ASPHALT PAVER

Learner Workbook

STUDENT COPY

RIICBS305E –
Conduct asphalt paver operation

This resource was developed by:

EASY GUIDES Australia Pty Ltd

PROUDLY PRINTED IN AUSTRALIA

Learner Name:

Student Number: _____ Date:

_____

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	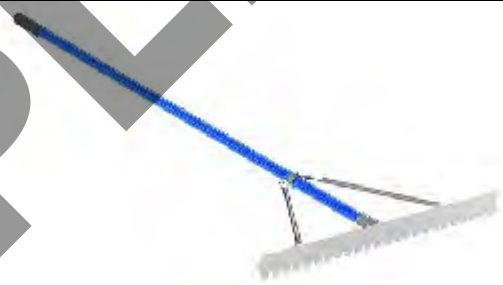

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	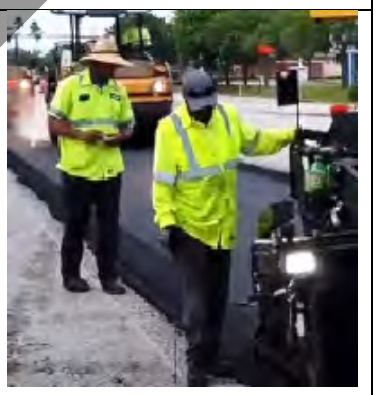

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	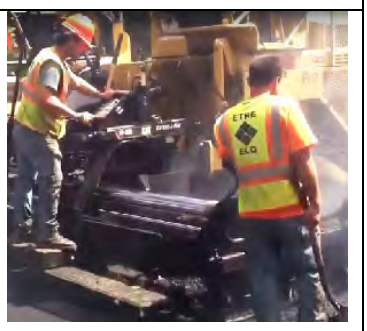

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	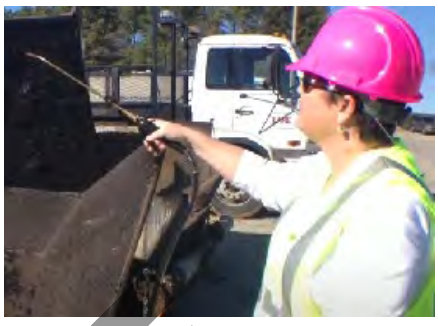

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Practical training tasks

The trainer must be satisfied the candidate has successfully demonstrated each element and performance criteria contained in the Unit of Competency.

It is the trainer's responsibility to decide if the candidate has competently demonstrated a skill. The trainer may question a candidate further if their demonstration needs clarification.

Practical training instructions

Practical assessment should be performed in a normal working environment where possible. However, under some circumstances may occur in a simulated work environment (refer to assessment conditions for further information).

The Trainer must:

- Clearly explain to the candidate what is expected of them
- Check that the candidate has been provided with the necessary tools and equipment
- Complete checklists as the candidate goes through the tasks
- Only question a candidate during a practical task if it is safe to do so
- Stop the assessment immediately if the candidate is doing something dangerous
- Stop the assessment immediately if the machine or objects are likely to be damaged
- Inform the candidate of the result of the assessment

If an trainer needs to stop the assessment because of danger or possible damage, the candidate must be marked as not yet competent. If the assessment is stopped, further training would need to take place before a re-assessment can be undertaken.

Tasks in the assessment do not have to be assessed in isolation, the may be done as one continual task.

Practical training tasks – Check List

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit; including evidence of the ability to:

- conduct asphalt paver operations according to project specifications on ***at least two occasions with at least two different asphalt or surface types.***

NOTE: You will do each task once when completing the workbook and once when doing the final summative assessment.

Practical Training Task 1 – Prepare to conduct asphalt operations

SCENARIO [Your trainer will give you the following job or something similar.]

You have been assigned to operate an asphalt paver for a road construction project. Your task is to lay down a smooth and even layer of asphalt on a designated section of the road. Before you can begin the operation, you need to go through a series of preparations to ensure everything is set up correctly.

