



Cable Pulling Work Instruction

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Authority

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History

Revision	Date	Amended By (Name)	Details of Amendment
1.0	17/05/2017	Louise Grimes	Issued for use
2.0	21/09/2018	Anthony Gollan	Amended to include pit works
3.0	21/10/2020	Anthony Gollan	Document reviewed
4.0	26/07/2023	Vanessa Placheta	SCEE Electrical Branding and Review
5.0	01/11/2023	Anthony Gollan	Review of Work instruction to incorporate VSD Electric Cable Puller

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1 Purpose

The purpose of this Work Instruction is to outline the process to be followed when pulling cables on SCEE work sites. This WI shall apply to all workers of SCEE involved in cable pulling activities.

2 Definitions

Term	Definition
Designated Competent Person	Competent Person means a person who through a combination of training, education and experience has acquired knowledge and skills enabling that person to perform correctly a specified task.
JHA	Job Hazard Analysis
Jinka	A cable Jinka is a special purpose device, similar to a trailer in design, for transporting cable drums behind vehicles. It has hydraulic lifting arms and supports the cable drum via an axle which fits through the centre hole of the drum.
Worker	A person is a worker if the person carries out work in any capacity including work as — a) an worker; or b) a contractor or subcontractor; or c) an worker of a contractor or subcontractor; or d) an worker of a labour hire company who has been assigned to work in the person's business or undertaking; or e) an outworker; or f) an apprentice or trainee; or g) a student gaining work experience; or h) a volunteer; or a person of a prescribed class.

3 Responsibilities

Role	Responsibility
Project Manager	<ul style="list-style-type: none"> Ensure full compliance with the requirements of this procedure.
Site Manager	<ul style="list-style-type: none"> Audit and Monitor Compliance with this procedure. Identify remedial corrective actions required to ensure that the Exposure Standard for Noise is not exceeded. Report to the Area Construction Manager on all aspects of the Project Noise management program.
HSE Advisor	<ul style="list-style-type: none"> Audit and Monitor Compliance with this procedure. Identify remedial corrective actions required to ensure that the Exposure Standard for Noise is not exceeded. Report to the Project/Site Manger on all aspects of the Project Noise management program.
Supervisor	<ul style="list-style-type: none"> Conduct workplace inspections and enforce compliance with this procedure.
Workers	<ul style="list-style-type: none"> Comply with the requirements of this Work Instruction.

4 Flow Chart

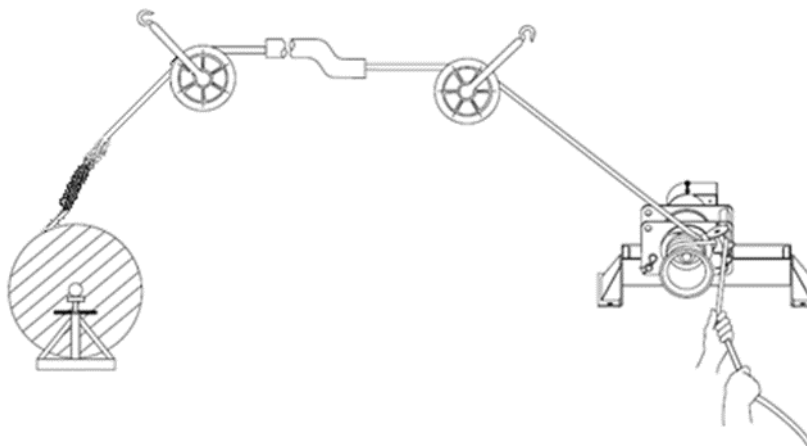
N/A

5 Activities

5.1 Typical Cable Pulling Systems

Pulling cable requires a system of components. Typically a cable pulling system will include a cable puller (or winch), a cable pulling rope, and connectors to join the rope to the cable. Systems may also include a cable puller anchoring system, cable rollers, pulling sheaves and sheave anchoring systems, as well as protective barriers to prevent insulation damage to the cable from sharp edges. On occasions there will be cable pulling tasks that will not require a winch or cable puller.

A typical winch assisted cable pull set up may look like this:



The routing of cable will be as per the specified drawings, otherwise assessment shall be carried out by the supervisor. Any deviations from these routes are required to be approved by a Client Electrical Superintendent. Any major cable pull routes are to be verified/inspected by a Client Electrical Superintendent (e.g. where a winch is used).

The cable drum should be on firm level ground and the shaft greased. Spacers should be added where required. If using a cable jinka the wheels must be chocked. The drum area is to be barricaded off and information tags placed on the barricading and when using a winch/rope the line of the rope to the winch needs to be barricaded off and access restricted.

Cable stands are required to be visually inspected by a competent person prior to use and any defects (cracked welds, damaged structural supports) are to be reported to the supervisor immediately and the equipment Tagged Out of Service. Refer to Appendix A for further detail on Hearhill's Scissor type lifting drum stands.

Cables are required to be rolled off the drums in the direction indicated on the side of the drum, or from the top of the drum where no indication exists, and no twists or kinks should be allowed to develop as it rolls off. At no time shall a cable be handled in such a way that it can take up a radius less than its permissible bending radius. The minimum bending radius shall be the manufacturer's specified value, or 12 times the outside diameter if no value has been specified. The minimum

internal bending radius of high voltage nylon jacketed cables shall be 15 times the outside diameter of the cable.

