



- PAVER

Paver Operator

QP Code: IES/Q0120

NSQF Level: 4

Infrastructure Equipment Skill Council || Infrastructure Equipment Skill Council, Avik Royale-First Floor
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Qualification Pack

Contents

IES/Q0120: Paver Operator	3
<i>Brief Job Description</i>	3
Applicable National Occupational Standards (NOS)	3
<i>Compulsory NOS</i>	3
<i>Qualification Pack (QP) Parameters</i>	3
IES/N0158: Carry out Pre-operational checks on a paver	5
IES/N0159: Operate a paver	12
IES/N0160: Perform routine maintenance and troubleshooting of the paver	18
IES/N7601: Comply with worksite health and safety guidelines	24
Assessment Guidelines and Weightage	29
<i>Assessment Guidelines</i>	29
<i>Assessment Weightage</i>	29
Acronyms	31
Glossary	32

Qualification Pack

IES/Q0120: Paver Operator

Brief Job Description

The paver operator is required to operate the pavers to spread and level hot bituminous paving materials on areas such as highways, streets and parking areas.

Personal Attributes

The job requires an individual to be physically agile, strong and should have good eye sight. He should maintain constant alertness to the multiple concurrent activities during the operation at the construction site, including the activities of other employees, contractors etc. He should possess basic math skills and is required to be mentally alert at all times.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [IES/N0158: Carry out Pre-operational checks on a paver](#)
2. [IES/N0159: Operate a paver](#)
3. [IES/N0160: Perform routine maintenance and troubleshooting of the paver](#)
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-2004/8332.50/3112.40
Minimum Educational Qualification & Experience	8th Class with 2-3 Years of experience For existing operators, experience as Junior Paver Operator OR 10th Class with 0-6 Months of experience For freshers
Minimum Level of Education for Training in School	

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Pre-Requisite License or Training	1. Certification Training in Paver Operations preferred. 2. Must have a valid Heavy Commercial Vehicle Driving License (HCV)
Minimum Job Entry Age	18 Years
Last Reviewed On	26/04/2016
Next Review Date	30/06/2020
NSQC Approval Date	09/10/2017
Version	1.0

Qualification Pack

IES/N0158: Carry out Pre-operational checks on a paver

Description

This unit insight into activities that need to be carried out to carry out preoperational checks on the paver machines.

Scope

This unit/task covers the following:

- Pre-operational Checks
- Wheeled Paver
- Tracked Paver
- Reporting and documentation

Elements and Performance Criteria

Pre-operational Checks

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

- PC1.** visually inspect the machine for any malfunctioning, missing or broken parts
- PC2.** ensure all covers and guards are in place
- PC3.** check conditions of parking brake / service brake, main horn, reverse horn, head light and warning lights
- PC4.** inspect screed plate, tamping bar and screed attack angle for any damages
- PC5.** check the various controls (including governor on engine), gauges, feeders, conveyors, feed control gates, augers, screed, screed heater, and sensing and control equipment
- PC6.** ensure oil levels of engine, transmission, radiator, and coolant and battery electrolyte level are as per the required levels
- PC7.** check the alternator and brackets for tightness
- PC8.** check for leaks in transmission / propulsion system / hydraulic hoses and take necessary actions as per the operational manual
- PC9.** inspect the air-induction system to ensure that all connections are tight and intact
- PC10.** check the air filter indicator for any malfunctioning
- PC11.** inspect screed assembly and sensor assembly for damage, wear and hose leaks
- PC12.** inspect hopper system for wear or damage
- PC13.** inspect operator's cabin, control console steps, and hand holds are clean and free of grease, oil, dirt, mud and asphalt
- PC14.** inspect instrument panel including all gauges for any indicators of malfunctioning
- PC15.** enter operating platform using step and grab handles for safety (3point climbing procedure)
- PC16.** check for the dirt evacuator which is located at the bottom of the air filter canister
- PC17.** visually inspect the machine for any malfunctioning, missing or broken parts
- PC18.** check the pumps, motors, electrical wires and connections, steps and support for any repairs

