



Warranty Term Standard: All Oruide remanufactured engines come with a standard warranty period of **12 months or 100,000 kilometers**, whichever occurs first. This warranty covers factory remanufacturing defects and valid only if all specified installation, cleaning, and maintenance protocols are strictly followed by installers and end users.

This official technical manual outlines standardized installation procedures, mandatory pre-installation inspections, professional maintenance rules, and special technical requirements for both gasoline and diesel remanufactured engines. Strict compliance with the below technical specifications is a prerequisite for valid warranty services, designed to maximize the stability, service life, and operating performance of Oruide remanufactured engines.

1. Mandatory Pre-Installation Component Replacement & Cleaning Standards

To eliminate latent failure risks and ensure full engine compatibility, multiple key components must be replaced or thoroughly cleaned before installation. The original vehicle's oil-water separator (crankcase ventilation valve) **must be replaced with a brand-new OEM part** and cannot be reused under any circumstances. A complete vehicle fuel system cleaning is compulsory, including fuel injector cleaning, throttle body cleaning, and full replacement of the oil filter and air filter. Fuel filters with excessive mileage wear and spark plugs exceeding 30,000 kilometers of service life also require mandatory replacement. For high-pressure fuel injectors, technicians must install each injector strictly according to its original cylinder position to avoid operational deviation.

All peripheral accessories of the bare engine require professional deep cleaning, including the oil filter base, oil cooler, intake manifold, turbocharger, intake and exhaust pipelines, and three-way catalytic converter. Special technical note: if the original engine failure is caused by crankshaft seizure or severe cylinder scoring, the oil cooler will inevitably contain residual metal debris that cannot be completely cleaned. In this case, the oil cooler **must be replaced entirely** instead of reused. All gaskets and sealing rings need full inspection; damaged or aging seals must be renewed, and sealant application is prohibited for sealed accessories except for a tiny amount of certified sealant for special factory-specified positions.

2. Cooling System & Standard Installation Specifications

A full cooling system inspection is required prior to engine installation. Technicians must clean and unclog the water tank, and inspect the water pump, vehicle water pipes,

thermostat, and electronic fan. Any abnormal or damaged parts need immediate replacement. All peripheral accessories shall be installed in strict accordance with OEM official repair manuals, with all bolts tightened following standard factory torque values and sequences to avoid loose installation or structural deformation.

Only genuine fully synthetic oil that meets OEM certification standards can be used for engine lubrication. The cooling system must adopt genuine factory-certified antifreeze with quality supervision certification, and vehicles must use standard qualified fuel specified by the original manufacturer.

3. Pre-Startup Inspection & Running-In Technical Rules

Before engine startup, connect a professional diagnostic computer to clear all historical fault codes and build standard fuel system pressure. After confirming zero fault codes, inspect real-time oil pressure and water temperature data immediately after startup. If any abnormal operating conditions occur, shut down the engine at once and contact Oruide technical support for guidance before restarting. Continuous driving with abnormal engine conditions is strictly prohibited.

The standard running-in period for all remanufactured engines ranges from 2,000 to 3,000 kilometers. The first maintenance (oil and oil filter replacement) must be completed within this range. The second maintenance, including oil, oil filter, and air filter replacement, shall be finished within 5,000 to 7,000 kilometers, with all maintenance records properly retained. During the running-in phase, vehicle speed shall not exceed 100km/h, and engine RPM shall be kept below 2,800, with aggressive acceleration and overtaking forbidden.

4. Special Technical Requirements for Diesel Engines

Professional customized standards apply to mainstream diesel engine models. Land Rover 306DT diesel engines require Castrol Edge A5-5W-30 (APL SN/CF) full synthetic oil. Mercedes-Benz 642 diesel engines must use oil compliant with OEM 229.51 certification. After diesel injector cleaning, reinstall injectors strictly in the original 1-2-3-4-5-6 cylinder sequence; replaced injectors require professional computer coding matching. Turbocharger oil pipe gaskets and oil coolers must be fully replaced. Technicians must clean carbon deposits from intake manifolds, pipelines, and three-way catalytic converters, and exhaust air from the fuel system to build standard oil pressure before startup. For Mercedes-Benz diesel engines, inspect water channel-connected accessories for internal leakage and oil-water mixing; faulty parts must be replaced immediately.

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