

DISCIPLINE INFORMATION NOTE			
Other Gases			
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To:

Inspectors and Dutyholders in all Workplaces in which Compressed Gases are Used, Stored or Transported

THE MAINTENANCE AND EXAMINATION OF PRESSURE REGULATORS ON CYLINDERS ETC OF COMPRESSED GAS

BY GORDON NEWSHOLME

Enquiries are frequently received regarding the maintenance and examination requirements for the pressure regulators used on cylinders and other items of transportable pressure equipment used for the carriage or storage of compressed gases. This note summarizes the issues that determine the legislation applicable, the responsibilities of dutyholders and some sources of relevant industry guidance. A decision tree is provided in the Appendix which should be of help in quickly identifying those pieces of legislation that may apply and what duties these impose.

1. The first issue to consider is whether the regulators fall under the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004 (the Carriage Regs) or the Pressure Systems Safety Regulations 2000 (PSSR). The important factors in determining which piece of legislation will apply to the regulators are shown below
 - a. PSSR will apply to the regulator in the most common situation where it is a separate piece of equipment that is not attached to the cylinder etc. during carriage. PSSR continues to apply to such a regulator if it remains attached but does not perform a direct safety function during transport, e.g. when located on the low-pressure side of a suitable block-valve.
 - b. PSSR will apply where the regulator is attached to a cylinder or other piece of pressure equipment that is not used for the carriage of goods.
 - c. The Carriage Regs will apply where a separate regulator remains attached to a cylinder etc. and has a direct safety function during carriage. This includes situations where the regulator and block valve are incorporated into a single integral assembly. These regulations also apply where the regulator does not perform a direct safety function during carriage but is a **permanently** attached fitting to the transportable pressure equipment.

- d. Generally, neither PSSR nor the Carriage Regs apply to regulators that are part of the propulsion, braking, suspension or refrigeration systems of vehicles or vessels.
2. Generally, where the Carriage Regs apply, the regulator should be covered by a written scheme for periodic examination. It will be apparent from the above, however, that PSSR will apply to most of the regulators used on cylinders or other transportable receptacles for compressed gas. Where this is the case a key decision is whether the regulator should be considered a **protective device or pipework** under PSSR. This may determine whether or not the regulator must be included in the written scheme of examination for the pressure system.
3. Protective devices must be included in the written scheme for periodic examination whereas pipework, except those parts in which a defect may give rise to danger, need not. Protective devices include equipment designed to protect the pressure system against system failure and devices designed to give warning that system failure might occur, and include bursting discs. (**PSSR Reg 2,1**). Also included within the definition is instrumentation and control equipment that has to function correctly in order to protect the system in situations where no other (pressure relieving) protective device is practicable.
4. Whether a regulator is a protective device or pipework may be determined by consideration of the following points:
 - a. In most situations gas regulators are installed primarily to control the process and not as protective devices. The pressure system should be provided with suitable safety devices, e.g. pressure relief valves or bursting discs etc, downstream of the regulator to protect against danger arising from its failure etc (**PSSR Reg 4,4**). Consequently, in appropriately designed systems all vulnerable downstream equipment will usually be protected by suitable pressure relieving devices and in these situations the regulators would not normally require inclusion in the written scheme for periodic examination under PSSR.
 - b. The regulator should be considered a protective device in systems where it is impractical to use pressure-relieving devices to protect vulnerable downstream equipment, e.g. where the pressurised fluid is too toxic or environmentally damaging to permit its release to atmosphere.
 - c. The regulator should be considered a protective device in situations where it incorporates an integral protective device, e.g. bursting disc or relief valve, which is a significant element in the basis of safety of the pressure system.
5. Where it is not a requirement that the regulator is included in the written scheme of examination it does, like other items of pipework etc, come under the general provisions of PSSR aimed at ensuring that systems handling fluids under pressure are suitable and appropriately maintained. Advice on the overhaul/replacement of regulators should be obtained from

