DEXTER AXLE DX7.5

Dexter DX7.5 Surge Brake Actuator User Manual

Model: DX7.5 | Brand: DEXTER AXLE

1. Introduction

This manual provides essential information for the safe and effective installation, operation, and maintenance of your Dexter DX7.5 Surge Brake Actuator. Please read this manual thoroughly before using the product to ensure proper function and to prevent injury or damage.
The Dexter DX7.5 is a hydraulic surge brake actuator designed for disc brake systems, featuring a 7,500 lbs capacity and zinc-plating for enhanced corrosion resistance, making it suitable for marine applications.

2. Safety Information

WARNING:

- Always ensure the actuator is correctly installed and maintained by a qualified professional.
- Do not exceed the maximum rated capacity of 7,500 lbs or the maximum tongue weight of 750 lbs.
- Regularly inspect the actuator, brake lines, and connections for wear, damage, or leaks.
- Ensure the safety chain/cable is properly connected to the tow vehicle and the actuator's breakaway mechanism.
- Use only DOT 3 or DOT 4 brake fluid as specified by the manufacturer.
- This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

3. Product Overview

The Dexter DX7.5 Surge Brake Actuator is a self-contained hydraulic unit that mounts to the trailer tongue. It activates the trailer's hydraulic disc brakes when the tow vehicle decelerates, causing the trailer to push against the tow vehicle.

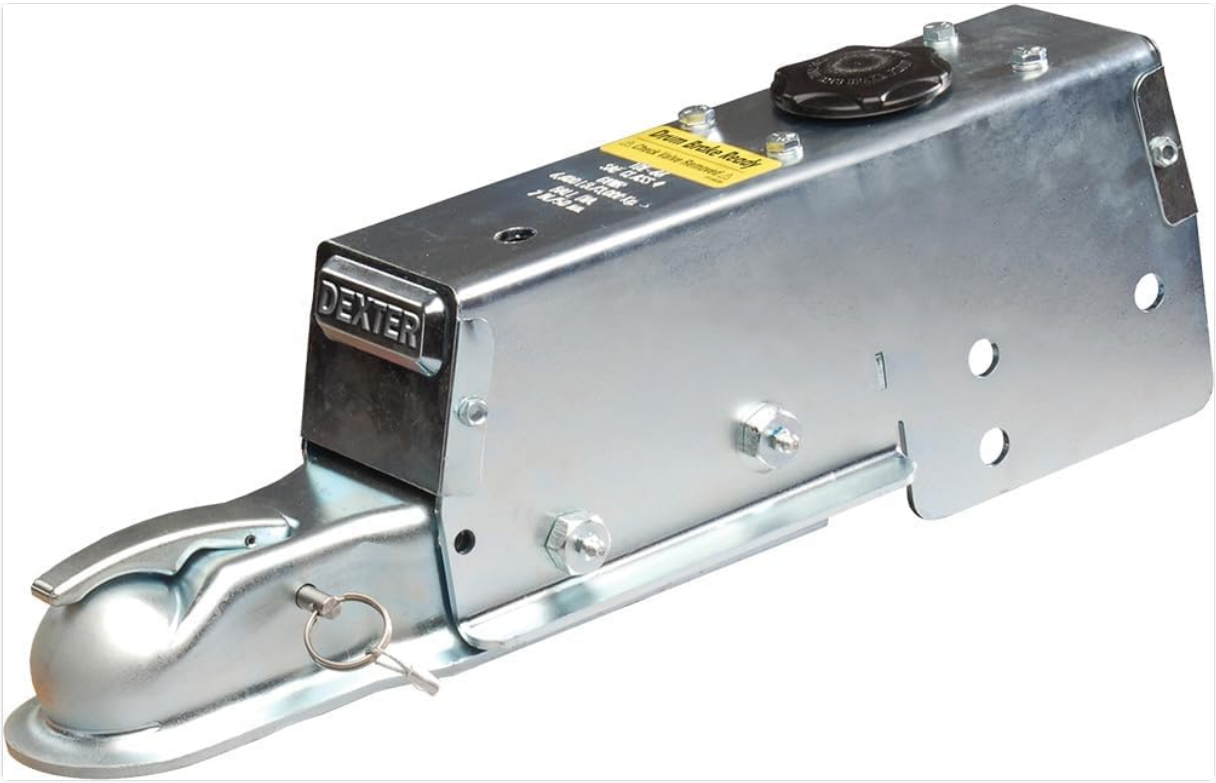


Figure 3.1: Front-side view of the Dexter DX7.5 Surge Brake Actuator. This image shows the overall zinc-plated housing, the coupler mechanism designed for a 2-inch ball, and the Dexter branding on the top plate. The robust construction is visible, highlighting its suitability for heavy-duty applications.

