# Knowledge Assessment

**Event 1 of 3**

# Trainer & Assessor Marking Guide

## Criteria

### Unit code, name and release number

MEM18002B - Use power tools/hand held operations (1)

\*\*\*This unit sits in the qualifications below – This assessment is not to be amended\*\*

### Qualification/Course code, name and release number

MEM30205 – Certificate III in Engineering – Mechanical Trade (3)

MEM30305 – Certificate III in Engineering – Fabrication trade (4)

\*\*\* Amend the qualification box before distributing to the student. The information here should only contain the qualification the student is enrolled in\*\*

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This assessment can be found in the: [Learning Bank](https://share.tafensw.edu.au/share/access/searching.do?doc=%3Cxml%2F%3E&in=P7ac4831b-430a-4b8d-8b56-f7b32ed5b9cf&q=&type=standard&sort=rank&dr=AFTER)

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## Assessment instructions

Table 1 Assessment instructions

| Assessment details | Instructions |
| --- | --- |
| **Instructions for the trainer and assessor** | This is a written assessment and will be assessing the student on their knowledge of the unit. The assessment is closed book.  This assessment is in 4 parts:   1. Multiple choice questions 2. True or False questions 3. Short answer questions 4. Assessment feedback   Model answers, sample responses or a criteria for each question are provided below.  Use these to support your judgement when determining a satisfactory result.  The student’s response to each question must contain the information indicated in this marking guide in order for their response to be correct. However, if a student provides information other than indicated below, and in the professional opinion of the assessor it is appropriate and meets the intent of the question, it may be considered correct.  The assessment feedback page must be signed by both the student and the assessor so the student displays that they have received, understood and accepted the feedback.  Complete the assessment feedback to the student and ensure you have taken a copy of the assessment prior to it being returned to the student.  Ensure the students name appears on the bottom of each page of the submitted assessment. |
| **About this marking guide** | The student’s response to each question must contain the information indicated in this marking guide in order for their response to be correct.  All questions must be answered correctly in order to satisfactorily complete this assessment event.  Assessors will need to make a judgement call as to whether each answer/response meets the criteria based upon the:   * Rules of Evidence:   + Validity – does the answer address the assessment question and does the evidence reflect the four dimensions of competency?   + Sufficiency – is the answer sufficient in terms of length and depth?   + Currency – has the work been done so recently as to be current?   + Authenticity – is this work the student’s own authentic work? * Principles of Assessment:   + Fairness – individual student’s needs are considered in the assessment process   + Flexibility – assessment is flexible to the individual student   + Validity – any assessment decision is justified, based on the evidence of performance of the student   + Reliability – evidence presented for assessment is consistently interpreted and assessment results are comparable irrespective of the assessor conducting the assessment * Dimensions of competency   + Task skills   + Task Management Skills   + Contingency Planning Skills   + Job Role Environment Skills |
| **Student must provide** | Pens, pencil, eraser |
| **Assessor must provide** | Class room suitable for conducting written assessment test |
| **Time allowed** | 1 Hour |

## Part 1: Multiple choice

Student to read question carefully and mark X in the table next to their chosen answer

1. (RK1) Off-hand grinding machines:

Table 1: Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Are held in the other hand |  |
| 1. Grind backwards |  |
| 1. Are only used for small grinding jobs |  |
| 1. Are either bench or pedestal | X |

1. (Rk 11*)* Which of the following would not be indicated in a Standard Operating Procedure (SOP) for the use of power tools:

Table 2 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. PPE requirements when using the tool |  |
| 1. Expiry date of the power tool | X |
| 1. Manufacturers recommendations and guidelines for the correct care and use of the tool |  |
| 1. Check the condition of the tool prior to use |  |

1. (Rk 3) The recommended maximum gap between the tool rest and grinding wheel on a bench or pedestal grinder as indicated by the arrow in the diagram below is:

