

Qualification Pack



• **CRAWLER CRANE**

Crawler Crane Operator

QP Code: IES/Q0110

NSQF Level: 4

Infrastructure Equipment Skill Council || Infrastructure Equipment Skill Council, Avik Royale-First Floor
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IES/Q0110: Crawler Crane Operator

Brief Job Description

A Crawler Crane Operator operates a moving crane to lift, move, position, and reposition loads. He is responsible for operating crawler crane to move, locate, relocate, stack and count merchandise.

Personal Attributes

This job requires the individual to have good hand eye coordination as also comply with industry regulations. Willingness to work, strong work ethics and courteous behaviour with co workers are equally desirable. He should also be physically agile, strong, have good eye sight and not suffer from colour-blindness.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [IES/N0128: Carry out pre operation checks on crawler crane](#)
2. [IES/N0129: Operate crawler crane](#)
3. [IES/N0130: Perform routine maintenance and troubleshooting of crawler crane](#)
4. [IES/N7601: Comply with worksite health and safety guidelines](#)

Qualification Pack (QP) Parameters

Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2004/8333.18
Minimum Educational Qualification & Experience	8th Class with 2-3 Years of experience In lieu of minimum qualification, the incumbent should have 2 years of experience inoperating crawler crane.
Minimum Level of Education for Training in School	

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Pre-Requisite License or Training	1. Certification Training in Crawler Crane operations preferred.2. Must have a valid Heavy Commercial Vehicle Driving License (HCV)
Minimum Job Entry Age	18 Years
Last Reviewed On	31/03/2015
Next Review Date	31/03/2020
NSQC Approval Date	18/06/2015
Version	1.0

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IES/N0128: Carry out pre operation checks on crawler crane

Description

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that need to be carried out to prepare the Crawler crane for operation.

Scope

This unit/task covers the following: Pre-operation checks Documentation and Reporting

Elements and Performance Criteria

Pre-Operation Checks

To be competent, the user/individual on the job must be able to:

- PC1.** adhere to time limits given by supervisor
- PC2.** visually inspect the crane body components for cracks and wear
- PC3.** ensure that all decals are legible and in place as per operation manual
- PC4.** ensure there is no hydraulic oil leak
- PC5.** ascertain proper oil level as per manufacturers indicator
- PC6.** make sure no battery fluid leaks and there is proper fluid level as per manufacturers indicator
- PC7.** inspect tyres and ensure proper tire pressure and lug nut torque as per manufacturers indicator
- PC8.** check engine oil to ensure no oil leaks
- PC9.** check the holding and control breaks to ensure that they are functioning properly
- PC10.** ascertain proper fuel and fluid levels as per manufacturers indicator
- PC11.** Ensure the following components do not have any areas for damage, improperly installed or missing parts as per the manufacturer s manual: Electrical components, wiring and electrical cables Hydraulic power unit, reservoir, hoses, fittings, cylinders and manifolds Tires and wheels Trailer lights and reflectors Parking brake, and electric braking system (including the breakaway system) Drive wheel and motor
- PC12.** Get the following components checked as per operation manual: Hoist Limit switches Pins, nuts, bolts and other fasteners Hitch components Safety chains Engines their fuel systems and related components Hoist Crawler track Personal protective devices
- PC13.** ensure that all structural and other critical components are present as per operation manual
- PC14.** ensure that all associated fasteners and pins are in place and properly tightened as per operation manual
- PC15.** maintain a checking/maintenance logbook to record all activities performed before starting the excavator

Documentation and Reporting

To be competent, the user/individual on the job must be able to:

