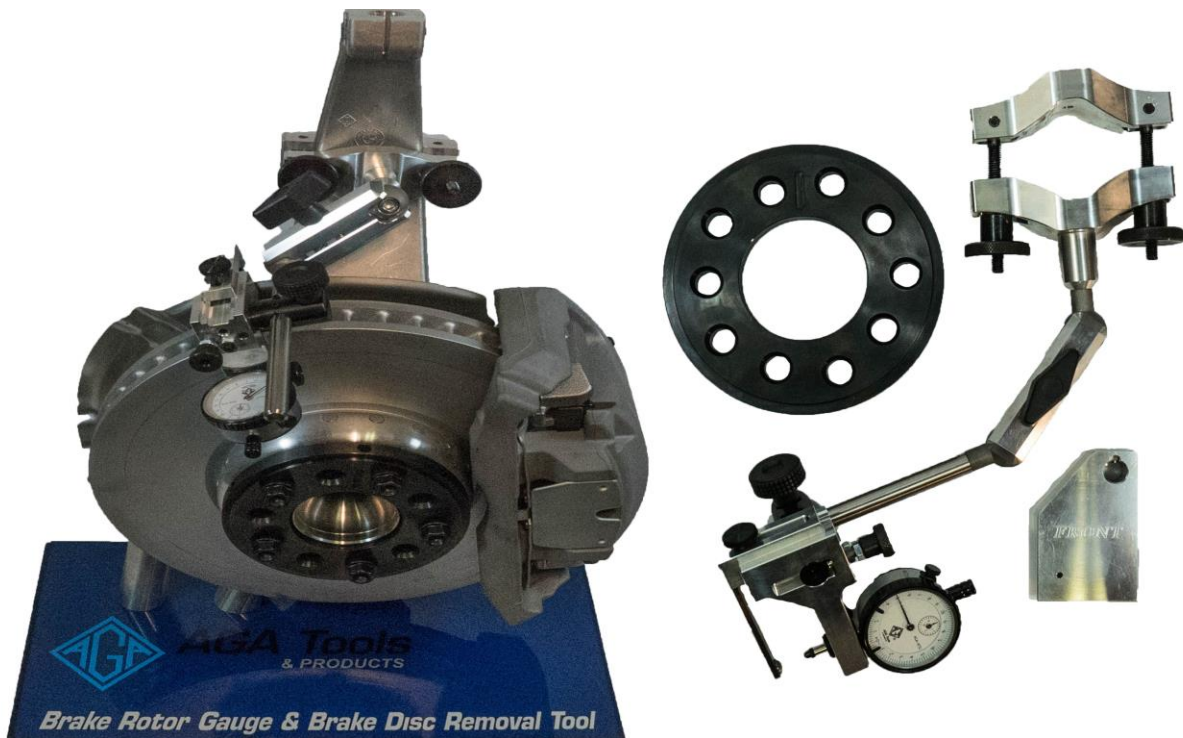




AGA Brake Rotor Gauge Kit

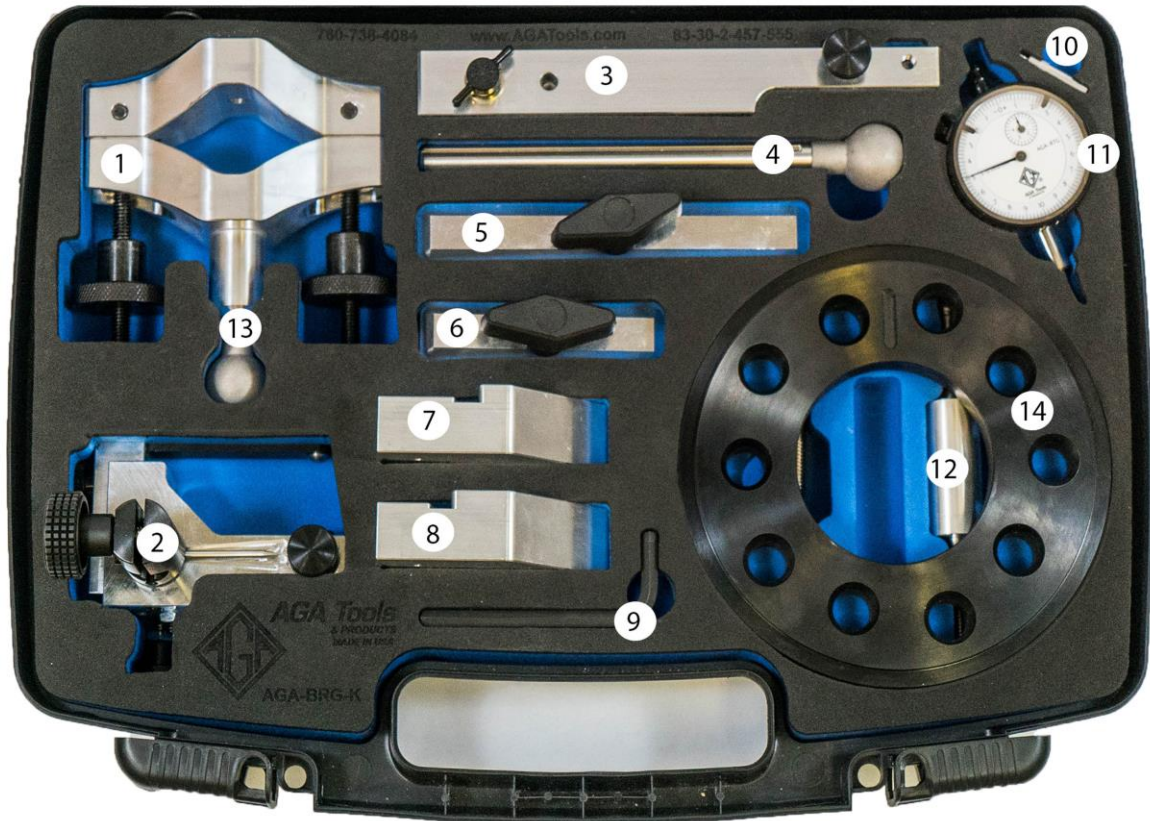
Part #: AGA-BRG-K

BMW Part #: 83 30 2 457 555



A special Tool for the inspection of brake components and diagnosis of difficult to identify cases of vibration.

- Measures run-out and thickness variation of brake rotor
- Measure wheel bearing hub run-out
- On-car measurement without removing the brake disk
- Ability to diagnose wheel bearing for play and run-out



- | | |
|---------------------------------------|----------------------------|
| 1. Clamp | 11. Gauge |
| 2. Gauge Head | 12. Ball Extension – Long |
| 3. Gauge Extension Bar | 13. Ball Extension – Short |
| 4. Rod | 14. Compression Ring |
