



NATIONAL OCCUPATIONAL SKILLS STANDARDS FOR BULLDOZER OPERATOR

**Department of Occupational Standards
Ministry of Labour and Human Resources
Thimphu, Bhutan.**



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FOREWORD

The Department of Occupational Standards of the Ministry of Labour and Human Resources proudly presents National Occupational Skills Standards (OSSs) for Bulldozer Operator as part of TVET reform initiative for improving the quality of Vocational Education and Training System in Bhutan. The standards represent the fruits of hard work and invaluable experiences gained by the department since its establishment in the latter half of 2003. The main aim of developing Occupational Skills Standards is to set up a well defined nationally recognized Vocational Qualification and Certification system that will help set a benchmark for the Technical Vocational Education and Training (VET) System in our country aligned to international best practices.

Occupational Skills Standards is one of the base pillars in the Bhutan Vocational Qualification Framework (BVQF) and is the first step in its implementation. The standards are developed to ensure that employees or vocational graduates possess and acquire the desired skills, knowledge and attitude required by industries and employers. In order to ensure this close match in supply and demand of skills, knowledge and attitude, standards have been developed in close consultation and partnership with industry experts and validated by the Technical Advisory Committees for the concerned economic sectors.

A vocational education and training system based on Occupational Skills Standards shall ensure that delivered training is of a high quality and relevant to the needs of the labour market. As a result, future TVET graduates will be better equipped to meet the need and expectations of industries and employers. This positive impact on the employability of TVET graduates will enhance the reputation of vocational education and training and make it attractive to school leavers.

While acknowledging the existing level of cooperation and collaboration, the ministry earnestly requests employers and training providers to extend the fullest support and cooperation in implementing the Occupational Skills Standards. The ultimate objective is to build a competent and productive national workforce that will contribute to the continued socio-economic progress of our country.

I gratefully acknowledge the valuable contributions made by experts from industries during the consultation, verification and validation processes of the standards. I look forward to improved engagement and active participation of the industry and employers in the development of a quality assured demand driven TVET system in the near future.

Dorji Wangdi

Minister

Ministry of Labour and Human Resources

INTRODUCTION

A. Occupational Skills Standards (OSS)

Occupational Skill Standards specify the skill, knowledge and attitudes applied to a particular occupation. Standards also specify the standards or criteria of performance of a competent worker and the various contexts in which work may take place. Standards provide explicit advice to assessors regarding the skill and knowledge to be demonstrated by candidates seeking formal recognition either following training or through work experience.

Purpose of Occupational Skills Standards

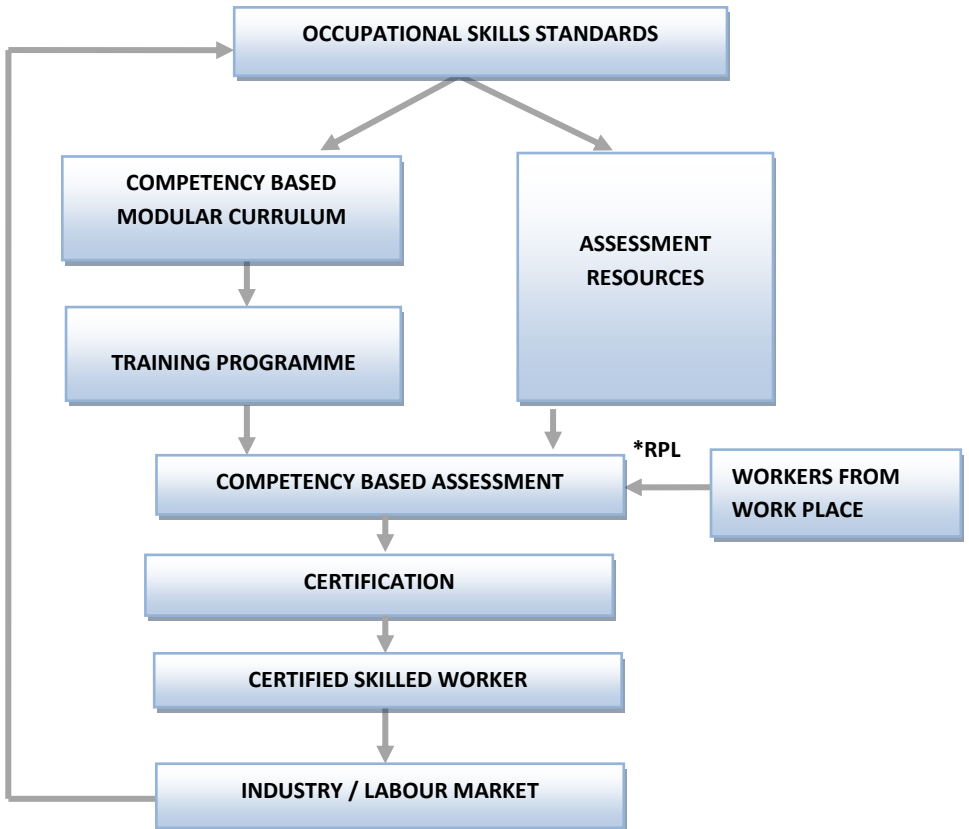
Skill Standards serve a number of purposes including:

- Providing advice to curriculum developers about the skill and knowledge to be included in curriculum.
- Providing specifications to assessment resource developers about the skill, knowledge and attitudes within an occupation to be demonstrated by candidates.
- Providing advice to industry/employers about job functions, which in turn can be used for the development of job descriptions, performance appraisal systems and work flow analysis.

B. Bhutan Vocational Qualification Framework (BVQF)

Bhutan Vocational Qualifications Framework is an agreed system of Assessing, Certifying and Monitoring nationally recognized qualifications for all learning in the TVET sector against national standards, in training institutions, in the workplace, in schools or anywhere where learning takes place.

