

MOTOR CARAVANS have been fitted with owner-refillable under-floor gas tanks for at least 10 years. Don't get these mixed up with tanks which deliver gas in liquefied form to an engine for propulsion. This report is about the tanks which deliver gas in its vapourised state for cooking or heating. You can't (at present) get one tank to do both jobs.

Refillable tanks like these have to meet strict safety standards and owners fill them up at fuel stations equipped with a liquefied petroleum gas (LPG) dispensing facility. In practice, the trade name of Autogas is now often used in a generic sense.

More recently, portable cylinders have also been sold which are intended for owners to refill themselves. One of their chief attractions is the fact that a self-filled cylinder is less expensive than the cost of an exchange cylinder of gas. However, when introduced, several safety concerns were expressed by gas specialists, particularly the fact that some cylinders on sale were not fitted with an automatic cut-off device to ensure that the container is never filled beyond 80% of its internal capacity. That's an essential provision.

Anyone who has filled a can with petrol to run a motor mower will know that when squatting on a filling station forecourt alongside a petrol pump which dispenses fuel at a brisk rate, it isn't easy to judge when a container is nearly full.

Putting this into the context of liquefied gas and recognising the potential danger of filling a gas container beyond 80% of its capacity, the problem confronting owners is acutely apparent. Even with cylinders that have opaque, glass fibre sides, this exacting task might be far too difficult for some owners to accomplish with accuracy.

There are other safety issues, too, and a detailed statement regarding the Club's findings regarding owner-refillable cylinders was given in 'Ask your Club', February 2004 issue, p42. In addition, the trade organisation serving the LPG industry, then known as the LPG Gas Association and now re-titled as UKLPG, also expressed its misgivings in a statement.



ANYONE FOR A REFILL?

JOHN WICKERSHAM REPORTS ON THE CLUB'S TECHNICAL SUB-COMMITTEE'S CURRENT VIEWS ON REFILLABLE GAS CYLINDERS

As an impartial observer, I certainly shared the concerns being voiced by gas specialists. Moreover, I had seen gas cylinders being checked, refurbished and refilled at one of the Calor Gas plants which was reported in this *Magazine* (February 2003). In my judgement, the company's meticulous safety precautions more than justified the amount charged for an exchange cylinder. But you can't exchange Calor

cylinders abroad, and that's one of several points in favour of having a user-refilling arrangement.

Not long afterwards, I had a call from the Director of Gaslow International asking me to discuss the body construction of different touring and motor caravans. His plan was:

- To be able to install external LP gas filling points on caravan structures
- To install a fixed internal coupling pipe

1. Refillable gas cylinders are sold with vigour at outdoor shows

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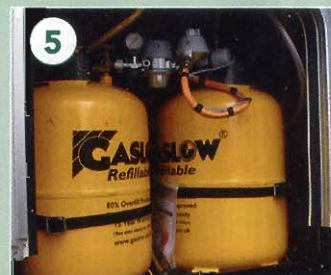
2. Concern was expressed about opaque portable cylinders which lacked an 80% shut-off device



3. Gaslow designed 6kg and 11kg propane cylinders for permanent installation



4. Mock-ups at outdoor shows illustrate how a Gaslow fixed system is connected



5. Twin 11kg cylinders are installed in this motor caravan with automatic changeover devices



6. The supply outlet to the caravan is the screw type fitted on Calor 4.5kg butane cylinders



7. The latest Gaslow cylinders are fitted with a gauge whose float monitors the last 50% of liquefied gas

■ To design a vessel complying with European safety standards which could be permanently installed in a caravan. Having tested and written about Gaslow products since 1984, I knew this project would be subjected to meticulous scrutiny before being offered for sale.

THE SYSTEM

First task, then, was to create a cylinder which featured all the necessary safety features. In the event, two sizes have since been produced – a 6kg propane cylinder and an 11kg version. Both have European Pi approved filler valves that shut off as soon as an 80% capacity level is reached. The cylinders are also designed to be used singly, in pairs, or in conjunction with a conventional exchange-type product.

They are also made for installation in a gas locker and permanently coupled-up to a wall-mounted filler inlet. The latest ones now include a float-operated indicator gauge. All that was needed finally was a pipe to couple the filler to the cylinder.

The usual flexible rubber-compound hose was clearly not suitable because this often needs changing. The aim here was to offer a complete assembly with a 15-year warranty covering the three main components, namely: filler inlet, coupling pipe and purpose-made vessel. Obtaining a coupling pipe presented a challenge.

The answer lay in a stainless steel semi-flexible pipe which comprises a convoluted 'bendable' pipe in the middle and a protecting steel braid on the outside. The product complies with EN10380, has welded end-fittings, zero permeation of

gas and it should be routinely changed after 20 years. It contains NO rubber at all.

EVALUATION

Considerable time was spent evolving a safe system and my only observation is that some cylinders would benefit from better anchorage than the fragile strap and buckle originally supplied by many caravan makers. Although a cylinder must be removed for replacement after 15 years, my view is that specialists installing these cylinders should develop more secure fixings. That's just a personal thought relating to installation; the system itself is well thought-out and its integrity has also been favourably acknowledged by gas specialists.

THE REVISED JUDGEMENT

In the light of this development, the Club's Technical sub-Committee met in October 2008 and endorsed the change of policy that had been given in a revised statement published in 2007 by the LP Gas Association (now UKLPG). The statement read as follows:

'Vessels which are attached to a vehicle for heating or cooking [on camper vans or similar] present similar risks on filling to those for propulsion purposes [but] may be permitted to be re-filled at Autogas refuelling sites provided they:

- Remain in situ for refilling
- Are fitted with a device to physically prevent filling beyond 80%
- Are connected to a fixed filling connector which is not part of the vessel.'

“Considerable time was spent evolving a safe system”

However, the Association re-affirmed earlier views expressed in respect of owner-refillable portable cylinders and stated:

'It is our advice that user-owned, portable LPG cylinders should not be refilled at Autogas refuelling sites.'

Regrettably, some gas equipment suppliers are still disregarding this recommendation and continue selling owner-refillable portable cylinders. The Club neither approves this practice nor will it publish advertisements from these companies in the *Magazine*. On the other hand, the integrated fixed system that Gaslow has developed does meet the approval of the Club and over 70 specialists currently offer installation services. But remember: caravanners must follow all the user instructions and exercise vigilance when refilling any kind of fixed LPG tank system. ■

With no rubber and at least a 20-year life, the stainless steel inner offers useful flexibility



INFORMATION GENERAL

- Gaslow International, Castle Business Park, Pavilion Way, Loughborough, Leicestershire LE11 5GW. Tel 0845 4000 600 or see gaslow.co.uk. Manufacturer/supplier of integrated fixed systems
- CMR Group, Fareham House, Fareham Drive, Yately, Surrey GU46 7RE. Tel 0845 260 2666. Mobile installer of integrated fixed systems
- RPi Engineering, Wayside Garage, Holt Road, Horsford, Norwich, Norfolk NR10 3EE. Tel 01603 891209. Installer of integrated fixed systems and vehicle tanks
- Over 70 other installers nationwide of Gaslow integrated fixed systems are now listed on gaslow.co.uk



8. Though not as flexible as a standard rubber compound hose, this stainless steel pipe can be bent



9. The white or black UK Autogas bayonet-type filler units are sold complete with installation fixings



10. The wall-mounted filler on this motor caravan provides a safe and certain coupling point



11. This French/Italian adaptor screws into Gaslow's bayonet fitting; there is also a Euro adaptor