Cable rollers shall be used along the route in which the cable is being pulled in sufficient quantities to ensure the cable is supported and runs easily without abrasion to its sheath and does not work at a radius less than the manufacturer's specified minimum installing radius. Rollers for vertical sections of the pull route should also be used in adequate quantities at changes in direction. Cable rollers are to be fixed into position with cable ties and with rope as a minimum. The supervisor or leading hand will decide where rollers will be required to be welded into position. Any roller under significant pressure may require a safety chain with D-shackle to be fitted.

All personnel are to ensure they do not handle the cable within 1 meter of the input side of a roller, or 0.5 m from the output side of a roller, to eliminate the risk of hands or fingers being caught between the cable and roller. Care is to be taken to ensure that neither the sheathing nor insulation of the cable being installed nor the sheathing of any existing cable is damaged during the installation. Any damage sustained or noticed will require the cable pulling activity to be stopped and the supervisor immediately notified.

Care will also be taken during the installation of cable in conduit to minimise friction between the cable and conduit. A proprietary lubricant shall be used to reduce the friction. Tension applied to cables shall not exceed the manufacturer's recommended values for each cable being pulled. Any winch used for pulling cables is to have an adjustable torque-limiting device and the supervisor is to instruct the winch operator to halt cable pull at agreed tension values. All operators must have an understanding of the tension meter; all operators are required to be VOC to ensure that forces applied do not exceed recommended values.

At no time during the cable pull shall any personnel be situated on the inside of any bends or changes in direction where a cable under tension may come loose and straighten across the path of the person. It is the responsibility of all personnel including the supervisor working on the cable pull to ensure no one is positioned in such a place. The winch operator shall, where deemed necessary, be situated behind guarding for protection from a possible slingshot effect in the event that the sock or winching components come loose.

Where it is necessary to use a cable sock on the cable the supervisor or leading hand will select the appropriate size sock to use. The sock must be laced onto the cable and any sharp edges are to be taped up. For large cables, the end of the cable that is to be fitted with the cable sock shall be drilled with one small hole through the centre of the cable, approximately 100mm back from the end of the sock – see photo 1. At this stage, a length of fence wire (or similar) is to be inserted through the cable and tied off, as shown in photo 1 prior to drilling cable. The supervisor is to verify the hole position prior to drilling and ensure sufficient cable remains once hole is cut off after installation.

Photo 1



Note: One hole is only required at the base of the sock.

Once cable is inspected by the Supervisor, the area of attachment is to be fully taped to avoid any personal/equipment damage.

As an additional measure for securing the cable sock, stainless steel cable ties are to be put in place. A swivel with suitable safe working load must be fitted when using the sock and the sock must be bolted to the swivel. In the event of damage being sustained to cables, cable ladder or any other installed items or services, work is to cease and the supervisor immediately contacted.

Where the cable is being pulled manually, gloves shall be worn and manual-handling techniques will be adhered to. A manual handling assessment shall be conducted as part of the Take 5 and JHA.

When the cable is installed, allow for the drilled section of cable to be removed prior to next cable installation and the cable capped off. The supervisor is to determine the length of cable to be removed with the drilled section. A point for consideration for the supervisor might be the possibility of water ingress via the drilled hole.

HV cable to be Raychem end cap installed to prevent moisture.

LV cable to be taped up at the exposed end to prevent moisture.

5.1.1 Cable Pits

Cable pits are positioned on cable routes to provide branching or bending points and/or to allow access for jointing and maintenance. Common cables routed through cable pits include data/communication fibre-optic cables and low voltage electrical wiring (higher voltage cables typically go overhead or extremely deep underground).

In contrast, surface cable ducting systems become the cable route and allow low voltage cables and other utilities to be laid directly along a trafficable pavement. They can be continually accessed through removable covers. The structure enclosing the services is typically continuous.

When required to lift pit lids they are to be swept down with a brush prior to removing the lid. At any point if dirt/sand needs to be removed from the pit this shall only be done utilising a brush.

All pit lid movements must be undertaken utilising the correct tool for the job. If workers are required to place any body part within the pit the lid shall be fully removed and laid next to the pit. When closing the pit lid, the lid shall be placed back on utilising the correct tool. At no time shall lids be placed back using a hands only approach.



Correct Method



Incorrect Method

5.2 Spotter

Before commencing any cable pull a spotter must be designated. The spotter must be familiar with the task being conducted and be on the same radio channel as the supervisor or leading hand. The spotter must maintain communications with the supervisor or leading hand at all times.

The spotter, supervisor or leading hand must check that there is sufficient room around the cable drum to minimise the chance of damaging equipment or injuring personnel. Therefore, the cable drum must be positioned on level ground, stands are set up and level, barricading in place and signage to warn personnel approaching the cable drum. There should also be a spacer fitted each side of the cable drum on the shaft.

The spotter must ensure that he can see the route of the cable pull in case of emergency so response procedures can be carried out immediately. The spotter must also monitor the cable tail at the drum end to watch for excessive movement and cut cable or reposition, as necessary.

