

CAUTION: ONLY QUALIFIED PERSONNEL WITH EXPERIENCE IN TAPERED STEEL POLES SHOULD BE USED FOR ASSEMBLY & ERECTION. A DOGMANS TICKET IS REQUIRED TO SUPERVISE THIS PROCESS.

1. CHECK DOCUMENTATION:

Check that you have the correct drawing of the pole showing the required overlaps and pole diameters, section thicknesses and lengths.

2. CHECK EQUIPMENT:

Check that you have the appropriate slings, shackles and equipment to safely carry out this procedure, and that they are in good condition and within test date.

- Chains shall be alloy steel chains grade 80 minimum;
- Shackles shall be alloy grade 'S' or 6 minimum;
- Slings shall be round or flat webbing;

Special Note: Standard chains, shackles and slings are designed for "Lifting" and have varying safety factors:

- Chains & shackles = 4 times the stated/tagged SWL capacities;
- Slings = 7 times the stated/tagged SWL capacities;
- Basket chains (60°) = $4 \times 1.3 = 5.2$ times the stated/tagged SWL capacities;
- Basket slings (60°) = $7 \times 1.7 = 11.9$ times the stated/tagged SWL capacities;

In this procedure the equipment is being used for "Pulling/Hauling" and not "Lifting".

The stated minimum rated SWL of the equipment shown, provide a minimum safety factor of 2.0.

3. SET-OUT OF POLE SECTIONS:

Sections should be laid out on the ground on timbers as shown in [Figure 1](#). Ensure that the sections are laid out level and in a straight line; failure to do so may result in crooked joints. For painted poles place soft padding between the timbers and pole sections.

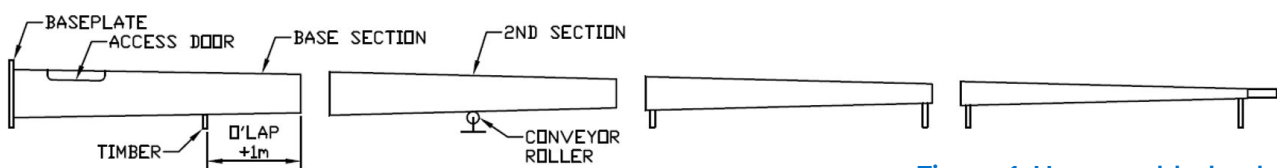


Figure 1. Unassembled pole

- 3.1 Mark the minimum slip distance** (80% of the required overlap or 1.3 x male diameter if drawings are not available) on the male section of each overlap and mark the required and 500mm past this. Check the external of the male for roundness, lumps and burrs. Check the internal of the female for same and repair if required.
- 3.2 Position a large diameter roller** at mid-point of second section to reduce friction (for light weight pole sections a timber sleeper or equivalent is suitable), ensure poles are level. Starting with the base section, slide 2nd section over base keeping seam welds in line. Tension up only one (1) joint at a time.

4. SET-OUT OF ASSEMBLY EQUIPMENT:

Heavier pole sections require greater force to assemble. Refer to the section appropriate for the weight of the base section of your pole:

4.1 Small Poles: Base section less than 1.0 Tonne:

A 5 Tonne force is required to assemble poles whose base section weighs less than 1.0 Tonne. This may be achieved by using a 5 Tonne tirror, chain block or hydraulic ram. Position the pulling device on top of the pole in the position shown. Attach a 'Round sling' a minimum of the overlap distance +0.5m from the end of the female section, looping it back through itself to minimise slippage and connect to slings or chains and then to the 5T pulling device. Then connect the pulling device to the lifting lug on the pole using a shackle and chain/sling. **All slings to be minimum 2T WLL, all chains to be minimum 13mm (5.3T WLL) and all shackles to be 3.2T WLL.**

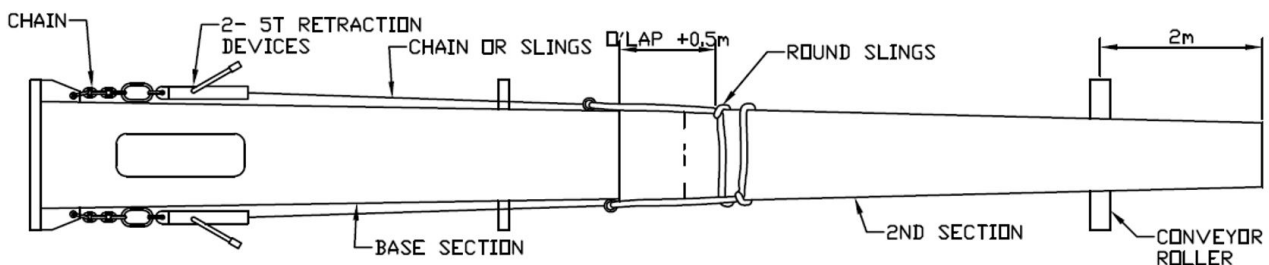


Figure 4.1 Small Pole Section Assembly

4.2 Medium Poles: Base section weighing between 1.0 and 2.0 Tonne:

4.2.1 Single Pulling Device:

A 10 Tonne force is required to assemble poles whose base section weighing between 1.0 and 2.0 Tonnes. This may be achieved either by using a 10 Tonne chain block or hydraulic ram or 2- 5 Tonne pulling devices.

Using a single 10T pulling device: position the pulling device on top of the pole as shown. Attach a 'Round sling' a minimum of the overlap distance +0.5m from the end of the female section, looping it back through itself to minimise slippage and connect to slings or chains and then to the 10T pulling device using shackles. Then connect the pulling device to the lifting lug on the pole using a shackle and chain/sling. **All slings to be minimum 4T WLL, all chains to be minimum 16mm (8T WLL) and all shackles to be 6.5T WLL.**

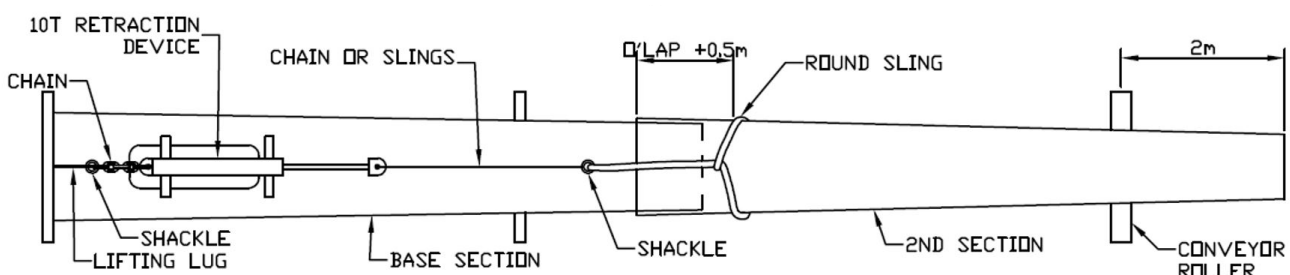


Figure 4.2.1 Medium Pole Section Assembly – Single Pulling Device

ALTERNATIVELY:

4.2.2 Dual Pulling Devices: Using 2x 5T pulling devices: position the pulling devices beside the pole as shown. Attach 2x 2T 'Round slings' a minimum of the overlap distance +0.5m from the end of the female section, looping them back through themselves to minimise slippage and connect to 2T slings or 8mm (2T) chains then to the 5T pulling devices using 2T shackles. Then connect the pulling devices to the lifting lug on the pole using a shackle and chain/sling. Operate both 5T pulling devices at the same time. **All slings to be minimum 2T WLL, all chains to be minimum 13mm (5.3T WLL) and all shackles to be 3.2T WLL.**

