



Meeting Minutes

Meeting:	National Validation Forum
Chair:	Stephen Darby (acting)
Secretary:	Juan Maddock
Date:	23 rd January 2015 12pm – 2pm AEDT

Attendance	
Name	Representation
Phill Dodd	South Australia
Tracey Hall	Western Australia
Lyall Rooney	Queensland
Brett Willowwhite	Northern Territory
Paul Lowe	New South Wales
Ken Meehan	Victoria
Sue Sizer	ERAC
Stephen Darby	E-Oz – LMS Developer
Juan Maddock	E-Oz – Strategic Development Manager

Discussion Point	Minutes																		
<p>Review K142A (Phase 1) Unit Skills Test</p>	<p>Several changes were made to the Unit Skills Test Task Sheet and Unit Skills Test Assessors Guide.</p> <p>Unfortunately the document that was amended during the meeting was not able to be located after the meeting. The documents attached to these minutes are the best recollection of the discussion.</p> <p>Hence it is requested that all members review with the hope of returning this document to a true reflection of the discussion. This includes the Unplanned Events Question which was not able to be recalled.</p> <p>Further, the Unit Skills Test Task Sheet was to be updated with an example of an Electricity Audit from the skills task provided by Brett (NT).</p> <p>Thanks again and apologies for this mistake.</p>																		
<p>Review G006A (Phase 2) Unit Skills Test</p>	<ul style="list-style-type: none"> Several amendments were made to the G006A Unit Skills Test Task Sheet R1.0. The outcomes are captured in the attached G006A Unit Skills Test Task Sheet R1.1. 																		
<p>General Discussion</p>	<ul style="list-style-type: none"> Volunteers were requested for the review of recently updated Phase 1 Unit Skills Tests. The following is a recording of the allocation of units. <table border="1" data-bbox="560 1016 1414 1240"> <thead> <tr> <th>Unit</th> <th>Volunteer</th> <th>Review</th> </tr> </thead> <tbody> <tr> <td>G101A</td> <td>Ken (Vic)</td> <td>Mapping of Skills and Knowledge Tests</td> </tr> <tr> <td>E104A</td> <td>Tracey (WA)</td> <td>Mapping of Skills and Knowledge Tests</td> </tr> <tr> <td>E101A</td> <td>Tracey (WA)</td> <td>Unit Skills Test Task and Mapping</td> </tr> <tr> <td>E102A</td> <td>Brett (NT)</td> <td>Unit Skills Test Task and Mapping</td> </tr> <tr> <td>G106A</td> <td>Phil (SA)</td> <td>Unit Skills Test Task and Mapping</td> </tr> </tbody> </table> <ul style="list-style-type: none"> There were no other items of general business raised from participants 	Unit	Volunteer	Review	G101A	Ken (Vic)	Mapping of Skills and Knowledge Tests	E104A	Tracey (WA)	Mapping of Skills and Knowledge Tests	E101A	Tracey (WA)	Unit Skills Test Task and Mapping	E102A	Brett (NT)	Unit Skills Test Task and Mapping	G106A	Phil (SA)	Unit Skills Test Task and Mapping
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G106A	Phil (SA)	Unit Skills Test Task and Mapping																	
<p>Next meeting</p>	<p>Next meeting is a face to face meeting in Canberra on the 10th and 11th February 2015.</p>																		

Action Table

Action	Due date	Responsible party
All UAPs need to be updated to include 'LAP' in the legend (as a column has now been added to denote LAP mapping)	Prior to each unit being presented to the NVP	E-Oz
All documents still need to be updated to show 'tick' symbol rather than 'v'	Prior to each unit being presented to the NVP	E-Oz
Make identified changes for USTs for; <ul style="list-style-type: none">• UEENEEG033A (Phase 2)• UEENEEG108A (Phase 3)	11/02/2015	E-Oz
Provide headphones and microphones to NVP Committee members who require them	23/01/2015	EOz

Unit Skills Test Task Sheet – UEENEEK142A

UEENEEK142A - Apply environmentally and sustainable procedures in the energy sector.

