VEVOR®

TOUGH TOOLS, HALF PRICE

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AUTOMATIC OPTICAL LEVEL

MODEL: GOL24D/GOL26D

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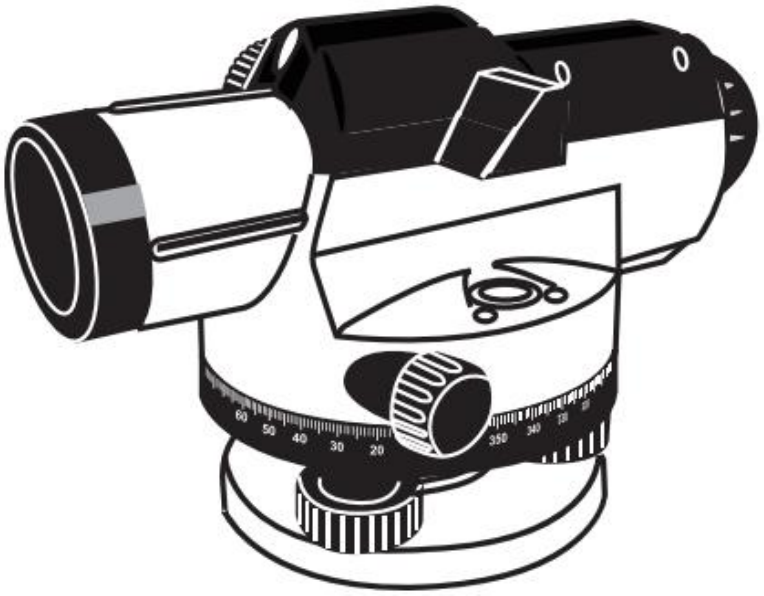
MODEL: GOL24D/GOL26D



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Have product questions? Need technical support? Please feel free to contact us:

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www.vevor.com/support

This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

Preface

We appreciate of your purchasing our autolevel series. In order to help you fully explore the instrument features, please read this manual carefully and save these instructions properly for future reference.

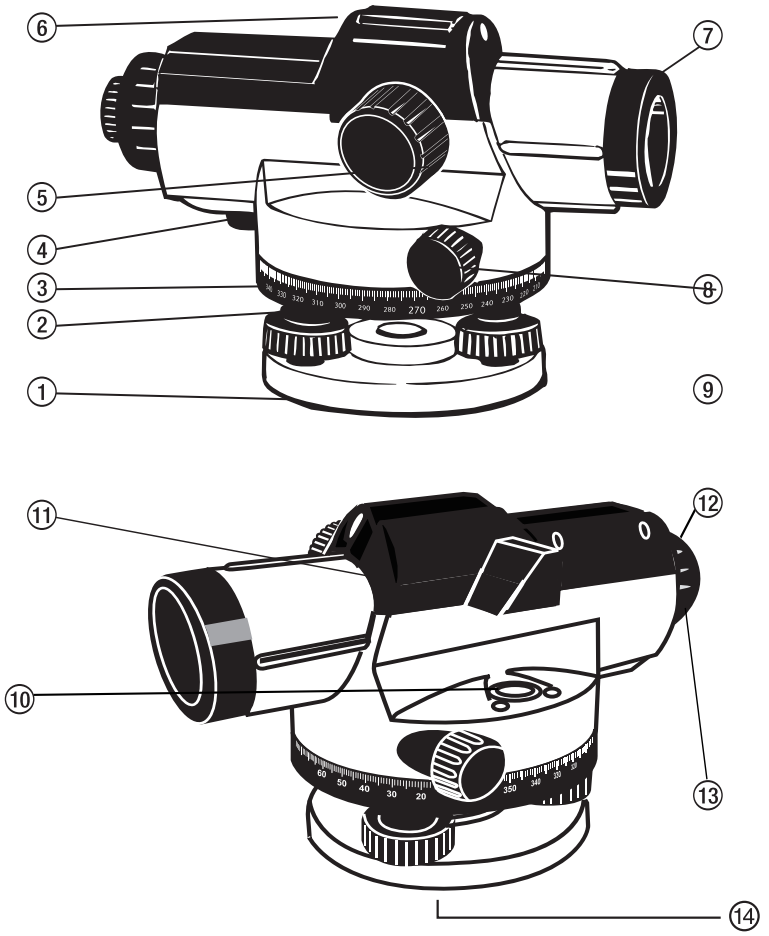
Notes:

- ❒ before start to operate the instrument or after long transportation, the leveling and display accuracy must be checked first.
- ❒ Protect the instrument against moisture, and keep the instrument away from direct sunshine.
- ❒ Never leave the instrument in vehicles for a long time.
- ❒ If the temperature has difference between the working spot and reserved place, please keep the instrument into case for a while until it suit to the working temperature before putting into operation.
- ❒ The measuring accuracy of the instrument can be impaired if exposing it under extreme temperatures or variations in temperature.
- ❒ Avoid of any impact to or dropping of the instrument onto the ground.
- ❒ Place the instrument into the provided carrying case during long transportation. The instrument should be avoid of extreme extrusion, bumping and shaking during transportation. Ensure that instrument is correctly placed in the transport case (When placing the instrument into case, the compensator should be locked, otherwise, it could be damaged in case of intense movement.)
- ❒ This instrument only allow the qualified specialists to repair and ensure of using the original spare parts. No one allow to separate the unit except of professional to avoid of any unnecessary damaged.

1. Technical Data

Model	GOL24D	GOL26D
Magnification	24X	26X
Working Range	90m	105m
Height accuracy for an individual measurement	1.6mm/30m	1.6mm/30m
Clear objective aperture	36mm	
Compensator setting accuracy	±0.8″	±0.5″
Standard Deviation for 1 km	2.0mm	1.5mm
	double run leveling	
Telescope Image	erect	
Short focusing distance	0.3m	
Field of view	1°30′	
The working range of compensator	±15′	
Stadia ratio	100	
Stadia addition	0	
Accuracy of circular vial	8′/2mm	
Horizontal circle graduation	1° or 1gon	
Water resident	Yes	
Net weight	1.8kg	
Tripod mount thread	M16 or 5/8″	

2. The instrument parts description



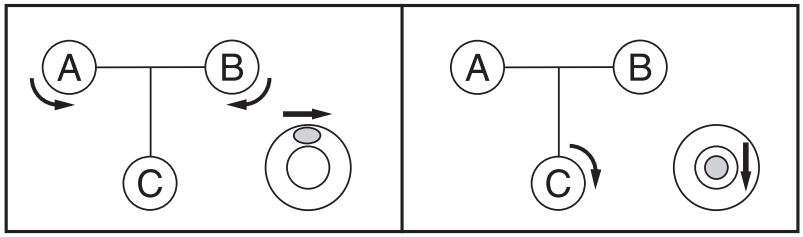
1.base plate
2.horizontal circle
3.horizontal circlereference mark
4.compensator lock
5.focusing adjusting knob
6.optical peep sight
7.objective lens
8.horizontal drive screw
9.leveling screw
10.circular vial
11.bubble observe mirror
12.eyepiece cover
13.eyepieces focusing knob
14.tripod mount 5/8"
(on the rear side)

3. Operation

3.1 Setting up

1. Set up the tripod stable and safe against tipping over or slipping off, and adjust tripod to the position of user's eyes level.
2. Place the instrument via the tripod mount 14 onto the male thread of the tripod and screw the unit tight with locking screw of the tripod.
3. Roughly level the tripod, over the short distance, the instrument can be carried by lifting the tripod. To ensure that the instrument is not damaged during this process the tripod must be held vertically and should not be lengthwise over the shoulder.
4. Align the instrument with leveling screw 9 so that the air bubble is in the center of the circular vial (see fig.1)

fig.1



turn the first two leveling screws A and B to move the air bubble so that it is centered between the two leveling screws, then turn the leveling screw C until the air bubble is in the center of circular vial.

3.2 Aiming and focusing

1. take away the objective lens cover 7, let the telescope shoot toward a bright object or hold a white sheet of paper in front of the objective lens 7, then turn the eyepieces 13 till dark black crosshair can be seen sharply.
2. Direct the telescope towards the leveling rod, it may required optical peep sight 6 to aim if necessary.
3. Turn focusing knob 5 till the graduation field of the leveling rod appears sharply.
4. Align the crosshair exactly to the center of the leveling rod by turning the horizontal drive screw 8.

4. Measuring Functions

4.1 Measuring Height

1. Place the instrument to the center of point of A and B (see fig2.)
2. Erect the leveling rod to the point of A vertically, focus the instrument against the leveling rod and adjust the crosshair to match the center of leveling rod, record the height value a of the leveling rod at the centre line of the crosshair. (see fig.3)
3. Erect the leveling rod to the point of B vertically, focus the instrument against the leveling rod and adjust the crosshair to match the center of leveling rod, record the height value b of the leveling rod at the center line of crosshair. (see Fig.4)
4. The Height Difference h=1.78-1.215=0.565m

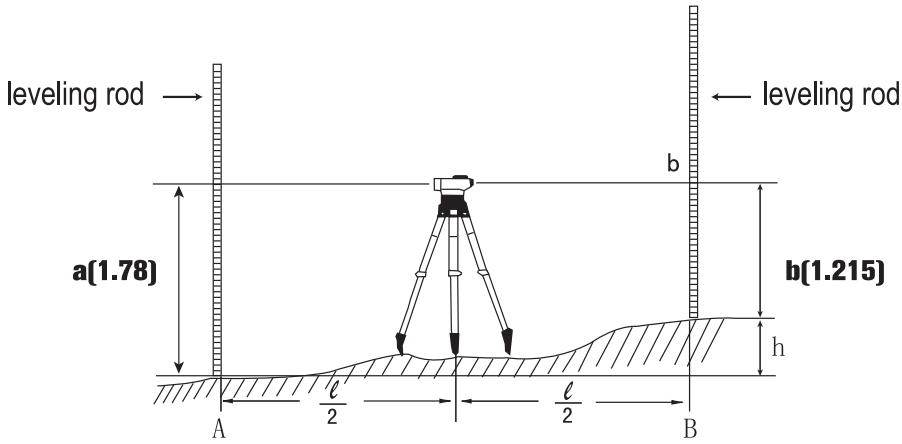


fig.2

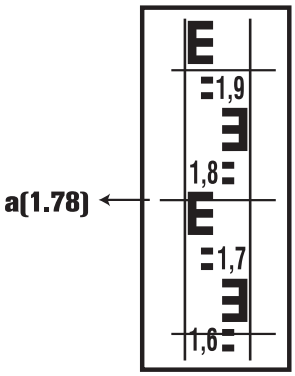


Fig.3

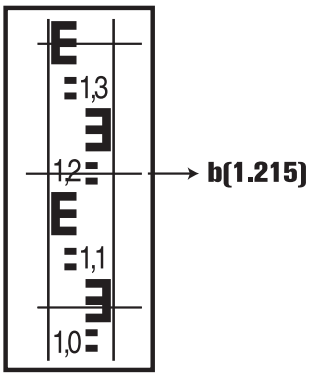


Fig.4

4.2 Measuring Distance

1. Aiming the leveling rod, record the value of upper and lower stadia hair(see fig.5) against the position of leveling rod (see fig.6)
2. Multiply the difference of both heights of stadia hair by 100 to receive the distance value from the leveling rod to the instrument.

distance measured in the figure: (1.347-1.042)x 100=30.5m

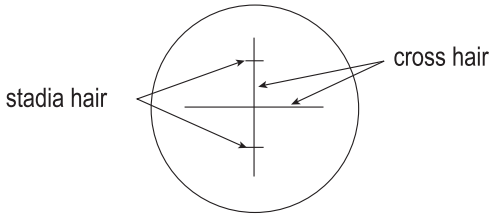


fig.5

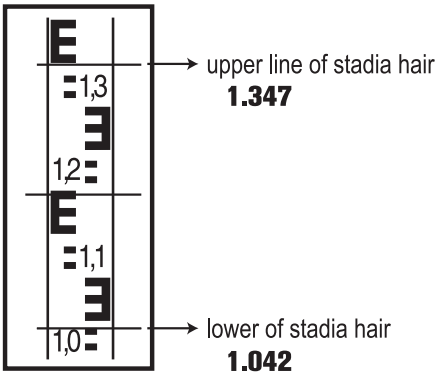


fig.6

4.3 Measuring Angles

1. Shoot the instrument toward A, rotate the horizontal circle 2 with "0" point toward the reference mark 3. (see fig.7)
2. Shoot the instrument toward B, read off the angle value at the reference mark 3 of horizontal circle. (see fig.7)

the measured angle in figure: 45°

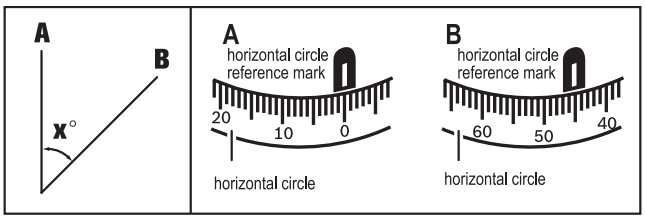


fig.7

5. Checking and Adjusting

Before using the instrument or after long transportation, the leveling accuracy and indication accuracy.

5.1 Check Circular Bubble Vial

1. Adjust the instrument with leveling screw knob 9, so that the air bubble is in the center of circular vial.
2. Rotate the unit by 180° , the air bubble should keep in center, if the air bubble moves out of center, the circular bubble vial must be readjusted.

5.2 Adjusting Circular Bubble Vial

1. Rotate the leveling screw knob 9 to ensure the air bubble moving toward to the center of circular bubble vial, the deviation should be at 1/2 between the center and the end position(see fig.8)
2. Use align wrench turn the two adjustment screws till the air bubble moving to the center of circular bubble vial.(see fig.9)
3. Repeat the above step till the air bubble keep in the center of circular bubble vial no matter which direction the telescope turned.

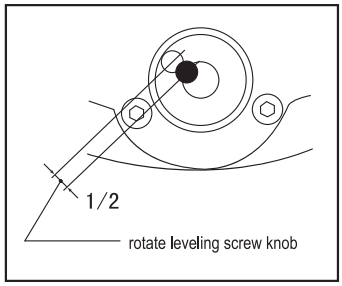


fig.8

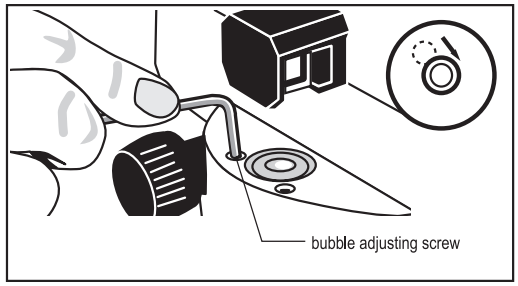


fig.9

5.3 Checking i angle

1. Checking should be done at a distance of 30m. Place the instrument in the center of this distance, put 2 leveling rod at the both end of measuring distance A and B separately.（see fig.10)
2. Read off the heights of this two leveling rod, calculate the difference d; that is the difference between a1(the height of leveling rod A) and b1(the height of leveling rod B).