Components of the Bhutan Vocational Qualification Framework (BVQF)



* RPL = Recognition of Prior Learning

BVQF Levels

The Bhutan Vocational Qualification Framework has three levels classified based on the competency of the skilled workers. The three levels are:

- National Certificate Level 3 (NC III)
- National Certificate Level 2 (NC II)
- National Certificate Level 1 (NC I)

BVQF Level Descriptors

The qualification levels are decided based on level descriptors. The detail of the qualification level descriptor is as follows:

National Certificate Level 1

| Carry out processes that: | Learning demand: | Responsibilities which are applied: |
|--|--|--|
| <ul style="list-style-type: none">• Are narrow in range.• Are established and familiar.• Offer a clear choice of routine responses.• Involve some prioritizing of tasks from known solutions. | <ul style="list-style-type: none">• Basic operational knowledge and skill.• Utilization of basic available information.• Known solutions to familiar problems.• Little generation of new ideas. | <ul style="list-style-type: none">• In directed activity.• Under general supervision and quality control.• With some responsibility for quantity and quality.• With no responsibility for guiding others. |

National Certificate Level 2

| Carry out processes that: | Learning demand: | Responsibilities which are applied: |
|---|--|---|
| <ul style="list-style-type: none"> • Require a range of well developed skills. • Offer a significant choice of procedures requiring prioritization. • Are employed within a range of familiar context. | <ul style="list-style-type: none"> • Some relevant theoretical knowledge. • Interpretation of available information. • Discretion and judgments. • A range of known responses to familiar problems | <ul style="list-style-type: none"> • In directed activity with some autonomy. • Under general supervision and quality checking. • With significant responsibility for the quantity and quality of output. • With some possible responsibility for the output of others. |

National Certificate Level 3

| Carry out processes that: | Learning demand: | Responsibilities which are applied: |
|---|---|--|
| <ul style="list-style-type: none"> • Requires a wide range of technical or scholastic skills. • Offer a considerable choice of procedures requiring prioritization to achieve optimum outcomes. • Are employed in a variety of familiar and unfamiliar contexts. | <ul style="list-style-type: none"> • A broad knowledge base which incorporates some theoretical concepts. • Analytical interpretation of information. • Informed judgment. • A range of sometimes innovative responses to concrete but often unfamiliar problems. | <ul style="list-style-type: none"> • In self-directed activity. • Under broad guidance and evaluation. • With complete responsibility for quantity and quality of output. • With possible responsibility for the output of others. |

PURPOSE

This suite of two qualifications is designed for people interested in a career as Bulldozer Operator.

The first requirement for the career as bulldozer operator is basic knowledge in auto mechanic and basic knowledge and skills in driving. These are pre-requisite for further qualification. The first qualification is National Certificate in Bulldozer operator Level 2 and it comprises four units of Occupational Skills Standards that covers the essential knowledge and skills required of bulldozer operator including maintaining tools and equipment, performing basic preventive maintenance, performing pre-operation procedures and post-operation procedures. This qualification prepares people for entry into the National Certificate Level 3.

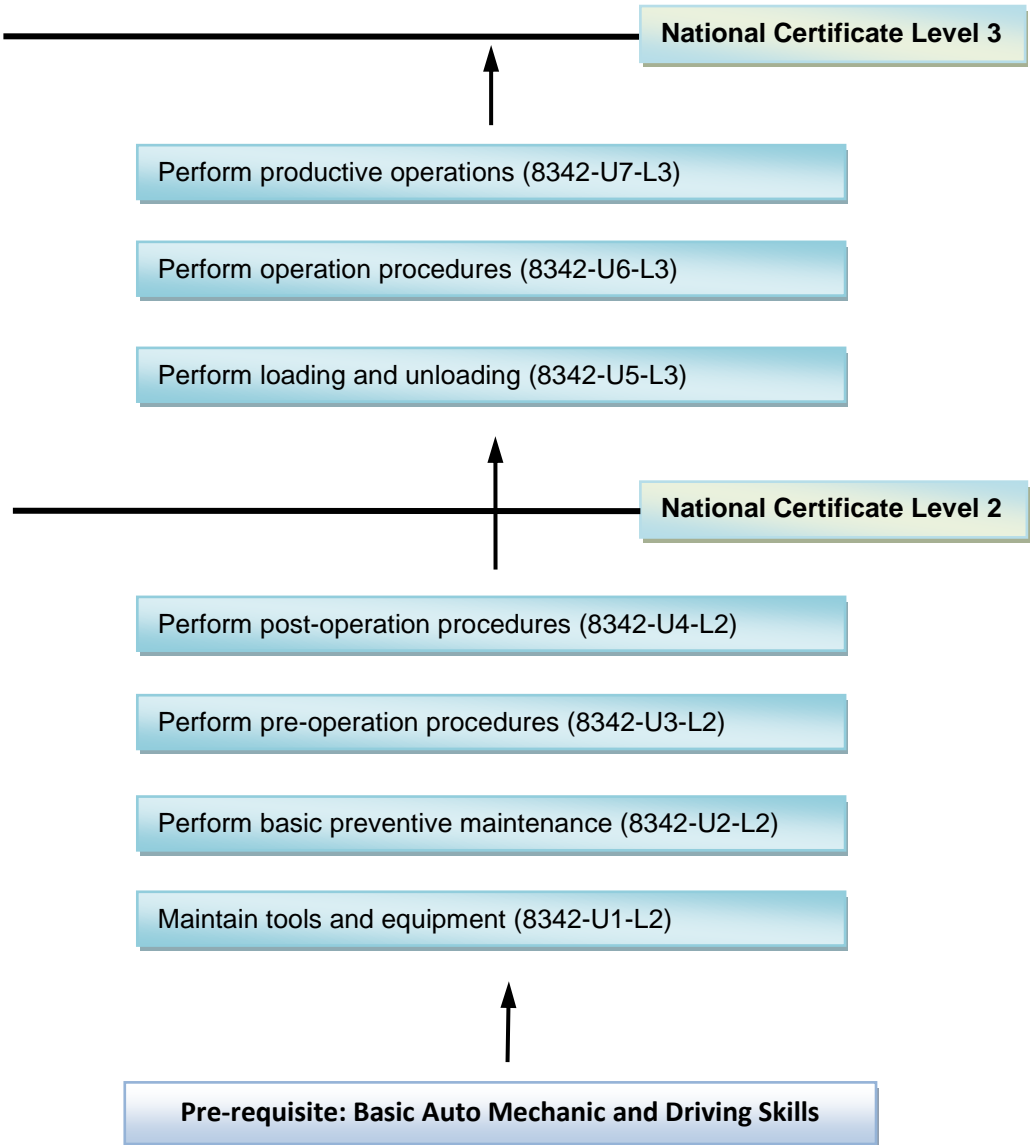
The National Certificate in Bulldozer Operator Level 3 is the highest level and currently the final qualification in this Occupation. Candidates wishing to be admitted into training already hold the National Certificate in Bulldozer Operator Level 2.