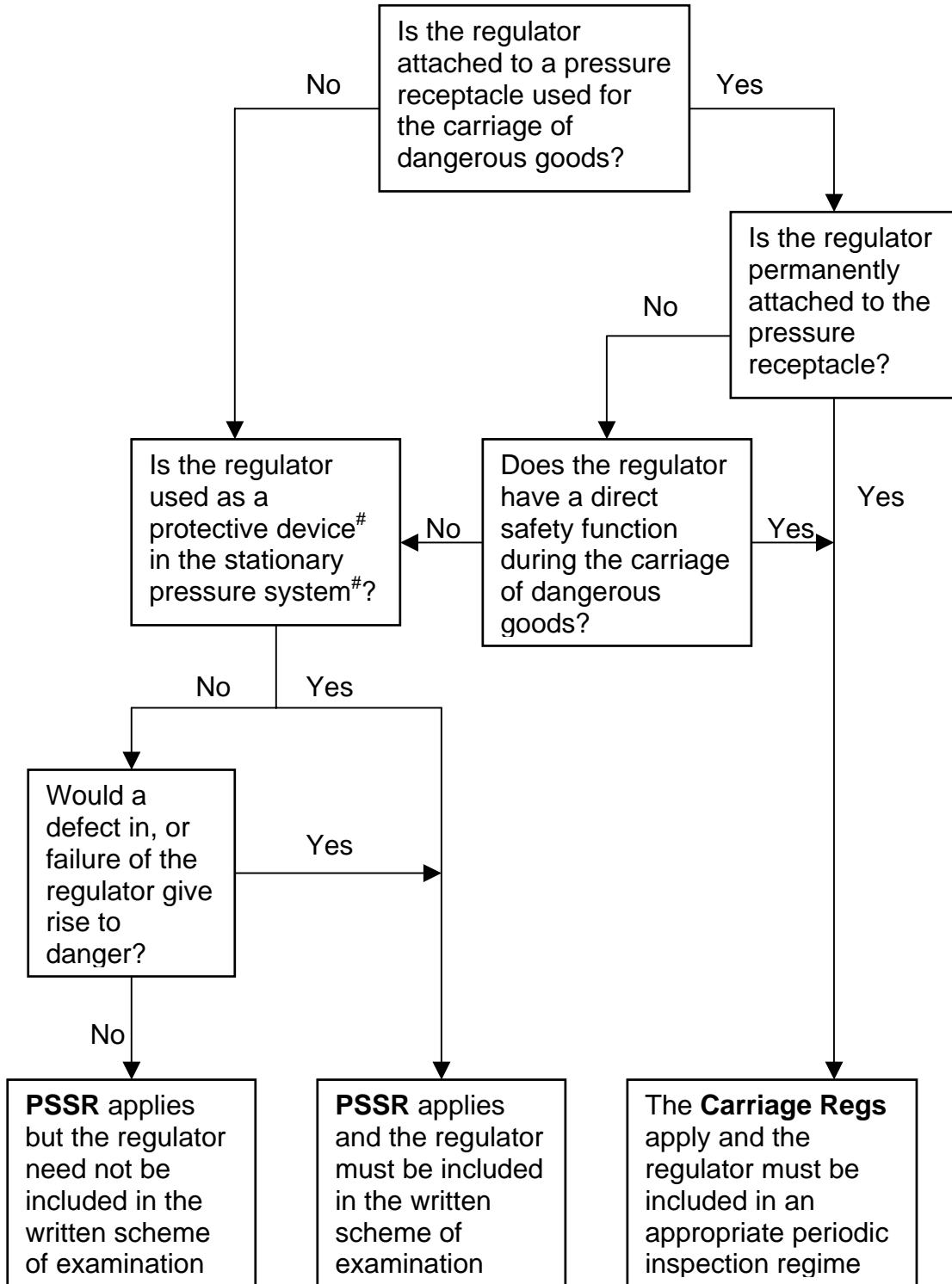
the supplier of the pressure equipment. Overhaul/replacement of regulators is typically recommended after 5 years service (**BCGA CP23**).

The following sources of information and guidance should prove helpful:

- CP23, Application of Pressure System Safety Regulations to Industrial and Medical Pressure Systems Installed at User Premises. Rev. 1, 2002. British Compressed Gases Association
- Safety of Pressure Systems, Pressure Systems Safety Regulations 2000, Approved Code of Practice, L122, HSE Books, ISBN 0-7176-1767-X

APPENDIX

A decision tree to clarify the Regulatory inspection requirements for pressure regulators on pressure receptacles as defined by PSSR or the Carriage Regs.



Within the scope of PSSR