- PC16.** report defects precisely to the supervisor if beyond scope of his role

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Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organizations procedures and guidelines related to crawler crane
- KU2.** job specific documents e.g. daily maintenance checklist and importance of the same
- KU3.** common hazards in the work area and workplace procedures to deal with them
- KU4.** safety policy of the company
- KU5.** emergency organization of the specific work site
- KU6.** risk and impact of not following defined procedures/ work instructions
- KU7.** the performance standards & procedures followed in the company
- KU8.** reporting structure in the company
- KU9.** escalation matrix for reporting unresolved problems
- KU10.** timeframe in which the complaint/problem should be resolved
- KU11.** implications of delays in process to the company
- KU12.** cost of equipment and loss for the company that result from damage of equipment and direct/ indirect cost of accidents
- KU13.** work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process
- KU14.** location of tools
- KU15.** contact person in case of queries on procedure or products
- KU16.** location and process for storage and disposal of waste material
- KU17.** the uses and function of crawler cranes
- KU18.** working of engine, transmission, their use and function
- KU19.** different types of hydraulic mechanisms
- KU20.** significance of greasing and oiling parts of crane that need routine lubrication
- KU21.** the location and operation of instrument
- KU22.** usage of hoists
- KU23.** the various controls, levers and switches needed to operate the crane properly
- KU24.** engine, hydraulic & electrical functions of a mobile crane
- KU25.** methods to identify damage, defects, cracks or leaks beforehand

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** record any deviations/ incidents as per prescribed norms
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** read instructions, guidelines/procedures/rules related to the worksite and equipment operations
- GS4.** give clear instructions to co-workers, subordinates and other personnel
- GS5.** use correct technical terms while interacting with supervisor

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- GS6.** decide when to conduct maintenance checks
- GS7.** work with supervisors/ team mates to carry out work related tasks
- GS8.** plan work according to the required schedule and location
- GS9.** plan for cleaning and lubricating the crawler crane every day
- GS10.** provide service of the highest order to ensure customer satisfaction
- GS11.** identify immediate or temporary solutions to resolve mechanical issues
- GS12.** judge when to seek assistance from supervisor
- GS13.** identify cause and effect relations in his area of work
- GS14.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Pre-Operation Checks</i>	5	27	-	-
PC1. adhere to time limits given by supervisor	1	1	-	-
PC2. visually inspect the crane body components for cracks and wear	-	1	-	-
PC3. ensure that all decals are legible and in place as per operation manual	-	1	-	-
PC4. ensure there is no hydraulic oil leak	1	1	-	-
PC5. ascertain proper oil level as per manufacturers indicator	-	3	-	-
PC6. make sure no battery fluid leaks and there is proper fluid level as per manufacturers indicator	1	3	-	-
PC7. inspect tyres and ensure proper tire pressure and lug nut torque as per manufacturers indicator	-	1	-	-
PC8. check engine oil to ensure no oil leaks	-	1	-	-
PC9. check the holding and control breaks to ensure that they are functioning properly	-	3	-	-
PC10. ascertain proper fuel and fluid levels as per manufacturers indicator	-	3	-	-
PC11. Ensure the following components do not have any areas for damage, improperly installed or missing parts as per the manufacturer s manual: Electrical components, wiring and electrical cables Hydraulic power unit, reservoir, hoses, fittings, cylinders and manifolds Tires and wheels Trailer lights and reflectors Parking brake, and electric braking system (including the breakaway system) Drive wheel and motor	1	3	-	-
PC12. Get the following components checked as per operation manual: Hoist Limit switches Pins, nuts, bolts and other fasteners Hitch components Safety chains Engines their fuel systems and related components Hoist Crawler track Personal protective devices	-	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. ensure that all structural and other critical components are present as per operation manual	-	1	-	-
PC14. ensure that all associated fasteners and pins are in place and properly tightened as per operation manual	1	3	-	-
PC15. maintain a checking/maintenance logbook to record all activities performed before starting the excavator	-	1	-	-
<i>Documentation and Reporting</i>	-	3	-	-
PC16. report defects precisely to the supervisor if beyond scope of his role	-	3	-	-
NOS Total	5	30	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	IES/N0128
NOS Name	Carry out pre operation checks on crawler crane
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2015
Next Review Date	31/03/2017
NSQC Clearance Date	

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IES/N0129: Operate crawler crane

Description

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for operating a Crawler Crane.

