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TECHNICAL INFORMATION BULLETIN

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Subject: Overhauled 30-244 Pilatus PC-12 Brake Conditioning

There are two types of friction mechanisms used in aircraft brakes, Abrasive and Adherent Friction. Both mechanisms require conditioning of the friction material after brake overhaul, or friction ring or pad replacement. Each Brake type has different Conditioning Procedures. The purpose of this Technical Information Bulletin is to explain the Adherent Friction mechanism which is used in the Cleveland Wheels and Brakes 30-244 brake assembly on the Pilatus PC-12.

Friction material used in an Adherent Friction brake is a mixture comprised of powdered Iron along with several other powdered elements mixed together making a powder compound. This compound is then put into a mold and pressed at several hundred thousand pounds per square inch. The material is then ejected from the mold leaving a brittle but hard ring of friction material which is placed on both sides of the rotating disc and then goes through the sintering process which fuses the friction material together and bonds it to the copper plated rotating disc.

In an Adherent Friction brake, during the Conditioning Procedure, a thin layer of friction material is transferred from the rotating disc to the brake wear pads riveted on the stationary disc. The thin layer of transferred friction material bonds to the surface of wear pads and is always being worn and replaced during the normal braking process.

When after installing overhauled brakes or after replacing the friction rings, if the Conditioning Procedure is not performed or performed incorrectly, the thin layer of friction material will never transfer to the wear pads. The results can be ineffective braking, excessively high brake temperatures, accelerated brake wear, low service life, and possible failure of the brake rotating or stationary discs due to excessive heat causing metal fatigue.

Proper conditioning of the brake after overhaul or after replacement of the friction rings will assure the correct transfer of friction material to the wear pads and will provide optimal brake performance and service life. The correct conditioning procedures are attached and are also published on the APS Website (apsbrakes.com), listed within the APS199-575A Overhaul Kit, and in Cleveland's Wheel and Brake Component Maintenance Manual CM30-244.

Break-in procedures must be performed and followed to ensure adequate brake performance and reliability.