Task:

- **Part A – Undertake an energy audit**
- **Part B - Undertake an electricity consumption audit**

Instruction:

- Mobile phones and smart devices must be turned off and not accessed.
- Wait for the assessor to mark your work when requested.
- You will be allowed two (2) attempts at each check point to demonstrate the task described
- Whilst carrying out skills activities you must follow workplace procedures and ensure efficient/sustainable use of materials.

Time Allowed: 2.5 hours

Student Name:		Student ID:	
College/ Campus:		Group/ Class:	
Student Signature:		Date:	
Assessor Name:			
Assessor Signature:		Date:	

Items	Checkpoints	Satisfactory Yes/No
Planning the Skills Test	Checkpoint 1	
Undertake an energy audit	Checkpoint 2	
Undertake an electricity consumption audit	Checkpoint 3	
Completing the Skills Test	Checkpoint 4	
Overall result		

1. Planning the Unit Skills Test

Your assessor will provide the details of the equipment required for this Unit Skills Test.

1.1 Equipment:

- Writing materials

1.2 Suggested Materials:

1.3 Miscellaneous Items:




1.7 Risk Assessment

Risk assessment procedure:

- Identify any hazards that may exist with this skills practice below
- List the supervision level you will be working under - Direct (D), General (G) or Broad (B)
- List the risk classification – High Risk (H), Medium Risk (M) or Low Risk (L)
- List the control measures required for each identified hazard that you need to implement.

Hazard/s Identified	Supervision Level (D, G or B)	Risk Classification (H, M or L)	Control Measure/s
Electricity (Isolation)			

The assessor must assess your work at this point. **(Checkpoint 1)**

	 <p><i>Feedback</i></p>	<p>Have your assessor check your risk assessment preparation</p>	Assessor Initials and Date	

2. Carrying Out the Unit Skills Test

Part A – Undertake an energy audit

Undertake an energy and environmental audit of your learning environment with the audit tool below.

Place a tick in the boxes where the requirements are being met and a cross where there are issues. Note your issues in the Notes section at the bottom of each page.

Facility

Facility Conservation Program (check mark if in place)

	Energy Action Team in place with regular meetings.
	Recycling program for drink containers, white paper, etc.

Internal Checks (mark an X if problem noted)

	Lights off in unoccupied places
	Electronic equipment (TV, VCR, Computer monitor) off when not needed
	Computers off at end of day not in sleep mode
	Window covering to block sun where needed
	Thermostats/ return air vents not blocked
	Sinks, water fountains have no leaks (work order needed if leaking)
	Cafeteria compactor in use (if applicable)

Notes

2. Carrying Out the Unit Skills Test

External checks

Exterior doors and windows closed

Dumpster size and collection frequency appropriate

Facility issues

Windows properly caulked and free of cracks

Low wattage lighting and electronic ballasts in fluorescent lights

Pre-Holiday shutdown Procedures in place

Clean out refrigerators

Back up computer files

Unplug all electrical devices in the learning environment and work areas not in use




Adjust time clocks, timers on lights, etc. as needed

HVAC operation of building zones that will be shut down for holidays

Notes

Recommendations/ Ideas to save energy for this Facility:

The assessor must assess your work at this point. **(Checkpoint 2)**

	 <p>Have your assessor check your energy audit</p> <p><i>Feedback</i></p>	<p>Assessor Initials and Date</p>	
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2. Carrying Out the Unit Skills Test

Part B – Undertake an electricity consumption audit

Your task is to perform a full energy audit on a domestic house. This can be either the attached 3 BR house OR your house or Unit.

