CGA

Compressed Gas Association

The Standard For Safety Since 1913

CGA C-6.4—2012

REAFFIRMED 2018

METHODS FOR EXTERNAL VISUAL INSPECTION OF NATURAL GAS VEHICLE (NGV) AND HYDROGEN GAS VEHICLE (HGV) FUEL CONTAINERS AND THEIR INSTALLATIONS

FOURTH EDITION

PLEASE NOTE:

The information contained in this document was obtained from sources believed to be reliable and is based on technical information and experience currently available from members of the Compressed Gas Association, Inc. and others. However, the Association or its members, jointly or severally, make no guarantee of the results and assume no liability or responsibility in connection with the information or suggestions herein contained. Moreover, it should not be assumed that every acceptable commodity grade, test or safety procedure or method, precaution, equipment or device is contained within, or that abnormal or unusual circumstances may not warrant or suggest further requirements or additional procedure.

This document is subject to periodic review, and users are cautioned to obtain the latest edition. The Association invites comments and suggestions for consideration. In connection with such review, any such comments or suggestions will be fully reviewed by the Association after giving the party, upon request, a reasonable opportunity to be heard. Proposed changes may be submitted via the Internet at our website, www.cganet.com.

This document should not be confused with federal, state, provincial, or municipal specifications or regulations; insurance requirements; or national safety codes. While the Association recommends reference to or use of this document by government agencies and others, this document is purely voluntary and not binding unless adopted by reference in regulations.

A listing of all publications, audiovisual programs, safety and technical bulletins, and safety posters is available via the Internet at our website at www.cganet.com. For more information contact CGA at Phone: 703-788-2700, ext. 799. E-mail: customerservice@cganet.com.

Work Item 17-023
Cylinder Specifications Committee

NOTE—No technical information has been changed from the 2012 edition. This reaffirmed edition may include minor editorial changes.

NOTE—Appendices A, B, and C (Informative) are for information only.

REAFFIRMED: 2018
FOURTH EDITION: 2012
THIRD EDITION: 2007
SECOND EDITION: 2003

Contents **Page**

Tables

Figures

Appendices

1 Introduction

This publication provides information and procedures for the periodic visual examination and inspection of natural gas and hydrogen fuel containers and the condition of the installation. These containers are installed in vehicles qualified by the original equipment manufacturer (OEM) or aftermarket vehicle manufacturer to meet the following U.S. or Canadian standards:

- CSA/ANSI NGV2, *Compressed natural gas vehicle fuel containers* [1];[1]
- U.S. Department of Transportation (DOT) National Highway Traffic Safety Administration (NHTSA) FMVSS, Standard No. 304, *Compressed Natural Gas Fuel Container Integrity* [2];
- Canadian Motor Vehicle Safety Regulations, Standard 301.2, *CNG Fuel System Integrity* [3]; and
- Canadian Standards Association (CSA) B51, *Boiler, Pressure Vessel, and Pressure Piping Code* [4].

This publication may be used for the inspection of other natural gas and hydrogen fuel containers that are qualified to meet other specifications and standards (see Section 4). These containers are designed to store natural gas and hydrogen at high pressures. It is critical that this publication be carefully read and completely understood before initiating either the examination or inspection of a container and that all applicable sections of the publication be followed during the examination/inspection process. This publication requires that appropriate information, such as an installation and maintenance manual from the container manufacturer, be reviewed and used during the examination/inspection together with all current container manufacturer's recommendations and guidance documents.

The examinations/inspections covered in this publication are intended to be carried out only by qualified individuals as defined in Section 5. When preparing to conduct an inspection, the inspector should have the equipment described in Section 6 available and within easy access during the inspection. The vehicle to be inspected should be positioned so access to the surface of the container is unimpeded or positioned according to the vehicle manufacturer. If the examination, conducted as described in Section 7, reveals areas that require additional inspection or testing of the container, the container label is not visible, or the container surfaces are not all sufficiently visible to the inspector, the container shall be depressurized (following this publication and the manufacturer's instructions) and removed from the vehicle. See Section 8 for alternative and ancillary inspection methods.

2 Scope and purpose

2.1 Scope

This publication addresses containers manufactured to generally accepted codes and standards for fuel gas vehicle (FGV) service (see Section 4) [1, 2].

2.2 Purpose

The purpose of this publication is to provide guidance for the visual inspection of these containers and to provide criteria for the acceptance or rejection (in the absence of guidance from the manufacturer) with subsequent disposal or repair as necessary. The appropriate documentation to comply with inspection requirements of natural gas vehicle (NGVs) and hydrogen gas vehicle (HGVs) is in the following preferred order:

a) jurisdictional authority;

b) standards and specifications;

c) OEM requirements;

d) aftermarket vehicle manufacturer requirements;

[1] References are shown by bracketed numbers and are listed in order of appearance in the reference section.