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**Technical requirements for completion and acceptance of
vehicle overhaul**

汽车大修竣工出厂技术条件

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Technical requirements for completion and acceptance of vehicle overhaul

1 Scope

This Standard specifies basic requirements for completion and acceptance of vehicle overhaul, technical requirements for engine assembly, steering system, power train, driving system, braking system, body, frame and cab, lighting and signaling devices and other equipment, as well as main performance indicators and quality assurance.

This Standard is applicable to gasoline and diesel-fueled passenger vehicles and trucks that have been overhauled and delivered. Passenger vehicles and trucks fueled by other types of fuel can be used this document for reference.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB 1589, *Limits of Dimensions, Axle Load and Masses for Motor Vehicles, Trailers and Combination Vehicles*

GB/T 3799, *Technical requirements for completion and acceptance of vehicle engines overhaul*

GB 3847, *Limits and measurement methods for exhaust smoke from C.I.E. (Compression Ignition Engine) and vehicle equipped with C.I.E.*

GB/T 5336, *Repair specification for large passenger vehicle body*

GB/T 5624, *Motor vehicle maintenance and repair terms*

GB 7258, *Technical Specifications for Safety of Power-driven Vehicles Operating on Roads*

GB/T 18276, *Test-bed methods and evaluating index of dynamic property of motor vehicles*

GB 18285, *Limits and measurement methods for emissions from gasoline vehicles under two-speed idle conditions and short driving mode conditions*

GB/T 18566, *Inspection and evaluation method of fuel consumption for road transport vehicle*

GB/T 31883, *Road vehicles - Drawbar couplings, drawbar eyes, fifth wheel kingpins, hook couplings and toroidal eyes - Wear limits for in-use mechanical couplings*

JT/T 1178.1, *Safety specification for commercial vehicle for cargos transportation - Part 1: Goods vehicle*

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 5624 as well as the followings apply.

3.1 passenger vehicle

a vehicle with more than 9 seats, including the driver's seat, designed and manufactured mainly for carrying passengers and their carry-on luggage

3.2 goods vehicle

motor vehicles designed and manufactured primarily for the carriage of goods or for towing trailers, also including:

- a) Motor vehicles equipped with special equipment or appliances but whose main purpose is to carry goods;
- b) Vehicles converted from non-enclosed trucks, although equipped with special equipment or appliances, do not belong to special operation vehicles.

NOTE: A closed goods vehicle refers to a truck with a cargo-carrying part whose structure is a closed box and is integrated with the cab, and whose body structure is one-box or two-box.

[Source: GB 7258-2017, 3.2.2]

4 Basic requirements

4.1 General requirements

4.1.1 The appearance of the vehicle shall be clean, in good condition and in good condition. Ancillary facilities and equipment such as fire extinguishers, parking wedges, warning triangles, and reflective vests for car occupants shall be complete and effective.

4.1.2 The difference between the left and right wheelbases shall not be greater than 0.1% of the wheelbase in the original car product announcement.

The measured value of the outer dimensions of heavy and medium-duty trucks (except semi-trailer tractors) and heavy and medium-duty cargo special operation vehicles shall not exceed the limit specified in GB 1589. Compared with the value recorded in the motor vehicle driving license, the error shall not exceed 3% or $\pm 150\text{mm}$. For the curb weight changed by repair, the curb weight error of heavy and medium trucks shall not exceed $\pm 3\%$ of the curb weight recorded in the motor vehicle driving license. The error of curb weight of light trucks shall not exceed $\pm 3\%$ or $\pm 100\text{kg}$ of the curb weight recorded in the motor vehicle driving license.

NOTE: For goods vehicles and special operation vehicles, heavy-duty refers to the goods vehicles with a maximum allowable total mass greater than or equal to 12,000kg. Medium-sized refers to the goods vehicle whose length is greater than or equal to 6000mm or the total mass is greater than or equal to 4500kg and less than 12000kg but does not include low speed vans. Light duty refers to a goods vehicle with a length of less than 6000mm and a total mass of less than 4500kg but excludes micro-trucks and low-speed vehicles. Miniature refers to a goods vehicle with a length of less than or equal to 3500mm and a total mass of less than or equal to 1800kg but does not include low-speed vehicles.

5 Engine assembly

The engine assembly shall comply with the provisions of GB/T 3799.

6 Steering system

6.1 The steering wheel shall be flexible and easy to operate, with no abnormal noise, weight or jamming. The components of the steering mechanism shall not interfere with other components during the steering process of the vehicle.

6.2 During the driving process, the steering wheel shall be able to automatically return to positive, with a stable straight-line driving ability. There shall be no sway or other anomalies while driving on a flat road. There shall be no oversteer when driving on curves.

6.3 The maximum free rotation of the steering wheel shall comply with the provisions of GB 7258.

6.4 The lateral side slip of the steering wheel shall comply with the provisions of GB 7258.

6.5 The front wheel alignment parameters and the maximum steering angle shall meet the numerical requirements in the vehicle maintenance technical information disclosed by the automobile manufacturer.

6.6 Steering knuckles, arms, steering bars, straight rods and ball pins shall be connected

reliably. There shall be no cracks and damage. The steering ball pin shall not be loose. Horizontal and straight tie rods shall not be tailor welded.

6.7 The fit of the steering knuckle and the bushing, the fit of the journal and the bearing, and the preload of the wheel hub bearing shall comply with the requirements in the technical information of vehicle maintenance published by the automobile manufacturer.

6.8 The upper and lower ball pins of the steering knuckle of vehicles equipped with independent suspension shall not be loose.

