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SHIMANO BR-MT410 & BL-MT402

Shimano BR-MT410 & BL-MT402 Hydraulic Disc Brake

USER MANUAL

1. Introduction

This manual provides essential information for the proper installation, operation, maintenance, and troubleshooting of your Shimano BR-MT410 (caliper) and BL-MT402 (brake lever) hydraulic disc brake system. Please read this manual thoroughly before attempting any installation or maintenance procedures to ensure safe and correct usage. Retain this manual for future reference.



Image 1.1: Overview of the Shimano BR-MT410 and BL-MT402 hydraulic disc brake system, showing the brake lever, caliper, and connecting hose.

2. Safety Information

Always prioritize safety when working with bicycle components. Improper installation or maintenance can lead to serious injury or death.

- **Professional Installation Recommended:** If you are unsure about any step, seek assistance from a qualified bicycle mechanic.
- **Wear Safety Gear:** Always wear appropriate safety glasses and gloves when handling brake fluid or performing maintenance.
- **Brake Fluid:** Use only genuine Shimano mineral oil. Do not mix different types of brake fluid. Brake fluid can be an irritant; avoid contact with skin and eyes. In case of contact, rinse thoroughly with water and seek medical attention if irritation persists.
- **Hot Components:** Disc brake rotors and calipers can become extremely hot during use. Allow them to cool before touching to prevent burns.
- **Brake Performance:** New brake pads require a bedding-in period to achieve full braking power. Exercise caution during initial rides.

- **Regular Checks:** Periodically check brake function, pad wear, and fluid levels.

3. Package Contents

Verify that all components are present in the package before beginning installation. The package should contain:

- Shimano BR-MT410 2-Piston Disc Brake Caliper
- Shimano BL-MT402 Brake Lever (Right, pre-bled with 1700mm hose for rear brake)
- B01S Resin Brake Pads (pre-installed in caliper)
- Caliper mounting bolts
- Hose fixing components (e.g., olive, insert pin, if not pre-connected)

Note: Brake disc (rotor) is not included and must be purchased separately.

4. Setup (Installation)

This section outlines the general steps for installing your hydraulic disc brake system. Specific frame and fork requirements may vary.

4.1. Caliper Installation (BR-MT410)

1. Ensure your frame/fork has post mount tabs compatible with the BR-MT410 caliper.
2. Attach the BR-MT410 caliper to the frame/fork using the provided mounting bolts. Do not fully tighten the bolts yet.
3. Ensure the brake pads are correctly seated in the caliper.

Image 4.1: Illustration showing the BR-MT410 caliper being mounted onto a bicycle frame's post mount tabs. (Image not available in provided data)

4.2. Brake Lever Installation (BL-MT402)

1. Mount the BL-MT402 brake lever onto the handlebar. The lever is designed for the right side (rear brake).
2. Position the lever for comfortable reach and operation. Ensure it does not interfere with other handlebar components.
3. Tighten the lever clamp bolt securely.

Image 4.2: Illustration showing the BL-MT402 brake lever being mounted onto a bicycle handlebar. (Image not available in provided data)

4.3. Hose Routing and Connection

1. Route the hydraulic hose from the brake lever to the caliper, ensuring it follows the frame's designated routing points and avoids sharp bends or kinks.
2. If the hose is not pre-connected, follow Shimano's instructions for cutting the hose, installing the olive and insert pin, and connecting it to the caliper and lever.

4.4. Caliper Alignment

1. Spin the wheel to ensure the rotor is properly seated.
2. Squeeze the brake lever firmly and hold it.
3. While holding the lever, fully tighten the caliper mounting bolts. This aligns the caliper to the rotor.

4. Release the lever and check that the rotor spins freely without rubbing the pads. Adjust if necessary.

Image 4.3: Illustration demonstrating the caliper alignment process by squeezing the brake lever and tightening mounting bolts. (Image not available in provided data)

4.5. Brake Bleeding

Even if pre-bled, air can enter the system during installation or hose shortening. Proper bleeding is crucial for optimal brake performance.

1. Refer to Shimano's official bleeding procedure for hydraulic disc brakes. This typically involves a bleed funnel at the lever and a bleed port at the caliper.
2. Use only Shimano mineral oil.
3. Ensure all air bubbles are removed from the system until the lever feel is firm and consistent.

