

TRANSPORT CANADA OFFICE OF BOATING SAFETY PACIFIC PLEASURE CRAFT COURTESY CHECK BULLETIN

Bulletin 03-07 April 18, 2007

Check Criteria for Liquefied Petroleum Gas Fuel Systems (LPGS)

This Transport Canada (TC), Office of Boating Safety Pacific PCCC bulletin is issued under the authority of the Regional Manager Boating Safety, Transport Canada in order to provide clarity and direction to PCCC checkers. The information in this bulletin provides additional and updated information to the TC PCCC manual. **Any questions or enquires concerning this bulletin or any other particulars of the TC PCCC program are to be directed to Boating Safety Officer Mike Mitchell, Officer Primary Interest Transport Canada Pleasure Craft Courtesy Check Program.**

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Small Vessel Regulations (SVR)-Part VI Safety Precautions

Requirements:

Fuel Burning Appliances or Systems

Section 40

- (1) No person shall install a fuel-burning appliance or system in a small vessel except in accordance with the manufacture's recommended practices.
- (3) No person shall install a fuel-burning appliance or system using gaseous fuel, liquefied petroleum gas, compressed natural gas (CNG) or naphtha in a manner that permits or is likely to permit ingress or trapping of the gas or naphtha below deck.

General information

Propane and butane are often used on pleasure craft for fuel burning appliances. These gases, which are flammable and explosive, are heavier than air and will flow rapidly into lower parts of the boat, including the bilge. Once present these gases are extremely difficult to remove safely.

Boaters must make sure that there is adequate ventilation when a gas-burning appliance is in use with a pilot light. They must also be made aware that the appliances need to be fully secured to guard against leakage due to unexpected movement of the vessel. The cylinder is secure in suitable container in a well-ventilated area, preferably on top of the cabin or outside the main deck.

PCCC checkers no longer check LPGS fuel systems in its entirety. Checks are limited to the storage and securing of the tank cylinder(s). Any other observations, which may impact the safety of the vessel or the owner, are still noted in the comments section. Direct recommendations as to modifications or installation of LPGS systems are not to be given. A qualified person (as per the manufactures recommendations) must give these recommendations.

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The importance of having a marine grade gas detector cannot be over stated. A correctly operating gas detector with an audible alarm can provide early detection and notification to the owner, which may prevent a catastrophic situation from developing.

The owner is to be asked if the LPS was professionally installed, if not the owner must be advised to have the fuel burning appliance or system checked by a qualified person to ensure that it has been installed correctly. Periodic maintenance and checks by a qualified person are also recommended, following any manufactures recommendations. This information is to be included in the comments box or addendum sheet.

LPS are under the awareness section of the TC PCCC program; all items under the awareness section do not impact the requirements of compulsory criteria.

- *Remember that personal safety of the checker is paramount, if at any time you smell gas or feel that there is a safety risk to yourself, exit the vessel. Advise the owner and recommend that they also get off the vessel and inform the local authority.*