The Level 3 qualification recognizes the skills and knowledge required for people working as a highly skilled bulldozer operator and builds on the skills and knowledge that candidates will have gained through the successful completion of the Level 2 certificate.

The qualification includes three industries specific Occupational Skills Standards that covers the knowledge and skills needed to perform loading and unloading operations, performing operation checks and then performing productive operations.

A diagram of the qualification pathway provided by these two National Certificates follows.

PACKAGING OF QUALIFICATION FOR BULLDOZER OPERATOR



CODING USED FOR OCCUPATIONAL SKILLS STANDARDS

The coding and classification system developed in Bhutan is logical, easy to use, and also aligned with international best practises. The Bhutanese coding and classification system is based on the International Standard Classification of Occupations, 2008 (ISCO-08) developed by the International Labour Organisation (ILO).

The coding of the occupational skills standards forms the basis of the identification code for the Vocational Education and Training Management Information System (VET – MIS) both in terms of economic sector identification and that of the individual standard.

Coding the individual occupational skills standards

Coding the individual skills standard has a multiple purpose:

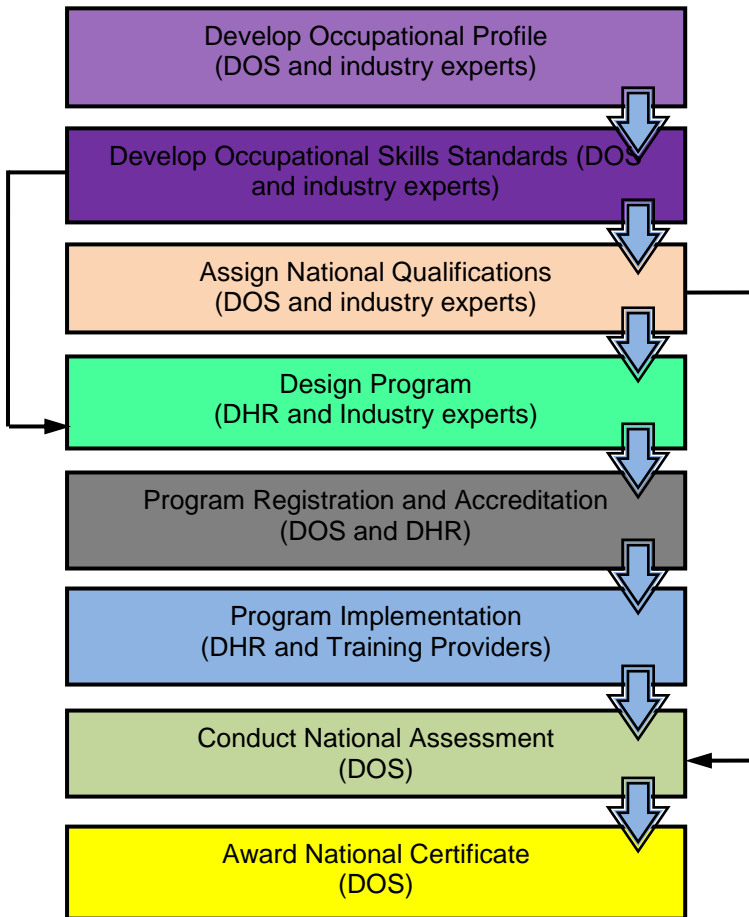
- to identify the level,
- to identify to which module the standard belongs,
- to identify in which order the standard is clustered within that module.

A job can include a number of competencies described in the Occupational Skills Standards.

However, in order to follow a logical order, only Occupational Skills Standards related to each other and following a logical sequence in terms of training delivery, from the simple to the complex, are clustered into a module. Some standards are so complex that they need to stand alone.

To illustrate with an example (8342-U1-L1), the ILO assigns the code 8342 to the occupation earth moving and related workers. Therefore, in the Bhutan's context, the occupation Bulldozer operator has been assigned the code 8342 in the National Coding System. The first unit is assigned the code U1, the first Unit of Occupational Skills Standard is designated the code 8342 U1. Levels are assigned the code L and follow a logical progression from the National Certificate Level 1 (NC I) to the National Certificate Level 3 (NC III). Therefore the National Certificate Level 3 is assigned the code L3.

