

Qualification Pack



Paver Operator

QP Code: IES/Q0120

Version: 2.0

NSQF Level: 4

Infrastructure Equipment Skill Council || Avik Royale - First Floor (Next of Vijaya Bank), No.6, 50 feet
Main Road, Avalahalli Extension, Girinagar
Bengaluru 560026

Qualification Pack

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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-2015/ 8342.1800

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Minimum Educational Qualification & Experience	8th Class (OR • 10th Class Pass + ITI (1year after Class 10th) with 1 year of relevant experience • OR • 10th Class Pass + ITI (2years after Class 10th) • OR • 10th Class Pass and pursuing continuous regular schooling • OR • 3 Year Diploma (After 10th)12th Class Pass with 6 months of relevant experience • OR • Previous relevant Qualification of NSQF Level 3 with 2 years of relevant experience) with 2 Years of experience
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	Light Commercial Vehicle Driving License (LCV) is preferred
Minimum Job Entry Age	18 Years
Last Reviewed On	26/05/2022
Next Review Date	26/05/2025
NSQC Approval Date	26/05/2022
Version	2.0
Reference code on NQR	2022/IS/IESC/05900
NQR Version	1.0

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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

The scope covers the following :

- 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 check the machine for any damaged, missing, or malfunctioning parts
- PC2.** make certain that all covers and guards are in place
- PC3.** inspect the parking brake / service brake, main horn, reverse horn, headlight and warning lights for mechanical damage
- PC4.** inspect screed plate, tamping bar and screed attack angle for any damages
- PC5.** examine the different controls, gauges, feeders, conveyors, feed control gates, augers, screed, screed heater and sensing and control equipment
- PC6.** ensure that the oil levels in the engine, gearbox, radiator and coolant, as well as the battery electrolyte levels are at the appropriate levels
- PC7.** check the alternator and brackets for tightness
- PC8.** check for leaks in the gearbox, propulsion system and hydraulic hoses and take the appropriate steps according to the operational manual
- PC9.** examine the air-induction system to check that all connections are intact and tight
- PC10.** inspect the air filter indicator for any problems
- PC11.** examine the paver and sensor assemblies 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.** examine the instrument panel, including all gauges for any indications of a problem
- 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.** check the pumps, motors, electrical wires and connections, steps and support for any repairs

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- PC18.** check that the propane/LPG cylinder regulator is correctly installed and that the pressure gauges are in excellent working order
- PC19.** spray cleaning solvent or release agent on any part of the paver that comes in contact with asphalt
- PC20.** ensure that daily maintenance inspections and grease are performed in accordance with manufacturer requirements
- PC21.** check that the safety by-pass valve is set correctly
- PC22.** check the engine safety switch for any malfunctioning
- PC23.** inspect the main control unit in cabin and on the screed for proper functioning
- PC24.** ensure fire extinguisher is properly calibrated and available in the site at all times during paving
- PC25.** examine the electronic / manual burner system, as well as the ignition control components and the heating system
- PC26.** 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
- PC27.** check the front wheel assist relief pressure, It should be configured in accordance with the operating surface
- PC28.** inspect the tow arms and the tow cylinder for any cracks or damages
- PC29.** check for track tension and adjust them to the settings prescribed in the manual

Wheeled Paver

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

- PC30.** maintain a inspection/maintenance log book to record all activities performed before starting the operation

Tracked Paver

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

- PC31.** notify the supervisor immediately if a defect is discovered that is outside the scope of the position

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organizations procedures and guidelines related to paver operations
- KU2.** the company's performance criteria and processes
- KU3.** reporting structure in the company
- KU4.** schedule for resolving the complaint/problem
- KU5.** contact person in case of queries on procedure or products
- KU6.** location and process for storage and disposal of waste material
- 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

