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RS GIN POLE

Work Instruction
Vertical Assembly of an RS Modular Pole

C608 Rev C



March 2025

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I. INTRODUCTION

The RS Gin pole provides solutions to real problems. With a five to one safety ratio, it can install an RS composite pole up to 78 ft. [23.8 m] in length without any machinery, using basic hand tools.

A crew of 3 to 5 workers can efficiently install a full-size utility pole in the following situations.

- **Urban Neighborhoods.** Difficult-to-access back yard pole locations; eliminate permits and planning involved with large cranes blocking streets; minimal footprint and traffic disrupting landscaped yards.
- **Difficult-to-access locations.** Cliffs, ravines, islands, laneways, railway, pipeline, and communication tower right of ways.
- **Machinery and noise sensitive locations.** Parks, schools, sanctuaries, wells, septic systems, and environmentally sensitive areas.

This work instruction contains step-by-step details beginning with digging the hole and installing the base module by hand.

First time users should carefully follow these instructions as the proper sequence of a simple task like the placement of the handline block is important and will make the procedure safer and more efficient.

A weather resistant paper copy of these instructions is included in the gin pole kit for easy reference.

II. SAFETY AND CERTIFICATION

Key safety notes are highlighted in bold font throughout the work instruction. Specific attention to detail must take place during these steps to ensure a safe and successful installation.

Personal Protective Equipment (PPE) includes:

- Hard hat;
- Safety boots;
- Eye protection;
- Long sleeve shirt and pants; and
- A disposable face mask when drilling and/or cutting.

The following additional information is included in the Appendix at the end of this document:

- Certification Notes and Use Criteria;
- Fabrication;
- Inspection and Acceptance Criteria; and
- Working Load Limits.

In addition to following these work instructions, the “RS Pole Assembly and Installation Guide” must also be reviewed for additional information about assembling RS composite poles.

Inspect all components of the gin pole and accessory equipment prior to each use.



Figure 1: Line crew preparing to lift third section (RSM-02) of a 50 ft. [15.2 m] pole at a training center in Texas, USA.

III. USING AXIS LABELS TO PLAN AND COMMUNICATE

RS modules have pre-printed longitudinal dashed lines on each 90° quadrant referenced as the four-primary axis. The crew should familiarize themselves with the axis lines. Various axes are referenced throughout this work instruction to identify, plan and communicate locations for the gin pole, pole steps, jacking bars, and line hardware. See figure 2.

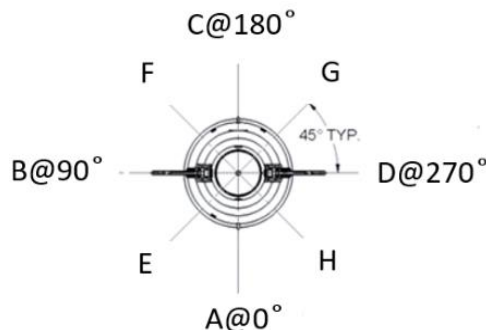


Figure 2: Axis Locations (top-down view)

All modules have four (4) Primary Axes, A-0° , B-90° , C-180° , and D-270° . Characteristics include:

- 90 degrees apart;
- Pre-printed with a long-dashed line and A, B, C, or D-Axis label;
- Common for module assembly, i.e., jacking bars are installed through the pre-drilled holes along the A & C axis.
- Common for hardware and equipment placement, i.e., climbing steps, hardware bolts, insulator brackets, are commonly installed along a primary axis.

All Modules have four (4) secondary axis: E-45° , F-135° , G-225° , and H-315° . Characteristics include:

- 90 degrees apart and 45 degrees between the Primary Axis mentioned above,
- Pre-printed with a short-dashed line at the tip and base of each module.
- Common for peripheral hardware such as down ground, service wires, u/g conduit installation.
- Common use for Gin Pole axis.



Figure 3: Climbing Steps on the B and D Axis. Clamp Assembly on the E Axis, which becomes the Gin Axis for this Installation.

The gin pole has two referenced axes: (1) the gin axis, and (2) the lifting axis.

The gin axis is referred to as the location or axis where the gin pole is attached to the module.

The gin axis is commonly installed on or close to a secondary axis. (30 to 45 degrees between a primary axis) facing the direction of the module to be raised, which is commonly facing an open work area. This will keep the gin away from pole steps and jacking bars during installation. The open work area does not require a lot of space but is a way to simply to describe the best area or lane to access the pole. See Figure 4.

The lift axis runs through the center of gravity of the gin pole and the lifting eyelet, and is best located over the edge of either side of the module. See Figure 4.

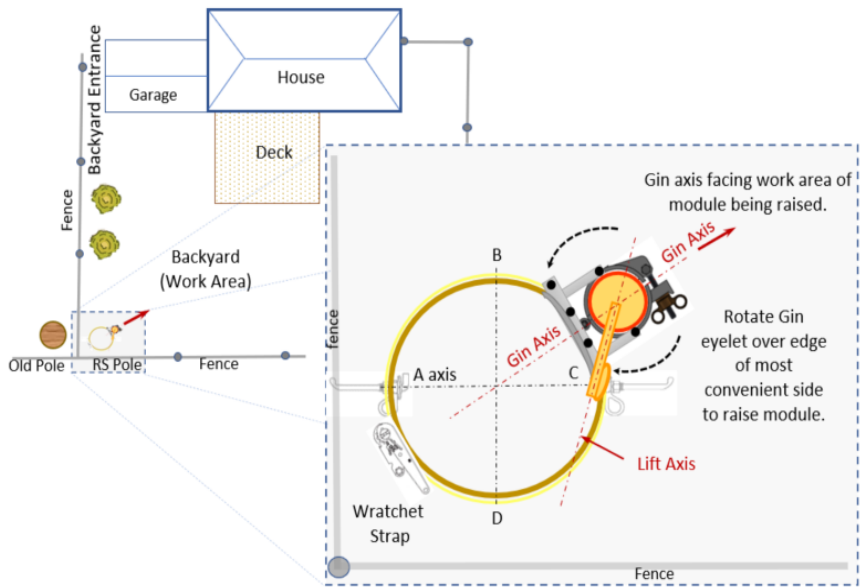


Figure 4: Planning for a successful backyard pole installation.

IV. MODULE AND RIGGING WEIGHTS AND SPECIFICATIONS

The RS Gin Pole is CSA and OSHA approved with a 5:1 safety factor.

It is certified to raise RS modules RSM-1L, RSM-01, RSM-02, RSM-03, and RSM-04. This allows for the largest base module installed in the ground to be the RSM-05.

The height and class of pole required will dictate which modules are used. If all five (5) modules are used, the pole length is an impressive 78 ft. [23.8 m]. The gin pole is typically used in applications for 30 to 60 ft. [9.1 to 18.2 m] pole heights where machinery cannot access the installation site.

A typical Class 2 – 45 ft. [13.7 m] RS pole, consists of an RSM-04 (installed by hand in the ground), with the gin pole raising the RSM-03, and a pre-cut RSM-02. The RSM-02 is pre-cut approximately 4 ft. [1.22 m] at the factory to derive at a 45 ft. [13.7 m] pole. All pole lengths consider the slip joint overlap.

See **Table 1** below for the weights and lengths of the modules used for gin pole configurations.

Module	Length of Module	Weight of Module	Rigging Weight with Jacking Bar, Steps, Sling		Effective Sling Size to lift module	Force required on Fall Line
RSM-1L	20.2 ft.	203 lbs.	13 steps installed	266 lb. [121 kg]	33 in. [840mm]	71 lb. [32 kg]
RSM-01	15.1 ft.	154 lbs.	10 steps installed	209 lb. [95 kg]	33 in. [840mm]	56 lb. [25 kg]
RSM-02	17.7 ft.	181 lbs.	10 steps installed	236 lb. [107 kg]	38 in. [970mm]	63 lb. [29 kg]
RSM-03	17.4 ft.	227 lbs.	10 steps installed	282 lb. [128 kg]	48 in. [1220mm]	75 lb. [34 kg]
RSM-04	18.9 ft.	322 lbs.	2 steps installed	395 lb. [179 kg]	58 in. [1474mm]	105 lb. [48 kg]
RSM-05	19.0 ft.	366 lbs.	RSM-05 is the largest base module installed in the ground.			