Qualification Pack

- PC19.** ensure that the propane/ lpg cylinder regulator is properly fitted and the pressure gauges are in good working condition
- PC20.** spray cleaning solvent or release agent on any part of the paver that comes in contact with asphalt
- PC21.** ensure daily maintenance checks and greasing as per manufacturer specifications is carried out
- PC22.** check if the safety by-pass valve is kept at correct setting
- PC23.** check the engine safety switch for any malfunctioning
- PC24.** inspect the main control unit in cabin and on the screed for proper functioning
- PC25.** ensure fire extinguisher is properly calibrated and available in the site at all times during paving
- PC26.** check the electronic / manual burner system and all ignition control units and heating system
- PC27.** check the electrical heating system for the screed if fitted
- PC28.** check and inspect the main control unit in cabin and on the screed for proper functioning of all machine systems and buttons functionality and emergency stop
- PC29.** check the front wheel assist relief pressure. it should be set according to the operating surface.(addition)
- PC30.** inspect the tow arms, and the tow cylinder for any cracks or damages(addition)
- PC31.** check for general hydraulic hoses/fittings for any leaks(addition)

Wheeled Paver

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

- PC32.** check the inflation pressure of the tyres as per the prescribed norms/ the requirement of the ground

Tracked Paver

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

- PC33.** check for track tension and adjust them to measurements prescribed in the manual

Reporting and documentation

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

- PC34 .** maintain a checking/maintenance logbook to record all activities performed before starting the operation
- PC35 .** report defects precisely to the supervisor if beyond scope of the role

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organization's procedures and guidelines related to breakdown & maintenance services
- KU2.** the performance standards & procedures followed in the company
- KU3.** reporting structure in the company
- KU4.** timeframe in which the complaint/problem should be resolved
- KU5.** contact person in case of queries on procedure or equipment's
- KU6.** location and process for storage and disposal of waste material

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- KU7.** safety policy of the company; includes the customer and manufacturer policy
- KU8.** location of tools
- KU9.** types of pavers- wheeled pavers - tracked pavers
- KU10.** primary parts of paver - tractor unit - screed unit
- KU11.** components of tractor unit and screed unit and its functioning - truck push rollers - mixture receiving hopper - material flow gates - two side conveyors - a pair of distributor augers - burners, - rod-extensions and auger extension flights, strike-off plates and safety guards for the auger tunnel - match-height - straight line indicator rod kept below the push rollers in front of machine - vibration, pressure bar and tamping system on the screed
- KU12.** attachments for paver and its uses - reference ski - also known as big-ski - cut-off plates / strike-off plates - screed and auger extensions, auger tunnel extension plates and safety guard frames - night lights - automatic sensor system (includes the grade and slope sensor and the controller units)
- KU13.** basics of screed heating
- KU14.** basics of engine transmission, propulsion / drive system & their use and function
- KU15.** basic hydro-electrical functioning and repairs
- KU16.** different types of hydraulic mechanisms and principles of friction
- KU17.** significance and methods of lubricating different parts of the paver
- KU18.** procedure of filling diesel, coolant in the machine
- KU19.** optimal engine oil pressure, radiator coolant temperature
- KU20.** different types of machine guards for equipment

