NAVIFLOOR ROBOT ASSEMBLY LINE STANDARD OPERATING PROCEDURE

NAVIFLOOR ROBOT ASSEMBLY LINE STAN

Document Version 2.1

Effective Date: January 15, 2024

Document Control Number: SOP-ASY-2024-001

1. PURPOSE AND SCOPE

1. This Standard Operating Procedure ("SOP") establishes the manda

2. This SOP applies to all personnel involved in the assembly line ope

2. DEFINITIONS

1. "Assembly Station" refers to any of the twelve (12) designated work

2. "Core Module" means the central processing unit housing containin

3. "LiDAR Assembly" refers to the complete light detection and rangin

4. "Quality Control Checkpoint" or "QCP" means any of the four (4) de

3. PRE-ASSEMBLY REQUIREMENTS

1. Component Verification

a) All components must be scanned and logged into the NaviTrack(TM
system

b) Serial numbers must be verified against the build manifest

c) Components must pass visual inspection for damage or defects

2. Environmental Controls

a) Assembly area temperature must be maintained at 20 C 2 C

b) Humidity must be maintained between 45-55% RH

c) ESD protection protocols must be active and verified

4. ASSEMBLY LINE PROCEDURES

1. Station 1 - Frame Assembly

a) Install base frame components according to Drawing Set A-101

b) Torque all fasteners to specifications in Table 4.1

c) Verify frame squareness within 0.5mm tolerance

2. Station 2 - Power System Integration

a) Install battery mounting brackets

b) Connect primary power distribution board

c) Perform initial power-up test sequence

3. Station 3 - Core Module Installation

a) Mount Core Module using vibration-isolated mounting system

b) Connect all specified interfaces per Wiring Diagram WD-301

c) Perform preliminary boot sequence test

4. Stations 4-12 - Subsequent Assembly Steps

[Details continued in Assembly Line Manual ALM-2024-001]

5. QUALITY CONTROL PROCEDURES

1. QCP-1 (Post-Frame Assembly)

a) Dimensional verification using laser measurement system

b) Structural integrity tests

c) Documentation of results in NaviQual(TM) system

2. QCP-2 (Post-Electronics Integration)

a) Power system diagnostic test

b) Communication systems verification

c) Sensor preliminary calibration check

3. QCP-3 (Pre-Final Testing)

a) Full systems diagnostic

b) Movement and navigation preliminary test

c) Safety systems verification

4. QCP-4 (Final Inspection)

a) Complete functional testing

b) Cosmetic inspection

c) Documentation package verification

6. SAFETY PROTOCOLS

1. Personal Protective Equipment (PPE)

a) ESD-safe footwear and clothing required

b) Safety glasses mandatory at all stations

c) Cut-resistant gloves required for specified operations

2. Emergency Procedures

a) Emergency stop locations and protocols

b) Evacuation procedures

c) Incident reporting requirements

7. DOCUMENTATION REQUIREMENTS

1. Each unit must have a complete build record including:

a) Component serial numbers

b) Quality control checkpoint results

c) Test data and calibration records

d) Assembly technician identification

e) Time stamps for all major assembly steps

8. REVISION CONTROL

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

2. Revisions must be approved by:

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Director of Manufacturing

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Quality Assurance Manager

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Chief Technology Officer

9. LEGAL COMPLIANCE

1. This document is confidential and proprietary to NaviFloor Robotics

2. Assembly procedures must comply with all applicable OSHA regula

APPROVALS

Document Owner: Richard Torres, COO

Quality Review: Jennifer Martinez, QA Director

Technical Review: Marcus Depth, CTO

Approved: January 15, 2024

Next Review Date: January 15, 2025