Key Components:

- **Coupler:** Designed for a 2" trailer ball, connecting the trailer to the tow vehicle.
- **Actuator Housing:** Zinc-plated for corrosion resistance, protecting internal components.
- **Master Cylinder:** Generates hydraulic pressure to activate the brakes.
- **Reverse Solenoid:** Allows for backing up without engaging the brakes.
- **Breakaway Cable:** Activates the trailer brakes if the trailer separates from the tow vehicle.



Figure 3.2: Side view of the Dexter DX7.5 Surge Brake Actuator, showcasing the integrated breakaway cable. The cable is coiled and attached to the side of the actuator, ready to be connected to the tow vehicle. This view also highlights the mounting points on the side of the unit.

4. Setup and Installation

Installation should be performed by individuals familiar with trailer brake systems and hydraulic components. Refer to your trailer manufacturer's guidelines for specific mounting requirements.

4.1 Mounting the Actuator

1. Ensure the trailer tongue is clean and free of obstructions. The DX7.5 is designed for a 3" wide channel tongue.
2. Position the actuator on the trailer tongue, aligning the mounting holes.
3. Secure the actuator using appropriate grade 5 or higher bolts, washers, and nuts. Torque bolts to manufacturer specifications.

4.2 Connecting Hydraulic Lines

1. Connect the main hydraulic brake line from the trailer's disc brakes to the master cylinder port on the actuator.
2. Ensure all connections are tight and free of leaks. Use appropriate thread sealant if recommended.

4.3 Wiring the Reverse Solenoid

The reverse solenoid prevents the brakes from engaging when backing up. It requires a 12V power supply from the tow vehicle's reverse light circuit.

1. Locate the reverse light wire on your tow vehicle's trailer wiring harness.
2. Connect the solenoid wire (typically blue or black) to the reverse light wire using a suitable electrical connector.
3. Ensure connections are secure and protected from the elements.



Figure 4.1: Front view of the Dexter DX7.5 Surge Brake Actuator, highlighting the Dexter branding and the location of the reverse solenoid. The solenoid, visible as a red cap, is crucial for disengaging the brakes when the tow vehicle is in reverse, preventing unwanted braking during maneuvering.

4.4 Bleeding the Brake System

After installation, the hydraulic system must be properly bled to remove air.

1. Fill the master cylinder reservoir with DOT 3 or DOT 4 brake fluid.
2. With the trailer connected to the tow vehicle, manually compress the actuator plunger several times to prime the system.
3. Bleed the brakes at each wheel cylinder/caliper, starting with the wheel furthest from the actuator, until no air bubbles are visible in the fluid.
4. Maintain fluid level in the reservoir throughout the bleeding process.

5. Operating Instructions

5.1 Connecting to Tow Vehicle

1. Ensure the trailer ball is clean and properly sized (2").
2. Lower the coupler onto the trailer ball until it is fully seated.
3. Secure the coupler latch and insert the safety pin or lock.
4. Attach the breakaway cable to a secure, non-removable part of the tow vehicle, ensuring it has enough slack for turns but will pull taut if the trailer detaches.
5. Connect the trailer's electrical harness to the tow vehicle.

5.2 Braking Operation

When the tow vehicle slows down, the trailer pushes against the actuator, causing the plunger to compress the master cylinder. This generates hydraulic pressure, which is transmitted through the brake lines to the trailer's disc brakes, applying braking force.

5.3 Reverse Operation

When the tow vehicle is shifted into reverse, the reverse solenoid receives 12V power, closing off the hydraulic line to the brakes. This allows the trailer to be backed up without the brakes engaging due to the actuator compressing.

6. Maintenance

Regular maintenance is crucial for the longevity and safe operation of your surge brake actuator.

6.1 Fluid Level Check

- Periodically check the brake fluid level in the master cylinder reservoir. It should be between the MIN and MAX marks.
- Top off with DOT 3 or DOT 4 brake fluid as needed. Do not overfill.

