

User Manual: NexBot Robotics

762-004 Joint Overhaul Maintenance Kit

SKU: NXB-KIT-762-004 | Version: 1.0 | Brand: NexBot Robotics

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1. Safety Information

READ ALL SAFETY INSTRUCTIONS BEFORE OPERATION. Failure to follow safety procedures may result in serious injury or equipment damage.

DANGER: Hazardous voltages are present in the robot controller and arm. Stored energy in capacitors can cause severe injury or death even after main power is disconnected. Wait at least 10 minutes after power-down before servicing.

WARNING: Unexpected robot movement can cause crushing or impact injuries. Always ensure the robot is fully powered down and locked out before entering the work cell or performing maintenance.

WARNING: Some robot axes are supported by gas struts or counter-balance springs which contain high levels of stored mechanical energy. Follow the specific procedures in the robot's service manual to safely release this energy before servicing.

CAUTION: The NXB-KIT-762-004 weighs 7.5 kg. Use proper lifting techniques to avoid strain. Individual components within the robot joint may also be heavy.

NOTICE: To maintain warranty and ensure optimal performance, use only genuine NexBot Robotics components supplied in this kit. Substitution of parts from other sources is not supported and may lead to equipment damage.

2. Product Overview

The NexBot Robotics 762-004 Joint Overhaul Maintenance Kit provides all necessary components to perform a complete preventative maintenance overhaul on the major axes of compatible articulated robots. This kit is engineered to restore the robot's original performance specifications, ensuring continued accuracy and reliability in demanding production environments. By replacing critical wear items at the recommended service interval, this kit helps prevent costly unplanned downtime and extends the operational life of your automation investment. Key features of this kit include precision-matched components that meet or exceed original equipment specifications. Each part is designed for a direct fit, simplifying the maintenance process for trained technicians. The contents are specifically curated for the J1, J2, and J3 axes, which bear the highest loads and are most critical to the robot's overall kinematic accuracy. Regular overhaul using this kit helps maintain the robot's specified repeatability and positioning accuracy, which is essential for applications like automated welding, precision assembly, and machine tending. This maintenance procedure is recommended every 8,000 operating hours to ensure sustained performance and safety. The kit includes all the necessary fasteners, plugs, and fittings required to complete the service according to the official NexBot Robotics maintenance manual. Using a genuine NexBot Robotics kit guarantees compatibility and preserves the integrity of your equipment. This proactive approach to maintenance is a cornerstone of a successful asset management strategy, reducing the total cost of ownership by avoiding catastrophic joint failures and associated production losses. This kit is intended for use by certified service personnel and is a critical part of the scheduled maintenance plan for NexBot R-50 and R-100 series robots.

3. Getting Started

1. Kit Overview

The NXB-KIT-762-004 contains all manufacturer-approved bearings, seals, O-rings, fasteners, and lubricants required for a major joint overhaul. This guide is a supplement and must be used in conjunction with the specific service manual for your robot model.

2. Component Verification

Before beginning any work, unpack all kit contents in a clean area. Cross-reference each item with the included manifest to ensure the kit is complete and all parts are the correct revision for your robot.

3. Recommended Service Interval

This overhaul procedure is recommended at specific operational hour intervals or calendar periods as defined in your robot's primary maintenance schedule. Performing this service proactively prevents unplanned downtime and maintains robot accuracy.

4. Operation

Service Planning

Plan the overhaul during scheduled plant shutdowns to minimize production impact. Ensure all required tools, personnel, and a clean, well-lit service area are available before starting the procedure.

Tip: Reviewing the robot's service manual and watching any available service videos beforehand can significantly reduce the time required for the overhaul.

Component Handling

Keep new bearings and seals in their protective packaging until the moment of installation to prevent contamination from dust or moisture. Handle all components with clean hands or gloves.

Lubricant Application

The lubricant provided in this kit is specifically formulated for NexBot Robotics joints. Do not substitute with other greases. Ensure the grease is applied evenly and purges any old lubricant from the assembly as specified.

Disposal of Used Parts

Used seals, bearings, and grease-soaked wipes must be disposed of in accordance with local environmental regulations. These materials are considered industrial waste and should not be discarded in general trash.

Tip: Contact your local environmental health and safety office for specific disposal guidelines in your region.

5. Maintenance Schedule

Interval	Task	Notes
Daily (Post-Overhaul)	Perform a visual inspection of the serviced joint's seals. Check for any signs of grease leakage.	A small amount of initial grease weeping can be normal, but continuous leakage requires investigation.
Weekly (Post-Overhaul)	While the robot is running a standard cycle, listen for any abnormal sounds such as grinding, clicking, or whining from the overhauled joint.	Changes in the robot's normal operating sounds can be an early indicator of a problem.
Monthly	Check the temperature of the joint housing during operation using a non-contact infrared thermometer. Compare the reading to baseline temperatures taken before the overhaul.	A significant increase in operating temperature can indicate excessive friction or lubrication failure.
Quarterly	Run the robot's built-in backlash detection or repeatability test	

Interval	Task	Notes
	program. Verify that performance remains within the original factory specifications.	This helps confirm the mechanical integrity of the overhaul.
Annually	Re-check the torque on all external fasteners of the joint housing that were removed during the service.	Vibration during normal operation can sometimes cause fasteners to loosen over time.

6. Troubleshooting

Symptom	Possible Cause	Solution
Excessive noise (grinding, whining) from the serviced joint.	Improper bearing seating, insufficient lubrication, or contamination introduced during assembly.	Power down and LOTO the robot. Re-open the joint, inspect bearing installation, and verify lubrication. If necessary, disassemble, clean, and re-install.
Grease is leaking from a new seal.	The seal was damaged during installation, installed incorrectly, or the mating surface was scratched.	Disassemble the joint and replace the seal with a new one. Carefully inspect and polish any minor scratches on the housing. Ensure the new seal is lubricated and seated evenly.
Robot controller displays a 'Position Error' or 'Excessive Lag' alarm for the serviced axis.	The position encoder was installed with incorrect alignment, or its connector is not fully seated.	Power down and LOTO. Re-verify the encoder's physical alignment marks and ensure its electrical connector is secure. Perform the axis mastering procedure again.
The joint feels stiff or moves with a jerky motion in manual mode.	Incorrect bearing preload due to improper torque sequence on housing fasteners, or use of the wrong lubricant.	Loosen and re-tighten the housing fasteners using the manufacturer-specified sequence and torque values. Verify the correct lubricant from the kit was used.
Robot fails to complete its mastering or calibration routine.	The 'zero position' reference for the encoder was lost or shifted during the overhaul.	Manually move the axis to its physical zero-degree witness marks. Carefully follow the robot's full mastering procedure from the service manual to re-establish the home position.
Joint overheats during operation.	Too much or too little grease was applied, or an incorrect type of grease was used.	Verify the correct amount of the lubricant from the NXB-KIT-762-004 was used. If overfilled, remove excess grease. If underfilled, add grease to the specified level.

7. Technical Specifications

Parameter	Value	Unit
Weight	7.5	kg
Country of Origin	SE	