| 5. Rod Clamp – Long | |
| 6. Rod Clamp – Short | |
| 7. Positioning Template Plate – Front | |
| 8. Positioning Template Plate – Rear | |
| 9. Allen Wrench | |
| 10. Gauge Tip Extension | |



Brake Rotor Gauge Instructions

Section A: Tool Installation

Section B: Wheel Bearing Check

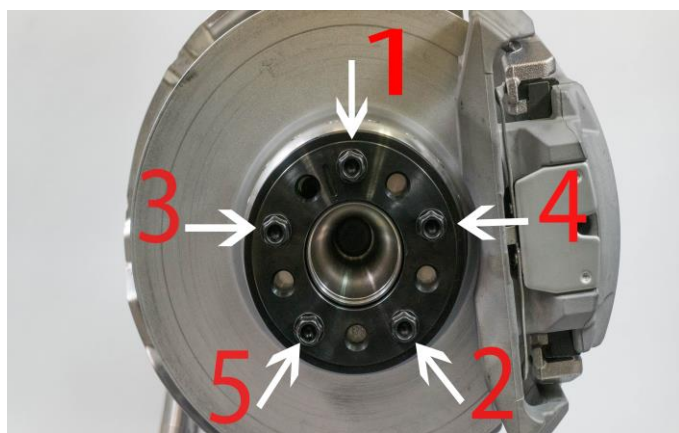
Section C: Rotor Run-out Measurement

Section D: Hub Run-out Measurement on Compression Ring

Section E: Hub Run-out measurement on Hub

Section F: Rotor Thickness Variation Measurement

Section A: Tool Installation



A1. Clean rotor/wheel surface of rust, paint and other contaminations. Inspect and clean compression ring. Install compression ring using all wheel bolts.

Torque bolts in a star pattern (1-5) as pictured to 70Nm (50lbs) or manufactures specifications.

Note: Do NOT use impact tool.



A2. Install clamp on strut/steering knuckle with ball towards rotor side. Make sure no wires, brake lines and other components are getting pinched.

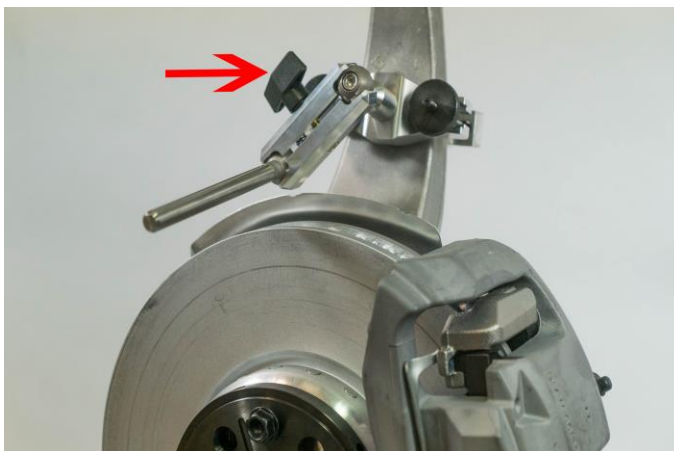
Tighten knobs firmly by hand.



A3. Different ball extensions can be selected to optimize ball location should components interfere.

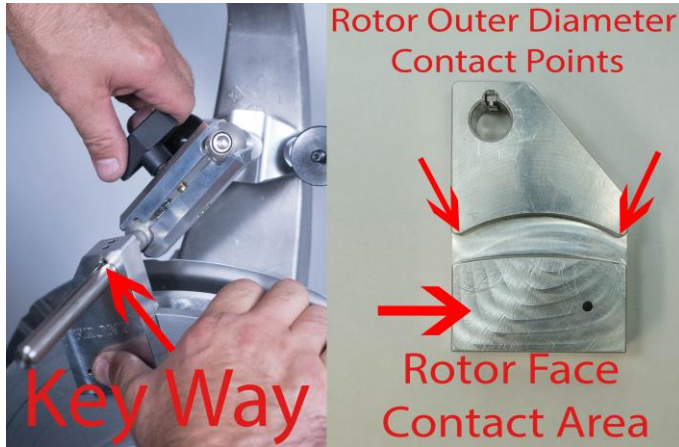
Extensions and hardware is located under compression ring in tool kit.

Install with allen wrench.



A4. Selecting long or short rod clamp for best placement. Install rod clamp and rod so the rod is close to 90° over rotor.

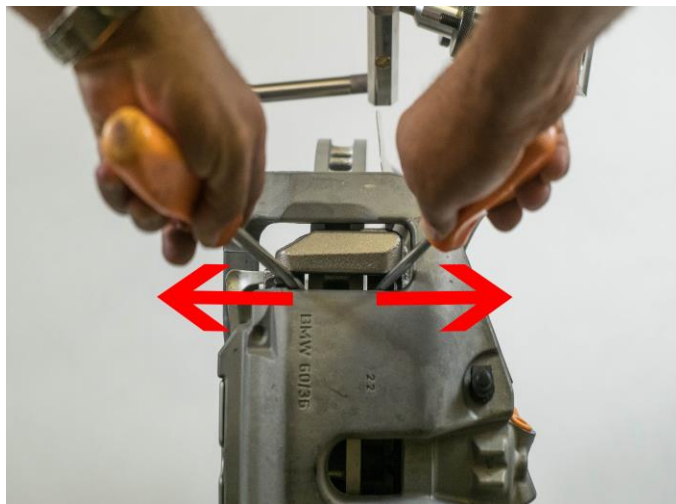
Slightly tighten rod clamp to point where it is still moveable.



