If, on the other hand, the pedal lays all the way back and there is no movement, you are out of fluid. Take a look at the floor to see if there is hydraulic fluid on it, an indication of a leaking master cylinder. If there isn't, step outside and check the ground around the tire. You'll be looking for an indication of a leak in the hydraulic line, the brake piston "O" ring, or the hydraulic line fitting where it enters the brake housing. Leaks of this nature automatically call for the expertise of a mechanic. Another potential problem easily observed on preflight would be a twisted hydraulic fitting line to the brake housing. If the line has a kink, it will impose a side load on the brake housing, and uneven lining wear will result in potentially reduced braking power and a shorter life for the linings.

Probably the most dreaded brake problem one can imagine would be to press down on the pedal during the landing roll and get little or no response. Assuming you actually have pedal movement, indicating there is fluid in the system, the probable cause is dirt. This situation is avoidable if you keep your brakes clean. The culprit is likely to be a buildup of dirt on the through bolts (also called guide pins) that allow the movable lining to slide back and forth in response to the piston. Incidentally, this same problem can also cause the brakes to drag if the unit should freeze up when the linings are in contact with the disc. You'd recognize this by a scraping noise when you taxi. To check this during preflight, grasp the brake housing with your hand and try to twist it. If it is free, it should move slightly; if you can't get it to budge, it is probably frozen in place because of packed dirt.

Disassembling a unit for cleaning is very simple, but the first time it is always best to get a little dual instruction from someone who has experience. After you clean the bolts you can help prevent the problem from occurring again by lubricating them, but be very cautious what you use for lubricant. Oil, a tempting choice, will only make the problem worse by collecting dirt and holding it in place. Instead, you should use graphite, Dri-Slide, or silicone spray, any of which will lubricate without acting as a sticky surface to attract and hold dirt.

Getting into the airplane and stepping on the brakes during preflight may tell you if you have fluid, but it won't give you an indication of the status of the brake linings. The brake pedal will feel fine right up until the second the disc wears off the rivet heads and the linings fall out of the brakes. There is only one way to assure that the linings are good; get down on your knees and visually inspect them. New linings are approximately 0.25 inch thick and should be replaced when they are worn to a thickness of 0.10 inch or less. While you are down there looking at the linings, check for the presence of grease or oil on the linings or disc surfaces. A light coating of either will reduce braking effectiveness greatly.

Troubleshooting

The chief flight instructor of a major university flight program related to me a problem that surfaced when he started getting a lot of bills for brake relining. Their fleet of aircraft was getting new brakes far too often and the culprit was simple negligence; students were riding the brakes.