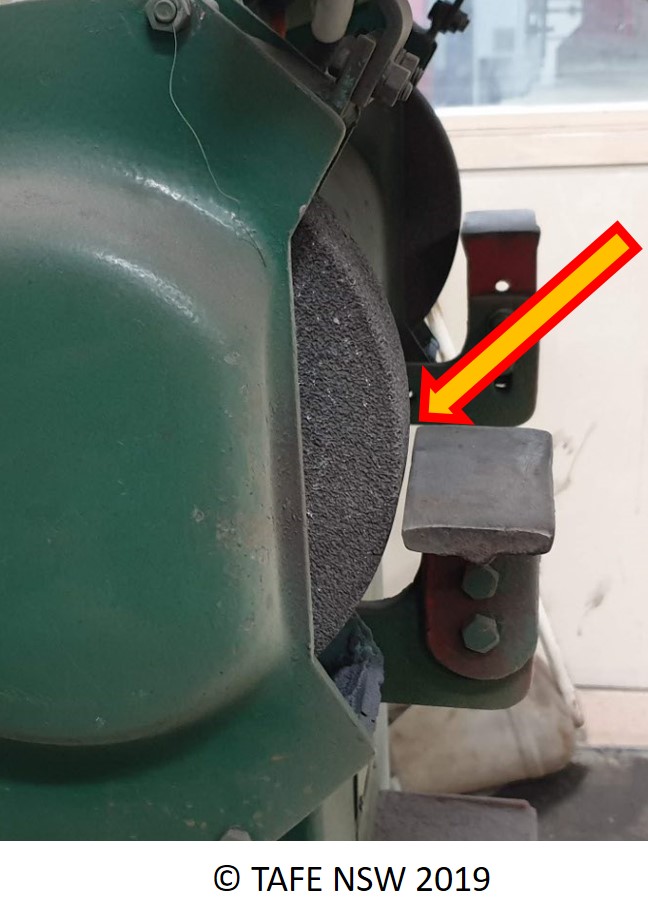


Table 3 Multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. 1mm | X |
| 1. 3mm |  |
| 1. 5mm |  |
| 1. 10mm |  |

1. (Rk 4,PC1.4*)* You conduct a ring test on a new grinding wheel and it produces a dull sound with little or no ring. What does this indicate?

Table 4 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. A sound wheel with no defects |  |
| 1. Suitable for use on thick materials |  |
| 1. Crack or flaw in the wheel | X |
| 1. Manufactured from black silicon carbide |  |

1. (Rk 5,PC1.4) What do you do if you find a power tool that is faulty and unsafe?

Table 5 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Finish the task at hand and then return it to its storage location |  |
| 1. Disconnect energy supply, inspect and place a completed out of service tag on the tool | X |
| 1. Put it in a garbage tin so no one else can use it |  |
| 1. Put it to the side and use another serviceable tool |  |

1. (Rk 5, PC1.4*)* A cut was found in the power cord of an electric die grinder. What would be the next step to make other workers aware and to prevent unsafe use?

Table 6 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| a) Protect cut cable with electrical tape |  |
| b) Place a completed out of service tag on it and inform the supervisor | X |
| c) Place a completed danger tag on it and inform the supervisor |  |
| d) Exchange it for one in good condition |  |

1. (Rk 6,PC1.4) Select the maintenance requirements for a pneumatic (air) operated impact gun from the list below

Table 7 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Check the power lead is in good condition |  |
| 1. Check condition of air hose fittings | X |
| 1. Lubricate daily with air tool oil | X |
| 1. Grease all moving parts |  |

1. (Rk 6, PC1.5) From the list below which is a way we can find out the recommended maintenance on a power tools?

Table 8 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Ask a more senior tradesman |  |
| 1. Ask a fellow workmate |  |
| 1. Ask the storeman |  |
| 1. Refer to the manufacturers manual | X |

1. (Rk 6) From the list below list the maintenance requirements for an electric angle grinder:

Table 9 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Check the condition of the tool and guard | X |
| 1. Lubricate the tool |  |
| 1. Check tool has been electrically tested and tagged regularly | X |
| 1. All of the above |  |

1. (Rk 7) Select the appropriate tool to sharpen a cold chisel

Table 10 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Pneumatic angle grinder |  |
| 1. Pneumatic drill |  |
| 1. Pedestal grinder | X |
| 1. Electric angle grinder |  |

1. (Rk 8,PC1.6 ) Where is the best place to store power tools when not in use:

Table 11 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. At the work site on the ground |  |
| 1. In its case |  |
| 1. In the back of a locked work vehicle |  |
| 1. Store in allocated areas to prevent damage | X |

1. (Rk 9,PC1.3) Substituting a tool with one that is not designed for job at hand can:

Table 12 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Give and inferior finish to the job |  |
| 1. Increase the chance of an accident | X |
| 1. Save time where the correct tool can’t be located |  |
| 1. Doesn’t matter if the job is completed successfully |  |

1. (Rk 9,PC1.3) Select two (2) hazards and control measures that must be followed when operating power tools:

Table 13 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Perform a visual pre start check of the tool | X |
| 1. Test run the tool daily |  |
| 1. Follow the SOP and wear the correct PPE for the tool | X |
| 1. Ensure the tool has a safety switch fitted |  |

1. (Rk 9,PC1.3) The device that is fitted to a power supply which protects operators from a potential hazard is known as:

Table 14 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Earth leakage protection device | X |
| 1. Anti-shock protection device |  |
| 1. Automatic power isolation device |  |
| 1. PPE Electrical insulation device |  |

1. (Rk 9,PC1.3 ) When changing a grinding disc on an angle grinder **the first** thing you must do is:

Table 15 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Obtain the correct grinding disc to fit to grinder |  |
| 1. Remove the guards to access the grinding disc |  |
| 1. Disconnect the grinder from the power source | X |
| 1. Loosen the nut on the grinder shaft |  |

1. (Rk 9,PC1.3) In which of these situations would you disconnect the air supply to a pneumatic tool? (there can be more than 1 correct response)

Table 16 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. When you have finished using the tool | X |
| 1. When clearing jams | X |
| 1. If the pneumatic tool leaks air | X |
| 1. Pneumatic tool is missing fasteners or screws | X |
| 1. Supply hose leaks air or has cuts and bulges in it | X |

1. (Rk 10,PC1.3) Which two (2) items of personal protective equipment (PPE) must be used when using pneumatic tools:

Table 17 multiple choice

| Answer choices | Put X next to your answer |
| --- | --- |
| 1. Hearing | X |
| 1. Eye | X |
| 1. Safety harness |  |
| 1. Leather apron |  |

## Part 2: True or false

Table 1 True or false

| Question | Write *True* or *False* |
| --- | --- |
| 1. (Rk 1) Sockets designed for hand wrenches are universal and can be used on pneumatic impact wrenches | *False* |
| 2.(Rk 2) It is more important when using portable power tools to secure larger heavy jobs than small light pieces of material | *False* |
| 3.(Rk 2) When using a drilling machine it is ok to hold the job with your hands providing it is large enough to get a good grip on it | *False* |
| 4. (Rk 3) As a general rule when using a drilling machine the larger the diameter drill bit the slower the speed of the machine should be | *True* |
| 5 (Rk 6) The process of repairing defects in grinding wheels such as loading, glazing, out of round and grooving is called dressing and truing | *True* |
| 6. (Rk 7) Off hand grinding machines are the most suitable tool for sharpening drill bits and tool bits | *True* |
| 7. (Rk 9,PC1.3) When working on an elevated work platform or scaffolding it is ok to lift the tools up by the power lead provided no one is standing directly below | *False* |
| 8. (Rk 9,PC1.3) It is ok to use a power tool or extension cord that has not been tested and tagged provided it is new and stays in the workshop | *False* |
| 9. (Rk 9,PC1.3) If a pneumatic drill or grinder has a minor air leak it is ok to keep using provided it still operates at the correct speed | *False* |
| 10. (Rk 9,PC1.3) It is ok to operate pneumatic tools using oxy cylinders provided you have the regulator set at the correct pressure | *False* |
| 11. (Rk 10,PC1.3) It is recommended that leather gloves or gauntlets are worn when using pedestal grinders to prevent hot pieces of ground metal burning your fingers | *False* |

**Part 3: Short answer**

*Read the question carefully. Your answer should be a minimum of* one (1) *word but no longer than* fifty (50) *words.*

1. (RK1) Complete the table below by providing the tool name and application for each of the pictured tools (picture A in the table has been completed for you)

**Example: Picture A – Heavy duty pedestal grinder**



Table 1 Short answer

|  |  |  |
| --- | --- | --- |
| Picture | Tool Name | Application |
| **A** | *Heavy Duty Pedestal grinder* | *Removal of large amounts of metal, deburr* |
| **B** | *Pedestal Drill* | *Larger and small diameter hole drilling* |
| **C** | *Pistol Drill (240V)* | *Small hole drilling up to 13mm diameter* |
| **D** | *7” or 9” Angle Grinder* | *large amounts of metal removal, deburr* |
| **E** | *5” cordless Angle Grinder* | *Small amount of metal removal, surface prep, cleaning welds, deburr* |
| **F** | *Die grinder (Pneumatic, air)* | *Deburr, removal of metal for elongation and enlarging of holes , cleaning welds* |
| **G** | *Bench Grinder* | *Sharpening of tools , deburr* |
| **H** | *Hammer Drill* | *Big diameter concrete/masonry drilling* |

1. (RK4,RK5) Following the example shown for Bench/pedestal drill in the table below, match the fault/ defect to the most appropriate action /remedy.