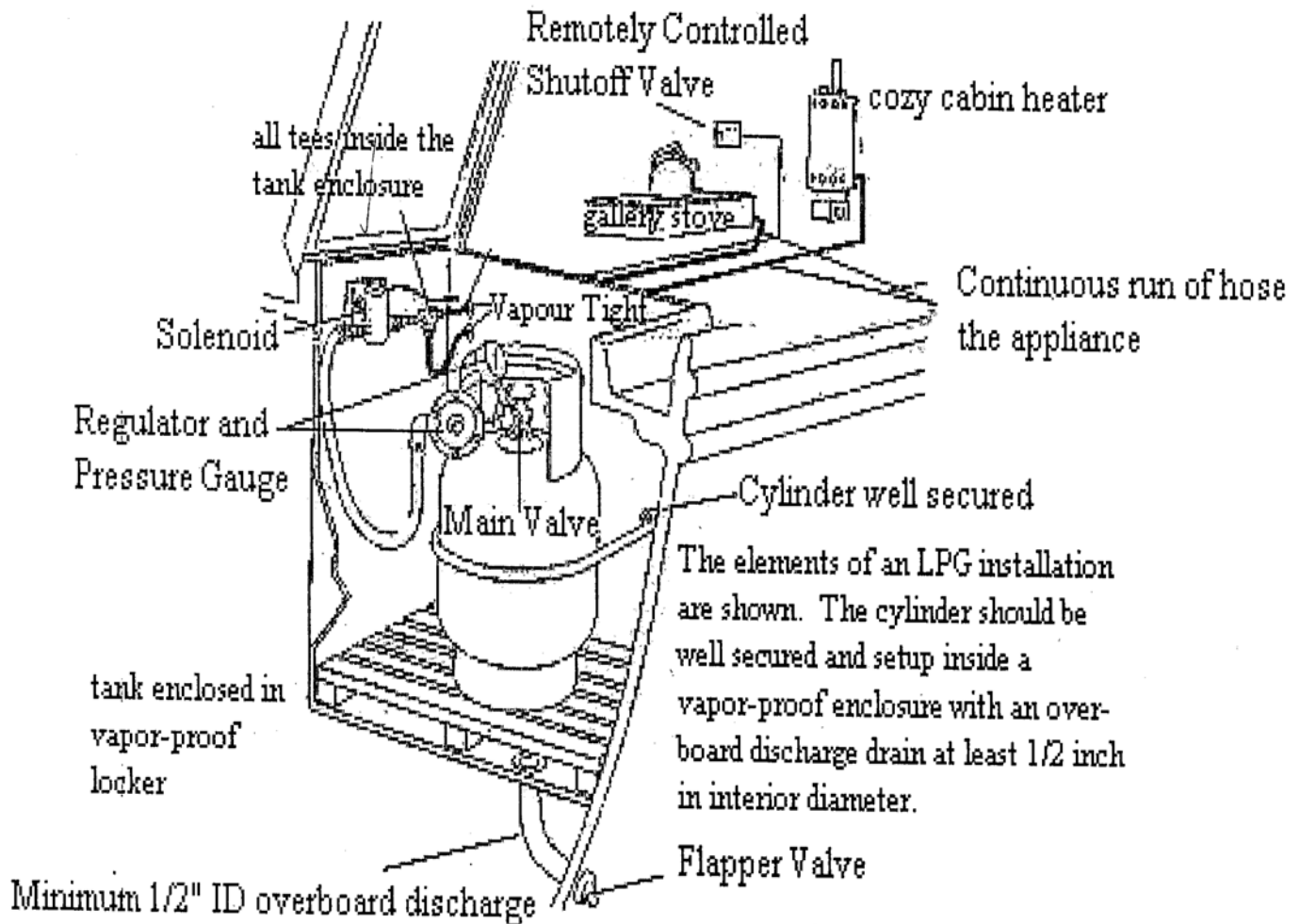
The following check criteria are an amendment to the PCCC manual 2004 page 101.

The following check criteria are under the awareness section, the owner must be educated as to the importance of a correctly installed LPS fuel system.

- Gas fuel cylinders, regulating and safety devices shall be securely fastened and so located that escaping vapors cannot escape into the bilges, machinery spaces or accommodation or other enclosed spaces, protected from damage, direct rays of the sun and heat;
- Location of gas fuel cylinders, regulation arrangements and relief valve outlets shall be located only on open decks, on cabin tops, outside cockpits or inside housings (above the water line) that are gas-tight to the hull interior and have a overboard discharge (drain) (min ½ inch inside diameter) at the bottom which allows for any gas to escape over the side of the vessel. (But does not allow for the vapors to re-enter the vessel through another opening in the hull or structure of the vessel) ***Note: CNG must BE vented through the top as it is lighter than air;***
- A dedicated storage locker shall be vapour tight to the hull. Constructed or lined with corrosion resistant materials, equipped with a top opening, gasketed with easy access to the cylinder valve and a overboard discharge at least 2 feet from any openings to the accommodations or hull.
- Only liquefied petroleum gas fuel cylinders that meet the requirements of the Transportation of Dangerous Goods Directive of Transport Canada shall be used;
- Spare and empty gas fuel cylinders shall have valve outlets that are capped, secured on the open deck, protected from damage, heat and the direct rays of the sun;
- A marine grade gas detector (audible alarm) is strongly recommended.
- Direct recommendations for installation or modifications are not be given by the PCCC checker.
- *The boat owner must be made aware that the LPG fuel system must be installed and maintained as per the manufacture recommendations. There is the potential for an explosion, fire or toxic effects from an incorrectly installed or maintained system. Periodic maintenance and checks by a qualified person are also prudent. This information is to be included in the comments box or on the PCCC addendum sheet.*

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Typical LPG Propane Locker and Installation



This illustration shows a typical LPG tank installation. The boat owner must be informed to refer to the manufactures recommendations for system installation and maintenance requirements. Warning signage is also recommended on the outside of the locker.