1. Complete the energy usage sheets provided by your assessor to capture the energy usage in each room in the house.
2. Include the following appliances. If you are unsure of the power rating use the wattage in brackets:
 - a. Air conditioners (1,500W)
 - b. Pool and Spa pumps (1,200W)
 - c. Ovens and hot plates
 - d. Clothes dryers (2,000W)
 - e. Water heaters (a booster element for a Solar system, will be about 1500W)
3. Use as many sheets as you like BUT please be neat as you will need to submit these at the end of the session.
4. Be as realistic as possible in your weekly usage hours.
5. Add up the total, this is your weekly usage, now multiply by 52 to get a yearly total.
6. Divide by 1000 to get the kWh usage per year.
7. Complete the audit by answer the following questions.

Q1. What is the highest wattage appliance in the house?

Q2. What alternative lighting methods could you use to lower the energy consumption?

2. Carrying Out the Unit Skills Test

Q3. What appliance/s (other than the Air-conditioner) uses the most electricity during a 24 hour period?

Q4. How can you reduce the electricity usage of the appliance/s above (Q3)?

Q5. If a home has air-conditioning set to 20°C, what is an easy way to reduce the energy consumption of the appliance?

Q6. Suggest two ways to reduce the electricity usage of a swimming pool pump?

Q7. Suggest a way to reduce the energy consumption of water heating?

3. Completing the Unit Skills Test

Return all tools and equipment to their correct places and clean the work area.

1. Considering the audit that you completed. What human activities lead to sustainable work practice? Describe two (2).

2. Considering the audit that you completed. What is the effect of neglecting sustainable work practice?

3. Completing the Unit Skills Test

5. Name two (2) sustainable energy technologies for generating electricity.

6. The text for this question will be provided by your assessor at the time of assessment.

Write the question and your answer in the space below.

Q

A

7. The assessor must assess your work at this point. **(Checkpoint 4)**



Feedback

Have your assessor check your answers

Assessor
Initials and Date



Unit Skills Test Assessors Guide - UEENEEK142A

UEENEEK142A - Apply environmentally and sustainable procedures in the energy sector

Item	Description of Item	Mapping	Type
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Planning the Unit Skills Test

Checkpoint 1 - Planning the Unit Skills Test (Pass 1/1)

1	Risk assessment completed and correct		Eval
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Carrying Out the Unit Skills Test

Part A – Checkpoint 2 – Undertake an energy audit (1/1)

1	Audit completed and checked by assessor	T1.1, T2.1, T2.3, T2.4,	Eval
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Part B – Checkpoint 3 – Undertake an electricity consumption audit (1/1)

<u>1</u>	<u>Audit completed and checked by assessor</u>	<u>T1.1, T2.1, T2.3, T2.4,</u>	<u>Eval</u>
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Completing the Unit Skills Test

Checkpoint 4 - Completing the Unit Skills Test (5/6)

Q1	Q. <u>Considering the audit that you completed.</u> What human activities lead to sustainable work practice? Describe two (2). A. Sustain from the use of raw materials, recycle natural resources, and Improve the skill and employability of workers and work policies that give priority to time and task development rather than monetary gains.	T1.1	Eval
Q2	Q. Considering the audit that you completed. What is the effect of neglecting sustainable work practice? A. <u>wasted water, excess energy consumption</u>	T1.2	Eval
Q3	Q. <u>Considering the audit that you completed.</u> List two sustainable initiatives that <u>could be undertaken which may have an economic benefit.</u> A. Energy <u>efficient</u> lighting, <u>recycling</u> , waste management, <u>window coverings</u> .	T1.7	Eval
Q4	Q. <u>List two (2) energy efficient lighting devices that can be used to improve energy <u>usage.</u></u> A. Compact fluorescent lamps (CFL), light emitting diodes (LED's) and lighting control with infrared/ ultrasonic sensors.	T2.1, T2.3	Eval
Q5	Q. <u>Name two (2) sustainable energy technologies, for <u>generating electricity.</u></u> A. Wave power, tidal power or geothermal energy, <u>wind, solar.</u>	T2.2	Eval

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Deleted: (2) economic benefits of

Deleted: can be drawn from the audit

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Unit Skills Test Assessors Guide - UEENEEK142A

UEENEEK142A - Apply environmentally and sustainable procedures in the energy sector

Q6	The text for this question will be provided by your assessor at the time of assessment. Write the question and your answer in the space below. Q. A.	T	Eval
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Unit Skills Test Task Sheet – UEENEEG006A

UEENEEG006A - Solve problems in single and three phase low voltage machines

Task:

- **Part A – Transformer Testing**
- **Part B – Transformer impedance and regulation**
- **Part C – Paralleling transformers**
- **Part D - Three phase motors**
- **Part E - Single phase motors**

Instruction:

- Mobile phones and smart devices must be turned off and not accessed.
- Wait for the assessor to mark your work when requested.
- You will be allowed two (2) attempts at each check point to demonstrate the task described
- Whilst carrying out skills activities you must follow workplace procedures and ensure efficient/sustainable use of materials.

Time Allowed: 5 hours

Student Name:		Student ID:	
College/ Campus:		Group/ Class:	
Student Signature:		Date:	
Assessor Name:			
Assessor Signature:		Date:	

Items	Checkpoints	Satisfactory Yes/No
Planning the Skills Test	Checkpoint 1	
Transformer testing	Checkpoint 2	
Transformer regulation	Checkpoint 3	
Transformer impedance	Checkpoint 4	
Paralleling transformers	Checkpoint 5	
Three phase motors	Checkpoint 6	
Single phase motors	Checkpoint 7	
Completing the Skills Test	Checkpoint 8	
Overall result		

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1. Planning the Unit Skills Test

Your assessor will provide the details of the equipment required for this Unit Skills Test.

<p>1.1 Equipment:</p> <ul style="list-style-type: none"> • Multi-meter • Insulation resistance meter • AC ammeter (tong type) • AC Voltmeters • Variac • ELV bench supply three phase • Connection leads • Two single phase transformers 	<ul style="list-style-type: none"> • Three phase motor for disassembly and testing • Split phase induction motor • Capacitor start motor • Capacitor start/run motor • Permanently split capacitor motor • Universal motor 	<p>1.2 Miscellaneous Items:</p> <ul style="list-style-type: none"> • Spanners • Socket set • Screwdrivers • Soft-faced hammer • AS/NZ3000
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1.3 Risk Assessment

Risk assessment procedure:

- Identify any hazards that may exist with this skills practice below
- List the supervision level you will be working under - Direct (D), General (G) or Broad (B)
- List the risk classification – High Risk (H), Medium Risk (M) or Low Risk (L)
- List the control measures required for each identified hazard that you need to implement.

Hazard/s Identified	Supervision Level (D, G or B)	Risk Classification (H, M or L)	Control Measure/s
Electricity (Isolation)			

The assessor must assess your work at this point. **(Checkpoint 1)**

	 <p><i>Feedback</i></p>	<p>Have your assessor check your risk assessment preparation</p>	<p>Assessor Initials and Date</p>	
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2. Carrying Out the Unit Skills Test

Part A –Transformer Testing

1. Identify the individual windings of the transformer, measure their resistance and record in Table 1.1 below

Table 1.1

Winding	Winding resistance in ohms
1	
2	

2. Determine the insulation resistance of the windings to earth connection of the transformer and record in Table 1.2. (ADD WINDING TO WINDING TEST)

Table 1.2

Winding	Insulation resistance in ohms
1	
2	

3. Do these results indicate that the transformer has any obvious winding faults? Explain your answer.

YES / NO (Circle correct answer)

4. What fault would an insulation resistance of 1200 Ohms indicate when testing between winding and earth connection of the tranny?

5. The assessor must check your test results and answers at this point (Checkpoint 2).

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Winding resistance in ohms

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2. Carrying Out the Unit Skills Test

	 Have your assessor check your transformer testing <i>Feedback</i>	Assessor Initials and Date	

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2. Carrying Out the Unit Skills Test

Part B – Transformer impedance and regulation

B1 Transformer Regulation

1. Calculate the transformer regulation for the following transformers from the information provided. Show all working and give your answers to two decimal places.

