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This manual is intended to provide the information necessary for installation, set-up, normal maintenance and service of the Hayes Radar disc brake system. We highly recommend installation be performed by a qualified mechanic. These instructions can be downloaded from the Hayes Disc Brake website at www.hayesbicycle.com

SAFETY INFORMATION

As a serious rider you are well aware of the need to practice safety in all aspects of the sport. This includes service and maintenance practices as well as riding practices. Before each ride, always check your brakes for proper function and the brake pads for wear. When you ride, always wear a helmet

Warning: When you need to install any of the disc brake components, that installation work should be done by a qualified technician with the proper tools. Improper installation could cause severe or fatal injuries.

Warning: This brake has been designed for use on a single person mountain bike. The use on any other vehicle or device will void the warranty and can cause serious injury.

Caution: With use, disc brake components may become very hot. Always allow components to cool before attempting to service your bike. Warning: When following any of the procedures below, be sure to keep your hands and fingers from getting caught in the disc. Failure to do so could result in injury.

Warning: Do not adjust the caliper while the wheel is spinning

Warning: Do not adjust the caliper while the caliper is hot.

Warning: If your bike is involved in a fall or crash it is recommended your brakes are checked by a qualified mechanic before riding to ensure they are functioning properly. The following checks should be performed: Check that all components are securely mounted to the

handlebar, frame, fork, or wheel; check for proper pad installation and retention; check that the brake builds and holds pressure; check hose and fittings for kinks or leaks; check master cylinder body and caliper for damage. Always have a qualified bike mechanic check your brakes if you suspect damage

INSTALLATION

Tools Required

• Torx T25 drive • Allen Drivers: 2mm, 4mm, 5mm Pliers

 Safety Glasses Torque Wrench

Installing the Master Cylinder

- 1. Remove the two mounting bolts and clamp from the master cylinder assembly
- 2. Position master cylinder on your handlebars in desired location. Place handlebar clamp onto master cylinder and thread the clamp bolts into the master cylinder. Do not tighten the bolts down yet.
- 3. Once you have set the master cylinder in the final desired position on your handlebars, tighten down the mount bolt that the arrow points to on the clamp. (FIG. 1) Tighten to a torque of 30±5 in-lbs (3.37±0.55Nm). Next tighten down the other bolt to a torque of 30±5 in-lbs (3.37±0.55Nm).
- 4. To adjust lever reach, use a 2mm Allen to turn the lever reach adjust screw at the base of the lever. Turning it clockwise will move the lever out. Turning it counterclockwise will move the lever in. Do not force the screw beyond its limits. (FIG. 2)

Mounting the Disc to the Hub

1. Clean the disc and hub mounting surface with isopropyl alcohol (not disc brake cleaners).

2. Place the disc on the hub mounting surface. Be sure that the arrow on the disc is pointing in the same direction of the forward wheel rotation. 3. Using a Torx T25 driver, install, tighten, and torque the disc screws to 50±5 in-lb (5.65±0.55Nm), in a star pattern sequence. (FIG. 3) Caution: The disc should be periodically inspected for wear and damage. The minimum disc thickness is 1.52mm

Mounting Caliper (Crosshair equipped calipers)

- 1 Verify the 2mm adjuster screws are backed out of the mount slots in the caliper feet (FIG. 4)
- 2. Place the caliper feet onto the mounting surface and thread the mount bolts (with washers) into the mount leaving the caliper loose. (FIG. 5)
- 3. Squeeze the lever blade a minimum of 5 times to seat the caliper pistons
- 4. Adjust the caliper on the mount so the outer pad (closest to you) is contacting the disc. (FIG. 6)
- 5. Snug the mount bolts using the 5mm hex tool while keeping the outer pad against the disc. (FIG. 7)
- 6. Using the 2mm hex tool, turn the adjuster screws clockwise until they contact the mount bolts. 7. Turn each adjuster screw 1/4 turn clockwise then rotate the wheel and listen for pad drag. Repeat until the pads clear the disc, looking
- for a gap 8. Torque the lower mount bolt (A) to 80±5 in-lbs (9.0±0.5 Nm). (the upper adjuster screw keeps the caliper from rotating out of alignment). Torque the upper mount bolt (B) to 80±5 in-lbs (9.0±0.5 Nm). (FIG. 8)

Mounting the Caliper (For calipers without Crosshair)

- 1. For some installations it will be necessary to mount a mount bracket to accept the Haves Disc Brake caliper. Mount the mount bracket to the frame or fork using (2) M6 x 1.0 18.4mm long mount bolts. Torque the bolts to 80±5 in-lbs (9.0±0.5 Nm)
- 2. Mount the caliper to the frame or fork mount bracket using (2) M6 x 1.0 18.4mm long mount bolts and (2) mount washers. Snug the bolts, but leave them loose enough so that caliper will move on its slots.
- 3. Squeeze and hold the brake lever. While squeezing the lever, tighten the mounting bolts. Torque the bolts to 80±5 in-lbs (9.0±0.5 Nm). 4. Release the lever, spin the wheel. Check that it spins freely and that the gaps, between the pad and the disc, are equal. If gaps are unequal, or if there is drag, readjust the caliper position by loosening the mounting bolts and adjusting the caliper needed.
- Hint: A white piece of paper can be used as a background to help sight down the disc looking for equal clearance between the pads and disc. 5. When the gaps are equal and the wheel spins freely (without drag), torque the mounting bolts to 80±5 in-lbs (9.0±0.5 Nm)

MAINTENANCE & TROUBLESHOOTING

Brake Pad Change

Due to wear, contamination, or damage, the brake pads will, on occasion, need to be replaced. The following procedure is to be followed for a change of brake pads:

- 1. Removing the pads
- A. Remove the wheel
- B. Remove the pad retaining pin from the caliper using a pliers. C. Remove pads and sandwich spring through the window on the bottom of the caliper
- D. Using the boxed end of a 10mm wrench, push the caliper pistons back in their bores until they are flush with the edge of the caliper. This will give you more room to insert the new pads.
- 2. Installing the pads.
- A. Assemble the pads and sandwich spring. (FIG. 9)
- B. Compress the pads together on the sandwich spring and insert through the bottom of the caliper.
- C. Insert pad retaining pin through the hole in the caliper and through the tab on both pads
- D. Insert the pad retaining cotter pin, bend down the ends so the pin cannot be removed
- E. Install the wheel.



FIG. 1



INSTALLATION AND SET-UP INSTRUCTIONS

FIG. 2





FIG. 3



FIG. 5





FIG. 9



FIG. 8



FIG. 7

3. Burnish brake pads. Performing the proper burnish process is essential to ensure that your new brakes have consistent, high power braking in all riding conditions. Hard braking before proper burnish can result in a reduction in brake performance. A proper burnish, or break in process of 50+ stops under 15 mph or 24 Km/h is required in order to reach full braking power.

Piston(s) Pumped Out

If the brake lever is stroked without the disc between the pads (this is possible when brake pads are being changed), the self-adjusting feature will allow the pads to push out. The caliper pistons will be pumped out of their bore. This can cause excessive drag on the disc when the wheel and disc are reinstalled, or even make it impossible to install the wheel and disc. To fix this problem:

- 1. Remove the brake pads from the caliper if they are not already removed.
- 2. With the pads removed, push back the pistons until they are flush with the edge of the caliper using the box end of a 10mm wrench. Hint: If the pads are pushed together tight, slide the travel spacer, or Hayes Feel 'R Gauge between the pads and enlarge the gap until it is large enough to pull the pads out.
- 3. When the pistons are back into their bores, replace the pads.

Cleaning and Care

The Hayes Radar brake system uses mineral oil. Any spilled on the brake assembly, bike or otherwise can be cleaned up with mild soap and water. The brake rotor and pads should only be cleaned with isopropyl alcohol (not disc brake cleaner).

NOUTLE DOIL	80 <u>1</u> 3	9.010.3
Master Cylinder Clamp Screw	30±5	3.4±0.5
Caliper Bridge Bolt	170±5	19.2±0.5
Bleed Screw	12±2	1.4±0.2
Compression Nut	70±5	7.9±0.5

Limited Lifetime Leakproof Warranty: http://www.hayesdiscbrake.com/support/lifetime/

WARRANTY INFORMATION

Any Hayes Bicycle Group component found by the factory to be defective in materials and/or workmanship within two years from the date of purchase will be repaired or replaced at the option of the manufacture free of charge, when received at the factory with proof of purchase, freight prepaid. Any other warranty claims not included in this statement are void. This includes assembly costs (for instance by the dealer), which shall not be covered by Hayes Bicycle Group. This warranty does not cover breakage, bending, or damage that may result from crashes or falls. This warranty does not cover any defects or damage caused by alterations or modifications of new Hayes Bicycle Group parts or by normal wear, accidents, improper maintenance, damages caused by the use of parts of different manufactures, improper use or abuse of the product, or failure to follow the instructions contained in an instruction manual for the specific component Any modifications made by the user will render the warranty null and void. The cost of normal maintenance or replacement of service items, which are not defective, shall be paid for by the original purchaser. This warranty is expressly in lieu of all other warranties, and any implied are limited in duration to the same duration as the expressed warranty herein. Hayes Bicycle Group shall not be liable for any incidental or consequential damages. If for any reason warranty work is necessary, return the component to the place of purchase. In the USA, contact Hayes Bicycle Group for a return authorization number (RA#) at (888) 686-3472. At that time, instructions for repair, return, or replacement shall be given. Customers in countries other than USA should contact their dealer or local Hayes Bicycle Group distributor.



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