6.2 Visual Inspection

- Inspect the actuator housing for signs of corrosion, damage, or cracks.
- Check all hydraulic lines and fittings for leaks, kinks, or abrasions.
- Verify the breakaway cable is intact and properly connected.
- Examine the coupler mechanism for wear or damage.

6.3 Lubrication

- Lubricate moving parts of the coupler and actuator slide mechanism with a light grease or silicone spray as needed to ensure smooth operation.

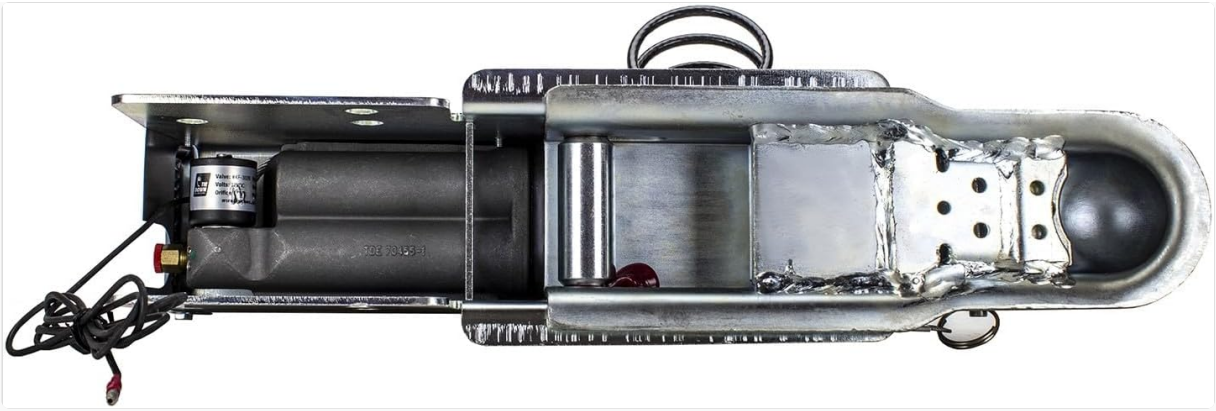


Figure 6.1: Top-down internal view of the Dexter DX7.5 Surge Brake Actuator. This image provides a glimpse into the internal components, including the master cylinder and the sliding mechanism that activates the brakes. This perspective is useful for understanding the mechanical operation and for identifying areas that may require inspection or lubrication.

7. Troubleshooting

Problem	Possible Cause	Solution
Brakes not engaging	Low brake fluid; Air in system; Kinked brake line; Worn brake pads/rotors; Faulty master cylinder.	Check/add fluid; Bleed system; Inspect/replace lines; Inspect/replace brake components; Consult professional.
Brakes dragging/not releasing	Actuator sticking; Return spring issues; Contaminated brake fluid; Faulty reverse solenoid (if applicable).	Lubricate actuator; Inspect springs; Flush system; Test/replace solenoid.
Brakes engage in reverse	Reverse solenoid not wired correctly; Faulty reverse solenoid; No 12V power to solenoid.	Check wiring; Test/replace solenoid; Verify 12V power from tow vehicle reverse circuit.
Excessive noise during braking	Worn brake pads/rotors; Loose mounting bolts; Lack of lubrication.	Inspect/replace brake components; Tighten bolts; Lubricate moving parts.

If you are unable to resolve an issue, consult a qualified trailer mechanic or contact Dexter Axle customer support.

8. Specifications

Feature	Detail
Model Number	DX7.5 (Manufacturer Part Number: 099-175-20)
Application	Hydraulic Disc Brakes (includes reverse solenoid)
Ball Size	2 inches
Mounting	3 inch wide channel tongue
Capacity	7,500 lbs
Maximum Tongue Weight	750 lbs

Feature	Detail
Corrosion Resistance	Zinc-plated
Item Weight	17 pounds
Product Dimensions	20 x 4 x 5 inches
Included Components	Brake Actuator, Solenoid

9. Warranty and Support

For warranty information, please refer to the official Dexter Axle warranty policy provided with your purchase or visit the official Dexter Axle website. Protection plans may also be available for extended coverage.

For technical support, parts, or service inquiries, please contact Dexter Axle customer service directly. Contact information can typically be found on the manufacturer's website or on the product packaging.

Note: Always use genuine Dexter Axle replacement parts to ensure compatibility and maintain product integrity.

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