Task	Satisfactory
Review project plans and specifications: Start by carefully reviewing the project plans and specifications provided by the engineering team. Understand the scope of work, the specific section of the road to be paved, and any special requirements or considerations mentioned in the documentation.	
Conduct a pre-operational inspection: Inspect the asphalt paver thoroughly before starting the operation. Check the machine's overall condition, including tires or tracks, engine, hydraulic system, screed, conveyor belts, and any other relevant components. Ensure that everything is in proper working order and that there are no leaks or visible damage.	
Check and load the asphalt: Verify that the correct type and grade of asphalt mix have been delivered to the construction site. Confirm that the temperature of the asphalt is within the required range for proper paving. Coordinate with the asphalt supplier or plant to arrange for the loading of the material onto the paver's hopper.	
Set up the paver: Position the asphalt paver at the starting point of the designated section. Adjust the screed height and width according to the project specifications. Calibrate and test the controls, sensors, and instrumentation of the paver to ensure accurate operation. Check the fuel and fluid levels to ensure they are sufficient for the intended duration of the operation.	

Establish safety measures: Prioritize safety throughout the operation. Ensure that all necessary personal protective equipment (PPE) is available and worn correctly. Set up warning signs, barricades, or traffic cones to create a safe work zone for both the crew and passing vehicles. Communicate and coordinate with the construction team and any flaggers or traffic control personnel to ensure a safe work environment.	
Environmental considerations: Consider the impact of your operations on the environment. If the project involves working near sensitive areas such as water bodies, wildlife habitats, or residential neighborhoods, take extra precautions to minimise disturbance or pollution. Implement erosion control measures to prevent sediment runoff into nearby water sources. Properly manage and dispose of any waste materials generated during the paving process, such as excess asphalt or packaging materials.	
Coordinate with the crew: Collaborate with the crew members who will assist you during the operation. Assign responsibilities and establish clear communication protocols. Discuss the sequencing of tasks, such as the delivery of asphalt trucks, the use of a material transfer vehicle if applicable, and the need for any additional equipment or tools.	
Conduct a final walkaround: Take a final walkaround inspection of the paver to ensure everything is in order before starting the operation. Look for any potential hazards or obstacles that could impede the paving process. Verify that all safety devices, such as emergency stop buttons and alarms, are functional. Once you have completed these preparations, you will be ready to commence the asphalt paver operation and lay down a smooth and high-quality layer of asphalt on the designated section of the road.	

The applicants' performance in Practical Assessment 1 – Prepare to conduct asphalt paver operations:

☐ **Satisfactory**	☐ **Not yet satisfactory**
Applicant signature:	**Date:**
Trainer/trainer signature:	**Date:**

Practical Training Task 2 – Set up asphalt paver

SCENARIO [Your trainer will give you the following job or something similar.]

You have been assigned to set up an asphalt paver for a road construction project. Your task is to prepare the paver for operation, including various procedures and adjustments to ensure smooth and efficient paving.

Task	Satisfactory
Start-up Procedures: **a. Perform a pre-start inspection:** Conduct a thorough inspection of the asphalt paver before starting it. Check the overall condition of the machine, including tires or tracks, engine, hydraulic system, screed, conveyor belts, and any other relevant components. Look for any signs of damage or leaks. Ensure that all fluids, such as fuel and hydraulic oil, are at appropriate levels.	
b. Check the tires: Inspect the condition of the tires. If any tires are damaged, worn, or underinflated, replace or adjust them as necessary. Use a tire pressure gauge to check the tire pressure and inflate them to the recommended level.	
c. Set heating controls for the screed board: Determine the appropriate temperature settings for the screed board based on the type and grade of the asphalt mix. Adjust the heating controls of the screed board to reach and maintain the desired temperature. Follow the manufacturer's instructions for setting the heating controls.	
d. Install the feeder bin: If required, install the feeder bin attachment on the asphalt paver. Ensure that it is securely attached and properly aligned with the paver for efficient material feeding.	
Park Procedures: **a. Shut off the engine:** Once the paving operation is complete or during breaks, park the asphalt paver in a designated area. Turn off the engine and engage the parking brake to secure the machine.	
b. Conduct post-operation inspection: After parking, conduct a post-operation inspection. Check the paver for any signs of damage or wear, and inspect the tires for proper inflation and condition. Address any maintenance or repair needs promptly.	
Shutdown Procedures:	