7 Transmitting system

7.1 The clutch shall engage smoothly, disengage completely, and operate easily. There shall be no rattling, slipping or shaking. When the clutch is completely disengaged, the pedal force shall not be greater than 300N.

7.2 The free stroke and effective stroke of the clutch pedal shall meet the requirements in the technical information of automobile maintenance disclosed by automobile manufacturers. When the clutch pedal acts, it shall not interfere with other non-related parts, and the pedal can be released quickly to return to its original position. The fit between the bushing and the shaft shall meet the requirements in the technical information of automobile maintenance published by automobile manufacturers.

7.3 Manual transmission and transfer case shall shift lightly, accurately and reliably. Interlocking, self-locking and reverse lock devices are effective. There shall be no random blocking and self-jumping phenomenon. There shall be no abnormal noise during operation. The shift lever and its transmission parts shall not interfere with other parts. The transmission does not overheat under normal operating conditions.

7.4 The control device of the automatic transmission is in any gear except P and N. The engine shall not start. When in the P gear, there shall be a parking lock function. When the vehicle is running, it can shift up and down according to the specified shifting conditions. Shifting shall be smooth, no slippage, no shock, and no abnormal noise. The transmission does not overheat under normal operating conditions.

7.5 The drive shaft and intermediate support device shall be free from looseness, vibration, abnormal noise and overheating.

7.6 There shall be no abnormal noise in the main reducer, differential and wheel reducer. There is no overheating under normal conditions.

8 Driving system

8.1 The lateral swing and radial runout of the wheel assembly shall comply with the

9.2 Vehicles shall not have self-braking during operation, except those designed and manufactured to ensure the safe operation of vehicles.

9.3 For vehicles using pneumatic braking, the equipment and performance of the braking system shall comply with the provisions of GB 7258.

9.4 The proportional valve, pressure limiting valve, load-sensing valve, inertia valve and other working valves of the brake system shall work normally and effectively.

9.5 The exhaust brake device of diesel vehicle equipped with exhaust brake shall be effective.

9.6 When the spring energy storage braking device is used as the parking brake, it shall be ensured that the parking state can be easily released in the failure state.

9.7 The free travel and effective travel of the brake pedal shall meet the requirements in the technical information of automobile maintenance disclosed by the automobile manufacturer. The brake pedal action shall not interfere with other non-related parts. Release the pedal to quickly return to position. The fit between the bushing and the shaft shall meet the requirements in the technical information of automobile maintenance published by automobile manufacturers. The pedal stroke of vehicles using hydraulic braking shall comply with the provisions of GB 7258.

9.8 The effective travel of the parking brake lever shall meet the requirements in the technical information of automobile maintenance published by automobile manufacturers. The action of the parking brake lever shall not interfere with other unrelated parts. The fit between the bushing and the shaft shall meet the requirements in the technical information of automobile maintenance published by automobile manufacturers.

9.9 For a vehicle equipped with a retarder, the retarder shall work normally and effectively. The retardation rate shall meet the requirements in the vehicle maintenance technical information disclosed by the automobile manufacturer. For vehicles equipped with an eddy current retarder, the temperature alarm system, automatic fire extinguishing device or flame-retardant heat insulation device installed at the installation position of the retarder shall be normally effective.

10 Vehicle body, frame and cab

10.1 General requirements

The vehicle body shall comply with the provisions of GB/T 5336.

10.2 Special requirements for passenger vehicles

10.2.1 For passenger vehicles that use power to open and close the doors, the door

emergency controller shall be complete and functional. The door emergency controller signs and operating instructions are not damaged.

10.2.2 For a passenger vehicle equipped with a luggage compartment restraint device, the luggage compartment restraint device shall be complete and effective.

10.3 Special requirements for goods vehicles

10.3.1 The side panels and bottom panels of the cargo compartment shall be flat and in good condition. Left and right plates shall be parallel. The height difference shall not be greater than 10mm. After the side panel is closed, the gap on each side shall not exceed 5mm. The hinge brackets and lock hooks of the cargo compartment shall be fully and effectively repaired according to their original design.

10.3.2 The spare tire rack shall be installed firmly and reliably.

10.3.3 For trucks equipped with side guards, front lower guards and rear lower guards, the guards shall be stable and effective.

10.3.4 The number and installation positions of cargo box securing points for N2 and N3 cargo vehicles (except semi-trailer tractors, tank trucks, dump trucks, and vehicle transport vehicles) shall comply with the provisions of JT/T 1178.1.

10.3.5 There shall be no cracks in mechanical connectors such as traction connectors, traction rod holes, traction seat traction pins, connecting hooks and annular holes. Its wear limit size shall comply with the provisions of GB/T 31883.

10.3.6 The static-conducting rubber towing belts of dangerous goods transport vehicles shall comply with the provisions of GB 7258.

10.3.7 Vehicle body reflective marks shall comply with the provisions of GB 7258.

11 Lighting and signaling devices and other equipment

11.1 General requirements

11.1.1 The electrical wiring of the whole vehicle shall be reasonably arranged and connected correctly. The wire harness is well wrapped, firm and reliable. There shall be protective measures where the wire harness passes through the hole. The wiring harness layout shall meet the requirements of the automobile maintenance technical information disclosed by automobile manufacturers. Wire specifications and wire colors shall meet the requirements. The joint is firm and good. The use of fuses and relays shall meet the requirements in the automotive maintenance technical information published by automotive manufacturers. Bare electrical connectors and electrical switches shall be more than 200mm away from the fuel tank filler and air vents.

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