For guidance on managing construction health risks go to
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2536 Safety Guidance
v:112016

Frank Key PLANT & TOOL HIRE

Using the Automatic Level

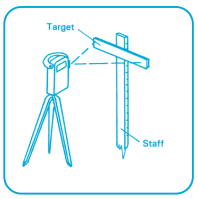
1. Wear your protective equipment.
2. The automatic level is a sensitive instrument. remove it from the tripod when being carried or when not in use.
3. Do not change the position of the tripod in the middle of a measuring process. If it is moved accidentally, you must start the process again.
4. Make sure your colleague keeps the staff in a vertical plane while measurement is taking place.
5. It is important that everyone involved understands that the measurement pegs must not be tampered with.
6. Always remove the level from the tripod and store all the equipment safely as soon as you have finished using it.
7. When all measurement is finished, return this sensitive equipment to the hire company - do not leave it where it may become damaged.
8. If your equipment is faulty, do not attempt to repair it. Contact the hire company.

Please keep this leaflet safely as it may be required for future reference

Cowley Automatic Level

The rules and procedures in force where people are at work may require the person responsible for this equipment to carry out a specific risk assessment.

It is important to read this entire leaflet BEFORE using the Cowley Automatic Level



1. It is important to read all of this leaflet before you use the Cowley automatic level.
2. This automatic level is designed to give a simple and accurate means of measuring levels. It is easy to set up and requires no adjustment.
3. This automatic level can be awkward to carry, take care not to cause injury or damage when moving it about.
4. If you have not used an automatic level before, familiarise yourself with the equipment before you start work. Some prior knowledge of this kind of work is beneficial.
5. Plan your work and think ahead to make sure you will always be working safely.
6. must have at least the following items of personal protective equipment: safety helmet to EN397 or BS5240 if you are on a construction site; safety boots to EN345 or BS1870/4972 or at least strong shoes; gloves.
7. This automatic level must not be used by minors, or by anyone under the influence of drugs or alcohol.
8. The automatic level is designed for operation by an able bodied adult. Anyone with either temporary or permanent disability must seek expert advice before using them.

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Before Starting Work...

WORK AREA

1. Depending on what task you are doing you will need a clear field of vision through 360 degrees in the area that you are working in. Parked vehicles or other similar large obstructions should be moved.
2. Your task will be done more efficiently if your work area is clear of people and vehicular traffic, warn other people to keep away.

OPERATORS

1. The following items of personal protective equipment (ppe) are the minimum that should be worn whenever you use the automatic level. Particular jobs or environments may require a higher level of protection.
2. You must wear a safety helmet to EN397 or BS5240 if you are on a construction site.
3. You should wear safety boots (EN 345 or BS1870 /4972) or strong shoes as a minimum.
4. Strong gloves will help protect your hands.
5. Anybody who is working near to you will also need to wear appropriate personal protective equipment.

AUTOMATIC LEVEL

1. Check your equipment and its tripod. Do not use anything found damaged- contact the hire company.
2. Your equipment should consist of an automatic level; a tripod on which to mount the level; a staff, which will have metric and imperial measurement; and a target.
3. You should have some prior knowledge of measuring the differences in height over a large area and how this equipment will help you achieve that.

SETTING UP

1. You should always remove the level from the tripod when carrying the equipment. even for short distances. This is because level is locked and safe while it is off the tripod. Once the mounting pin on the tripod is inserted into the level it releases the lock allowing the internal mechanism to 'float'.
2. Set the tripod up in the desired position, usually but not necessarily, in the centre of the area; check that the mounting pin is pointing vertically.
3. Place the automatic level on the mounting pin ensuring that the base of the level is seated firmly on the top of the tripod.

LEVELLING

1. Select the most suitable point to become the first point to be measured, This will be the Datum point.
2. A colleague will place the staff, with the target, on the datum point. The staff must be vertical and the target must be held approximately horizontal to the staff. The red front of the target must be held towards the level.
3. Look through the aperture on the top of the level and take a 'sight' of the target. The target will appear as a split image with the left half of the target appearing higher or lower than the right side.
4. The target must be raised or lowered on the staff until the two halves appear to coincide when looked at through the level.
5. Clamp the target to the staff in this coincident position.
6. Set a peg of appropriate length in the ground next to the staff and mark the height of the target on the peg.
7. Move the staff complete with target to the second selected point and repeat the process.
8. Do not move the tripod but rotate the level round to the next position where your colleague holds the staff upright and moves the target up or down until it appears level through the sight.
9. Set another peg in the ground and mark off the height.
10. This mark on the second peg is level with the mark on the first peg.
11. Your pegs may need to be longer or shorter, and the marks appear higher or lower on each peg to correspond with the differences in ground level.
12. Continue with this process until you have enough levels marked.

MEASURING DIFFERENCES IN HEIGHT

1. Set up the tripod as in setting up above.
2. Follow steps 2 to 4 in levelling above.
3. Note the measurement reading on the staff indicated by position of the target. You must work in metric or imperial, do not mix measurements.
4. Do not move the tripod but rotate the level round to the next position where your colleague holds the staff upright and moves the target up or down until it appears level through the sight.
5. Note this second measurement reading on the staff indicated by position of the target.
6. The difference between the first and second measurement indicates the difference in the ground height between these two positions.
7. Continue taking readings until you have enough.
8. In order to simplify your calculations, you can now do the following. Find the lowest measurement (say 1.6m). Subtract this measurement from all your readings, the lowest measurement now becomes zero and every other measurement becomes 1.6m lower than what it was.
9. You may want to consider your zero measurement as your datum.
10. If the user has some prior knowledge, a metal telescopic staff may be used in conjunction with the target.

Useful Reference Points • www.hae.org.uk/businessguard