Table 1: Module and Rigging Weights and Specifications

V. GIN POLE AND ACCESSORY PART NUMBERS

Kit, Gin Pole, New Design - Part No. 30157 (includes items listed below)

NAME	RS PART NO.	Qty.	DESCRIPTION
Gin Pole, 20 ft. [6.1 m] Pole, 4.02 in. [102 mm] O.D. *	100296	1	Orange 20 ft. [6.1 m] Primary Pole
Gin Pole Head, w/eyelet *	100509	1	Gin Head with Eyelet fastened to top of the Gin pole
Gin Pole, Base Band, 4 in. [100 mm] *	100507	1	Stainless steel band at bottom of Primary Pole
Bolt, Hex, 3/8 in. x 1 in. [9.525 mm x 25.4 mm] Galvanized*	100649	1	Secures Gin Head to Gin Pole
Bolt, Hex, 1/4 in. x 5/8 in. [6.35 mm x 15.24 mm] Galvanized*	100508	4	Secures Base Band to bottom of Gin Pole
Storage & Transportation bag	100547	1	Orange 18 oz. [20 Mil] Storage Bag
Clamp Assembly, Stainless Steel	100489	3	Attaches Gin Pole to RS Pole
Ratchet Strap 2 in. x 6 ft. [508 mm x 1.83 m], 3,300 lb. [1497 kg] WLL	100302	3	1 - for each Saddle Clamp assembly
Gin Pole, Ratchet Strap Spacer	100510	3	1 - permanently attached to each clamp assembly
Gin Pole, Maximum Capacity Label	100560	1	Yellow Sticker attached to Gin Head
Gin Pole, Serial Number Label	100561	1	White Sticker Attached to Gin Head
Gin Pole, Kit Label	100877	1	Label attached to Stanley 24 Gallon [109 L] Chest
Endless Sling – 2 in. x 12 ft. – Min WLL 6000 lb.	100513	2	Lever Hoist extension slings for vertical assembly
Endless Sling – 2 in. x 48 in. – WLL 6000 lb.	100516	2	Lever Hoist extension slings for vertical assembly
Endless Sling – 2 in. x 33 in. – Min WLL 6000 lb.	100514	1	Ideal size for raising RSM-01 module
Endless Sling – 2 in. x 38 in. – WLL 6000 lb.	100515	1	Ideal size for raising RSM-02 module
Endless Sling – 2 in. x 48 in. – WLL 6000 lb.	100516	1	Ideal size for raising RSM-03 module
Endless Sling – 2 in. x 58 in. – WLL 6000 lb.	100517	1	Ideal size for raising RSM-04 Module
Endless Sling – 2 in. x 72 in. – WLL 6000 lb.	100518	1	For attaching snatch block to base module
Snatch Block	100523	1	For attaching pull line to base module
Rope, 1/2 in. x 300 ft. [12.7 mm x 152 m]	100522	1	Rope for 3-Sheave Blocks
3-Sheave Upper Block, 75 mm [2.95 in.] w/Becket, Harken 2665	100520	1	Upper Block for 3-sheave blocks
3-Sheave Lower Block, 75 mm [2.95 in.] Harken 2664	100644	1	Lower Block for 3-sheave blocks
Snap hooks for harken blocks	100820	2	One for upper and one for lower three sheave block
Shackle, 5/8 in., [16mm] minimum WLL 6500 lb. [2950 kg]	100519	4	For attaching Sling to Jacking Bar and other slings
Tool Chest, Stanley 24 Gallon [109 L] mobile Chest	100511	1	Container for Clamp Assemblies
Tool Chest Foam	100512	1	Foam for 24 Gallon [109 L] Stanley Mobile Chest
Tool Chest, Stanley 50 Gallon [227 L] mobile chest	100559	1	Container for rope, slings, blocks, and other equipment
Hole Saw Kit 1-1/16 in. [27mm] - includes arbor, pilot bit, ejector spring	30107	1	For jacking holes
Hole Saw Kit 1-1/8 in. [29mm] - includes arbor, pilot bit, ejector spring	30189	1	For pole steps and blind nut bolts
Hammer, 53 oz. Dead Blow, Rubber	100951	1	Rubber Mallet for Joint Assembly
Gin Pole, Work Instruction C-608	100878	1	This document printed on weather resistant paper

* Assembled at plant, shipped as one unit.

Note: First time customers must purchase a Jacking Bar Kit (P/N 30232) to assemble the pole. Ordered individually, see below.

Additional Hardware Required for Installation† (items ordered individually, not in a kit)

NAME	RS PART NO.	QTY.	DESCRIPTION
2 Ton [2032 kg], Lever Hoist	30214	1-Set	1-Set = 2 hoists
RS Jacking Bar Kit (supplied only by RS)	30232	1-Set	Short Jacking Bar Assembly Kit, 2 bars / kit
Tag Lines - Length = Height of Pole plus 10 ft. [3 m]	-	2	Rope for Controlling Module being Raised
Cordless Drill w/Battery	-	1	For Joint Assembly and Step Holes
Pole Steps – various manufacturers (i.e. 50 ft. [15 m] pole)	-	40	Recommended Spacing at 15 in. [381 mm]
RS Hole Plugs	-	40	Required if Removing Steps after each use
Sharpie Marker (black or yellow) and Measuring tape	-	1	Marking and Measuring the Module
Line Maintainer Tools, Shovel, Tamper, Plumb bob etc. - Timbers or Pole Stands are required for module preparation			

† Additional tools, hardware and equipment may be required based on customer pole framing specifications. Contact RS for assistance.

Note: Gin Pole - Accessory Kit – Part No. 30178 is no longer available as of June 2024 (updated to primary kit)

1. INSTALL BASE MODULE

A. Prepare the Hole

If required, obtain a locate prior to digging. Consider digging the hole and installing the base module a day or two ahead of the planned pole installation. This will eliminate any surprises such as hitting rock, quicksand, or water during the date of the pole installation.

1. Dig a hole approximately 8 in. [200 mm] in diameter larger than the diameter of the base module. The base plate may be used as a reference to outline the hole circumference. The extra 8 in. [200 mm] diameter will ensure adequate space for tamping the backfill aggregate after installation. Continue digging the hole until the required depth has been reached. See *Figure 5*.

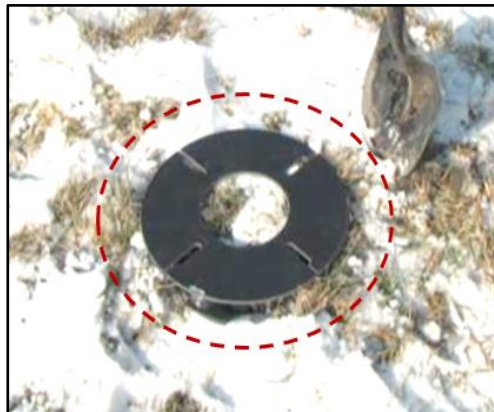


Figure 5: Using the baseplate as a reference to outline the hole.

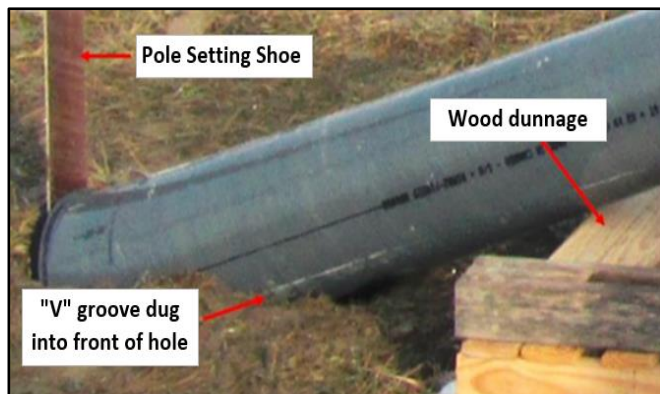


Figure 6: A "V" groove at the entrance of the hole and wood dunnage provide a fulcrum for easier lift.

2. Shape the top entrance edge of the hole with a slight "V" groove.
3. Place a pallet or timber in front of the "V" groove, to act as a fulcrum for the module.
4. If aggregate collapse is an issue, install a pole setting shoe at the back of the hole. See *Figure 6*.

B. Prepare the Base Module

Preparing the base module is extremely important as the entire pole is erected from the base. The crew must have a good discussion to decide which axis will be used for the hardware, gin pole, and pole steps. Use the pre-defined factory marked axis lines for a reference. Once the axis location is agreed upon, the pole steps may be installed prior to putting the base module into the hole. (See section III of the preface for information on RS pole axis.)

5. Determine the following Axis locations,
 - Hardware for primary conductor. (Usually along the A/C axis or B/D axis)
 - For the gin pole (commonly on a secondary axis, e, f, g, or h which is between the A, B, C, D primary axis, offset 30-45 degrees)
 - For pole steps (commonly along a primary axis such as A/C or B/D).
6. Install the pole steps 15 in. [381 mm] apart on 180-degree opposite axis. A chalk line may be used to increase clarity for the pole step axial line if the factory installed lines have faded. Do not drill holes or install steps within 4-ft. of the top of the module.



Figure 7: The base module installed in a backyard, a day prior to the planned outage.