A5. Slide positioning template (front or rear) over rod with keyway aligned. Place positioning template on rotor's outer diameter with outer diameter contacting points touching.

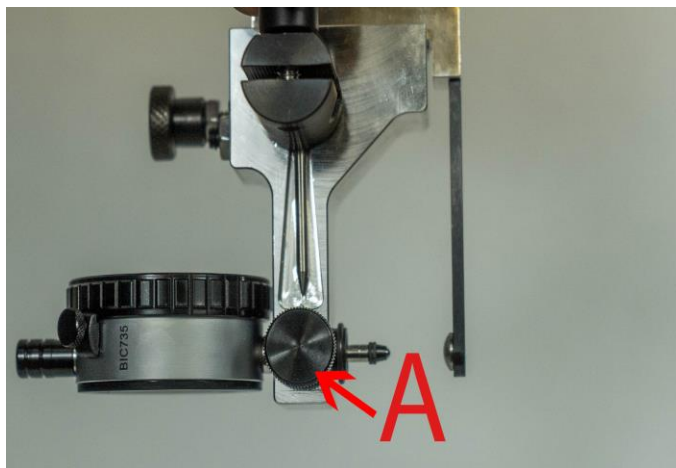
Press in on template so rotor contact area is firmly against rotor surface.

Tighten clamp knob firmly by hand.



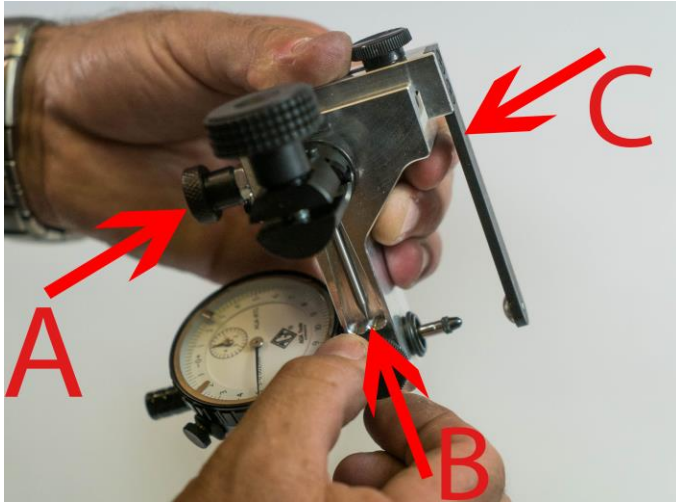
A6. Check if rotor can be rotated freely and easily by hand. If not, gently retract brake caliper piston until rotor spins freely.

If working on rear axle, place vehicle in neutral and parking brake is off.



A7. Install gauge into gauge head. Tighten knob by hand. (A)

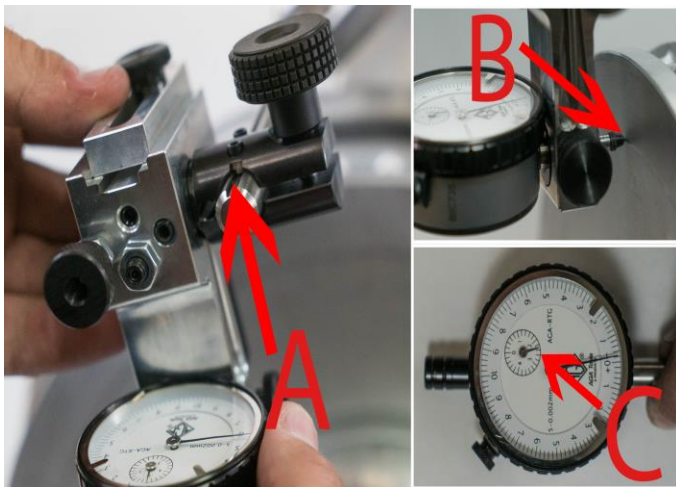
Gauge can be rotated for better visibility if needed.



A8. Tighten centering lock knob by hand. (A)

Check that the center indicator is close to center. (B)

Remove thickness back stop and set aside. (C)



A9. Align keyway, gently slide gauge head over rod (A)

Continue sliding gauge until contact point touches the rotor. (B)

Observe the small dial (C) while sliding the gauge head inward until gauge reads between 2 & 3.

Tighten knob on gauge head by hand.



A10. Rotate rotor until locating mark is at 12 o'clock position. (Pointing up)



A11. Loosen dial lock knob.

Rotate dial face until the needle is pointed to 0. Gauge is now 0 out.

Slightly tighten dial lock.

Section A: Tool Installation Complete

Note: This installation section is required for other measurements as well.

Section B: Wheel Bearing Check



B1. Wheel Bearing Check

Apply pressure in and out to outer edge of rotor in the 12 o'clock position by hand.

No play should be felt!

Observe the gauge while applying pressure in and out; the gauge will move slightly showing the deflection of rotor. No loose play or movement is allowed.

If there is play or excessive movement, replace hub/wheel bearing.

Section B: Wheel Bearing Check Complete



Section C: Rotor Run-out Measurement

Start with gauge installed at 0 as per step A11.



C1. While observing gauge, slowly and constantly turn the rotor 360°.

To smoothly rotate rotor, tool can be inserted in compression ring outer holes. Only apply radial (rotating) force while turning.

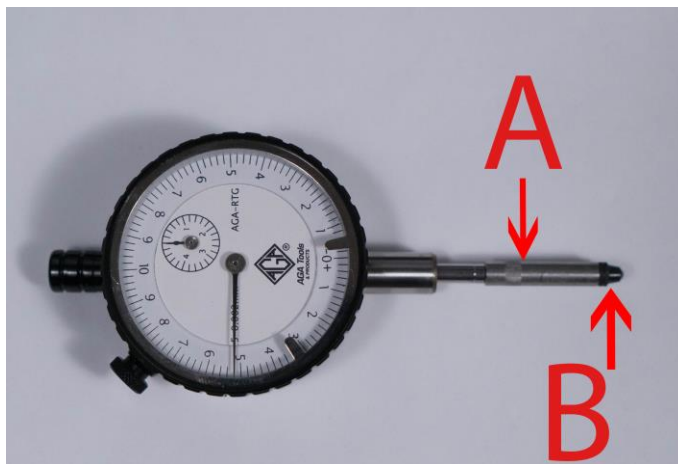
The run-out should not exceed 0.070mm.

If less than 0.070mm, go to step 24.

If greater than 0.070mm, go onto next step

Section C: Rotor Run-out Measurement Complete

Section D: Hub Run-out Measurement on Compression Ring



D1. Gently remove gauge head from bar. Remove gauge from gauge head.

Install gauge tip extension(A) and tip(B) onto the tip extension.



D2. Install gauge in gauge extension bar.

Place gauge tip (A) on outer diameter recessed area of compression ring as pictured.



D3. Adjust gauge until small dial reads between 2 & 3. While observing gauge, turn rotor/hub slowly 360°.

Run-out should not exceed 0.030mm.

