioration?
3. Do the threads in the connectors appear OK, is there any dirt or rust inside the connector fittings?

#### 3. THE 15 SECOND REGULATOR CHECK

1. A visual inspection, make sure where the hose joins the regulator it does not damaged.

2. Threads appear undamaged and where fitted, there is an undamaged O-ring on the end of the regulator. Damage to the o-ring or rubber nose can be in the form of cuts or flat spots.
3. Some regulators have a full brass nose. This must be free of damage and dirt to achieve a gas-tight seal inside the cylinder valve.

#### 4. THE 15 SECOND CHECK OF THE CONNECTIONS WHEN SET UP

1. Do you remember and youth members know, that most of the connectors tighten and loosen the opposite way to an ordinary nut and bolt? **Anti clockwise to tighten.** Know your equipment.
2. Put a little soapy water around the connections. If there are any leaks bubbles, will appear in the soap around joints. Always rinse the joints with clean water after leak-testing. The leak testing solution might damage the fittings if allowed to dry. Never use ammonia solutions.

#### 5. THE 15 SECOND CHECK OF THE APPLIANCES

1. Check burners and jets are not blocked or rusty and the control knobs all turn on and off easily. Remember the gas light or stove is sometimes only used once a year.
2. Connect the appliance to the cylinder and open the cylinder valve, but do not open the appliance valve (gas cock). Check the appliance in a well ventilated, but not windy area. Use sound, sight, smell and soapy water solution to test for leaks in and around the appliance, bubbling of the soapy water solution will suggest an LPG leak. Do not use the appliance if an LPG is found. Rinse the test area well after leak testing.

**NOTE:** The 5 simple tests are used to check for faults. If a fault is found, **fix it**, or remove it and tag the equipment and take out of service until repairs can be made by a gas technician or service agent.

#### SOME IMPORTANT FACTS

1. We buy our LPG in a cylinder which comes in various sizes from 9kg for the BBQ down to 2 or 3 kg for cooking and lighting. Gas can even come in 500g or 1 kg cartridges which fit into special stoves and lights. These appliances must use the correct cylinder for the specific appliance or leaks of liquid LPG or gas will occur.
2. Never operate any gas appliances inside an enclosed space like a tent or vehicle. Gas appliances need ventilation at all times to operate correctly and safely. Malfunctioning gas appliances can kill.
3. When liquid LPG escapes it leaves the cylinder as a liquid which boils at -42°C. If the liquid gets on your body it will instantly freeze the part it is touching causing damage to skin or blindness if it gets in your eyes. The gas has an odorant in it which makes it smell, to act as a warning. Spilled gas can cause asphyxiation, fire and death.
4. LPG is heavier than air; it expands 270 times its volume when it changes from a liquid to a gas. The gas is heavier than air and flows along the ground (just like petrol vapour, or a smoke machine at a disco or stage show!). LPG even fills any holes lower than ground level. This is why caravans, cars and motor homes have to have their LPG containers mounted on the outside, or in specially ventilated spaces.
5. **Always** store, carry, transport and use any LPG cylinder in the correct position, which is **usually vertical** (standing upright).
6. Just like petrol or gas from a stove at home LPG is very flammable. The smallest spark can ignite it. The gas is under high pressure and if it does ignite there is often no way to get near the cylinder to turn it off. This is why camping stores now sell special cut off valves (excess flow valves) which may shut off the gas if there is a big leak, some also tell you how much LPG is left in the cylinder.

7. So what is LPG? It is a liquefied gas mix, LP gas or LPG is a hydrocarbon fuel comprising of propane, butane or propylene, either separately or as a mixture. The gas is liquefied under moderate pressure; when allowed to revert to vapour it expands 270 times its liquid volume. This enables LPG to be stored as a compressed liquid but burnt as a dry gaseous vapour. LPG is non-toxic, non-corrosive, free of lead and heavier than air. It is produced by refinery distillation of oil or is stripped from naturally occurring Natural Gas.
8. LPG used in camping, barbeques and domestic activity is Propane.
9. Automotive LPG is not the same as the LPG used in BBQ bottles. It is a very different mixture of hydrocarbons, and cannot be used in camping, domestic or barbeque appliances. The appliance may perform badly, and be dangerous if Automotive LPG is used.

