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INDUSTRY STANDARD

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OF THE PEOPLE'S REPUBLIC OF CHINA

JB/T 8127-2011

Replacing JB/T 8127.1~8127.3-1995

Internal combustion engines - Fuel heaters

内燃机 燃油加热器

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Foreword

This Standard replaces JB/T 8127.1-1995 *Basic Parameters of Fuel Heater*, JB/T 8127.2-1995 *Technical Conditions of Fuel Heater* and JB/T 8127.3-1995 *Testing Method of Fuel Heater*.

COMPARED with the standard JB/T 8127-1995, the main changes of this Standard are as follows:

- REMOVE the requirements of the basic parameters;
- CHANGE the determination of the noise according to GB/T 1859-2000;
- MODIFY the inspecting rules;
- MODIFY the mark, packing, transport and storage.

This Standard IS PROPOSED by Chinese Machinery Industry Federation.

This Standard IS CENTRALIZED by National Standardization Technical Committee for Internal Combustion Engine (SAC/TC177).

This Standard is drafted by: Shanghai Internal Combustion Engine Research Institute, Zhejiang Silver Wheel Machinery Co., and Xuelong Group Limited.

The main drafters of this Standard are: Shen Hongjie, Xia Lifeng, Ye Xuhang, Zhong Junjie, and Duan Yaolong.

The previous standards replaced by this Standard are:

- JB/T 8127.1-1995;
- JB/T 8127.2-1995;
- JB/T 8127.3-1995.

Internal combustion engines - Fuel heaters

1 Scope

This Standard specifies the fuel heater's terms and definitions, methods of model preparation, technical requirements, testing categories and testing items, testing methods and mark, packing, transportation and storage.

This Standard applies to the cold start and preheat warm-up of internal combustion engine's power devices of automobiles, tractors, engineering machinery, locomotives and ship; and the combustion liquid fuel heater (hereinafter referred as heater) used to defrost windscreen and heating of carriages and cabins.

2 Normative references

The following normative documents CONTAIN provisions which, through reference in the text, constitute provisions of this Standard. For dated reference, subsequent amendments to, or revisions of, any of these publications (excluding contents of corrigenda) do not apply. However, parties who enter into agreement based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. For undated references, the latest edition of the normative document referred to applies:

GB 755-2008 Rotating motor - Rating and performance (IEC 60034-1: 2004, IDT)

GB/T 1236-2000 Industrial ventilators - Performance test (idt ISO 5801: 1997) by using standardized airways

GB/T 1859-2000 Reciprocating internal combustion engines - Measurement of radiated airborne noise - Engineering method and survey method

GB/T 2828.1 Sampling procedures for inspection - Part 1: The batch-by-batch test and sampling plan by the retrieval of acceptance quality limit (AQL) (GB/T 2828.1-2003, ISO 2859-1: 1999, IDT)

GB 3847-2005 The vehicular compression-ignition engines and smoke-emission limitation and measuring methods of the cars with compression-ignition engines

instructions, it may conduct replacement and adjustment to the motor's bearing, brush and other parts.

5.14 The wire and the insulating layer at -40°C shall have the nature of bending.

5.15 At the junctions of each sealing surface of heater, there shall not allow any gas leaking, oil spill and water leaking phenomenon. After igniting the heater for 15 min, the oil-drip tube shall be without dripping-leaking, and the drip volume of water pump shall be no more than 3 drops per minute.

5.16 The motor of the heater shall comply with the requirements of GB 755-2008.

5.17 Electrical components shall comply with the requirements of QC/T 413.

5.18 Painting and electroplating of the outer surface of the heater shall be color-consistent, uniform, firm, smooth, and beautiful; all kinds of fasteners and other exposed parts shall be performed by rust treatment such as spraying and enameling. Welding seam of each part shall be straight, uniform, without the burning defect, cellular, cracks, etc.

5.19 Heater shall be fitted with a fault-protection device. When occurring overheating, turning-off or failing to ignite, it shall turn off the heater. When it is in extreme-overturning, it shall automatically cut off the fuel flowing into the combustion chamber. Heart shall also be fitted with an external fuse or current fuse. When short circuit or overload, it can turn off the heater. Heater shall be installed at the position difficultly touched by people. The temperature of outer surface of the heater at the working state shall not be higher than 50°C. Water outlet of liquid heater and wind outlet of air heater shall not be higher than 90°C. Combusting exhaust port is not subject to above provision's restrictions.

