

COMPONENT ASSEMBLY INSTRUCTIONS - NF-2000

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Document Number: OPS-ASM-2023-142

Effective Date: January 15, 2024

Version: 3.1

Classification: CONFIDENTIAL - Internal Use Only

1. DOCUMENT CONTROL

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1. This document is the property of NaviFloor Robotics, Inc. ("Company") and

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2. This version supersedes all previous versions of the NF-2000 assembly instructions.

2. PURPOSE AND SCOPE

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1. These instructions govern the assembly process for the NF-2000 Terrain Module.

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2. Compliance with these instructions is mandatory for all authorized assembly personnel.

3. DEFINITIONS

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1. "Certified Personnel" means individuals who have completed the Company's training program.

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2. "Quality Control Standards" refers to the specifications detailed in Document

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3. "Assembly Environment" means a Class 100,000 cleanroom or equivalent

4. PREREQUISITES

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1. Required Certifications:

a) NF-2000 Assembly Certification

b) ESD Safety Certification

c) Precision Components Handling Certification

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2. Required Equipment:

- a) Calibrated torque drivers (0.5-5.0 Nm)
- b) ESD-safe workstation
- c) Digital microscope (minimum 50x magnification)
- d) Calibrated precision measurement tools

5. ASSEMBLY PROCEDURE

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1. Pre-Assembly Verification
 - a) Verify all components against Bill of Materials NF2000-BOM-2024
 - b) Inspect components for physical damage
 - c) Validate component serial numbers
 - d) Document environmental conditions

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2. LiDAR Integration

- a) Mount primary LiDAR sensor array (P/N: NF2000-LDR-001)
- b) Align optical axis within $\pm 0.02^\circ$ tolerance
- c) Torque mounting screws to 2.3 ± 0.1 Nm
- d) Verify sensor initialization sequence

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3. Depth Sensing Assembly

- a) Install depth sensor array (P/N: NF2000-DPS-001)
- b) Calibrate sensor alignment using Procedure CAL-DS-2023
- c) Connect flex cables observing polarity markers
- d) Verify signal integrity using Test Protocol TP-DS-001

6. QUALITY CONTROL

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1. Required Testing:

- a) Optical alignment verification
- b) Sensor response calibration
- c) Environmental stress screening
- d) Full system initialization test

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2. Documentation Requirements:

- a) Component serial number recording
- b) Test results documentation
- c) Assembly technician identification

- d) Environmental condition logs

7. SAFETY REQUIREMENTS

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1. Personal Protective Equipment:

- a) ESD-safe gloves
- b) Safety glasses
- c) Clean room attire
- d) Grounding straps

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2. Environmental Controls:

- a) Temperature: $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$
- b) Humidity: $45\% \pm 5\% \text{ RH}$

c) Particulate count: Class 100,000 or better

d) Static control: <100V/inch

8. QUALITY ASSURANCE

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1. Each assembled Module must pass all quality gates specified in QA Protocol

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2. Deviations from specified procedures must be documented and approved by

9. REVISION CONTROL

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1. This document shall be reviewed annually and updated as required.

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2. Revision history shall be maintained in the Document Control System.

10. LEGAL NOTICES

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1. These assembly instructions are protected by copyright and trade secret law.

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2. The Company reserves all rights to modify these instructions without prior notice.

APPROVAL AND AUTHORIZATION

Document Owner:

Elena Kovacs, Ph.D.

Chief Research Officer

NaviFloor Robotics, Inc.

Approved By:

Marcus Depth

Chief Technology Officer

NaviFloor Robotics, Inc.

Date: January 15, 2024

DOCUMENT END

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