5.3 Radio Communication

Where radio communication is required along the length of a cable pull the following procedure will be adhered to:

1. Personnel will use a separate designated SCEE radio channel other than the default communication one (SCEE provided radios often have 3 available channels).
2. Supervisor or leading hand will perform a radio check of each spotter and radio user once they are in position and prior to beginning, or re-commencing any winching;
3. The supervisor or leading hand will advise the winch operator of all clear to begin winching;

4. Once the winch operator has heard the confirmation from all spotters and been given to go-ahead to begin, the operator will begin winching by first advising "Taking up tension;"
5. At any time a problem or hazard is noticed the words "Stop-stop-stop" shall be said into the radio immediately to notify the winch operator to halt tension. The winch operator is to stop tension immediately and request if it is safe to take the tension off;
6. The supervisor or leading hand will then investigate the situation and if it is safe to do so will advise "Take Tension off;"
7. When the cable pull is ready to recommence the supervisor or leading hand will repeat the above process from Step 2 until the cable pulling is complete.

During a cable pull it is important to emphasize that communication via the radios is for cable pulling activities only. If someone needs to contact another person not involved with the cable pull, they need to switch to another channel if it is safe to do so.

5.4 Tensioning and Running of Winch Rope

Tension applied to cables shall not exceed the cable manufacturer's recommended values for each cable being pulled.

Double braided composite rope is provided for use with the capstan Greenlee winch. These ropes are custom-made to Greenlee specifications to provide 4:1 safety factor required for cable pulling. These ropes have a double-braided inner core with an extra double-braided outer jacket for added strength and less stretch. Double-braided composite rope is the only type of rope recommended for use with the Ultra Tugger cable puller. Rope can be selected from the following chart.

Double Braided Composite Rope Chart

ROPE DIAMETER	ROPE LENGTH	CAT. NO.	UPC NO.	MAXIMUM RATED CAPACITY	AVERAGE BREAKING STRENGTH	WEIGHT LBS.	kg	ROPE STAND	
FOR THE 805 PULLER									
3/8" (9.5 mm)	300'	91 m	450	23773	1200 lbs. 3.6 kN	3700 lbs. 16.4 kN	14.3	6.5	406
	600'	182 m	451	23775	1200 lbs. 3.6 kN	3700 lbs. 16.4 kN	31.0	14.3	644
	1,200'	365 m	452	23776	1200 lbs. 3.6 kN	3700 lbs. 16.4 kN	60.0	27.2	644
FOR THE UT2 PULLER									
1/2" (12.7 mm)	300'	91 m	455	23774	2,200 lbs. 8.9 kN	10,000 lbs. 44.4 kN	34	15.4	644
	600'	182 m	456	23777	2,200 lbs. 8.9 kN	10,000 lbs. 44.4 kN	75	34	644
FOR THE 640 PULLER									
9/16" (14.3 mm)	300'	91 m	35283	35283	4,000 lbs. 17.8 kN	16,000 lbs. 71.1 kN	28	12.7	644
	600'	182 m	35284	35284	4,000 lbs. 17.8 kN	16,000 lbs. 71.1 kN	63	28.6	644
	1,200'	365 m	35285	35285	4,000 lbs. 17.8 kN	16,000 lbs. 71.1 kN	130	59	†
FOR THE 6001 & 6501 (UT5) PULLER									
3/4" (19.1 mm)	300'	91 m	35098	35098	6,500 lbs. 28.9 kN	26,000 lbs. 115.6 kN	58	26.3	644
	600'	182 m	35100	35100	6,500 lbs. 28.9 kN	26,000 lbs. 115.6 kN	113	51.3	654
	1,200'	365 m	35101	35101	6,500 lbs. 28.9 kN	26,000 lbs. 115.6 kN	230	104.3	†
FOR THE 6800 (UT8) PULLER									
7/8" (22.2 mm)	300'	91 m	34136	34136	8,000 lbs. 35.6 kN	32,000 lbs. 142.3 kN	90	40.8	654
	600'	182 m	34137	34137	8,000 lbs. 35.6 kN	32,000 lbs. 142.3 kN	178	80.7	654
	1,200'	365 m	34138	34138	8,000 lbs. 35.6 kN	32,000 lbs. 142.3 kN	359	163.3	†

Figure 2: From Greenlee cable pulling catalogue

When applying tension to the capstan Greenlee winch rope it is important to remember that the capstan acts as a force multiplier. When the operator exerts a small amount of tension, or tailing force, on the rope the capstan multiplies this force to pull the cable. The resultant force depends upon the number of times the rope is wrapped around the capstan and increasing the number of

wraps increases the pulling force. Greenlee have provided the following as a guide to multiplied force.

Force Table

Operator's Tailing Force	Number of Wraps of Rope	Approximate Pulling Force
44.5 N (10 lbs)	1	93.4 N (21 lbs)
44.5 N (10 lbs)	2	213.5 N (48 lbs)
44.5 N (10 lbs)	3	474.9 N (106 lbs)
44.5 N (10 lbs)	4	1043.8 N (233 lbs)
44.5 N (10 lbs)	5	2293.7 N (512 lbs)
44.5 N (10 lbs)	6	5048.9 N (1127 lbs)
44.5 N (10 lbs)	7	11.1 kN (2478 lbs)

Figure 3: From Greenlee winch operators manual

When setting the rope on the Greenlee winch the rope should approach the capstan at an angle of 90°. Angles outside of this range may cause the rope to overlap.

