SURGE ACTUATORS

HYDRAULIC SURGE BRAKE ACTUATION

INSTALLATION AND SERVICE INSTRUCTIONS

Model 60 Actuator

⚠ CAUTION

DO NOT submerge actuator. To minimize the damaging effects of corrosion on a braking system used under corrosive conditions, actuator should be externally flushed after use with a high pressure water hose. Lubricate all moving parts after the unit has dried. Failure to properly and adequately clean, grease, and maintain the actuator can cause failure and result in serious injury.

This actuator arrives completely assembled and ready to install. Only paint a disassembled outer member. Do not paint other components of the actuator, as this can cause failure.

RATED CAPACITY AND TONGUE LOADS VARY. PLEASE REFERENCE THE COUPLER CASTING AND TOP PLATE OF ACTUATOR FOR CAPACITIES.

WELDING IS NOT RECOMMENDED since it will make repair or replacement difficult and could potentially cause internal damage resulting in decreased brake performance.

Installation

1. Bolt the actuator to the tongue using grade 5 bolts, nuts, and lock washers. Light weight tongues require spacer tubes inside for reinforcement such as a 3/4" outside diameter by eleven gauge piece of tubing. Using a torque wrench, tighten bolts to 80 ft.-lbs.
2. Install brakes and brake lines per brake manufacturer instructions NOT crush or kink the tubing as you mount the actuator. DO NOT remove or modify the orifice connector at the rear of your actuator's master cylinder. It connects directly to the brake tubing and ensures proper fluid flow characteristics.

CAUTION

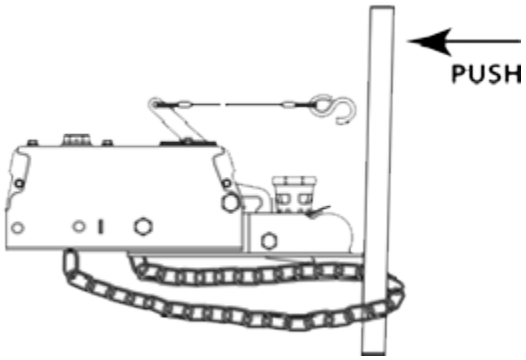
Incorrectly filling or bleed the brakes can result in brake failure. Only use fresh brake fluid from sealed container. DO NOT reuse fluid. After filling and bleeding, remember to refill the actuator. Failure to maintain an adequate fluid level may cause failure.

3. Fill and bleed the brake system per manufacturers instructions.
4. Fill the system with DOT-3 fluid using a pressure type brake bleeder. Use only fresh brake fluid from sealed container. DO NOT reuse fluid. Failure to maintain an adequate fluid level may cause brake failure.

System Test

This procedure only indicates if the trailer brake system is functional. Regular inspection, maintenance, and adjustments of all brake system components are still required to ensure brake operation and performance.

1. Move the trailer to flat, level ground, pulling FORWARD several feet before parking. This forward motion will ensure trailers equipped with free-backing brakes are in their normal operating mode. Chock wheels, allowing for small testing motion. Disconnect the trailer from tow vehicle and jack the trailer's tongue until it is horizontal.
2. Hook the trailer's safety chains (NOT the actuator's breakaway cable/chain) together to form a loop, which is centered below the actuator's coupler.
3. Place a sturdy board, into the chain loop below the coupler. The board should be 4 feet or longer so it will extend several feet above the actuator. Keep the end of the board a few inches off the ground, and position it to press against the front end of the actuator's coupler.



4. Stand in front of the trailer and face the rear. Apply force to the top end of the board to use it as a lever. Press back towards the rear of the trailer. The board will begin moving the inner member into the actuator's outer member.
5. Keep pressing the top of the board to stroke the actuator and its internal master cylinder. If the trailer brake system is operational, the brakes will apply and keep the trailer from rolling away from you. Disc brakes and properly adjusted uni-servo or duo-servo type brakes will prevent you from moving the trailer back more than a few inches. Free-backing type brakes will initially provide rolling resistance, but continued force on the board will switch them into free-backing mode, and you'll be able to move the trailer backwards.
6. If stroking the actuator causes the trailer to roll away from you freely or with only minimal resistance, the brakes are NOT applying properly. Evaluate the brake system to determine cause. Corrective action MUST be taken before the trailer is used.

Attaching actuator to the tow vehicle using a multi-fit coupler:

The multi-fit (hand wheel) coupler will accept 1-7/8", 50 millimeter, and 2" diameter tow balls.

