



SOP – INSSOP040 – 8.5m Slip Base Solar Pole 3mt Outreach C/W 320W Panel and 75w Light

Rev 1 (22/11/2023) – Owner: Engineering & Production Manager



ROAD SAFETY RENTAL

1. Purpose

The purpose of this Standard Operating Procedure (SOP) is to outline the safe handling method for the assembly of the Saferoads 8.5m Slip Base Solar Pole with 3m Outreach - C/W 320W Panel and 75w Light.

2. Scope

This SOP relates to all Saferoads 8.5m Slip Base Solar Pole with 3m Outreach - C/W 320W Panel and 75w Light.

3. Safety



The following safety guidelines must be adhered to:

- Working on or besides a roadway is inherently dangerous;
- Checks must be performed to ensure there are no overhead services prior to the erection of the pole;
- Manual lifting is not permissible (risk of Musculoskeletal injury);
- Only certified lifting equipment is to be used and checked prior to use;
- Operators are to stay clear of plant and equipment whilst performing this task;
- Operators are to stay well clear of the lifting and lowering area; and
- Operators are to be sure they keep clear from any pinch point area.

4. Personal Protective Equipment (PPE)

The following is mandatory PPE.



Safety Boots (steel capped) with rubber soles.



Eye and hearing protection is compulsory



Hard hat is to be worn when raising or lowering



Hi-Viz must be worn when installing product



Gloves must be worn when installing product



Hi-Viz Protective Clothing is to be worn

5. Equipment Required

The following equipment is required to safely carried out this process:

- Forklift and jib;
- Certified slings / lifting equipment; and
- Small hand tools.



SOP – INSSOP040 – 8.5m Slip Base Solar Pole 3mt Outreach C/W 320W Panel and 75w Light


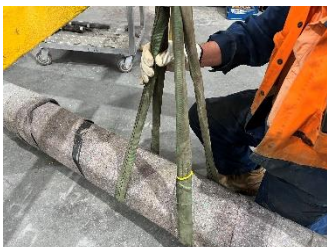



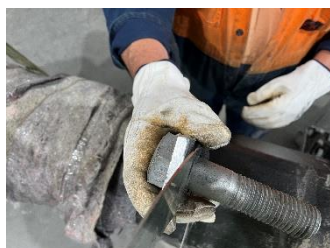



Rev 1 (22/11/2023) – Owner: Engineering & Production Manager



ROAD SAFETY RENTAL

SECTION ONE – WORKSHOP ASSEMBLY OPERATIONS

6. Assembly – Stub and Pole

Step 1 – Pole	Step 2 – Lifting stub	Step 3 – Stub
		
Ensure the pole is orientated on a flat surface, preferably a set of trestles. The pole should be at an optimum working height.	Using an approved and certified lifting method, raise the stub to align with the working height of the pole.	Remove any covering from the stub by 300mm. Ensure that the pole has an even coating of black mastic.
Step 4 – Mounting hardware	Step 5 – Orientation	Step 6 – Preparing hardware
		
Ensure that the mounting hardware has been prepared for joining the pole to the stub.	Ensure that the stub and the pole are at the correct orientation to allow fitment of hardware.	Place a washer onto the bolt and slip on the flange ring.
Step 7 – Joining stub and pole	Step 8 – Joining stub and pole	Step 9 – Joining stub and pole
		
Ensure the head of the bolt is closer to the ground. The thin nut must be put in place first and the full nut after that.	Using a 50mm socket and spanner, tighten the thin nut and bolt. Recommended torque is 150Nm	Repeat the process on the remaining two bolted assemblies.





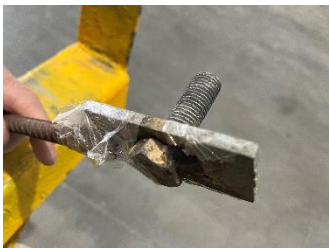

Step 10 – M30 Hex standard nut

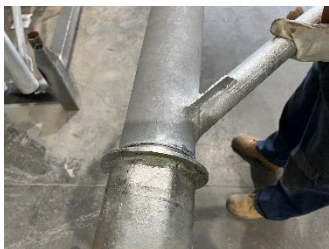




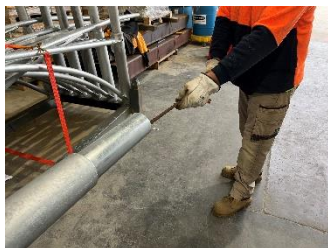


Place the M30 Hex Standard Nut on last and tighten.