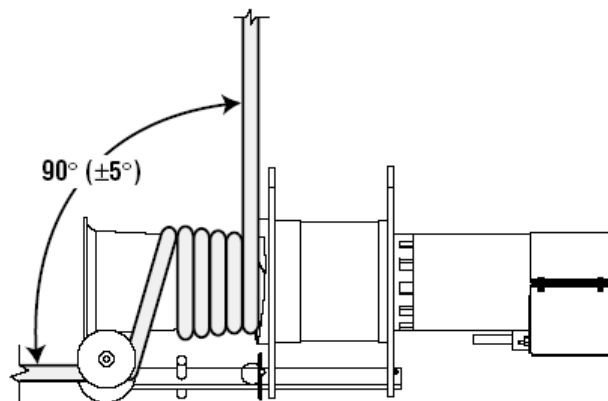


Figure 4 – From Greenlee winch operators manual

Refer to the Greenlee winch manual for safe operation of the Greenlee winch.

Note: If a different manufacturer's winch is being used this WI should be tailored to incorporate their requirements.

6 Cable Pulling – VSD Electric Cable Puller

6.1 Electric Cable Puller Operator

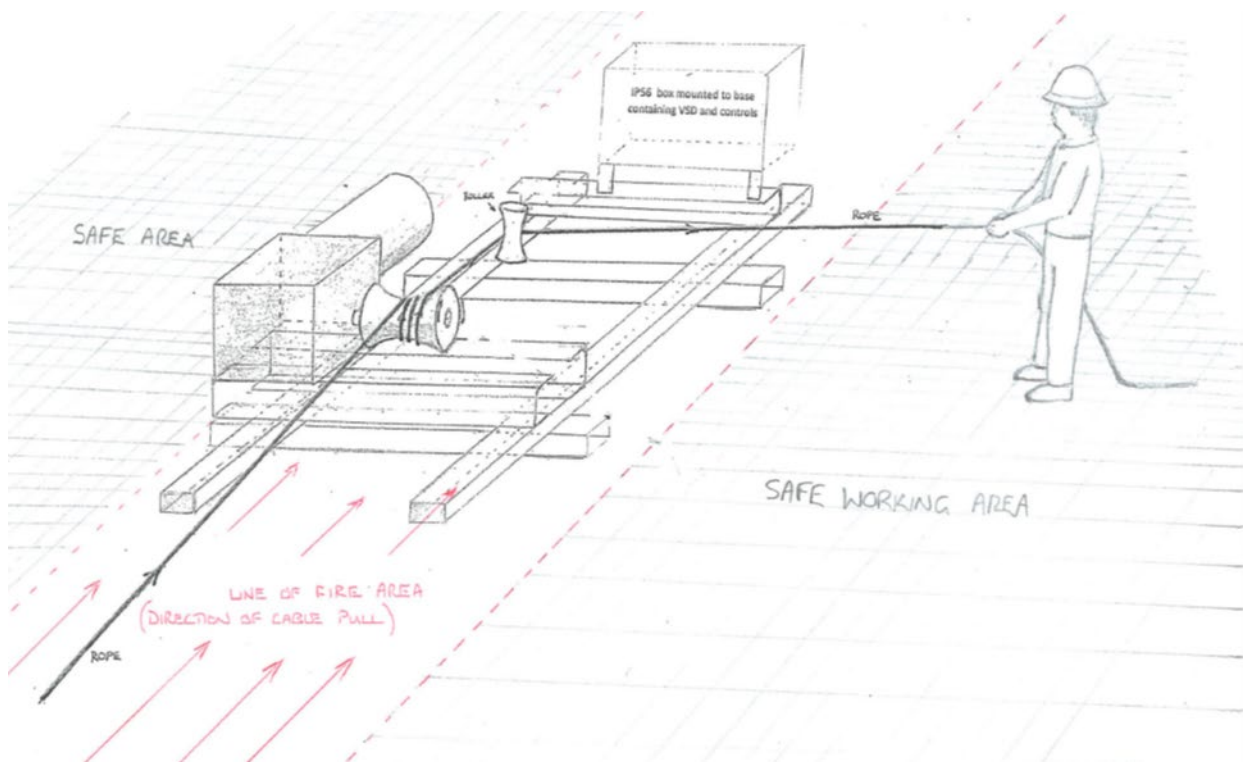
The designated operator of the cable puller must be a recognised competent operator within the company and have had experience in the operation of the cable puller used for a cable pull.

A second person is required to assist the cable puller operator to manhandle the rope. The electric cable puller operator's offsider shall understand how the machine operates and how to stop it in the event of an emergency.

A recognised competent cable puller operator within Southern Cross must have completed and passed a company competency assessment.

6.2 Electric Cable Puller Operation and Maintenance

The cable puller is electrically driven so very little maintenance is required however it requires a power source so generator maintenance will be required. The "drive ready" light should be illuminated to indicate power is available for starting. The cable puller is started by means of a footswitch which controls the operation and speed of the cable puller. The operator shall be positioned to the side of the cable puller to avoid the line of fire of the pull and to be able to monitor the tension shown on the cable puller panel meters. (AS BELOW)



Before attaching rope to cable puller all prestart checks should be completed including direction of capstan. If capstan direction is incorrect, it can be reversed by switching the “forward/reverse” switch. The pulling tension can be adjusted by turning the “maximum tension” knob to the appropriate tension. This will be displayed on the “maximum tension” panel meter. A minimum of 3 turns of rope around the capstan is recommended to prevent rope slippage during the pull.

A daily pre-start check is to be completed prior to operation of the cable puller. Refer to Appendix B for pre-start check. In addition to the daily pre-start check a quarterly inspection must also be conducted and a current quarterly tag be in place. In the event of equipment breakdown, the cable puller must be isolated and an “OUT OF SERVICE” Tag is to be placed on the cable puller plug stating the nature of the breakdown. The cable puller is then to be removed back to lay-down yard or off site if needed, until repairs have taken place and “OUT OF SERVICE” tag has been removed.

