

MAINTENANCE SCHEDULE - CRYOSTORAGE SOLUTIONS

Effective Date: January 1, 2024

1. OVERVIEW AND SCOPE

1 This Maintenance Schedule ("Schedule") is established by Polar Dynamics Robotics, Inc., a Delaware corporation ("Company"), for the preventive and routine maintenance of autonomous mobile robots ("AMRs") deployed in cryogenic storage environments and ultra-low temperature facilities.

2 This Schedule applies to all Series X-500 and X-700 CryoBot AMR units operating in environments below -20 C (-4 F).

2. DEFINITIONS

1 "Maintenance Period" means the recurring intervals at which specified maintenance procedures must be performed.

2 "Critical Components" means the proprietary cold-resistant actuators, thermal management systems, and IceNav(TM) navigation components.

3 "Operating Environment" refers to temperature-controlled facilities maintaining temperatures between -40 C to -20 C (-40 F to -4 F).

3. SCHEDULED MAINTENANCE REQUIREMENTS

1 Daily Inspections

- Visual inspection of thermal seals and enclosures
- Verification of IceNav(TM) sensor calibration
- Battery charge level assessment
- Operating temperature log review
- Condensation monitoring

2 Weekly Maintenance

- Actuator lubrication with Arctic-Grade compound PDR-7
- Thermal management system diagnostic scan

- Navigation sensor cleaning and alignment check
- Drive train inspection
- Emergency stop system verification

3 Monthly Service

- Complete system diagnostic evaluation
- Firmware updates and patch installation
- Battery pack performance analysis
- Thermal imaging inspection of critical components
- Calibration of all environmental sensors

4 Quarterly Overhaul

- Comprehensive actuator inspection and servicing
- IceNav(TM) system recalibration
- Replacement of thermal management filters
- Drive system component inspection
- Safety system certification

4. MAINTENANCE PROCEDURES

1 All maintenance activities shall be performed by Company-certified technicians in accordance with Standard Operating Procedure DOC-MS-2024-001.

2 Maintenance records must be logged in the Company's digital maintenance tracking system within 24 hours of completion.

3 Any deviation from scheduled maintenance intervals must be documented and approved by the Chief Robotics Officer or authorized designee.

5. COMPONENT REPLACEMENT SCHEDULE

1 Preventive Replacement Intervals

- Thermal seals: Every 6 months
- Battery packs: Every 12 months or 2,000 operating hours
- Navigation sensors: Every 18 months

- Actuator bearings: Every 24 months
- Drive system components: Based on wear indicators

2 All replacement parts must be Company-certified components meeting specifications outlined in Technical Document TD-2024-CS-001.

6. ENVIRONMENTAL REQUIREMENTS

1 Maintenance activities must be performed in temperature-controlled environments between 15 C and 25 C (59 F to 77 F).

2 Units must undergo thermal stabilization for minimum 4 hours before maintenance.

3 Post-maintenance testing must include minimum 2-hour operation in intended deployment environment.

7. DOCUMENTATION AND REPORTING

1 Required Documentation

- Maintenance checklist completion
- Component replacement records
- Calibration certificates
- Performance test results
- Technician certification verification

2 All maintenance records shall be retained for minimum 5 years.

8. COMPLIANCE AND SAFETY

1 All maintenance activities must comply with:

- OSHA safety requirements
- Company safety protocols
- Facility-specific operating procedures
- Relevant industry standards

2 Personal protective equipment requirements per SOP-SAF-2024-002 must be followed.

9. AMENDMENTS AND UPDATES

1 This Schedule shall be reviewed and updated annually or as required by:

- Technical improvements
- Regulatory changes
- Operating environment modifications
- Performance data analysis

2 Amendments require written approval from the Chief Robotics Officer and Quality Assurance Director.

10. AUTHORIZATION

This Maintenance Schedule is hereby authorized and implemented:

POLAR DYNAMICS ROBOTICS, INC.

By:

Name: Dr. James Barrett

Title: Chief Robotics Officer

Date:

By:

Name: Sarah Nordstrom

Title: Chief Operating Officer

Date: