



## BEFORE ITS TOO LATE !

BY RAY HAUG

Did you know that the DeLorean brakes were rated among the best in the world during the early 80s? Have you wondered just how much life your DeLorean's brake pads may have left? Has it been 6,000 to 10,000 miles since your brakes were last checked? Would you like to replace the brake pads? Are your parking brakes slipping a bit when you park on a slight incline, and you would like to adjust them? Did you know that the parking brakes can be adjusted just by using them more often?

If you are a "mechanically inclined" DeLorean owner that enjoys an occasional weekend "Do-it-Yourself" project on your cherished classic car, then this article is just for you. Step by step instructions are provided on (1) self-adjustment of the parking brakes, (2) inspection/replacement of the main service brake pads, and (3) inspection/replacement of the parking brake pads.

### INTRODUCTION

The DeLorean's four wheel, vacuum assisted, hydraulic disc brake system consists of 10.0 in. diameter discs with 279 sq. in. on the front and 10.5 in. diameter discs with 262 sq. in. on the rear. The disc brakes are applied with separate front and rear hydraulic circuits. The hydraulic pressure for these circuits originates at a tandem master cylinder which is operated by a mechanical/vacuum power servo unit when the brake pedal is activated. Separate parking brake calipers and pads are located on the rear discs. Road & Track Magazine's Road Test Reports indicated the DeLorean's overall brake rating was Very Good with a stopping distance from 80 mph of 260 ft. The DeLorean's brake rating was in the top 15% of all vehicles tested by R&T in the 1981 through 1983 time period. Even today, the DeLorean's braking performance is comparable to the Nissan 300ZX at 273 ft. and the Toyota Supra at 259 ft..

In order to maintain the DeLorean's braking system in top operating condition regular inspections, and replacement of brake pads and other critical braking system components when excessive wear is noted, is

most essential. If you have noticed a decrease in braking ability, have heard some strange noises when you apply the brakes, or are just plain curious about your brakes, then read on.

If you decide to tackle the job, you will need the following tools:

- Floor Jack
- Wheel Chocks or Blocks
- Wheel Lug Wrench
- Torque Wrench with 19 mm (3/4")
- Deep Socket
- Groove-Joint Pliers
- Needle-Nose Pliers
- Straight Screwdriver
- Wire Brush
- Anti-Seize Compound
- Anti-Squeal Compound
- Marking Paint
- Flashlight or Trouble Light

### PARKING BRAKES ADJUSTMENT

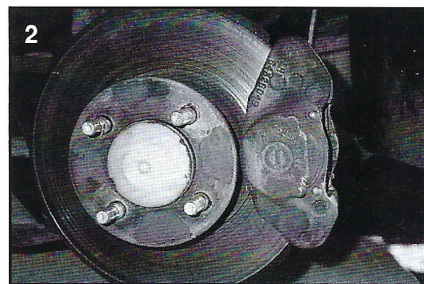
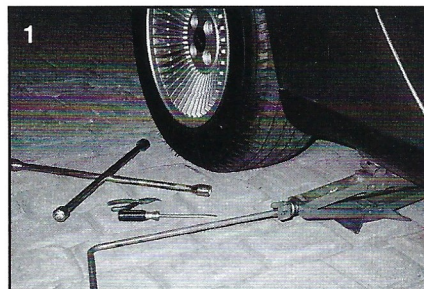
The parking brakes on the DeLorean are mechanically operated caliper and pad assemblies located in front of the rear wheel service brake caliper assemblies. The parking brakes are operated by the parking brake lever along side the driver's seat pulling two separate cables which actuate the parking brake calipers. The parking brakes are self adjusting by means of a spring loaded ratcheting paw located within each parking brake caliper assembly.

If your parking brakes are not holding your DeLorean when you park it, or the parking brake lever must be pulled greater than 10 to 15 degrees from the horizontal position to actuate the parking brakes, try the following procedure to "self-adjust" the parking brakes: On a smooth dry surface (a traffic free empty parking lot is great!) bring the vehicle to a stop from a speed of 30 mph six times, with one-minute intervals between each stop, using the parking brake lever. If the parking brake performance is still unsatisfactory, proceed with an inspection and adjustment of the parking brake caliper assemblies when you make an inspection of the rear wheel brake pads.

### FRONT WHEEL BRAKE PADS

Block the rear wheels, loosen the lug nuts on the front wheels, and proceed to jack each front wheel off the ground. Before removing the wheel, remove the lug

nut closest to the valve stem and mark the end of the stud with marking paint, so you can replace the wheel back in the same position after you have completed the job and preserve the balance of the tire and wheel. Remove the front wheel and tire and set it aside. (Photo 1)



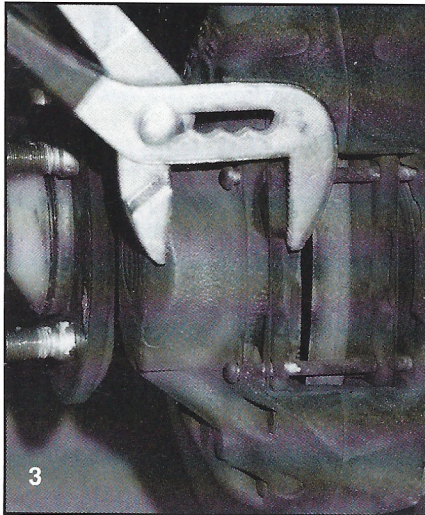
The front wheel service brake pads are located in a fixed caliper assembly on the rear of each front wheel disc (Photo 2).

Each caliper assembly consists of two opposing hydraulic pistons, two brake pads, and two pad retaining pins. With a flashlight, or trouble light, inspect the disc, the brake pads, and the piston seals. If there is any evidence of brake fluid on the piston seals or caliper assembly, or if the discs are excessively grooved, then consider having a brake service or DeLorean service facility make the necessary repairs as soon as possible. Otherwise, proceed with inspection of the brake pads.

Slowly separate each brake pad away from the disc by using groove joint pliers to squeeze the pad towards the piston. (NOTE: If the brake pads are excessively worn, brake fluid may overflow the master cylinder during this step. Check the area around the master cylinder, located behind the left front wheel, and clean any spilled brake fluid with brake cleaning fluid or alcohol to prevent

**STOP**

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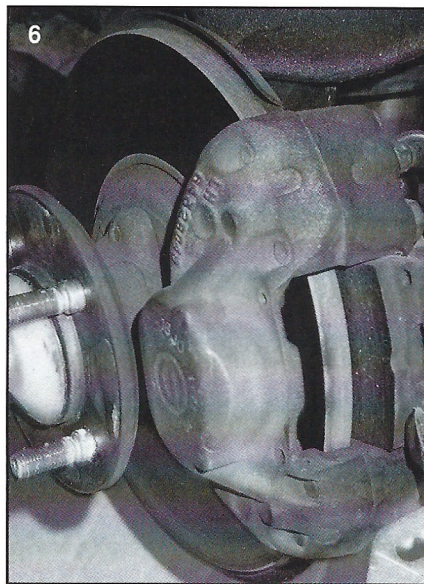
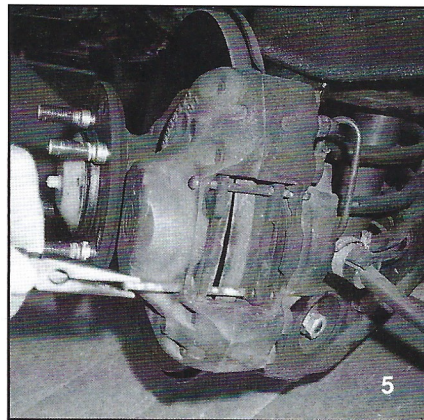
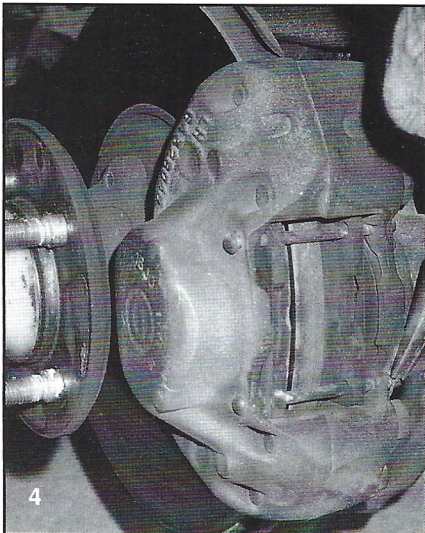


damage to the epoxy coating on the frame.) The pads slide back and forth on the pad retaining pins located at the back side of the caliper assembly. (Photo 3)

Measure the thickness of the brake lining material on each pad. If the thickness on any of the pads is less than 1/8" (3 mm), replace all pads. (NOTE: Always replace pads in complete sets on both front and rear wheels.) If you have difficulty measuring the thickness of the brake lining material, remove the pads as described below to make the inspection.

The pads are removed by pulling the pad retaining pin clips from the pad retaining pins with a needle nose pliers (Photo 4). (NOTE: Inspect the condition of the clips. If worn or corroded, install new clips on reassembly.)

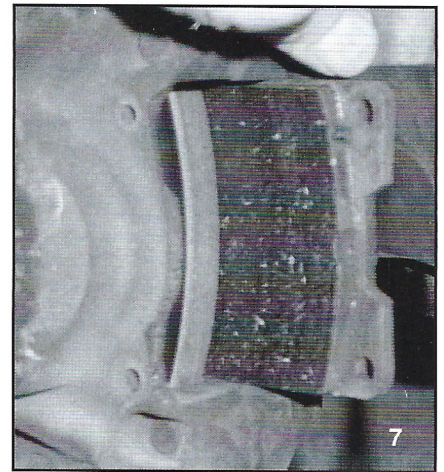
The two pad retaining pins may then be removed from the caliper assembly (Photo 5).



Each brake pad may now be pulled straight out of the caliper assembly (Photo 6). Also remove any anti-squeal shims located between the brake pad and the piston. (NOTE: If the same pads are to be reinstalled make certain they go back in the same location following inspection.)

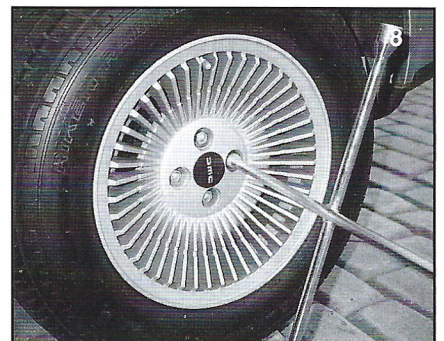
Use a wire brush to clean all metal parts on the caliper assembly, the pad retaining pins, any reused brake pads, and anti-squeal shims. The brake pads should slide freely on the pad retaining pins. Wipe off the piston seals and inspect them for any damage, or deterioration. Replace as necessary. If a cleaning solvent is required, only alcohol or a brake cleaning fluid should be used.

Install the brake pads with anti-squeal shims located on the outside of the brake pads between the metal backing plates and pistons. Make certain the arrow cut-out on the anti-squeal shim points in the direction of the disc rotation (Photo 7).



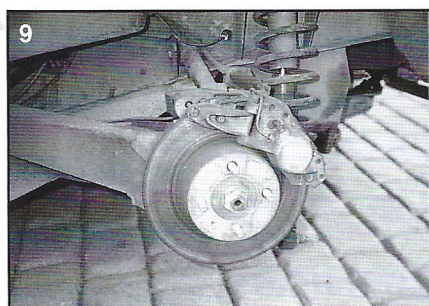
If the replacement set of brake pads does not include any anti-squeal shims, clean off the old shims and reuse them. Make certain to smear anti-squeal compound on both sides of the anti-squeal shims and on the back plates of the brake pads. (NOTE: Make certain that no compound gets on the brake pad lining material). Install the two brake pad retaining pins and secure them with pin retaining clips.

After work on each wheel has been completed, slowly pump the brake pedal to move the pistons and pads close to the disc. Since disc brakes are inherently self-adjusting no further adjustment is required. Brake bleeding is generally unnecessary, but following work on all of the brakes, check the brake fluid reservoir for proper fluid level and top it off with fresh fluid as necessary (the reservoir is located under the luggage compartment carpet on the left side). Proceed with installation of the wheel and tire assembly. Apply anti-seize compound to the wheel studs. Orient the wheel to line up the tire valve stem with the stud marked during the removal procedure and torque each lug nut gradually to 60 Ft.-Lbs (Photo 8).



## REAR WHEEL BRAKE PADS

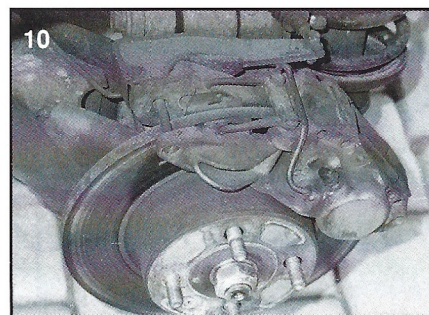
Place chock blocks in front and back of the front wheels. Loosen the wheel lug nuts of a rear wheel and proceed to raise the vehicle. Remove the rear wheel and tire and set it aside. The rear wheel main service brake pads are located in a fixed caliper assembly on top of each rear wheel disc (Photo 9).



Repeat the same steps as indicated in the Front Wheel Brake Pads section. Note: No anti-squeal shims are installed on the rear brake pads.

## PARKING BRAKE PADS

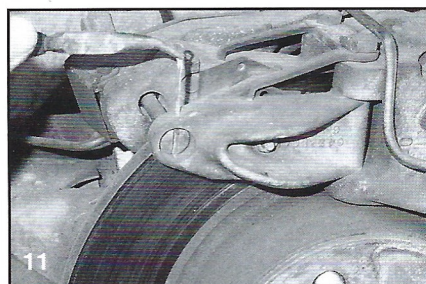
Inspect the parking brake pads which are located in the parking brake caliper assemblies in front of the main service brake assemblies (Photo 10).



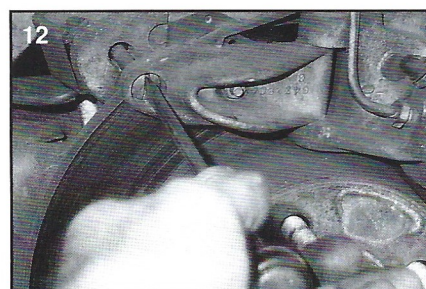
Measure the thickness of each parking brake pad, and replace all pads if the thickness is less than 1/8" (3 mm). The parking brake pads may be removed by loosening the 10 mm nut holding the brake pad to the caliper assembly and sliding the brake pad upwards out of the caliper assembly. Reinstall each new brake pad and tighten the 10mm nut holding each pad to the caliper assembly.

If the parking brake "self-adjusting" procedure indicated in the Parking Brake Section did not work, and the parking brake pads are in good condition, the fol-

lowing adjustment may be made. This adjustment should also be made when new parking brake pads are installed. Using a needle nose pliers, pull the cotter pin out of the groove on the head of the adjustment bolt located at the front of the parking brake caliper assembly (Photo 11).



Using a straight edge screwdriver, turn the adjustment bolt clockwise to locate the parking brake pads against the rear wheel disc (Photo 12). Back off the adjustment bolt 1/2 to 1 turn, and replace the cotter pin.



## REPLACEMENT BRAKE PADS

If you decide to replace the disc brake pads, you may obtain replacement pads from your DeLorean parts supplier, or reputable brake parts supplier that have Repco, BAP/Geon, or Girling brake pads.

The following replacement brake pads are recommended:

### FRONT:

DeLorean 109005  
Repco Deluxe D174D  
BAP/Geon Deluxe 17-20174D  
Girling 67320291-PO

### REAR:

DeLorean 109012  
Repco Deluxe D97D  
BAP/Geon Deluxe 17-20097D  
Girling 64326110-PO

### PARKING:

DeLorean 109037  
Repco Standard D175  
BAP/Geon Standard 17-20175  
Girling 133-04-01

BAP/Geon and Repco brake pads are available in Standard, Deluxe, and Metallic series. The Deluxe pads (recommended for the front & rear main pads) are a semi-metallic composition material which should give up to 25,000 miles service under normal conditions. The Standard pads, which are softer non-metallic composition, will provide up to 10,000 miles service. The Metallic pads are too hard and are not recommended since they will cause excessive wear on the discs.

## CONCLUSION

The proper care and maintenance of the braking system on your DeLorean will provide thousands of miles of safe operation. If after making any of the inspections, adjustments, and/or replacements, you notice any decrease in the braking performance of your DeLorean, immediately (and cautiously) take your vehicle to a brake professional or DeLorean service facility for further inspection and/or repair. **A Word of Caution: In August 1981 the DeLorean Motor Company Issued a Service Bulletin to its Dealers stating "the front and rear discs should be replaced instead of machining".** If there are any questions about the condition of your discs, it is highly recommended that you contact a DeLorean service facility for an inspection of your brakes.

The author makes no guarantee or representation that the replacement brake pads listed will provide satisfactory service or life in your vehicle. If you have any concerns about working on the brakes of your DeLorean, then leave such work to a professional. However, if you have worked on brakes on other vehicles, you will find the DeLorean braking system to be one of the simplest and easiest to work on, so make it an enjoyable weekend "Do-it-Yourself" project.

This article is a compilation of information obtained in part from a number of sources, including: a DeLorean World article (Winter 1988) by Don Steger- DeLorean Motor Center; DeLorean Motor Company Service Bulletin P.D.I. Parking Brake Adjustment; DeLorean Motor Cars Ltd. Workshop Manual # 113096; and information from Joe Licursi-Glendale Imported Car Parts. If you have any suggestions, or tips on the braking system, that may be of interest to other DeLorean owners, please drop a note to the Technical Director.

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DE LOREAN MOTOR COMPANY

## SERVICE BULLETIN NUMBER ST-11-8/81

CATEGORY: Technical

ATTENTION: All DMC Dealer/Service managers

SUBJECT: Brake disc-front/rear

For quality control reasons, front and rear brake discs should be replaced instead of machining and the defective disc(s) must be submitted together with the respective warranty claim(s). This procedure is in effect until superseded. Please inform all personnel concerned.

Sincerely,

Lutz Feuerabendt

Technical Service Manager

LF:dg

ISSUED 8/20/81

**TECHNICAL NOTE:** The Shop Manual indicates the dimension of the front and rear disks must be 11.7 mm minimum. Although replacement is a must when the dimension is less than 11.7 mm, it is recommended that machining be done upon brake replacement to remove glazing and grooves from the surface to maintain brake integrity and for your safety. If the brake is defective, obviously replacement is mandatory.

**STOP**

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## ABOUT THE AUTHOR

Ray Haug is a Senior Engineer with Southern California Edison. He holds a BS in Mechanical Engineering from Purdue University and MS in Management Science from West Coast University. He has owned a 1981 DeLorean and been a member of the DeLorean Owners Association for over three years. He has owned a number of sports/ classic cars for over 30 years. 