

Title of Training	Transit Safety Training	
Equipment Info.	Make/Type/Size/Model	Sokkia-C22 Transit
Material Needed	Operators Manual & Transit Level	

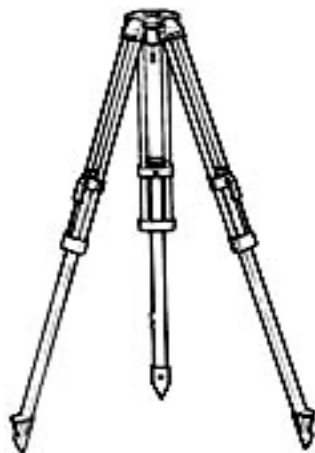
TRANSIT TRAINING



The Transit is a geodetic instrument for determining directions and measuring horizontal and vertical angles during geodetic work and topographic and mine surveying, in construction, and in other applications. Horizontal and vertical circles calibrated in degrees and smaller units are the main measuring devices in the theodolite. While the basic instructions remain the same for all transits, setup is important as incorrect preparation may cause inaccurate measurements.

How to Use a Surveyor's Transit

1. Set the tripod that will house the transit instrument on a stable, level section of ground. This should be along an area where the measurements will be taken. Manually adjust the legs of the tripod by hand to maneuver them into a level position. Some tripods have built-in bubble levels to assist with stabilization.



2. Secure the tripod legs by locking the tripod extensions in place. Gently rock the tripod to make sure it is as stable as possible for the transit to rest on. If the transit slips off, it may become damaged.

3. Mount the transit on top of the tripod. The transit can be secured to the tripod by either locking clips or by mounting screws provided by the manufacturer. Make sure the transit is secured and bubble level shows the transit is sitting level.

4. Properly calibrate the transit. Turn the calibration screws away or toward one another. Turning the screws will cause one to become tighter while the other becomes looser. Keep turning screws until the calibration bubble is centered on top of the transit and shows proper calibration.

5. Check the accuracy of the transit. Place the measurement rod 100 feet away from the transit and tripod. This rod comes with the transit box. Make sure the rod sets vertically secured so it can be viewed through the transit. Place another rod in the opposite direction 100 feet away in the ground so it is vertically secured. The tripod should rest in the middle of the two rods.

6. Use the transit to take a reading of each rod. Record the reading given by the transit on paper. Move the transit instrument and tripod to another area along the line between the two rods and take another measurement. Again, ensure the tripod is level and secure before any measurements are taken.
7. Compare the readings. If both measurements match, the instrument is perfectly calibrated. Repeat the calibration process until the instrument reads correctly. Once calibration has been completed, the transit is ready to be used for measurements for your project.



Trainee Name (print)		Signature of Trainee	
Instructor Name		Date of Training	
Scan To:	Safety/Equipment/Training/Transit Safety/YYY-MM-DD		
Revision # 002-15			Page 1 of 3

Title of Training	Transit Safety Training	
Equipment Info.	Make/Type/Size/Model	Sokkia-C22 Transit
Material Needed	Operators Manual & Transit Level	

How Does a Transit Work?

- Mounted on a tripod, a transit level is both portable and weather resistant. Neither heat nor cold affects the transit level because of its built-in durability. It even has sunshade incorporated into the lenses for optimal viewing outdoors. Damage occurs only if dropped, which will cause its reflective lenses to come out of alignment, rendering the instrument useless. Only a professional can restore the precise angles necessary to produce accurate levels that you can trust.

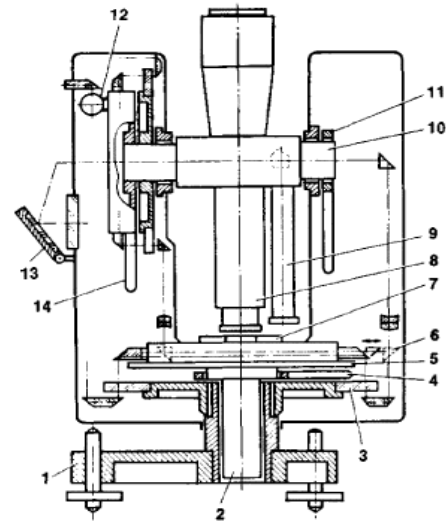


Figure 1. Schematic diagram of an optical theodolite: (1) tripod, (2) vertical axis system, (3) horizontal circle, (4) alidade control, (5) alidade of horizontal circle with reading device, (6) switch for reading of horizontal and vertical circles, (7) level for alidade (5), (8) telescope, (9) reading microscope, (10) horizontal axis system, (11) control device for telescope (8). (12) level for alidade of vertical circle, (13) light mirror, (14) setting device of level (12)

- What you need to level determines where you should place the transit. If you are measuring a line of things all in a row, then place the transit at the beginning of the line. Adjust the tripod legs until the transit is stable.
- The next step is to adjust the bubble in the glass vial. Turn the A and B screws until the bubble aligns with the A/B axis. Then turn the transit a quarter turn to the C/D axis and level the instrument again. Recheck each position several times to make sure that it is level. Once leveled, you can turn the transit on the tripod 360-degrees and the entire circle it points at will be level as well.
- A transit normally comes with a measuring stick that is marked in 1-inch increments. The helper or spotter stands by the desired location holding the measuring stick plumb or vertical and the transit user looks through the transit eyepiece. Crosshairs similar to a submarine periscope enable the operator to make the alignment. When the measuring sticks predetermined benchmark height is directly in the crosshairs, then the height of that location is noted. The helper then moves the measuring stick to the next location and the operator makes another location reading.
- You can also use a transit level to determine if something is plumb or straight up and down. Making sure that a building structure is still sound and that the forms are true and checking pole alignments for vertical straightness are two uses requiring the plumb feature

Important Notice

This Safety Training Topic (STT) does not necessarily cover all possible hazards associated with this equipment and should be used in conjunction with equipment manual. It is designed as a guide to be used to compliment training in the field at Brieser Construction and as a reminder to users prior to equipment use.

Trainee Name (print)		Signature of Trainee	
Instructor Name		Date of Training	
Scan To:	Safety/Equipment/Training/Transit Safety/YYY-MM-DD		
Revision # 002-15			Page 2 of 3

Title of Training	Transit Safety Training	
Equipment Info.	Make/Type/Size/Model	Sokkia-C22 Transit
Material Needed	Operators Manual & Transit Level	

EMPLOYEE NAME (Print or Type)	EMPLOYEE SIGNATURE	TRADE	JOB TITLE
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			

Trainee Name (print)		Signature of Trainee	
Instructor Name		Date of Training	
Scan To:	Safety/Equipment/Training/Transit Safety/YYY-MM-DD		
Revision # 002-15			Page 3 of 3