***Not all action/remedy need to be used***

Table 3 Short Answer/ matching

|  |  |  |
| --- | --- | --- |
| Power tool | Faults/Defects | Action /Remedy |
| Bench/pedestal drill  *(belt driven)* | 1. Drill bit slipping in chuck 2. Drill spindle stalls when drilling 3. Workpiece grabs during drilling | *Check clamping*  *Tighten chuck/replace if*  *damaged*  *Check tension of drive belts* |
| Angle grinder | 1. Missing safety guard 2. Damaged grinding disc 3. Tag and test date expired | *Repair later*  *Replace damaged item*  *Dispose of tool*  *Tag tool out of service*  *Replace missing item* |
| Bench / pedestal grinder | 1. Work rest gap excessive 2. Eye shields missing 3. E stop not operating | *Use with caution*  *Tag tool out of service*  *Fit, replace damaged or missing item*  *Isolate and make repairs for safe operation* |

1. (RK8) Following the example shown for an angle grinder in the table below, select the correct storage requirements for the tools listed:

Table 5 Short Answer check box

|  |  |  |
| --- | --- | --- |
| Portable Power Tool | Choose from list for appropriate tool storage solutions. | Cross the check box for correct answers |
| Angle grinder  **(example)** | 1. Tool case or shadow board 2. Wipe the grinding disc with a light machine oil 3. Isolate power at the isolation switch 4. Clean grinder and immediate area on completion of work 5. Wrap cord up |  |
| Pistol/Hammer  Drill | 1. Tool case or Shadow board 2. Wrap cord up 3. Remove drill bits from chuck 4. Keep away from moisture 5. inform supervisor item has been stored |  |
| Die Grinder  (air) | 1. Tool case or Shadow board 2. Leave cord loose 3. Remove burr from spindle collet 4. Check for damage and repair or dispose of if required 5. Store separately to other power tools to prevent damage |  |
| Porta Power  (Hydraulic) | a) Tool case  b) Storage cabinet  c) Shadow board  d) Wipe oil/dirt from ram and hoses  e) Lower ram  f) Store in supervisors office |  |

1. (RK2) Securing of the work is important to ensure the safety of the operator. List 3 methods used to clamp or support work when using power tools

*Vice*

*Jigs and fixtures*

*Directly to table*

*G clamps*

*Vice grips*

1. (RK1, PC1.1) List three factors that determine which portable power tool will be used for a job

*The operation- drilling, cutting, grinding*

*The type of material*

*The power supply available*

*The size of the material*

1. (RK5) You are doing a safety inspection of the workshop and you observe the following bench grinder sitting unsecured on a bench top and plugged in to the power. Fill in the out of service tag as shown in the diagram for this incident ( *List at least three (3) defects*)



**Front:**

*Signed name and date (use date of assessment)*

**Back:**

*Eye shield missing*

*Tool rest missing*

*Grinder unsecured to bench*

1. (RK11) The table below lists safe work practices and procedures. Select the correct safe work practices and procedures recommended for the use of a 240V powered angle grinder.

| Work Practices & procedures | Mark an X for correct answer |
| --- | --- |
| Secure work with clamps or a vice, freeing both hands to operate the equipment. |  |
| Remove grinding disc guard if interfering with work procedure |  |
| Keep your balance and proper footing when working with power tools, being careful not to Over reach. |  |
| Disconnect power tools and return all tooling and fixtures to the correct storage location |  |
| Using equipment with lapsed test tag is ok if there is no visible damage |  |
| Safety glasses must be worn when operating this equipment. |  |
| Long sleeve cotton drill clothing not required when grinding low carbon steel |  |
| Keep cords and hoses away from heat, oil, and sharp edges. |  |
| Examine the power cord for damage before, during after use |  |