C. Lifting the Module into the Hole

7. Re-locate the base module toward the hole resting the lower end on the fulcrum with the base over the open hole and against the pole shoe.
8. Three to five workers are required to safely, lift and walk the module upright, allowing the base of the module to slide down and into the hole. Pole steps can act as a hand hold when lifting and are a good visual for aligning the base module. See *Figure 8*.

Caution – workers must keep arms extended as the module becomes upright as it quickly falls into the hole. This will ensure the pole steps clear the workers’ elbows and shoulders.

9. Use the climbing steps to manually position the module in the hole for proper alignment.

Important Note: Accurate alignment of the base module is critical to ensure the remaining modules are properly aligned with respect to hardware, pole steps and keeping the pole vertically plumb.

10. Backfill the hole with aggregate less than ¾ inch [20 mm] in diameter and tamp the soil to complete the base installation. Pole setting foam may also be used.



Figure 8: Setting the base module with steps pre-installed (left). Rotating the base for proper alignment (right).

2. INSTALL BOTH CLAMP ASSEMBLIES

The stainless-steel clamp assemblies mount the gin pole to the module. Both are installed vertically along the gin pole axis, (commonly a secondary axis), facing the work area or module being raised (see section III. USING AXIS LABELS TO PLAN AND COMMUNICATE). The third clamp assembly is used only when leap frogging the gin up the pole.

The clamp assembly unit consists of a friction clamp that swivels on a symmetrical housing with 2-eyelits and is attached to the pole module using a built-in industry standard 2-inch ratchet strap. See *Figure 9*.

The grip on the friction clamp is controlled by tightening or loosening a wing nut with a screwdriver. The friction clamps are tightened to secure the gin pole while raising a module and loosened when sliding the gin up the pole in preparation for the next module.

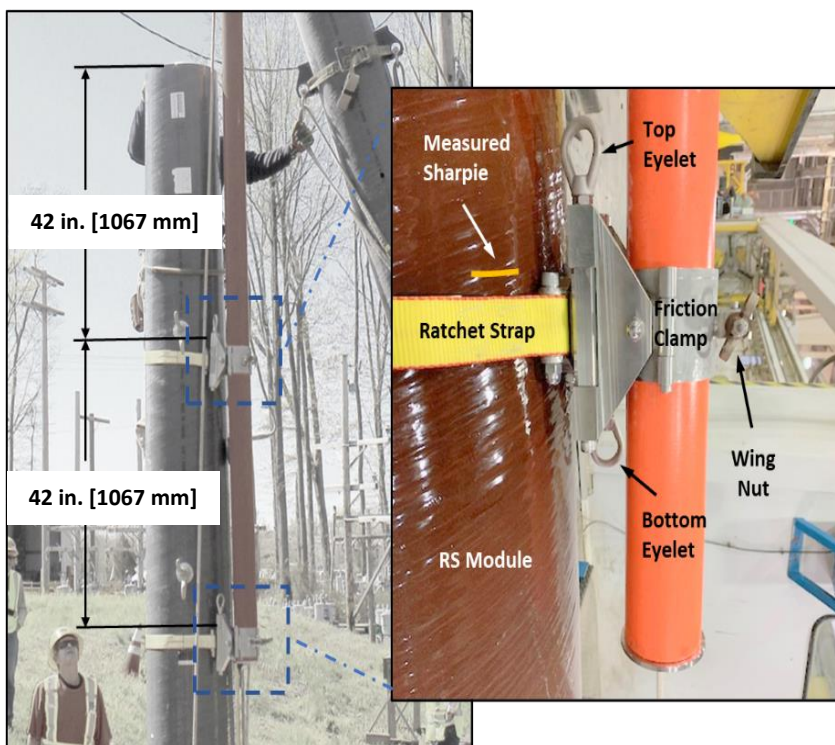


Figure 9: Gin Pole mounts to RS module using two (2) clamp assemblies spaced 42 in. [1067 mm] apart.

A. Secure Hand Line Block

1. If climbing steps were not installed in preparing the base module, install steps to climb the pole, stopping within 4-ft. [1.2 m] of the top of the pole.
2. Hang the hand line over the edge of the module. See *Figure 10*.

B. Mark Clamp Assembly Locations

3. Along the gin pole axis, measure **42 in. [1067 mm]** from the top edge of the module and mark with a thick horizontal line using a black or yellow sharpie marker.
4. Descend a couple of steps and make a second mark **42 in. [1067 mm]** below the first mark or **84 in. [2134 mm]** from the top edge of the module. See *Figure 11*.

Note: If installing an **RSM-1L module**, measure, and mark at **27 in. [686 mm]** and **40 in. [1016 mm]** below the first mark or **67 in. [1702 mm]** from the upper edge.

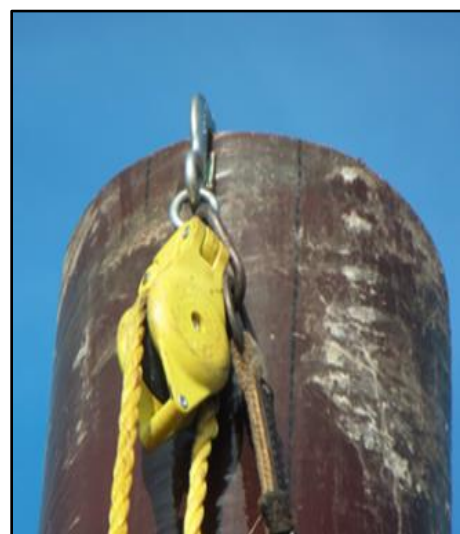


Figure 10: Hanging hand line.

C. Install the Clamp Assemblies to the Module

5. The ground worker must hold the weight of the heavy clamp assembly by attaching the handline hook into the top eyelet of the clamp assembly. See *Figure 12*.
6. The climber will communicate with the ground worker to align the top bolts of the clamp assembly with the marked line made in step 3 of section B., *Mark Clamp Assembly Locations*.
7. **While the ground worker holds the weight of the clamp assembly**, the climber must tighten the ratchet strap as tight as possible, to avoid slippage on the smooth RS module.
8. On the same vertical axis as the upper clamp assembly, attach the lower clamp assembly aligning with the lower marking placed in step 4, section B. The clamp assembly will be centered on the gin axis. This will ensure that the assemblies are aligned vertically.



Figure 11: Measuring and marking the clamp assembly locations along the gin pole.



Figure 12: Installing a clamp assembly in preparation for mounting the gin pole.

3. ATTACH GIN POLE TO BASE MODULE

A. Attach Gin to Upper Clamp Assembly

1. Lay the gin pole out with the head near the base of the RS pole. **Attach the handline hook into the eyelet of the gin head** and raise it to a convenient level for the climber to fasten the top friction clamp around the gin pole.
2. Close the wing nut but **do not tighten**. This will enable the gin to slide up the friction clamp in the next step. The bottom of the gin pole can rest on the ground. See *Figure 13*.



Figure 13: Climber attaches top of gin pole into the friction clamp, leaving the wing nut loose to allow the gin pole to slide into the vertical position.

B. Attach the 3-Sheave Blocks

3. The climber snaps the hook of the 3-sheave blocks into the eyelet of the gin pole head. Keep the blocks closed for now.
4. Attach a tag line to the bottom of the 3-sheave block so the bottom sheave can be lowered once the gin pole is in place.
Note: Ensure the blocks are not twisted and the tag line is attached as this will be the last time the climber can reach the gin tip. See *Figure 14*.



Figure 14: 3-sheave blocks and a tag line are attached to the gin head before raising the gin into the vertical position.

C. Raise the Gin into Position

5. Relocate the handline, attaching the block to the bottom eyelet of the upper clamp assembly.
6. Separate the handline and place the hook into the base band at the bottom of the gin pole.
7. Raise the gin pole into the vertical position using the handline. One worker can pull on the hand line sliding the gin pole through the upper clamp while another worker guides and supports the bottom of the gin pole. See *Figure 15*.
8. Continue to vertically raise the gin pole until it can be placed into the lower clamp assembly. Close the friction clamp but **do not tighten** as the gin pole needs to slide freely. The base of the gin pole can rest on the ground.
9. Check to ensure the clamp assemblies are vertically plumb (straight up and down). If not, loosen the lower assembly and rotate for vertical alignment and re-tighten. Be sure to maintain control of the gin pole while the lower assembly is adjusted.
10. Raise the gin pole again until the base band is up tight against the bottom friction clamp and rotate the eyelet (lifting axis) over the edge of the module. Tighten both upper and lower friction clamps by hand to start and then finish with 1.5 to 2 turns with a screwdriver.



Figure 15: Sliding the gin pole through the upper clamp assembly to raise into vertical position.