Scope

This unit/task covers the following: Start Crawler Crane operations loading and hauling of the load Stacking

Elements and Performance Criteria

Start Crawler Crane operations

To be competent, the user/individual on the job must be able to:

- PC1.** plan and organize the job according to given instructions
- PC2.** position the hook to attach sling, shackle and chains as per operations manual
- PC3.** start the engine as specified by the manufacturer and
- PC4.** ensure coolant and hydraulic fluid warm up to operating temperatures as per operating manual
- PC5.** check the assembly and ensure that relevant safety measures as per safety guidelines taken

Loading and hauling of the load

To be competent, the user/individual on the job must be able to:

- PC6.** use the emergency stop button to disable all power to the crawler crane in case of a crisis, as per operator manual
- PC7.** ensure safe working load as per operation manual
- PC8.** check wind speeds are within the crane's operational limits
- PC9.** select the appropriate hook, jib, as per the load, site and lift conditions
- PC10.** ensure appropriate boom extension as per operation manual
- PC11.** hoist and release the load at a small height to check the holding and control breaks are functioning properly, ahead of the actual lifting
- PC12.** carry out lifting of load in coordination with rigger as per the requirement
- PC13.** monitor stability whilst moving a load
- PC14.** ensure good visibility of both ends of the crane arm at all times
- PC15.** ensure no obstacles, personnel or other obstructions during lifting operation
- PC16.** look out for people working and hazards such as trenches, potholes and cables
- PC17.** adhere to time limits given by the supervisors
- PC18.** perform in-operation visual checks on critical temperature and pressure gauges as per operation manual
- PC19.** select and use the right type of brake in different situations and conditions as per the operation manual
- PC20.** ensure that walkway rules e.g. operating the crane within the permissible/ allocated areas are followed

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- PC21.** utilize judiciously various signaling devices available in the crane
- PC22.** keep a safe distance from other plant or vehicles
- PC23.** work safely in accordance with operational requirements and associated safe systems of work

Stacking

To be competent, the user/individual on the job must be able to:

- PC24.** discharge the load safely at the position and in the manner designated by the supervisor
- PC25.** follow the instructions by the rigger
- PC26.** operate and control the boom and extensions as per operation manual
- PC27.** ensure laydown area is sufficient in size to accommodate load
- PC28.** ensure laydown area is clear of any obstruction and
- PC29.** ensure that no other operators travel on or stand near the crawler crane
- PC30.** inform supervisor/rigger of any problems while operating the crawler crane
- PC31.** shut down and secure the machine properly when it is unattended

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organizations procedures and guidelines related to breakdown & maintenance services
- KU2.** the performance standards & procedures followed in the company
- KU3.** reporting structure in the company
- KU4.** escalation matrix for reporting unresolved problems
- KU5.** timeframe in which the complaint/problem should be resolved
- KU6.** work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process
- KU7.** location of tools
- KU8.** contact person in case of queries on procedure or products
- KU9.** location and process for storage and disposal of waste material
- KU10.** safety policy of the company
- KU11.** equipment load capacity limitations
- KU12.** methods to read load charts and accurately determine the load to be lifted
- KU13.** terrain appropriate for crawler crane function
- KU14.** the causes of equipment related accidents and associated preventative measures
- KU15.** the manufacturers criteria for equipment operations
- KU16.** the manufacturers criteria for equipment modifications
- KU17.** method of appropriate rigging hardware and slings
- KU18.** usage of different types of rigging configurations
- KU19.** load hook-up points
- KU20.** types of material, methods and tools involved in the construction or repair of buildings, roads, heavy engineering equipment, oil wells, metro etc. where cranes are used.

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- KU21.** techniques of hoisting operation
- KU22.** the method of checking holding and control brakes
- KU23.** method of safe rigging
- KU24.** usage of rigging hardware and tool
- KU25.** multi-crane operations
- KU26.** conditions and hazards that may impact crane stability
- KU27.** crane tipping prevention techniques.
- KU28.** methods to communicate through hand signals
- KU29.** government rules and other rules prescribed under safety standards related to crane operations
- KU30.** introduction to engine, transmission, their use and function
- KU31.** different types of hydraulic mechanisms
- KU32.** instruments panel, their location and operation
- KU33.** controls, levers and switches in order to operate the crawler crane properly
- KU34.** visual checks to identify damage, defects or leaks beforehand
- KU35.** usage of all safety signs and other emergency signals
- KU36.** the location and use of the emergency stop button