Example: a1=1.937m b1=1.689m so a1-b1=0.248=d

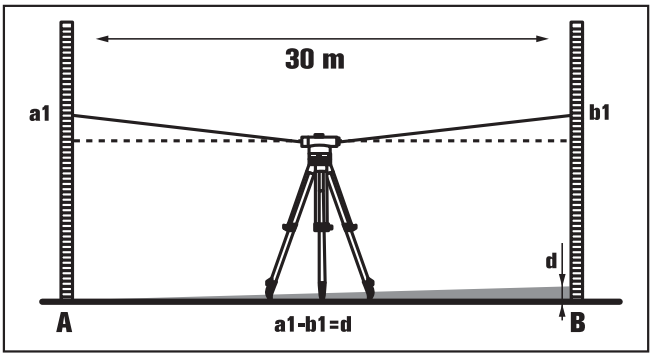


Fig.10

3. Place the instrument to the position of 1m away from leveling rod A, read height a2 (the height of leveling rod A)

4. Calculate b2'=a2-d, then record the height b2(the height of leveling rod B), if the deviates value between b2'and b2 over 6mm （20x/22x) or 3mm(24x/26x/28x/32x), the crosshair must be readjusted.

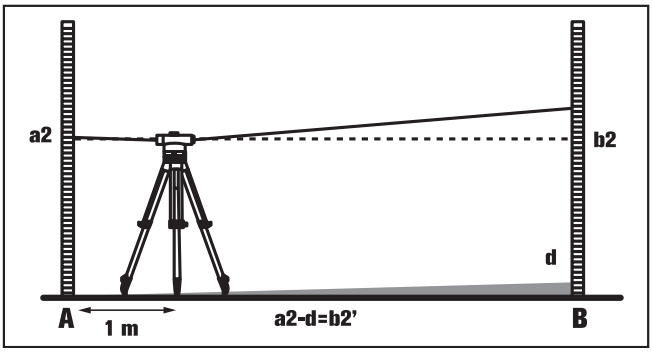


Fig.11

Example: a2=1.724m d=0.248 so a2-d=1.476=b2'

when measuring 20x/22x, the height b2 should be 1.476m+/-6mm

when measuring 24/26/28/32x, the height b2 should be 1.476=+/-3mm

5.4 adjust the i angle

take off the eyepiece cover, use adjusting pin turn adjusting screw clockwise or counterclockwise till the heights value b2 and b2' on leveling rod B are same. Screw on eyepiece cover again.

6. Maintance and Service

Carefully use and maintain the unit, can guarantee the instrument accuracy and efficiency.

1. After measuring, wipe clean all the surface of the instrument and put into the carrying case.
2. Dust all optical parts with a soft brush and clean the lens with lens paper. Never touch the lens with your fingers.
3. If the instrument failed in function or damaged, repair or check should be done by experienced technician who fully understand the unit structure or returned to the factory for repair. Do not open the instrument by yourself.
4. A bag of silica gel dryer is included in the case for the removal of residual moisture. Renew the bag of silica gel regularly.
5. The unit should be kept in a dry, clean, dust-free and air-flow condition with low humidity.

7. Packing List

Plastic Carrying Case	1
The Unit	1
Adjusting Pin	1
Hexagonal Wrench	1
Instruction Manual	1
Plumb	1
Silica Dry Gel	1

Manufacturer: Shanghaimuxinmuyeyouxiangongsi
Address: Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.
Imported to AUS: SIHAO PTY LTD. 1 ROKEVA STREETEASTWOOD NSW 2122 Australia
Imported to USA: Sanven Technology Ltd. Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

EC REP

E-CrossStu GmbH
Mainzer Landstr.69, 60329 Frankfurt am Main.

UK REP

YH CONSULTING LIMITED.
C/O YH Consulting Limited Office 147, Centurion House, London Road, Staines-upon-Thames, Surrey, TW18 4AX

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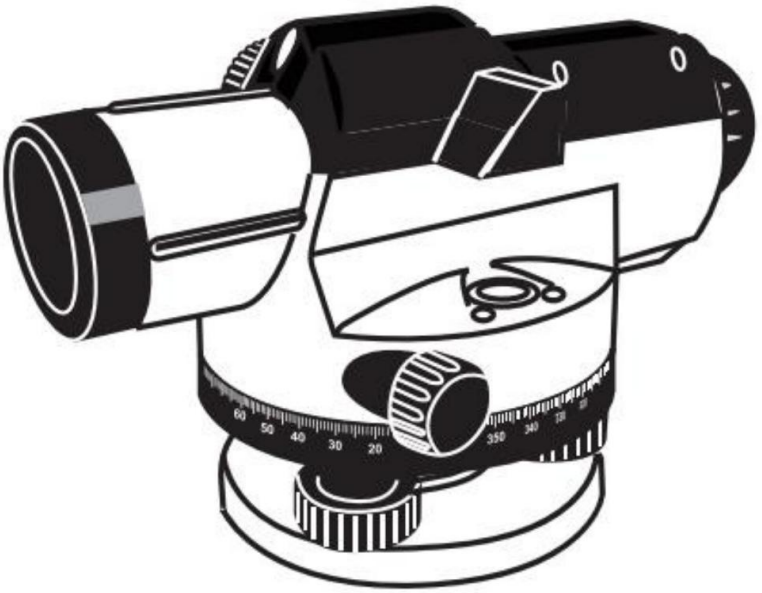

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Automatic Level

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Horizontal circle graduation	1° or 1gon				
Water resident	Yes				
Net weight	1.8kg				
Tripod mount thread	M16 or 5/8″				

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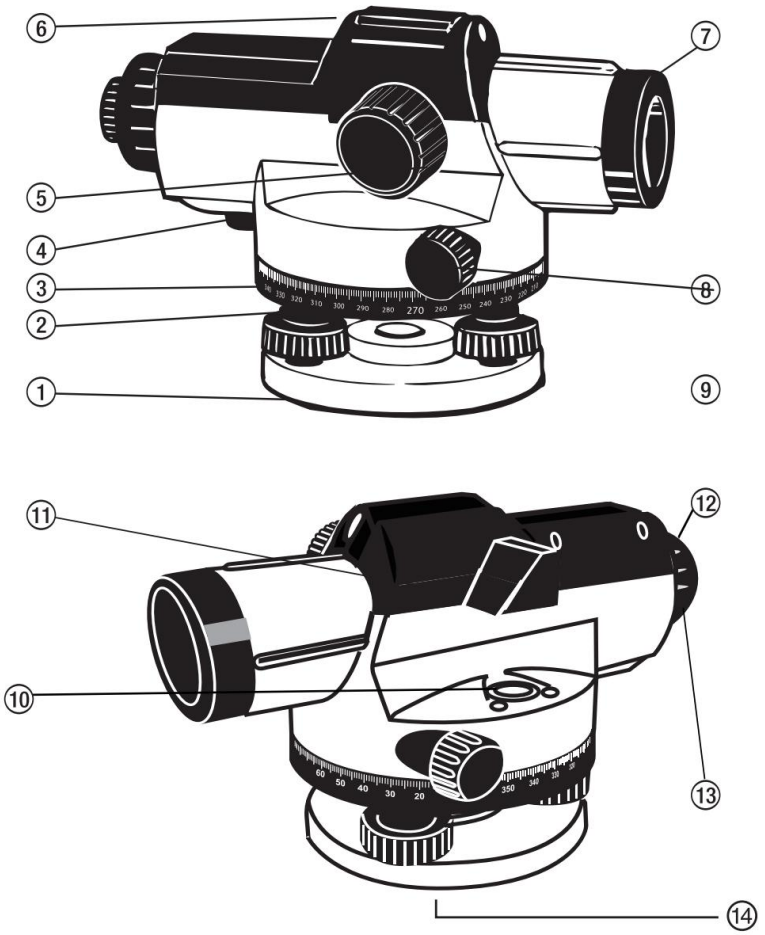

1.base plate
2.horizontal circle
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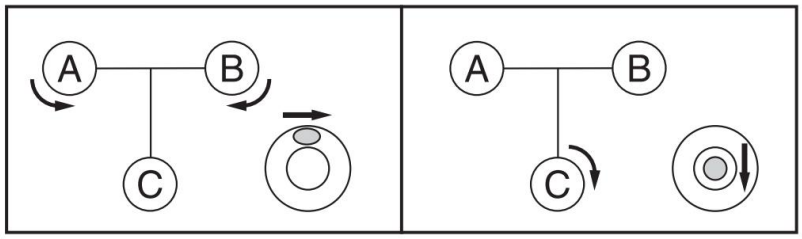
3. Operation

3.1 Setting up

1. Set up the tripod stable and safe against tipping over or slipping off, and adjust tripod to the position of user's eyes level.
2. Place the instrument via the tripod mount 14 onto the male thread of the tripod and screw the unit tight with locking screw of the tripod.
3. Roughly level the tripod, over the short distance, the instrument can be carried by lifting the tripod. To ensure that the instrument is not damaged during this process the tripod must be held vertically and should not be lengthwise over the shoulder.
4. Align the instrument with leveling screw 9 so that the air bubble is in the center of the circular vial (see fig.1)

fig.1



turn the first two leveling screws A and B to move the air bubble so that it is centered between the two leveling screws, then turn the leveling screw C until the air bubble is in the center of circular vial.

3.2 Aiming and focusing

1. take away the objective lens cover 7, let the telescope shoot toward a bright object or hold a white sheet of paper in front of the objective lens 7, then turn the eyepieces 13 till dark black crosshair can be seen sharply.
2. Direct the telescope towards the leveling rod, it may required optical peep sight 6 to aim if necessary.
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4.1 Measuring Height

1. Place the instrument to the center of point of A and B (see fig2.)
2. Erect the leveling rod to the point of A vertically, focus the instrument against the leveling rod and adjust the crosshair to match the center of leveling rod, record the height value a of the leveling rod at the centre line of the crosshair. (see fig.3)
3. Erect the leveling rod to the point of B vertically, focus the instrument against the leveling rod and adjust the crosshair to match the center of leveling rod, record the height value b of the leveling rod at the center line of crosshair. (see Fig.4)
4. The Height Difference h=1.78-1.215=0.565m

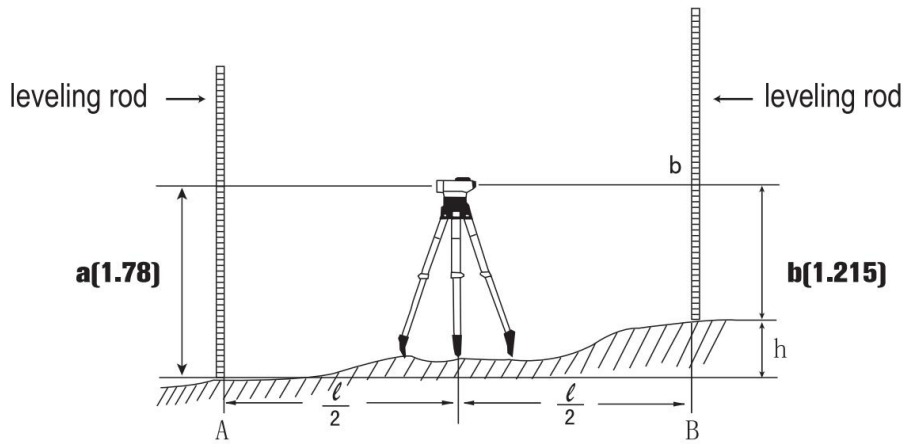

fig.2

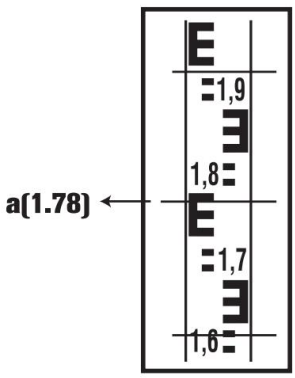

Fig.3

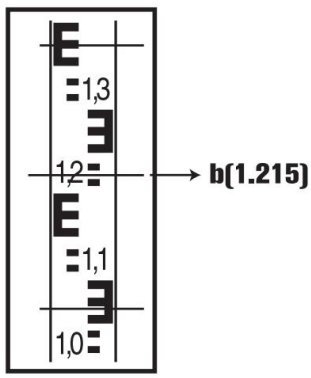

Fig.4

4.2 Measuring Distance

1. Aiming the leveling rod, record the value of upper and lower stadia hair(see fig.5) against the position of leveling rod (see fig.6)
2. Multiply the difference of both heights of stadia hair by 100 to receive the distance value from the leveling rod to the instrument.

distance measured in the figure: (1.347-1.042)x 100=30.5m

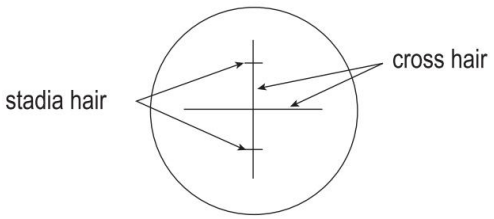

fig.5

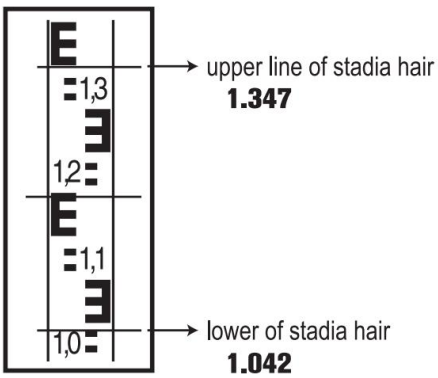

fig.6

4.3 Measuring Angles

1. Shoot the instrument toward A, rotate the horizontal circle 2 with "0" point toward the reference mark 3. (see fig.7)
2. Shoot the instrument toward B, read off the angle value at the reference mark 3 of horizontal circle. (see fig.7)

the measured angle in figure: 45°

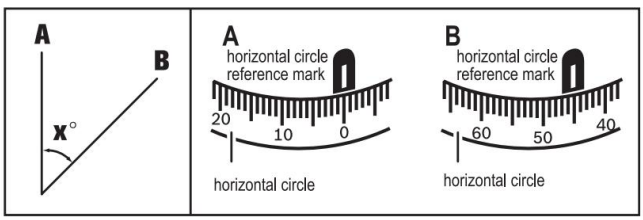

fig.7

5. Checking and Adjusting

Before using the instrument or after long transportation, the leveling accuracy and indication accuracy.

5.1 Check Circular Bubble Vial

1. Adjust the instrument with leveling screw knob 9, so that the air bubble is in the center of circular vial.
2. Rotate the unit by 180° , the air bubble should keep in center, if the air bubble moves out of center, the circular bubble vial must be readjusted.

5.2 Adjusting Circular Bubble Vial

1. Rotate the leveling screw knob 9 to ensure the air bubble moving toward to the center of circular bubble vial, the deviation should be at 1/2 between the center and the end position(see fig.8)
2. Use align wrench turn the two adjustment screws till the air bubble moving to the center of circular bubble vial.(see fig.9)
3. Repeat the above step till the air bubble keep in the center of circular bubble vial no matter which direction the telescope turned.