4. PREPARE MODULE TO BE RAISED

A. Support Module off the Ground

1. Place the module on two timbers or pallets or pole stands with the “B” axis facing upward, and **far enough away from the base of the pole to stay clear of the drop zone.**

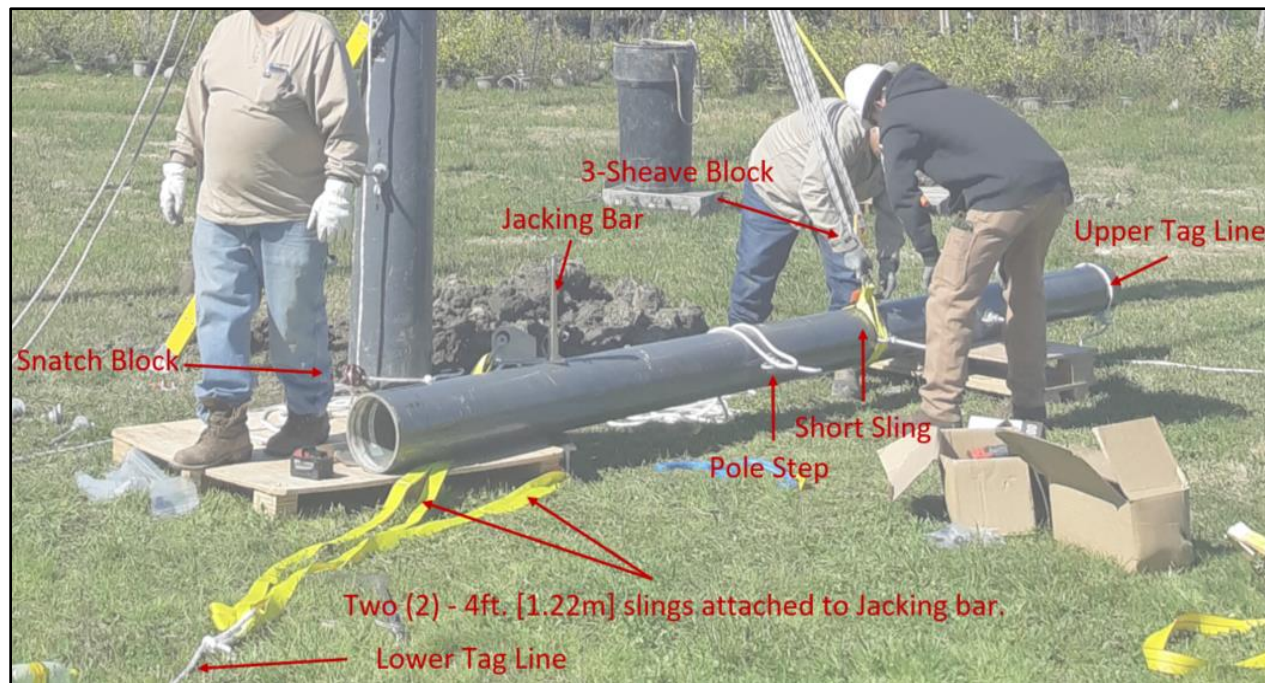


Figure 16: Preparing module to be raised.

B. Mark the Clamp Assembly Locations

2. Along the gin pole axis, **measure 42-in. [1067 mm]** from the top edge of the module and **mark** with a thick horizontal line using a black or yellow permanent marker.
3. Make a second mark 42-in. [1067 mm] below the first mark, or 84-in. [2134 mm] from the top edge of the pole. See *Figure 11*.

C. Install Climbing Steps

4. Measure, mark and drill holes for the climbing steps. Steps are commonly 15 in. [381 mm] apart, spaced alternately along opposite 180-degree axis for the entire length of the pole.
5. Install climbing steps.

If the installation zone is extremely busy with adjacent poles, wires, trees, etc., it is recommended to install some or all the steps after the module is vertically securely in place on the pole.

Do not install steps in the slip joint area which is approximately 2.5 ft. [762 mm] from the base of the module and 2.5 ft. [762 mm] from the tip of the module. These steps are installed by the climber after the modules are jacked together and the slip joint is secured.

D. Install Jacking Bar and Slings

6. Insert the two (2) jacking bars into the pre-drilled jacking holes.
7. Slide the (loose) jacking plate onto each jacking bar.
8. Slide a retention collar onto each jacking bar, with the flanged side of the retention collar oriented towards the (loose) jacking plate. See figure 17.
9. Rotate the retention collar around the jacking bar to find the best pin holes that will keep the jacking plate tight up against the pole wall. See figure 18.

Caution: If the gap between the pole wall and the back of the jacking plate exceeds 1/8 in. [3 mm], the significant forces applied during slip joint assembly may result in bending one or both jacking bars, making them difficult to remove and reuse again in the future.

10. Insert the quick release pin.
11. Attach two (2) - 4 ft. [1.22 m] slings to each jacking plate on the bar with clevis.

E. Lower Rope Block and Attach Tag Lines (x2)

12. Pull down on the previously installed tag line to lower the bottom 3-sheave block in preparation for the module to be lifted.
13. This tag line can now be installed at the tip of the module and another at the base of the module to be lifted.
14. The lower tag line may be looped through the bottom portion of the slings attached in step 11 above.

The tag lines should be a minimum 3/8-in. [9.5 mm] in diameter and long enough to reach the top of the finished pole with a little extra. Pole length plus 10 ft. [3 m] is a good rule of thumb.

F. Attach Lifting Sling

15. Secure the lifting sling just above the center of gravity and below a step. It is imperative that the sling does not slip during the installation process. See *Figure 19*. Keep the sling as short as possible to ensure maximum clearance when the module is raised. See *table 1 in section IV. MODULE AND RIGGING WEIGHTS AND SPECIFICATIONS*.



Figure 17: Install the retention collar onto the jacking bar with the flanged side toward the jacking plate.



Figure 18: Rotate the retention pin to find the most suitable hole to keep the plate tight against the module wall.



Figure 19: A short lifting sling installed below a step bolt will prevent slippage.

G. Mark future Clamp Assembly Positions. *(only required if raising another module)*

16. Along the gin pole axis, measure 42-in. [1067 mm] from the top edge of the module and mark with a thick line using permanent marker.
17. Make a second mark 84-in. [2134 mm] from the top edge of the module. See *Figure 11*.

H. Place the Module beside the Base of the Pole.

18. Prior to attaching the load line blocks to raise the module, position the module as close to base of the pole as possible to ensure a vertical lift from the start, and prevent the module from swaying.

Caution: The gin pole is designed for vertical lifting only. Any side pull on the load line or fall line may result in the clamp assemblies shifting and possibly overload of the gin pole.

19. Attach load line three sheave block to short sling module.

The module is now ready to be raised with the rope blocks. The force (load) required on the fall line is based on the following formula.

$$\text{Fall Line Load} = [\text{module weight} + ((\text{number of sheaves} \times 10\%) \times \text{module weight})] / \text{number of sheaves}$$

Refer to Table 4, below, for loading scenarios with rigging, equipment and climbing steps installed.

Caution: When raising the heavier RSM-03 or RSM-04 modules, it is imperative that 3-sheave blocks are used as their mechanical advantage will require less force on the fall line and keep the full load on the gin head less than the 500 lb. [227 kg] rating. A two-part line would overload the gin pole rating.

Module Lifted	# Of Steps Installed	Weight (includes jacking bars, shackles, slings)	Force Required on Fall Line	Load on Gin Head
RSM-01	10 steps	209 lb. [95 kg]	56 lb. [25 kg]	265 lb. [120 kg]
RSM-1L	13 steps	266 lb. [121 kg]	71 lb. [32 kg]	337 lb. [153 kg]
RSM-02	10 steps	236 lb. [107 kg]	63 lb. [29 kg]	299 lb. [136 kg]
RSM-03	10 steps	282 lb. [128 kg]	75 lb. [34 kg]	357 lb. [162 kg]
RSM-04	2 steps	395 lb. [179 kg]	105 lb. [48 kg]	500 lb. [227 kg]

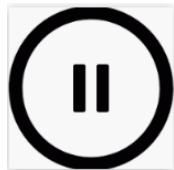
Table 2: Loading scenarios with rigging, equipment and climbing steps installed.

I. Attach Snatch Block to Base of Pole

20. Use a short sling at the base of the pole to ensure a vertical pull-on fall line.
21. Feed the fall line through the block and out at 90 degrees for pulling. Pull on the fall line may be by manpower, capstan hoist or other hoisting mechanism (if space allows).

5. RAISE THE MODULE

A. Pause for Rigging Check and Task Assignment



Just prior to raising the module; the supervisor should pause all work to double check the rigging and ensure each worker understands the task assigned to them as the module is raised. See *Table 3* for crew assignment and task duties.

Caution: The tip deflection of the gin pole head must never exceed 12 in. [300 mm] during the lift.

This may be caused by wind or improper rigging. **STOP** and wait for the wind to die down OR re-evaluate all rigging and tag lines.

All crew members must remain out of the “Drop Zone” while raising the module.



Figure 21: Three workers pull hand over hand, raising the module, while listening for directions from the observer.

Crew Member	Task	Comment
Crew Lead / Observer	<ul style="list-style-type: none"> Assign task to crew members prior to start. Instruct crew as pole is being raised. Ensure rope blocks are not twisted. Ensure Safe limits of approach for overhead conductor and obstructions. Observe Deflection of Gin Tip. 	The observer should have no other physical task to distract him or her.
Climber	<ul style="list-style-type: none"> Ensure clamp assemblies do not shift. Clearances as the module is raised. Signal roper pullers and take over Instruction from Crew Lead when module clears the base. Instruct lowering of module onto base. Align module as it is lowered. 	It is safe for the climber to remain up the pole while the module is being raised.
Tag Line Operators	<ul style="list-style-type: none"> Gently steer module around snags and obstructions. Facilitate the module as it transitions into a vertical position. Assist vertical alignment and eliminate binding when lowering module onto base. 	Minimal and gentle force is required for tag line operators to manipulate the module.
Fall Line Rope Operators	<ul style="list-style-type: none"> Pull on the fall line. (In sync) Follow instructions from Team Lead or Climber. 	A capstan hoist or similar may be used to assist pull.

Table 3: Crew task assignment for a safe and efficient lift.

B. Raise Module

Unless imminent danger exists, communication/instruction during the raising of the module should be by the crew lead/observer only and taken over by the climber once the module has cleared the base. See *Figure 22*.

1. Two to three workers raise the module in a smooth and consistent manner by pulling hand over hand on the fall line.
2. One or two workers control the tag lines as the module is raised, gently directing the module around any obstacles in the way.
3. The climber will instruct the crew to stop raising the module once the module base has adequately cleared the upper edge of the installed module.



Figure 22: Crew lead is observing and directing the crew as the module is raised with a smooth consistent pull until the base has cleared the upper edge of the bottom module (far right).

C. Lower Module onto Pole

CAUTION: Keep fingers away from pinch points (between the modules)

Crew direction for the next steps should come from the climber only.

4. The tag line operators can assist with aligning the upper module over the lower module in preparation for it being lowered in the next step.
5. While guiding the module from the outside surface only, the climber should give the signal and direct workers on the fall line to slowly let off. As the module is being lowered, align the axis with the lower module using pole steps, axial markings, and jacking bars as reference. See *Figure 23*.
6. The upper tag line can vertically align the upper module, that is does not bind at the joint while the module is being lowered.



Figure 23: Keeping fingers away from pinch points, the climber gives direction to the crew while guiding the upper module onto the lower module.

6. SECURE THE SLIP JOINT

A. Install Lower Jacking Bar

1. Drill two 1-1/8 in. [28 mm] holes on the A & C axes approximately 2 ft. [600 mm] above ground line. It is important that these holes be at the exact same height. These holes will be in line with the pre-drilled jacking holes farther up the pole.
2. Install the jacking bar through the holes. With the jacking plates in position, slide the retention collar onto the jacking bar ensuring that the flanged side is oriented towards the jacking plate. Rotate the retention collar to find the tightest, best matching hole set and insert the quick-release pin.

B. Compress the Joint (2-Ton Hoists)

3. Join the upper and lower jacking bars with the lever hoist chain and the 48 in. [1220 mm] sling previously attached to the upper bar. Additional slings are added to the upper sling as additional modules are raised, always keeping the hoists connected and operated from the lower jacking bar.
4. Begin ratcheting the two hoists simultaneously, one worker on each hoist ensuring that the tension is as equal as possible. See *Figure 24*.
5. Continue applying tension with both hoists. As tension increases, built up static friction may release causing the upper module to shudder downwards.

C. Strike the Overlap Area

6. As the assembly force increases and the slip joint becomes tight, use a dead blow mallet to alleviate any static friction that may have built up in the overlap or slip joint during the jacking process.

IMPORTANT: Compressing the slip joint is complete when 4,000 lb. [1814 kg] of force per side has been applied and all static friction has been released by striking the overlap area with a dead blow hammer.

Note: 95% of assembled slip joints will reach to within ± 1 in. [25 mm] of the target assembly line as marked on the lower (larger) module.

7. Once the slip joint is fully compressed, remove the slings, and lower tag line and lower safely to the ground.



Figure 24: Compressing the joint from the ground using 2-ton lever hoists.

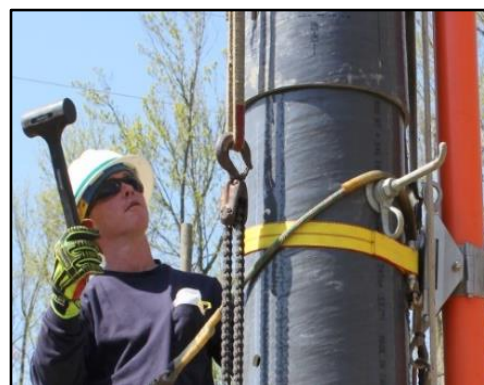


Figure 25: Alleviating static friction by striking the joint with a dead blow mallet.

D. Install Climbing Steps and Blind Nuts

Blind nuts are required if climbing steps are not permanently installed to secure the slip joint.

8. Chase drill the 1-1/8 in. [29 mm] holes in the slip joint overlap area and install the climbing steps. See *Figure 26*.
9. At the base end of the pre-drilled slots (beside the “Drill Here” printing) along the A and C axis, drill 1-1/8 in. [29 mm] holes to mechanically secure the slip joint. Install the blind nut kits per the *RS Assembly and Installation Guide*.

Once climbing steps or blind nuts or lags have been installed in the slip joint overlap, the upper raised module can be safely climbed.

The first raised module is now completely installed. If another module is being installed, continue to Section 7. If the assembly is complete, continue to Section 8.



Figure 26: Chase drilling the hole for a climbing step after the joint is compressed.

7. RAISE THE NEXT MODULE

Climb to within 4.0 ft. [1.22 m] of top of Module

1. Install climbing steps to ascend the pole. (If not previously installed)
2. Hang the hand line block over the top edge of the module.
3. Remove the upper jacking bar and slings, and lower to the ground.
4. Remove the upper tag line and install on the lower snap hook of the 3-sheave rope blocks.
5. Fully compress the 3-sheave blocks and leave the tag line connected, ensuring it is long enough to reach the ground when the gin pole is raised to its new position.

A. Relocate Gin Pole up to next Module

6. Both the 42-in. [1067 mm] and 84-in. [2134 mm] marks placed on the module in step 40, should be visible, along the gin axis.
7. Install the 3rd clamp assembly at the 42-in. [1067 mm] mark. The ground worker should support the weight of the clamp with the handline, while the climber tightens the ratchet straps.
8. Tighten the friction clamp to secure the gin pole.

Note: All three (3) clamp assemblies should now be on the pole with friction clamps tightened.

At this time, a second climber is required to assist up the pole.

9. The lower climber can completely remove the lower clamp assembly from the lower module and send to the ground.
10. Relocate the block of the handline from the top of the pole and snap into the bottom eyelet of the upper clamp assembly.

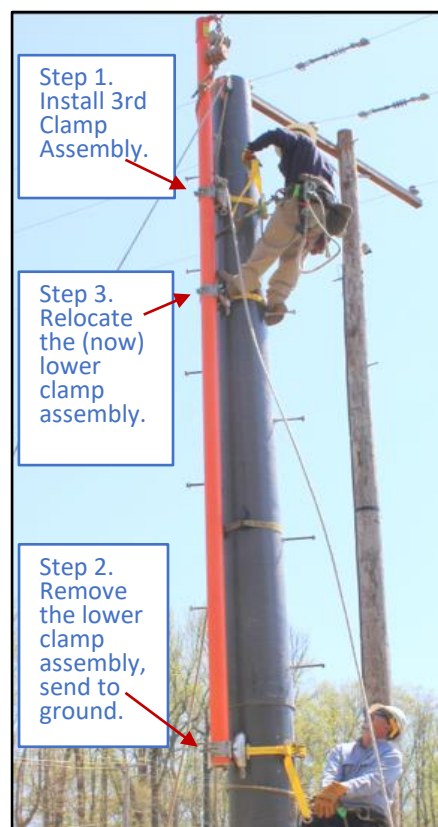


Figure 27: At this stage, a second climber is required to assist relocating the gin up the pole.

11. Place the hook of the handline into the base band at the bottom of the gin pole.
12. With one person holding tension on the hand line helping support the weight of the gin pole, the person aloft can loosen the lower friction clamp on the lower module.
13. Slowly release tension on the handline, while ensuring the gin pole is secured in the top saddle. If the gin pole begins to slide, re-tighten the upper friction clamp.
14. With the assistance of the ground worker on the handline, relocate the recently removed clamp assembly to the 84-in. [2134 mm] mark on the upper module. Attach the gin pole inside the friction clamp but do not tighten at this time, as the gin pole must slide through the clamp as it is being raised into position.
15. Place the hook of the handline into the gin pole base band, loosen the upper friction clamp and slide the gin pole up until the base band is tight against the lower friction clamp. Tighten the uppermost friction clamp.
16. Check rotation of the gin pole tip. Ensure the eyelet (lift axis) is centered over the edge on the side you wish to raise the next module. Adjust, as necessary.

