

## RESOLVING NOISE COMPLAINTS

**Always use the premium friction material as recommended by Monroe, and eliminate customer comebacks through performing a better brake repair.**

### Resolving noise complaints

“Noise” is the most common complaint following disc brake service. Brake pads/shoes are often wrongly pinpointed as the cause. The majority of brake noise is not generated by the friction material; rather, it is commonly caused by vibration of an improperly installed, insulated, secured, or lubricated brake component.

To prevent noise complaints:

- Inspect and replace all worn hardware and clips.
- Lubricate all metal to metal components and the back of the pads where they contact the piston or caliper.
- Make sure the rotor & drum have a fine non-directional finish.
- Inspect rotor for runout, drum for out of round.
- Inspect friction material for glazing.
- Wash the rotor & drum with non-detergent (clear) liquid cleanser and warm water to remove metal shavings and contaminants that could glaze the pad or shoe.
- Break-in the pads with 15-20 gentle stops from 20mph.
- Use a digital pyrometer to test for even braking effort at all wheels.
- Clean and test wheel speed sensors, to prevent premature ABS activation.

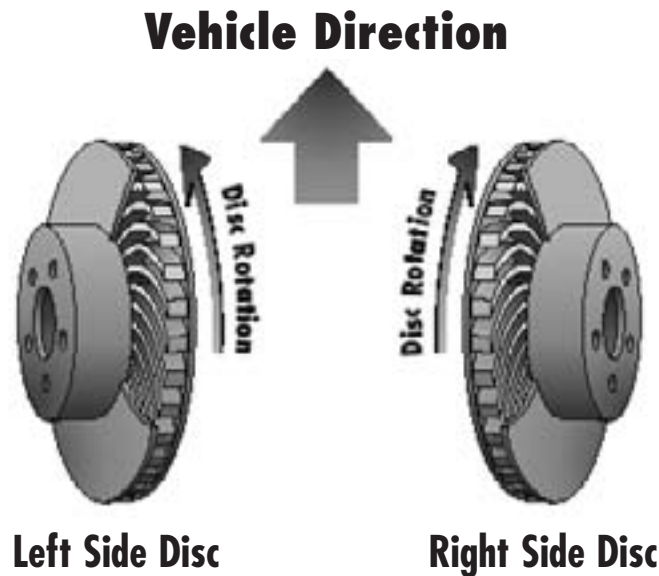
## BRAKE DUST CAUSES EXPLAINED

### Reducing brake dust on rims

Brake dust is the result of normal friction material and rotor wear during use. As the friction material and rotors wear, the material becomes airborne dust. The rotating wheel assembly generates static electricity, and consequently a magnetic field, which can attract any ferrous metals from the airborne dust. To reduce this issue, check the working temperature of all four brakes (with a digital pyrometer) to insure balanced braking. Repair any issue that would cause one brake to work significantly more or less than the other on the same axle. Also keep in mind that ceramic pads wear more rapidly than semi-metallic pads and can increase rotor temperatures, which can result in increase dust deposits. Another solution used by many professional detailers, is to apply household static spray to the rims, which will demagnetize them thus reducing dust build-up.

### Directional Brake Rotors

Some vented brake rotors are designed for left side only or right side only. The vents do not come straight out from the center of the rotor, but are slanted or curved to improve airflow. For maximum cooling, these vents must point rearward at the top of the rotor. This allows centrifugal force to spin air outward from inside the rotor producing even more airflow than a ram or scoop effect would if the rotor were reversed. Installing these rotors with the vents reversed for a ram or scoop effect will greatly reduce the cooling efficiency of these rotors and can shorten pad life by as much as 75 percent.



Direction of vanes must point toward the rear of the vehicle at the top of the rotor.

## BRAKE BLEEDING PROCEDURE NOTE:

### VEHICLES EQUIPPED WITH A HEIGHT SENSING BRAKE PROPORTIONING VALVE.

Some vehicles are designed with height sensing brake proportioning valves which vary the amount of braking balance (front to rear) based on vehicle loading and rear ride height. This system will increase rear brake force when the vehicle is loaded; but it will also reduce the force when the suspension is extended (as in a panic stop situation), in order to prevent rear wheel lock-up. Vehicles equipped with a rear height sensing brake proportioning valve, must be bled with the weight of the vehicle on the tires, or the fluid flow will be reduced to the point that proper bleeding is not possible.