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** record any deviations/ incidents as per prescribed norms
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** interpret stakes and signage on the road and during worksite operations
- GS4.** read instructions, guidelines/procedures/rules related to the worksite and equipment operations
- GS5.** give clear instructions to co-workers, subordinates and other personnel
- GS6.** use correct technical terms while interacting with supervisor
- GS7.** assess for any damage/faulty component in the tyre mounted crane and take action accordingly
- GS8.** decide when to perform appropriate driving operations i.e forward, reverse, 'u' turn, tight spot
- GS9.** work with supervisors/ team mates to carry out work related tasks
- GS10.** plan work according to the required schedule and location
- GS11.** plan for regular maintenance on a daily basis before machine operations
- GS12.** provide service of the highest order to ensure customer satisfaction
- GS13.** identify immediate or temporary solutions to resolve mechanical issues
- GS14.** judge when to seek assistance from supervisor
- GS15.** identify possible ways to improve operational efficiency
- GS16.** suggest methods to avoid accidents/errors while operating machine



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GS17. analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Start Crawler Crane operations</i>	1	9	-	-
PC1. plan and organize the job according to given instructions	-	1	-	-
PC2. position the hook to attach sling, shackle and chains as per operations manual	1	3	-	-
PC3. start the engine as specified by the manufacturer and	-	1	-	-
PC4. ensure coolant and hydraulic fluid warm up to operating temperatures as per operating manual	-	3	-	-
PC5. check the assembly and ensure that relevant safety measures as per safety guidelines taken	-	1	-	-
<i>Loading and hauling of the load</i>	5	26	-	-
PC6. use the emergency stop button to disable all power to the crawler crane in case of a crisis, as per operator manual	-	1	-	-
PC7. ensure safe working load as per operation manual	-	1	-	-
PC8. check wind speeds are within the crane's operational limits	-	1	-	-
PC9. select the appropriate hook, jib, as per the load, site and lift conditions	-	3	-	-
PC10. ensure appropriate boom extension as per operation manual	-	1	-	-
PC11. hoist and release the load at a small height to check the holding and control breaks are functioning properly, ahead of the actual lifting	-	3	-	-
PC12. carry out lifting of load in coordination with rigger as per the requirement	1	1	-	-
PC13. monitor stability whilst moving a load	-	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. ensure good visibility of both ends of the crane arm at all times	-	1	-	-
PC15. ensure no obstacles, personnel or other obstructions during lifting operation	-	1	-	-
PC16. look out for people working and hazards such as trenches, potholes and cables	1	1	-	-
PC17. adhere to time limits given by the supervisors	-	1	-	-
PC18. perform in-operation visual checks on critical temperature and pressure gauges as per operation manual	1	1	-	-
PC19. select and use the right type of brake in different situations and conditions as per the operation manual	-	1	-	-
PC20. ensure that walkway rules e.g. operating the crane within the permissible/ allocated areas are followed	-	3	-	-
PC21. utilize judiciously various signaling devices available in the crane	1	1	-	-
PC22. keep a safe distance from other plant or vehicles	-	3	-	-
PC23. work safely in accordance with operational requirements and associated safe systems of work	1	1	-	-
<i>Stacking</i>	1	8	-	-
PC24. discharge the load safely at the position and in the manner designated by the supervisor	-	1	-	-
PC25. follow the instructions by the rigger	-	1	-	-
PC26. operate and control the boom and extensions as per operation manual	-	1	-	-
PC27. ensure laydown area is sufficient in size to accommodate load	-	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC28. ensure laydown area is clear of any obstruction and	-	1	-	-
PC29. ensure that no other operators travel on or stand near the crawler crane	-	1	-	-
PC30. inform supervisor/rigger of any problems while operating the crawler crane	1	1	-	-
PC31. shut down and secure the machine properly when it is unattended	-	1	-	-
NOS Total	7	43	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	IES/N0129
NOS Name	Operate crawler crane
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2015
Next Review Date	31/03/2017
NSQC Clearance Date	

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IES/N0130: Perform routine maintenance and troubleshooting of crawler crane

Description

This unit provides Performance Criteria, Knowledge & Understanding and Skills & Ability for activities that are required for performing routine maintenance and troubleshooting on the Crawler Crane.

