

Practical No: 06 Measure Horizontal angle by using Transit Theodolite by Direct Method.

I. Practical Significance:

Plotting open traverse on the field by using the horizontal angles and lengths of lines. Theodolite instrument which is helpful to measure the angles with high precision.

II. Industry/Employer Expected Outcome(s):

- Determining the horizontal angle of any survey line.
- Plotting the plans/maps on the ground.

III. Course Level Learning Outcome (COs):

- CO3 - Undertake survey using Theodolite for preparing a plan of the given terrain.

IV. Laboratory Learning Outcome (LLO):

- LLO 6.1:- Use transit theodolite to measure Horizontal angle by Direct Method.

V. Relevant Affective Domain related Outcome(s):

- Using Safe behaviors effectively.
- Maintain high standards of hygiene.
- Efficient application of tools, equipment's and machinery.
- Professional and ethical standards.

VI. Relevant Theoretical Background:

Theodolite is the most accurate instrument used for measurement of horizontal and vertical angles. Theodolite is mainly used to lay off horizontal angles, locating the points on lines, prolonging survey lines, determining the differences in elevation of any points in earth surface. There are two types of theodolite i) Transit and ii) Non-transit theodolite. To minimize the error in observation of angle, the average reading of face left and face right position of theodolite is considered.

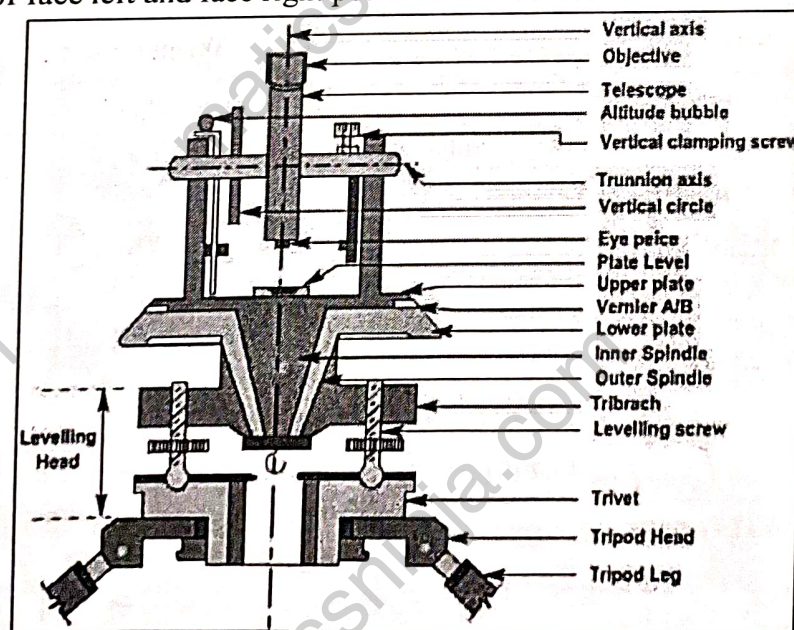


Figure 6.1 Transit theodolite.

[illegible]

XI. Result:

$$\angle LOM = 30^{\circ} 20' 15''$$

XII. Interpretation of Results:

By using transit theodolite we have found out the horizontal angle.

XIII. Conclusions:

horizontal angle by transit theodolite
 $30^{\circ} 20' 15''$

XIV. Practical Related Questions:

1. State the function of upper and lower clamp screw.
2. What is the significance of face left and face right observation?

Space for Answer

Q. 1 \longrightarrow ?

Ans:- The upper and lower clamp screws on a theodolite fix the upper and lower plates in place, allowing the user to accurately measure angles and distances.

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Q. 2 → ?

Ans:- In Surveying face left and face right observations refer to the position of the theodolites vertical circle relative to the observe where face left means the vertical circle is on the left side and face right means its on the right side there significance lies in helping to eliminate instrumental errors, particularly the index error by taking readings from both positions and averaging them out, thus providing a more accurate measurement.

XV. Assessment Scheme:

Sr. No.	Performance Indicators	Weightage	Marks Obtained
A.	Process Related (15 marks)	60%	
1.	Handling of equipment's & Survey Conduction	40%	
2.	Accuracy in length measurement.	20%	
B.	Product Related (10 marks)	40%	
3.	Conclusion of practical	20%	
4.	Practical Question Answer	20%	
C.	Total marks (25 marks)	100%	