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- 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.** paver attachments and their applications - reference ski / big-ski - cut-off plates / strike-off plates - auger tunnel extension plates, screed and auger extensions, and safety guard frames - lighting at night - Sensor system that operates automatically (includes the grade and slope sensor and the controller units)
- KU13.** basics of screed heating
- KU14.** introduction to the engine and transmission, as well as their use and purpose
- KU15.** basic hydroelectrical operation and maintenance
- KU16.** different types of hydraulic mechanisms and principles of friction
- KU17.** the relevance of greasing and oiling paver components that require routine lubrication
- 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 Paver, everyday
- 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>	13	40	-	-
PC1. visually check the machine for any damaged, missing, or malfunctioning parts	1	1	-	-
PC2. make certain that all covers and guards are in place	1	1	-	-
PC3. inspect the parking brake / service brake, main horn, reverse horn, headlight and warning lights for mechanical damage	1	1	-	-
PC4. inspect screed plate, tamping bar and screed attack angle for any damages	1	2	-	-
PC5. examine the different controls, gauges, feeders, conveyors, feed control gates, augers, screed, screed heater and sensing and control equipment	1	2	-	-
PC6. ensure that the oil levels in the engine, gearbox, radiator and coolant, as well as the battery electrolyte levels are at the appropriate levels	1	2	-	-
PC7. check the alternator and brackets for tightness	-	1	-	-
PC8. check for leaks in the gearbox, propulsion system and hydraulic hoses and take the appropriate steps according to the operational manual	-	3	-	-
PC9. examine the air-induction system to check that all connections are intact and tight	-	2	-	-
PC10. inspect the air filter indicator for any problems	-	2	-	-
PC11. examine the paver and sensor assemblies for damage, wear and hose leaks	-	2	-	-
PC12. inspect hopper system for wear or damage	-	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. inspect operator's cabin, control console steps and hand holds are clean and free of grease, oil, dirt, mud and asphalt	1	1	-	-
PC14. examine the instrument panel, including all gauges for any indications of a problem	1	1	-	-
PC15. enter operating platform using step and grab handles for safety (3point climbing procedure)	-	1	-	-
PC16. check for the dirt evacuator which is located at the bottom of the air filter canister	-	1	-	-
PC17. check the pumps, motors, electrical wires and connections, steps and support for any repairs	-	1	-	-
PC18. check that the propane/LPG cylinder regulator is correctly installed and that the pressure gauges are in excellent working order	-	1	-	-
PC19. spray cleaning solvent or release agent on any part of the paver that comes in contact with asphalt	1	1	-	-
PC20. ensure that daily maintenance inspections and grease are performed in accordance with manufacturer requirements	1	1	-	-
PC21. check that the safety by-pass valve is set correctly	1	1	-	-
PC22. check the engine safety switch for any malfunctioning	-	1	-	-
PC23. inspect the main control unit in cabin and on the screed for proper functioning	-	1	-	-
PC24. ensure fire extinguisher is properly calibrated and available in the site at all times during paving	-	1	-	-
PC25. examine the electronic / manual burner system, as well as the ignition control components and the heating system	1	2	-	-
PC26. 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	1	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. check the front wheel assist relief pressure, It should be configured in accordance with the operating surface	-	1	-	-
PC28. inspect the tow arms and the tow cylinder for any cracks or damages	-	1	-	-
PC29. check for track tension and adjust them to the settings prescribed in the manual	-	1	-	-
<i>Wheeled Paver</i>	1	-	-	-
PC30. maintain a inspection/maintenance log book to record all activities performed before starting the operation	1	-	-	-
<i>Tracked Paver</i>	1	-	-	-
PC31. notify the supervisor immediately if a defect is discovered that is outside the scope of the position	1	-	-	-
NOS Total	15	40	-	-

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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	2.0
Last Reviewed Date	26/05/2022
Next Review Date	26/05/2025
NSQC Clearance Date	26/05/2022

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IES/N0159: Operate a paver

Description

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

Scope

The scope covers the following :