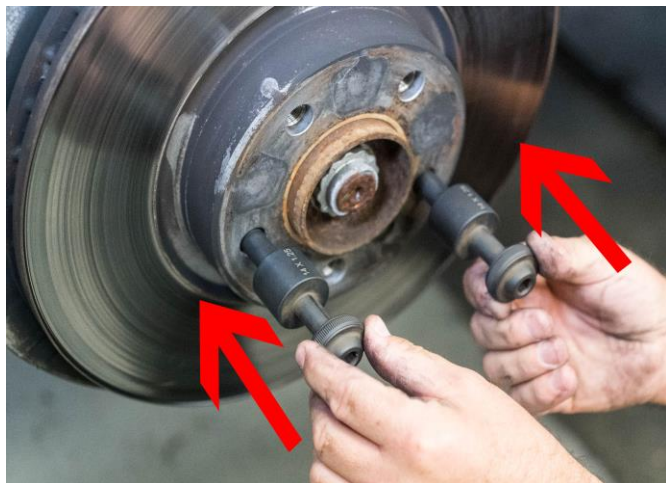
If under 0.030mm, resurface/replace rotor and brake pads.

If over 0.030mm, go onto next step.

Section D: Hub Run-out Measurement on Compression Ring Complete



Section E: Hub Run-out Measurement on Hub



E1. To remove rotor without damage, use AGA's Brake Disk Removal Tool. (Part # AGA-BDR-B)

Install appropriate thread size standoff screws through rotor into wheel hub.

Note: Make sure rotor securing bolt is removed.



E2. Slide brake remover tool bar into slots. (A)

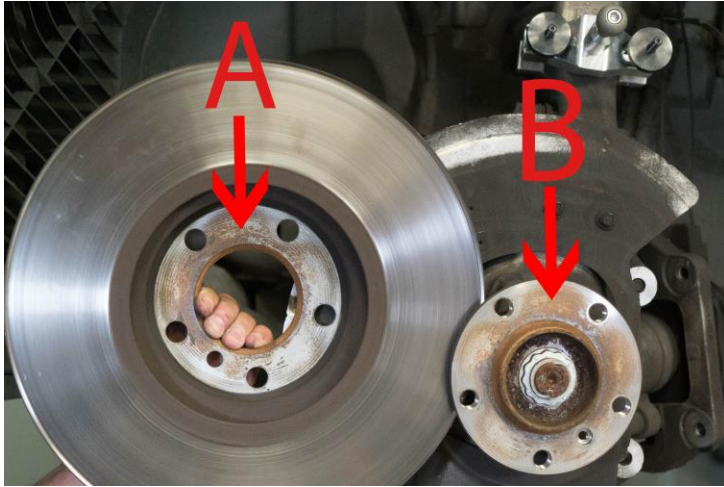
Place hook over brake rotor. (B)

Hand tighten 22mm - 7/8" nut (C) by hand.

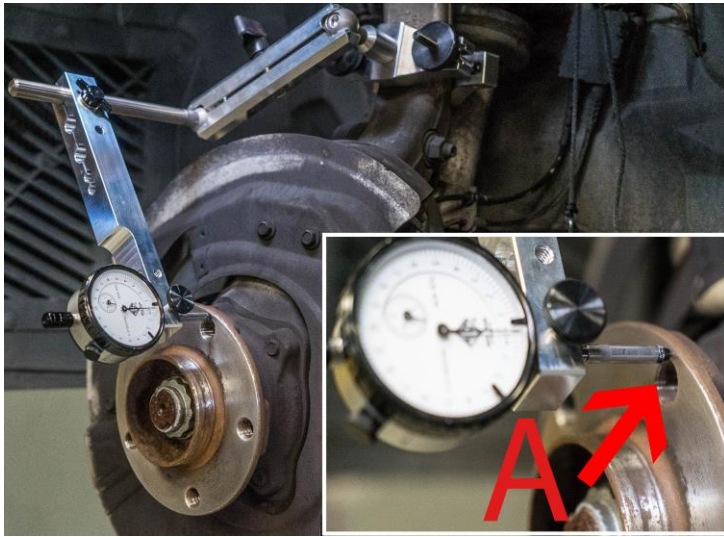


E3. Hold the hook in place by the outside aluminum handle. Tighten 22mm-7/8" nut with open end wrench. Until brake rotor and hub is separated

Note: If brake disc does not come off hub with normal tightening, use a small amount of heat on rotor in hub mounting area. DO NOT use excessive heat that can damage wheel bearing.