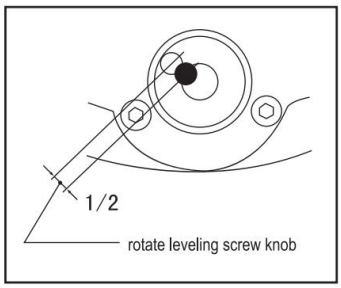

fig.8

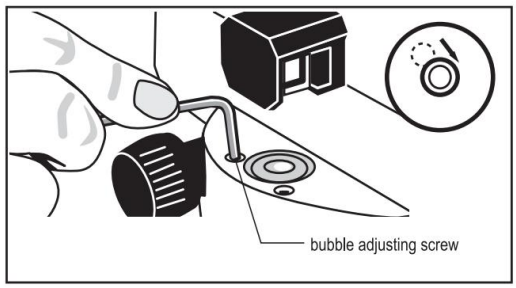

fig.9

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Example: a1=1.937m b1=1.689m so a1-b1=0.248=d

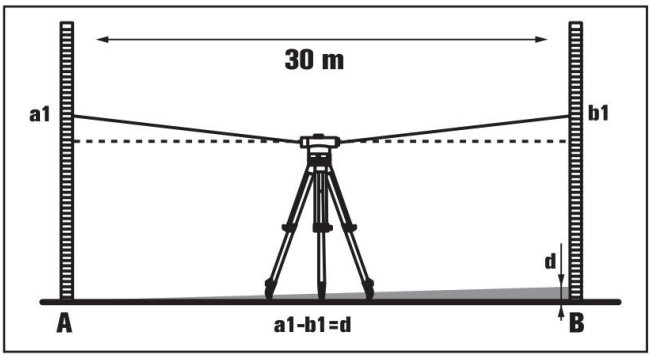

Fig.10

3. Place the instrument to the position of 1m away from leveling rod A, read height a2 (the height of leveling rod A)

4. Calculate b2'=a2-d, then record the height b2(the height of leveling rod B), if the deviates value between b2'and b2 over 6mm （20x/22x) or 3mm(24x/26x/28x/32x), the crosshair must be readjusted.

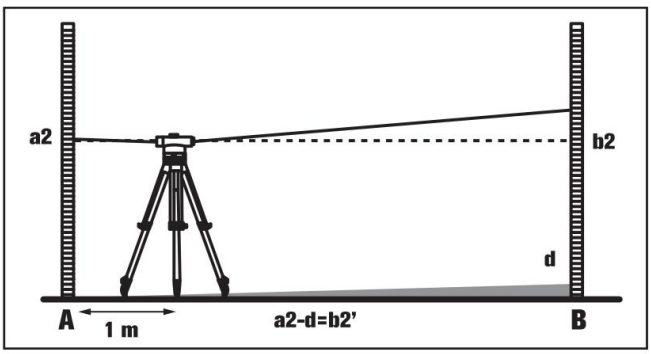

Fig.11

Example: a2=1.724m d=0.248 so a2-d=1.476=b2'

when measuring 20x/22x, the height b2 should be 1.476m+/-6mm

when measuring 24/26/28/32x, the height b2 should be 1.476=+/-3mm

5.4 adjust the i angle

take off the eyepiece cover, use adjusting pin turn adjusting screw clockwise or counterclockwise till the heights value b2 and b2' on leveling rod B are same. Screw on eyepiece cover again.

6. Maintance and Service

Carefully use and maintain the unit, can guarantee the instrument accuracy and efficiency.

1. After measuring, wipe clean all the surface of the instrument and put into the carrying case.
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3. If the instrument failed in function or damaged, repair or check should be done by experienced technician who fully understand the unit structure or returned to the factory for repair. Do not open the instrument by yourself.
4. A bag of silica gel dryer is included in the case for the removal of residual moisture. Renew the bag of silica gel regularly.
5. The unit should be kept in a dry, clean, dust-free and air-flow condition with low humidity.

7. Packing List

Plastic Carrying Case	1
The Unit	1
Adjusting Pin	1
Hexagonal Wrench	1
Instruction Manual	1
Plumb	1
Silica Dry Gel	1

Hersteller: Shanghaimuxinmuyeyouxiangongsi

Adresse: Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, Shanghai 200000 CN.

Nach AUS importiert: SIHAO PTY LTD. 1 ROKEVA STREETEASTWOOD NSW 2122 Australien

Importiert in die USA: Sanven Technology Ltd. Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

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UK REP

YH CONSULTING LIMITED.
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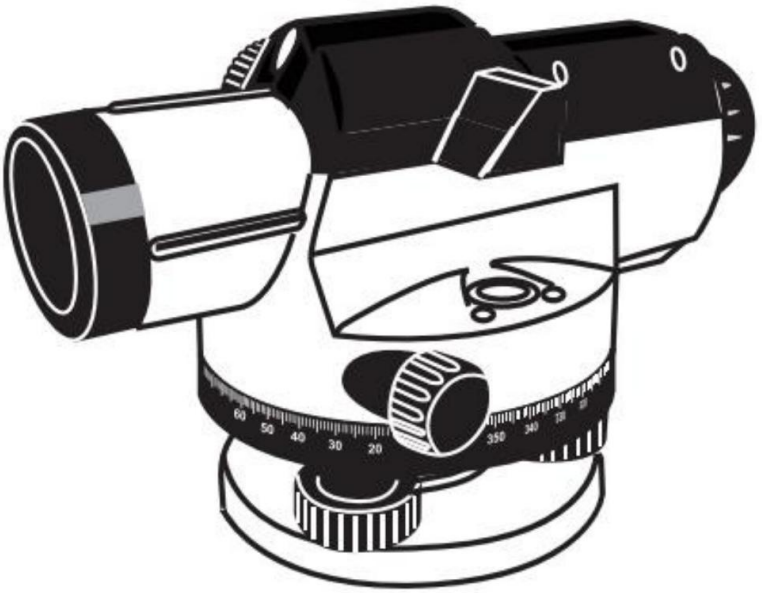

Preface

We appreciate of your purchasing our autolevel series. In order to help you fully explore the instrument features, please read this manual carefully and save these instructions properly for future reference.

Notes:

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- ❒ Never leave the instrument in vehicles for a long time.
- ❒ If the temperature has difference between the working spot and reserved place, please keep the instrument into case for a while until it suit to the working temperature before putting into operation.
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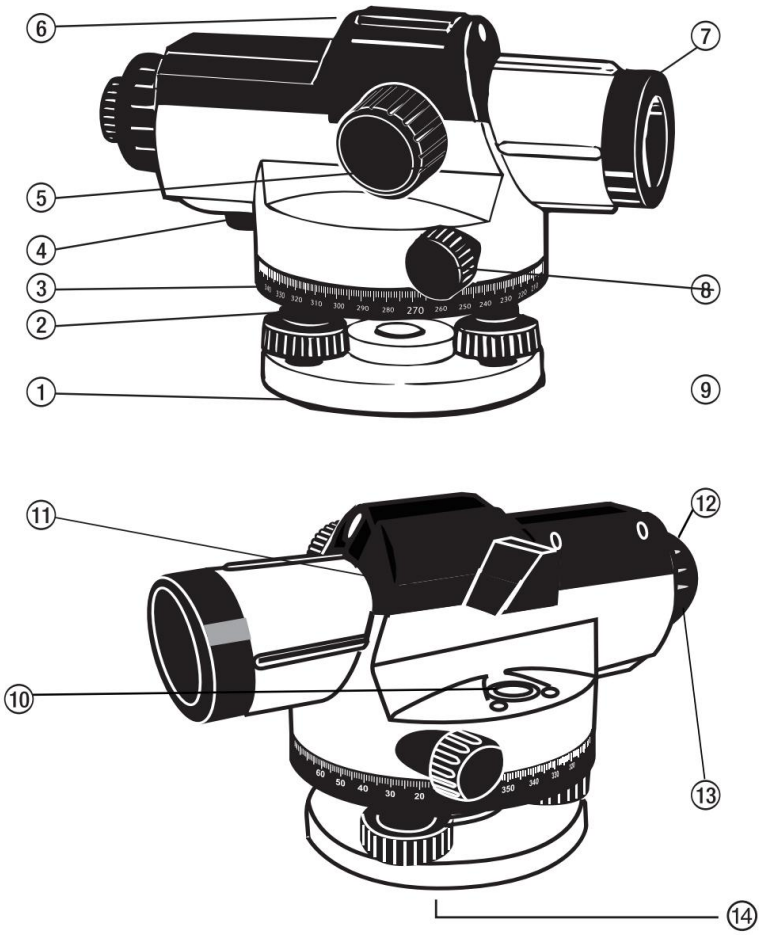
- ❒ This instrument only allow the qualified specialists to repair and ensure of using the original spare parts. No one allow to separate the unit except of professional to avoid of any unnecessary damaged.

Automatic Level

Technical Data

Magnification	24X		26X		
Working Range	90m		105m		
Height accuracy for an individual measurement	1.6mm/30m		1.6mm/30m		
Clear objective aperture	36mm				
Compensator setting accuracy	±0.8″		±0.5″		
Standard Deviation for 1 km	2.0mm		1.5mm		
	double run leveling				
Telescope Image	erect				
Short focusing distance	0.3m				
Field of view	1°30′				
The working range of compensator	±15′				
Stadia ratio	100				
Stadia addition	0				
Accuracy of circular vial	8′/2mm				
Horizontal circle graduation	1° or 1gon				
Water resident	Yes				
Net weight	1.8kg				
Tripod mount thread	M16 or 5/8″				

2. The instrument parts description



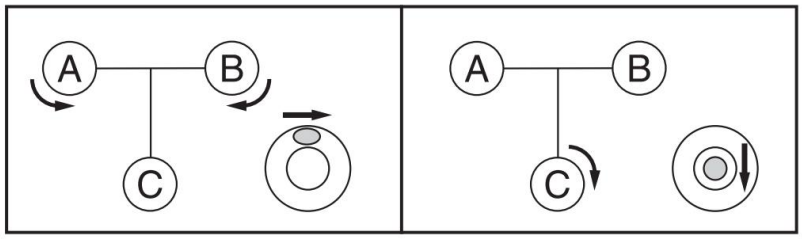
1.base plate
2.horizontal circle
3.horizontal circlereference mark
4.compensator lock
5.focusing adjusting knob
6.optical peep sight
7.objective lens
8.horizontal drive screw
9.leveling screw
10.circular vial
11.bubble observe mirror
12.eyepiece cover
13.eyepieces focusing knob
14.tripod mount 5/8"
(on the rear side)

3. Operation

3.1 Setting up

1. Set up the tripod stable and safe against tipping over or slipping off, and adjust tripod to the position of user's eyes level.
2. Place the instrument via the tripod mount 14 onto the male thread of the tripod and screw the unit tight with locking screw of the tripod.
3. Roughly level the tripod, over the short distance, the instrument can be carried by lifting the tripod. To ensure that the instrument is not damaged during this process the tripod must be held vertically and should not be lengthwise over the shoulder.
4. Align the instrument with leveling screw 9 so that the air bubble is in the center of the circular vial (see fig.1)

fig.1



turn the first two leveling screws A and B to move the air bubble so that it is centered between the two leveling screws, then turn the leveling screw C until the air bubble is in the center of circular vial.

3.2 Aiming and focusing

1. take away the objective lens cover 7, let the telescope shoot toward a bright object or hold a white sheet of paper in front of the objective lens 7, then turn the eyepieces 13 till dark black crosshair can be seen sharply.
2. Direct the telescope towards the leveling rod, it may required optical peep sight 6 to aim if necessary.
3. Turn focusing knob 5 till the graduation field of the leveling rod appears sharply.
4. Align the crosshair exactly to the center of the leveling rod by turning the horizontal drive screw 8.

4. Measuring Functions

4.1 Measuring Height

1. Place the instrument to the center of point of A and B (see fig2.)
2. Erect the leveling rod to the point of A vertically, focus the instrument against the leveling rod and adjust the crosshair to match the center of leveling rod, record the height value a of the leveling rod at the centre line of the crosshair. (see fig.3)
3. Erect the leveling rod to the point of B vertically, focus the instrument against the leveling rod and adjust the crosshair to match the center of leveling rod, record the height value b of the leveling rod at the center line of crosshair. (see Fig.4)
4. The Height Difference h=1.78-1.215=0.565m

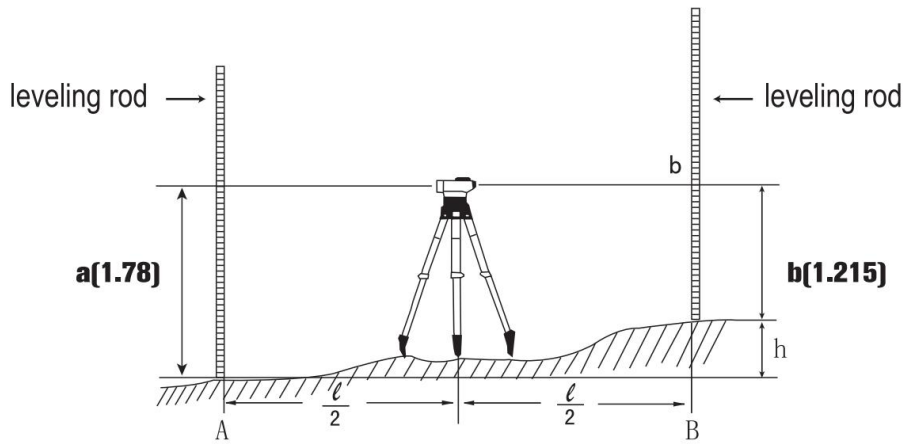


fig.2

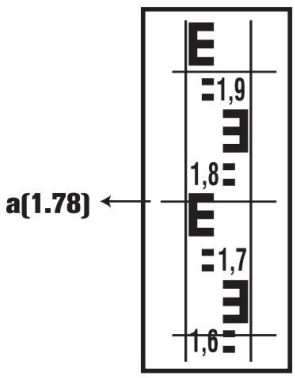


Fig.3

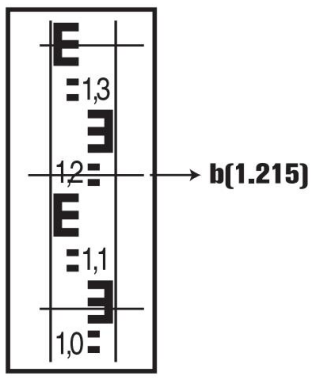


Fig.4

4.2 Measuring Distance

1. Aiming the leveling rod, record the value of upper and lower stadia hair(see fig.5) against the position of leveling rod (see fig.6)
2. Multiply the difference of both heights of stadia hair by 100 to receive the distance value from the leveling rod to the instrument.

distance measured in the figure: (1.347-1.042)x 100=30.5m

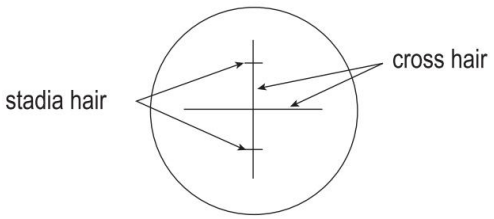


fig.5

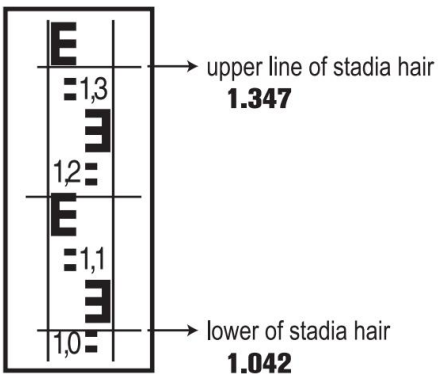


fig.6

4.3 Measuring Angles

1. Shoot the instrument toward A, rotate the horizontal circle 2 with "0" point toward the reference mark 3. (see fig.7)
2. Shoot the instrument toward B, read off the angle value at the reference mark 3 of horizontal circle. (see fig.7)

the measured angle in figure: 45°

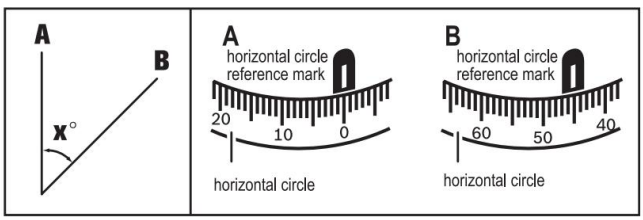


fig.7

5. Checking and Adjusting

Before using the instrument or after long transportation, the leveling accuracy and indication accuracy.