- 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.** before turning on the paver, make sure the joystick is in the neutral position
- PC2.** fastens the seat belt and adjusts the seat position for comfort and safety
- PC3.** place the throttle in the idle position or press and hold the throttle switch in the up and down positions
- PC4.** start the engine using the starting key on instrument panel
- PC5.** when the engine starts, rechecks all gauges for any unusual noises or malfunctions
- 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.** use the paver controls to lower the screed auger, regulate the hopper, and steer the paver in the direction required by 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.** examine the distribution of asphalt materials from the hopper to the conveyor and to the auger along the breadth of the screed
- 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 the screed to change the width according on the surface thickness

Shut down procedure

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

- PC13.** before turning off the machinery, park the paver on a flat, smooth area
- PC14.** as per the operator handbook, lower all attachments to ground level
- PC15.** place transmission in neutral
- PC16.** run engine at 1/2 speed (RPM) without load for 3 to 5 minutes

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- PC17.** components (such as hoppers, augers, conveyors and extensions) must be cleaned in accordance with manufacturer specifications, company rules and procedures
- PC18.** shut down equipment according to manufacturer's 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 company's performance criteria and processes
- KU3.** reporting structure in the company
- KU4.** schedule for resolving the complaint/problem
- KU5.** contact person in case of queries on procedure or products
- 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 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
- KU11.** paver attachments and their applications - reference ski / big-ski - cut-off plates / strike-off plates - auger tunnel extension plates, screed and auger extensions, and safety guard frames - lighting at night - Sensor system that operates automatically (includes the grade and slope sensor and the controller units)
- KU12.** basics of screed heating
- KU13.** road layers, materials and characteristics
- KU14.** introduction to the engine and transmission, as well as their use and purpose
- KU15.** basic hydro-electrical operation and maintenance
- KU16.** different types of hydraulic mechanisms and principles of friction
- KU17.** steering systems and the proper technique to steer on the road
- 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

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Generic Skills (GS)

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

- GS1.** keep note of any deviations or occurrences that do not conform to the established criteria
- GS2.** read and comprehend basic english to read manuals of operations
- GS3.** comprehend basic sign and symbols at the worksite
- GS4.** give clear instructions to co-workers, subordinates and other personnel
- GS5.** when talking with your supervisor, utilize the right technical words
- 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.** deliver first-class service to ensure client satisfaction
- GS10.** identify immediate or temporary solutions to resolve mechanical issues
- GS11.** judge when to seek assistance from supervisor
- GS12.** determine cause and effect relationships in his field of employment
- GS13.** examine, evaluate, and apply knowledge acquired from observation, experience, logic, or communication in order to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Starting and driving the paver machine</i>	8	33	-	-
PC1. before turning on the paver, make sure the joystick is in the neutral position	1	2	-	-
PC2. fastens the seat belt and adjusts the seat position for comfort and safety	-	3	-	-
PC3. place the throttle in the idle position or press and hold the throttle switch in the up and down positions	-	3	-	-
PC4. start the engine using the starting key on instrument panel	1	2	-	-
PC5. when the engine starts, rechecks all gauges for any unusual noises or malfunctions	1	2	-	-
PC6. preheat paving screed before placing the asphalt as per the set standards	-	3	-	-
PC7. monitor and control temperature during the process to suit the requirements	1	3	-	-
PC8. use the paver controls to lower the screed auger, regulate the hopper, and steer the paver in the direction required by the surface	1	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	-	3	-	-
PC10. examine the distribution of asphalt materials from the hopper to the conveyor and to the auger along the breadth of the screed	1	3	-	-
PC11. observe distribution of asphalt materials along the screed and control the direction of the screed to eliminate voids at curbs and joints	1	3	-	-
PC12. attach extensions to the screed to change the width according on the surface thickness	1	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Shut down procedure</i>	3	15	-	-
PC13. before turning off the machinery, park the paver on a flat, smooth area	1	2	-	-
PC14. as per the operator handbook, lower all attachments to ground level	1	2	-	-
PC15. place transmission in neutral	-	3	-	-
PC16. run engine at 1/2 speed (RPM) without load for 3 to 5 minutes	-	3	-	-
PC17. components (such as hoppers, augers, conveyors and extensions) must be cleaned in accordance with manufacturer specifications, company rules and procedures	1	2	-	-
PC18. shut down equipment according to manufacturer's specifications	-	3	-	-
<i>Reporting and documentation</i>	4	2	-	-
PC19. record input and output flow as per the desired formats of the organization	2	1	-	-
PC20 . report to the supervisor of any problems while operating the paver	2	1	-	-
NOS Total	15	50	-	-