1. Open the coupler by depressing the hand wheel lock and turning the hand wheel fully counterclockwise until its rotation is stopped by the lock ring.
2. Lower the coupler onto the ball, confirming that the ball is fully seated in the coupler socket. Tighten the hand wheel in a clockwise direction to secure the ball. The hand wheel lock should click as you turn the hand wheel, to confirm that the hand wheel will stay tightened.
3. Turn the hand wheel until it can no longer be turned by hand, and then back it off until the lock catches in the nearest notch on the bottom of the hand wheel. Check that the ball latch has been drawn up snugly under the tow ball, trapping it in the coupler socket. Do not tow the trailer if the coupler is damaged.
4. Insert a standard padlock through the holes in the side of the hand wheel, preventing the hand wheel from rotating and opening. Do not use a padlock that interferes with the telescoping action of the actuator.

Attaching actuator to the tow vehicle using a lever-lock coupler:

The lever-lock coupler is preset at the Dexter factory to fit 2" trailer balls. It can be adjusted to fit 1-7/8" or 50 millimeter diameter tow balls by tightening the coupler's locknut, which is underneath the ball latch. After adjustment, make sure that the sides of the locknut is trapped between the flanges of the lock plate so that the locknut can not vibrate loose during trailering.

1. Open the coupler by pressing the handle assembly's lock trigger so it unhooks from the lock plate's loop, and then by swinging the handle forward.
2. Lower the coupler onto the ball, confirming that the ball is fully seated in the coupler socket. Swing the handle upwards until the lock trigger hooks onto the lock plate loop to secure the ball. Check that the ball latch has been drawn up snugly under the tow ball, trapping it in the coupler socket, and that the lock trigger is firmly hooked onto the lock plate loop. A properly adjusted lever-lock coupler will have between 1/64" and 1/32" of free play between the ball and ball socket. Do not tow the trailer if the coupler is damaged.
3. Check that the actuator's coupler is securely latched onto the tow ball by extending the trailer's tongue jack to the ground. Use it to lift the trailer tongue and tow vehicle hitch two to four inches. The coupler and ball should remain engaged. DO NOT tow the trailer unless the coupler is latched onto the ball securely. Retract the trailer tongue jack before towing.
4. With the handle in the locked position, insert either a standard padlock or spring pin through the hole in the side of the handle assembly, locking the handle to the bolt. Do not use a padlock that interferes with the telescoping action of the actuator.

Hitching Trailer

Attach the actuator's breakaway chain S-hook securely to one of the tow vehicle hitch safety chain connection points. Confirm that the trailer's safety chains are adjusted relative to the actuator's breakaway chain as noted above. DO NOT loop the breakaway chain around a bracket and hook it back onto itself.

⚠ CAUTION

Safety chains must be used. The length MUST be set short enough so the actuator's breakaway cable is NOT pulled if the coupler separates from the tow vehicle's hitch but remains connected by the safety chains.

Resetting the Breakaway Lever

The hydraulic pressure held in the system may cause the lever to snap back quickly. Keep hands and fingers clear as you reset the breakaway mechanism.

⚠ CAUTION

DO NOT use breakaway systems as a parking brake.

Remove the two screws which retain the cover over the breakaway spring. This will allow the cover to be lifted. By pulling the breakaway lever slightly further forward, you'll be able to pry the breakaway spring carefully out of the notch in the outer case to release the breakaway lever. When removing the breakaway spring, be careful not to deform it.

⚠ CAUTION

An incorrect lever or chain position may cause the trailer brakes to drag and overheat, or may keep the brakes from being applied in a breakaway situation. After any usage of the breakaway mechanism, either real or accidental, check all system components for damage. Replace any damaged items with genuine Dexter service parts.

Pre-Towing Check List

- Check that the brake fluid reservoir is 3/4- full of DOT 3 brake fluid. Check for leaks and repair as required.

⚠ CAUTION

Use only fresh brake fluid from sealed container. DO NOT reuse fluid. Failure to maintain an adequate fluid level may cause brake failure.

- Examine the actuator for wear, bent parts, corroded/seized parts, or other damage. Have the affected components replaced with genuine Dexter service parts. Check to determine that the actuator mounting bolts are torqued to 80 ft.-lbs.
- Test the actuator and brake function as previously described. Actuator travel over 1" indicates that the brakes need adjustment. Adjust the brakes according to manufacture instructions if needed. There are no adjustments on the actuator.
- A film of grease on the hitch ball will extend coupler and ball life while eliminating squeaking. Wipe clean and renew film each time trailer is used.
- Before storage or after extended use, Dexter recommends applying motor oil to the coupler components, lockout mechanism, and the three internal rollers to keep them moving freely and to prevent corrosion.