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 and regional as applicable to read manuals of operations, guidelines, etc.
- GS3.** comprehend basic sign and symbols at the worksite
- GS4.** give clear instructions to co-workers, subordinates and other persons
- GS5.** use correct technical terms while interacting with supervisor
- GS6.** decide when to conduct maintenance checks as per manufacturer specifications
- 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 appropriate equipment every day
- GS10.** provide service of the highest order to ensure customer satisfaction
- GS11.** compliance to the set standards given by the customer
- GS12.** identify immediate or temporary solutions to resolve mechanical issues
- GS13.** judge when to seek assistance from supervisor
- GS14.** identify cause and effect relations in his area of work
- GS15.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, and communication to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Pre-operational Checks</i>	9	18	-	-
PC1. visually inspect the machine for any malfunctioning, missing or broken parts	0.5	0.5	-	-
PC2. ensure all covers and guards are in place	0.5	0.5	-	-
PC3. check conditions of parking brake / service brake, main horn, reverse horn, head light and warning lights	0.5	0.5	-	-
PC4. inspect screed plate, tamping bar and screed attack angle for any damages	0.5	1	-	-
PC5. check the various controls (including governor on engine), gauges, feeders, conveyors, feed control gates, augers, screed, screed heater, and sensing and control equipment	0.5	1	-	-
PC6. ensure oil levels of engine, transmission, radiator, and coolant and battery electrolyte level are as per the required levels	0.5	1	-	-
PC7. check the alternator and brackets for tightness	-	0.5	-	-
PC8. check for leaks in transmission / propulsion system / hydraulic hoses and take necessary actions as per the operational manual	-	1	-	-
PC9. inspect the air-induction system to ensure that all connections are tight and intact	-	0.5	-	-
PC10. check the air filter indicator for any malfunctioning	-	0.5	-	-
PC11. inspect screed assembly and sensor assembly for damage, wear and hose leaks	-	0.5	-	-
PC12. inspect hopper system for wear or damage	-	0.5	-	-
PC13. inspect operator's cabin, control console steps, and hand holds are clean and free of grease, oil, dirt, mud and asphalt	0.5	0.5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. inspect instrument panel including all gauges for any indicators of malfunctioning	0.5	0.5	-	-
PC15. enter operating platform using step and grab handles for safety (3point climbing procedure)	0.5	0.5	-	-
PC16. check for the dirt evacuator which is located at the bottom of the air filter canister	-	0.5	-	-
PC17 . visually inspect the machine for any malfunctioning, missing or broken parts	-	0.5	-	-
PC18. check the pumps, motors, electrical wires and connections, steps and support for any repairs	-	0.5	-	-
PC19. ensure that the propane/ lpg cylinder regulator is properly fitted and the pressure gauges are in good working condition	0.5	0.5	-	-
PC20. spray cleaning solvent or release agent on any part of the paver that comes in contact with asphalt	0.5	0.5	-	-
PC21. ensure daily maintenance checks and greasing as per manufacturer specifications is carried out	0.5	0.5	-	-
PC22. check if the safety by-pass valve is kept at correct setting	-	0.5	-	-
PC23. check the engine safety switch for any malfunctioning	-	0.5	-	-
PC24. inspect the main control unit in cabin and on the screed for proper functioning	-	0.5	-	-
PC25. ensure fire extinguisher is properly calibrated and available in the site at all times during paving	0.5	0.5	-	-
PC26. check the electronic / manual burner system and all ignition control units and heating system	0.5	0.5	-	-
PC27. check the electrical heating system for the screed if fitted	0.5	0.5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC28. check and inspect the main control unit in cabin and on the screed for proper functioning of all machine systems and buttons functionality and emergency stop	0.5	1	-	-
PC29. check the front wheel assist relief pressure. it should be set according to the operating surface.(addition)	0.5	0.5	-	-
PC30. inspect the tow arms, and the tow cylinder for any cracks or damages(addition)	0.5	0.5	-	-
PC31. check for general hydraulic hoses/fittings for any leaks(addition)	-	0.5	-	-
<i>Wheeled Paver</i>	-	0.5	-	-
PC32. check the inflation pressure of the tyres as per the prescribed norms/ the requirement of the ground	-	0.5	-	-
<i>Tracked Paver</i>	-	0.5	-	-
PC33. check for track tension and adjust them to measurements prescribed in the manual	-	0.5	-	-
<i>Reporting and documentation</i>	1	1	-	-
PC34 . maintain a checking/maintenance logbook to record all activities performed before starting the operation	0.5	0.5	-	-
PC35 . report defects precisely to the supervisor if beyond scope of the role	0.5	0.5	-	-
NOS Total	10	20	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	IES/N0158
NOS Name	Carry out Pre-operational checks on a paver
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	26/04/2016
Next Review Date	30/04/2018
NSQC Clearance Date	

Qualification Pack

IES/N0159: Operate a paver

Description

This unit provides insight into activities that are required for starting and running the paver machine

Scope

This unit/task covers the following:

- Starting and driving the paver machine
- Shut down procedures
- Reporting and documentation

Elements and Performance Criteria

Starting and driving the paver machine

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

- PC1.** ensure the joystick is in neutral position before turning on the paver
- PC2.** fasten seat belt and adjusts seat position as per one's comfort and safety
- PC3.** place the throttle in idle position or by pressing and holding throttle switch in the up and down position.
- PC4.** start the engine using the starting key on instrument panel
- PC5.** re-checks all gauges when engine starts for any inappropriate noise or malfunctioning
- PC6.** preheat paving screed before placing the asphalt as per the set standards
- PC7.** monitor and control temperature during the process to suit the requirements
- PC8.** operate the paver controls to lower the screed auger, control the hopper, and navigate the direction of the paver as per the requirement of the surface
- PC9.** align the paving machine into position when receiving asphalt by dump truck, and maintain constant flow of asphalt into hopper; ease paver forward, safely pushing dump truck along construction surface
- PC10.** observe distribution of asphalt materials from the hopper to the conveyor and to the auger along the screed width
- PC11.** observe distribution of asphalt materials along the screed and control the direction of the screed to eliminate voids at curbs and joints
- PC12.** attach extensions to screed to adjust width as per the surface thickness requirement