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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	2.0
Last Reviewed Date	26/05/2022
Next Review Date	26/05/2025
NSQC Clearance Date	26/05/2022

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

The scope covers the following :

- 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.** regularly clean dust in the air filter bowl
- PC5.** refill coolant, lubricants and fluids as needed or as scheduled
- 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 the battery electrolyte levels and terminal condition and make minor adjustments if necessary
- 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 that all tools are stored in the correct location after use
- PC12.** check screws on the rod extensions, tilt screws on the screed pivot
- PC13.** ensure that the diesel-powered wash-down pump is working 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 to the manual's specifications

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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.** handle and dispose waste based on environmental guidelines at the work place
- PC21.** when carrying out welding on the equipment, make sure the battery is unplugged

Documentation and reporting

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

- PC22.** complete all documents in accordance with the required standards in a timely way
- PC23.** if a fault is found that is outside the scope of his duty, notify the supervisor immediately

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organizations procedures and guidelines related to backhoe loader operations
- KU2.** the company's performance criteria and processes
- KU3.** reporting structure in the company
- KU4.** schedule for resolving the complaint/problem
- 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.** the responsibilities of the designated job function
- KU10.** control and switches required for proper paver operation
- KU11.** basic physics and mechanics are used in the paver's many functions
- KU12.** common defects and general causes of breakdown.
- KU13.** response to emergency situations.
- KU14.** the ideal levels of control indicators, such as the fuel gauge, engine oil pressure, and temperature, as well as 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.** keep note of any deviations or occurrences that do not conform to the established criteria
- GS2.** read and comprehend basic english to read manuals of operations

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- GS3.** comprehend basic sign and symbols at the worksite
- GS4.** recognize and comprehend the paver's electrical capabilities
- GS5.** give clear instructions to co-workers, subordinates and other personnel
- GS6.** when talking with your supervisor, utilize the right technical words
- 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 Paver, every day
- GS11.** deliver first-class service to ensure client satisfaction
- GS12.** identify immediate or temporary solutions to resolve mechanical issues
- GS13.** judge when to seek assistance from supervisor
- GS14.** determine cause and effect relationships in his field of employment
- GS15.** examine, evaluate and apply knowledge acquired from observation, experience, logic, or communication in order to act efficiently

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Routine maintenance of the paver machine</i>	9	18	-	-
PC1. assess the right service schedule by tracking machine operating hours	1	2	-	-
PC2. check the electronic control unit of the paver for any service / maintenance information	1	2	-	-
PC3. follow instructions concerning safety that are attached onto the vehicle	1	2	-	-
PC4. regularly clean dust in the air filter bowl	1	2	-	-
PC5. refill coolant, lubricants and fluids as needed or as scheduled	1	2	-	-
PC6. check auger chains, conveyor chain, lubricate and adjust if required	1	1	-	-
PC7. check and lubricate all screed points as per manufacturer specifications	-	1	-	-
PC8. remove any debris from screed and check for hose leaks / cylinders leaks	-	1	-	-
PC9. check the battery electrolyte levels and terminal condition and make minor adjustments if necessary	1	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	1	1	-	-
PC11. ensure that all tools are stored in the correct location after use	1	1	-	-
PC12. check screws on the rod extensions, tilt screws on the screed pivot	-	1	-	-
PC13. ensure that the diesel-powered wash-down pump is working properly for cleaning the machine	-	1	-	-
<i>Wheeled Paver</i>	1	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. check and maintain the hydraulic fluid level, tire rims, air pressure, wheel nuts and treads as per manufacturer's specifications and guidelines	1	2	-	-
<i>Tracked paver</i>	1	2	-	-
PC15. check for track tension and adjust to the manual's specifications	1	2	-	-
<i>Repair and trouble shooting</i>	6	18	-	-
PC16. turn off the mains power from panel completely before carrying out maintenance work, ensure that the battery cut-off switch is used	2	3	-	-
PC17. ensure that no maintenance task on the engine is performed when running or still hot	1	3	-	-
PC18. ensure that appropriate tools are used while troubleshooting	1	3	-	-
PC19. diagnose the problem	-	4	-	-
PC20. handle and dispose waste based on environmental guidelines at the work place	1	3	-	-
PC21. when carrying out welding on the equipment, make sure the battery is unplugged	1	2	-	-
<i>Documentation and reporting</i>	4	4	-	-
PC22. complete all documents in accordance with the required standards in a timely way	2	2	-	-
PC23. if a fault is found that is outside the scope of his duty, notify the supervisor immediately	2	2	-	-
NOS Total	21	44	-	-

