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## Receiving, Storage and Transporting RS Modular Poles



## Disclaimer

These instructions are intended to supplement existing work methods and do not contemplate all possible variations in equipment design and work methods. Activities including, but not limited to transporting, loading, unloading, and handling RS composite poles are the responsibility of the line crew/operator and should always be conducted by competent employees with the knowledge, training, and experience to organize and complete the work. Furthermore, when operating heavy equipment and tools such as lever hoists, slings, drills, etc., it is expected that individuals consult the manufacturers' technical instructions, labels, and inspection requirements to ensure proper use.

## 1.0 RS Modular Pole Packaging and Shipping from the Factory

RS modular poles consist of two or more sections that are hollow, fiberglass composite modules that have a consistent taper from base to tip. Full pole units ship from the RS factory as nested, partially pre-assembled or fully assembled as shown in Figures 1, 2 and 3.



Figure 1 – **Nested (Unassembled) pole sets** - all modules require assembly in the field. For assembly instructions, see the [RS Assembly and Installation Guide](#).



Figure 2 - **Partially Pre-assembled** - two or more modules are assembled, with remaining modules nested inside the partially assembled modules.



Figure 3 - **Fully Assembled** - The pole is fully assembled at the factory with slip joints secured. Top caps, base plates and hole plugs may require field installation prior to installation.

The level of pre-assembly is determined by transportation efficiencies, pole length and customer requirements. Nested (unassembled) and partially pre-assembled poles are routinely packaged as a single pole unit with the smaller modules conveniently nested inside the larger module sections. See Figure 1 for an example of nested pole sets.

## 2.0 Standard RS Modular Pole Hardware

Standard modular pole hardware is the hardware required to finalize the assembly of an RS pole and routinely packed together on a pallet. These items require field installation and include:

- **Top Cap**, and self-drilling screws for top cap.
- **Base Plate** and “J” bolts for installing the base plate.
- **Blind Nut Bolts**, two for each joint, installed after joint assembly.
- **Hole Plugs**, for plugging jacking holes prior to pole installation.

This standard hardware is imperative for completing the final assembly of the pole. Items such as top caps and base plates may be stacked together for packing efficiency. Hardware may be shipped separately from the pole if numerous shipping loads are required. The standard pole hardware may also be packed on a pallet with regular line hardware provided by RS. See Figure 4. It is a good practice to inventory contents upon arrival to ensure the applicable hardware is available and travels with the pole to the final assembly and installation location.



Figure 4: Standard RS modular pole hardware shipped with line hardware for the project.

For complete instruction and additional tool requirements for pole assembly, see the [RS Assembly and Installation Guide](#).



Figure 5: Shipping Bolt securing the nested modules during transportation.

combination wrench or socket wrench.

**Safety Note:** To minimize any unexpected rolling, ensure poles are chocked and the shipping bolt is at the bottom, pointed towards the ground. See Figure 5.

## 3.0 Shipping Bolt

When pole units are shipped nested or pre-assembled, the modules are secured tightly together at the factory with a single “shipping bolt.” The shipping bolt penetrates the wall of all nested pole modules at the same location, near the base and along the “D” axis. See Figure 5.

Do not remove the shipping bolt until the pole is transported to its final assembly location. Consider that it may be easier to transport the pole to its field location in its nested configuration, rather than its fully assembled length, especially if the installation location is off road. See Figure 10.

The shipping bolt is an imperial bolt/nut combination and is removed with a **1-1/8-in.**

## 4.0 Dunnage

Each pole set rests on wood dunnage and is secured with dunnage strapping. The dunnage strapping secures the dunnage in place at the bottom of the pole set and should never be confused with the cargo strapping. See Figure 6.

The dunnage strapping must not be used to lift the pole set when loading or unloading the pole set or relied upon to secure the pole set during transportation.

Cargo straps secure the pole set(s) to the trailer during transportation.



Figure 6: Highlighting the difference between cargo strapping and dunnage strapping.

## 5.0 Unloading Factory Shipped Poles from a Truck or Trailer

Poles can be unloaded using a forklift, crane, or boom truck. The machinery must have adequate capacity, range, and maneuverability to manage the load safely. Pole sets can be unloaded individually, or as a set, depending on the capabilities of the machinery. See Figure 7.

**Caution: Do not drag the pole set off the trailer bed or along the ground when offloading, moving and/or positioning.**



Figure 7: Added cargo straps secure adjacent pole set prior to unloading first pole set.

Consider the following prior to unloading.

- 5.1 **Identify the weight of the Load being lifted** - Each driver/operator is given a shipping manifest prior to leaving the RS factory that identifies the weight of the load (including the dunnage) being shipped. In addition to this manifest, each pole set has an identification tag located on the outside of the module along the "B" axis, ten to fifteen feet from the base that will identify the assembled pole weight of the pole set.
- 5.2 **Trace the cargo strapping** - At the factory, full rows of pole sets are loaded and secured with cargo straps to the truck deck, as opposed to being secured as individual pole sets. As such, extra care must be taken if unloading individual pole sets.

**CAUTION:** when loosening, straps to remove an individual pole set, you may be altering the balance and security of adjacent pole sets on the trailer. Always trace the beginning and end of the cargo straps to understand how they are contributing to the security of the load. Some configurations may require additional cargo strapping prior to removing an adjacent pole set. See Figure 7.

5.3 **Consider the Center of Gravity for the pole set – Use two points of contact** - Always use two points of contact for nested or partially nested pole sets. Spread the two points of contact far enough apart to safely span the center of gravity and balance the load for both slings and forks. See figures 8 to 11.

5.3.1 **Circular Center of Gravity: Minimize Rolling** - The shipping bolt attaches the modules tightly together along the wall of the “D” axis, as such the center of gravity from a circular or rotational perspective will also be closest to the “D” axis. If lifting the pole set or resting it along the ground or on a trailer bed, always have the shipping bolt or “D” axis facing the ground to minimize the set from rolling.

5.3.2 **Longitudinal Center of Gravity:** The nested modules packed inside a pole set are all different in length, diameter, and weight. These factors contribute to difficulty for an operator to determine the center of gravity for attaching and unloading the pole sets. Therefore, **two points of contact must be used.**



Figure 8: Transporting a 90 ft. [27m] nested pole set to its off-road installation location.



Figure 9: Unloading a pole set using two slings and two points of contact.

5.4 If a forklift is used to handle pole sets and/or modules,

5.4.1 Wipe the forks clearing any debris and place a buffer material around them prior to handling (i.e., rubber blanket, piece of carpet, etc.). This will help protect the surface of the pole(s)/module(s) from scratching.

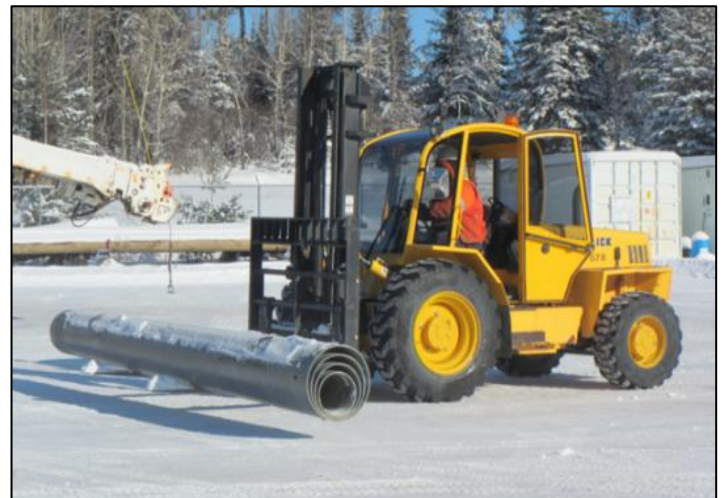


Figure 10 and 11: Unloading a trailer with a forklift and transporting it to the pole bunk.

## 6.0 Unloading Factory Shipped Poles from a Shipping Container

RS pole sets with their protective wood dunnage are packaged as a single unit, secured on a long wood pallet for shipping container transportation. The pallet is designed to skid the entire pole package out of the container and onto the ground. See figure 12. Adequate size pre-attached cargo slings are ready to quickly connect to an appropriate size loader, forklift, or truck for removal. See figure 13. Once on the ground, the pole sets can be dismantled and transferred to a truck, trailer, or storage bunk using the lifting techniques outlined in section 5. The shipping container must be close to ground level to ensure minimum impact when dragging the large skid onto the ground.

**NOTE:** the receiver should plan accordingly to ensure the shipping container can be unloaded to ground level prior to removing the pole package.

**Caution:** Contents inside the container may shift during transportation, causing pinched or unbalanced loads.

### Steps for removal from shipping container

- 6.1 Place container on level, solid ground and open the doors. Use **caution** when opening the doors to ensure contents do not spill out onto the ground.
- 6.2 Remove any accessible hardware located just inside the container.
- 6.3 Locate the two (2) nylon slings located on either side of the wood skid that the poles are packed on and secure to a suitable piece of equipment.
- 6.4 Pull the skid out of the container onto the ground.
- 6.5 Once the skid is on the ground, the poles can be lifted and transported using techniques outlined in section 5.