Shut down procedure

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

- PC13.** park the paver on a flat even surface before shutting down the equipment
- PC14.** lower all attachments to ground level as per the operational manual
- PC15.** place transmission in neutral
- PC16.** run engine at 1/2 speed (RPM) without load for 3 to 5 minutes
- PC17.** clean components (such as hopper, augers, conveyors, extensions) according to manufacturers' specifications and company policies and procedures

Qualification Pack

PC18. shut down equipment according to manufacturers' specifications

Reporting and documentation

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

PC19. record input and output flow as per the desired formats of the organization

PC20 . report to the supervisor of any problems while operating the paver

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the organization's procedures and guidelines related to breakdown & maintenance services

KU2. the performance standards & procedures followed in the company

KU3. reporting structure in the company

KU4. timeframe in which the complaint/problem should be resolved

KU5. contact person in case of queries on procedure or equipment's

KU6. location and process for storage and disposal of waste material

KU7. safety policy of the company; includes the customer and manufacturer policy

KU8. types of pavers- - wheeled pavers - tracked pavers

KU9. primary parts of paver - tractor unit - screed unit

KU10. components of tractor unit and screed unit and its functioning - truck push rollers, - mixture receiving hopper, - material flow gates, - two slat conveyors and - a pair of distributor augers. - burners, - rod-extensions and auger extension flights, strike-off plates and safety guards for the auger tunnel - match-height - straight line indicator rod kept below the push rollers in front of machine - vibration, pressure bar and tamping system on the screed

KU11. attachments for paver and its uses - reference ski - also known as big-ski - cut-off plates / strike-off plates - screed and auger extensions, auger tunnel extension plates and safety guard frames - night lights - automatic sensor system (includes the grade and slope sensor and the controller units)

KU12. basics of screed heating

KU13. road layers, materials and characteristics

KU14. basics of engine transmission, propulsion / drive system & their use and function

KU15. basic hydro-electrical functioning and repairs.

KU16. different types of hydraulic mechanisms and principles of friction

KU17. steering mechanisms and correct way of steering on roads

KU18. screed mechanism and its uses

KU19. controls, levers and switches in order to operate the paver

KU20. the various types of hand signals used on the site

KU21. optimal engine oil pressure, radiator coolant temperature

KU22. different types of machine guards for equipment

KU23. road safety rules and signs

Generic Skills (GS)

Qualification Pack

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 and regional language as applicable to read manuals of operations, guidelines, etc.
- GS3.** comprehend basic sign and symbols at the worksite
- GS4.** give clear instructions to co-workers, subordinates and other persons
- GS5.** use correct technical terms while interacting with supervisor
- GS6.** decide when to conduct maintenance checks as per manufacturer specifications
- GS7.** work with supervisors/ team mates to carry out work related tasks
- GS8.** plan work according to the required schedule and location
- GS9.** provide service of the highest order to ensure customer satisfaction
- GS10.** identify immediate or temporary solutions to resolve mechanical issues
- GS11.** judge when to seek assistance from supervisor
- GS12.** identify cause and effect relations in his area of work
- GS13.** analyse, evaluate and apply the information gathered from observation, experience, reasoning, and communication to act efficiently