Transformer 1. A 1000VA single phase transformer has a no load output voltage of 26.5V and a full load output voltage of 23.9V. Determine the voltage regulation of the transformer.

Answer: _____




Transformer 2. An 850kVA three phase transformer has full load output voltage of 410V and no load voltage output of 425V. Determine the voltage regulation of the transformer.

Answer: _____

Which of the above two transformers has the best transformer regulation result? (circle your answer) **Please explain..**

Transformer 1 or Transformer 2

2. The assessor must check your calculations are correct at this point.
(Checkpoint 3)

		Have your assessor check your plug and socket terminations	Assessor Initials and Date	
<i>Feedback</i>				

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2. Carrying Out the Unit Skills Test

B2 Transformer percentage impedance

1. For this task your assessor will provide a test step down transformer. Read the nameplate to obtain the primary and secondary voltages and VA rating

Primary Voltage	
Secondary Voltage	
VA Rating	

2. Calculate the Full Load Current based on the information supplied

Full Load Current	
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3. Draw below the circuit you would use to undertake short circuit tests to determine the percentage impedance of the test transformer.

4. Connect the circuit. DO NOT ENERGISE UNTIL CHECKED.

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2. Carrying Out the Unit Skills Test



Have your assessor check your work to ensure that it is safe to continue

Safety Check



5. Undertake the test and record the results in Table 1.3

Table 1.3

Primary rated voltage	
Primary voltage to produce FLC in shorted secondary winding	

6. Using the results from Table 1.3 determine the percentage impedance of the transformer by calculation.

Show all working and give your answers to two decimal places.

Answer: _____

7. Have your assessor check your test results. **(Checkpoint 4)**



Feedback

Have your assessor check your test results

Assessor
Initials and Date



2. Carrying Out the Unit Skills Test

Part C – Paralleling transformers

1. For this task your assessor will provide two test step down transformers and the primary and secondary voltages

	Primary Voltage	Secondary Voltage
Transformer 1		
Transformer 2		

2. Draw below the circuit you would use to undertake polarity tests on the test transformers.

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3. Connect the circuit. DO NOT PERFORM THE TEST UNTIL CHECKED.

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Have your assessor check your work to ensure that it is safe to continue

Safety Check



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2. Carrying Out the Unit Skills Test

- Undertake the test and record the polarity of each transformer by placing a dot on your diagram and the transformer.
- Draw below the circuit of the two transformers connected in parallel including the appropriate meters to measure the input and output voltage.

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- Connect the transformers in parallel ensuring polarity of the transformers is maintained in the circuit. DO NOT ENERGISE UNTIL CHECKED.



Have your assessor check your work to ensure that it is safe to continue

Safety Check



- Energize the circuit and record the results in Table 1.4 below

Table 1.4

Input voltage	
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2. Carrying Out the Unit Skills Test

Output voltage	
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8. What would be the result if the polarity of the secondary winding of the second transformer was reversed?

9. Have your assessor check your test results. **(Checkpoint 5)**

	 <i>Feedback</i>	Have your assessor check your test results	Assessor Initials and Date	

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2. Carrying Out the Unit Skills Test

complete and free to spin on completion.

7. Undertake the following tests and record the results in Table 1.6

Table 1.6

Resistance winding U	
Resistance winding V	
Resistance winding W	
Insulation resistance to earth winding U	
Insulation resistance to earth winding V	
Insulation resistance to earth winding W	

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

24. _____

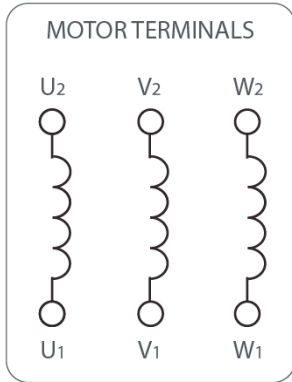
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2. Carrying Out the Unit Skills Test

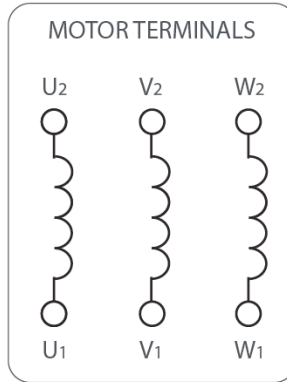
25. _____

26. On the following diagrams neatly draw the connections to complete the two connection methods including connection to the supply.

