PDR-OPS-032 ICE PREVENTION SYSTEMS MAINTENANCE GUIDE

PDR-OPS-032 ICE PREVENTION SYSTEMS M

Version 3.2 | Effective Date: January 15, 2024

Document Classification: CONFIDENTIAL

1. PURPOSE AND SCOPE

1. This Ice Prevention Systems Maintenance Guide ("Guide") establis

2. This Guide applies to all Series X200 and X300 Units equipped wit

2. DEFINITIONS

1. "Critical Components" means the following ice prevention system e

a) Thermal management modules

b) Anti-icing coating surfaces

c) Temperature monitoring sensors

d) Defrost activation circuits

e) Environmental condition detectors

2. "Maintenance Interval" means the prescribed period between requi

3. "Qualified Personnel" means technicians certified by the Company

3. SAFETY REQUIREMENTS

1. All maintenance procedures must be performed by Qualified Perso

a) OSHA Standard 1910.147 (Lock-out/Tag-out)

b) Company Safety Protocol CSP-201

c) Applicable facility-specific safety requirements

2. Required Personal Protective Equipment:

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Insulated gloves rated for -40 C

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Safety glasses with side shields

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ESD-compliant footwear

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Cold environment protective clothing

4. MAINTENANCE SCHEDULES

1. Daily Inspection Requirements:

- Visual inspection of thermal coating integrity
- Sensor calibration verification
- Operating temperature log review
- Ice accumulation monitoring
- System diagnostic report analysis

2. Weekly Maintenance Tasks:

Thermal module efficiency testing

- Defrost cycle validation
- Environmental seal inspection
- Control system optimization
- Performance data backup

3. Monthly Service Requirements:

- Complete system calibration
-

Coating reapplication as needed

-

Sensor replacement evaluation

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Software update implementation

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Comprehensive diagnostic testing

5. PROCEDURAL REQUIREMENTS

1. Pre-Maintenance Procedures:

a) Verify Unit power-down sequence

b) Document current operating parameters

c) Secure maintenance authorization

d) Establish controlled environment conditions

e) Verify tool calibration status

2. Maintenance Execution:

a) Follow procedure-specific checklists

b) Record all component replacements

c) Document calibration adjustments

d) Maintain environmental controls

e) Verify work quality at each step

3. Post-Maintenance Validation:

a) System reactivation sequence

b) Performance verification testing

c) Documentation completion

d) Supervisor sign-off

e) Return-to-service authorization

6. QUALITY CONTROL

1. All maintenance activities must be documented in the Company's M

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Technician identification

-

Date and time of service

-

Parts utilized

-

Test results

-

Verification signatures

2. Quality assurance reviews must be conducted monthly by authorize

7. COMPLIANCE AND LIABILITY

1. Failure to follow this Guide may result in:

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Equipment damage

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Warranty invalidation

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Safety hazards

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Operational failures

Legal liability

2. The Company reserves the right to deny warranty claims resulting f

8. DOCUMENT CONTROL

1. This Guide is subject to annual review and update.

2. Revision History:

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v3.2: January 15, 2024

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v3.1: July 1, 2023

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v3.0: January 1, 2023

9. AUTHORIZATION

This Guide is authorized and approved by:

/s/ Dr. James Barrett

Dr. James Barrett

Chief Robotics Officer

Polar Dynamics Robotics, Inc.

Date: January 15, 2024

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