



MGM Brakes

FAST

BRAKE

TROUBLE-SHOOTING GUIDE



**FAST ANSWERS FOR
TOUGH BRAKE PROBLEMS.**

Form No. 5003

FAST BRAKE

TROUBLE-SHOOTING GUIDE

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MGM BRAKES

wants to help you keep your trucks, trailers and buses on the road.

At MGM Brakes we know how important it is to keep your vehicles on the road and out of the garage, so the whole idea behind this *Fast Brake Trouble-Shooting Guide* is to answer questions you might have and help you find a solution to problems—fast.

But first, here are a few *common-sense precautions* to take before you start.

PRECAUTIONS

1. Be sure to turn-off the engine before you work under any vehicle.
2. Always chock the wheels. Depleting air system pressure may allow the vehicle to roll. Keep your hands away from actuator push-rods and slack adjusters; they may apply as the system pressure drops.
3. Never connect or disconnect a hose or line that contains air pressure. It may

whip as air escapes. Never remove a component or pipe plug unless you're sure that all system air pressure has been depleted.

4. Never exceed recommended air pressure, and always wear safety glasses while working with air brake systems. Never look directly into air lines or fittings, and never direct them at anyone.
5. Never try to dismantle a component until you have read and understand the recommended procedures. Some units contain powerful springs and injury is possible if they are not properly dismantled. Use only the correct tools, and observe all precautions relative to the use of those tools.

INSPECTION

Before you begin testing the air brake system, it's important to perform the following checks:

1. Examine all tubing and/or hoses for signs of kinks or dents.

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2. Check all tubing and/or hoses for signs of wear, drying out or damage due to excessive heat.
 3. Check the suspension of all tubing and/or hoses. They should be supported and should not vibrate. Position them so they will not be subject to excessive heat or rub or wear against another part.
 4. Determine the brand name, model and/or part number of the spring brake.

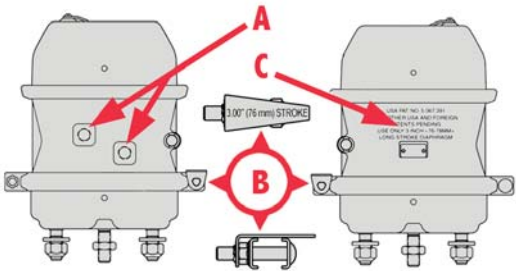
Q & A

Now, you're ready to start. Here's a list of commonly asked questions and complaints (in red), along with possible causes and recommendations on how to correct them.

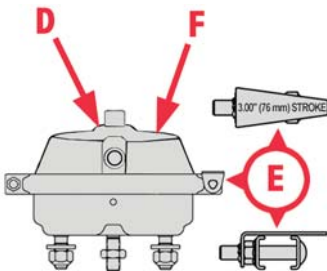
“Why does my spring brake have square air-inlet ports?”

Trucks, tractors, trailers and buses are being manufactured with both standard 2.5-inch stroke and 3-inch *long stroke* spring brakes and service chambers, so it is important to know how to identify what is on your equipment.

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1. All 3-inch *long stroke* chambers can be easily identified by their square air-inlet ports (A), trapezoidal I.D. tags (B) and servicing instructions embossed into the aluminum center case (C).



2. *Long stroke* service chambers are identified by a 1/2-inch high square, raised embossment on top of the pressure cap (D), along with the trapezoidal I.D. tag (E) and embossed instructions on the pressure cap (F).



“Why is the yoke welded to the service push-rod?”

Many 3-inch *long stroke* spring brakes and service chambers are equipped with *welded yokes (G)*, which are permanently attached to the service push-rod, making removal and reuse virtually impossible.



“What do I do for a replacement?”

Unless the non-pressure chamber (NPC, or mounting base)(*H*), push-rod (*I*), and/or yoke (*J*) have been damaged or are severely worn, replacement of the single/piggyback unit **ONLY** is recommended.

(NOTE: See MGM Brakes Product Bulletin 03-003)



Otherwise, if replacement of the combination/tandem unit is required, it should be replaced with a *welded yoke* replacement unit ONLY. (NOTE: See *MGM Brakes Product Bulletin 03-003*)

Do not attempt to replace a *welded yoke* actuator with a universal “cut-to-fit” aftermarket all-threaded push-rod replacement unit. While it may be possible to cut the push-rod at or near the correct length, the combination of the threaded yoke and jam nut (**K**) may prevent the unit from achieving zero-stroke.

Also, if the push-rod opening in the non-pressure chamber (NPC, or mounting base) is large enough, the jam nut will protrude into the NPC and may damage the protective stone shield.