Note: The gin pole is now relocated to the next module.

17. Repeat steps in sections **4. PREPARE MODULE TO BE RAISED** and **5. RAISE THE MODULE** to raise the next module.
18. Connect 12 ft. [3660 mm] slings to the 48 in. [1220 mm] slings hanging from the jacking bars on the module just raised to lengthen the span for hoisting from the ground.
19. Repeat steps in section **6. SECURE THE SLIP JOINT** to secure the slip joint.

The second raised module is now complete.

If the full pole assembly is complete, continue to section 8. **If another module is being installed,** repeat the steps in section **7. RAISE THE NEXT MODULE.**

8. GIN POLE REMOVAL AND STORAGE

A. Remove the Gin Pole and Components

1. Hook the block of the handline over the tip of the module that was just lifted.
2. Completely compress the rope blocks, half hitch them and remove from the eye of the gin pole head. Lower the blocks to the ground.
3. Place the handline hook into gin pole base band.
4. With a ground worker holding the weight of the gin pole with the handline, the climber(s) can loosen off both clamps so that the gin pole can slide through them.
5. Safely lower and slide the gin pole until the gin pole head is resting on the upper friction clamp. There is no need to tighten the friction clamps.
6. Place the handline hook into the eyelet of the gin pole head.
7. With the groundworker holding the weight of the gin pole with the handline, the climber(s) aloft can open both clamps and remove the gin pole.
8. Safely lower the gin pole using the handline while the climber(s) guide the gin pole around any obstacles.
9. Install the top cap while the climber is near the top of the pole.
10. Install hole plugs as the climber descends the pole and remove any steps that are only temporarily installed.
11. Carefully, remove the two clamp assemblies from the module, lower to the ground using the handline, and re-close the clamps to protect the latching components for proper storage.

B. Proper Storage

12. Ensure the friction clamps are in a closed position to protect the finer components during transportation and storage.
13. Place the gin pole rigging equipment back into the Stanley toolbox.
14. Place the gin pole into its storage bag to protect the surface.

Note: The gin pole is not comprised of the same material as the RS pole and does not have any UV protection.

Caution: If the surface of the gin pole becomes compromised with UV damage and/or scrapes and scratches, it will impede the ability for the pole to slide through the saddle clamps.



Figure 28: Keep the gin pole protected by placing in the storage bag.

APPENDIX A: SUPPORTING DOCUMENTATION

The following RS documents provide additional detail and support for general RS pole assembly and installation. If unfamiliar with assembly and installation of RS poles, these documents should be reviewed prior to the gin pole installation.

The following documents can be found on our website at [Resilient-Structures.com](https://www.Resilient-Structures.com) , or by contacting your RS representative.

- RS Assembly and Installation Guide
- C610 - Drilling and Cutting RS Poles

APPENDIX B – VERTICAL GIN POLE ASSEMBLY – CERTIFICATION

CERTIFICATION NOTES & USE CRITERIA:

1. THIS VERTICAL GIN POLE ASSEMBLY IS CERTIFIED FOR SUPPORTING A MAXIMUM VERTICAL LOAD OF 395 lbs WHEN USED ACCORDING TO THE SPECIFICATIONS DESCRIBED WITHIN & WITH THE SUPPLIED USER WORK INSTRUCTIONS.
2. THIS VERTICAL GIN POLE HAS BEEN DESIGNED TO RESIST 500 lbs CAPACITY + 105 lbs FORCE ON FALL LINE.
3. THIS VERTICAL GIN POLE ASSEMBLY COMPLIES TO THE CURRENT O.S.H.A. STANDARD 1926.1441 EQUIPMENT WITH A RATED HOISTING/LIFTING CAPACITY OF 2,000lbs. OR LESS.
4. MAXIMUM LOAD IS BASED ON A GIN POLE LOAD TEST PERFORMED - REPORT DATED NOVEMBER 29, 2017.
5. SIZE OF MODULE TO LIFT MUST NOT EXCEED 395.0 lbs. (RS4-04 MODULE MASS + RIGGING EQUIPMENT) - SEE TABLE ON DWG. 'C1'.
6. MAXIMUM CAPACITY LABEL (OR TAG) TO BE AFFIXED TO GIN POLE TIP ASSEMBLY.
7. THIS VERTICAL GIN POLE ASSEMBLY IS NOT TO BE ALTERED OR USED FOR ANY OTHER PURPOSES.
8. ANY ALTERATIONS TO THIS VERTICAL GIN POLE ASSEMBLY WILL VOID THE CERTIFICATION UNLESS FIRST APPROVED BY 'RS TECHNOLOGIES INC.' AND CERTIFYING PROFESSIONAL ENGINEER.
9. ASSEMBLY & USE OF THIS VERTICAL GIN POLE MUST BE DONE AS PER THE USER WORK INSTRUCTIONS PROVIDED BY 'RS TECHNOLOGIES INC.'
10. ALL RIGGING SHALL CONFORM TO THE CURRENT O.S.H.A. STANDARD 1926.251-RIGGING EQUIPMENT FOR MATERIAL HANDLING. RIGGING EQUIPMENT INCLUDING SHEAVE BLOCK, STRAPS, SLINGS & SHACKLES MENTIONED IN THE SUPPLIED USER WORK INSTRUCTIONS ARE NOT INCLUDED IN THIS CERTIFICATION. CERTIFICATION OF RIGGING EQUIPMENT IS BY SUPPLIER OR MANUFACTURER.

FABRICATION:

1. ALL MATERIALS, COMPONENTS AND WORKMANSHIP SHALL CONFORM TO THE CURRENT O.S.H.A. & CSA STANDARDS.
2. ALL STEEL, NOT RELATING TO PURCHASED PARTS TO BE OF NEW MATERIAL CONFORMING TO CSA G40.20 & G40.21; GRADES AS FOLLOWS:
PLATE - ASTM A36
3. ALL WELDING TO BE IN ACCORDANCE WITH CSA W59 AND BE UNDERTAKEN BY AN APPROVED WELDER CERTIFIED BY THE CANADIAN WELDING BUREAU (CWB) TO CSA W47.1 DIVISION 1 OR 2.
4. GIN POLE HEAD ASSEMBLY TO BE PRIMED AND FINISHED AS PER 'RS TECHNOLOGIES INC.' SPECS.
5. FRP GIN POLE TO BE FREE FROM DEFECTS AS PER ASTM D4385 & CLASSIFIED AS PER ASTM D3647.

INSPECTION & ACCEPTANCE CRITERIA:

1. THIS VERTICAL GIN POLE ASSEMBLY IS TO BE INSPECTED AS FOLLOWS:
i. PRIOR TO BEING PUT INTO SERVICE FOR THE FIRST TIME.
ii. AT LEAST EVERY 6 MONTHS THEREAFTER BY A QUALIFIED PERSON DESIGNATED BY THE END USER.
iii. BEFORE EACH USE BY THE OPERATOR(S).
iv. WHENEVER IT HAS BEEN SUBJECTED TO ABUSE OR UNUSUAL CONDITIONS.
2. END USER LOGS SHALL BE KEPT AND MAINTAINED IN ORDER TO DOCUMENT INSPECTIONS AND TO RECORD INFORMATION.
3. EXCESSIVE WEAR (GREATER THAN 15% OR DAMAGE SHALL NECESSITATE REMOVAL FROM SERVICE FOLLOWED BY SUITABLE REPAIR(S) OR REPLACEMENT AND RE-INSPECTION.