6.3 Manufacturer’s Safe Pulling Tensions

The maximum tension shall be pre-set before starting of any cable pulls to a force equal to or less than the recommended maximum tension of the cable given on the manufacturer data sheets. During operation, the amount of tension being exerted by the machine can be observed by the operator on the “actual tension” panel meter. An in-line tension meter may be used to verify the readings given on the panel meters. The panel meters will be clearly visible by the cable puller operator during cable pulls.

6.4 Pulling Rope

The pulling rope will have an average breaking strength of at least 4 times the total load as specified on the calculation sheet. The rope shall be made of the following material as listed below.

- Hemp material.
- Double braided polyester composition rope. (refer rope data sheet)
- Military grade low stretch rope.

All rope used shall be of continuous length for the cable pull. Ropes are not to be joined. Ropes are to be inspected for damage including frayed or broken strands before cable pulling is to commence. Pulling ropes shall be kept in pristine condition for cable pulling. Care is to be taken to avoid dragging on the ground, rubbing against electrical cables or other abrasive surfaces. A swivel shackle is to be installed between the rope and cable or cable sock. If the rope becomes twisted or is pinched during the cable pulling the rope is to be re-inspected around the affected area for damage. Damaged ropes will be discarded from cable pulling use.

6.5 Rope Data Sheet



DOUBLE BRAIDED CABLE PULLING ROPE

Rope Diameter		Rope Length		Cat No.	Max Rated Capacity		Av. Breaking Strength		Weight	
Inch	mm	Ft	M		Lbs	kN	Lbs	kN	Lbs	Kg
TO SUIT GREENLEE 640-22 CABLE PULLER -										
9/16"	14.3mm	300'	91m	4N-180-03S	3070 lbs	13.6 kN	12285 lbs	54.6kN	28	12.7
9/16"	14.3mm	600'	182m	4N-180-06S	3070 lbs	13.6 kN	12285 lbs	54.6kN	63	28.6
9/16"	14.3mm	1200'	365m	4N-180-12S	3070 lbs	13.6 kN	12285 lbs	54.6kN	130	59
TO SUIT GREENLEE 6001-22 CABLE PULLER -										
3/4"	19.1mm	300'	91m	4N-240-03S	6430 lbs	28.6 kN	25730 lbs	114.5 kN	58	26.3
3/4"	19.1mm	600'	182m	4N-240-06S	6430 lbs	28.6 kN	25730 lbs	114.5 kN	113	51.3
3/4"	19.1mm	1200'	365m	4N-240-12S	6430 lbs	28.6 kN	25730 lbs	114.5 kN	230	104.3
TO SUIT GREENLEE 6800-22 CABLE PULLER -										
7/8"	22.2mm	300'	91m	4N-280-03S	7535 lbs	33.5 kN	30150 lbs	134.1 kN	90	40.8
7/8"	22.2mm	600'	182m	4N-280-06S	7535 lbs	33.5 kN	30150 lbs	134.1 kN	178	80.7
7/8"	22.2mm	1200'	365m	4N-280-12S	7535 lbs	33.5 kN	30150 lbs	134.1 kN	359	163.3

FEATURES
• Double-braided inner core with double-braided outer jacket.
• 4:1 safety factor required for cable pulling.
• Rot and mildew resistant.
• Factory spliced eyes at both ends.
• Lowest stretch.
• Select a rope with a maximum rated capacity that meets or exceeds the cable puller's maximum capacity.
• White rope with green tracer for easy identification.
• Supplied on heavy-duty plastic or wooden reel.



**MADE IN THE
USA**

CONTACT YOUR LOCAL BRANCH FOR FURTHER INFORMATION:

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6.6 Cable Puller Anchorage

The cable puller shall be adequately secured so as to maintain the maximum pulling tension without movement or slippage of its base. This can be conducted by bolting or slinging the cable puller to another concrete base or structure if required.

6.7 Cable Pulling Procedure

Prior to commencement of pulling cable by the machine, the cable puller operator must have completed a competency test to demonstrate his understanding and knowledge of the cable puller pulling procedure. Prior to the commencement of the cable pull the entire crew shall pre plan, discuss and generate a JHA that reflects the Southern Cross cable pulling procedure and local conditions that affect the cable pull. Everyone involved shall understand the task, the hazards associated with the task and the controls to be put in place to minimise the risk that the hazards present in order to install the cable safely. All to sign on to the JHA to indicate they understand the task. The JHA must be reviewed whenever task conditions change or a new hazard has been identified. A "Take 5" should be completed when returning from a break such as lunch for example.

Cable stands are required to be visually inspected by a competent person prior to use and any defects (cracked welds, damaged structural supports) are to be reported to the supervisor immediately and the equipment Tagged Out of Service. Refer to Appendix A for further detail on Hearthill's Scissor type lifting drum stands.

Cables are required to be rolled off the drums in the direction indicated on the side of the drum, or from the top of the drum where no indication exists, and no twists or kinks should be allowed to develop as it rolls off. At no time shall a cable be handled in such a way that it can take up a radius less than its permissible bending radius. The minimum bending radius shall be the manufacturer's specified value, or 12 times the outside diameter if no value has been specified. The minimum internal bending radius of high voltage nylon jacketed cables shall be 15 times the outside diameter of the cable.