(NOTE: See *MGM Brakes Technical Bulletin 03-002*)



“What happens if I replace a long stroke chamber with a different stroke unit?”

Due to the difference in operational characteristics of 2.5-inch and 3-inch stroke chambers, mixing strokes across an axle may cause an imbalance in the braking capability of the vehicle. This may result in the vehicle being “pulled” toward the side with the *long stroke* unit during “emergency” stopping situations.

IMPORTANT NOTE: When servicing a truck/trailer/bus equipped with 3-inch *long stroke* actuators, it is crucial that you replace “like for like” and do not install a standard 2.5-inch stroke actuator in place of the *long stroke* unit.

(NOTE: See MGM Brakes Technical Bulletin 02-002)

“What’s the readjustment limit for 3-inch long stroke chambers?”

The readjustment limit has been set at 2.50 inches for 3-inch *long stroke* actuators.

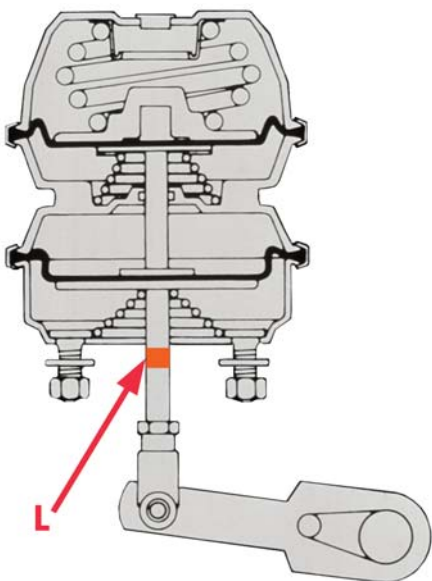
“Is the service side diaphragm different for a 3-inch long stroke brake?”

Yes. When replacing the service diaphragm of a 3-inch *long stroke* chamber, you **MUST** replace with a 3-inch *long stroke* diaphragm. Installation of an incorrect diaphragm will change the performance characteristics of the actuator, adversely affecting its operating efficiency, and may result in a catastrophic failure.

“The service brake is not applying adequate force.”

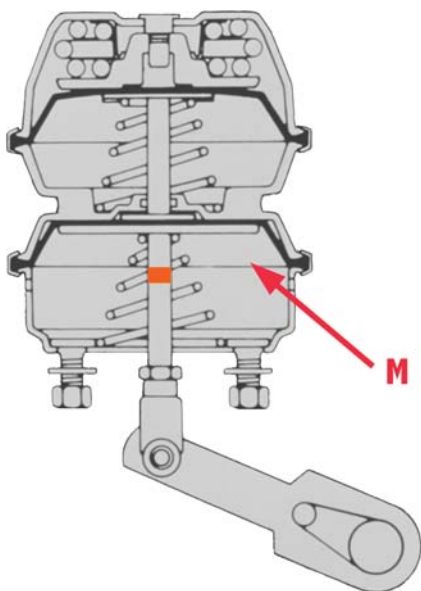
1. Improper brake adjustment.

With brakes applied, check the brake chamber push-rod to see if the orange MGM Brakes Stroke Alert stripe is showing (***L***). If so, readjust the slack adjuster in accordance with its manufacturer’s instructions. Be certain that the spring parking brake chamber is fully released during this adjustment.



2. Available air pressure to brake chamber is insufficient (M).

Is the system air pressure gauge reading normal? If it's reading low, check compressor for proper operation. Look for kinked or blocked air lines. Check for defective valves.



3. Excessive brake lining or drum wear.

Handle in accordance with the manufacturer's inspection instructions.

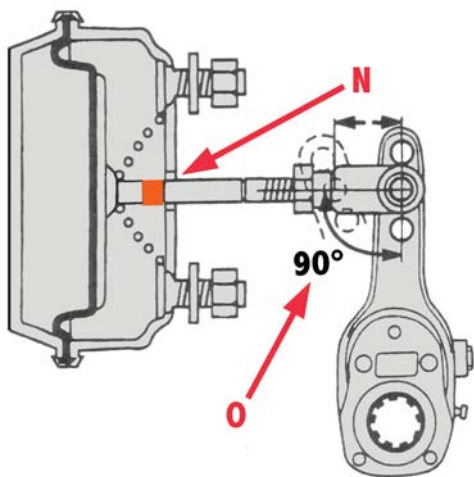
Check brake chambers to ensure they are fully released when brakes are not applied. Also, check for incompatibility of truck and trailer brake chambers.

4. Improper slack adjuster operation or set-up.

The angle made by the brake actuator push-rod with respect to the mounting

surface should be perpendicular within $\pm 3^\circ$ from zero to full stroke. The push-rod clearance hole (*N*) in the non-pressure chamber (NPC, or mounting base) for the brake actuator push-rod should not be elongated or show evidence of rubbing or wear from the rod.

With brakes applied using 80-90 psi of air pressure, the angle (*O*) between the push-rod and slack adjuster should never be less than 90° . Follow the slack adjuster manufacturer's recommendation for proper operation and set-up.



5. *Damage to mounting bracket or non-pressure chamber (NPC, or mounting base).*

Check bracket and NPC for cracks or other signs of damage. Verify that mounting nut torque is as specified in the appropriate MGM Brakes Service Manual.

If structural damage is found, replace the defective parts immediately. Be sure to follow MGM Brakes Service Manual instructions for proper removal and reinstallation.

6. *Improper sizing of brake chambers or excessive payload weight.*

Consult with vehicle manufacturer, documentation or representative.

7. *Brake chamber or air system (lines, fittings, valves) leakage.*

There may be a system leak if the compressor comes on often, or pressure is unable to be maintained.

Examine all lines, fittings and valves for proper connection and leakage. If no problems are found, inspect brake chambers for leakage. Listen for an

audible sound, or spray clampbands with a soap/water solution and inspect for air bubbles.

If leakage is found at the service side clampband area, check the torque on clampband bolts and verify it is adequate per the appropriate MGM Brakes Service Manual. If the leakage persists, replace the diaphragm and clampbands per instructions in the manual.

CAUTION:

If leakage is found at...

- a. spring side crimp area
- b. end plug
- c. first valve in air line ahead of the spring brake (emergency release)

...replace the valve (if required), or replace the entire piggyback per instructions in the appropriate MGM Brakes Service Manual. Be sure to install the release bolt and cage the spring by following the manual's instructions prior to removal. *Never* attempt to open or disassemble the single/piggyback chamber on any spring brake.

8. *Improper push-rod length.*

This may be the problem if proper rod angularity is difficult to achieve, and/or frequent readjustment is necessary. Consult the vehicle manufacturer for proper push-rod length.

“The parking brake is not holding. There is insufficient parking force.”

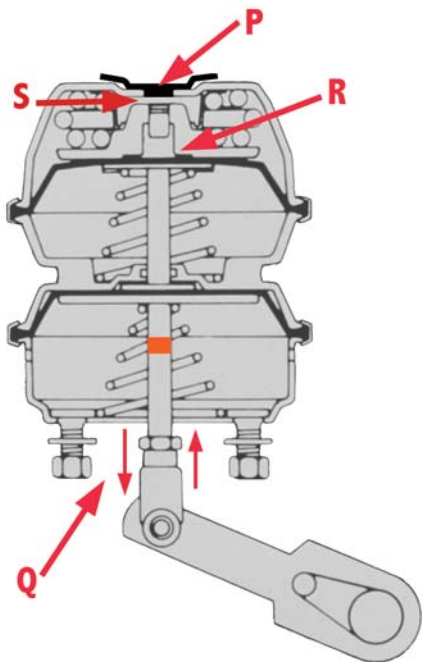
1. *Refer to the possible causes just discussed under “The service brake is not applying adequate force.”*

2. *Broken power spring.*

Remove the dust plug (**P**) from the release bolt access hole of the brake chamber. Use a flashlight to check for evidence of spring breakage.

Brake chamber stroke (**Q**) can also be checked while applying and releasing the parking brake. If the expected range of motion is not observed, the spring may be broken. Also, the contents will rattle if the piggy-back is removed and shaken, indicating a probable broken spring.

Replace with the appropriate MGM Brakes piggyback.



“The parking brake will not stay released (dragging brakes).”

- 1. Available air pressure to the brake chamber is insufficient.***

Is the system air pressure gauge reading normal? If it's low, check the compressor for proper operation. Look for kinked or blocked air lines. Check for defective valves.

2. ***Service application air is not exhausting properly.***

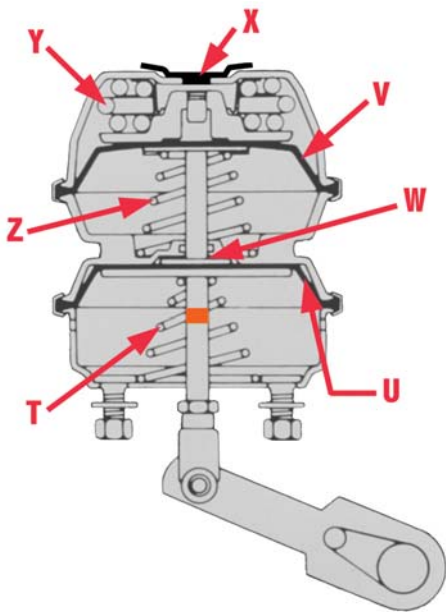
Apply and release service brakes while listening to exhaust. If the sound is not normal, check for kinked or blocked air lines or defective valves.

3. ***The spring brake piston (R) is binding before it is fully retracted.***

Release the parking brake. Remove the dust plug (P) and apply 90-100 psi of air pressure. Look into the dust plug hole to determine whether the gap (S) between the top of the piston and spring chamber housing (head) is approximately .200 inches. If not, replace the single piggyback with an MGM Brakes Piggyback or Piggyback 'Plus' Kit (kit includes piggyback, clampband and diaphragm).

4. ***Broken service chamber return spring (T).***

Remove the piggyback and service diaphragm (U), then inspect return spring (T). If broken, replace with a new return spring and new diaphragm. Order ONLY genuine MGM Brakes brand replacement parts and install in accordance with instructions in the appropriate MGM Brakes Service Manual.



5. ***Ruptured diaphragm (V) or damaged push-rod seal (W).***

Check for leakage at the parking chamber vent holes or through the release bolt hole. Remove the release bolt access hole dust cap (X) and apply air to spring brakes (release). If you feel or hear air escaping in these areas, the diaphragm is defective. Replace entire piggyback as instructed in appropriate MGM Brakes Service Manual.

If air applied to the spring chamber has a tendency to apply the service brake or to cause the service exhaust valve to leak, the push-rod seal (**W**) is leaking. To verify, disconnect the service air line and apply air to the parking chamber. If air is detected escaping through the open service air-inlet port, the push-rod seal is leaking. Replace the entire piggyback as instructed in the appropriate MGM Brakes Service Manual.

6. *Autoslack over-adjustment or camshaft linkage binding.*

Consult the manufacturer's service manual.

7. *Broken power spring (Y) or return spring (Z) in parking brake section.*

A broken power spring can be diagnosed as discussed in the previous section. A broken return spring in the parking chamber is difficult to diagnose. Either case requires the complete replacement of the piggyback.

“Service brakes apply or the service exhaust valve leaks when air is applied to the parking brake.”

- 1. Air is leaking through the push-rod seal (W).***

Replace the entire piggyback as instructed in the appropriate MGM Brakes Service Manual.

NOTE

As the industry leader, MGM Brakes backs its products with strong warranties—and an equally strong commitment to the people and companies who buy them. While the ***Fast Brake Trouble-Shooting Guide*** is a result of that dedication, our commitment doesn't end here.

The air-brake system is a complex web of valves, tubing and other components and, try as we might, it's impossible to cover every trouble-shooting eventuality. If you need advice on problems that go beyond what we have presented here, feel free to call your MGM Brakes Sales Representative, or contact our Customer Service Department at:

1-800-527-1534

Please visit the MGM Brakes website at www.MGMBrakes.com to reference our publications including technical bulletins, service manuals, product brochures and general catalog information. All available literature can be downloaded at your convenience—24 hours a day, 7 days a week.

The MGM Brakes *BrakeTECH Service Self-Study Program* is also available free of charge and allows participants to learn common procedures for maintaining and servicing spring brakes and service chambers.

Also, keep in mind that most heavy-duty truck/trailer/bus parts dealers and fleet specialists can provide MGM Brakes product information and genuine OEM service replacement assemblies.

At MGM Brakes, our commitment doesn't stop when you buy our products.

The way we see it, it's just beginning.

PUBLICATIONS

The following publications have been referenced in this guide. All can be downloaded from the MGM Brakes website where ‘hard copies’ can also be requested.

Please visit our website or contact your local/regional MGM Brakes representative for more information.

- **MGM Brakes Product Bulletin (03-003)**
Replacement Units for MGM Brakes 3-Inch *Long Stroke* Chambers with Welded Yokes
- **MGM Brakes Technical Bulletin (03-002)**
Field Replacement of MGM Brakes Chambers Equipped with Welded Yokes
- **MGM Brakes Technical Bulletin (02-002)**
Mixing Standard & *Long Stroke* Chambers
- **MGM Brakes Model TR-Series Service Manual (Form No. 5011)**
- **MGM Brakes Model LTR-Series Service Manual (Form No. 5042)**
- **MGM Brakes Model MAGNUM Performance Plus (MJ-Series) Service Manual (Form No. 5044)**
- **MGM Brakes BrakeTECH Service Self-Study Training Program (Form No. 5043)**



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