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Unit Standard 21679

PRACTICE PAPER - ANSWER BANK

Assessors Note:

This answer bank should be used as the primary resource when marking students work. However, responses to some questions may be subjective and tutors are advised to exercise their professional judgement when making assessment decisions.

ELEMENT ONE

Demonstrate knowledge of interchanging vehicle and/or machine wheels.

1. How can you ensure that you are safe when interchanging wheels?

Ensure vehicle is supported by axle stands.
Use correct jacking points as per workshop manual.
Ensure floor is flat and capable of withstanding the weight of the vehicle.
Ensure vehicle engine is switched off and h/brake on.
Ensure area is clear of obstacles and tools not in use.
Ensure all PPE gear is worn.
Use the correct tools for the task.
Ensure vehicle is evenly supported.
Ensure proper lifting technique when removing road wheels.

2. How can you ensure that other people are safe when you are interchanging wheels?

Ensure vehicle is supported by axle stands.
Ensure floor is flat and capable of withstanding the weight of the vehicle.
Ensure area is clear of obstacles.
Ensure tools are in good working order.
Use the correct tools for the task.
Never point running air tools at other personal.
Ensure vehicle is evenly supported.

3. How can you ensure that equipment (axle stands, jack, hoist, wheel brace, air tools, torque wrench etc) is not damaged when you are interchanging wheels?

Always inspect tools for damage before use.
Use the correct tools for the task.
Ensure tools are in good working order.
Do not use damaged tools.
Ensure air tools are used in a safe manner.
Ensure tools are stored correctly when not in use.
Ensure vehicle is evenly supported.

4. How can you ensure that the vehicle is not damaged when you are interchanging wheels?

Ensure doors are closed.
Use guard covers where possible.
Ensure overall zips are not exposed and liable to scratch paint finish.
Use correct jacking points.
Ensure vehicle is evenly supported.

5. Vehicle manufacturers identify jacking points for their vehicles. What is the purpose of jacking points?

Jacking points provide the strongest and safest supporting points on the vehicle. Jacking points are designed by the manufacturer to withstand the vehicles weight when raised. They are also constructed with the vehicles chassis and structure in mind.

6. What is the purpose of axle stands?

Axle stands are designed to be positioned under each axle by a wheel to fully support the vehicle when it is raised.

7. Should the wheels be touching the ground or above the ground when a vehicle is raised? Please explain your answer.

The wheels should be above the ground. The vehicle is safer when evenly supported as there's no risk of the vehicle rolling off the stands. There is also less stress on the chassis structure.

8. Identify the item of workshop equipment shown in the photo and describe its main use.

Name Scissors Jack
Use: Used when lifting a vehicle.

9. Identify the item of workshop equipment shown in the photo and describe its main use.

Name: 2 post hoist

Use: Allows a vehicle to be driven onto, and lifted to enable underbody work to be carried out.

10. What needs to be checked when inspecting each of the following?

Wheel hubs

Should be checked for cracks, corrosion and correct bearing fit, play and roughness.

Tyres

Should all have the same tread pattern, level of wear and be the same size and of the same construction

Wheels

Must be secured to manufacturers recommended torque setting and all must be the same size and of the same construction

Wheel nuts and studs

Must all be in place with no evidence of cracks, rusting or damage to thread's and torque to manufacturers specifications.

11. Explain why it is important to consider the road surface before raising a vehicle.

The surface must be even. If you attempt to lift the vehicle on an uneven surface, then you risk tipping the jack and the vehicle may slide off either damaging the vehicle if wheels had been removed or injuring the worker.

12. Explain how to lower a vehicle that is supported on axle stands.

Ensure the handbrake is on to prevent vehicle from rolling when lowered. Jack the vehicle on a level surface, using the recommended jacking points and carefully remove the vehicle supporting stands. Ensure that there are no tools or obstacles when lowering the vehicle.

13. When checking wheel bearings explain how to check for evidence of each of the following conditions.

Play Checked by grasping the wheel at the top and the bottom and rocking gently. The wheel assembly should feel firm.

Roughness Checked by rotating the wheel quickly and holding a suspension component. If there is a rumbling type sound or vibration this condition exists.

Over-tight Checked by turning the wheel. If this condition is present the wheel will feel heavy and difficult to turn.

ELEMENT TWO

Demonstrate knowledge of balancing wheels and tyres.

Q1. Explain three reasons why it is important to correctly balance wheels and tyres.

1. Tyre wear, scalloped or cupped tyre wear will be evident usually in the centre of the tyre.
2. All suspension components such as Shock absorbers, ball joints, wheel bearings, can suffer premature wear from the wheel vibrating at speed.
3. Safety of the vehicle. The vehicles steering at speed can vibrate, causing vehicle handling problems.

2. When are the main differences between on-vehicle balancing and off-vehicle balancing?

Off-vehicle balancing is used to correct dynamic imbalance for cars while on-vehicle balancing is used to correct imbalance on heavy or commercial vehicles. The wheels are removed for off-vehicle balancing and wheels remain on with on-vehicle balancing.

3. When are the main differences between clip on and adhesive weights?

Adhesive weights are commonly used on decorative alloy and polished wheels as they are easy to apply and will not damage the finish of the wheel. Clip on weights are commonly used on steel rims which have a plastic wheel cover.

4. Outline the steps involved when balancing wheels.

Calibrate the machine according to the wheel dimensions and mount the wheel on to the balancing machine.

Remove any dirt and existing wheel weights from the wheel rim

Start and record any imbalance displayed on the screen

Select the required wheel weight/s and attach to the rim.

Retest the wheel to ensure that no further weight/s are required.

- 5. How can you ensure that you are safe when balancing wheels?**
Ensure all PPE gear is worn.
Ensure you are competent with using the machine.
Ensure machine is in good working order, guards are in good condition and in place if provided.
Ensure proper lifting technique when fitting road wheels.
Ensure road wheel is attached firmly to machine.
Ensure ground surface is dry and firm so as not to slip.
Stand to one side whilst machine is operating.
Inspect tyre tread for loose stones or debris.
- 6. How can you ensure that other people are safe when you are balancing wheels?**
Ensure all PPE gear is worn.
Inspect machine to ensure it is in good working order.
Ensure other workers are away from machine while it is spinning.
Ensure you are competent with using the machine.
Ensure road wheel is attached firmly to machine.
Inspect tyre tread for loose stones or debris
Ensure ground surface is dry and firm so as not to slip.
Ensure jack handle is in the up position.
- 7. How can you ensure that equipment (axle stands, jack, hoist, wheel brace, air tools, torque wrench etc) is not damaged when you are balancing wheels?**
Inspect machine to ensure it is in good working order.
Ensure area around equipment is free of obstacles and tools.
Ensure you are competent with using the machine.
Ensure road wheel is attached firmly to machine.
Inspect tyre tread for loose stones or debris
Ensure tools are not placed on the wheel balancing machine.
- 8. How can you ensure that the vehicle is not damaged when you are balancing wheels?**
Ensure tools are not placed on the vehicle.
Before raising vehicle make sure area is free of tools and obstacles.
Ensure vehicle is safely supported on axle stands.
Use guard covers to protect vehicle paint finish.
Use correct tools when removing and refitting wheels.
Ensure wheel nuts are torqued to the correct specification.