Star Connection



Delta Connection



27. Describe below the process for reversing the direction of **both** of these two motors



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STAR and DELTA headings

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2. Carrying Out the Unit Skills Test

28. Have your assessor check your test results. **(Checkpoint 6)**

	 <i>Feedback</i>	Have your assessor check your answers	Assessor Initials and Date ✓
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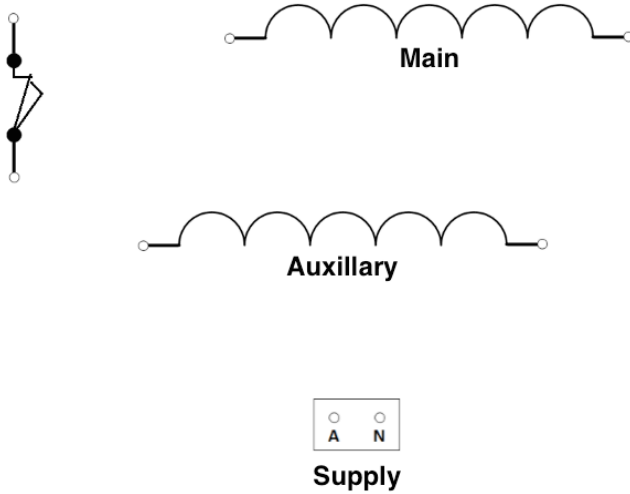
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2. Carrying Out the Unit Skills Test

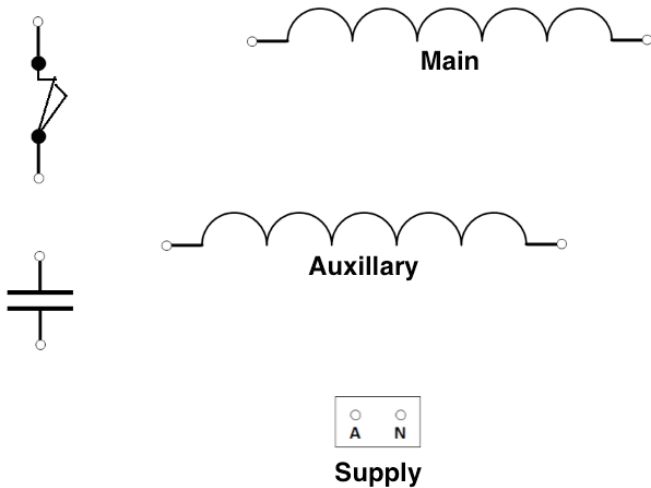
Part E –Single phase motors

1. Complete the connections on the following drawings to enable correct operation of the motor. Use only a single colour to complete each drawing.

Split Phase Induction Motor **START and RUN 4 LOOPS**



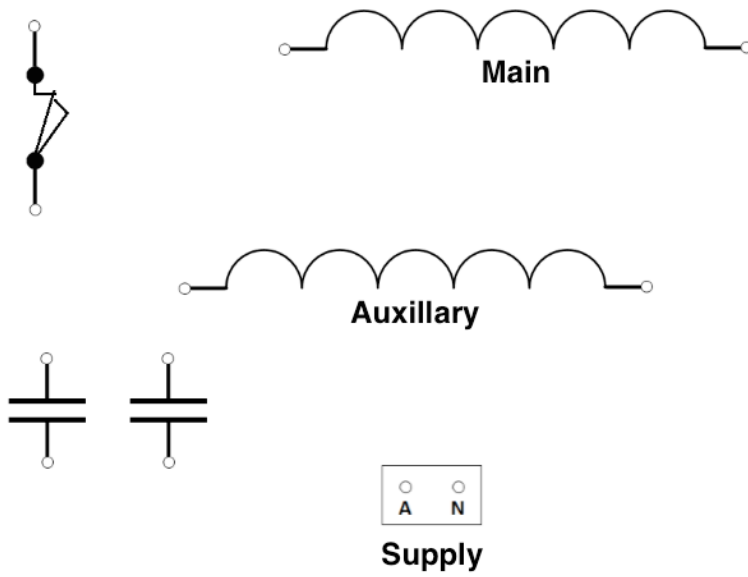
Split Phase Capacitor Start Induction Motor **START RUN LOOPS** **(CHECK IBP3 BKT)**



