

: PRISMATIC COMPASS :

Prismatic compass differs from an ordinary magnetic compass having a small needle at one end & slightly lense at the other end

A prismatic compass consists of the following parts :-

1. Circular box :- It is about 85 to 110 m.m. in diameter at the centre.
2. Pivot : In the centre of the circular box a magnetic needle is balanced on a hard steel pointed pivot.
3. Glass cover : When the instrument is not in use or when it is being carried from point to point, the sighting vane is folded on the glass cover, which covers the top of the box.
4. Needle : It is of broad form carries and aluminium ring.
5. Compass Ring : An aluminium ring graduated to degrees and half degrees. The graduation starts from '0' marked at the south end of the scale and run clockwise.
6. Prism : The face of the prism both horizontal & vertical being convex, the graduations are magnified. By means of reflecting prism, which can be adjusted to the eye sight of the observer by raising and lowering the frame.
7. Prism Cap : A metal cover fits over the prism through to protect the prism when not in use.
8. Eye Vane : It is adjusted beside the prism through look over from the prism.

9. Hinged Sunglass :- When luminous objects are to be sighted or sun observations are required they are interposed into the line of sight.
10. Focussing stud : It carries the reflecting prism.
11. Hinged strap : It carries the prism can be folded over the edge of the box & is held by the hinged strap when not in use.
12. Object Vane : It consists of a hinged metal frame in the cause centre.
13. Horse Hair : In the centre of the object vane there is a vertical horse hair, fine silk, thread or fine wire.
14. Adjustable Mirror : Sometimes, the sighting vane is provided with a hinged mirror, which can be placed upwards or downwards on the frame and also be slid along it as required. The mirror can be made to incline at any angle so that objects too high or too low to be sighted directly can be sighted by reflection. With the help of prismatic compass the bearing of line is measured. The bearing of a line is the horizontal angle that a line makes with reference to a definite meridian, measured in a clock wise direction.

There are three types of meridian lines or bearing :

- (i) Magnetic Bearing : By this term we mean the angle which a line joining with the observer makes with the magnetic meridian.

- (ii) True bearing : It is an angular indication of the line from geographic meridian north & south pole intersects with the surface of the earth or true bearing line.
- (iii) Arbitrary bearing : For small survey any convenient direction may be taken as meridians or bearings.

ADVANTAGES.

1. Since the compass is light & portable, angular measurements can be made easily.
2. If the bearing along one direction is incorrect it does not effect the other line.
3. It is suitable for surveying in the congested areas.
4. A straight line of sight can be continued beyond an obstacle by selecting a point on the other side of obstacle. so that the difference between back sight from this station & fore sight from the premises station comes to 180° .

Prismatic Compass differs from an ordinary magnetic compass having a small needle at one end by their compass magnetic bearing of a line is found with the help of the compass & the length of the line is measured with a chain or tape. Thus the direction & length being known, the line can be easily plotted.

TABULAR PROCEDURE

STATION	LINE	DISTANCE (MTR)	OBSERVED		DIFFERENCE	ERROR	DISTRIBUTION ERROR	CORRECTED		REMARKS	INCLUDED ANGLES
			F.B	B.B				F.B	B.B		
A	AB	7.0	$83^\circ 00'$	$241^\circ 00'$	$178^\circ 00'$	$-2^\circ 00'$	$-1^\circ 00'$	$82^\circ 00'$	$242^\circ 00'$		$74^\circ 30'$
B	BC	7.5	$326^\circ 00'$	$147^\circ 00'$	$179^\circ 00'$	$-1^\circ 00'$	$-0^\circ 30'$	$326^\circ 30'$	$146^\circ 30'$		$84^\circ 30'$
C	CD	9.67	$168^\circ 30'$	$346^\circ 30'$	$178^\circ 00'$	$-2^\circ 30'$	$-1^\circ 00'$	$167^\circ 30'$	$347^\circ 30'$		$21^\circ 00'$