a. Allow the engine to cool down: Before shutting down the asphalt paver, allow the engine to cool down for a few minutes. This helps prevent overheating and ensures a safer shutdown.	
b. Shut off all systems: Turn off all systems and controls on the asphalt paver, including the heating controls for the screed board. Follow the manufacturer's instructions for shutting down the specific model of paver you are operating.	
c. Perform a final inspection: Conduct a final inspection of the asphalt paver to ensure everything is in order. Look for any loose parts, leaks, or other potential issues. Address any concerns or maintenance needs before the next operation.	
Check material spreading controls for correct operations: a. Before starting the paving operation, verify that the material spreading controls are functioning correctly. Test the controls to ensure they respond appropriately and adjust the settings as needed.	
Throughout the entire process, prioritise safety by wearing the necessary personal protective equipment (PPE), following proper operating procedures, and being aware of your surroundings.	

The applicants' performance in Practical Assessment 2 – Set up asphalt paver

☐ **Satisfactory**	☐ **Not yet satisfactory**
Applicant signature:	**Date:**
Trainer/trainer signature:	**Date:**

Practical Training Task 3 – Operate asphalt paver

SCENARIO [Your trainer will give you the following job or something similar.]

In a bustling construction site, the skilled asphalt paver operator begins their day early in the morning. After conducting a thorough pre-operation inspection, they climb into the seat of the paver, ready to take on the day's paving tasks. With the turn of the key, the engine roars to life as the operator engages the drive system. Carefully maneuvering the paver, they align it with the delivery trucks loaded with hot asphalt mix. Opening the hopper gates, they observe the smooth flow of asphalt starting. As the operator starts moving forward, they maintain a consistent and uniform speed, closely monitoring the thickness and evenness of the spread. Clear communication with the screed hand at the back of the machine is maintained, ensuring that the asphalt is laid according to specifications. Simultaneously, the operator keeps a watchful eye on the movement of the asphalt plant and the safety of the crew. Throughout the day, they repeat the process, skillfully guiding the paver to create a flawless, durable road surface.

Note: conduct asphalt paver operations on at least one:

- residential project
- commercial project
- highway projects project

Task	Satisfactory
Conduct a pre-operation inspection of the asphalt paver to ensure it is in good working condition.	
Start the paver's engine and familiarize yourself with the controls and gauges.	
Engage the drive system and begin moving the paver forward.	
Maneuver the paver to align with the delivery vehicles loaded with hot asphalt mix, ensuring no bumping or accidents occur.	
Open the hopper gates to start the flow of asphalt mix onto the paver. Deliver material through the paver including manual and automatic control.	
Adjust the paver's speed to maintain a uniform rate during spreading operations. Construct operations to required thickness, uniformity, line and level.	
Constantly monitor the flow and thickness of the asphalt mix being spread, making adjustments as needed.	

Maintain communication with the screed hand at the back of the machine to confirm the asphalt is being spread to specifications.	
Monitor the movement of the asphalt plant and ensure the safety of the crew working around it.	
Communicate any potential hazards to the crew and take necessary precautions to mitigate risks.	
Work with others to undertake and complete asphalt paver operations that meets the required outcomes, including: • organising work activities to meet all task requirements ☐ • communicating with others to receive and clarify work instructions ☐ • using a range of communication techniques and systems ☐ • using signage to advise others of work activity and exclusion zone ☐	
Work on: • both matching and unsupported edges ☐ • three longitudinal joints (of at least 100m) ☐ • six transverse joints ☐ • five sections of straight paving with one of at least 100 linear metres ☐ • three intersections ☐	
Repeat the process of engaging delivery vehicles, maintaining uniform speed, monitoring the asphalt mix, and communicating with the screed hand throughout the day.	
Park the paver, conduct a final inspection, and shut down the machine at the end of the day.	

The applicants' performance in Practical Assessment 3 – Operate asphalt paver was deemed to be:

☐ **Satisfactory**	☐ **Not yet satisfactory**
Applicant signature:	**Date:**
Trainer/trainer signature:	**Date:**

Practical Training Task 4 – Carry out operator maintenance

SCENARIO [Your trainer will give you the following job or something similar.]