Image 4.4: Diagram showing the setup for bleeding a Shimano hydraulic disc brake, including bleed funnel and syringe. (Image not available in provided data)

5. Operating

5.1. Bedding-In New Brake Pads

New brake pads and rotors require a bedding-in process to achieve maximum braking power and consistent performance. This typically involves:

- Performing approximately 20-30 moderate stops from a moderate speed (e.g., 15-20 mph) without coming to a complete stop.
- Allowing the brakes to cool between sets of stops.
- Avoid hard braking or prolonged dragging of the brakes during this period.

5.2. Brake Lever Feel

The brake lever should feel firm and consistent throughout its travel. There should be no excessive sponginess or travel before engagement. If you experience this, the system may require bleeding.

6. Maintenance

Regular maintenance ensures the longevity and safe operation of your Shimano disc brakes.

6.1. Regular Inspection

- **Brake Pads:** Check pad wear regularly. Replace pads when the friction material is less than 0.5mm thick or if they are contaminated.
- **Rotor:** Inspect the rotor for wear, damage, or contamination. Replace if bent, cracked, or excessively worn.
- **Hoses and Connections:** Check for any signs of leaks, cracks, or damage to the hydraulic hose and its connections.
- **Lever Function:** Ensure the brake lever returns smoothly and has a consistent feel.

6.2. Brake Pad Replacement

1. Remove the wheel.
2. Remove the pad retaining pin or clip from the caliper.
3. Carefully slide out the old B01S resin pads.

4. Gently push the caliper pistons back into the caliper using a plastic tire lever or a dedicated piston press tool.
5. Insert new B01S resin pads, ensuring the spring is correctly positioned.
6. Reinstall the retaining pin/clip.
7. Reinstall the wheel and realign the caliper if necessary.

Image 6.1: Step-by-step guide illustrating the removal and installation of B01S resin brake pads in the BR-MT410 caliper. (Image not available in provided data)

6.3. Brake Fluid Maintenance

Shimano recommends replacing brake fluid and bleeding the system annually, or more frequently if you ride in demanding conditions or notice a degradation in brake performance.

6.4. Cleaning

Clean the brake components with a clean cloth and isopropyl alcohol. Avoid using harsh chemicals or petroleum-based cleaners, as these can contaminate pads and rotors, leading to reduced braking performance and noise.

7. Troubleshooting

This section addresses common issues you might encounter with your hydraulic disc brakes.

Symptom	Possible Cause	Solution
Spongy or soft brake lever	Air in the hydraulic system; low brake fluid level	Bleed the brake system thoroughly. Check for leaks.
Brakes feel weak or lack power	Worn brake pads; contaminated pads/rotor; air in system; improper bedding-in	Replace worn pads. Clean contaminated pads/rotor with isopropyl alcohol or replace. Bleed system. Re-bed pads.
Squealing or noisy brakes	Contaminated pads/rotor; misaligned caliper; loose bolts; worn pads	Clean or replace pads/rotor. Realign caliper. Check all bolts for tightness. Replace worn pads.
Brake lever does not return fully	Sticking piston; air in system; contaminated lever mechanism	Clean caliper pistons. Bleed system. Clean lever pivot points.
Rotor rubbing on pads	Misaligned caliper; bent rotor; sticking piston	Realign caliper. True or replace bent rotor. Clean caliper pistons.

8. Specifications

Feature	Specification
Model Numbers	BR-MT410 (Caliper), BL-MT402 (Lever)

Feature	Specification
Brake Type	Hydraulic Disc Brake
Caliper Type	2-Piston, Post Mount
Brake Pads	B01S Resin (included)
Brake Fluid	Shimano Mineral Oil (not included)
Hose Length	1700 mm (rear)
Lever Orientation	Right (for rear brake)
Material	Aluminum
Approx. Weight	10.6 ounces (system, without rotor)
Manufacturer Part Number	08171167

9. Warranty and Support

Shimano products are covered by a manufacturer's warranty against defects in materials and workmanship. For specific warranty terms and conditions, please refer to the official Shimano website or contact your local Shimano dealer.

For technical support, spare parts, or further assistance, please contact Shimano customer service or visit their official support channels. Always provide your product model numbers (BR-MT410, BL-MT402) and the manufacturer part number (08171167) when seeking support.