5.1 Check Circular Bubble Vial

1. Adjust the instrument with leveling screw knob 9, so that the air bubble is in the center of circular vial.
2. Rotate the unit by 180° , the air bubble should keep in center, if the air bubble moves out of center, the circular bubble vial must be readjusted.

5.2 Adjusting Circular Bubble Vial

1. Rotate the leveling screw knob 9 to ensure the air bubble moving toward to the center of circular bubble vial, the deviation should be at 1/2 between the center and the end position(see fig.8)
2. Use align wrench turn the two adjustment screws till the air bubble moving to the center of circular bubble vial.(see fig.9)
3. Repeat the above step till the air bubble keep in the center of circular bubble vial no matter which direction the telescope turned.

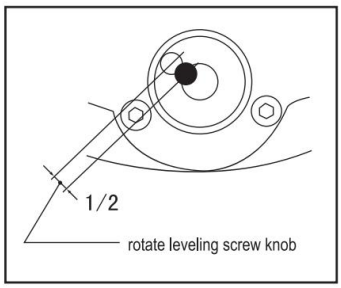


fig.8

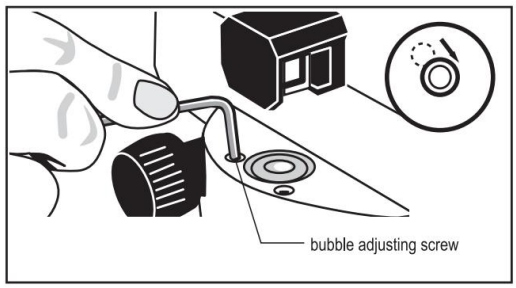


fig.9

5.3 Checking i angle

1. Checking should be done at a distance of 30m. Place the instrument in the center of this distance, put 2 leveling rod at the both end of measuring distance A and B separately.（see fig.10)
2. Read off the heights of this two leveling rod, calculate the difference d; that is the difference between a1(the height of leveling rod A) and b1(the height of leveling rod B).

Example: a1=1.937m b1=1.689m so a1-b1=0.248=d

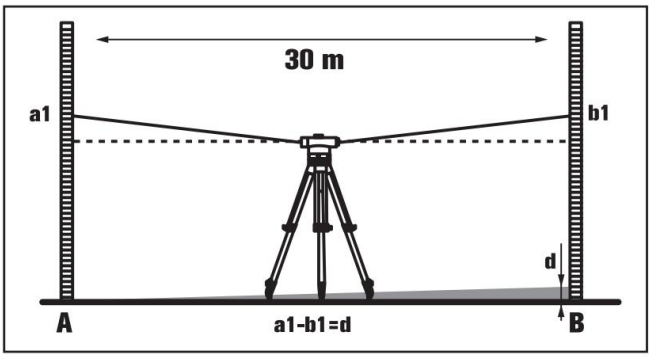


Fig.10

3. Place the instrument to the position of 1m away from leveling rod A, read height a2 (the height of leveling rod A)

4. Calculate b2'=a2-d, then record the height b2(the height of leveling rod B), if the deviates value between b2'and b2 over 6mm （20x/22x) or 3mm(24x/26x/28x/32x), the crosshair must be readjusted.

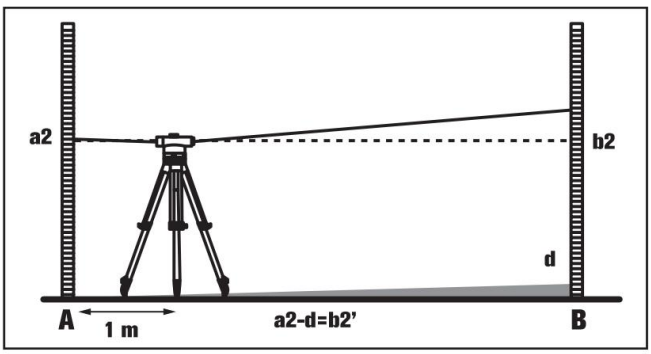


Fig.11

Example: a2=1.724m d=0.248 so a2-d=1.476=b2'

when measuring 20x/22x, the height b2 should be 1.476m+/-6mm

when measuring 24/26/28/32x, the height b2 should be 1.476=+/-3mm

5.4 adjust the i angle

take off the eyepiece cover, use adjusting pin turn adjusting screw clockwise or counterclockwise till the heights value b2 and b2' on leveling rod B are same. Screw on eyepiece cover again.

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Fabricant : Shanghaimuxinmuyeyouxiangongsi

Adresse : Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.

Importé en Australie : SIHAO PTY LTD. 1 ROKEVA STREETEASTWOOD NSW 2122 Australie

Importé aux États-Unis : Sanven Technology Ltd. Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

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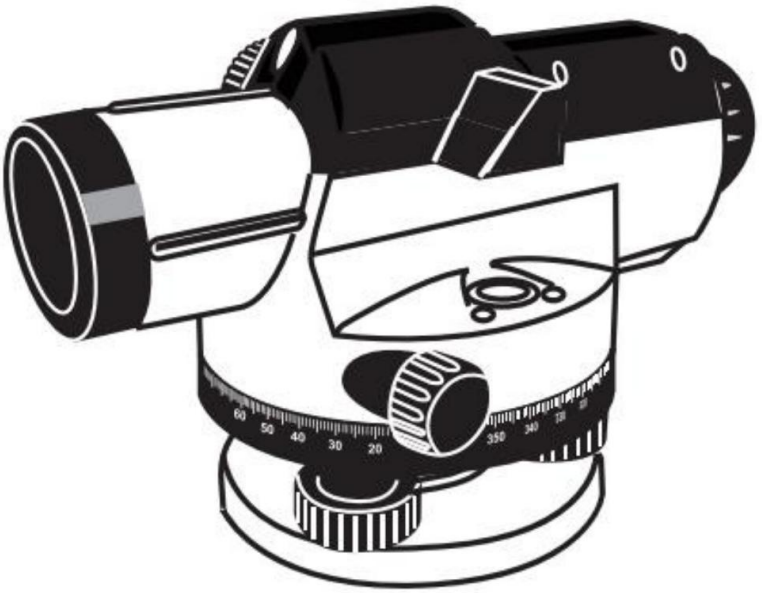

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Field of view	1°30′				
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Stadia ratio	100				
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Horizontal circle graduation	1° or 1gon				
Water resident	Yes				
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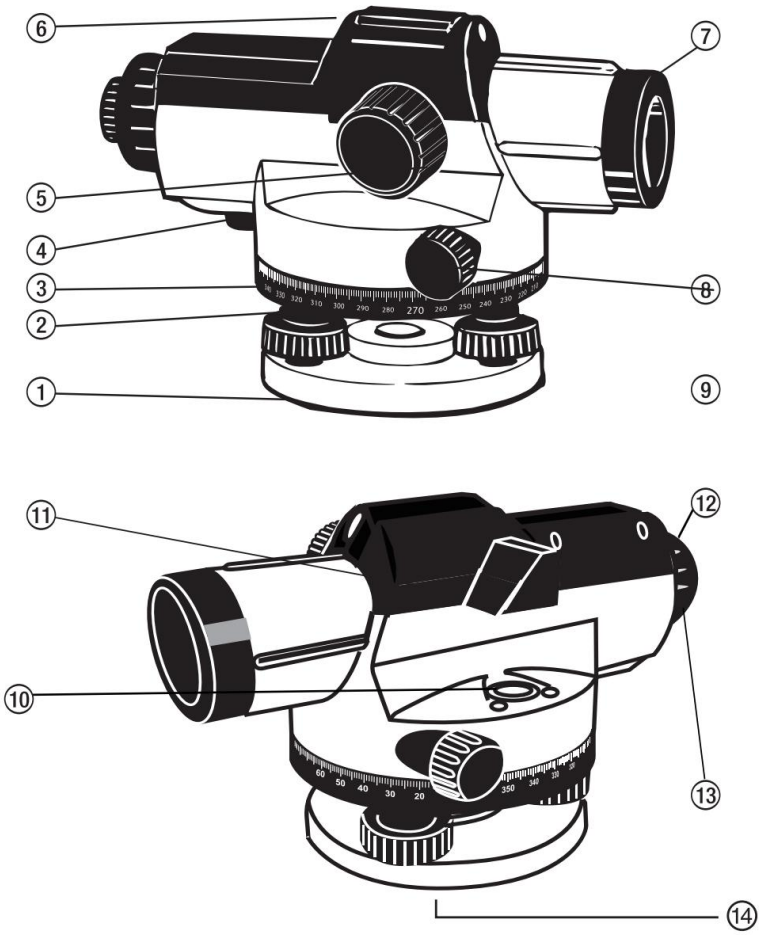

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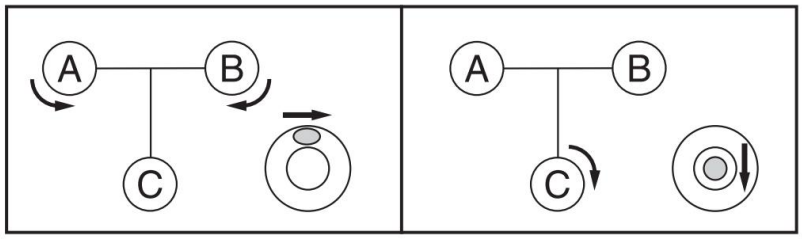
4. Align the instrument with leveling screw 9 so that the air bubble is in the center of the circular vial (see fig.1)

fig.1



turn the first two leveling screws A and B to move the air bubble so that it is centered between the two leveling screws, then turn the leveling screw C until the air bubble is in the center of circular vial.

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4. The Height Difference h=1.78-1.215=0.565m

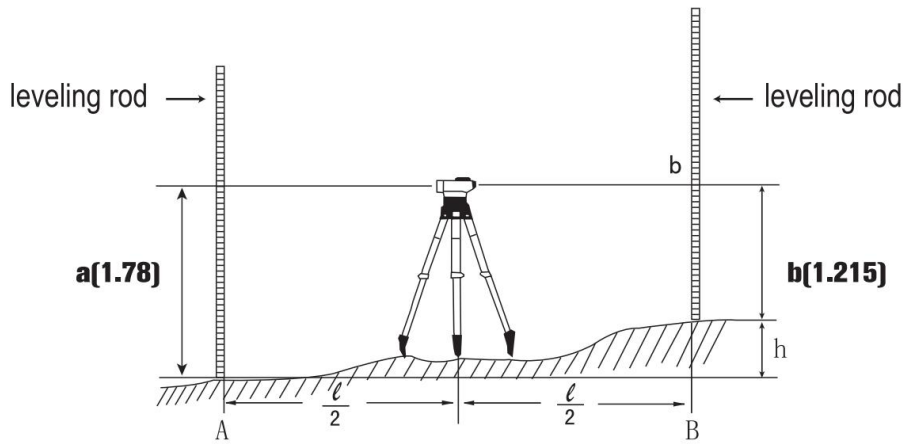

fig.2

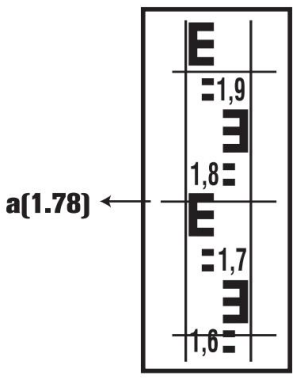

Fig.3

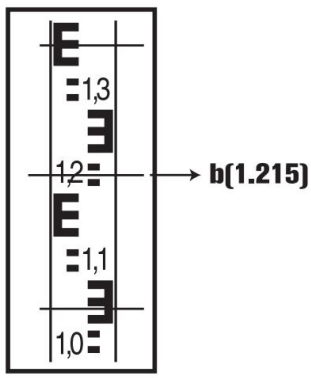

Fig.4

4.2 Measuring Distance

1. Aiming the leveling rod, record the value of upper and lower stadia hair(see fig.5) against the position of leveling rod (see fig.6)
2. Multiply the difference of both heights of stadia hair by 100 to receive the distance value from the leveling rod to the instrument.

distance measured in the figure: (1.347-1.042)x 100=30.5m

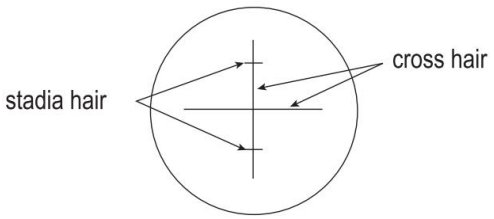

fig.5

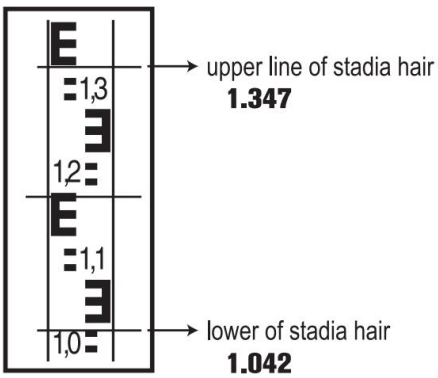

fig.6

4.3 Measuring Angles

1. Shoot the instrument toward A, rotate the horizontal circle 2 with "0" point toward the reference mark 3. (see fig.7)
2. Shoot the instrument toward B, read off the angle value at the reference mark 3 of horizontal circle. (see fig.7)

the measured angle in figure: 45°

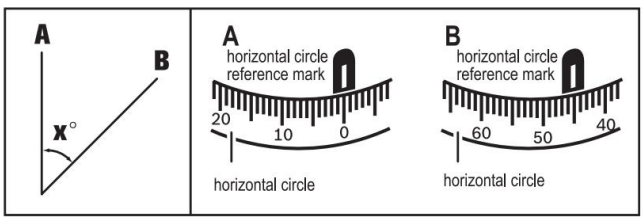

fig.7

5. Checking and Adjusting

Before using the instrument or after long transportation, the leveling accuracy and indication accuracy.

5.1 Check Circular Bubble Vial

1. Adjust the instrument with leveling screw knob 9, so that the air bubble is in the center of circular vial.
2. Rotate the unit by 180° , the air bubble should keep in center, if the air bubble moves out of center, the circular bubble vial must be readjusted.

5.2 Adjusting Circular Bubble Vial

1. Rotate the leveling screw knob 9 to ensure the air bubble moving toward to the center of circular bubble vial, the deviation should be at 1/2 between the center and the end position(see fig.8)
2. Use align wrench turn the two adjustment screws till the air bubble moving to the center of circular bubble vial.(see fig.9)
3. Repeat the above step till the air bubble keep in the center of circular bubble vial no matter which direction the telescope turned.

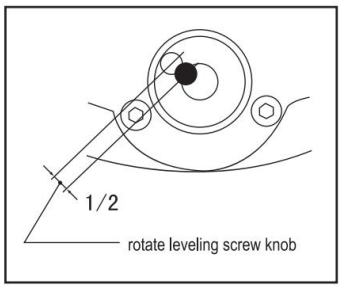

fig.8

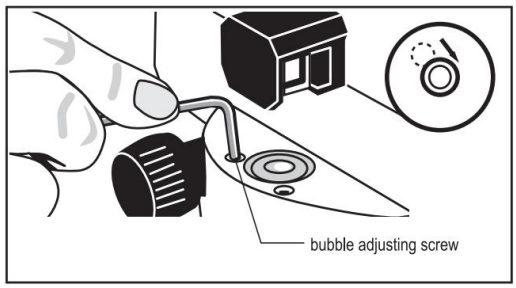

fig.9

5.3 Checking i angle

1. Checking should be done at a distance of 30m. Place the instrument in the center of this distance, put 2 leveling rod at the both end of measuring distance A and B separately.（see fig.10)
2. Read off the heights of this two leveling rod, calculate the difference d; that is the difference between a1(the height of leveling rod A) and b1(the height of leveling rod B).

Example: a1=1.937m b1=1.689m so a1-b1=0.248=d

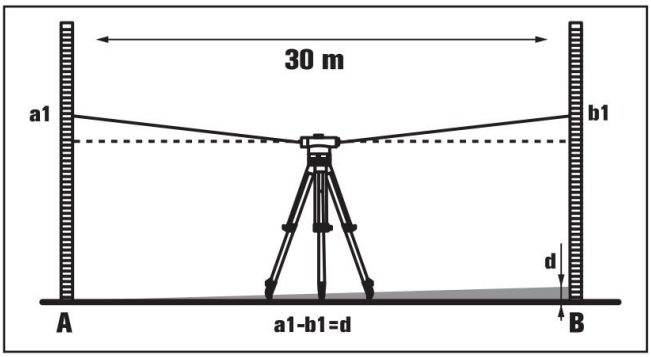

Fig.10

3. Place the instrument to the position of 1m away from leveling rod A, read height a2 (the height of leveling rod A)

4. Calculate b2'=a2-d, then record the height b2(the height of leveling rod B), if the deviates value between b2'and b2 over 6mm （20x/22x) or 3mm(24x/26x/28x/32x), the crosshair must be readjusted.

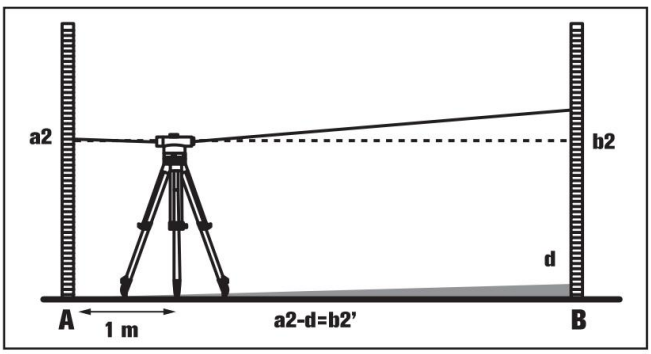

Fig.11

Example: a2=1.724m d=0.248 so a2-d=1.476=b2'

when measuring 20x/22x, the height b2 should be 1.476m+/-6mm

when measuring 24/26/28/32x, the height b2 should be 1.476=+/-3mm

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take off the eyepiece cover, use adjusting pin turn adjusting screw clockwise or counterclockwise till the heights value b2 and b2' on leveling rod B are same. Screw on eyepiece cover again.

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Instruction Manual	1
Plumb	1
Silica Dry Gel	1

Fabrikant: Shanghaimuxinmuyeyouxiangongsi

Adres: Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.

Geïmporteerd naar AUS: SIHAO PTY LTD. 1 ROKEVA STREETEASTWOOD NSW 2122 Australië

Geïmporteerd naar de VS: Sanven Technology Ltd. Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

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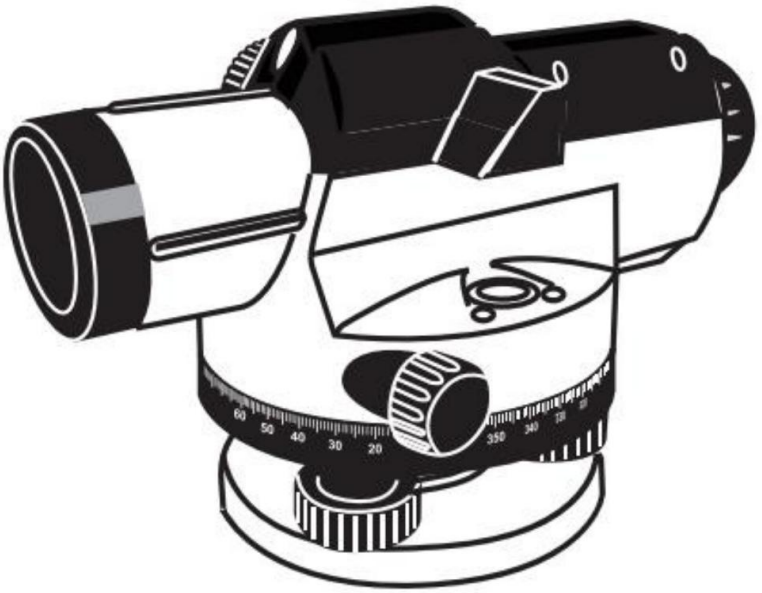

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Automatic Level

Technical Data

Magnification	24X		26X		
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Clear objective aperture	36mm				
Compensator setting accuracy	±0.8″		±0.5″		
Standard Deviation for 1 km	2.0mm		1.5mm		
	double run leveling				
Telescope Image	erect				
Short focusing distance	0.3m				
Field of view	1°30′				
The working range of compensator	±15′				
Stadia ratio	100				
Stadia addition	0				
Accuracy of circular vial	8′/2mm				
Horizontal circle graduation	1° or 1gon				
Water resident	Yes				
Net weight	1.8kg				
Tripod mount thread	M16 or 5/8″				

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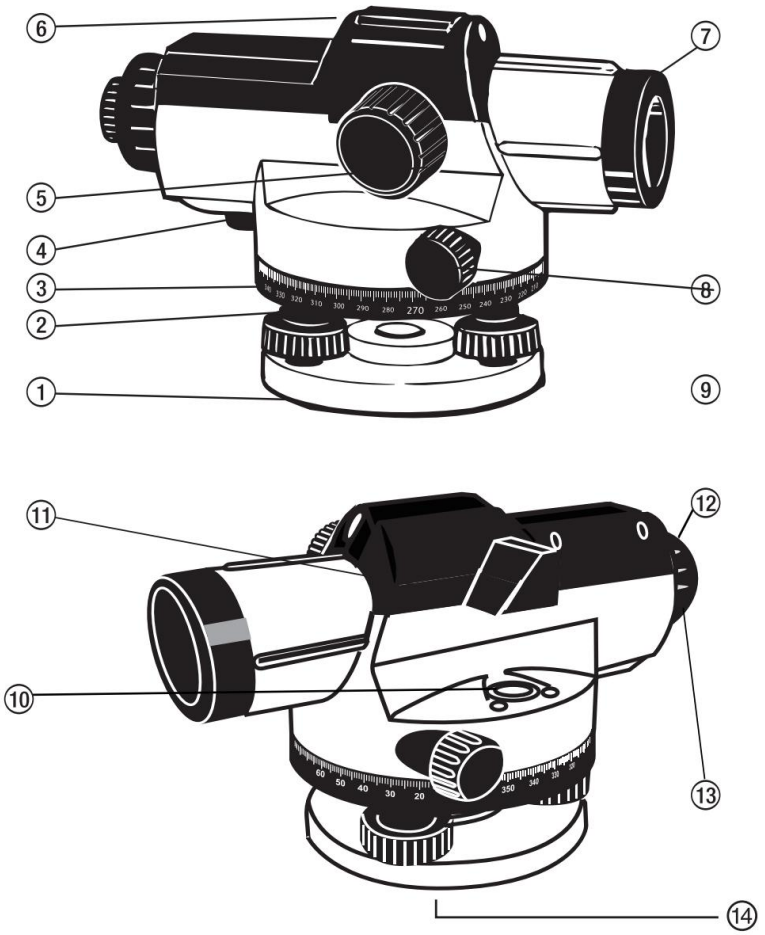

1.base plate
2.horizontal circle
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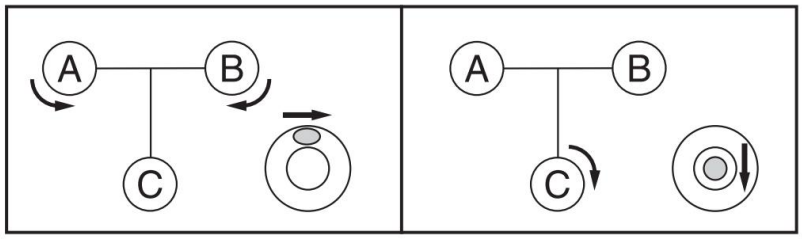
4.compensator lock
5.focusing adjusting knob
6.optical peep sight
7.objective lens
8.horizontal drive screw
9.leveling screw
10.circular vial
11.bubble observe mirror
12.eyepiece cover
13.eyepieces focusing knob
14.tripod mount 5/8"
(on the rear side)

3. Operation

3.1 Setting up

1. Set up the tripod stable and safe against tipping over or slipping off, and adjust tripod to the position of user's eyes level.
2. Place the instrument via the tripod mount 14 onto the male thread of the tripod and screw the unit tight with locking screw of the tripod.
3. Roughly level the tripod, over the short distance, the instrument can be carried by lifting the tripod. To ensure that the instrument is not damaged during this process the tripod must be held vertically and should not be lengthwise over the shoulder.
4. Align the instrument with leveling screw 9 so that the air bubble is in the center of the circular vial (see fig.1)

fig.1



turn the first two leveling screws A and B to move the air bubble so that it is centered between the two leveling screws, then turn the leveling screw C until the air bubble is in the center of circular vial.

3.2 Aiming and focusing

1. take away the objective lens cover 7, let the telescope shoot toward a bright object or hold a white sheet of paper in front of the objective lens 7, then turn the eyepieces 13 till dark black crosshair can be seen sharply.
2. Direct the telescope towards the leveling rod, it may required optical peep sight 6 to aim if necessary.
3. Turn focusing knob 5 till the graduation field of the leveling rod appears sharply.
4. Align the crosshair exactly to the center of the leveling rod by turning the horizontal drive screw 8.

4. Measuring Functions

4.1 Measuring Height

1. Place the instrument to the center of point of A and B (see fig2.)
2. Erect the leveling rod to the point of A vertically, focus the instrument against the leveling rod and adjust the crosshair to match the center of leveling rod, record the height value a of the leveling rod at the centre line of the crosshair. (see fig.3)
3. Erect the leveling rod to the point of B vertically, focus the instrument against the leveling rod and adjust the crosshair to match the center of leveling rod, record the height value b of the leveling rod at the center line of crosshair. (see Fig.4)
4. The Height Difference h=1.78-1.215=0.565m

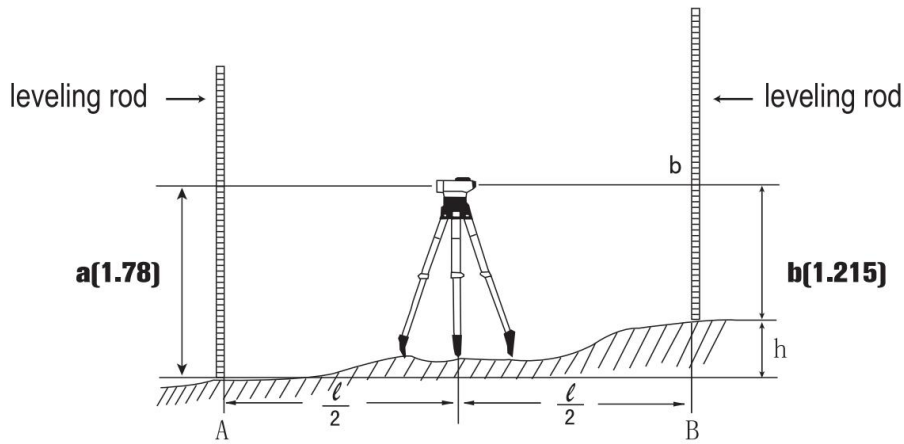


fig.2

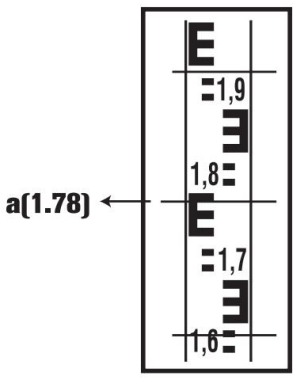


Fig.3

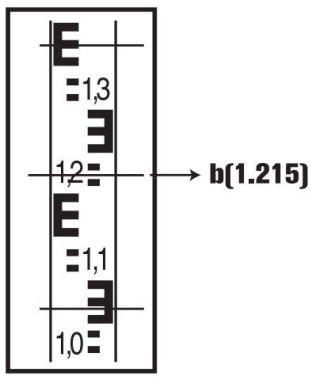


Fig.4

4.2 Measuring Distance

1. Aiming the leveling rod, record the value of upper and lower stadia hair(see fig.5) against the position of leveling rod (see fig.6)
2. Multiply the difference of both heights of stadia hair by 100 to receive the distance value from the leveling rod to the instrument.

distance measured in the figure: (1.347-1.042)x 100=30.5m

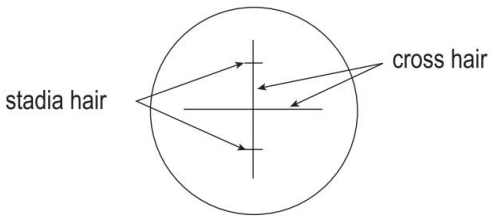


fig.5

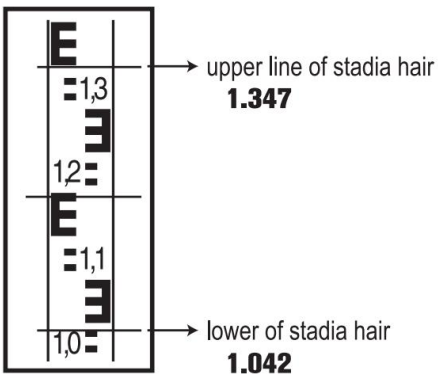


fig.6

4.3 Measuring Angles

1. Shoot the instrument toward A, rotate the horizontal circle 2 with "0" point toward the reference mark 3. (see fig.7)
2. Shoot the instrument toward B, read off the angle value at the reference mark 3 of horizontal circle. (see fig.7)

the measured angle in figure: 45°

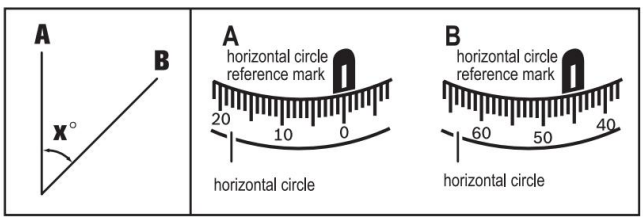


fig.7

5. Checking and Adjusting

Before using the instrument or after long transportation, the leveling accuracy and indication accuracy.

5.1 Check Circular Bubble Vial

1. Adjust the instrument with leveling screw knob 9, so that the air bubble is in the center of circular vial.
2. Rotate the unit by 180° , the air bubble should keep in center, if the air bubble moves out of center, the circular bubble vial must be readjusted.

5.2 Adjusting Circular Bubble Vial

1. Rotate the leveling screw knob 9 to ensure the air bubble moving toward to the center of circular bubble vial, the deviation should be at 1/2 between the center and the end position(see fig.8)
2. Use align wrench turn the two adjustment screws till the air bubble moving to the center of circular bubble vial.(see fig.9)
3. Repeat the above step till the air bubble keep in the center of circular bubble vial no matter which direction the telescope turned.

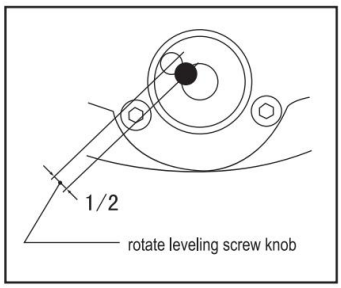


fig.8

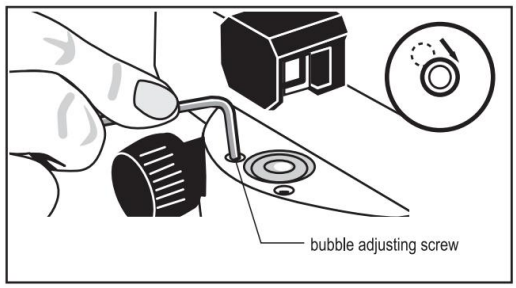


fig.9

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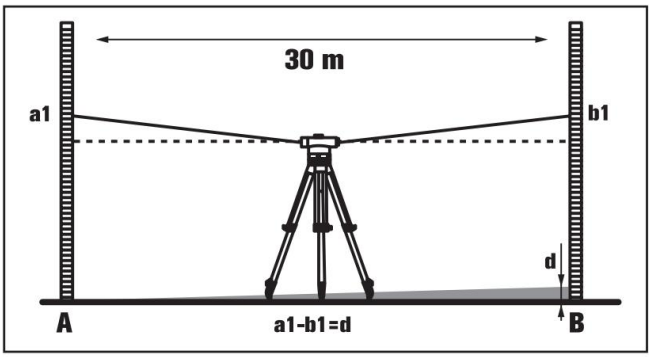

Fig.10

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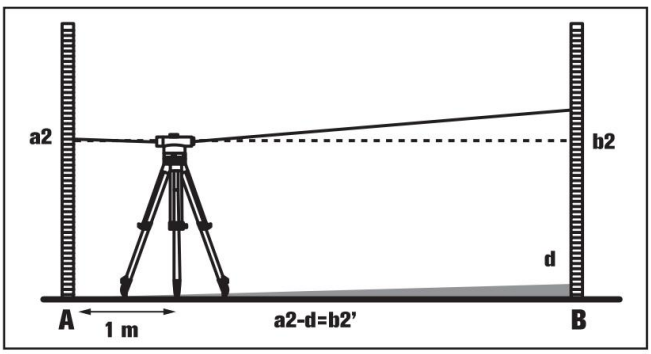

Fig.11

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Tillverkare: Shanghaimuxinmuyeyouxiangongsi

Adress: Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.

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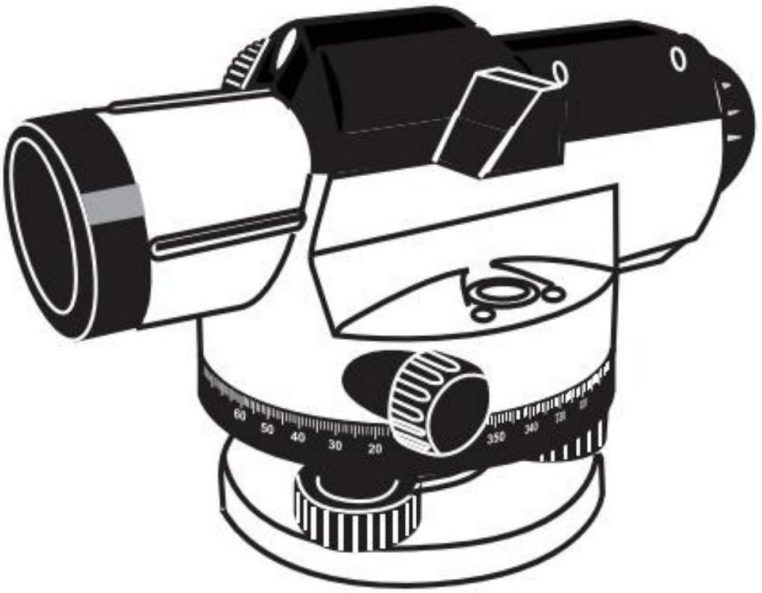

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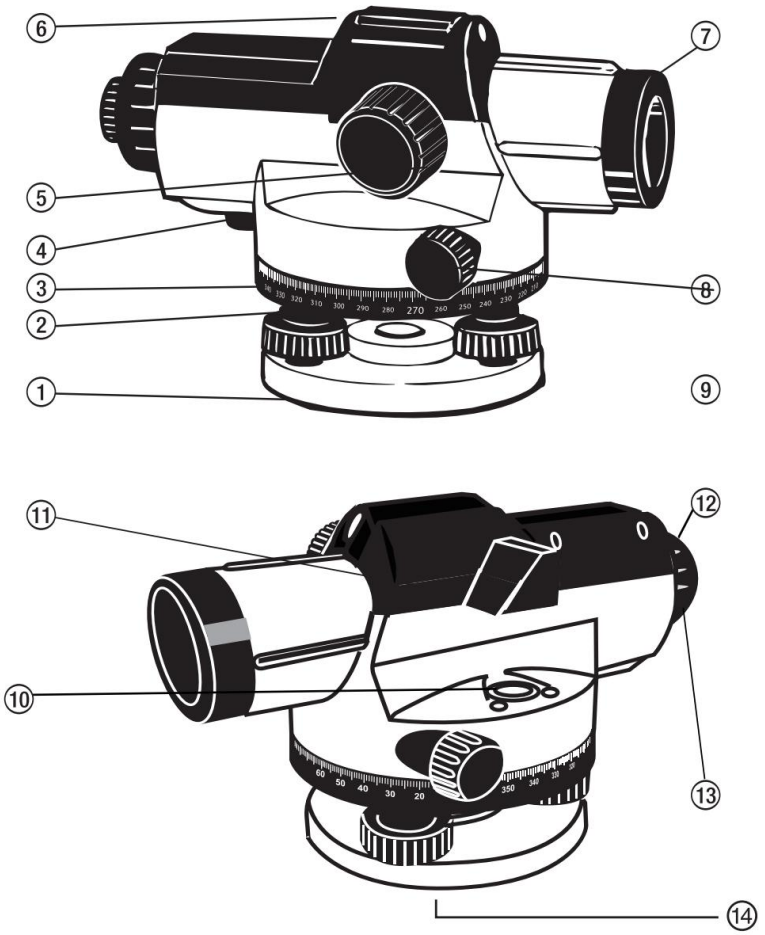

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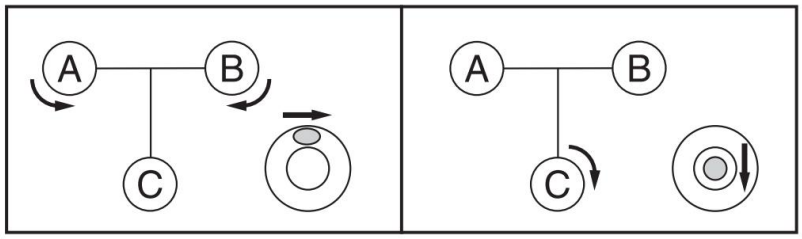

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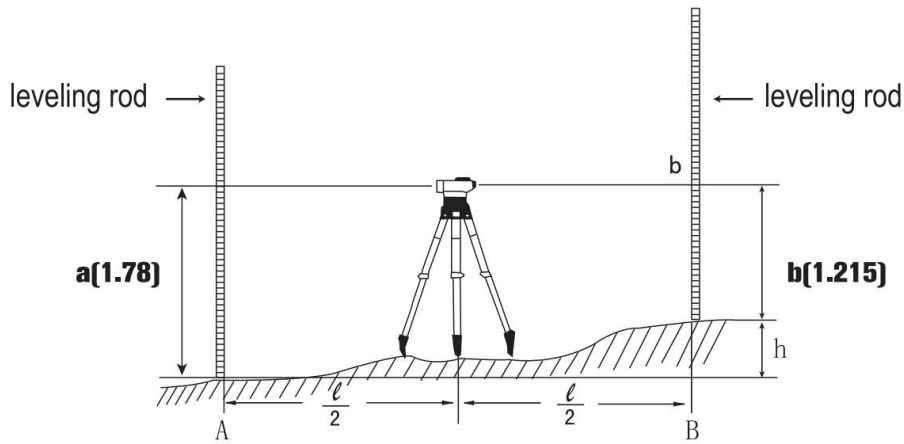

fig.2

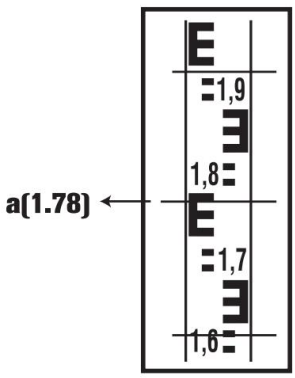

Fig.3

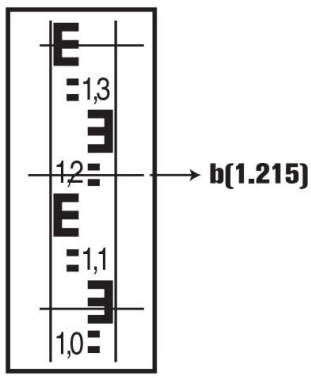

Fig.4

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distance measured in the figure: (1.347-1.042)x 100=30.5m

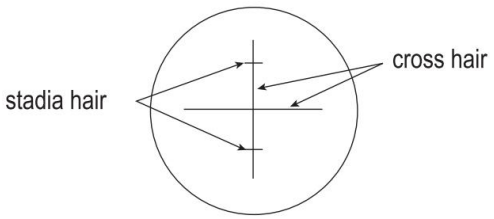

fig.5

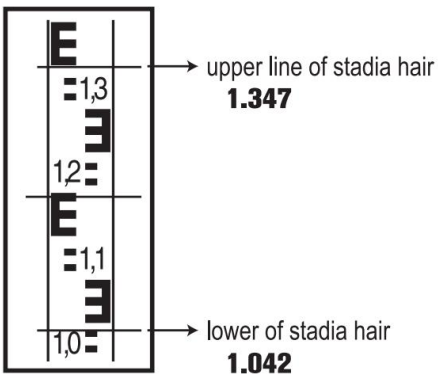

fig.6

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2. Shoot the instrument toward B, read off the angle value at the reference mark 3 of horizontal circle. (see fig.7)

the measured angle in figure: 45°

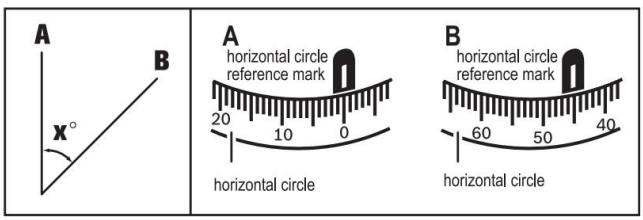

fig.7

5. Checking and Adjusting

Before using the instrument or after long transportation, the leveling accuracy and indication accuracy.

5.1 Check Circular Bubble Vial

1. Adjust the instrument with leveling screw knob 9, so that the air bubble is in the center of circular vial.
2. Rotate the unit by 180° , the air bubble should keep in center, if the air bubble moves out of center, the circular bubble vial must be readjusted.

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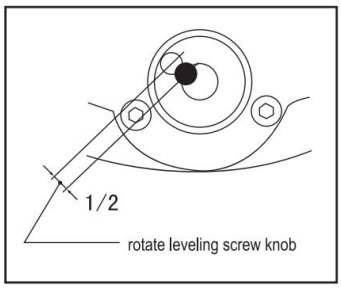

fig.8

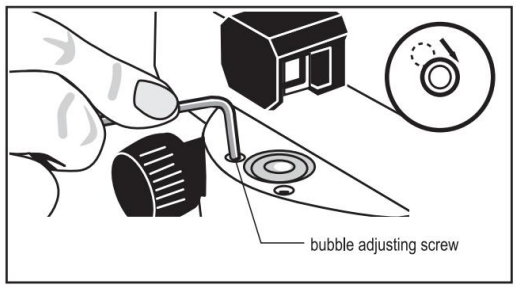

fig.9

5.3 Checking i angle

1. Checking should be done at a distance of 30m. Place the instrument in the center of this distance, put 2 leveling rod at the both end of measuring distance A and B separately.（see fig.10)
2. Read off the heights of this two leveling rod, calculate the difference d; that is the difference between a1(the height of leveling rod A) and b1(the height of leveling rod B).

