

<b>Domain</b>	<b>CRANE OPERATION</b>	<b>Unit ID: 1106</b>
<b>Title:</b>	<b>Perform tandem lifting as part of crane operations</b>	
<b>Level: 4</b>		<b>Credits: 15</b>

### Purpose

This unit standard is intended for those who carry out crane operations. People holding credit for this unit standard are able to: Plan and prepare for work; demonstrate knowledge of tandem lifting procedures; confirm requirements for tandem lifting tasks; conduct risk assessment; perform tandem lifting; complete work related documents; and clean up work area.

### Special Notes

1. Entry information:
  - Prerequisite
    - Unit 1079 – *Comply with health, safety and environmental rules and regulations pertaining to crane operations.*
2. Expected worksite production target are to be met.
3. Assessment evidence may be collected from a real workplace or a simulated workplace in which crane operations are carried out.
4. Maintenance may include but is not limited to cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance and repair activities.
5. Safe working practices include but are not limited to day-to-day observation of safety policies and procedures, and compliance with emergency procedures.
6. Performance of all elements in this unit standard must comply with all relevant legal and workplace requirements, contractual agreement and/or manufacturers' specifications.
7. Regulations and legislation, including subsequent amendments, relevant to this unit standard may include but are not limited to the following:
  - Labour Act, No. 11 of 2007
  - Regulations relating to the Health and Safety of employees at work, 1997
  - Road Traffic and Transport Regulations No. 52, 1999 and Government Notice No 53 Road Traffic and Transport Regulations
 and all industry specific regulations, legislations, code of practice, or code of conduct.

### Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the

Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website [www.nta.com.na](http://www.nta.com.na).

## **Elements and Performance Criteria**

### **Element 1: Plan and prepare for work**

#### **Range**

Inspection and preparation of work area and equipment may include but is not limited to levelling ground; checking soil conditions; proximity of other machines and personnel; stability and suitability of crane; operational capability of lifting equipment such as correct safe working load of slings; and compliance with statutory regulations.

#### **Performance Criteria**

- 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, explained, clarified and applied to the allocated task.
- 1.2 Safety requirements, including personal protective clothing and equipment are obtained from the site safety plan, workplace policies and procedures, and applied to the allocated task.
- 1.3 Traffic control requirements are obtained and implemented according to workplace requirements.
- 1.4 Plant, tools, fuel, lubricants, water for cooling, alternative or complementary equipment, attachments and accessories selected to carry out tasks are checked for consistency with the requirements of the job, their usability in accordance with design engineer's requirements, and any faults rectified or reported prior to commencement of work.
- 1.5 Environmental protection requirements are identified from the project environmental management plan and applied to the allocated task.
- 1.6 Work area and equipment is inspected and prepared according to workplace procedures.

### **Element 2: Demonstrate knowledge of tandem lifting procedures**

#### **Performance Criteria**

- 2.1 Crane lifting charts are used to determine the lifting performance of cranes.
- 2.2 Mass of final loads in each hook are calculated and tabulated in accordance with standard formulas and specifications.
- 2.3 Procedures for obtaining certificates for lifting machines and all equipment in the hook are described.

- 2.4 Procedures to be followed and documentation to be completed for insuring lifts in tandems are described.
- 2.5 Techniques and procedures for calculating levels, setting out alignments for structures, evaluating ground conditions and overhead structures are explained.
- 2.6 Safety procedures for tandem lifting are described and manual and/or by radio communication techniques are demonstrated.

### **Element 3: Confirm requirements for tandem lifting tasks**

#### **Range**

Safe working practices may include but are not limited to site access; communication and signal methods; centre of gravity of load; safety nets; static lines; and fall arrest systems.

#### **Performance Criteria**

- 3.1 Lifting equipment charts are evaluated and derated in accordance with safe working practice for lifting loads in tandem.
- 3.2 Lifting equipment charts are analysed, load is compared and verified against performance specifications.
- 3.3 Mass of loads and safe working loads for the duration of the lifting operation are calculated and documented for each participating hook.
- 3.4 The location and route of travel in relation to the centre of gravity is calculated and documented.
- 3.5 Certificates for lifting machines and equipment are obtained, certified and documented in accordance with safety legislation requirements.
- 3.6 Insurance companies are informed of the intent to undertake a lift in tandem.

### **Element 4: Conduct risk assessment**

#### **Range**

Evaluation of ground conditions may include but are not limited to location of underground services; ground pressure; and water tables.

Overhead hazards may include but are not limited to power lines; telephone cables; bridge structures; and buildings.

#### **Performance Criteria**

- 4.1 Levels and set out alignments of structures are checked and verified against tandem lift requirements.
- 4.2 Ground conditions are evaluated and verified in accordance with design engineer's requirements for absolute level and crane manufacturer's specifications.

- 4.3 Overhead hazards are identified and appropriate locations for erection of lifting equipment are identified.
- 4.4 Climatic conditions, in particular wind speeds, are evaluated and parameters set in accordance with manufacturer's operating instructions for the method statement.
- 4.5 Erection site is isolated by barriers in accordance with workplace procedures and safety legislation requirements.
- 4.6 Safety procedures and communication signals are carried by a designated person in accordance with workplace procedures and safety legislation requirements.

### **Element 5: Perform tandem lifting**

#### **Performance Criteria**

- 5.1 Lift is controlled by designated person in accordance with workplace procedures and safety legislation requirements.
- 5.2 Hoist lines are positioned and hook travel path controlled for the duration of lifting operations in accordance with design engineer's instructions.
- 5.3 Secondary crane load is kept as low as practicable when tailing operations are carried out.
- 5.4 Both crane movements are controlled for the duration of lifting operations.
- 5.5 Load stability is maintained during lifting procedures in accordance with manufacturer and design engineer's specifications, safety legislation requirements and workplace procedures.
- 5.6 Loads are lifted and safely placed in accordance with workplace procedures and safety legislation requirements.
- 5.7 Work in confined spaces is carried out in accordance with safety legislation requirements and standard industry procedures.
- 5.8 Loads are completed in accordance with design engineer's specifications and safety legislation requirements.

### **Element 6: Complete work related documents**

#### **Performance Criteria**

- 6.1 Work related documents are completed in accordance with contract and workplace requirements.
- 6.2 Maintenance and service related documents are completed in accordance with manufacturer and workplace requirements.
- 6.3 Documents related to accidents or other incidents are completed in accordance with workplace requirements.

## **Element 7: Clean up work area**

### **Performance Criteria**

- 7.1 Work area is cleared and materials disposed of or recycled in accordance with project environment management plan.
- 7.2 Plant, tools and equipment are cleaned, checked, maintained, serviced and stored in accordance with manufacturers' recommendations and standard work practices.
- 7.3 Inspection, faultfinding, and reporting is carried out according to manufacturer's requirements and workplace procedures.

### **Registration Data**

<b>Subfield:</b>	Lifting, shifting, securing loads
<b>Date first registered:</b>	27 March 2013
<b>Date this version registered:</b>	27 March 2013
<b>Anticipated review:</b>	2016
<b>Body responsible for review:</b>	Namibia Training Authority