Scope

This unit/task covers the following: Routine maintenance Basic diagnostics and troubleshooting Documentation and reporting

Elements and Performance Criteria

Routine maintenance

To be competent, the user/individual on the job must be able to:

- PC1.** assess the right service schedule by tracking machine operating hours
- PC2.** check crane structure and the following accessories as per operation & maintenance manual
- PC3.** crane structure for deformed, cracked or corroded members in the structure and boom. Loose bolts or rivets. Excessive wear on brake and clutch system parts. Deformed wedges. Defective cotter keys, pins and guardrails.
- PC4.** check for the following in hydraulic system of Cranes as per operation & maintenance manual: Deterioration or leakage in air or hydraulic systems Safe and effective operation on hoses, pumps and motors Levels of fluid Air cleaners for replacement or cleaning
- PC5.** check for the following Control Mechanisms and Monitoring Devices as per operation & maintenance manual Cables, brakes and levers for poor adjustment or excessive wear. Marking on the load/radius indicator over full range. Load moment indicator, Boom angle indicator, Boom length indicator and Anti two-block system
- PC6.** check crawler track as per operation manual
- PC7.** check wire ropes for wear and tear
- PC8.** Check the following in the main boom as per operation manual lift cylinder(s) telescoping cylinder(s) hydraulic hoses / tubing & fittings holding device boom sections alignment auxiliary boom head and structure
- PC9.** Check the following in the Lattice boom extension boom extension alignment cords lattices end connections
- PC10.** replenish coolants, lubricants and fluids as per operation & maintenance manual
- PC11.** grease all greasing pins and pivot points as per operation & maintenance manual
- PC12.** check battery levels and condition of the terminals and carry out minor adjustments as per manufacturers indicators
- PC13.** check and maintain the tire rims, air pressure, wheel nuts and treads as per manufacturers indicators

Basic diagnostics and troubleshooting

To be competent, the user/individual on the job must be able to:

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- PC1.** track machine operating hours to assess the right service schedule
- PC2.** complete timely and legibly daily/ weekly maintenance sheets as provided by the company
- PC3.** ensure that suitable props/ support devices are used and the bucket is not raised while performing maintenance
- PC4.** ensure that no maintenance task on the engine is performed when running or still hot
- PC5.** assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel
- PC6.** diagnose the problem
- PC7.** handle and dispose waste based on environmental guidelines at the work place
- PC8.** follow reporting procedures as laid down by the employer
- PC9.** complete all documentation in the prescribed standards in a timely manner
- PC10.** report and escalate problems/ incidents as required in a timely manner
- PC11.** report defects precisely to the supervisor if beyond scope of his role

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organizations procedures and guidelines related to breakdown & maintenance services
- KU2.** the performance standards & procedures followed in the company
- KU3.** reporting structure in the company
- KU4.** escalation matrix for reporting unresolved problems
- KU5.** timeframe in which the complaint/problem should be resolved
- KU6.** work target and review mechanism with supervisor for obtaining/ giving feedback related to performance process
- KU7.** location of tools
- KU8.** contact person in case of queries on procedure or products
- KU9.** location and process for storage and disposal of waste material
- KU10.** safety policy of the company
- KU11.** various components of the equipment and their functions
- KU12.** control and switches needed to operate the crawler crane properly
- KU13.** basic physics and mechanics involved in various functions of the crawler crane
- KU14.** common defects and general causes of breakdown
- KU15.** response to emergency situations
- KU16.** the optimal levels of control indicators e.g. fuel gauge, engine oil pressure and temperature
- KU17.** possible sources of any unusual sound emanating from the engine

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** record any deviations/ incidents as per prescribed norms