You are going to carry out maintenance on your asphalt paver. Follow the steps below:

Task	Satisfactory
Preparation: Gather the necessary tools and equipment for the maintenance task, including a wrench set, grease gun, lubricating oil, cleaning materials, safety goggles, gloves, and any specific replacement parts required. Additionally, ensure that the asphalt paver is parked in a safe and well-ventilated area.	
Inspection and Fault Finding: Before starting any maintenance activities, visually inspect the asphalt paver to identify any visible signs of wear, damage, or leaks. Pay particular attention to components such as the engine, hydraulic system, screed, augers, conveyor system, and tracks. Also, check for any abnormal noises or vibrations during the inspection process. If any faults or issues are found, document them for further investigation.	
Refer to Workplace Procedures: Follow the specific workplace procedures for asphalt paver maintenance. These procedures may include step-by-step instructions, safety guidelines, and manufacturer recommendations. Adhere to the procedures to ensure consistency and compliance with workplace standards.	
Lubrication: Start by lubricating various moving parts of the asphalt paver. Use a grease gun to apply grease to the necessary points, such as bearings, hinges, and pivot points. This helps reduce friction and prevent premature wear. Follow the recommended lubrication schedule and use the appropriate type of lubricant specified by the manufacturer.	
Fluid Check: Check the fluid levels of essential systems, including the engine oil, hydraulic fluid, coolant, and fuel. Top up any fluids that are below the recommended levels, ensuring they are within the manufacturer's specifications. Additionally, inspect the fluids for any signs of contamination or discoloration, which may indicate underlying issues.	
Filter Replacement:	

Filters play a crucial role in maintaining the performance of an asphalt paver. Identify and replace the engine oil filter, hydraulic filter, and fuel filter as per the maintenance schedule. Ensure the filters are of the correct size and type recommended by the manufacturer. Dispose of the used filters properly.	
Belt and Chain Inspection: Inspect belts and chains for any signs of fraying, damage, or excessive wear. Replace them with new belts or chains if necessary, following the manufacturer's guidelines. Adjust the tension of the belts as per the specifications to ensure proper operation. Document any belt or chain replacements in the maintenance records.	
Cleaning: Clean the exterior of the asphalt paver using appropriate cleaning materials, removing any dirt, debris, or asphalt buildup. This helps prevent corrosion and ensures proper functioning of components such as sensors, controls, and gauges. Use caution while cleaning sensitive areas to avoid damage.	
Test Run and Fault Verification: Once the maintenance tasks are completed, start the asphalt paver and engage its systems to verify that everything is functioning correctly. Observe for any abnormal noises, leaks, or vibrations. If any issues are detected, investigate and rectify them according to the workplace procedures. Document any faults found during the test run.	
Documentation: Update the maintenance log, documenting the tasks performed, any parts replaced, fluid levels, faults identified, and the actions taken to rectify them. Include specific details such as dates, times, and personnel involved in the maintenance process. These written records serve as a reference for future maintenance, help track the overall condition of the asphalt paver, and ensure compliance with workplace procedures and regulatory requirements.	

The applicants' performance in Practical Assessment 4 – Carry out operator maintenance was deemed to be:

☐ **Satisfactory**	☐ **Not yet satisfactory**
Applicant signature:	**Date:**
Trainer/trainer signature:	**Date:**

Practical Training Task 5 – Relocate paver.

SCENARIO [Your trainer will give you the following job or something similar.]

The construction project requires the asphalt paver to be relocated to a new work area. You assess the site conditions and plan the relocation process accordingly. Consider factors such as accessibility, ground stability, obstacles, and the availability of support equipment.

