

ASSEMBLY OF SLIPJOINTS

The pole sections should be assembled near the structure's foundation. The main components of the structure should be blocked up off the ground such that the centerline of each piece is level and plumb to the others. Care should be taken to lay the pole such that all items to be bolted or otherwise assembled to the pole can be connected without interference from the blocking. The lower pole section should be laid out first. The next joining pole section should be slipped on to the lower section as far as possible to facilitate the speed of the jacking operation. Each section must be aligned to each other using the match marking of the pieces as shown in figure A.



FIGURE A

Blocking should provide sufficient support to prevent distortion of any member and to maintain the true geometric shape of the assembled structure. Cambered sections must be properly oriented with the line direction. Make sure that the blocks are not set in the splice area.

Trinity Meyer has hydraulic jacking units available for rent or sale as shown in figure B. This entire unit (figure C) is easily broken down into lightweight components for easy handling and storage. It also is supplied with adjustable keeper bars to hold sections safely together during erection.



FIGURE B

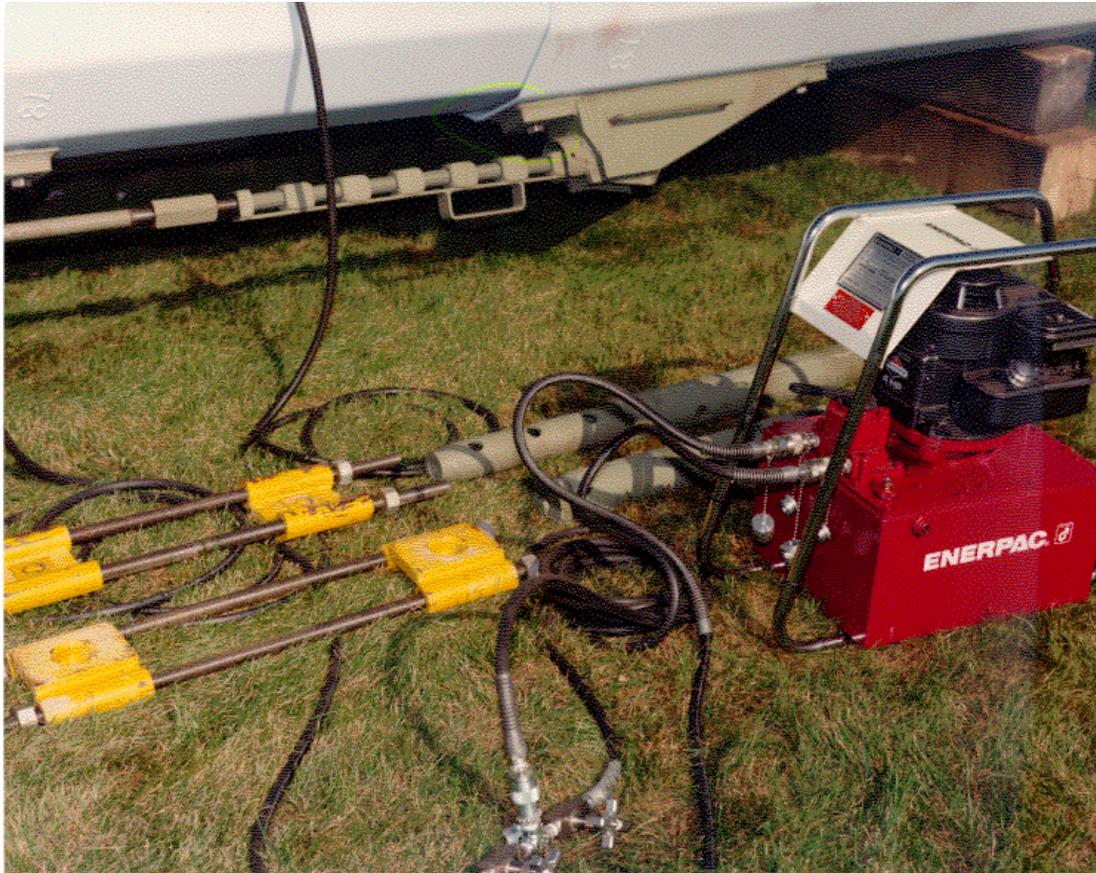


FIGURE C

Assemble the hydraulic jacking unit as described on T&B drawing SSG005. Equal loads on each side of the pole must be applied simultaneously using the two jacking assemblies while working one of the pole sections back and forth and up and down with a crane to prevent a binding action inside the joint.

Read the jacking instructions carefully prior to operation of the jacking unit. All personnel should stand clear of the jacking unit during operation to minimize the potential injury because of the high pressure and forces present.



The same basic methods for assembly of slipjoints is applicable to structures that are erected in sections. Normally, the weight of the upper section does not exceed the design force and jacking is still required. The jacking units can be mounted/operated in the vertical position. In cases when embedded stubs are set prior to the installation of the top section, special attention to the orientation/plumbness of the stub section is required.

For an acceptable splice all these conditions must be met:

1. No liquid or lubricant may not be used in the making the splicing operation.
2. The sections must be jacked using a minimum force not less than the maximum axial design for the structure was designed. This information is provided in the design calculations provided by T&B. Note typically T&B designs structures with slipjoints to the capacity of the T&B jacking equipment, which is 120kips.
3. The proper slipjoint lap must be achieved. The nominal slipjoint lap is provided on the individual structure erection drawings. Slipjoints are designed and detailed to include fabrication tolerances. The minimum lap is -10% of the nominal lap and the maximum lap $+5''$. The actual lap can be determined by measuring the distance from the centerline of the top jacking nut on the male slipjoint section to the edge of the female section. At nominal lap this measurement is 15 inches.
4. The fit is tight all around with no major gaps between the plates of the pole sections. Gaps of up to approximately $\frac{1}{4}''$ are acceptable as long as they are present on only two flats.
5. In no case should wires be strung prior to achieving the acceptable splice.

TYPICAL JACKING OF SLIP-JOINTS USING TRINITY MEYER EQUIPMENT



Mark the maximum and minimum slip-joint lap on the male section



Align pole sections, then attach jack frames to both sides of each shaft section using the 1" diameter bolts.



Attaching rams with the ratchet extensions to the jack frames.



Attaching hydraulics from the jacks to the Enerpac unit.

OTHER CONSTRUCTION METHODS

Trinity Meyer recognizes that other jacking equipment and assembly techniques have been used for the assembly of slipjoints. However, it's the owner's responsibility to assure that these methods achieve the acceptable splice conditions mentioned above. Unless specified, Trinity Meyer welds (8) 1" nuts spaced at 30" per drawing SSG 004 to the sections to accommodate jacking equipment. These nuts are designed/detailed such that any force applied due to jacking is acting adjacent the pole wall. These nuts are not intended to be loaded in bending. Loading an individual nut in bending could result in a localized failure and cause an unsafe working environment.