The proper procedure for bleeding brakes on vehicle equipped with this type of system is:

1. The vehicle must be level and on the ground, with its full weight on the tires.
2. Bleed the master cylinder.
3. Bleed the height sensing brake-proportioning valve.
4. Bleed the remainder of the system following the manufacturer's recommended sequence.

Below are some of the most common vehicles equipped with this type of system:

AUDI	80, 90, 100, 200, 4000, 5000
CHRYSLER	Minivans
CHRYSLER IMPORTS	Ram Pickups, Colt Vista, Colt Wagon
EAGLE	Alliance
FORD	Taurus
FIAT	Various Models
ISUZU	1 Ton Pickup
MAZDA	B Series Pickup, MPV
MERCEDES BENZ	Various models
NISSAN	Axxess, Pathfinder, Pickup
RENAULT	Alliance, Encore
TOYOTA	Camry, Landcruiser, Pickup, Van, 4-Runner
VOLKSWAGEN	(Water-Cooled)
YUGO	Various Models

## Diagnosing Low, Soft or No Pedal Conditions

Although LOW, SOFT, or NO PEDAL conditions are sometimes caused by a failing master cylinder, the system should be tested to isolate the actual problem. These symptoms are also indicative of a failure in the ABS unit, vacuum booster, soft brake hoses, contaminated brake fluid or air trapped in the system.

**The uses of line locks (NOT VISE GRIPS) on all brake hoses will allow you to determine whether the problem is at the wheels or higher in the brake hydraulic system. With the line locks installed on front and rear brake hoses, re-check the brake pedal. If a low or no pedal conditions persists, the problem is between the line locks and the master cylinder. If the brake pedal is high and hard with the line locks on, the condition is between the line locks and the wheel or wheels. To isolate the condition further, remove the line locks one at a time until the pedal drops. This will identify which wheel or wheels are causing the problem. The use of line locks helps prevent the needless replacement of master cylinders.**

CAUTION: Line locks have been known to damage brake hoses and should not be used routinely for prevention fluid loss.

Use master cylinder outlet plugs to isolate master cylinder problems, i.e. rear ABS modulator valves.

Be sure to use NEW & CLEAN brake fluid as recommended by the vehicle manufacturer. Be sure to use the proper bleeding procedure for the specific vehicle on which you are working.

When bench bleeding, remove the shipping plugs and fill the bore cavity full of DOT3 or vehicle manufacturer recommended brake fluid before stroking the piston. Use only slow short strokes until air free fluid flows to the reservoir.

CAUTION: Avoid over-stroking (full pedal travel) and rapid pedal movement during foot bleeding as you can damage the master cylinder's seals.

The entire system should be flushed when any major brake system repair is done, i.e. master cylinder, wheel cylinders, caliper replacement, etc. The recommended brake fluid service interval under normal driving condition is 2 years or 24,000 miles; however, the test strips should be utilized to determine if the fluid requires replacement or should simply be bleed of air. Many ABS systems require special procedures and precautions. Refer to the appropriate service manual before repairs are undertaken.

## Frequently Asked Questions (Product)

### **Q: Why should I purchase Monroe?**

**A:** Monroe® Premium Brakes offer the total solution. Pads, shims, clips, wear sensors, and lubrication— from an industry leader in ride control and brake products! Monroe friction products offer the best stopping performance, less noise, and less dust than any other brake friction program. Monroe utilizes O.E. processes to manufacture integrally-molded, O.E.-quality premium disc brake pads for the aftermarket. Today's vehicles, particularly light trucks and SUV's, generate higher brake pad stress and create higher heat levels than traditional applications. Drivers still require their brakes to work flawlessly — every time, regardless of conditions or the type of vehicle driven. The substandard aftermarket friction material used by some competitors will cause problems faster today than historically, when braking performance was less demanding.