Task	Satisfactory
PREPARING AN ASPHALT PAVER FOR A TRANSPORT VEHICLE	
Equipment Inspection: Conduct a thorough inspection of the asphalt paver to ensure it is in proper working condition. Check for any visible signs of damage, leaks, or worn-out components. Pay attention to critical areas such as the engine, hydraulic system, screed, augers, conveyors, and tracks. Make note of any issues discovered during the inspection.	
Secure Loose Parts: Before the relocation, secure any loose parts or accessories on the asphalt paver. This includes folding or securing extendable components, retracting movable elements such as augers or conveyors, and properly fastening any detachable attachments. Ensure that everything is tightly secured to prevent damage or loss during transit.	
Fluid and Fuel Levels: Check the fluid levels of essential systems, including engine oil, hydraulic fluid, coolant, and fuel. Top up any fluids that are below the recommended levels. Also, ensure that the fuel tank has sufficient fuel to reach the destination or plan for refueling along the way.	
Battery Disconnection: If the relocation requires a significant distance or a long period of inactivity, consider disconnecting the battery. This helps prevent the battery from draining and ensures it remains in good condition. Follow the manufacturer's guidelines for battery disconnection and reconnection procedures.	
Secure Transportation Vehicle: If using a transportation vehicle, ensure that it is suitable for transporting the asphalt paver. Verify that the vehicle is properly maintained, has the necessary load capacity, and is equipped with appropriate tie-downs or restraints. Double-check the condition and security of the vehicle before proceeding.	

Safety Precautions: Prioritize safety during the relocation preparations. Use appropriate personal protective equipment (PPE) such as gloves, safety goggles, and steel-toe boots. Follow established safety protocols and guidelines, especially when working around heavy machinery and during the securing process.	
Communication and Coordination: Communicate with other team members involved in the relocation process to ensure a coordinated effort. Assign roles and responsibilities, and establish clear communication channels to relay instructions effectively. Maintain open lines of communication throughout the entire relocation process.	
DRIVE THE PAVER SAFELY ON HIGHWAYS AND CONSTRUCTION SITES	
Preparations: Before driving the asphalt paver, ensure that it is in proper working condition. Conduct a thorough inspection of the paver, checking critical components such as the engine, hydraulic system, steering, brakes, lights, and tires. Make sure all fluids are at the recommended levels and that the fuel tank is filled adequately.	
Safety Equipment: Prioritize safety by wearing appropriate personal protective equipment (PPE) such as a hard hat, high-visibility vest, safety goggles, and steel-toe boots. Keep a fire extinguisher, first aid kit, and other necessary safety equipment readily accessible in the vehicle.	
Route Planning: Plan the route for relocating the asphalt paver, considering factors such as traffic conditions, road closures, and construction zones. Identify the most efficient and safe path, avoiding narrow roads, low bridges, and areas with weight restrictions. Refer to local traffic regulations and obtain any necessary permits for transporting oversized equipment.	
Communication: Establish clear communication channels with other vehicles or team members involved in the relocation process. Use radios or hands-free communication devices to ensure smooth coordination during the drive. Agree upon specific signals or procedures for stopping, turning, or addressing any unexpected situations.	
Safe Driving Practices: Adhere to safe driving practices while operating the asphalt paver on highways and construction sites. Observe speed limits, maintain a safe following distance, and use indicators when changing lanes or making turns. Pay close attention to the surrounding traffic, pedestrians, and construction workers. Construction Site Precautions:	

When entering construction sites, be vigilant and follow all site-specific safety guidelines and protocols. Watch for workers, equipment, and other hazards. Slow down and maneuver the asphalt paver cautiously, ensuring that it does not damage existing structures or pose a risk to personnel.	
Traffic Control: If required, deploy appropriate traffic control measures to ensure the safe passage of the asphalt paver. Use warning signs, barricades, or flaggers to divert or regulate traffic. Communicate with traffic control personnel, adhering to their instructions for a smooth and safe passage through construction zones.	
Continuous Monitoring: Continuously monitor the asphalt paver and its surroundings during the relocation. Watch for any signs of malfunction, unusual noises, or warning indicators on the vehicle's dashboard. If any issues arise, safely pull over to a designated area, investigate the problem, and take appropriate action to address it.	

The applicants' performance in Practical Assessment 5 –Relocate paver activity was deemed to be:

☐ **Satisfactory**	☐ **Not yet satisfactory**
Applicant signature:	**Date:**
Trainer/trainer signature:	**Date:**

Practical Training Task 6 – Clean up

SCENARIO [Your trainer will give you the following job or something similar.]

Job: Cleaning and Maintaining the Asphalt Paver

After completing the asphalt paving task, the asphalt paver operator is responsible for cleaning and maintaining the equipment. They diligently remove any excess asphalt, debris, or spilled materials from the paver, conveyors, screeds, and other components using tools such as shovels, brooms, or high-pressure water systems. The operator performs routine maintenance tasks, including checking and cleaning filters, lubricating moving parts, and inspecting components for signs of wear or damage. By ensuring thorough cleaning and maintenance of the asphalt paver, the operator contributes to its optimal performance, extends its lifespan, and promotes a safe and efficient paving process.

Task	Satisfactory
Assess the Work Area: After completing the asphalt paving task, assess the work area to determine the extent of cleaning required. Identify any loose asphalt, debris, or spills that need to be addressed.	
Personal Protective Equipment (PPE): Put on appropriate personal protective equipment (PPE) such as gloves, safety goggles, and high-visibility vest before beginning the cleaning process. This ensures your safety during the cleanup activities.	
Remove Loose Asphalt: Use a broom, rake, or shovels to remove loose asphalt from the work area. Sweep the pavement thoroughly to collect loose debris, excess asphalt, or any other materials left behind during the paving process. Dispose of the collected debris in designated containers or as per local regulations.	
Address Spills or Stains: If there are any spills or stains on the pavement, address them promptly. Use appropriate cleaning materials or solvents recommended by the manufacturer or industry guidelines to remove the spills. Take care to follow any environmental regulations and disposal protocols while handling cleaning agents.	
Recycling Materials:	

Separate recyclable materials such as asphalt chunks or scrap from the collected debris. Place them in designated containers or arrange for recycling as per local recycling programs. Recycling materials helps reduce waste and supports sustainable practices.	
Perform Simple Maintenance: Take the opportunity to perform simple maintenance tasks on the asphalt paver and associated equipment. Check and clean filters, lubricate moving parts, and inspect components for any signs of wear or damage. Perform minor adjustments or repairs as needed to keep the equipment in good working condition.	
Proper Waste Disposal: Dispose of the collected debris, cleaning materials, and any waste generated during the cleanup process in designated containers or according to local regulations. Separate and dispose of hazardous or non-recyclable materials appropriately, following environmental guidelines.	
Store tools and equipment: Clean, check, perform maintenance on, relocate and store equipment.	
Documentation: Maintain documentation of the cleanup activities, including the date, time, and specific tasks performed. This documentation serves as a record of the cleanup process and can be valuable for future reference or compliance purposes.	
Remember, always follow the specific guidelines and protocols established by your workplace, project, or regulatory authorities when cleaning up the work area after using an asphalt paver. By recycling materials, performing simple maintenance, and carrying out housekeeping, you contribute to sustainability, equipment longevity, and a safe working environment.	

The applicants' performance in Practical Assessment 6 – Clean up activity was deemed to be:

☐ Satisfactory	**☐ Not yet satisfactory**
Applicant signature:	**Date:**
Trainer/trainer signature:	**Date:**

Assessment Summary – Competency Sign Off

Knowledge questions	**Satisfactory**	**Not Satisfactory**
1. Prepare to conduct asphalt paver operations	❑	❑
2. Set up asphalt paver	❑	❑
3. Operate asphalt paver	❑	❑
4. Carry out maintenance	❑	❑
5. Relocate paver	❑	❑
6. Clean up	❑	❑
Practical training tasks	❑	❑
1. Prepare to conduct asphalt paver operations	❑	❑
2. Set up asphalt paver	❑	❑
3. Operate asphalt paver	❑	❑
4. Carry out maintenance	❑	❑
5. Relocate paver	❑	❑
6. Clean up	❑	❑

Competency:	Not Yet Competent ❑ Date_____	Competent ❑ Date_____
Feedback to be given to candidate:		

Trainer / Trainer signature: **Date:**	The learner has been assessed as ❑ **Not Yet competent** / ❑ **competent** in the elements and performance criteria, critical aspects for assessment, required skills and knowledge for this unit and the evidence presented is: ❑ **Authentic** ❑**Valid** ❑ **Reliable** ❑ **Current** ❑**Sufficient**