Implementation and operational procedures for Occupational Skills Standard (OSS)



Key:

MoLHR – Ministry of Labour and Human Resources

DHR – Department of Human Resources

DOS – Department of Occupational Standards

NATIONAL OCCUPATIONAL SKILLS STANDARDS FOR BULLDOZER OPERATOR

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BULLDOZER OPERATOR**

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**BULLDOZER OPERATOR
OCCUPATIONAL SKILLS STANDARDS
FOR
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| Perform basic preventive (routine) maintenance | <ol style="list-style-type: none"> 1. Prepare for work 2. Carryout preventive maintenance servicing (PMS) 3. Complete the work | 27 |

UNIT TITLE : **Maintain tools and equipment**

DESCRIPTOR : This unit covers the competencies required to carry out checking condition, performing preventive maintenance and storing of tools and equipment in accordance with required performance standard, ensuring safety at all times of operation.

CODE : **8342-U1-L2**

| ELEMENTS OF COMPETENCE | PERFORMANCE CRITERIA |
|--|--|
| 1. Check condition of tools and equipment. | 1.1 Identify tools and equipment in accordance with classifications. 1.2 Segregate and label non-functional tools and equipment in accordance with classifications. 1.3 Observe safety of tools and equipment in accordance with manufacturer's instructions. 1.4 Check condition of PPE in accordance with manufacturer's specifications. |
| 2. Service tools and equipment. | 2.1 Identify and use required lubricants as per the manufacturer's specifications. 2.2 Lubricate tools and equipment as per the manufacturer's specifications. 2.3 Check and calibrate measuring instruments in accordance with manufacturer's specifications. 2.4 Clean tools in accordance with standard operating procedures. 2.5 Inspect and replace defective accessories in accordance with manufacturer's specifications. 2.6 Clean workplace and keep it in safe state in accordance with OH&S regulations. |
| 3. Store tools and equipment. | 3.1 Record inventory of tools and equipment in accordance with establishment procedures. 3.2 Store tools and equipment safely at |

| | |
|--|--|
| | appropriate locations in accordance with manufacturer's specifications and establishment procedures. |
|--|--|

| RANGE STATEMENT | |
|--|---|
| Tools and equipment may include but not limited to: | |
| <ul style="list-style-type: none"> • Plier set • Screw driver set • Socket set (Heavy and Light) • Grease gun • Allen key set • Ring spanner set • Double end spanner set | <ul style="list-style-type: none"> • Filter clamp • Sledge hammer (5kg) • Soft hammer • Pipe wrench • Chisel (round pin) • Lever • Tow chain |
| PPE may include but not limited to: | |
| <ul style="list-style-type: none"> • Helmet • Goggles • Mask | <ul style="list-style-type: none"> • Safety shoes • Gloves |
| Record may include but not limited to: | |
| <ul style="list-style-type: none"> • Maintenance schedule form • Requisition slip | <ul style="list-style-type: none"> • Inspection form |

| ASSESSMENT GUIDE |
|--|
| Form of assessment |
| <ul style="list-style-type: none"> • Continuous assessment together with collected evidence of performance will be used. • Evidence of the performance shall be based on practical demonstration. • Knowledge can be accessed through diagrams, in writing or orally (viva-voce). |
| Assessment context |
| <ul style="list-style-type: none"> • Competency may be assessed in the actual work place or in a simulated workplace setting. |

Assessment condition

- The candidate shall have access to all required tools, equipment, materials and documents.
- The candidate must complete the assessment in industry accepted time frame.

Critical aspects

- Demonstrate compliance with safety regulation applicable to work site operation.
- Demonstrate ability to check and service (repair and calibrate) tools and equipment in accordance with manufacturer's procedures / specifications.
- Demonstrate ability to prepare inventory report and store tools and equipment as per the establishment procedures.

| UNDERPINNING KNOWLEDGE | UNDERPINNING SKILLS |
|---|--|
| <ul style="list-style-type: none">• Occupational Health & Safety• First Aid• Personal protective equipment (PPE)• Types and classifications of tools and equipment• Familiarity with manufacturer's specifications• Familiarity with establishment procedures• Positive work values• Basic literacy & numeracy• Types and application of lubricants | <ul style="list-style-type: none">• Accessing, interpreting and applying technical / manufacturer's operation manual, information and instructions• Team Work• Communication• Interpersonal• Problem solving |

UNIT TITLE : Perform pre-operational procedures

DESCRIPTOR : This unit covers the competencies required to carry out checking procedures before operation of the machine, such visual inspection and checking with engine stopped / not running, ensuring safety at all times off operation.

CODE : 8342-U2-L2

| ELEMENTS OF COMPETENCE | PERFORMANCE CRITERIA |
|--|---|
| 1. Prepare for pre-operation procedures. | 1.1 Identify and use required PPE as per the job requirements. 1.2 Identify and use required tools as per the job requirements. 1.3 Identify and use required materials as per the job requirements. |
| 2. Carry out pre-operation checks. | 2.1 Check operator – serviceable (OS) parts in accordance with machine checklist and manufacturer’s procedures. 2.2 Carry out walk-around check to identify defects , and take necessary repair / replace action in accordance with machine checklist and manufacturer’s procedures. 2.3 Carry out “ BLOWAF ” check and take necessary repair / replace action in accordance with machine checklist and manufacturer’s procedures. 2.4 Identify deficiencies in fluid levels and are refilled / topped up in accordance with maintenance manual. 2.5 Note and report abnormal conditions to authorized person in accordance with establishment procedures. |