Repeat the process for all three bolted joints.

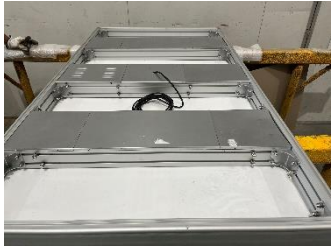

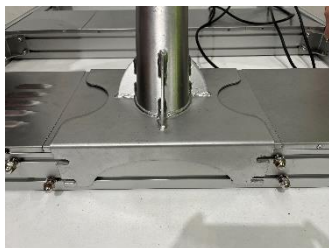






7. Assembly – Outreach to Pole

Step 1 – Preparing the pole	Step 2 – Remove mounting nut	Step 3 – Remove mounting bolt
		
Remove any packaging materials from the pole. Ensure that the surface is clean and free from any debris.	Using 24mm spanner, remove the nut and rectangular washer from the mounting bolt.	Push the bolt through and allow to drop out of the base of the outreach.
Step 4 – Retrieve mounting bolt	Step 5 – Attaching outreach	Step 6 – Align pole
		
Retrieve the mounting bolt.	Using a 1.8m length of 12mm rod, attach the mounting bolt with adhesive tape.	Align the pole so the hole is at the top of the pole (as shown).






Step 7 – Attaching outreach	Step 8 – Attaching outreach	Step 9 – Attaching outreach
		
Slide the outreach over the pole.	Ensure that the outreach is pushed back to the flange	Ensure that the holes are aligned.
Step 10 – Attaching outreach	Step 11 – Attaching outreach	Step 12 – Attaching outreach
		
Using a 1.8m length of 12mm rod with the mounting bolt attached, thread the rod through the top of the outreach and align the bolt with the holes.	Attach the square washer, flat washer and nut upon the bolt and tighten. Outreach is now attached.	Once the hardware has been secured, forceable pull upon the 12mm rod to release the rod from the adhesive tape.

8. Assembly – Solar Panel




Step 1 – Preparing the panel	Step 2 – Jacking bolts	Step 3 – Centre bracket
		
Remove the solar panel from its packaging and place it on a flat surface with the underside of the panel facing up.	Install the M10 jacking bolts onto the centre bracket.	Place the centre bracket on the middle section of the solar panel.

Step 4 – Positioning	Step 5 – Jacking bolts	Step 6 – Centre bracket
		
Remove the solar panel from its packaging and place it on a flat surface with the underside of the panel facing up.	Install the M10 jacking bolts onto the centre bracket and pull the wire through the centre bracket	Place the centre bracket on the middle section of the solar panel.
Step 7 – Positioning	Step 8 – Securing	Step 9 – Support brackets
		
The bracket is to be centered 335mm from the outside of the bracket to the inside of the solar frame..	Tighten the mounting bolts to the centre bracket. Only affix finger tight.	Place the two supporting brackets on each side of the centre bracket.
Step 10 – Securing centre bracket	Step 11 – Securing support bracket	Step 12 – Tighten all bolts
		
Secure the supporting brackets to the centre brackets using M10 x 30 bolts.	Secure the supporting brackets to the main frame.	Once the centre and supporting brackets are in place, secure all slide bolts with a 14mm spanner. Check all bolts are tight.


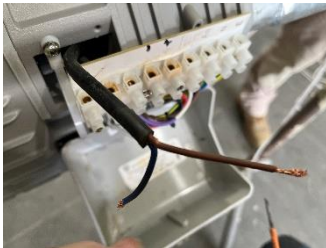


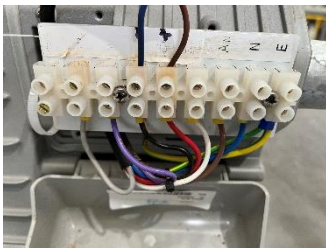

9. Assembly – Pre-stringing the outreach

Step 1 – Yellow tongue	Step 2 – Attach nylon string	Step 3 – Threading the yellow tongue
		
Place a bend at the end of the yellow tongue.	Attach the nylon string to the yellow tongue.	Push the yellow tongue into the cross member of the outreach, so it threads itself through the outreach.
Step 4 – Nylon String	Step 5 – Nylon string	
		
Ensure that the nylon string is now at both end of the outreach.	As per step 4.	