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- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** read instructions, guidelines/procedures/rules related to the worksite and equipment operations
- GS4.** give clear instructions to co-workers, subordinates and other personnel
- GS5.** use correct technical terms while interacting with supervisor
- GS6.** decide when to conduct maintenance checks
- GS7.** evaluate the decision and conduct basic trouble shooting
- GS8.** work with supervisors/ team mates to carry out work related tasks
- GS9.** plan work according to the required schedule and location
- GS10.** plan for regular maintenance on a daily basis before machine operations
- GS11.** provide service of the highest order to ensure customer satisfaction
- GS12.** identify immediate or temporary solutions to resolve mechanical issues
- GS13.** judge when to seek assistance from supervisor
- GS14.** identify possible ways to improve operational efficiency
- GS15.** check for damages and diagnose common problems in the crawler crane and take relevant action
- GS16.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Routine maintenance</i>	6	25	-	-
PC1. assess the right service schedule by tracking machine operating hours	-	1	-	-
PC2. check crane structure and the following accessories as per operation & maintenance manual	-	1	-	-
PC3. crane structure for deformed, cracked or corroded members in the structure and boom. Loose bolts or rivets. Excessive wear on brake and clutch system parts. Deformed wedges. Defective cotter keys, pins and guardrails.	1	3	-	-
PC4. check for the following in hydraulic system of Cranes as per operation & maintenance manual: Deterioration or leakage in air or hydraulic systems Safe and effective operation on hoses, pumps and motors Levels of fluid Air cleaners for replacement or cleaning	1	1	-	-
PC5. check for the following Control Mechanisms and Monitoring Devices as per operation & maintenance manual Cables, brakes and levers for poor adjustment or excessive wear. Marking on the load/radius indicator over full range. Load moment indicator, Boom angle indicator, Boom length indicator and Anti two-block system	1	3	-	-
PC6. check crawler track as per operation manual	-	1	-	-
PC7. check wire ropes for wear and tear	1	3	-	-
PC8. Check the following in the main boom as per operation manual lift cylinder(s) telescoping cylinder(s) hydraulic hoses / tubing & fittings holding device boom sections alignment auxiliary boom head and structure	1	3	-	-
PC9. Check the following in the Lattice boom extension boom extension alignment cords lattices end connections	-	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. replenish coolants, lubricants and fluids as per operation & maintenance manual	-	1	-	-
PC11. grease all greasing pins and pivot points as per operation & maintenance manual	-	3	-	-
PC12. check battery levels and condition of the terminals and carry out minor adjustments as per manufacturers indicators	1	1	-	-
PC13. check and maintain the tire rims, air pressure, wheel nits and treads as per manufacturers indicators	-	1	-	-
<i>Basic diagnostics and troubleshooting</i>	5	13	-	-
PC1. track machine operating hours to assess the right service schedule	-	1	-	-
PC2. complete timely and legibly daily/ weekly maintenance sheets as provided by the company	1	1	-	-
PC3. ensure that suitable props/ support devices are used and the bucket is not raised while performing maintenance	-	1	-	-
PC4. ensure that no maintenance task on the engine is performed when running or still hot	-	3	-	-
PC5. assess when the problem is beyond his competence and report the problem to suitably qualified and competent personnel	1	1	-	-
PC6. diagnose the problem	-	1	-	-
PC7. handle and dispose waste based on environmental guidelines at the work place	1	1	-	-
PC8. follow reporting procedures as laid down by the employer	-	1	-	-
PC9. complete all documentation in the prescribed standards in a timely manner	-	1	-	-
PC10. report and escalate problems/ incidents as required in a timely manner	1	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. report defects precisely to the supervisor if beyond scope of his role	1	1	-	-
NOS Total	11	38	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	IES/N0130
NOS Name	Perform routine maintenance and troubleshooting of crawler crane
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2015
Next Review Date	31/03/2017
NSQC Clearance Date	

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IES/N7601: Comply with worksite health and safety guidelines

Description

This unit is about adhering to health and safety requirements at the worksite during equipment operations.

Scope

This unit/task covers the following: Worksite health and safety

Elements and Performance Criteria

Worksite health and safety

To be competent, the user/individual on the job must be able to:

- PC1.** comply with safety, health, security and environment related regulations/ guidelines at the work site
- PC2.** use personal protective equipment (ppe) and other safety gear such as seat belt, body protection, respiratory protection, eye protection, ear protection and hand protection
- PC3.** follow safety measures during operations to ensure that the health and safety of self or others (including members of the public) is not at risk
- PC4.** carry out operations as per the manufacturers and worksite related health and safety guidelines
- PC5.** handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines
- PC6.** follow safety regulations and procedures with regard to worksite hazards and risks
- PC7.** operate various grades of fire extinguishers, as applicable
- PC8.** support in administering basic first aid and report to concerned team members, as required, in case of an accident
- PC9.** respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** health, safety, environmental (hse) and security related policies/ guidelines of the organization and the worksite
- KU2.** the importance of complying with health, safety, environmental and security guidelines at the worksite and during operations
- KU3.** contact details of personnel responsible for health, safety and environment (hse) related matters
- KU4.** location of worksite storage, site team and safe assembly points
- KU5.** concerned personnel to reach out in case of emergencies and accidents/ incidents
- KU6.** reporting and documentation procedures for hse and security matters
- KU7.** manufacturers guidelines related to health and safety requirements

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- KU8.** common types of health, safety, environment and security risks related to the worksite and operations
- KU9.** types, use and importance of personal protective equipment (ppe) and other safety gear
- KU10.** safe working practices to avoid common hazards and risks
- KU11.** guidelines for transport, storage and disposal of hazardous materials and waste
- KU12.** types of common hazards and risks at the worksite including fire, electrical, gas emergencies, accidents, incidents, structure collapse, machine breakdown
- KU13.** knowledge of safe lockdown/ stop of machinery use in case of emergencies and incidents/ accidents
- KU14.** types of fire extinguishers and their use
- KU15.** common injuries and appropriate basic first aid treatment eg. electrical shock, bleeding, wounds, fractures, minor burns, eye injuries

Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** document and report any health and safety related incidents/ accidents
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** read all organizational and equipment related health and safety manuals and documents
- GS4.** read instructions, guidelines/procedures/rules related to the worksite and equipment operations
- GS5.** give clear instructions to co-workers, subordinates and other personnel
- GS6.** use correct technical terms while interacting with supervisor
- GS7.** make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines
- GS8.** use correct ppe and other safety gear while at the worksite
- GS9.** work with supervisors/ team mates to carry out work related tasks
- GS10.** plan work according to the required schedule and location
- GS11.** build and maintain positive and effective relationships with colleagues and customers
- GS12.** seek appropriate assistance from other sources to resolve problems
- GS13.** assess the intensity of the fire accident and operate fire extinguishers
- GS14.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently
- GS15.** document and report any health and safety related incidents/ accidents
- GS16.** read and comprehend basic english to read manuals of operations
- GS17.** read all organizational and equipment related health and safety manuals and documents
- GS18.** read instructions, guidelines/procedures/rules related to the worksite and equipment operations
- GS19.** give clear instructions to co-workers, subordinates and other personnel
- GS20.** use correct technical terms while interacting with supervisor
- GS21.** make an appropriate timely decision in responding to emergencies/accidents in line with organizational/ worksite guidelines

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- GS22.** use correct ppe and other safety gear while at the worksite
- GS23.** work with supervisors/ team mates to carry out work related tasks
- GS24.** plan work according to the required schedule and location
- GS25.** build and maintain positive and effective relationships with colleagues and customers
- GS26.** seek appropriate assistance from other sources to resolve problems
- GS27.** assess the intensity of the fire accident and operate fire extinguishers
- GS28.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Worksite health and safety</i>	6	24	-	-
PC1. comply with safety, health, security and environment related regulations/ guidelines at the work site	-	2	-	-
PC2. use personal protective equipment (ppe) and other safety gear such as seat belt, body protection, respiratory protection, eye protection, ear protection and hand protection	1	3	-	-
PC3. follow safety measures during operations to ensure that the health and safety of self or others (including members of the public) is not at risk	1	3	-	-
PC4. carry out operations as per the manufacturers and worksite related health and safety guidelines	1	2	-	-
PC5. handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines	1	3	-	-
PC6. follow safety regulations and procedures with regard to worksite hazards and risks	1	2	-	-
PC7. operate various grades of fire extinguishers, as applicable	-	3	-	-
PC8. support in administering basic first aid and report to concerned team members, as required, in case of an accident	1	3	-	-
PC9. respond promptly and appropriately to an accident/ incident or emergency situation, within limits of your role and responsibility	-	3	-	-
NOS Total	6	24	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	IES/N7601
NOS Name	Comply with worksite health and safety guidelines
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	31/03/2015
Next Review Date	31/03/2017
NSQC Clearance Date	18/06/2015

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Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each Element/ PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Recommended Pass % : 70

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
IES/N0128.Carry out pre operation checks on crawler crane	5	30	-	-	35	22
IES/N0129.Operate crawler crane	7	43	-	-	50	30
IES/N0130.Perform routine maintenance and troubleshooting of crawler crane	11	38	-	-	49	30

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National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
IES/N7601. Comply with worksite health and safety guidelines	6	24	-	-	30	18
Total	29	135	-	-	164	100

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Qualification Pack

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

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Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.