### **Q: Why is “Positive Molded” better?**

**A:** Monroe brakes feature Positive Molding Technology, the same process used by all O.E. manufacturers. The press-curing process guarantees that full density is reached on every part. The friction material composition is not compromised by the process, and can be application-engineered for different vehicles. Most aftermarket competitors utilize the “Flash Mold” process, requiring high resin content to make the friction material flow. High resin creates fade, which can increase stopping distances up to 50%.

### **Q: What is different between Ceramic and Dynamic?**

**A:** To maintain the braking performance of any vehicle, the generally accepted recommendation is to follow the manufacturer's choice of friction material when replacing brake pads (replace semi-metallic with semi-metallic, ceramic with ceramic, etc.) There are, however, options for improving braking performance, and Monroe offers choices to assist in making the best selection to meet vehicle braking requirements. Monroe Ceramics feature a ferrous metal free formulation\* to reduce noise, produce a less aggressive dust, and reduces caliper temperatures. Monroe Dynamics semi-metal formulations and manufacturing technologies increase the wear life and reduce rotor temperatures. Both offer stable friction performance across wide temperature ranges.

### **Q: How do I know if my vehicle originally came with ceramic or metallic brake pads?**

**A:** Monroe highlights the original equipment formulation in the catalog with a bold part number.

### **Q: Why does a magnet stick to competitive ceramic friction material and not to the Monroe?**

**A:** Monroe Ceramics feature a ferrous free metal formulation\* to reduce noise and dusting. Most aftermarket competitors use a ceramic “enhanced” semi-metallic formulation.

### **Q: Are the Monroe pad applications specific?**

**A:** Monroe manufactures a comprehensive range of friction products, engineered to fit and perform like O.E. for virtually every application.

**Q: Where can I buy the Monroe Brake pads?**

**A:** Click on the Dealer Locator link @ [www.Monroebrakes.com](http://www.Monroebrakes.com)

**Q: Does the Monroe Premium brake pads include noise elimination clips and shims?**

**A:** Yes, where applicable noise elimination clips are included and shims are preinstalled on the backing plate. The "Total Solution"- Premium brake pads, rubberized shims, abutment hardware, specially developed lubricant, and wire wear sensors all in one package\*. — from an industry leader in ride control and brake products!

**Q: Are Monroe pads chamfered and/or slotted?**

**A:** Yes, Monroe utilizes O.E. processes to manufacture integrally-molded, O.E.-quality premium disc pads for the aftermarket which include O.E. style slots and/or chamfers.

**Q: What makes Monroe brake pads reduce fade better than other pads?**

**A:** Monroe uses Positive Molding Technology, an O.E.-constant pressure molding process, for bonding the pad to the backing plate. This process produces a low resin content pad, (resin gases escaping from friction material during braking results in brake fade).

**Q: What makes Monroe Premium Brake Pads backing plates better?**

**A:** All Monroe brake pads utilize a high quality backing plate. Some Premium Monroe Brake pads designed for applications which may experience more severe braking loads, utilize our Q-lock textured backing plate which holds friction material better than conventional stamped steel for less pad separation, less vibration and less noise.

**Q: What is noise reduction system?**

**A:** Abutment hardware/clips, moly-based silicone lubricant included in the brake packaging to ensure satisfaction.

**Q: Why is integrally molded better than riveted backing plates?**

**A:** Integrally molded brake pads, or friction material molded directly to the backing plate, results in much more strength and less flex than friction material that is rivet to the backing plate.

## Frequently Asked Questions (Installation)

**Q: Why should the brake rotors be washed when installing new pads?**

**A:** New drums & rotors, or drums & rotors that have been resurfaced, require removal of any metal particles, coatings and/or residues. These contaminants may be removed with a solvent cleaner followed by washing with a non-detergent (clear) liquid cleanser, warm water and a clean cloth.  
**CAUTION:** Shop towels are chemically treated and compressed air contains oil, either may leave a residue that will result in glazing.

**Q: Should I machine my new rotors prior to installation?**

**A:** The CNC Lathe used during rotor manufacturing creates a surface roughness (Ra) that meets or exceeds the O.E. standard. It is difficult to obtain this Ra when reconditioning, or turning new rotors so Monroe does not recommend turning new rotors.

**Q: Can I use semi metallic pads on a vehicle that originally came with ceramic pads?**

**A:** To maintain the braking performance of any vehicle, the generally accepted recommendation is to follow the manufacturer's choice of friction material when replacing brake pads (replace semi-metallic with semi-metallic, organic with organic, etc.) There are, however, options for improving braking performance, and Monroe offers choices to assist in making the best selection to meet vehicle braking requirements. Monroe Ceramics feature a ferrous metal free formulation\* to reduce noise, create a less aggressive dust, and reduce caliper temperatures. Monroe Dynamics semi-metal formulations and manufacturing technologies increase the wear life and reduce rotor temperatures. Both offer stable friction performance across wide temperature ranges.

**Q: How often should a brake lathe be indexed?**

**A:** Refer to manufacturer's owner manual for service and calibration or indexing schedule.

### Frequently Asked Questions (Troubleshooting)

**Q: I recently had new brakes installed on my vehicle and now experience:**

**A: Pedal pulsations** - Pedal pulsation may occur when rotors or drums have been overheated or incorrectly machined. Rotor runout and thickness variations are often the result of incorrect torquing of wheel lug nuts.

**Pull** - Disc brakes do not have return springs like drum brakes. A sticky piston or a dirty or rusty sliding surface may prevent the pads from sufficiently releasing, allowing them to drag on the rotor. Brake pull may also be caused by worn wheel bearing, suspension components or tires of unequal sizes generating different levels of leverage.

**Soft pedal** - Internal master cylinder leaking, air in system or drum brakes out of adjustment are common causes of a soft or low pedal.

**Q: What should I use to clean the friction material on new brake pads?**

**A:** As a rule, nothing should ever be applied to the friction surface of a brake pad. In the event that the surface becomes contaminated, clean with non-detergent (clear) liquid and warm water. Brake solvents should not be used on friction material, as the solvent could contaminate the material and result in glazing.

**Q: What causes my wheels to be constantly covered with brake dust?**

**A:** As a brake system is engaged, material from the brake linings and rotor become airborne. The rotation of the wheel assembly generates a magnetic field that may attract this dust. To reduce this issue, check the working temperature of all four brakes (with a digital pyrometer) to insure balance braking. Repair any issues which would cause one or more brakes to work significantly more or less than the others. Another solution used by many professional detailers, is to apply household static spray to the rims which will demagnetize them, thus reducing dust build-up. Also keep in mind that ceramic pads wear more rapidly than semi-metallic pads which can result in increase dust deposits.

**Q: What is the recommended “break-in” procedure I should use after installing Monroe premium pads?**

**A:** Proper break-in is one of the most important factors in determining brake pad performance. Proper break-in during the final test drive seats the pads for optimum performance. **Monroe®** recommends 15 to 20 gentle stops from 20 mph. Due to it’s low resin content **Monroe® Premium Brake Pads’** positive molding technology does not require burnishing.

**Q: How often should I have my brake system inspected?**

**A:** Monroe recommends inspecting the brake system every 12 months.

**Q: My brake warning light is illuminated. What could be causing that?**

**A:** This is a serious condition; and consequently, the vehicle should not be driven until the issue is identified and resolved... The following conditions could cause the warning light to illuminate:

1. Emergency brake is applied.
2. Low brake fluid level.
3. Worn out friction material (brake pads/shoes).
4. Air is trapped in brake hydraulic system.
5. Brake system has an internal (bypassing) or external leak.
6. Defective or off-center pressure differential switch.
7. Defective or worn out brake pad wire wear sensors.

**Q: What could be causing my brakes to squeal?**

**A:** A squealing noise could be caused by a number of items; worn brake pads/shoes, incorrect brake pads/shoes, improper rotor finish, lack of lubrication, worn-out hardware or fatigued brake shoe hold down springs.

**Q: Is there any special procedures I should follow when replacing my brakes?**

**A:** Yes, see Monroe’s “quick tips” for installing brake pads and our recommended disc brake replacement procedure, located at the beginning of the technical section in our catalog.

## General Motors RPO Brake System Codes

RPO Code	Application	Engine	Booster	Front Brake Size	Rear Brake Size
JA1	Passenger Car	Gas	Vacuum	Up to 9.86" Diameter Disc	8.86" x 1.77" Drum
JB1	Light Truck	Gas	Non	11.86" x 1.28" Disc	11" x 2" Drum
JA2	Passenger Car	Gas	Vacuum	Up to 11.89" Disc	8.86 x 1.77" Drum
JA3	Station Wagon	Gas	Vacuum	Up to 10.41" Disc	8.86 x 1.77" Drum
JB3	Light Truck	Gas	Vacuum	11.86" x 1.28" Disc	11" x 2" Drum
JD3	Light Truck	Diesel	Hydro-Boost	11.86" x 1.28" Disc	11" x 2" Drum
JA4	Passenger Car	Gas	Vacuum	Rear Drum with ABS	
JM4	Light Truck	Both	Booster	Disc/Drum with 4 Wheel ABS	
JB5	Light Truck	Gas	Vacuum	11.86" x 1.28" Disc	11.15" x 2.75" Drum
JD5	Light Truck	Diesel	Hydro-Boost	11.86" x 1.28" Disc	11.15" x 2.75" Drum
JB6	Light Truck	Gas	Vacuum	12.5 x 1.28" Disc	11.15" x 2.75" Drum
JD6	Light Truck	Gas	Vacuum	12.5 x 1.28" Disc	11.15" x 2.75" Drum
JB7	Light Truck	Gas	Vacuum	12.5 x 1.28" Disc	13" x 2.25" Drum
JD7	Light Truck	Diesel	Hydro-Boost	12.5 x 1.28" Disc	13" x 2.25" Drum
JA8	Passenger Car	Gas	Vacuum	Up to 10.41" Disc	8.86" x 1.77" Drum
JB8	Light Truck	Both	Hydro-Boost	12.5 x 1.53" Disc	13" x 3.5" Drum
JA9	Passenger Car	Gas	Vacuum	11.93" Disc	10.94" Disc
JB9	Light Truck	Gas	Hydro-Boost	14.25" x 1.53" Disc	15" x 4" Drum
JF9	Light Truck	Both	Hydro-Boost	4 Wheel Disc	
JL9	Passenger Car	Gas	Vacuum	4 Wheel Disc & 4 Wheel ABS	

## Miscellaneous General Motors RPO Codes

### RPO Code Description

1LE	Performance Package
1TA	Full Floating Axle
5X9	GVW Rating @ 15,000 lbs with Special Wrecker Package
8S9	GVW Rating @ 9000 to 9200 lbs and Single RW
C5B	GVW Rating @ 15,000 lbs
C5Z	GVW Rating @ 7200 lbs
C6P	GVW Rating @ 8600 lbs
C7A	GVW Rating @ 10,000 lbs
C7E	GVW Rating @ 11,000 lbs
C7L	GVW Rating @ 12,000 lbs
F44	Heavy Duty Chassis Equipment
FE1	Soft Ride Suspension
FE2	Ride & Handling Suspension
FE3	Sport Suspension (w40, Z21, Z54)
G80	Axle, Rear, Positraction, Limited Slip
GT5	Axle, Rear, 4.10 Ratio

# FOOTNOTES

## NOTES EN BAS DE PAGE

## NOTAS DE PIE DE PÁGINA

### FOOTNOTES

- R Part numbers with “R” as the suffix are riveted.
  - △ Includes Wire Wear Sensor.
  - ★ Noise Elimination Clips Included.
  - Includes Sensory Lock Plate Technology.
- BOLD NUMBER** indicates Original Equipment Replacement Recommendation.

### NOTES EN BAS DE PAGE

- R Les numéros de pièce comportant un suffixe «R» sont rivetés.
  - △ Comprend un capteur d'usure à fil.
  - ★ Attache de suppression de bruit comprises.
  - Inclut la technologie de plaque de serrure sensorielle.
- Les **NUMÉROS EN CARACTÈRES GRAS** signalent une pièce recommandée pour le remplacement du matériel d'origine.

### NOTAS DE PIE DE PÁGINA

- R Las partes que tienen el sufijo “R” están remachadas.
  - △ Incluye un sensor de desgaste alámbrico.
  - ★ Se incluyen los clips de eliminación de ruidos.
  - Incluye tecnología de plato de cerradura sensoria.
- Los **NÚMEROS EN NEGRITA** indican Recomendación de reemplazo de equipo original.