

OPERATE INDUSTRIAL HYDRAULICS SYSTEMS

UNIT CODE: ENG/OS/IPO/CR/O3/4/A

UNIT DESCRIPTION

This unit describes competencies required to operate industrial hydraulics systems. It involves applying industrial hydraulic system safety procedures, identifying industrial hydraulic components, running and monitoring industrial hydraulic system, performing industrial hydraulic system basic maintenance and generating industrial hydraulic operation report.

ELEMENTS AND PERFORMANCE CRITERIA

| Element These describe the key outcomes which make up workplace function | Performance Criteria These are assessable statements which specify the required level of performance for each of the elements. <i>Bold and italicized terms are elaborated in the Range</i> |
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| 1. Apply Industrial Hydraulic System Safety Procedures | 1.1 Prescribed personal safety gear is worn as per rules and regulations of the <i>Occupational Safety and Health Act (OSHA)</i> 1.2 Safety measures for the operation of the hydraulic systems are applied as per the rules and regulations of the <i>Occupational Safety and Health Act (OSHA)</i> 1.3 Work environment safety rules and regulations are observed as per the Occupational Safety Act 1.4 <i>Potential, workplace employee and equipment hazards</i> , and their <i>risk</i> control measures are identified as per OSHA to ensure the safety of personnel and equipment |
| 2. Identify Industrial Hydraulic Components | 2.1 Operation manuals are obtained and interpreted as per manufacturers specification and SOPs 2.2 The model of the industrial hydraulic system is identified as per manufacturer's specification 2.3 Different components of the industrial hydraulic system are identified as per manufacturer's specification |
| 3. Run and Monitor Industrial Hydraulic System | 3.1 Hydraulic system <i>application</i> is identified, and advantages and limitations defined 3.2 Tools and equipment for the operation of hydraulic systems are identified 3.3 Viscosity, seals, chemical degradation, O-rings are checked for proper functionality. |

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| | 3.4 Hydraulic system is operated as per the SOPs 3.5 Hydraulic system operation is monitored, and daily check chart is updated |
| 4. Perform Industrial Hydraulic System Basic Maintenance | 4.1 Basic Maintenance requirements are identified according to SOPs 4.2 Ruptured seals, fittings and pipes identified are replaced as per SOPs 4.3 Directional valves, non-return valves are replaced and serviced |
| 5. Generate Industrial Hydraulic Operation Report. | 5.1 Updated <i>documentation</i> and hydraulic problems, movements, abnormalities and status reported and logged in accordance with enterprise procedures |

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

| Variable | Range |
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| <ul style="list-style-type: none"> • <i>Hydraulic components</i> may include but not limited to: | <ul style="list-style-type: none"> • Rams • Actuators • Relays • Hydraulic operated tools • Governors and relays • Pumps • Directional valves • Piping • Seals • Manifolds |
| <ul style="list-style-type: none"> • <i>Hydraulic systems applications</i> may include but not limited to: | <ul style="list-style-type: none"> • Lifting • Braking systems • Valves Controls |
| <ul style="list-style-type: none"> • <i>Isolations</i> may include but not limited to: | <ul style="list-style-type: none"> • Electrical/mechanical or other associated processes |
| <ul style="list-style-type: none"> • <i>Regulations, Policies and Standards</i> | <ul style="list-style-type: none"> • Occupational Safety and Health Act |

| Variable | Range |
|---|---|
| may include but not limited to: | <ul style="list-style-type: none"> • Company policies • Manufacturers' specifications |
| <ul style="list-style-type: none"> • <i>Potential failures /Indication of failures</i> may include but not limited to: | <ul style="list-style-type: none"> • Noise • Vibration • Odour • Leaks • Loss of performance • Unintended motion |
| <ul style="list-style-type: none"> • <i>Safety equipment</i> may include but not limited to: | <ul style="list-style-type: none"> • Pressure relief valve • Safety valve • Non return valve |
| <ul style="list-style-type: none"> • <i>PPE</i> may include but not limited to: | <ul style="list-style-type: none"> • Gloves • Safety boots |
| <ul style="list-style-type: none"> • <i>Hazards</i> may include but not limited to: | <ul style="list-style-type: none"> • Burns from hot, high-pressure fluid • Injection of fluid into the skin • Fire Hazards • Bruises, cuts or abrasions from flailing hydraulic lines • Injury of people due to unexpected movement of equipment • Injury due to sudden release of residual pressurized oil. • Slippage due to oily floor area. • Electric shock from electrical motors/ A.C. Solenoids |

REQUIRED KNOWLEDGE AND SKILLS

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The trainee needs to demonstrate knowledge of:

- Relevant environmental, occupational health and safety legislation and regulations
- Personal protective equipment (PPE) and safety equipment.
- Hand and portable power tools
- Assess potential hazards.
- Hydraulic circuit diagrams and data

- Uses documentation.
- Hydraulic principles
- Pre- and post-operational inspections.
- Completes daily equipment logbook.
- Emergency procedures.
- Identification and selection of tools and materials
- Identify and use relevant test equipment
- Communicate effectively
- Basic First aid

Required Skills

The trainee needs to demonstrate the following fundamental skills

- Communication skills
- Numeracy skills
- Digital literacy skills
- Occupational health safety and Practices
- Environmental Literacy
- Employability skills
- Entrepreneurship skills

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| 1. Critical Aspects of Competency | 1.1 Observed safety at workplace and sound housekeeping 1.2 Identified different types of oil used in hydraulic systems 1.3 Identified hydraulic components and attachments 1.4 Selected and correctly use tools and equipment 1.5 Operated and monitor hydraulic system 1.6 Performed pre- and post-operational tests 1.7 Conducted basic First Aid and Emergency evacuation |
| 2. Resource Implications | 2.1 Hydraulic system/model 2.2 Hydraulic simulation 2.3 Relevant legislations, e.g. OSHA, Environmental Act; and regulations 2.4 Workshop tools and equipment 2.5 Hydraulic manuals |
| 3. Methods of Assessment | Competency may be assessed through: 3.1 Observed behavior of the learners at workplace |

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| | 3.2 Inspection of written operation procedures 3.3 Inspection of log books |
| 4. Context of Assessment | Competency will be assessed individually in the actual workplace or through accredited institution |
| 5. Guidance information for Assessment | Holistic assessment of other units relevant to the industry sector, workplace and job role is recommended |

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