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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	2.0
Last Reviewed Date	26/05/2022
Next Review Date	26/05/2025
NSQC Clearance Date	26/05/2022

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

The scope 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 as applicable to the equipment and the worksite
- 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 manufacturer's 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.** operate various grades of fire extinguishers, as applicable
- PC7.** support in administering basic first aid and report to concerned team members, as required, in case of an accident
- PC8.** respond promptly and appropriately to an accident/ incident or emergency, within limits of your role and responsibility
- PC9.** record and report details related to operations, incidents or accidents, as applicable

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 and its importance
- KU2.** personnel responsible for health, safety and environment (HSE) related matters and their contact details
- KU3.** location of worksite storage, she team and safe assembly points
- KU4.** reporting and documentation procedures for HSE and security matters
- KU5.** manufacturers guidelines related to health and safety requirements

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- KU6.** common types of health, safety, environment and security risks related to the worksite and operations
- KU7.** types, use and importance of personal protective equipment (PPE) and other safety gear
- KU8.** safe working practices to avoid common hazards and risks
- KU9.** guidelines for transport, storage and disposal of hazardous materials and waste
- KU10.** types of common hazards and risks at the worksite including fire, electrical, gas emergencies, accidents, incidents, structure collapse, machine breakdown
- KU11.** knowledge of safe lockdown/stop of machinery use in case of emergencies and incidents/accidents
- KU12.** types of fire extinguishers and their use
- KU13.** common injuries and appropriate basic first aid treatment e.g. 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

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Worksite health and safety</i>	5	10	-	-
PC1. Comply with safety, health, security and environment related regulations/guidelines at the work site	0.5	1	-	-
PC2. use personal protective equipment (ppe) and other safety gear as applicable to the equipment and the worksite	0.5	1	-	-
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	0.5	1	-	-
PC4. Carry out operations as per the manufacturer's and worksite related health and safety guidelines	0.5	1	-	-
PC5. Handle the transport, storage and disposal of hazardous materials and waste in compliance with worksite health, safety and environmental guidelines	1	1	-	-
PC6. operate various grades of fire extinguishers, as applicable	0.5	2	-	-
PC7. support in administering basic first aid and report to concerned team members, as required, in case of an accident	0.5	1	-	-
PC8. respond promptly and appropriately to an accident/ incident or emergency, within limits of your role and responsibility	0.5	1	-	-
PC9. record and report details related to operations, incidents or accidents, as applicable	0.5	1	-	-
NOS Total	5	10	-	-

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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	2.0
Last Reviewed Date	26/05/2022
Next Review Date	31/05/2025
NSQC Clearance Date	26/05/2022

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.

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Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

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	15	40	0	0	55	20
IES/N0159.Operate a paver	15	50	0	0	65	35
IES/N0160.Perform routine maintenance and troubleshooting of the paver	21	44	0	0	65	35
IES/N7601.Comply with worksite health and safety guidelines	5	10	0	0	15	10
Total	56	144	0	0	200	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.