Example: a1=1.937m b1=1.689m so a1-b1=0.248=d

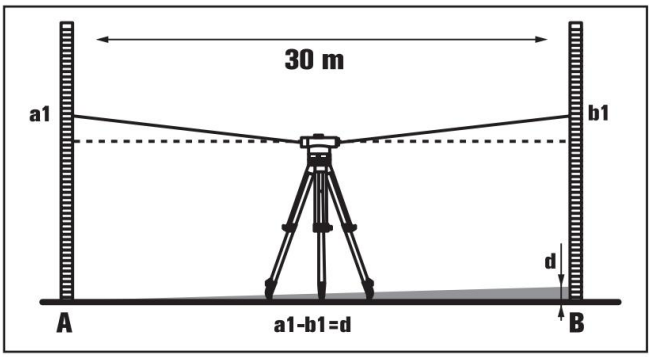

Fig.10

3. Place the instrument to the position of 1m away from leveling rod A, read height a2 (the height of leveling rod A)

4. Calculate b2'=a2-d, then record the height b2(the height of leveling rod B), if the deviates value between b2'and b2 over 6mm （20x/22x) or 3mm(24x/26x/28x/32x), the crosshair must be readjusted.

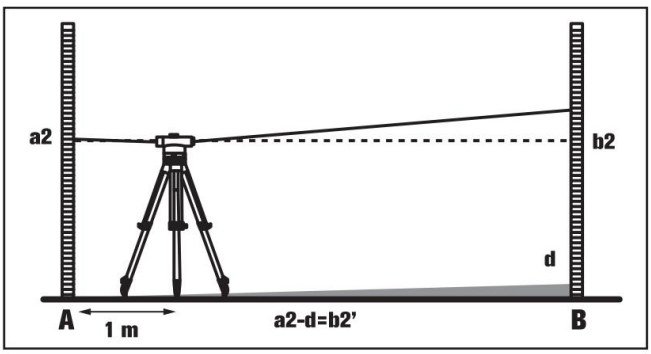

Fig.11

Example: a2=1.724m d=0.248 so a2-d=1.476=b2'

when measuring 20x/22x, the height b2 should be 1.476m+/-6mm

when measuring 24/26/28/32x, the height b2 should be 1.476=+/-3mm

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take off the eyepiece cover, use adjusting pin turn adjusting screw clockwise or counterclockwise till the heights value b2 and b2' on leveling rod B are same. Screw on eyepiece cover again.

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Instruction Manual	1
Plumb	1
Silica Dry Gel	1

Fabricante: Shanghaimuxinmuyeyouxiangongsi

Dirección: Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.

Importado a AUS: SIHAO PTY LTD. 1 ROKEVA STREETEASTWOOD NSW 2122 Australia

Importado a EE. UU.: Sanven Technology Ltd. Suite 250, 9166 Anaheim Place, Rancho Cucamonga, CA 91730

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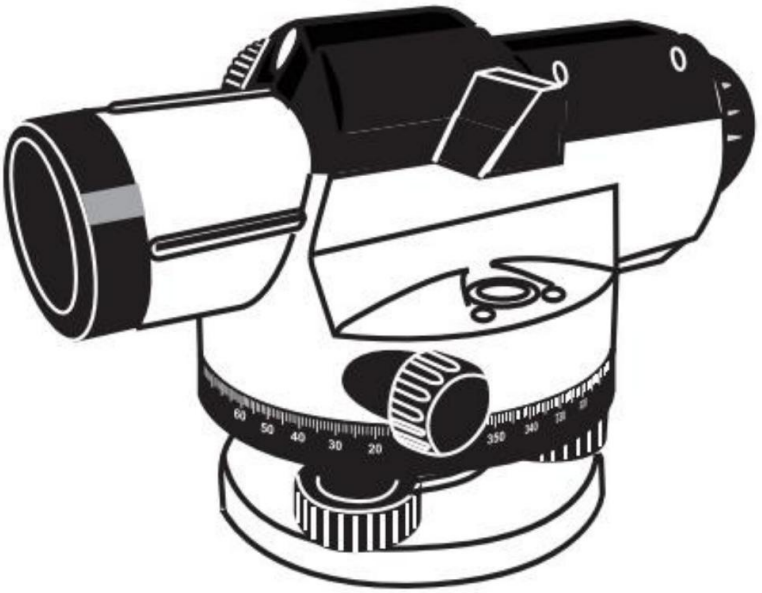

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Automatic Level

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Clear objective aperture	36mm				
Compensator setting accuracy	±0.8″		±0.5″		
Standard Deviation for 1 km	2.0mm		1.5mm		
	double run leveling				
Telescope Image	erect				
Short focusing distance	0.3m				
Field of view	1°30′				
The working range of compensator	±15′				
Stadia ratio	100				
Stadia addition	0				
Accuracy of circular vial	8′/2mm				
Horizontal circle graduation	1° or 1gon				
Water resident	Yes				
Net weight	1.8kg				
Tripod mount thread	M16 or 5/8″				

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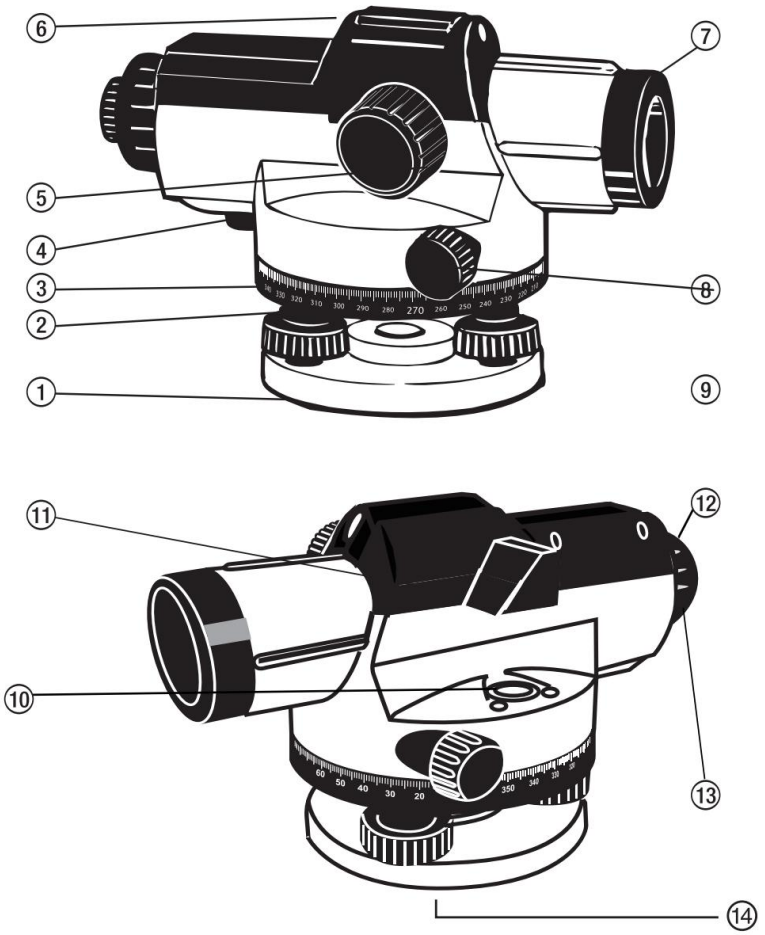

1.base plate
2.horizontal circle
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5.focusing adjusting knob
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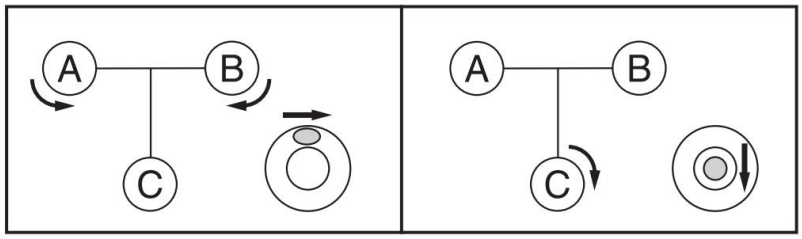
9.leveling screw
10.circular vial
11.bubble observe mirror
12.eyepiece cover
13.eyepieces focusing knob
14.tripod mount 5/8"
(on the rear side)

3. Operation

3.1 Setting up

1. Set up the tripod stable and safe against tipping over or slipping off, and adjust tripod to the position of user's eyes level.
2. Place the instrument via the tripod mount 14 onto the male thread of the tripod and screw the unit tight with locking screw of the tripod.
3. Roughly level the tripod, over the short distance, the instrument can be carried by lifting the tripod. To ensure that the instrument is not damaged during this process the tripod must be held vertically and should not be lengthwise over the shoulder.
4. Align the instrument with leveling screw 9 so that the air bubble is in the center of the circular vial (see fig.1)

fig.1



turn the first two leveling screws A and B to move the air bubble so that it is centered between the two leveling screws, then turn the leveling screw C until the air bubble is in the center of circular vial.

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1. take away the objective lens cover 7, let the telescope shoot toward a bright object or hold a white sheet of paper in front of the objective lens 7, then turn the eyepieces 13 till dark black crosshair can be seen sharply.
2. Direct the telescope towards the leveling rod, it may required optical peep sight 6 to aim if necessary.
3. Turn focusing knob 5 till the graduation field of the leveling rod appears sharply.
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4.1 Measuring Height

1. Place the instrument to the center of point of A and B (see fig2.)
2. Erect the leveling rod to the point of A vertically, focus the instrument against the leveling rod and adjust the crosshair to match the center of leveling rod, record the height value a of the leveling rod at the centre line of the crosshair. (see fig.3)
3. Erect the leveling rod to the point of B vertically, focus the instrument against the leveling rod and adjust the crosshair to match the center of leveling rod, record the height value b of the leveling rod at the center line of crosshair. (see Fig.4)
4. The Height Difference h=1.78-1.215=0.565m

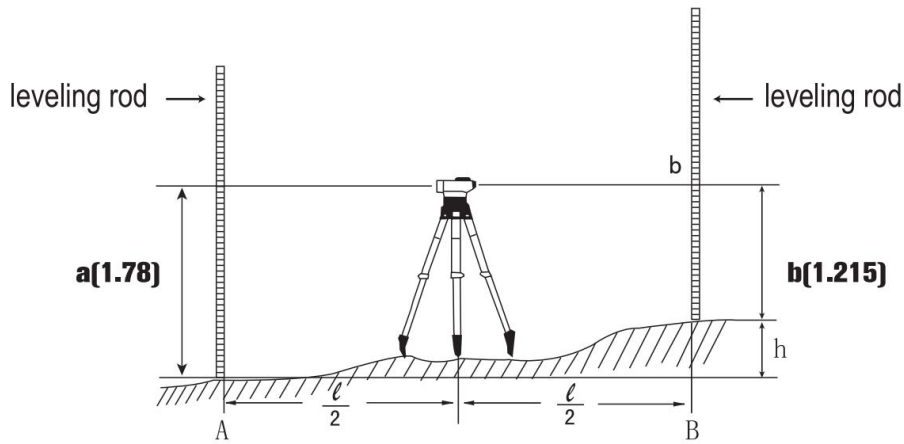


fig.2

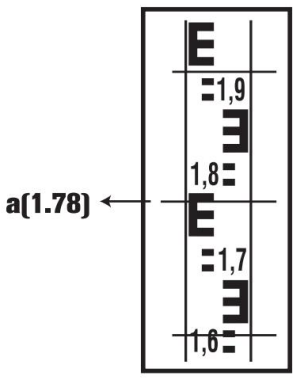


Fig.3

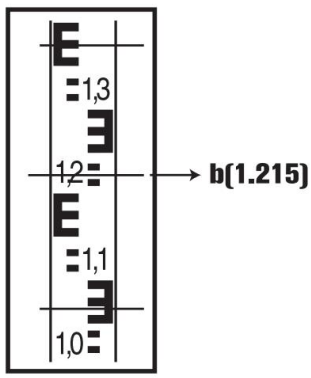


Fig.4

4.2 Measuring Distance

1. Aiming the leveling rod, record the value of upper and lower stadia hair(see fig.5) against the position of leveling rod (see fig.6)
2. Multiply the difference of both heights of stadia hair by 100 to receive the distance value from the leveling rod to the instrument.

distance measured in the figure: (1.347-1.042)x 100=30.5m

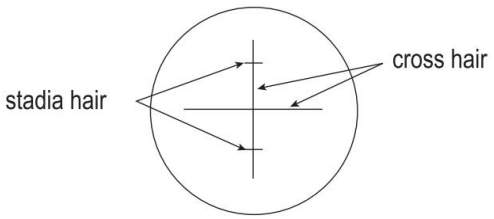


fig.5

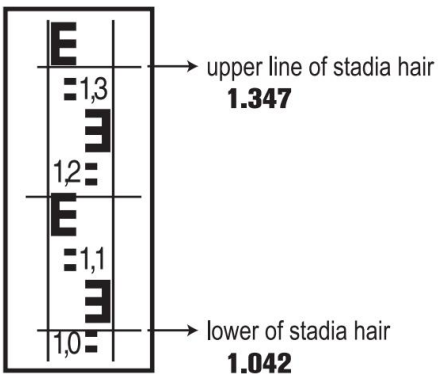
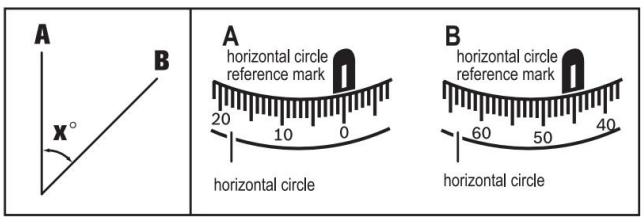


fig.6

4.3 Measuring Angles

1. Shoot the instrument toward A, rotate the horizontal circle 2 with "0" point toward the reference mark 3. (see fig.7)
2. Shoot the instrument toward B, read off the angle value at the reference mark 3 of horizontal circle. (see fig.7)

the measured angle in figure: 45°



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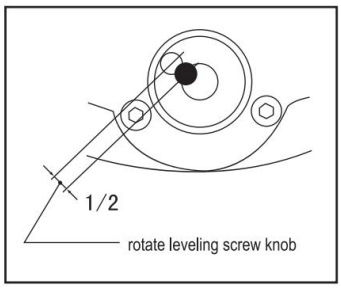
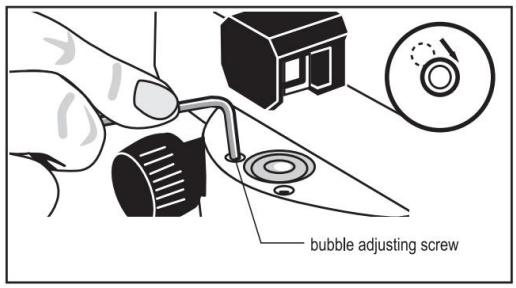


fig.8



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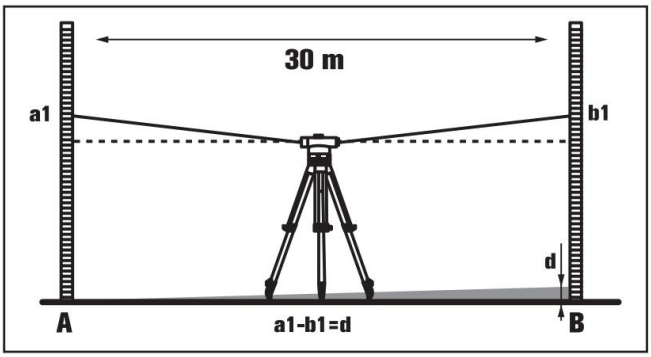

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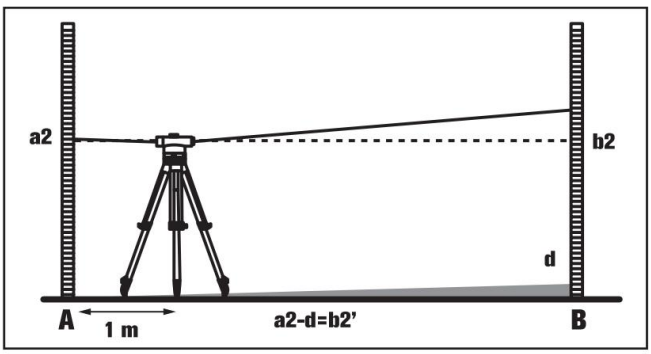

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Produttore: Shanghaimuxinmuyeyouxiangongsi

Indirizzo: Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.