*Make sure your Youth Members are trained that if they have any worries about LPG equipment or its use, they come to you as their Leader. If you are in doubt, as a Leader, take the appliance to a licensed gas mechanic or camping store before using it.*

**These simple steps will ensure you have a safe  
and great time camping.**

**David Marston**  
BVocEd&Train CSturt, M.I.A.M.E.  
Licensed LPG Mechanic

## **Appendix: How to transport and store small gas cylinders**

**Ventilation** is the key to reducing risk of fire or explosion.

### **NEVER:**

- Transport or keep cylinders in an unventilated vehicle, unless in a purpose built ventilated compartment.
- Permanently store cylinders inside vehicles unless in purpose built ventilated compartment.
- Allow cylinders to fall over.
- Transport them when horizontal (lying on their side).
- Attach the cylinder to the external body of a vehicle because of the potential risk of damage in a collision.

### **ALWAYS:**

- Check for leaks from valves, connections and equipment by applying soapy water and looking for bubbles before transporting cylinders and equipment. Always rinse the LPG equipment with fresh water after leak testing. Smell alone is not a reliable test, even though LP Gas is odourised. Relying on the valves to prevent leakage during transport is dangerous.

- Ensure windows of the vehicle are wound down for cross flow ventilation.
- If you are transporting the cylinder inside a trade vehicle, keep the cylinder in a purpose built compartment or cabinet that provides adequate ventilation of any leaking gas to the outside of the vehicle. A side-mounted compartment with its own door is suitable, provided the cylinder remains upright. Alternatively, an open vehicle such as a utility provides the best ventilation and avoids the risks of LPG accumulation.
- Secure cylinders and keep them upright, during transport, use and storage.
- Unload the cylinder from inside the vehicle immediately on reaching your destination, unless the vehicle has a purpose built ventilated compartment.

### **Choosing suitable cabinets or compartments**

The compartment or cabinet, which houses the cylinders, should be equipped to ventilate any escaping gas outside the vehicle and away from potential ignition sources.

Check that the ventilation is not damaged or obstructed.

If the cylinder is accessed from inside the vehicle, the cabinet door should provide a gas tight seal, but this cabinet will not comply with the requirements (AS/NZS 5601) for storage of a gas cylinder.

Compartments accessed from the outside (similar to those used on caravans and mobile homes) are suitable.

### **When returning cylinders or cartridges to the vehicle after use:**

- Close the main cylinder valve, if it has one, and/or disconnect any equipment or appliance. Some designs rely on the removal of the attachments to close the valve.
- For POL valves, fit the screw-in plastic plug (anti-clockwise to tighten).
- Check for leaks from valves, connections and equipment by applying soapy water and looking for bubbles. Smell alone is not a reliable test, even though LP Gas is odourised. Rinse well after leak testing. Remember relying on the valves to prevent leakage during transport is dangerous.
- Ensure ventilation around the cylinders in vehicle is adequate.
- Ensure cylinders are tied down and remain up right at all times.

### **Refilling cylinders**

When re-filling a cylinder, ask the supplier to test the valve for leaks, rinse after testing and fit the plastic screw-in plug, before loading the cylinder into your vehicle.

### **Storage of small cylinders**

- Gas cylinders should not be stored in an unventilated enclosed space. For example, an unventilated garage, shed or other area is not suitable.

**N.B. There is a limit to how much LPG can be stored, see the Scout Association “Hall Manual” for full details.**

*Appendix information based on Transporting small gas cylinders brochure from Workcover NSW  
Written with the assistance of LPG Australia*