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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 20651.2-2014

**Reciprocating internal combustion engines -- Safety -- Part 2:
Spark ignition engines**

往复式内燃机 安全 第2部分：点燃式发动机

(English Translation)

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Foreword

All technical content in this Part of GB 20651 is mandatory.

GB 20651 "Reciprocating internal combustion engine security" is divided into two parts.

--- Part 1. Compression ignition engines;

--- Part 2. spark ignition engines.

This is Part 2 GB 20651's.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This part is proposed by China Machinery Industry Federation.

This part of the internal combustion engine by the National Standardization Technical Committee (SAC/TC177) centralized.

1 Scope

This part of GB 20651 specifies the safety requirements and precautions and the basic ignition engines ancillary equipment, the gas engine it may be made according to the special requirements of specific applications. This section does not include specific requirements in potentially explosive atmospheres.

This section applies to land, and underground water with spark ignition engines (hereinafter referred to as the engine).

Note: This section refers to the engine power output of the prime mover so far.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 1883.1 Reciprocating internal combustion engines - Vocabulary - Part 1. engine design and operation GB/T 1883.2 Reciprocating internal combustion engines - Vocabulary - Part 2. Terms for engine maintenance GB 3836.1-2010 explosive atmospheres - Part 1. General requirements for equipment GB/T 4025 basic safety rules and coding rules and operation of the device indicator HMI flag identified GB/T 4365 Electrotechnical terminology Electromagnetic Compatibility GB 4556-2001 reciprocating internal combustion engine fire GB/T 4672 Reciprocating internal combustion engines - Hand - operated control Standard direction of motion GB/T 6072.1 reciprocating internal combustion engine performance - Part 1. Power, calibration and test methods of fuel consumption and lubricating oil consumption Additional requirements for engines for general use GB/T 8420 moving machinery physical dimensions of operators and minimum operator space GB/T 9239.1 Mechanical vibration steady state (rigid) rotor balance quality requirements - Part 1. Specification and balance tolerance test GB/T 9969 General Instructions industrial products GB/T 10398 small gasoline engine vibration test methods and rating GB/T 10715-2002 belt drive V-ribbed belt, the group includes a wide V-belt and V-belt, hexagonal belt, including a single V-belt antistatic Conductive tape. Requirements and test methods GB 14023 Vehicles, boats and internal combustion engines - Radio disturbance characteristics Limits and methods of measurement for the protection of the vehicle receiver Methods of measurement GB/T 14024 internal combustion engine power plant of radio interference characteristics Conducted interference GB/T 14652.1 refractory boat fuel hoses GB 14762 heavy-duty engines and vehicles with petrol car exhaust emission limits and measurement methods (China III, IV stage) GB/T 15371 crank shaft torsional vibration measurement and evaluation methods GB/T 15706 Safety of machinery - General principles for design risk assessment and risk reduced GB 15739 small gasoline engine noise limits GB 16754 Safety of machinery - Emergency stop design principles GB 17691 from compression ignition and gas fueled positive ignition engines with exhaust emission limits and measurement methods (China III, IV, V stage) GB/T 17799.1 Electromagnetic compatibility - Generic standards for residential, commercial and light industrial environment - Immunity GB/T 17804 graphical symbols for reciprocating internal combustion engine GB/T 18153 Safety of machinery - accessible surface temperature Ergonomics data to establish temperature limit values for hot surfaces GB 18209.1 Electrical safety of machinery - Indication, marking and actuation - Part 1. Requirements for visual, auditory and tactile signals GB 18209.2 Electrical safety of machinery - Indication, marking and actuation - Part 2. Requirements for marking GB 18296 car fuel tank safety requirements and test methods Ergonomic design - Part 2 GB/T 18717.2 for the safety of machinery. Machinery body into

the opening size is determined in principle GB/T 20064.1 Reciprocating internal combustion engines - Handle starting Part 1. Safety requirements and tests GB 20800.1 explosive environment with explosion-proof technology General reciprocating internal combustion engines - Part 1. flammable gas and vapor atmospheres II engines for use GB 20800.2 explosive environment with explosion-proof technology General reciprocating internal combustion engines - Part 2. combustible dust within Class II Combustion engine GB 20800.3 explosive environment with explosion-proof technology General reciprocating internal combustion engines - Part 3. presence of methane and (or) combustible dust the underground mine roadway with I type internal combustion engine GB/T 22359 moving machinery - Electromagnetic compatibility GB/T 23342 reengaging reciprocating internal combustion engine starter rope basic safety requirements GB 23821 Safety of machinery - Safety distances to prevent danger zones being reached on the lower limbs GB 26133 non-road mobile machinery with a small spark ignition engine exhaust emission limits and measurement methods (China first, second stage) JB/T 11036 single-cylinder gas engine technical requirements and test methods QC/T 245 compressed natural gas vehicle-specific device technology QC/T 413-2002 automotive electrical equipment basic technical conditions QC/T 755 liquefied natural gas (LNG) vehicle-specific device technology Seagoing Steel Ships 2012 specification (Volume 3) Yacht into the Classification and Construction 2012 EN983 Safety of machinery - Safety requirements for hydraulic systems and components pneumatic means (Safetyofmachinery-Safety requirementsforfluidpowersystemsandtheircomponents-Pneumatics) SAEJ1928 Marine Gasoline tempering control means (Devicesprovidingbackfireflamecontrolforgasoline enginesinmarineapplications)

3 Terms and Definitions

GB/T 1883.1, terms and definitions GB/T 1883.2 and GB/T 4365 defined apply to this section.

4 General

Safety requirements and fire prevention measures in this section relates to spark ignition engines, due to different engine types and purposes, it will be very different, Therefore neither necessary nor does it require the use of the entire contents of each engine must be provided in this section, depending on the specific engine applications shall choose the most Appropriate solutions.

5 Dangerous List

To prevent personal injury and must consider the danger list and spark ignition engines relevant in Appendix A.

6.1.1 General

6.1.1.1

engine starter equipment shall ensure that the operator using the instructions when you press start, safe operation, and according to real Inter need to set the appropriate warning signs.

6.1.1.2

After engine start, starting device should automatically be disengaged. To be fitted between the engine cranking mechanism, the disk drive mechanism and starter There are safety interlocks to ensure that the disk drive gear in engagement, the engine can not start on their own.

6.1.2.1 Hand starter

6.1.2.1.1

hand starter system should handle spring-type rope starter or GB GB/T 20064.1 specified/T 23342 stipulated Starter.

6.1.2.1.2

shake the handle from the engine or other parts of the handle and the cable installation and spacing between the planes should meet the technical documentation requirements, and Hand starter and adjacent parts should not have sharp edges, corners and burrs to prevent damage to the operator at the start.

6.1.2.2 Electric starter

6.1.2.2.1

electric starting system according to QC/T 413-2002 specified in 3.1, should work with 24V rated voltage or lower voltage. Voltage Higher than 24V electric starter system is not within the scope of this standard relates.

6.1.2.2.2

When using large marine diesel electric starter, should be "Seagoing Steel Ships 2012 specification," the provisions of paragraph 3 Volume 3 9.5.2, Set up two independent starter battery, and should not be used in parallel connection. In the cold start and in the standby state, each battery should be able to single Alone starting Host. Under battery capacity should be within 30min without supplementary charge conditions for each can change from a cold state to the host, is Reversing alternating consecutive start less than 12 times; for each commutation can not host consecutive start from a cold state at least six times.