E4. Remove brake rotor and clean both rotor surface (A) and hub surface (B) of debris, rust and etc.



E5. Carefully select an area on the hub with no holes for 360° towards hub outer edge.

Adjust gauge to small dial between 2 & 3, big dial at 0. While observing gauge, turn hub 360°.

Hub run-out should be less than 0.025mm.

If greater than 0.025mm, replace hub/wheel bearing.

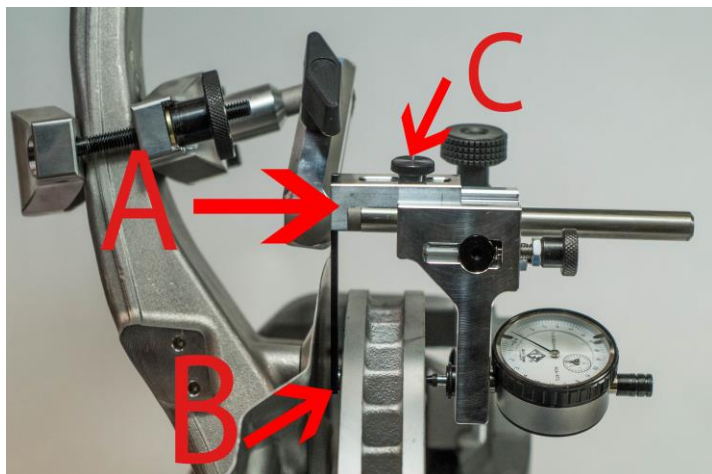
If less than 0.025mm, go onto next step.

Section E: Hub Run-out Measurement on Hub Complete



Section F: Rotor Thickness Variation Measurement

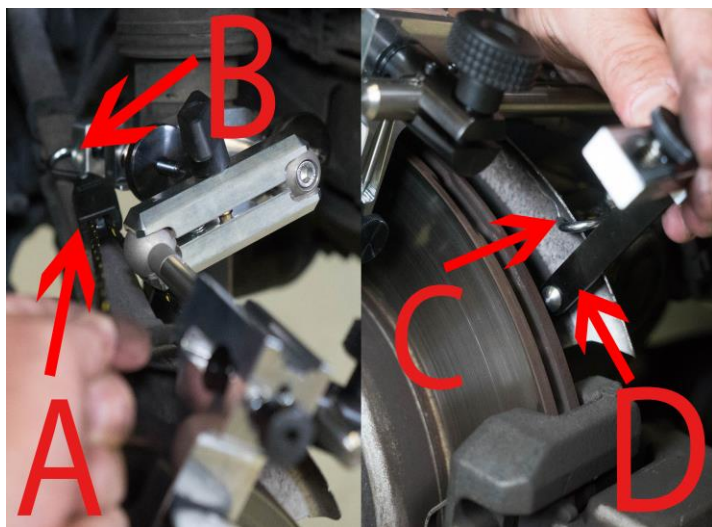
Start with gauge installed at 0 as per step A11.



F1. Install thickness back stop (A) on gauge head.

Slide back stop until it makes contact to back of rotor. (B)

Tighten knob. (C)



F2. If there is little to no space between rotor and backing plate. Use ratcheting tether (A) to create space. (Ratcheting tether located in lid of tool case)

Fasten inner hook (B) onto chassis or other secure locations.

Place outer hook (C) over backing plate.

Pull tension on tether until space to insert thickness backstop (D) is achieved.



F3. Loosen centering lock knob. (A)

Gauge head can now pivot on shaft.

Check that centering indicator is close to center. (B)



F4. Adjust gauge to small dial between 2 & 3, big dial at 0. (A)

While observing gauge, rotate rotor slowly 360°.

Rotor thickness should not be greater than 0.030mm.

If greater than 0.030mm, resurface or exchange brake rotor and pads.

If less than 0.030mm, inspect suspension components, bushings, balljoints and etc.

Section F: Rotor Thickness Variation Measurement Complete