CONDITION

BENT OR DISTORTED COMPONENTS
MORE THAN 15% WEAR
CHECKED GIN POLE
FRAYED OR WORN STRAPS
DAMAGED OR WORN RIGGING EQUIPMENT

ACTION

REPLACE
REPLACE OR REPAIR
REPLACE
REPLACE
AS PER SUPPLIERS/MANUFACTURERS RECOMMENDATIONS

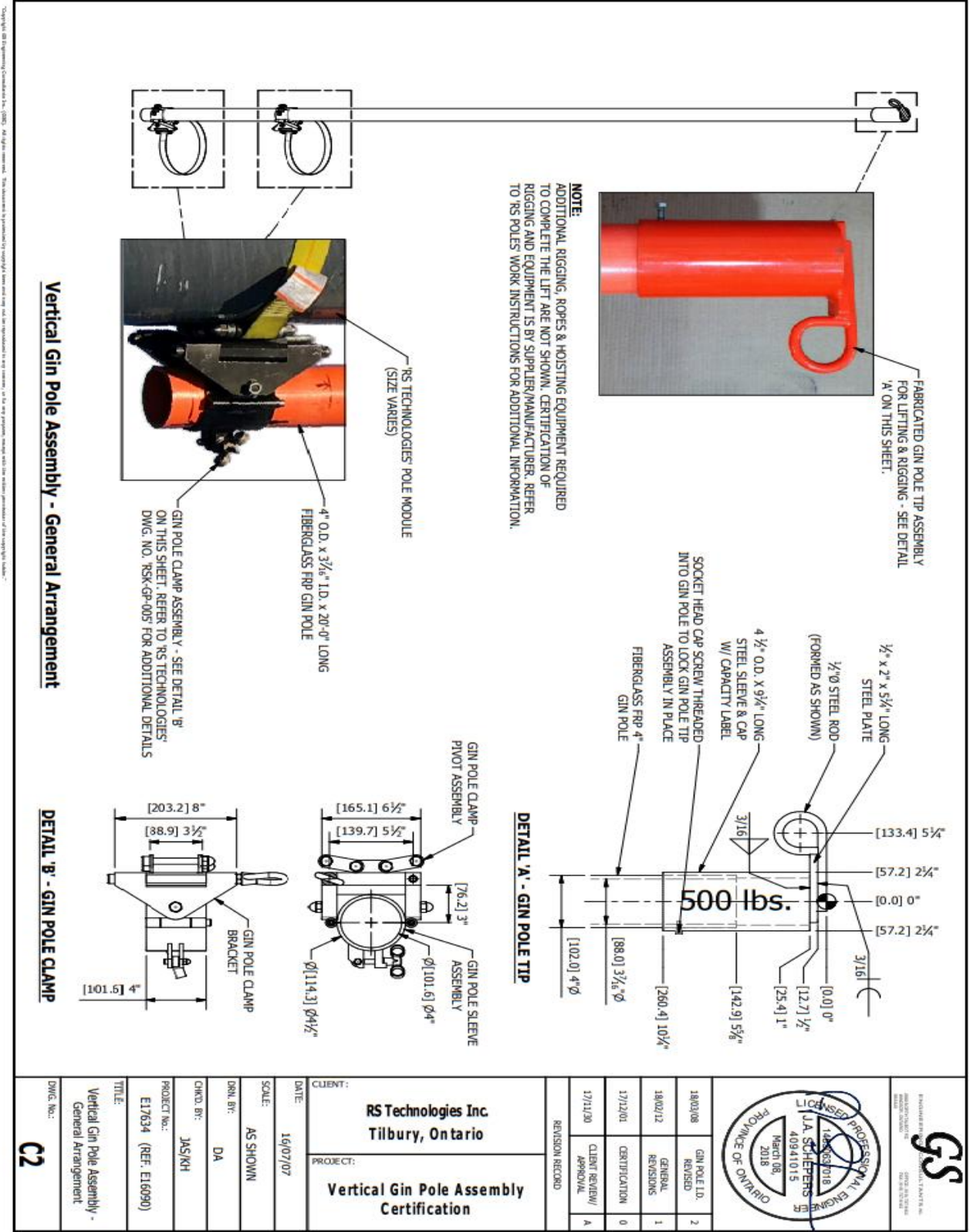
Vertical Gin Pole Assembly - Certification

	<p>RS Technologies Inc. Tilbury, Ontario</p>		
CLIENT:	Vertical Gin Pole Assembly Certification	PROJECT:	
DATE:	16/07/07	SCALE:	AS SHOWN
ORNL BY:	DA	ORNL BY:	DA
ORNL BY:	JAS/SH	PROJECT No.:	E17634 (REF. E16090)
TITLE:	Vertical Gin Pole Assembly - Certification	DWG. No.:	C1

18/02/12	GENERAL REVISIONS	1
17/12/01	CERTIFICATION	0
17/11/00	CLIENT REVIEW/ APPROVAL	A

REVISION RECORD

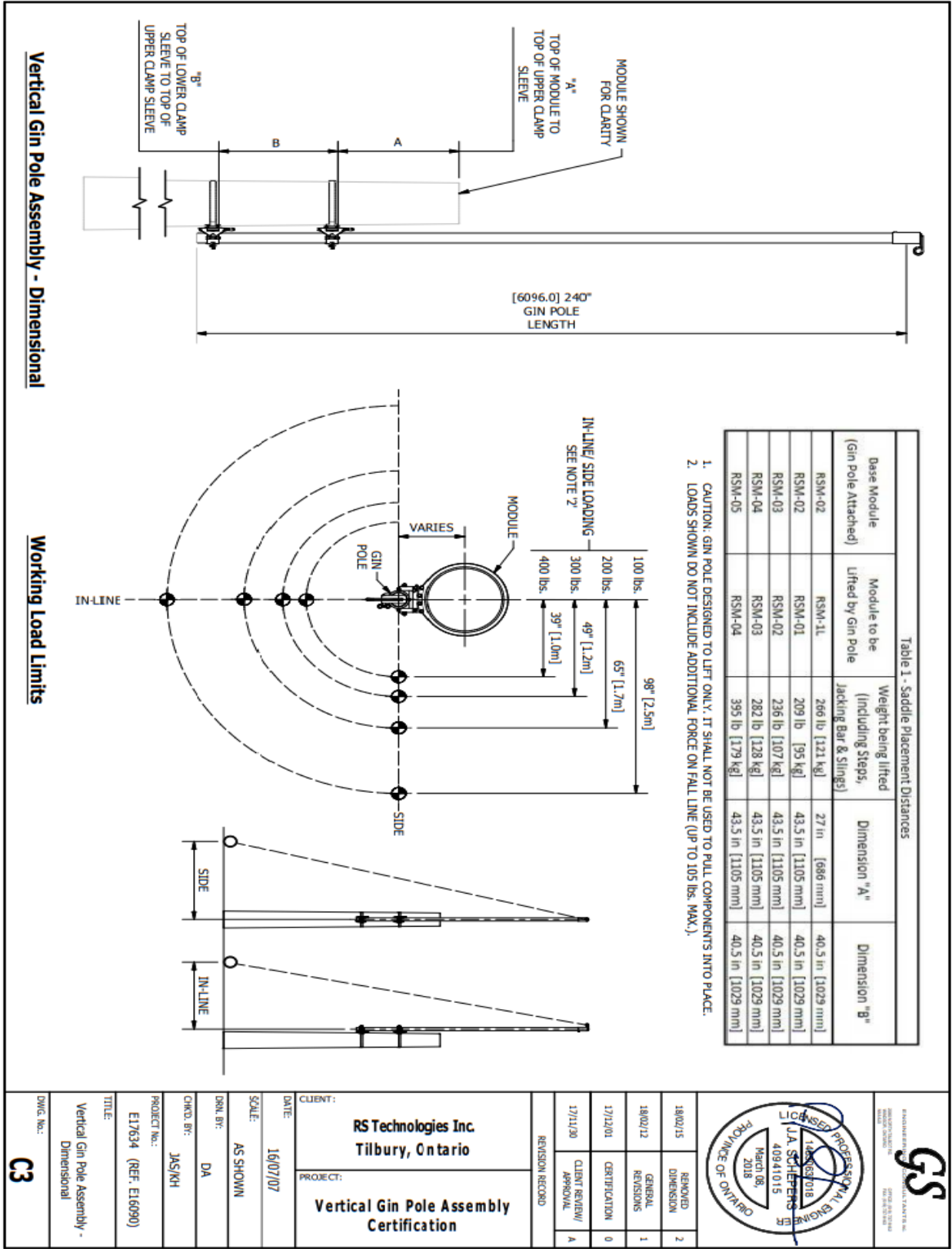
APPENDIX C – VERTICAL GIN POLE ASSEMBLY – GENERAL ARRANGEMENT



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18/03/08	GIN POLE I.D. REVISED	2
18/02/12	GENERAL REVISIONS	1
17/12/01	CERTIFICATION	0
17/11/20	CLIENT REVIEW/ APPROVAL	A
CLIENT: RS Technologies Inc. Tilbury, Ontario PROJECT: Vertical Gin Pole Assembly Certification		
DATE:	16/07/07	
SCALE:	AS SHOWN	
DRN. BY:	DA	
CHKD. BY:	JAS/KH	
PROJECT No.:	E17634 (REF: E16090)	
TITLE:	Vertical Gin Pole Assembly - General Arrangement	
DWG. No.:	C2	

APPENDIX D – VERTICAL GIN POLE ASSEMBLY - DIMENSIONAL



18/02/15	REMOVED DIMENSION	2
18/02/12	GENERAL REVISIONS	1
17/12/01	CERTIFICATION	0
17/11/00	CLIENT REVIEW/ APPROVAL	A
CLIENT: RS Technologies Inc. Tilbury, Ontario PROJECT: Vertical Gin Pole Assembly Certification		
DATE:	16/07/07	
SCALE:	AS SHOWN	
DRN. BY:	DA	
CHKD. BY:	JAS/KH	
PROJECT No.:	E17634 (REF: E16090)	
TITLE:	Vertical Gin Pole Assembly - Dimensional	
DWG. No.:	C3	