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Starting and driving the paver machine</i>	8	14	-	-
PC1. ensure the joystick is in neutral position before turning on the paver	0.5	0.5	-	-
PC2. fasten seat belt and adjusts seat position as per one's comfort and safety	1	0.5	-	-
PC3. place the throttle in idle position or by pressing and holding throttle switch in the up and down position.	0.5	1	-	-
PC4. start the engine using the starting key on instrument panel	1	0.5	-	-
PC5. re-checks all gauges when engine starts for any inappropriate noise or malfunctioning	1	1	-	-
PC6. preheat paving screed before placing the asphalt as per the set standards	1	1	-	-
PC7. monitor and control temperature during the process to suit the requirements	0.5	1	-	-
PC8. operate the paver controls to lower the screed auger, control the hopper, and navigate the direction of the paver as per the requirement of the surface	0.5	3	-	-
PC9. align the paving machine into position when receiving asphalt by dump truck, and maintain constant flow of asphalt into hopper; ease paver forward, safely pushing dump truck along construction surface	0.5	3	-	-
PC10. observe distribution of asphalt materials from the hopper to the conveyor and to the auger along the screed width	0.5	1	-	-
PC11. observe distribution of asphalt materials along the screed and control the direction of the screed to eliminate voids at curbs and joints	0.5	1	-	-
PC12. attach extensions to screed to adjust width as per the surface thickness requirement	0.5	0.5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Shut down procedure</i>	3	7	-	-
PC13. park the paver on a flat even surface before shutting down the equipment	0.5	1	-	-
PC14. lower all attachments to ground level as per the operational manual	0.5	2	-	-
PC15. place transmission in neutral	0.5	0.5	-	-
PC16. run engine at 1/2 speed (RPM) without load for 3 to 5 minutes	0.5	0.5	-	-
PC17. clean components (such as hopper, augers, conveyors, extensions) according to manufacturers' specifications and company policies and procedures	0.5	2	-	-
PC18. shut down equipment according to manufacturers' specifications	0.5	1	-	-
<i>Reporting and documentation</i>	1	2	-	-
PC19. record input and output flow as per the desired formats of the organization	0.5	1	-	-
PC20 . report to the supervisor of any problems while operating the paver	0.5	1	-	-
NOS Total	12	23	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	IES/N0159
NOS Name	Operate a paver
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	26/04/2016
Next Review Date	30/04/2018
NSQC Clearance Date	

Qualification Pack

IES/N0160: Perform routine maintenance and troubleshooting of the paver

Description

This unit provides insight into activities that are required for performing routine maintenance and troubleshooting of paver.

Scope

This unit/task covers the following:

- Routine maintenance of paver machine
- Repair and trouble shooting
- Documentation and reporting

Elements and Performance Criteria

Routine maintenance of the paver machine

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 the electronic control unit of the paver for any service / maintenance information
- PC3.** follow instructions concerning safety that are attached onto the vehicle
- PC4.** clean air filter dust bowls, footplates, pedals and steps regularly and
- PC5.** replenish coolants, lubricants and fluids as per the running of the machine or as per the schedule
- PC6.** check auger chains, conveyor chain, lubricate and adjust if required
- PC7.** check and lubricate all screed points as per manufacturer specifications
- PC8.** remove any debris from screed and check for hose leaks / cylinders leaks
- PC9.** check battery electrolyte levels and condition of the terminals and make minor adjustments if required
- PC10.** lubricate all grease fittings on the auger flight screw, the fitting on the depth screw, and the fittings on the flange bearings located on top of the extension screed
- PC11.** ensure all the tools are kept in the designated place after usage
- PC12.** check screws on the rod extensions, tilt screws on the screed pivot
- PC13.** ensure the diesel operated wash-down pump is functioning properly for cleaning the machine

Wheeled Paver

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

- PC14.** check and maintain the hydraulic fluid level, tire rims, air pressure, wheel nuts and treads as per manufacturer's specifications and guidelines

Tracked paver

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

- PC15.** check for track tension and adjust them to measurements prescribed in the manual

Qualification Pack

Repair and trouble shooting

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

- PC16.** turn off the mains power from panel completely before carrying out maintenance work, ensure that the battery cut-off switch is used
- PC17.** ensure that no maintenance task on the engine is performed when running or still hot
- PC18.** ensure that appropriate tools are used while troubleshooting
- PC19.** diagnose the problem
- PC20.** dispose waste as per the guidelines of the site/ organization
- PC21.** ensure that the battery is disconnected if performing any welding on the machine

Documentation and reporting

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

- PC22.** complete all documentation in the prescribed standards in a timely manner
- PC23.** 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 organization's procedures and guidelines related to breakdown & maintenance services
- KU2.** the performance standards & procedures followed in the company
- KU3.** reporting structure in the company
- KU4.** timeframe in which the complaint/problem should be resolved
- KU5.** location of tools
- KU6.** contact person in case of queries on procedure or products
- KU7.** location and process for storage and disposal of waste material
- KU8.** safety policy of the company includes the customer and manufacturer policy
- KU9.** responsibilities of the assigned job role
- KU10.** control and switches needed to operate the paver appropriately
- KU11.** basic physics and mechanics involved in various functions of the paver
- KU12.** common defects and general causes of breakdown.
- KU13.** response to emergency situations.
- KU14.** the optimal levels of control indicators e.g. fuel gauge, engine oil pressure and temperature and all buttons on the main control unit and screed control units
- KU15.** possible sources of any unusual sound emanating from the engine / drive system / hydraulic system

