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

GB 32157-2015

Power take-off of fire fighting vehicles

消防车用功率输出装置

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1 Scope

GB 32157-2015 is the Chinese national standard on power take-off of fire fighting vehicles, in the field of environment and health protection, safety. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 9 October 2015 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 January 2016. Classification: ICS 13.220.10, CCS C84. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the terms and definitions, classification and model, technical requirements, test methods, inspection rules, and mark, package, transportation and storage for the power take-off of the fire fighting vehicle. This Standard is applicable to the power take-off of the fire fighting vehicle.

2 Normative References

The following documents are essential to the application of this document. For the dated

documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB/T 191 Packaging - Pictorial Marking for handling of Goods

GB 7956.1 Fire Fighting Vehicles - Part 1: General Technical Specifications GB/T 13306 Plate

GB/T 13384 General Specification for Packaging of Mechanical and Electrical Products

JB/T 7929-1999 Cleanliness for Gear Drive Units

QC/T 518-2013 Tightening Torque for Automotive Threaded Fasteners

3 Terms and Definitions

For the purpose of this document, the terms and definitions given in GB 7956.1 and the following apply.

3.1 Power take-off; PTO The device for outputting the power from the engine of the fire fighting vehicle to a device other than the vehicle travelling system.

5.3 Running-in requirements The PTO is subjected to the no-load running-in test at the rated output speed of the rated torque, it shall be operated normally, and without abnormal noise.

5.4 Manipulation performance

5.4.1 The PTO shall be easy to operate, connected properly; and be free of the stuck or gear off phenomenon.

5.4.2 For the PTO with manual gear up and gear off, when the input shaft speed is no greater than 100r/min, it can be gear up and gear off; its operating force shall be 100N~300N.

5.4.3 For the PTO with electrical gear up and gear off, when the input shaft speed is no greater than 100r/min, it can be gear up and gear off at the rated operating voltage.

5.4.4 For the PTO with pneumatical gear up and spring gear off, when the input shaft speed is no greater than 100r/min, it can be gear up at the rated operating air pressure; and can be gear off automatically after releasing the air pressure. For the PTO with pneumatical gear up and gear off, when the input shaft speed is no greater than 100r/min, it can be gear up and gear off at the rated operating air pressure.

5.4.5 The PTO shall be carried out 5000 times of continuous gear up and gear off tests, the PTO shall work normally during the test, no stuck, gear off or the like abnormal phenomenon shall appear.

5.5 Sealing requirements

5.5.1 Sealing requirements for cooling pipeline The cooling pipeline of the PTO shall be carried out the sealing test, there shall be no leakage.

5.5.2 Sealing requirements for pneumatic device The pneumatic device of the PTO shall be carried out the sealing test, the pressure drop shall not exceed 5% test pressure.

5.5.3 Sealing requirements for the cabinet The cabinet of the PTO shall be carried out sealing test, there shall be no leakage.

5.6 Cleanliness requirements The cleanliness of the PTO shall conform to the Class-H specified in JB/T 7929-1999.

5.7 Noise meets the requirements of 5.2.2.

6.2.3 Check the lubricating oil level check port by visual examination; judge whether the test result meets the requirements of 5.2.3.

6.2.4 Check the cooling pipeline and drain water switch of the PTO by visual examination; judge whether the test result meets the requirements of 5.2.4.

6.2.5 Check the temperature sensor and the fuel filler of the PTO by visual examination; judge whether the test result meets the requirements of 5.2.5.

6.3 Running-in test Install the PTO onto the test bench; add lubricating oil with grade and capacity specified by the PTO operation. No-load operate for 2h at the rated output rotation speed; judge whether the test result meets the requirements of 5.3.

6.4 Manipulation performance

6.4.1 Operate the PTO; judge whether the test result meets the requirements of 5.4.1.

6.4.2 Install the PTO onto the test bench; select the dynamometer with appropriate range; make the direction of the force measurement consistent with the direction of gear up force (gear off force); under the condition that the input shaft speed is no greater than 100r/min, carry out 3 times gear up and gear off tests; measure the gear up and off forces; judge whether the test result meets the requirements of 5.4.2.

6.4.3 Install the PTO onto the test bench; under the condition that the input shaft speed is no greater than 100r/min; carry out 3 times gear up and gear off tests at the rated working pressure; judge whether the test result meets the requirements of 5.4.3.

6.4.4 Install the PTO onto the test bench; under the condition that the input shaft speed is no greater than 100r/min; carry out 3 times gear up and gear off tests at the rated working pressure; judge whether the test result meets the requirements of 5.4.4.

6.4.5 Install the PTO onto the test bench; when the input shaft speed is no greater than

100r/min, continuously carry out 5000 times gear up and gear off tests; judge whether the test result meet the requirements of 5.4.5.

6.5 Sealing test

6.5.1 Slowly pressurize the cooling pipeline to 2.2MPa with a pressure test pump, maintain for 3min; judge whether the test result meets the requirements of 5.5.1.

6.5.2 Supply air by

1.1 times of the maximum working allowable pressure of the pneumatic device; keep the pressure for 5min; then judge whether the test result meets the requirements of 5.5.2. adopted; the provided cooling water pressure is 0.9MPa ~ 1.1MPa; the temperature shall be no treater than 30°C); at the rated rotation speed, continuously operate for 1h with the

1.1 times of the rated output torque; judge whether the test result meets the requirements of 5.9.

7 Inspection Rules

7.1 Exit-factory inspection Each product shall be subjected to the exit-factory inspection; the exit-factory inspection items of the PTO shall at least include the items specified in Table 1.

7.2 Type inspection

7.2.1 In case one of the following conditions, the type inspection shall be carried out:

- a) The trial-type identification of the new product;
- b) Trial production and identification of the old products transferring to other factories;
- c) After the formal production, significant changes for the structure, process and raw materials;
- d) Resume production after 2-year production suspension;
- e) Adjustment after the major quality accident;
- f) The National Quality Supervision Agency propose the requirements according to the law.

7.2.2 The total number of test samples shall be no less than 3; and randomly select one sample.

7.2.3 Type inspection items indicate all items specified in Table 1.