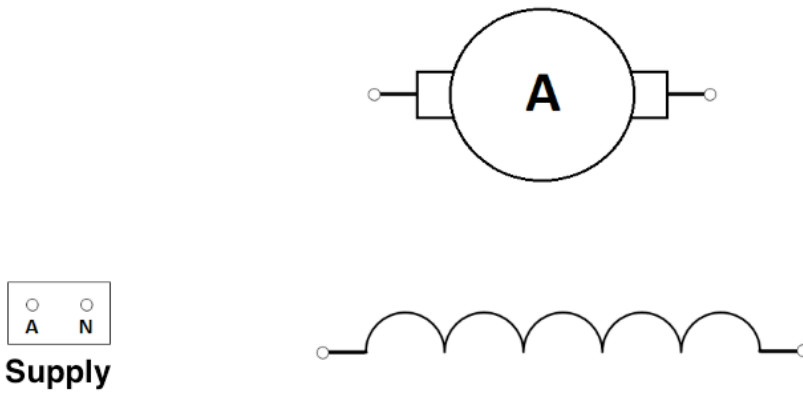
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2. Carrying Out the Unit Skills Test

Capacitor Start Capacitor Run Motor




Series Universal Motor **3 LOOPS M in the Motor No brushes**



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2. Carrying Out the Unit Skills Test

2. Using your diagram connect a split phase induction motor **supplied by the assessor** to the designated supply. DO NOT ENERGISE UNTIL CHECKED.

	Have your assessor check your work to ensure that it is safe to continue	<i>Safety Check</i>	✓
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3. Describe to the **assessor** how a split phase induction motor would be reversed.

4. Using your diagram connect a split phase capacitor start induction motor **supplied by the assessor** to the designated supply. DO NOT ENERGISE UNTIL CHECKED.

	Have your assessor check your work to ensure that it is safe to continue	<i>Safety Check</i>	✓
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5. Describe to the **assessor** how a split phase capacitor start induction motor would be reversed.

6. Using your diagram connect a capacitor start capacitor run motor **supplied by the assessor** to the designated supply. DO NOT ENERGISE UNTIL CHECKED.

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2. Carrying Out the Unit Skills Test



Have your assessor check your work to ensure that it is safe to continue

Safety Check



7. Describe to the **assessor** how a capacitor start capacitor run motor would be reversed.

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8. Using your diagram connect a series universal motor **supplied by the assessor** to the designated supply. DO NOT ENERGISE UNTIL CHECKED.



Have your assessor check your work to ensure that it is safe to continue

Safety Check



9. Describe to the **assessor** how a series universal motor would be reversed.

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10. Have your assessor check your test results. **(Checkpoint 7)**



Feedback

Have your assessor check your answers

Assessor
Initials and Date



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3. Completing the Unit Skills Test

Return all tools and equipment to their correct places and clean the work area.

1.

2.

3.

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3. Completing the Unit Skills Test

4.

5.

6.

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3. Completing the Unit Skills Test



7. The text for this question will be provided by your assessor at the time of assessment.

Write the question and your answer in the space below.

Q

A

8. The assessor must assess your work at this point. **(Checkpoint 8)**

	 <i>Feedback</i>	Have your assessor check your answers	Assessor Initials and Date	