| RANGE STATEMENT | |
|--|---|
| PPE may include but not limited to: | |
| <ul style="list-style-type: none"> • Helmet • Goggles • Mask | <ul style="list-style-type: none"> • Safety shoes • Gloves |
| Tools and equipment may include but not limited to: | |
| <ul style="list-style-type: none"> • Plier set • Screw driver set • Socket set (Heavy and Light) • Grease gun • Allen key set • Ring spanner set • Double end spanner set | <ul style="list-style-type: none"> • Filter clamp • Sledge hammer (5kg) • Soft hammer • Pipe wrench • Chisel (round pin) • Lever • Tow chain |
| Materials includes but not limited to: | |
| <ul style="list-style-type: none"> • Cleaning materials • Lubricants • Rust remover | <ul style="list-style-type: none"> • Rugs • Spare parts |
| Operator – serviceable (OS) parts includes but not limited to: | |
| <ul style="list-style-type: none"> • Air cleaner • Battery terminals / connection • Belt | <ul style="list-style-type: none"> • Tire inflation • Grease / lube points • Track tension |
| Defects may include but not limited to: | |
| <ul style="list-style-type: none"> • Leaks • Worn out / damaged parts • Fluid levels | <ul style="list-style-type: none"> • Loose parts / connections • Missing parts |
| BLOWAF check to: | |
| <ul style="list-style-type: none"> • Battery • Light • Oil | <ul style="list-style-type: none"> • Water • Air • Fuel |
| Fluid levels includes but not limited to: | |
| <ul style="list-style-type: none"> • Fuel • Battery electrolyte • Engine oil | <ul style="list-style-type: none"> • Hydraulic oil • Radiator coolant |
| Authorized person includes but not limited to: | |
| <ul style="list-style-type: none"> • Supervisor • Foreman | <ul style="list-style-type: none"> • Maintenance engineer |

ASSESSMENT GUIDE

Form of assessment

- Continuous assessment together with collected evidence of performance will be used.
- Evidence of the performance shall be based on practical demonstration.
- Knowledge can be assessed through diagrams, in writing or orally (viva-voce).

Assessment context

- Competency may be assessed in the actual work place or in a simulated workplace setting.

Assessment condition

- The candidate shall have access to all required tools, equipment, materials and documents.
- The candidate must complete the assessment in industry accepted time frame.

Critical aspects

- Demonstrate compliance with safety regulation applicable to work site operation.
- Demonstrate ability to check and service parts in accordance with manufacturer's procedures.
- Demonstrate ability to perform walk-around and "BLOWAF" inspection in accordance with manufacturer's procedures.

| UNDERPINNING KNOWLEDGE | UNDERPINNING SKILLS |
|--|--|
| <ul style="list-style-type: none">• Occupational Health & Safety• First Aid• Types and uses of personal protective equipment• Familiarity with manufacturer's operation manuals | <ul style="list-style-type: none">• Accessing, interpreting and applying technical / manufacturer's operation manual, information and instructions• Safe use of tools and equipment |

| | |
|---|---|
| <ul style="list-style-type: none">• Familiarity with pre-operation checklist• Positive work values• Basic literacy & numeracy• Types and application of fluids• Environment act in relation to the use and disposal of fluids | <ul style="list-style-type: none">• Team Work• Communication• Interpersonal• Problem solving |
|---|---|

UNIT TITLE : **Perform post-operation procedures**

DESCRIPTOR : This unit covers the competencies required to carry out post-operation checks to machine ensuring safety at all times of operation.

CODE : **8342-U3-L2**

| ELEMENTS OF COMPETENCE | PERFORMANCE CRITERIA |
|-------------------------------------|---|
| 1. Prepare for operation. | 1.1 Select and use personal protective equipment (PPE) as per job requirements. 1.2 Select and use tools & equipment as per job requirements. 1.3 Select and use materials as per job requirements. 1.4 Park and turn off machine in accordance with operator's manual. |
| 2. Carry out post-operation checks. | 2.1 Set machine controls into neutral position and engage parking brakes in accordance operator's manual. 2.2 Set / engage safety locks and brakes in accordance with operator's manual. 2.3 Re-conduct walk-around inspection check in accordance with machine checklist. 2.4 Prepare daily equipment time record / report (DETR) and submit according to establishment rules and regulations. |

RANGE STATEMENT

PPE may include but not limited to:

- Helmet
- Goggles
- Mask
- Safety shoes
- Gloves

Tools and equipment may include but not limited to:

- Plier set
- Screw driver set
- Socket set (Heavy and Light)
- Grease gun
- Allen key set
- Ring spanner set
- Double end spanner set
- Filter clamp
- Sledge hammer (5kg)
- Soft hammer
- Pipe wrench
- Chisel (round pin)
- Lever
- Tow chain

Materials includes but not limited to:

- Cleaning materials
- Lubricants
- Rust remover
- Rugs
- Spare parts

Safety locks may include but not limited to:

- Control lever lock
- Door lock
- Steering lock

ASSESSMENT GUIDE**Form of assessment**

- Continuous assessment together with collected evidence of performance will be used.
- Evidence of the performance shall be based on practical demonstration.
- Knowledge can be accessed through diagrams, in writing or orally (viva-voce).

Assessment context

- Competency may be assessed in the actual work place or in a simulated workplace setting.

Assessment condition

- The candidate shall have access to all required tools, equipment, materials and documents.
- The candidate must complete the assessment in industry accepted time frame.

Critical aspects

- Demonstrate compliance with safety regulation applicable to work site operation.
- Demonstrate ability to carry out post-operation procedures in accordance with machine checklist.

| UNDERPINNING KNOWLEDGE | UNDERPINNING SKILLS |
|---|---|
| <ul style="list-style-type: none">• Occupational Health and Safety (OHS) Regulations• Basic First Aid• Start up procedures• Types and uses of personal protective equipment• Familiarity with manufacturer's operation manuals• Familiarity with post – operation checklist• Positive work values• Basic literacy & numeracy• Types and application of fluids• Environment act in relation to the use and disposal of fluids | <ul style="list-style-type: none">• Accessing, interpreting and applying technical / manufacturer's operation manual, information and instructions• Safe use of tools and equipment• Team Work• Communication• Interpersonal• Problem solving• Driving skills |

UNIT TITLE : Perform basic preventive (routine) maintenance

DESCRIPTOR: This unit covers the competencies required to carry out routine maintenance of machine, ensuring safety at all times of operation.

