

*Why It's So  
Important To Keep Your Brakes  
Properly Adjusted*

As a professional driver, you know there will be times when you really need your brakes. Having good brakes can get you out of a bad situation when another driver makes a serious driving error or some event requires extreme braking.

To be able to rely on your brakes in every driving situation, they must be properly adjusted. When your brakes aren't properly adjusted, they will let you down. Trucks that don't stop the way they should can put people's lives at risk, including your own.

Trucks and trailers that operate with brakes out of adjustment are the most common reasons that drivers and vehicle operators are charged with violations. By taking the time to properly check brake adjustment, you'll make sure your vehicle is safe and you'll also avoid being charged with a violation.

Whenever checking the brake adjustment, always be on the lookout for other defects like: damaged, broken or missing components, rusty drums and brakes that aren't working.

Promoting  
**Safety**  
Commercial Motor Vehicle  
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Commercial Vehicle  
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**Air Brake  
ADJUSTMENT**

*Why is it so important?*



### How To Tell When Your Brakes Are Out Of Adjustment

Brake adjustment is all about pushrod stroke. There's only one way to tell when you've got a brake adjustment problem. You've got to "measure the stroke."

The parts inside a brake chamber can only stroke so far before the brake chamber "bottoms out." When that happens, the brake chamber doesn't produce any more force on the brakes. To prevent chamber "bottom out," a brake's stroke must never be longer than its "adjustment limit."

You need to measure to be sure your brakes are properly adjusted and adjustment limits are different for each size and type of brake chamber. So, you need to know the size and type of brake chambers on each vehicle you're operating as well as their adjustment limit.

You can get information about the size and type of brake chambers on a vehicle from a technician, a dealer or your employer.

### What About "Free-Stroke" & "Slack"

The distance you can pull the brake by hand using a bar or lever is called its "slack" or "free-stroke." This distance is generally 3/8 to 3/4 inch. You may get some indication of adjustment levels, but you can't really confirm proper brake adjustment this way. Measuring "free-stroke" or "slack" doesn't provide an accurate indication of brake adjustment.

### How To "Measure The Stroke" Properly

Before doing anything, block the wheels, release the spring brakes and have a good look at the brakes. Each brake must be in its normal released position. Make sure nothing is obviously wrong or out of place. If your vehicle doesn't have stroke indicators, you'll have to mark each pushrod.

Now, to "measure the stroke" properly, you'll need to keep the spring brakes released, make sure your air pressure gauges show that you have 90 to 100 psi in the air tanks, shut the engine

off and then make a full service brake application. You must have some way to hold the brake pedal down for this step.

You must measure how far each brake has stroked. Often an estimate will do, but any brake that is close to the adjustment limit must be carefully measured.

Refer to the chart below to identify the adjustment limit of each brake. Any brake that is stroking over its adjustment limit is "out of adjustment."

### Why It's So Helpful To Have Stroke Indicators On Your Brakes

There are devices to help you measure pushrod stroke. Visual "stroke indicators" can be installed onto each brake to provide a moving pointer that strokes with the brake. Some stroke indicators will help you identify exactly where the adjustment limit is and whether the stroke is under or over it. Others only provide a convenient way to measure the stroke.

Checking brake adjustment generally means you have to get under the vehicle and take measurements. Using certain types of stroke indicators makes this job much easier. You can get accurate measurements without having to crawl under the vehicle.

### What To Do When Your Brakes Are Out Of Adjustment

When your brakes are out of adjustment, what you do about it depends on whether your vehicle has manual or automatic brake adjusters.

<i>Adjustment limits for clamp-type brake chambers</i>			
Check stroke with 90-100 psi in tanks and brakes fully applied			
SIZE	MARKING	OUTSIDE DIAMETER	ADJUSTMENT LIMIT
6	none	4 1/2" (115mm)	1 1/4" (32mm)
9	none	5 1/4" (133mm)	1 3/8" (35mm)
12	none	5 11/16" (144mm)	1 3/8" (35mm)
16	none	6 3/8" (162mm)	1 3/4" (45mm)
16LS	Square Ports, Tag & Marking	6 3/8" (162mm)	2" (51mm)
20	none	6 25/32" (172mm)	1 3/4" (45mm)
20LS	Square Ports, Tag & Marking	6 25/32" (172mm)	2" (51mm)
24	none	7 7/32" (183mm)	1 3/4" (45mm)
24L	'L' and Stroke Tag	7 7/32" (183mm)	2" (51mm)
24LS	Square Ports, Tag & Marking	7 7/32" (183mm)	2 1/2" (64mm)
30	none	8 3/32" (205mm)	2" (51mm)
30	'DD3' (Bus/Coach)	8 1/8" (206mm)	2 1/4" (57mm)
30LS	Square Ports, Tag & Marking	8 3/32" (205mm)	2 1/2" (64mm)
36	none	9" (228mm)	2 1/4" (57mm)

### READJUSTING MANUAL BRAKE ADJUSTERS

Manual brake adjusters must be readjusted on a regular basis. If your vehicle has manual brake adjusters, you can readjust them if you've had the proper training.

### READJUSTING AUTOMATIC BRAKE ADJUSTERS

Automatic brake adjusters normally don't require manual readjustment. If you have a brake that is over-stroking and it has an automatic brake adjuster, you have a problem with the brake or the adjuster. If you readjust it, you aren't really fixing the problem. The same is true if someone else only readjusts it, the problem is still there.

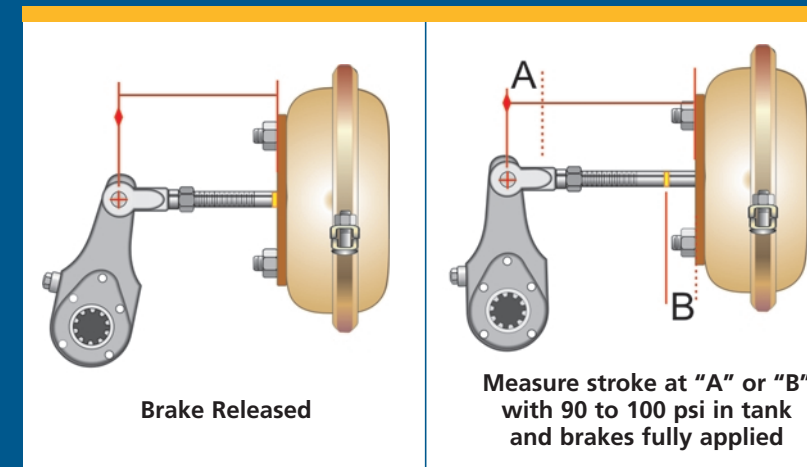
A manual readjustment of an automatic slack adjuster that is over-stroking is not a recommended practice. Repeated manual adjusting will damage the brake which will no longer stay within the adjustment limit. This should be a temporary repair only.

When an automatic slack adjuster is found over stroking, proper repair of the braking wheel requires a complete diagnostic examination by an authorized brake technician in order to determine the appropriate repairs.

When you have automatic brake adjusters that are over-stroking, there are some things you need to know before you even think about readjusting them.

- You may be legally prohibited from readjusting automatic brake adjusters in some jurisdictions.
- Your employer may prohibit you from readjusting automatic brake adjusters.
- You shouldn't readjust an automatic brake adjuster unless you have been trained on exactly how to do it.
- Readjusting an automatic brake adjuster improperly can damage it.

FIGURES: The difference between the released and applied position of the brake linkage must be less than the adjustment limit.



- The brake will go out of adjustment again until the cause of the problem is repaired. It can go out of adjustment very quickly.
- If the brake is over-stroking, you need to check the free stroke or slack before you decide to readjust it. If this distance is also longer than normal, a readjustment may temporarily correct the problem.
- You have to re-check the pushrod stroke and free-stroke or slack after re-adjusting the brake. The pushrod stroke must now be less than the adjustment limit and the free stroke or slack must be in its normal range. If either of these is not the case, do not proceed. The brake is defective.

- If you readjust the brake, you will have to take responsibility for doing so. This means you must continue to monitor it and report the problem at the first opportunity.
- If you hire someone to correct an over-stroking problem on a brake with an automatic adjuster, be sure they know what they are doing.

**YOU MUST MEASURE THE STROKE TO CONFIRM THAT A BRAKE IS PROPERLY ADJUSTED.**