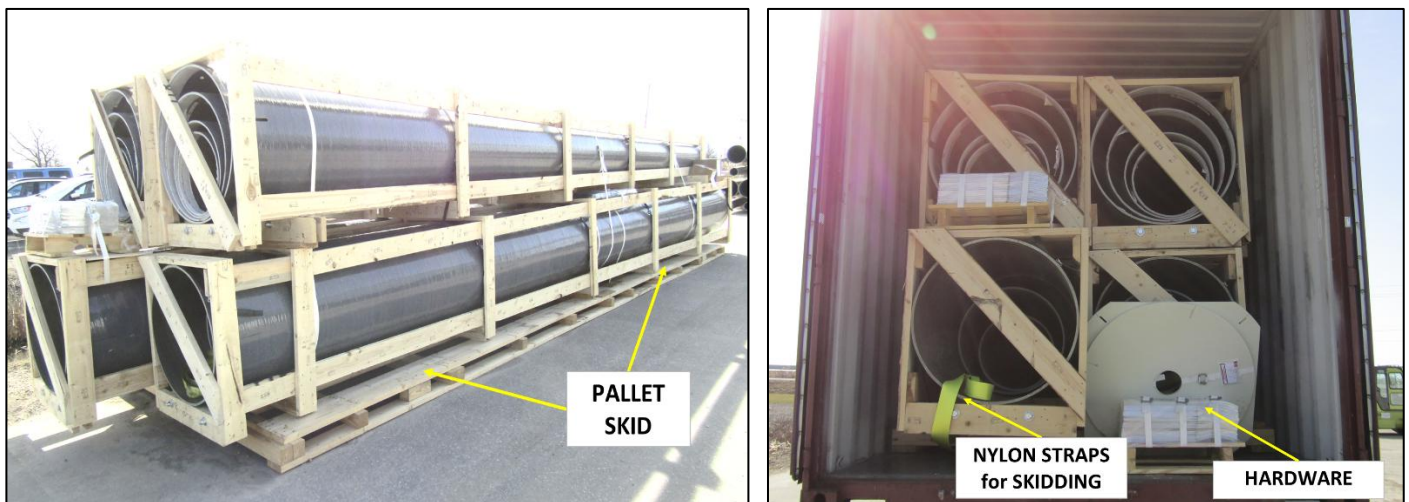


Figure 12 and 13: RS Pole Package being prepared on a skid and loaded into a shipping container for transportation.

## 7.0 Storing RS Poles

A well-organized storage site will ensure efficiency in pole selection and loading prior to transporting to the installation site. Safety and machinery capability must be the number priority for storage configuration.

Consider the following when storing RS poles: (See Figure 14.)

- 7.1 Group similar sized and length pole sets in the same bunk with applicable labels,
- 7.2 Keep the pole sets off the ground by placing on wood dunnage, bunk stands or racks,
- 7.3 Place visual and physical barriers at each corner of the pole pile for safety and protection.
- 7.4 If stacking RS pole sets in rows on top of one another, ensure a solid ground to support the weight of the pile and,
  - 7.4.1 place a layer of wood dunnage (or similar supports) between each row that will allow access for placing slings around individual pole sets and allow forklift access to each row.
  - 7.4.2 never exceed an overall height of 8-feet and 6-feet is wiser. This will eliminate the requirement for fall arrest if accessing the top of the pole pile. For smaller pole sets, RSM01 to RSM05, never exceed four (4) layers, while two (2) layers should be the maximum for the larger pole sets. i.e., RSM06 to RSM11
- 7.5 Keep the shipping bolt or “D” axis facing the ground and chock each side of the pole set/module by placing wedge-shaped blocks snug between the outer module and the wood dunnage (or similar supports).
- 7.6 Pole Hardware should be readily available and inventoried to accommodate the applicable pole set.



Figure 14: Storing RS poles with wood dunnage between layers and well spaced rows for efficient categorizing and loading.

## 8.0 Transporting Poles to the Field

RS Poles sets can be transported to their field destination using traditional line trucks and trailers. Most nested pole sets can also be transported on a flat bed trailer or back of a truck bed. See Figure 16.

A piece of buffer material such as an old blanket, carpet, or similar material will help cushion the load bindings and prevent the smooth pole from sliding or moving on a steel surface bed. See Figure 15.

Do not remove the shipping bolt in the nested pole sets until the pole is at its final location and ready for assembly. See section 3. See figure 5.



Figure 15: Strips of an old rubber blanket lay between the steel trailer bed and smooth RS Pole.



Figure 16: A 50 ft. [15m] nested pole set secured on a 1-ton truck easily navigates up a windy road in Burbank CA.



Figure 17: Nested 90 ft. [27m] pole crawling into remote installation site.

At the final delivery location prior to installation, ensure the pole(s) and applicable hardware do not pose as an obstacle or hazard for the public. Ensure the pole does not impede with pedestrian walkways, trails, or laneways.

If storing alongside a highway, place the poles as far from the travelled portion as possible and in parallel with the direction of traffic. Outline the position of the poles with safety cones, flags, and/or reflection tape for easy location and identification.

Keep the poles off the ground using wood dunnage or similar, well chocked to prevent movement and rolling, and away from creeks and waterways.

For additional information please contact [RSpoles.com](http://RSpoles.com)