The cable will be winched along the route through a series of cable rollers which are placed at locations and intervals close enough to limit the friction on the cable allowing it to run freely, reducing the tension required on the cable puller. A cable pulling rope is run out and attached to the cable by means of a cable pulling sock or soft sling.

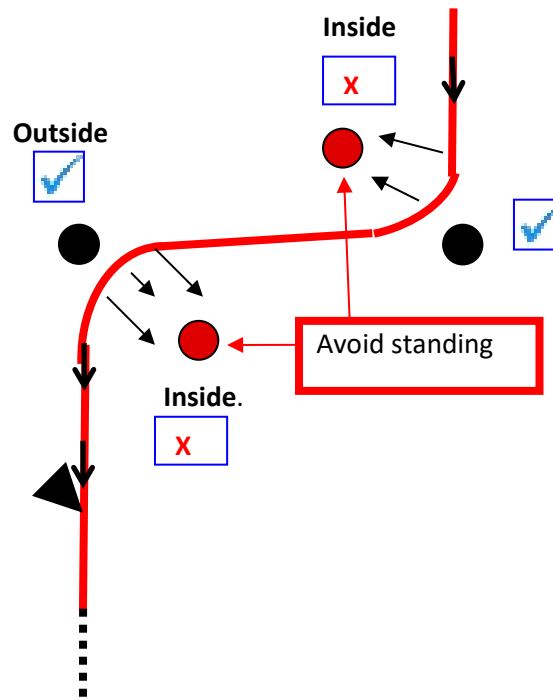
The electric cable puller is set up at one end of the cable route and the cable drum at the other end. The cable puller will take up the surplus rope slowly until the cable has some tension on it and stop. This will allow persons to adjust cable roller alignment and add/delete rollers. Once everyone is clear of the cable and rollers the cable pulling will commence, slowly at first and progressively increasing to the required speed with a person walking the cable head through to ensure the cable doesn't snag on a roller.

This person will remain behind the cable and not the rope side of the join. At times, the cable will be pulled around bends using a series of rollers for this purpose. Caution is required on bends as it is here that the cable may get caught. Keep clear of the rope while cable pulling is in progress. If a roller needs adjusting stop the cable puller and wait for the cable/rope to stop. Ask the operator to back the machine off to release some tension on the rope. Do not handle the cable/rope while it is under tension and keep your hands away from the rollers.

During the cable pull the operator will be positioned to the side of the pulling machine out of the line of fire but able to monitor the tension on the rope via the panel meters on the side of the cable puller panel. As an aid for the tension monitoring there are indicator lights on top of the panel.

1. **Green** – indicates the electric cable puller is running normal and below the tension alarm threshold (95% of maximum set tension).
2. **Amber** – indicates the cable puller is running above alarm threshold and approaching maximum adjusted tension (above 95% and up to maximum setting).
3. **Red** – indicates the drive has tripped and a VSD fault is present.

Don't stand **inside** a bend while the cable is being cable pulled as you will be in direct line of fire if a cable roller support fails. Always stand on the **outside** of the bend to avoid injury



6.8 Personal Protective Equipment

Personal Protective Equipment (PPE) must be worn. As a minimum, hard hat, safety glasses, steel cap boots and gloves shall be worn. Site requirements may dictate additional PPE requirements.

6.9 Radios

Radios will be used by personnel posted at strategic points along the cable route to communicate the status of the cable and direct the pulling speed and to stop the machine should an issue occur at that point. This is done by stating "STOP, STOP, STOP" in a clear and controlled manner. The cable puller operator shall immediately stop at this point and communicate back that he has done so as the cable may still be in motion due to the tension on the rope. Refer to Section 5.3 for further information.

7 References

Documents, both internal and external, that are referenced within the content of this work instruction, including Australian and International Standards and legislation.

Document ID	Document Title
SCEE-BS-HS-PRO-0001	Job Hazard Analysis
SCEE-BS-HS-WIN-0002	Take 5 Risk Assessment
SCEE-BS-HS-PRO-0013	Personal Protective Equipment
SCEE-BS-HS-GUI-0004	SCEE Minimum PPE Matrix

8 Related Documents

Related documents are those that have a relationship with this document, for example if this was the Operational Risk Management procedure related documents would include the work instruction to complete a JHA, the JHA template, Take 5 work instruction and booklet, etc.

Document ID	Document Title
AS 1418.1-2002	Cranes, hoists and winches - General requirements

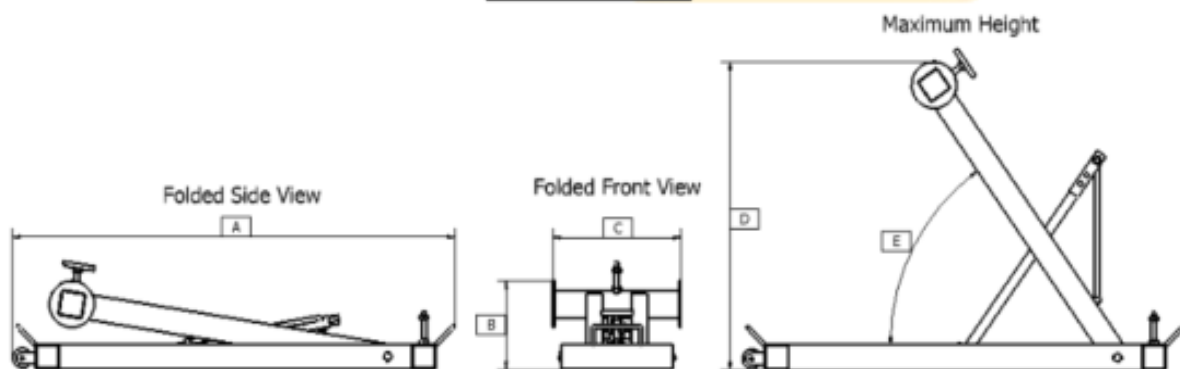
Appendix A

Operational Manual and Specifications for Hearthill's Scissor type Lifting Drum Stands.