CODE : 8342-U4-L2

| ELEMENTS OF COMPETENCE | PERFORMANCE CRITERIA |
|---|---|
| 1. Prepare for work. | 1.1 Select and use tools and equipment as per job requirements. 1.2 Select and use PPE as per the job requirements. 1.3 Select and use materials as per the job requirements. |
| 2. Carryout preventive maintenance servicing (PMS). | 2.1 Identify minor defects and take remedial action in accordance with establishment / manufacturer's procedures. 2.2 Identify major defects with checklist and referred to appropriate personnel in accordance with establishment procedures. 2.3 Identify and service OS parts in accordance with manufacturer's recommendation. 2.4 Service worn-out undercarriage parts in accordance with manufacturer's specifications 2.5 Use fluids and lubricants based on manufacturer's specifications. |
| 3. Complete the work. | 3.1 Prepare daily checklist form in accordance with manufacturer's / company requirements. 3.2 Report minor / major machine defects to concerned personnel in accordance with establishment procedures. |

| RANGE STATEMENT | |
|--|---|
| Tools and equipment may include but not limited to: | |
| <ul style="list-style-type: none"> • Plier set • Screw driver set • Socket set (Heavy and Light) • Grease gun • Allen key set • Ring spanner set • Double end spanner set | <ul style="list-style-type: none"> • Filter clamp • Sledge hammer (5kg) • Soft hammer • Pipe wrench • Chisel (round pin) • Lever • Tow chain |
| PPE may include but not limited to: | |
| <ul style="list-style-type: none"> • Helmet • Goggles • Mask | <ul style="list-style-type: none"> • Safety shoes • Gloves |
| Materials includes but not limited to: | |
| <ul style="list-style-type: none"> • Cleaning materials • Lubricants • Rust remover | <ul style="list-style-type: none"> • Rugs • Spare parts |
| Minor defects may include but not limited to: | |
| <ul style="list-style-type: none"> • Weak battery • Improper belt tension • Clogged air filter / cleaner | <ul style="list-style-type: none"> • Incorrect / insufficient track tension • Loose clamps |
| Major defects may include but not limited to: | |
| <ul style="list-style-type: none"> • Busted hydraulic hose • Defective electrical system | <ul style="list-style-type: none"> • Defective electro-mechanical system • Water pump |
| Operator serviceable (OS) parts may include but not limited to: | |
| <ul style="list-style-type: none"> • Air cleaner • Batter terminals / connections / clamps | <ul style="list-style-type: none"> • Filters • Lube points • Fluid caps |
| Worn-out undercarriage parts may include but not limited to: | |
| <ul style="list-style-type: none"> • Rollers • Track link • Bushing • Shank tooth | <ul style="list-style-type: none"> • Pins • Pads • Cutting edge • End bit |

Fluids and lubricants may include but not limited to:

- Engine oil
- Hydraulic oil
- Multi-purpose grease
- Coolant
- Battery solutions
- Transmission oil
- Fuel

Concerned personnel may include but not limited to:

- Foreman
- Mechanic
- Engineers

ASSESSMENT GUIDE**Form of assessment**

- Continuous assessment together with collected evidence of performance will be used.
- Evidence of the performance shall be based on practical demonstration.
- Knowledge can be accessed through diagrams, in writing or orally (viva-voce).

Assessment context

- Competency may be assessed in the actual work place or in a simulated workplace setting.

Assessment condition

- The candidate shall have access to all required tools, equipment, materials and documents.
- The candidate must complete the assessment in industry accepted time frame.

Critical aspects

- Demonstrate compliance with safety regulations applicable to work site operations.
- Demonstrate ability to identify minor and major defects using checklist and take necessary action in accordance with establishment and manufacturer's procedures.

| UNDERPINNING KNOWLEDGE | UNDERPINNING SKILLS |
|--|---|
| <ul style="list-style-type: none"> • Occupational Health and Safety (OHS) Regulations • First Aid • Fluids and lubricants • Tools and equipment • Forms and reports • Establishment rules and regulation • Manufacturer's specifications / procedures • Components, systems and functions • Environment act in relation to use and disposal of fluid and lubricants | <ul style="list-style-type: none"> • Using and interpreting manufacturer's / service manuals and specifications • Applying personal safety procedures • Safe handling of tools and equipment • Interpersonal and communication • Team work |

**BULLDOZER OPERATOR
OCCUPATIONAL SKILLS STANDARDS
FOR
NATIONAL CERTIFICATE LEVEL 3 (NC 3)**

| UNIT TITLE | ELEMENTS OF COMPETENCE | PAGE |
|-------------------------------|---|------|
| Perform operation checks | <ol style="list-style-type: none"> 1. Prepare for operation 2. Carry out operation checks | 32 |
| Perform loading and unloading | <ol style="list-style-type: none"> 1. Load bulldozer to trailer 2. Unload bulldozer from trailer | 36 |
| Perform productive operations | <ol style="list-style-type: none"> 1. Travel the bulldozer 2. Perform dozing / clearing / excavating of materials 3. Perform ripping / winching operations | 39 |

UNIT TITLE : **Perform operation check**

DESCRIPTOR: This unit covers the competencies required to carry out operation checks with engine in running condition on machine, ensuring safety at all times of operation.