APPENDIX E – CERTIFICATION NOTES AND USE CRITERIA, INSPECTION AND ACCEPTANCE CRITERIA

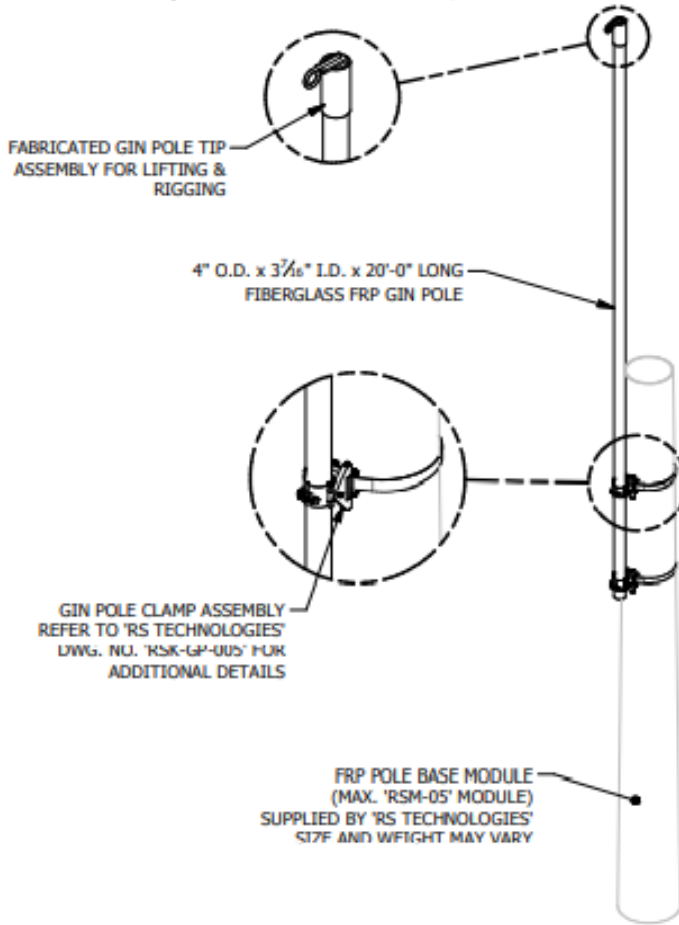
CERTIFICATION NOTES & USE CRITERIA:

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2. THIS VERTICAL GIN POLE HAS BEEN DESIGNED TO RESIST 500 lbs. (395 lbs. CAPACITY + 105 lbs. FORCE ON FALL LINE).
3. THIS VERTICAL GIN POLE ASSEMBLY COMPLIES TO THE CURRENT O.S.H.A. STANDARD 1926.1441-EQUIPMENT WITH A RATED HOISTING/LIFTING CAPACITY OF 2,000lbs. OR LESS.
4. MAXIMUM LOAD IS BASED ON A GIN POLE LOAD TEST PERFORMED - REPORT DATED NOVEMBER 29, 2017.
5. SIZE OF MODULE TO LIFT MUST NOT EXCEED 395.0 lbs. (RSM-04 MODULE MASS + RIGGING EQUIPMENT).
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 - ii. AT LEAST EVERY 6 MONTHS THEREAFTER BY A QUALIFIED PERSON DESIGNATED BY THE END USER.
 - iii. BEFORE EACH USE BY THE OPERATOR(S).
 - iv. WHENEVER IT HAS BEEN SUBJECTED TO ABUSE OR UNUSUAL CONDITIONS.
2. END USER LOGS SHALL BE KEPT AND MAINTAINED IN ORDER TO DOCUMENT INSPECTIONS AND TO RECORD INFORMATION.
3. EXCESSIVE WEAR GREATER THAN 15% OR DAMAGE SHALL NECESSITATE REMOVAL FROM SERVICE FOLLOWED BY SUITABLE REPAIR(S) OR REPLACEMENT AND RE-INSPECTION.

CONDITION	ACTION
BENT OR DISTORTED COMPONENTS	REPLACE
MORE THAN 15% WEAR	REPLACE OR REPAIR
CRACKED GIN POLE	REPLACE
FRAYED OR WORN STRAPS	REPLACE
DAMAGED OR WORN RIGGING EQUIPMENT	AS PER SUPPLIERS/MANUFACTURERS RECOMMENDATIONS

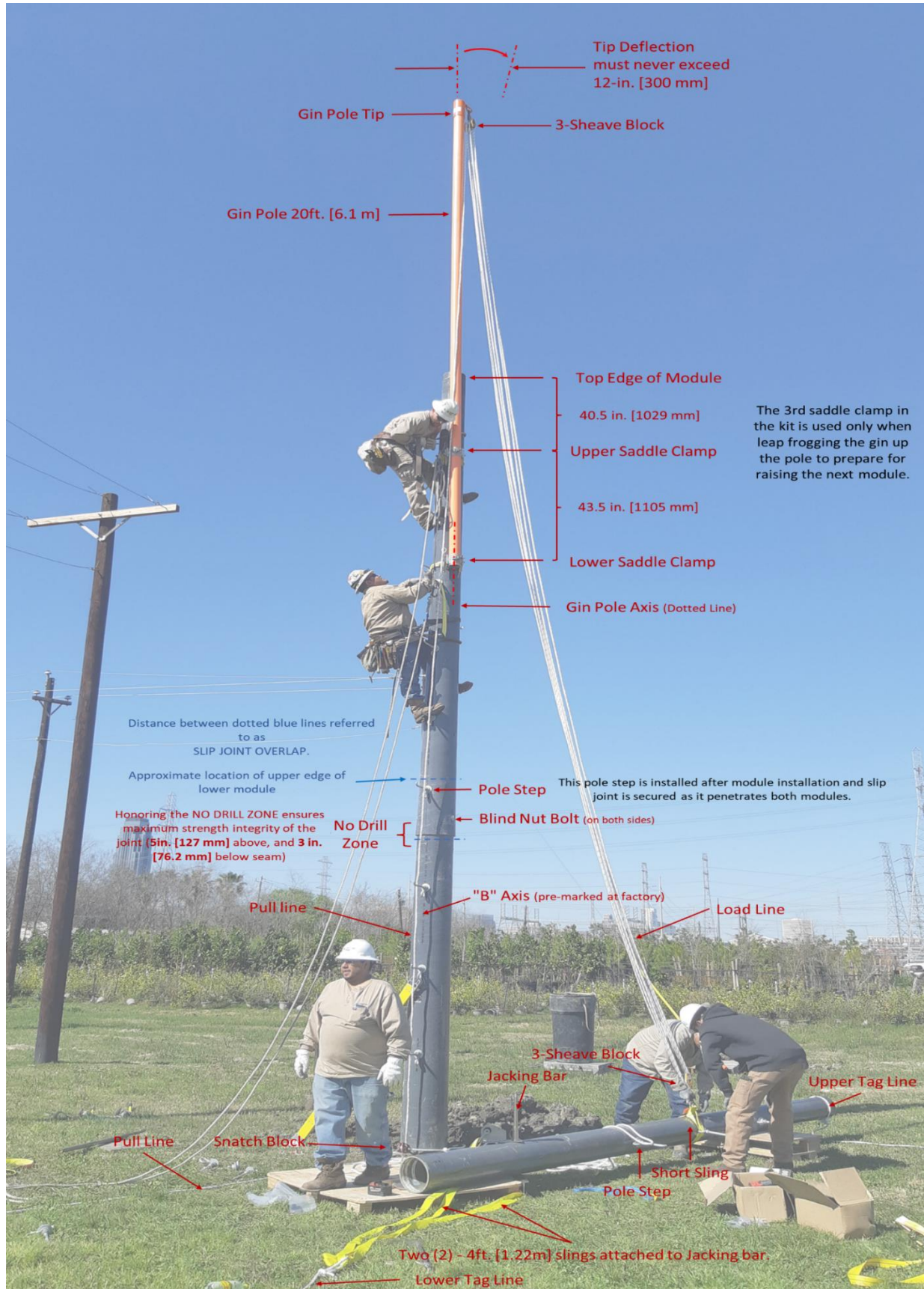


GS
ENGINEERING CONSULTANTS INC.
200 NORTH TALBOT RD.
WINDSOR, ONTARIO
N9W 4A2
OFFICE: (519) 752-8140
FAX: (519) 752-8143

PROJECT NO.:	DATE:
E17634	18/03/08

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APPENDIX F: GIN POLE COMPONENTS ILLUSTRATION



NOTES: