

## **SETTING UP THE FIREFINDER** (1987)

**8651**

The firefinder stand corresponds to the engineer's transit tripod except that in the former case the objective is to prevent any movement for an entire season. For this reason, it must be of extremely rigid construction and very firmly attached to the floor. The slightest twist or turn will throw the instrument out of orientation; any rocking will throw it out of level. The three types of construction most commonly used are well braced stands, paneled cupboards, and pedestals of wood or metal. Wooden stands are preferred as they are usually more rigid and safer in respect to lightning.

The height of stand is also important in that it must be sufficient to permit obtaining necessary alignments through the window space provided.

## **RULES FOR INSTALLATION** (1987)

**8651.1**

### **STAND MUST BE RIGID** (1987)

**8651.1.1**

Be sure firefinder stand is rigid; tighten all bolts and screws.

### **POSITION BASE MAP** (1987)

**8651.1.2**

Check position of base map in reference to azimuth graduations. To do this, first revolve sight-bearing ring until zero or arrow mark on rear sight (vernier) matches exactly with 0 degrees of the azimuth graduation. Then, leaving the sight-bearing ring in this position, loosen the flat-headed screws around outer edge of map disc, and revolve it on small center pin until the true north and south line on the map lies directly under steel tape which extends across center of instrument. Be sure that the north end of this line is adjacent to the front sight. Look straight down on tape to check alignment, and then clamp disc in place by tightening the flat-headed screws. Make sure distance tape zero point is directly over lookout center pin. This adjustment may be made with the spring screws on front and rear sights of firefinder.

### **LEVEL INSTRUMENT** (1987)

**8651.1.3**

Be sure instrument is absolutely level. This adjustment is made with the spirit level provided in the hole on the side of the firefinder base (Osborne type). Level the firefinder as follows:

- Loosen all lock nuts on leveling screws and run them well up.
- Adjust all four leveling screws so their lower ends protrude about 1/8".

- Set the level furnished with the instrument on the extreme outer edge, or run, of the top plate parallel to the diagonally-opposed leveling screws.
- Turn both of these diagonally-opposed screws at the same time, one up and one down (accomplished by moving both thumbs in or both thumbs out), until the bubble rests at center.
- Now shift the spirit level to a position parallel to the other two diagonally-opposed screws, and level in this direction in the same manner.
- Then move back to the first position and correct for any disturbance by the second adjustment.
- Take any rock out by adjusting one screw only.
- Keep repeating until the instrument is level in both directions, and then tighten the lock nuts, being careful not to disturb the leveling screw.
- Move the instrument to other tracks. THE BOTTOM EDGE OF THE RAIL-FITTING GROOVES MUST NEVER BE RAISED ABOVE CENTER OF RAIL, as reduced width would result in side play and affect accuracy of orientation.
- If there is not enough adjustment provided by leveling screws, the baseboard must be leveled by permanent wedges.

## **ORIENT INSTRUMENT**

**8651.1.4**

(1987)

Be sure the instrument is oriented to true north and south and clamped in this position.

All lookouts will be provided with a set of targets to sight on in order to orient their firefinders, which is done in the following manner:

Loosen the screws or clamps fastening the upper plate of the instrument to the lower plate. Set the azimuth reading according to the reading supplied by the dispatcher (check to see if the distance tape cuts the position on the map disc; if not, loosen the screws on the map disc and revolve the disc until the tape cuts the point; then tighten). Revolve the entire upper plate of the instrument, not only the sighting ring, until the sights line up with the target; clamp the upper plate securely.

Example: Assume target given by the dispatcher for orientation is Bear Rock Lookout, azimuth reading 150 degrees. If above instructions have been followed: indicator arrow on scale will read 150 degrees, front vertical sighting hair will cut Bear Rock when viewed through rear sight, distance tape on firefinder base map disc will cut through Bear Rock Lookout on map. (See [Checking Orientation](#).)

Note how the rear sight, front sight, distance tape, and orientation target (Bear Rock Lookout) all line up on 150 degrees; the instrument is properly oriented.

After the instrument has been properly oriented, it generally remains so for weeks or even months. NEVERTHELESS, IT SHOULD BE CHECKED DAILY.

## **PLUMB SIGHTS**

**8651.1.5**

(1987)

Be sure the front and rear sights are plumb and will remain so as the ring is turned. Only after the firefinder has been leveled should the plumb of the instrument's front and rear sights be checked.

First check the vertical hair of the front sight. To do this, hang a weighted thread from an inside window frame of the lookout tower, and sight on it from the bottom of the rear sight slot. If the hair does not coincide with the hanging thread, it is not plumb. This may be corrected by the screws underneath the sighting ring; to straighten, loosen the screws shimming up the low side. Always check the front sight before the checking rear one.

To check the rear sight, sight on a small point or dot on a wall or in the surrounding topography, raise an eye slowly from the bottom to the top of the slot in the rear sight. If the dot appears to move away from the front hair, the slot is not plumb. It can be adjusted by loosening the screws underneath the sighting ring and shimming up the low side.

The firefinder is now ready for operation. It will be noticed that there are three tracks on top of the base on which firefinder rests. The instrument may be used on either set of tracks, thus dodging corner posts, window frames, or other obstructions. Sliding the instrument backward or forward on these tracks or moving it from one set of tracks to another does not disturb the orientation of the instrument.

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