Please carefully read and understand all the content provided here before operating.

	SLS-05T	SLS-1-2T	SLS-3-4T
Working Load Limit	500kg	2000kg	4000kg
Max Drum Size	Ø1.2m	Ø1.8m	Ø2.6m
Usable Spindle Length	1000mm	1600mm	1600mm
Spindle Diametre	Ø50mm	Ø60mm	Ø90mm
Weight each half	19kg	38kg	45kg

Basic Dimensions



	SLS-05T	SLS-1-2T	SLS-3-4T
A – Overall Length	1000mm	1380mm	1780mm
B – Folded Height	71mm	265mm	265mm
C – Width	200mm	350mm	350mm
D – Maximum Height	670mm	925mm	1330mm
E – Maximum Angle	55°	55°	60°

Contents of scissor lift stand set

- 1 x Pair of assembled scissor type lifting frames. Each with their own individual serial number per pair
- 1 x Pair of drum retaining collars to suit supplied drum spindle, used to retain cable drum during operation
- 1 x Drum spindle to bare drum load, identifiable by unique serial number stamped at one end
- 1 x Ground joining bar, to align and install the scissor lift set correctly (NA for SLS-05T)
- 1 x Certificate of compliance for scissor lift set
- 1 x Certificate of compliance for drum spindle
- 1 x Risk Assessment guide

Pre-paring, loading and operational instructions for scissor lift drum stand.

1. The operator must identify the load (drum weight) and choose the suitable scissor lift stand size to suit.
2. Ground must be flat and solid and you will need to ensure the load is in the correct position, taking into account the direction of pull and that the cable must be drawn from the bottom.
3. When the direction of pull has been set up, place each half of the scissor lift stand on either side of the load. *Ensure the stands are placed with "pulling direction" stickers pointing the same way.* Allow enough space for the 'drum retaining collars', lifting arm flanges should be as close to the drum as possible for stability. *View figure A section A.*
4. Feed the ground joining bar through the bases of the scissor lift stands to align the two halves together. Ensure there is an equal amount protruding through each frame. *View figure A (NA for SLS-05T)*
Note: Drum spindle and joining bar must have full contact with lift arm ends (1) and (6)
 Then tighten the provided t-piece screws to lock the three parts together. *View figure A section B*
5. Now you can install the drum spindle, in this order;
 - 5.1 Scissor lift half
 - 5.2 Drum retaining collar
 - 5.3 Drum flange
 - 5.4 Other drum flange
 - 5.5 Other drum retaining collar
 - 5.6 Other scissor lift half
 - tighten the t-piece screws to lock the drum spindle in position
 - tighten the grubs screws inside the drum retaining collar