10. Assembly – Threading solar cord

Step 1 – Attaching cord	Step 2 – Pulling cord through	Step 3 – Secure jacking bolts
		
Using electrical tape, attach the solar cord to the nylon string	Pull the nylon cord until the solar cord has reached the end of the outreach and remove the nylon string.	Tighten the jacking bolts on the centre bracket of the solar panel to secure the solar panel to the pole.

11. Assembly – Light

Step 1 – Junction box	Step 2 – Junction box	Step 3 – Secure jacking bolts
		
Open up the junction box	Thread the wire through junction box.	Slide the light over the outreach spigot
Step 4 – Tighten bolts	Step 5 – Connect wires	Step 6 – Close junction box
		
Tighten the jacking bolts ensuring that the light is in the correct orientation.	Solar panel brown wire the light red connection. Solar panel black wire the light black connection.	Close the junction box and ensure the box is secured. Light assembly complete connection

SECTION 2 - INSTALLATION

12. Installation



Step 1 – Identify right location	Step 2 – Auger hole	Step 3 – Place stub
		
Ensure that you are in the right location for the installation.	Auger 600mm dia. x 1.9m deep hole and remove spoil	Lower stub into the hole ensuring the correct orientation as per the drawing.

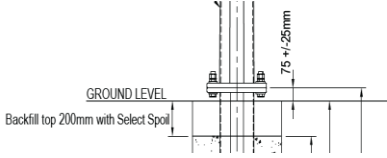

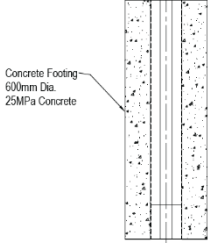
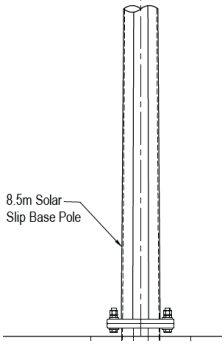
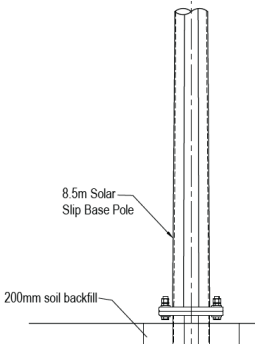


SOP – INSSOP040 – 8.5m Slip Base Solar Pole 3mt Outreach C/W 320W Panel and 75w Light

Rev 1 (22/11/2023) – Owner: Engineering & Production Manager



ROAD SAFETY RENTAL

Step 4 – Height	Step 5 – Level	Step 6 – Concrete
		
Check height, Centre of Slip plates to be 75mm +/- 25mm above Finished ground level.	Level Stub and check location, offset from Kerb etc. as per Drawings.	Backfill hole with 25MPa Concrete up to a nominal 200mm from Ground Level. This allows for access to the Slip Plate Bolts if required in the future.
Step 7 – Attach Pole	Step 8 – Backfill	Step 9 – Site preservation
		
Once the Concrete has cured, attach the pole to the stub referring to Section 1. – Point 6 of this document. Re-Torque Slip Plate Bolts to 90Nm in accordance with TCN 006 Section 6 (DOT Victoria Document Attached)	Once the bolts have been secured, backfill the remaining 200mm with select material from site or topsoil.	Remove excess soil and tidy site.

Appendices:

1. Saferoads Drawing: SRSOLAR-SB085-FOOTING dated 6 Dec 22
2. ITS TECHNICAL NOTICE - TCN 006 – November 2020 - Work Instruction: Re-tightening of Slip Base Pole Flange Bolting

SOP REVISION UPDATES

SOP Amendment Level		
Rev #	Date	Comment
4	20/11/2023	a. PPE icons updated b. SOP Ownership update: COO to Engineering & Production Manager
1	05/12/2022	a. New SOP