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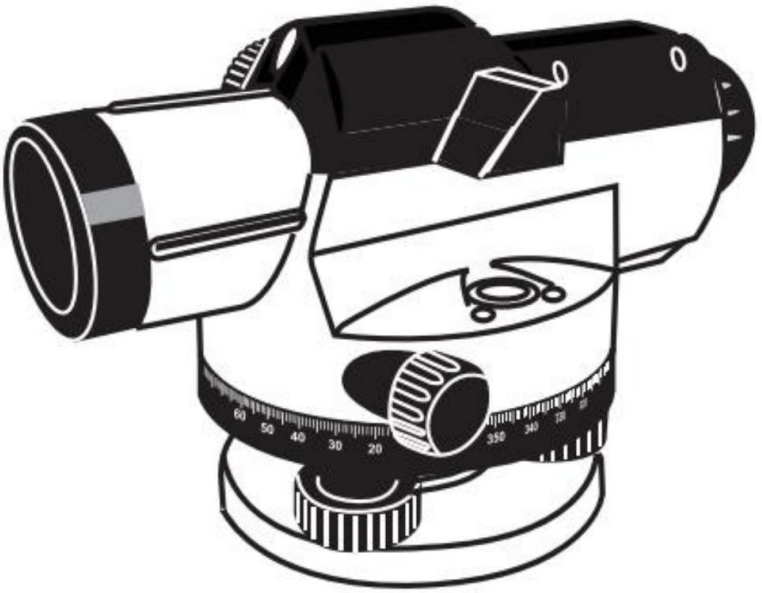

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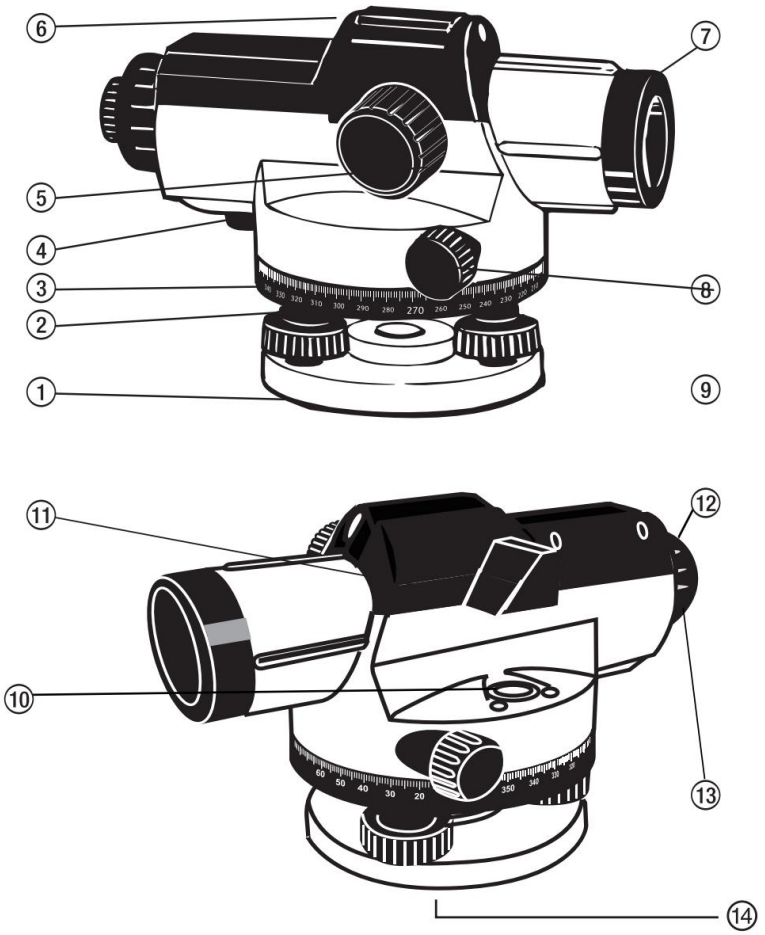

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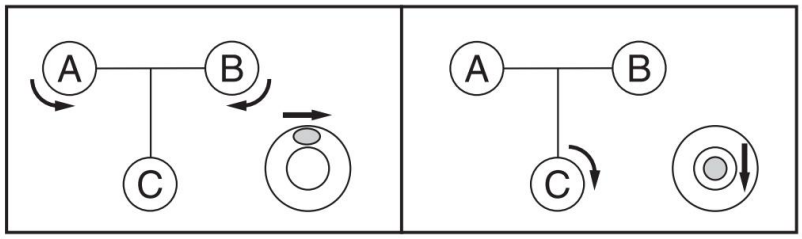
fig.1



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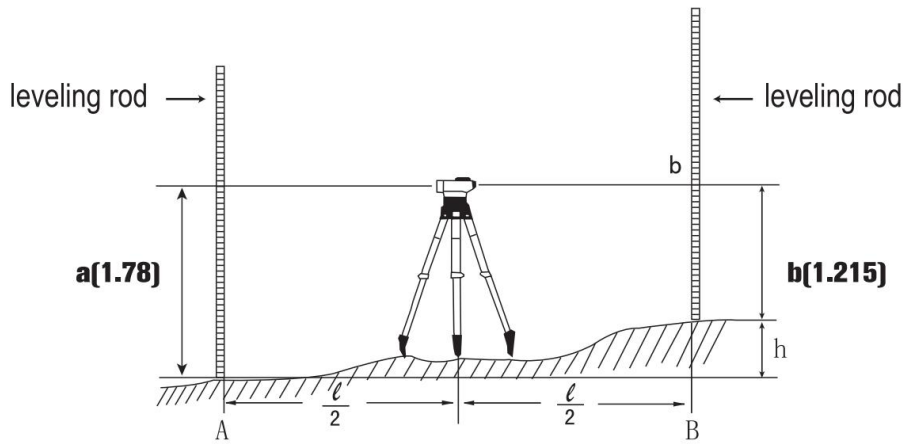

fig.2

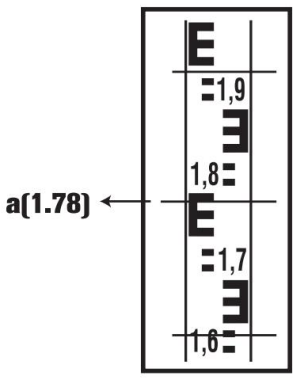

Fig.3

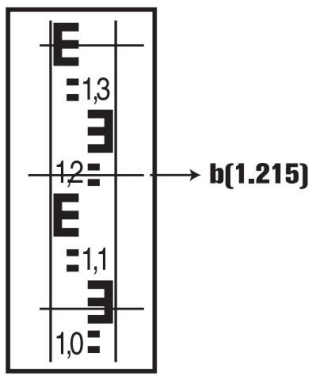

Fig.4

4.2 Measuring Distance

1. Aiming the leveling rod, record the value of upper and lower stadia hair(see fig.5) against the position of leveling rod (see fig.6)
2. Multiply the difference of both heights of stadia hair by 100 to receive the distance value from the leveling rod to the instrument.

distance measured in the figure: (1.347-1.042)x 100=30.5m

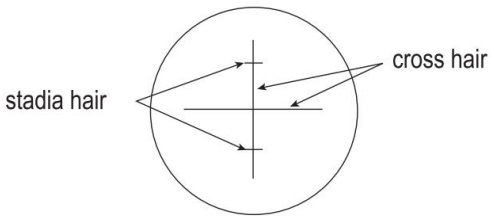

fig.5

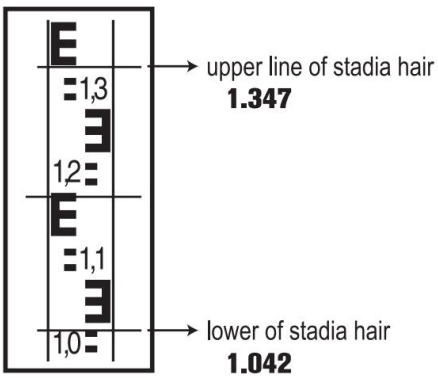

fig.6

4.3 Measuring Angles

1. Shoot the instrument toward A, rotate the horizontal circle 2 with "0" point toward the reference mark 3. (see fig.7)
2. Shoot the instrument toward B, read off the angle value at the reference mark 3 of horizontal circle. (see fig.7)

the measured angle in figure: 45°

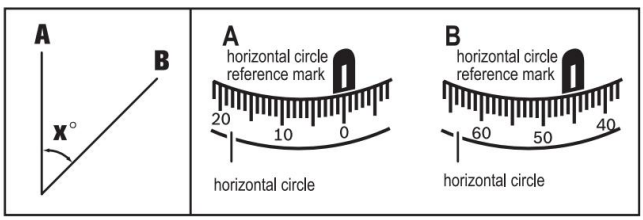

fig.7

5. Checking and Adjusting

Before using the instrument or after long transportation, the leveling accuracy and indication accuracy.

5.1 Check Circular Bubble Vial

1. Adjust the instrument with leveling screw knob 9, so that the air bubble is in the center of circular vial.
2. Rotate the unit by 180° , the air bubble should keep in center, if the air bubble moves out of center, the circular bubble vial must be readjusted.

5.2 Adjusting Circular Bubble Vial

1. Rotate the leveling screw knob 9 to ensure the air bubble moving toward to the center of circular bubble vial, the deviation should be at 1/2 between the center and the end position(see fig.8)
2. Use align wrench turn the two adjustment screws till the air bubble moving to the center of circular bubble vial.(see fig.9)
3. Repeat the above step till the air bubble keep in the center of circular bubble vial no matter which direction the telescope turned.

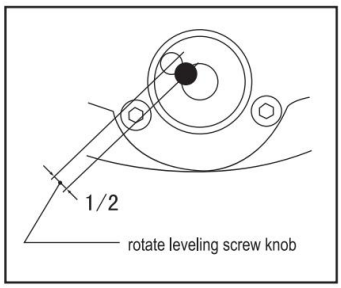

fig.8

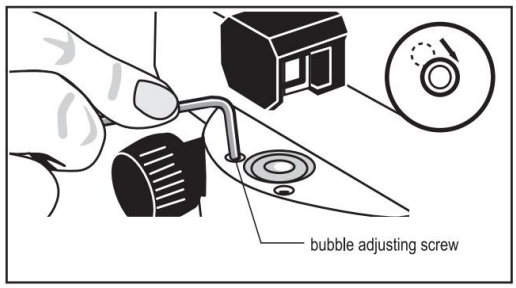

fig.9

5.3 Checking i angle

1. Checking should be done at a distance of 30m. Place the instrument in the center of this distance, put 2 leveling rod at the both end of measuring distance A and B separately.（see fig.10)
2. Read off the heights of this two leveling rod, calculate the difference d; that is the difference between a1(the height of leveling rod A) and b1(the height of leveling rod B).

Example: a1=1.937m b1=1.689m so a1-b1=0.248=d

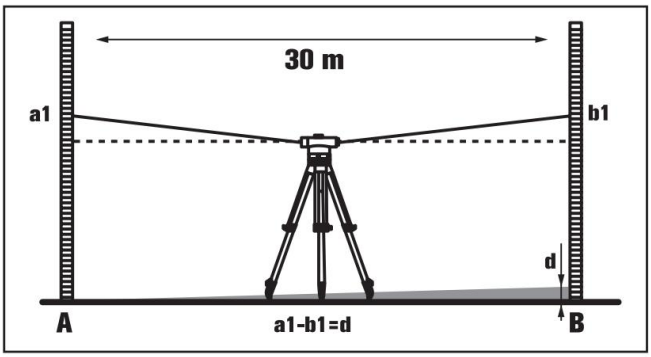

Fig.10

3. Place the instrument to the position of 1m away from leveling rod A, read height a2 (the height of leveling rod A)

4. Calculate b2'=a2-d, then record the height b2(the height of leveling rod B), if the deviates value between b2'and b2 over 6mm （20x/22x) or 3mm(24x/26x/28x/32x), the crosshair must be readjusted.

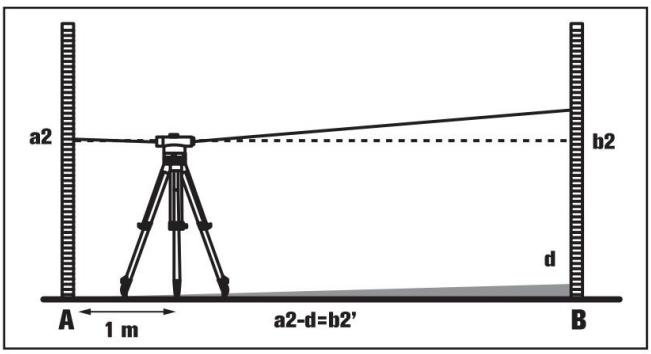

Fig.11

Example: a2=1.724m d=0.248 so a2-d=1.476=b2'

when measuring 20x/22x, the height b2 should be 1.476m+/-6mm

when measuring 24/26/28/32x, the height b2 should be 1.476=+/-3mm

5.4 adjust the i angle

take off the eyepiece cover, use adjusting pin turn adjusting screw clockwise or counterclockwise till the heights value b2 and b2' on leveling rod B are same. Screw on eyepiece cover again.

6. Maintance and Service

Carefully use and maintain the unit, can guarantee the instrument accuracy and efficiency.

1. After measuring, wipe clean all the surface of the instrument and put into the carrying case.
2. Dust all optical parts with a soft brush and clean the lens with lens paper. Never touch the lens with your fingers.
3. If the instrument failed in function or damaged, repair or check should be done by experienced technician who fully understand the unit structure or returned to the factory for repair. Do not open the instrument by yourself.
4. A bag of silica gel dryer is included in the case for the removal of residual moisture. Renew the bag of silica gel regularly.
5. The unit should be kept in a dry, clean, dust-free and air-flow condition with low humidity.

7. Packing List

Plastic Carrying Case	1
The Unit	1
Adjusting Pin	1
Hexagonal Wrench	1
Instruction Manual	1
Plumb	1
Silica Dry Gel	1

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