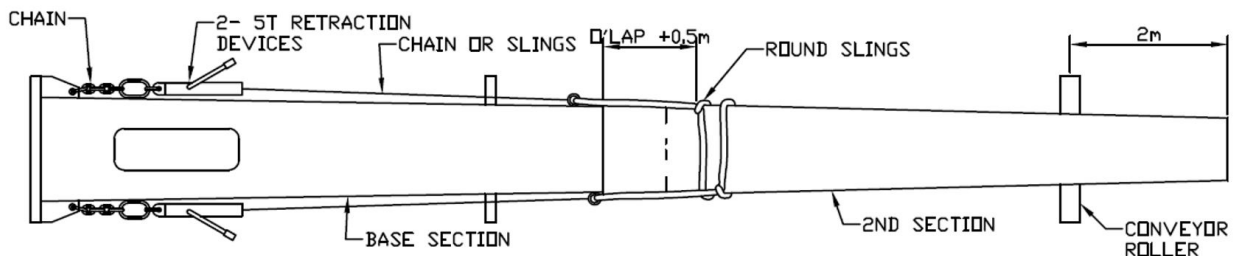
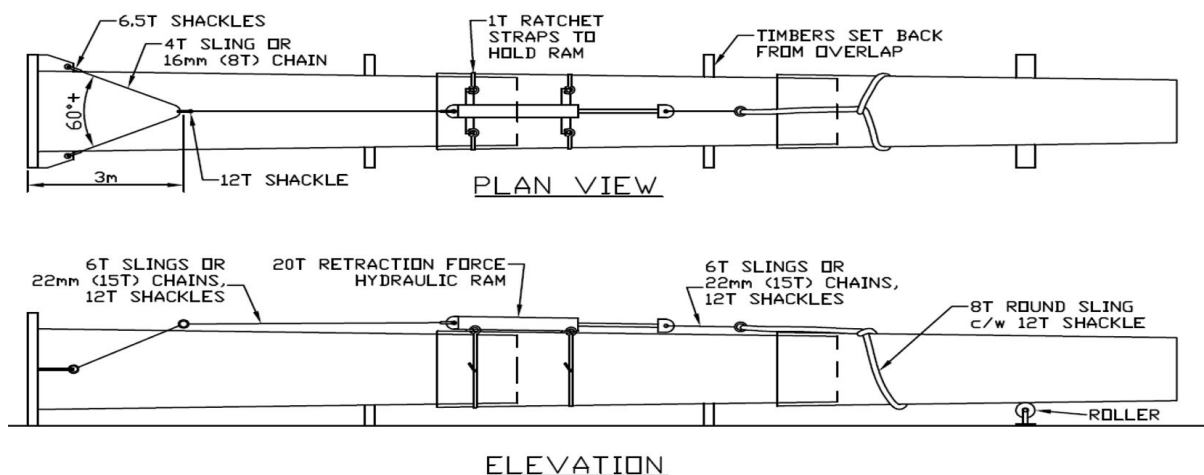


Figure 4.2.2 Medium Pole Section Assembly – Dual Pulling Devices

4.3 Large Poles: Base section greater than 2.0 Tonne:

A 20 Tonne force is required to assemble poles whose base section weighs greater than 2 Tonne. This may be achieved by using a 20 Tonne hydraulic ram. Position the pulling device on top of the pole in the position shown. Attach a 10T round sling a minimum of the overlap distance +0.5m from the end of the female section, looping it back through itself to minimise slippage and connect to a 8T sling and then to the 20T pulling device using 12T shackles. Then connect the pulling device to a 8T round sling attached to the pole lifting lugs using 12T shackles.



Item	SWL (T)	BL (T)	Actual (T)	S.F.	Min S.F. Reqd
4T basket sling	4	48	20	2.4	2.0
6T straight sling	6	42	20	2.1	2.0
8T choked sling	8	56	20	2.8	2.5 (increased for choking)
16mm (8T) basket chain	8	42	20	2.1	2.0
22mm (15T) chain	15	60	20	3.0	2.7 (increased for adjusting)
2 x 6.5T shackles	6.5	26	20/2 = 10	2.6	2.0
12T shackles	12	48	20	2.4	2.0

5. JOINT ASSEMBLY:

Pull overlap together using full capacity of device. If minimum slip distance is not achieved then when under load, gently tap joint with a sledgehammer to release any jamming or alternately "Jiggle" the joint with the lifting crane. Repeat procedure for all joints, by extending chains, slings and shackles of same capacity. Tension up only one (1) joint at a time.

6. DOCUMENTATION:

Document all slip distances achieved. If any slip distances are less than 80% of the advised design slip, then, whilst this is not always detrimental to the structural integrity of the column, please contact GM Poles engineers for further instruction. Ph: (07) 3718 4900.

6.1 For Mid-Hinge poles with more than 1x top section: After ensuring that the top sections are tightly slipped and have achieved their required slip distances: Fit the supplied joint retention mechanism. This could be a threaded rod with nuts and split pins or a chain and shackle system. Some settling of the joint may occur after the poles have been standing for some time. This is normal and OK. The retaining mechanism is allowed to become loose as it is only a 'failsafe'.

7. ELECTRICAL FIT-OUT:

If electrician is on-site it is recommended that they supply you or install a draw wire as the sections are being assembled to assist in wiring – which should occur prior to standing of poles.

8. ELEVATE POLE TOP:

To allow clearance for fitting of cross arms and attachment of luminaires, elevate pole head, using a suitable crane, by lifting the pole at least 2/3 up from the base and placing on a stand. Ensure the stand is of appropriate strength for the pole and head weight. Also ensure the ground substrate under the stand is stable and suitable for supporting the weight (be sure to consider wet weather softening the ground). Once cross arms are fitted and luminaires secured and wired, standing of pole can proceed according to our erection procedure.

8.1 If the pole is to be left over night, we recommend using safety barricading or placing orange safety tape around the entire pole and head.

