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Course	
Lecturer	
Ref.	

**Manufacturer’s Recommendation for Setting up a Theodolite**

- 1) Ensure that
  - a) the tripod head is approximately level.
  - b) the tripod feet are firmly fixed in the ground.

This should be done **before** removing the theodolite from its box.
- 2) Place the theodolite on top of the tripod, and tighten the centring screw to clamp the theodolite centrally on the tripod head.
- 3) Use the optical plummet to focus onto the survey station (e.g. nail in top of peg).
  - a) turn the optical plummet eyepiece to focus on the reticule. (the black circular mark).
  - b) turn (or pull) the optical plummet focusing ring to focus on the survey station.
- 4) By rotating the levelling **FOOT SCREWS**, using all three in a random manner if necessary, centre the reticule (black circle) in the **OPTICAL PLUMMET** onto the survey station.
- 5) Carry out an approximate levelling using the pond bubble and by adjusting the length of **TWO TRIPOD LEGS**, bring the **POND BUBBLE** into the centre of the circle.

At this stage the theodolite has been **roughly centred and levelled**.

- 6) Fine level the theodolite using the **FOOT SCREWS** and the **PLATE LEVEL BUBBLE** tube:
 

Position A      Align the plate level bubble tube with two of the foot screws. Rotate the two foot screws in opposite directions to centre the plate level bubble. The bubble follows the **left** thumb.

Position B      Align the plate level bubble tube with the third foot screw i.e. 90° from position B. Centre the bubble by rotating the third foot screw (only).

REPEAT Position A and Position B until the bubble stays in the centre.
- 7) Look through the optical plummet again. Loosen the centring screw holding the theodolite to the tripod and slide the theodolite over the **TRIPOD HEAD** until the reticule of the **OPTICAL PLUMMET** is over the survey station.
 

REPEAT 6) and 7) until the plate level bubble is central **and** the optical plummet is over the survey station.
- 8) Check the plate level bubble in positions C and D :- 90° from A and B and if necessary remove half the bubble drift to **FREEZE** the bubble.

**At this stage the theodolite has been**

**FINELY LEVELLED AND CENTRED OVER THE SURVEY STATION.**

It is now ready for referencing to a BACK SIGHT for either measuring or setting out angles.

SCREWS and optical plummet	LEGS and pond bubble	SCREWS and plate bubble	HEAD and optical plummet
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