

General Details

Job Title: Mechanical Engineer

Preferred Location: Saxavord - Unst

Reporting to: Head of Engineering

Direct Reports: No

Main Purpose of the Job: The Mechanical Engineer is responsible for the design, integration, maintenance, and reliability of mechanical systems supporting spaceport infrastructure, with a particular focus on radar, antenna, and tracking systems. This role ensures the structural integrity, environmental resilience, and operational performance of ground-based communication, surveillance, and monitoring equipment. The position explicitly excludes involvement in launch vehicle or rocket systems, instead focusing on enabling infrastructure critical to safe and efficient spaceport operations.

Main Responsibilities

- Design and maintain mechanical structures for radar systems, antenna arrays, and tracking equipment
- Support installation and commissioning of ground-based communication and telemetry structures
- Collaborate with RF and electrical engineers to optimise system performance
- Design support structures such as towers, mounts, radomes, and enclosures
- Perform structural analysis (wind loading, vibration, thermal expansion, fatigue)
- Ensure systems are robust against extreme weather and coastal conditions (where applicable)
- Produce detailed engineering drawings and specifications
- Develop solutions for temperature regulation, weatherproofing, and corrosion protection
- Design cooling systems for radar and communications equipment
- Ensure environmental protection of sensitive systems (dust, moisture, salt, ice)
- Support sustainability and energy-efficient infrastructure design
- Develop and implement maintenance strategies for mechanical and structural assets
- Inspect and maintain antenna mounts, rotating systems, bearings, and drive mechanisms

- Troubleshoot mechanical faults affecting tracking accuracy or system reliability
- Ensure high availability of mission-critical infrastructure
- Work closely with electrical, RF, and software engineers on integrated systems
- Support integration of mechanical systems with control and positioning systems
- Coordinate with civil engineering teams for foundations and site layout
- Manage interfaces with contractors and equipment suppliers
- Support mechanical aspects of system calibration and alignment
- Develop and execute test procedures for movement, positioning, and stability
- Monitor performance metrics and implement improvements
- Analyse failure modes and recommend design enhancements
- Ensure compliance with relevant standards (e.g., structural, mechanical, and safety regulations)
- Conduct risk assessments for working at height, rotating equipment, and heavy structures
- Support audits, inspections, and certification processes
- Ensure safe installation and maintenance practices
- Contribute to infrastructure projects from concept to commissioning
- Manage timelines and technical deliverables

Person Specification (Values required for the Successful Individual)

- Strong knowledge of structural mechanics and mechanical design
- Strong understanding of maintaining generator and associated systems
- Experience with rotating systems, bearings, actuators, and precision alignment
- Familiarity with radar and antenna systems infrastructure
- Understanding of environmental engineering challenges (wind, corrosion, thermal effects)
- Proficiency in CAD and analysis tools (e.g., SolidWorks, ANSYS, AutoCAD)
- Ability to diagnose mechanical issues affecting precision systems
- Strong understanding of vibration, fatigue, and structural integrity
- Data-driven approach to reliability and performance optimisation
- Effective collaboration with multidisciplinary engineering teams
- Ability to translate mechanical constraints into system-level solutions
- Strong documentation and reporting skills

Qualifications, Knowledge, Skills, and Experience Required

- This role would suit someone working at [Level 9 - Scottish Credit and Qualifications Framework](#)
- Bachelor's degree in Mechanical Engineering or related discipline
- Proven experience in industrial, infrastructure, or aerospace, defence environments
- Excellent knowledge and understanding of structural and mechanical engineering standards (e.g., ISO, BS, Eurocodes)

- Familiarity with spaceport or aviation regulatory environments
- Experience using high precision metrological tools and electronic testing and diagnostic equipment
- Experience of working in a dynamic and fluid work environment
- Experience of operating in a regulated environment where safety is paramount
- Experience of ISO 9001 and an IMS
- Good local knowledge of Shetland and logistics and/ or experience with challenging logistics supply chains; and/ or professional experience working in remote environments for extended periods
- Full clean driving licence
- Willingness to undertake security vetting (BPSS and higher) as company requirements evolve

Additional Information

The need for flexibility is required and the post holder may be required to carry out any other related duties that are within their skills and abilities, whenever reasonably instructed by management.

This job description is a guide to the work you will undertake, and it may be changed from time to time to incorporate changing circumstances.

Employee Name:	Employee's Signature:
Date:	Manager's Signature: