PDR-OPS-009 MAINTENANCE SCHEDULE FOR COLD CLIMATE ROBOTICS

PDR-OPS-009 MAINTENANCE SCHEDULE F

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Classification: CONFIDENTIAL - Internal Use Only

1. PURPOSE AND SCOPE

1. This document establishes the mandatory maintenance protocols a

2. This maintenance schedule applies to all PDR Series 4000 and 500

2. DEFINITIONS

1. "Maintenance Interval" refers to the prescribed period between sch

2. "Operating Hours" means the cumulative time during which a robot

3. "Critical Components" includes BlueCore(TM) power systems, navi

4. "Qualified Technician" means a PDR-certified maintenance profess

3. SCHEDULED MAINTENANCE REQUIREMENTS

1. Daily Inspections (Pre-Operation)

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Visual inspection of thermal seals and insulation

Verification of BlueCore(TM) power levels

- Confirmation of navigation sensor functionality

- Assessment of articulation joint integrity

- Documentation of starting temperature conditions

2. Weekly Maintenance (Every 168 Operating Hours)

- Complete diagnostic scan of BlueCore(TM) systems

- Calibration of cold-environment navigation sensors

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Inspection and lubrication of cold-rated bearings

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Testing of emergency shutdown systems

-

Verification of thermal management system performance

3. Monthly Maintenance (Every 720 Operating Hours)

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Comprehensive power system analysis

-

Replacement of thermal management filters

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Inspection and testing of all safety systems

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Verification of software/firmware versions

Full system performance benchmark testing

4. COMPONENT-SPECIFIC MAINTENANCE

1. BlueCore(TM) Power System

- Battery capacity testing every 500 hours
- Thermal management system inspection every 250 hours
- Power delivery system verification every 168 hours
- Replacement of power cells every 8,000 hours or annually

2. Navigation Systems

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Sensor calibration every 336 hours

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LiDAR system cleaning every 168 hours

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GPS module verification every 720 hours

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Inertial measurement unit calibration every 336 hours

3. Mechanical Systems

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Lubrication of cold-rated bearings every 168 hours

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Inspection of thermal expansion joints every 336 hours

Testing of emergency braking systems every 168 hours

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Verification of seal integrity every 720 hours

5. DOCUMENTATION REQUIREMENTS

1. All maintenance activities must be recorded in the PDR Maintenanc

2. Required documentation includes:

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Technician identification and certification number

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Date and time of maintenance activities

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Operating environment temperature

-

Component serial numbers

-

Test results and measurements

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Replacement parts utilized

-

Deviations from standard procedures

6. COMPLIANCE AND QUALITY ASSURANCE

1. Maintenance activities must comply with:

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ISO 9001:2015 Quality Management Systems

ANSI/RIA R15.06-2012 Robot Safety Standards

- PDR Quality Management System (QMS-2023)

- Applicable regulatory requirements

2. Quality Control Measures

- Random audits of maintenance records

- Quarterly review of maintenance procedures

- Annual certification of maintenance personnel

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Monthly safety compliance reviews

7. MODIFICATIONS AND UPDATES

1. This maintenance schedule may be modified only by PDR's Chief R

2. Updates will be communicated through the PDR Technical Docume

8. LEGAL DISCLAIMER

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Dynamics Robotics, Inc. Unauthorized reproduction or distribution is s
prohibited. Failure to comply with the maintenance requirements spec
may void product warranties and result in unsafe operating conditions
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maintenance requirements.

9. APPROVAL AND EXECUTION

APPROVED AND ADOPTED this 15th day of January, 2024.

POLAR DYNAMICS ROBOTICS, INC.

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