CODE : **8342-U5-L3**

| ELEMENTS OF COMPETENCE | PERFORMANCE CRITERIA |
|-------------------------------|---|
| 1. Prepare for operation. | 1.1 Select and use personal protective equipment (PPE) as per job requirements. 1.2 Select and use tools & equipment as per job requirements. 1.3 Select and use materials as per job requirements. |
| 2. Carry out operation check. | 2.1 Carry out starting / running check in accordance with machine checklist and manufacturer's recommendations. 2.2 Check machine parts for normal functioning and take repair / replace action, if necessary in accordance with manufacturer's specifications. 2.3 Check safety devices and accessories for proper functioning in accordance with safe operating procedures. 2.4 Note and report abnormal conditions to authorized person in accordance with establishment procedures. 2.5 Interpret manufacturer's specifications / manuals and procedures as per the job requirements. |

| RANGE STATEMENT | |
|--|---|
| Tools and equipment may include but not limited to: | |
| <ul style="list-style-type: none"> • Plier set • Screw driver set • Socket set (Heavy and Light) • Grease gun • Allen key set • Ring spanner set • Double end spanner set | <ul style="list-style-type: none"> • Filter clamp • Sledge hammer (5kg) • Soft hammer • Pipe wrench • Chisel (round pin) • Lever • Tow chain |
| PPE may include but not limited to: | |
| <ul style="list-style-type: none"> • Helmet • Goggles • Mask | <ul style="list-style-type: none"> • Safety shoes • Gloves |
| Materials includes but not limited to: | |
| <ul style="list-style-type: none"> • Cleaning materials • Lubricants • Rust remover | <ul style="list-style-type: none"> • Rugs • Spare parts |
| Starting / running check to: | |
| <ul style="list-style-type: none"> • Controls • Blade • Ripper • Attachment • Drawbar • Disc plow • Bedder | <ul style="list-style-type: none"> • Lights • Horn / alarm • Safety devices • Hydraulic systems • Winch • Tilt / lift |
| Machine parts may include but not limited to: | |
| <ul style="list-style-type: none"> • Brake • Steering | <ul style="list-style-type: none"> • Controls |
| Safety devices and accessories may include but not limited to: | |
| <ul style="list-style-type: none"> • Alarm • Roll over protective structures • Blinkers | <ul style="list-style-type: none"> • Safety belt • Windshield guard |
| Authorized person may include but not limited to: | |
| <ul style="list-style-type: none"> • Supervisor / foreman | <ul style="list-style-type: none"> • Maintenance engineer |

ASSESSMENT GUIDE

Form of assessment

- Continuous assessment together with collected evidence of performance will be used.
- Evidence of the performance shall be based on practical demonstration.
- Knowledge can be accessed through diagrams, in writing or orally (viva-voce).

Assessment context

- Competency may be assessed in the actual work place or in a simulated workplace setting.

Assessment condition

- The candidate shall have access to all required tools, equipment, materials and documents.
- The candidate must complete the assessment in industry accepted time frame.

Critical aspects

- Demonstrate compliance with safety regulation applicable to work site operation.
- Demonstrate ability to carry out walk-around check while engine is running in accordance with machine checklist and manufacturer's recommendations.

| UNDERPINNING KNOWLEDGE | UNDERPINNING SKILLS |
|--|--|
| <ul style="list-style-type: none">• Occupational Health and Safety (OHS) Regulations• Basic First Aid• Start up procedures• Types and uses of personal protective equipment• Familiarity with manufacturer's | <ul style="list-style-type: none">• Accessing, interpreting and applying technical / manufacturer's operation manual, information and instructions• Safe use of tools and equipment• Team Work |

| | |
|--|---|
| <p>operation manuals</p> <ul style="list-style-type: none">• Familiarity with machine operation checklist• Positive work values• Basic literacy & numeracy• Types and application of fluids• Environment act in relation to the use and disposal of fluids | <ul style="list-style-type: none">• Communication• Interpersonal• Problem solving |
|--|---|

UNIT TITLE : **Perform loading and unloading**

DESCRIPTOR : This unit covers the competencies required to load and unload bulldozer to and from trailer truck, ensuring safety to machine and personnel's at work place.

CODE : **8342-U6-L3**

| ELEMENTS OF COMPETENCE | PERFORMANCE CRITERIA |
|--|--|
| 1. Load bulldozer to trailer (Low Bed) | 1.1 Observe safe work procedures and practices as per the job requirements. 1.2 Position bulldozer on the ramp to ensure stability. 1.3 Respond to direction signal as shown by authorized signalman while performing loading operation. 1.4 Remove blade for transportation as per job requirement. 1.5 Rest frame properly on trailer bed, to ensure stability during transportation. 1.6 Secure and set all safety locks and control levers at required position as per the job requirements. 1.7 Place stopper blocks at required location as per the job requirements. 1.8 Respond efficiently to unexpected situations in line with establishment procedures and in a manner that minimizes risk to personnel and equipment. |
| 2. Unload bulldozer from trailer. | 2.1 Observe safe work procedures and practices as per the job requirements. 2.2 Remove safety locks, pins and stopper blocks prior to unloading operations as per the job requirements. |

| | | |
|--|-----|--|
| | 2.3 | Observe proper engine warm-up in accordance with manufacturer's specifications. |
| | 2.4 | Check control and brakes for proper functioning as per the manufacturer's specifications. |
| | 2.5 | Raise frame and ripper to recommended height (clearance) before unloading from trailer in accordance with standard operating procedures. |
| | 2.6 | Respond to signalman's directions and instructions while performing operation. |
| | 2.7 | Respond efficiently to unexpected situations in accordance with establishment procedures that minimizes risk to personnel and equipment. |

RANGE STATEMENT

Safe work procedures and practices may include but not limited to:

- Application of parking brake
- Neutral positioning of all controls
- Use of proper PPE
- Informatory warning signage

Safety lock and control levers may include but not limited to:

- Frame
- Ripper
- Steering

Unexpected situations may include but not limited to:

- Collapse of unstable terrain / ramp
- Busted trailer tires
- Equipment malfunctioning
- Natural calamities

ASSESSMENT GUIDE

Form of assessment

- Continuous assessment together with collected evidence of performance will be used.
- Evidence of the performance shall be based on practical demonstration.