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 and regional language as applicable to read manuals of operations, guidelines, etc

Qualification Pack

- GS3.** comprehend basic sign and symbols at the worksite
- GS4.** comprehend and understand the electronic functionality of the paver
- GS5.** give clear instructions to co-workers, subordinates and other persons
- GS6.** use correct technical terms while interacting with supervisor
- GS7.** decide when to conduct maintenance checks
- 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 cleaning and lubricating the appropriate equipment every day
- 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 cause and effect relations in his area of work
- GS15.** analyze, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Routine maintenance of the paver machine</i>	4.5	7.5	-	-
PC1. assess the right service schedule by tracking machine operating hours	0.5	0.5	-	-
PC2. check the electronic control unit of the paver for any service / maintenance information	0.5	0.5	-	-
PC3. follow instructions concerning safety that are attached onto the vehicle	0.5	0.5	-	-
PC4. clean air filter dust bowls, footplates, pedals and steps regularly and	0.5	0.5	-	-
PC5. replenish coolants, lubricants and fluids as per the running of the machine or as per the schedule	0.5	0.5	-	-
PC6. check auger chains, conveyor chain, lubricate and adjust if required	0.5	0.5	-	-
PC7. check and lubricate all screed points as per manufacturer specifications	-	0.5	-	-
PC8. remove any debris from screed and check for hose leaks / cylinders leaks	-	0.5	-	-
PC9. check battery electrolyte levels and condition of the terminals and make minor adjustments if required	0.5	1	-	-
PC10. lubricate all grease fittings on the auger flight screw, the fitting on the depth screw, and the fittings on the flange bearings located on top of the extension screed	0.5	1	-	-
PC11. ensure all the tools are kept in the designated place after usage	0.5	0.5	-	-
PC12. check screws on the rod extensions, tilt screws on the screed pivot	-	0.5	-	-
PC13. ensure the diesel operated wash-down pump is functioning properly for cleaning the machine	-	0.5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Wheeled Paver</i>	0.5	0.5	-	-
PC14. check and maintain the hydraulic fluid level, tire rims, air pressure, wheel nuts and treads as per manufacturer's specifications and guidelines	0.5	0.5	-	-
<i>Tracked paver</i>	-	0.5	-	-
PC15. check for track tension and adjust them to measurements prescribed in the manual	-	0.5	-	-
<i>Repair and trouble shooting</i>	2	3.5	-	-
PC16. turn off the mains power from panel completely before carrying out maintenance work, ensure that the battery cut-off switch is used	-	0.5	-	-
PC17. ensure that no maintenance task on the engine is performed when running or still hot	0.5	0.5	-	-
PC18. ensure that appropriate tools are used while troubleshooting	0.5	0.5	-	-
PC19. diagnose the problem	-	1	-	-
PC20. dispose waste as per the guidelines of the site/ organization	0.5	0.5	-	-
PC21. ensure that the battery is disconnected if performing any welding on the machine	0.5	0.5	-	-
<i>Documentation and reporting</i>	-	1	-	-
PC22. complete all documentation in the prescribed standards in a timely manner	-	0.5	-	-
PC23. report defects precisely to the supervisor if beyond scope of his role	-	0.5	-	-
NOS Total	7	13	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	IES/N0160
NOS Name	Perform routine maintenance and troubleshooting of the paver
Sector	Infrastructure Equipment
Sub-Sector	Equipment Operations
Occupation	Operator
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	26/04/2016
Next Review Date	30/04/2018
NSQC Clearance Date	

Qualification Pack

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

Qualification Pack

- 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

Qualification Pack

- 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

Qualification Pack

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	-	-

Qualification Pack

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

Qualification Pack

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/N0158.Carry out Pre-operational checks on a paver	10	20	-	-	30	26
IES/N0159.Operate a paver	12	23	-	-	35	30
IES/N0160.Perform routine maintenance and troubleshooting of the paver	7	13	-	-	20	18

Qualification Pack

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	26
Total	35	80	-	-	115	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.

Qualification Pack

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.