

# Technical Service Bulletin

## Drum Brakes – Properly Adjusting Drum Brakes

Drum brakes for trailers sold by Tie Down Engineering and other axle suppliers are not self-adjusting. This requires that the brakes are checked and adjusted on a regular basis.

The most important adjustment is at the time of delivery to the consumer. It is important to point out that different brand and different size drum brakes may have adjusting wheels, or “star adjustors” that turn in different directions to expand the brake shoes.

The Tie Down Engineering drum brake instructions state to “tighten the star adjuster while rotating the wheel in a forward direction until the wheel reaches a point where the brake shoes start to engage” as a first step. The adjustment to set the brakes at a proper clearance state, “Loosen the star adjustor one click at a time while turning the wheel in a forward rotation. Continue adjusting one click at a time until the wheel turns with little effort.”

Many mechanics have been taught in the past to tighten the brake shoes until the wheel will not rotate and then loosen the brake shoes by turning the star adjustor 10 or 12 clicks.

This can cause an issue with the brake operation.

1. “Clicks” may not be heard and the person adjusting the brakes could inadvertently loosen the brakes excessively.
2. The brake-adjusting tool could grab the notched adjusting wheel in a position where more than one “click” would take place at each adjustment.
3. The brake adjustment tool could slip, making a noise, but not moving the star adjustor.
4. Due to the above, brakes could be adjusted differently from left side to right side,

All of these “miss-adjustments” can create drum brake problems such as loss of braking power, brake chatter at low speeds, uneven initial braking causing trailer sway and brake lock-up that damages the internal parts.

The second issue we would like to address is the assumption that the star adjustors turn the same way on all drum brakes.

On TDE 10" and 12" hydraulic drum brakes, the star adjustors are mounted in the left and right backing plates that allow a “pull down” on the brake tool to expand the shoes on the left or drivers side and a “push up” to expand the shoes on the right or passenger side.

On TDE 7" drum brakes the star adjustors are set to allow a “pull down” action to expand the brake shoes on both sides. Other manufacturer's drum brakes can have similar or different “pull down” or push up” actions to expand the brake shoes. The brakes may have been taken apart and the star adjuster installed opposite from the original set up.

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We purposely do not use the “push down” or pull up” of the brake adjusting tool in our brake instructions and brake owners manuals due to the differences that can be found in brake drums.

Recent inspections of 7” drum brakes locking up on only one side of a trailer, has shown that the brake’s star adjustors were in a very loose position, (star wheel in a collapsed position). This loose adjustment allows the wheel cylinder piston to travel further than intended out of the cylinder bore when braking pressure is applied. The result is that the brake shoes engage the hub and rotate slightly pulling the leading face of the piston downward wedging the piston in the cylinder bore. The brake shoes are then locked-up because the piston is locked (wedged) in the wheel cylinder. This condition does not happen with initial braking stops but will eventually occur if correct brake shoe adjustment is not maintained. Once the brakes are “Locked-Up” they can only be corrected by disassembly and replacement, the piston and cylinder are damaged. Unfortunately, the “Lock-Up” condition cannot be corrected on the road by simply “backing up”.

This is why it is very important to follow the instructions on brake adjustment that is supplied with the brakes. If you or your mechanic make an assumption that pushing up or down on the star adjustor expands or loosens the brake shoes, you could inadvertently properly adjust one side and over loosen the opposite side brake.

## Important:

1. FOLLOW THE MANUFACTURERS INSTRUCTIONS FOR ADJUSTING ALL DRUM BRAKES
2. NEVER USE THE “10 OR 12” CLICK METHOD TO DETERMINE THE PROPER ADJUSTEMENT POSITION
3. NEVER ASSUME THAT “PUSH UP” OR “PULL DOWN” EXPANDS OR LOOSENS BRAKE SHOES
4. ALWAYS START WITH A TIGHTENED BRAKE/WHEEL BEFORE STARTING THE LOOSENING OF THE BRAKE SHOES TO GET A PROPER ADJUSTMENT

Below is the instructions supplied in the TDE Drum Brake Owner's Manual

### *Initial Adjustment of Brakes (Applies to Both Electric & Hydraulic Brakes)*

- A. With trailer wheel off the ground and tire mounted. Remove the rubber access hole plugs from the rear of the brake backing plate.
- B. Inserting a brake spoon or flat screwdriver through the access hole(s), tighten the star adjuster while rotating the wheel in the forward direction.  
*NOTE: Always spin wheel in the forward direction as if the trailer was traveling forward on the road. Tighten the star adjuster until the wheel reaches a point where the brake shoes start to engage.*
- C. Loosen the star adjustor one click at a time while turning the wheel in a forward rotation. Continue adjusting one click at a time until the wheel rotates with little effort.
- D. Replace the rubber access hole plugs.
- E. Repeat this procedure for all braking wheels.