Topic Skills Practice Cover Sheet

Unit Name:	UEEEL0012 Install low voltage wiring, appliances, switchgear and associated accessories
Topic Title:	Aerial Cabling

Skill Practice Number:	6.3
Skill Practice Name:	Install and Terminate a Catenary Wiring System

Student Name:	
Student ID:	
College/Campus:	
Group:	

Results	
Planning:	
Carryout:	
Completion:	
Overall Results:	
Comments:	

Topic Skills Practice 6.3

UEEEL0012 Install low voltage wiring, appliances, switchgear and associated accessories

Topic 6. Aerial Cabling

Skills Practice 6.3: Install and Terminate a Catenary Wiring System

Task:

To install and terminate a circuit supported on a catenary in accordance with AS/NZS 3000 requirements.

Objectives:

At the completion of this skills practice, you should be able to:

- Install a catenary support system
- Secure TPS cables to a catenary system.
- Terminate TPS cables.
- Test installed cables to verify earth resistance, insulation resistance and polarity in accordance with AS/NZS 3000.

Topic Skills Practice 6.3

1. Planning the Skills Practice

1.1 Equipment

- Switchboard
- Catenary wire
- 2 x turnbuckles
- 4 x U clamps
- 2 x hook/eye-bolt anchors
- Stranded TPS cable
- Cable ties

1.2 Suggested Materials

- Junction box
- Multimeter
- Insulation Resistance (IR) tester

1.3 Miscellaneous Items

- PPE
- Hand tools
- Pens/pencils
- AS/NZS 3000

1.4 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
Fall from height	D	H	Use safety gear check ladder
Exposed conductor	D	H	Test the circuit before touching
Live voltage at terminals	D	H	Do Locking/Tagging

Topic Skills Practice 6.3

	 *Feedback*	**Have your teacher/trainer check your risk assessment**	**Teacher/Trainer Initials and Date** ✓

2. Carrying Out the Skills Practice

2.1 Catenary System Installation

2.1.1 Install the two hook/eye bolt anchors at a suitable height and distance apart, as instructed by your teacher.

2.1.2 Attach a turnbuckle to each anchor.

2.1.3 Cut a suitable length of catenary wire, as instructed by your teacher, and fasten one end to one of the turnbuckles using two U clamps to secure the wire in place

2.1.4 Fasten the other end of the catenary to the other turnbuckle using the other two U clamps.

2.1.5 Tension the catenary wire by rotating the turnbuckles.

	 *Feedback*	**Have your teacher/trainer check your work**	**Teacher/Trainer Initials and Date** ✓

2.2 Cable Installation

2.2.1 Mount the junction box on the wall at the end of the catenary that is furthest from the switchboard.

2.2.1 Run the TPS cable from the switchboard to the catenary using suitable supports.

2.2.2 Cable tie the cable along the length of the catenary, leaving a loop at each end.

2.2.3 Terminate the cable and conductors into the junction box at the far end of the catenary.

2.2.4 Terminate the cable and conductors at the switchboard.

	 *Feedback* Have your teacher/trainer check your work	Teacher/Trainer Initials and Date	✓

2.3 Cable Specifications

2.3.1 In the spaces provided below, record details of the installation cable by interpreting and extracting specifications from the cable drum label.

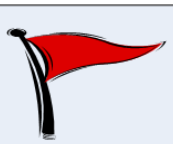
Cable Specifications						
Cable Type	**Size (c.s.a.)**	**Insulation Type**	**No. of Cores**	**Stranding**	**Temp. Rating**	**Voltage Rating**
XLPE Aerial bundled	6mm^2	XLPE	4	-	-40°c to 80°C	0.6/1 KV

	 *Feedback* Have your teacher/trainer check your work	Teacher/Trainer Initials and Date	✓

2.4 Installation Testing

2.4.1 Test the installed wiring to verify continuity of the earthing system, insulation resistance, and correct polarity. Record your test results in the schedule below.

Installation Test Results						
Circuit	**Earth Resistance**	**Insulation Resistance**		**Correct Polarity**		**Details of Circuit Defects (if applicable)**
		A-E	**N-E**			
1	0 Ω	∞ Ω	∞ Ω	☑ Yes	□ No	
2	0 Ω	∞	∞	☑ Yes	□ No	
3	0 Ω	∞	∞	☑ Yes	□ No	



Feedback

Have your teacher/trainer check your work

Teacher/Trainer Initials and Date

✓

3. Completing the Skills Practice

3.1 Skills Practice Review Questions

3.1.1 Clean your work area, return all equipment to the correct storage areas as directed by your teacher, and then complete the following review questions.

1. What are the minimum requirements for the types of cables permitted to be installed on a catenary? Provide AS/NZS 3000 Clause(s) to support your answer.

3.5.1 Table 3.3 Aerial wiring – Copper - 6mm^2 Aluminium - 16mm^2

1. List three requirements for catenary supports. Provide AS/NZS 3000 Clause(s) to support your answer.

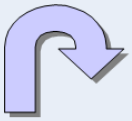
- (a) Provide uniform support

- (b) Consist of material equally resistant to corrosion

(c) Be mounted at a sufficient height above the ground to prevent danger to person. Live stock

2. What is the minimum ground clearance for a catenary installed above a walkway between site sheds? Provide AS/NZS 3000 Clause(s) to support your answer.

Table 3.8 – 3m (Over area not used by vehicle)

	 *Feedback*	**Have your teacher/trainer check your answers**	**Teacher/Trainer Initials and Date**
			✓