- Knowledge can be accessed through diagrams, in writing or orally (viva-voce).

Assessment context

- Competency may be assessed in the actual work place or in a simulated workplace setting.

Assessment condition

- The candidate shall have access to all required tools, equipment, materials and documents.
- The candidate must complete the assessment in industry accepted time frame.

Critical aspects

- Demonstrate compliance with safety regulations applicable to work site operations.
- Demonstrate ability to perform loading and unloading operation safely in accordance with standard operating procedures.

| UNDERPINNING KNOWLEDGE | UNDERPINNING SKILLS |
|--|--|
| <ul style="list-style-type: none"> • Occupational Health and Safety (OHS) Regulations • First Aid • Loading and unloading procedures • Establishment procedures • Manufacturer’s specifications | <ul style="list-style-type: none"> • Interpreting and applying technical information • Using relevant tools and equipment • Applying safety procedures • Team work • Interpersonal and communication • Operation skills • Problem solving |

OSS TITLE : **Perform productive operations**

DESCRIPTOR : This OSS covers the competencies required to operate word processing applications and perform basic operations such as creating, and formatting of documents, creating tables, printing labels and mail merge.

CODE : **8342-U7-L3**

| ELEMENTS OF COMPETENCE | PERFORMANCE CRITERIA |
|---|--|
| 1. Travel the bulldozer | 1.1 Ensure safe accessibility to worksite in accordance with standard operating procedures. 1.2 Maintain blade and ripper clearance at recommended blade and ripper height above ground level during travel based on safe travel procedures. 1.3 Maintain travel speed in accordance with manufacturer's recommendation. 1.4 Respond to aid of signal where necessary in accordance with safe operating procedures. 1.5 Respond to unexpected situations in accordance with establishment procedures and in a manner that minimizes risk to personnel and equipment. |
| 2. Perform dozing / clearing / excavating of materials. | 2.1 Select effective and economical pushing distance in accordance with manufacturer's recommendations. 2.2 Observe blade's depth penetration in accordance with material's condition . 2.3 Push and carry load within the blade capacity according to manufacturer's specifications. 2.4 Observe required speed during operation in accordance with manufacturer's specifications. |

| | |
|---|---|
| | 2.5 Respond unexpected situation in accordance with establishment procedures in a manner that minimizes risk to personnel and equipment. |
| 3. Perform ripping / winching operations. | <p>3.1 Observe ripper's depth penetration in accordance with material condition.</p> <p>3.2 Observe <i>proper ripping penetration procedures</i> for shank.</p> <p>3.3 Observe and set gears to required setting as per the job requirements.</p> <p>3.4 Take necessary safety precautionary measures as per the job requirements.</p> <p>3.5 Respond to unexpected situations in accordance with establishment procedures in a manner that minimizes risk to personnel and equipment.</p> |

| RANGE STATEMENT | |
|--|--|
| Unexpected Situation may include but not limited to: | |
| <ul style="list-style-type: none"> • Collapse of unstable terrain / ramp • Busted trailer tires | <ul style="list-style-type: none"> • Equipment malfunctioning • Natural calamities |
| Material's condition may include but not limited to: | |
| <ul style="list-style-type: none"> • Soft • Hard | <ul style="list-style-type: none"> • Loose |
| Proper ripping penetration procedures: | |
| <ul style="list-style-type: none"> • Neutral position prior to penetration of shank/s to ground • No application of steering while shank is penetrated | <ul style="list-style-type: none"> • Setting shank as per client's requirements |

ASSESSMENT GUIDE

Form of assessment

- Continuous assessment together with collected evidence of performance will be used.
- Evidence of the performance shall be based on practical demonstration.
- Knowledge can be accessed through diagrams, in writing or orally (viva-voce).

Assessment context

- Competency may be assessed in the actual work place or in a simulated workplace setting.

Assessment condition

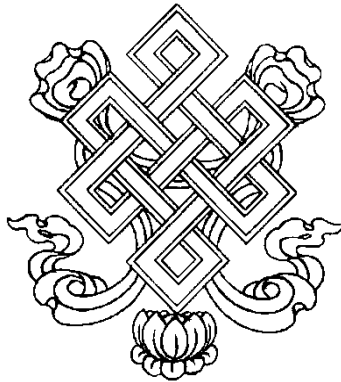
- The candidate shall have access to all required tools, equipment, materials and documents.
- The candidate must complete the assessment in industry accepted time frame.

Critical aspects

- Demonstrate compliance with safety regulations applicable to work site operations.
- Demonstrate ability to determine effective and economical pushing distances, proper ripping procedures during operation.

| UNDERPINNING KNOWLEDGE | UNDERPINNING SKILLS |
|---|---|
| <ul style="list-style-type: none">• Occupational Health and safety regulations• First Aid• Operating procedures for dozing, pushing, spreading, clearing, stockpiling, ripping and winching works• Safe work practices and | <ul style="list-style-type: none">• Reading, interpreting, and applying manufacturer's specifications• Use of proper tools and equipment• Applying personal safety procedures |

| | |
|---|---|
| <p>procedures</p> <ul style="list-style-type: none">• Controls and indicators• Establishment procedures• Positive work values• Site / terrain layout and obstacles | <ul style="list-style-type: none">• Team work• Communication• Interpersonal• Problem solving |
|---|---|



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