Technical Procedure

Assembly and Erection Brief for a Mid-Flange Bolted Gantry

Scope

The following briefly summarises the key points of the recommended horizontal assembly and erection procedure for a gantry structure.

For relatively small poles, horizontal joint assembly followed by erecting the fully assembled structure is usually preferable. When structures are large or are to be replaced under an existing line, vertical assembly and erection may be preferable.

Methodology

1. The key points for mid-flange jointed horizontal assembly and erection of the gantry in one piece are noted below.
2. Refer to pole approval drawings for pole details and correct orientation of the pole sections. Confirm all bolts, nuts and washers are at hand for the assembly.
3. At the site arrange the base section on packing so that it is in the vicinity of the already prepared concrete foundation (for a base plate mounted pole). Make sure the base section is secure and the joint end is clear of the ground and supported on timber gluts. Pole section identification plates should be orientated so that they are visible on the top face.
4. After reviewing the drawings and the pole sections, bring the new section up to the joint flange, being careful to correctly orient and align the new piece. Install four bolts (including flat washers) at 90 degrees apart screwing them up at least finger tight. Bolts should face downwards. Install remaining bolts. Be careful to ensure fingers are not pinched or trapped in the bolt installation process.
5. Snug tighten down all first row nuts in a diametrically opposite sequence. Now screw on the lock nuts to all bolts snug tightening in a diametrically opposite sequence.
6. Approximate bolt torque values for the snug tight condition are,
    a. M16 = 73Nm or 54lbft.
    b. M20 = 143Nm or 106lbft.
    c. M24 = 248Nm or 183lbft.
    d. M30 = 491Nm or 362lbft.
7. Check that the assembled pole sections are in true alignment.
8. Continue on with the next bolted joint as described above until the pole is fully assembled.
9. Attach any accessories, brackets etc. to the pole as deemed satisfactory according to the safe work method statement prepared for the pole erection.
10. Each pole has a lifting lug welded to the pole cap plate which is intended to be the lifting point for erecting the pole.
11. For base plate mounted poles, in preparation for erection, from the prepared foundation remove the top anchor bolt template including the top two nuts and one washer off each foundation anchor bolt. Of the remaining nuts, raise four of the foundation anchor bolt nuts 10mm above the rest and at 90 degrees to each other and level them. The pole base plate will rest on these.

12. Safety considerations should be reviewed prior to any pole lift. Each site should determine, document and train it's personnel in safe work methods relevant to the site and to the pole assembly and installation.
13. All lifting tackle must be checked to ensure it is serviceable and adequate for the weight of the pole being lifted.
14. Now carefully raise the pole to its full height and manoeuvre it onto the foundation bolts. Put on the 4 washers first and screw on the 4 off top nuts corresponding to the 4 raised nuts. Snug tighten down the 4 top nuts in a diametrically opposite sequence. Snug tighten the 4 underside nuts also and then check the pole alignment in two directions at 90 degrees to one another. If good, then continue to put the rest of the washers and top nuts on the anchor bolts. Bring the remaining nuts on the underside of the baseplate up tight against the baseplate. Snug tighten down all top nuts in a diametrically opposite sequence. Then snug tighten all underside nuts in a similar sequence. Recheck the top nuts. Now apply the lock nuts to all foundation bolts snug tightening in a diametrically opposite sequence.
15. Approximate bolt torque values for the snug tight condition are as per note 5 above.
16. Check the pole alignment and if satisfactory remove the lifting sling.
17. This process is to be repeated for the second pole of the gantry.
18. Check the distance between the gantry cross beam mounting holes on the erected poles agrees with the assembled gantry beam attachment hole distance.
19. The assembled 19m cross beam has been provided with a lifting point toward either end of the gantry for lifting it into position.
20. The crossbeam connection to pole bolts should be snug tightened.
21. If further explanation is required, please contact International Utility Poles.