6 Test categories and test items

6.1 Test categories are divided into approval test, sampling test and exit-factory test. Acceptance test may combine sampling test and exit-factory test, or it can also be agreed by client and manufacturer, to be conducted independently.

6.2 Test items are divided into performance test and durability test.

7.13 Durability test

7.13.1 Test requirements

7.13.1.1 CONDUCT performance test before and after durability test, COMPARE and ANALYZE the changes of performance indicators.

7.13.1.2 Durability test shall be conducted under rated heat flow.

7.13.1.3 MEASURE every main component's size, COMPARE and ANALYZE them, CONCLUDE the amount of deformation and wear-off of main components.

7.13.2 Test procedure and intermediate inspection

7.13.2.1 The accumulative test time shall not be less than 500 h.

7.13.2.2 Durability test shall be conducted intermittently, each continuous operation time is 4 h, interruption is more than 30 min, CONDUCT overhauling and maintenance once every accumulative 200 h, DISASSEMBLE the machine to measure each main component's size or conduct performance test if necessary, within 50 h before finishing durability test, it shall be continuous operation.

7.13.3 Test record and test report

7.13.3.1 Durability test shall record test date, operation start and ending time, ignition time, motor voltage and current, ignition glow plug's voltage and current, medium's inlet-outlet temperature and flow, fuel consumption, outtake temperature, and CALCULATE rated heat flow and other parameters.

7.13.3.2 Test report shall include before and after durability test's performance test, analysis of the changes of performance indicators, ignition test record of each operating period, the record contents in 7.13.3.1, 200 h overhauling-inspection report, record of replacement of easy-damaged parts and so on.

7.14 Life-span test

Heater shall be conducted for life-span test if necessary. Life-span test's requirements, procedure, intermediate inspection, record and report shall be according to 7.14. TAKE 500 h as 1 cycle, total accumulative hours shall not be less than 2000 h.

8 Inspection rules

8.1 Each product shall be tested by technical inspection department of the manufacturer before exiting factory.

8.2 When purchaser conduct sampling inspection to the product quality, in shall be conducted according to the provision of GB/T 2828.1. Test items, group-batching rules, sampling programs, judgment and retest rules shall be according to the technical documentation agreed by both manufacturer and client.

8.3 In durability test, the main components shall not be damaged, every kind of easy-damaged part shall only be replaced once. The performance indicators after durability test shall meet the specified requirements. The number of fault and the situation of component damaging and wear-off shall be recorded in details, and WRITE into test report.

9 Mark, packing, transport and storage

9.1 Mark

9.1.1 Each heater shall be installed with mental-made nameplate in apparent position, the nameplate shall indicate:

- a) Manufacturer name or trademark;
- b) Product model and product name;
- c) Rated heat flow, the unit is kW;
- d) Date of production or serial number;
- e) Dimensions, the unit is mm.

The position, size and method of mark shall meet the requirements of product design that have been approved by prescribed procedures. The mark shall be intact during the duration when the product is used.

9.1.2 The conformance certificate shall indicate:

- a) Manufacturer name or trademark;
- b) Product model and product name;
- c) Rated heat flow, the unit is kW;
- d) Date of production or serial number;

e) Dimensions, the unit is mm.

9.1.3 The external surface of packing box shall indicate:

- a) Manufacturer name or trademark;
- b) Product model and product name;
- c) Quantity and total mass of the box;
- d) Marks such as “Handle with care”, “Do not press”;
- e) Dimensions;
- f) Date of production.

9.2 Packing

9.2.1 The box shall be attached with product certification that has the signature of manufacturer's quality inspector and usage instructions.

9.2.2 The residual liquid in heater shall be drained off completely before packed. BLOCK every inlet with jacketed plastic cover. The certification, product instructions and spare parts shall be packed together with the heater. The type and quantity of spare parts shall meet the provisions of instructions. Product shall be set firmly in packing box, FILL with filler, so as to prevent it from collision damage during transport.

9.2.3 The packing box shall be firm, reliable and meet the requirements of GB/T 13384.

9.3 Transport

The intact-packed heater shall be allowed to transport by any normal methods.

9.4 Storage

Heater shall be stored in ventilated, dry and corrosive-substance-free warehouse.

9.5 Others

The mark, packing, transport and storage can also be agreed by both supplier and purchaser.

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