View figure A

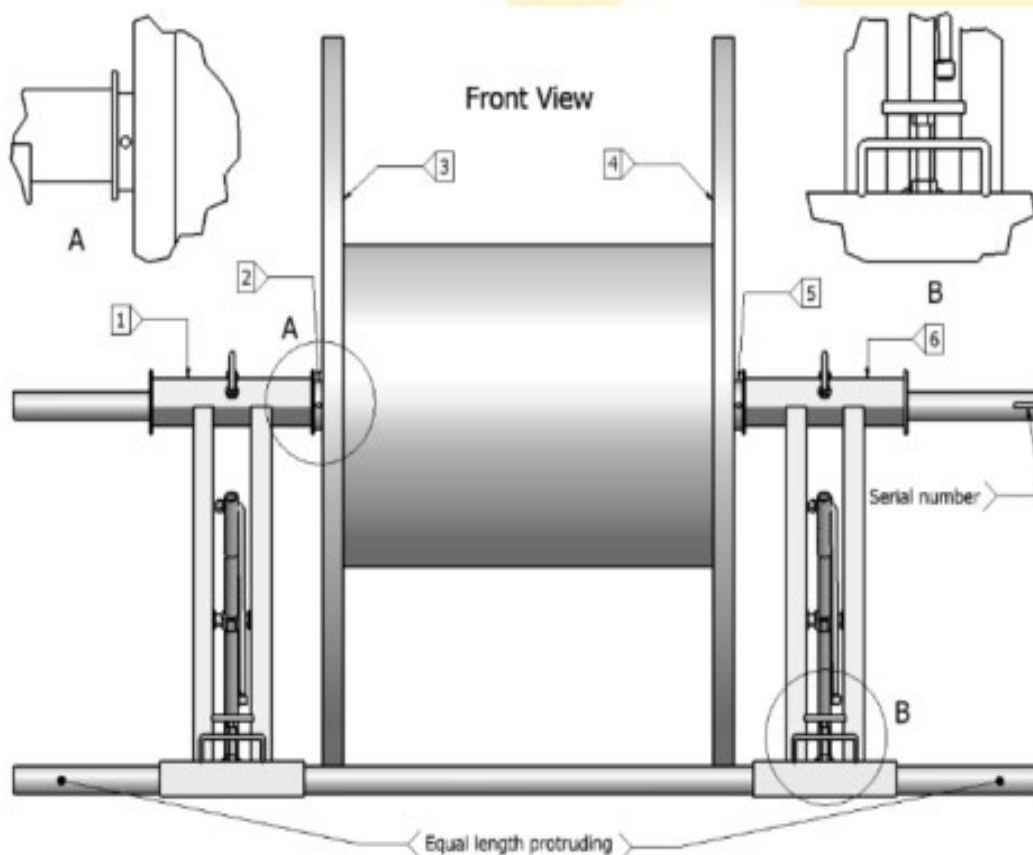
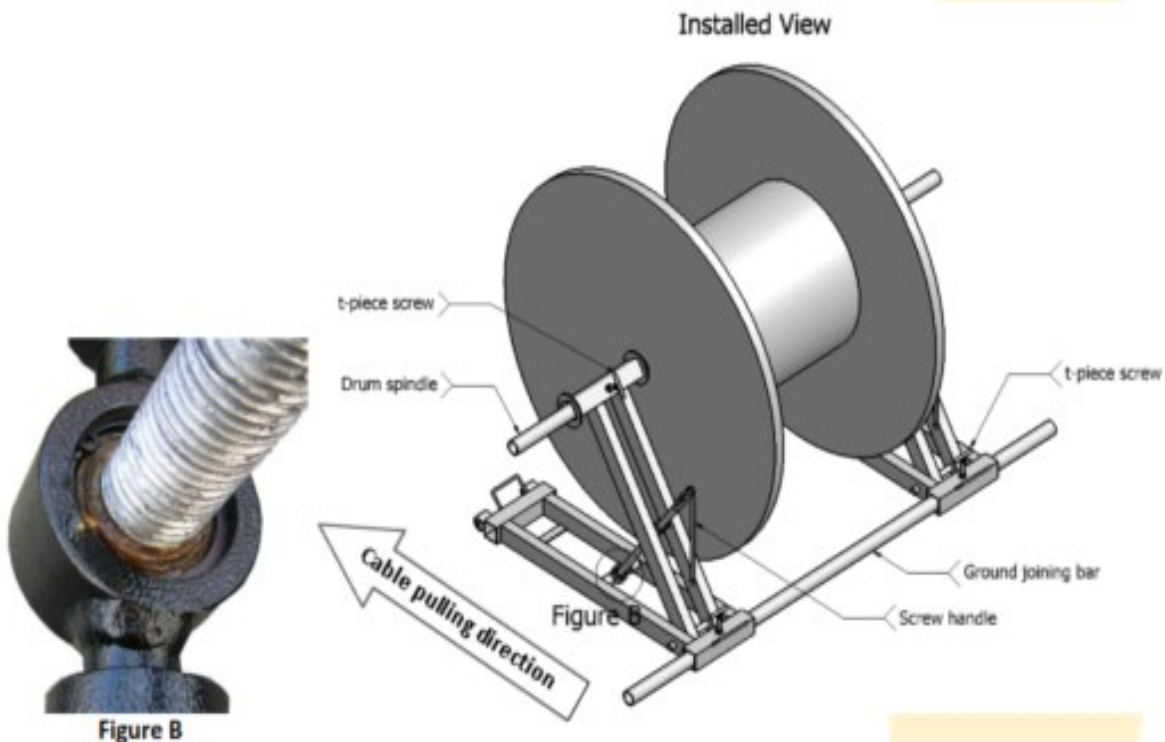


Figure A

- Once everything is secured, place the lifting screw into the bearing situated at the base of the scissor lift stand. View *figure B*. Do this by turning the thread with the screw handle and extending the thread enough to mate the two together.



- Once the lifting screw is in position, you can now raise the load off the ground.
 - Please note the maximum drum size and lifting degrees.

Final checklist before use

- 2 x t-piece screws at base are tightened (NA for SLS-05T)
- 2 x t-piece screw at lifting arm are tightened onto drum spindle
- 2 x drum retaining collars tightened at the grub screw
- Lifting screw is resting inside bearing depicted in *figure B*, both frames
- Check the stand is facing the same direction as the planned cable pull
- Clean and lubricate lifting thread when required

Optimal Operating conditions

- Clean and clear worksite with sufficient lighting for safe operations
- Resting ground for drums stand is solid, even and level. Fasten to floor where applicable
- Equipment is clean and serviced (e.g. lubricated) before use.
Note: Rusty, damaged, weathered and or worn equipment may reduce load capacity of stand
- Operation of Drum Stand is under supervision.
- Training is continuously reviewed and improved.

Appendix B

ELECTRIC CABLE PULLER OPERATOR DAILY PRE-START CHECK			
Project Name:			
Machine Description:	<i>VSD Electric</i>		
<i>Tick for check or "NA" if not applicable</i>			
1. Check machine gearbox for signs of oil leaks.			[]
2. Check Foot Pedal in Working Order			[]
3. Check Emergency Stop in Working Order			[]
4. Check Power Cable in Good Condition and Safely Positioned			[]
5. Check overload Alarm			[]
6. Check machine is positioned correctly			[]
7. Check Area for Rope Recovery			[]
8. Check Control Lever Operation			[]
9. Check Radio is in Good Order/Battery Charged			[]
Inspected by		Signature	
Date			