Many brake assemblies contain a built-in wear indicator pin. Typically, the exposed pin length decreases as the linings wear, and a minimum length is used to indicate the linings must be replaced. Caution must be used as different assemblies may vary in how the pin measured. On the Goodyear brake described above, the wear pin is measured where it protrudes through the nut of the automatic adjuster on the back side of the piston cylinder. *[Figure 13-113]* The Boeing brake illustrated in *Figure 13-88* measures the length of the pin from the back of the pressure plate when the brakes are applied (dimension L). The manufacturer's maintenance information must be consulted to ensure brake wear pin indicators on different aircraft are read correctly.

On many other brake assemblies, lining wear is not measured via a wear pin. The distance between the disc and a portion of the brake housing when the brakes are applied is sometimes used. As the linings wear, this distance increases. The manufacturer specified at what distance the linings should be changed. *[Figure 13-114]*

On Cleveland brakes, lining wear can be measured directly, since part of the lining is usually exposed. The diameter of a number 40 twist drill is approximately equal to the minimum lining thickness allowed. *[Figure 13-115]* Multiple disc brakes typically are checked for lining wear by applying the brakes and measuring the distance between the back of the pressure plate and the brake housing. *[Figure 13-116]* Regardless of the method particular to each brake, regular monitoring and measurement of brake wear ensures linings are replaced as they become unserviceable. Linings worn beyond limits usually require the brake assembly to be removed for replacement.

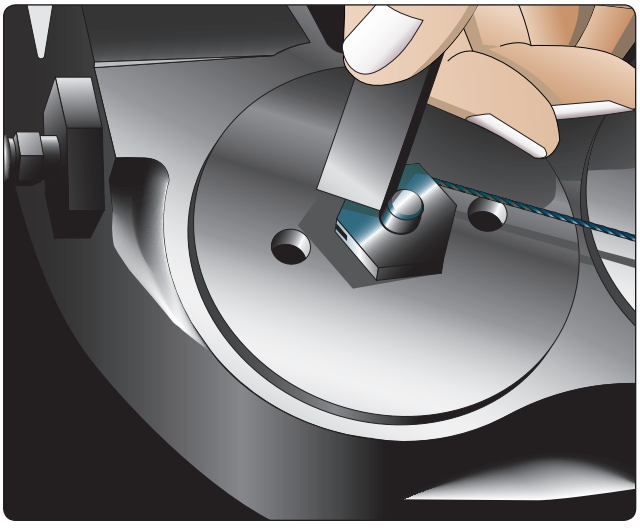

Figure 13-113. *Brake lining wear on a Goodyear brake is ascertained by measuring the wear pin of the automatic adjuster.*

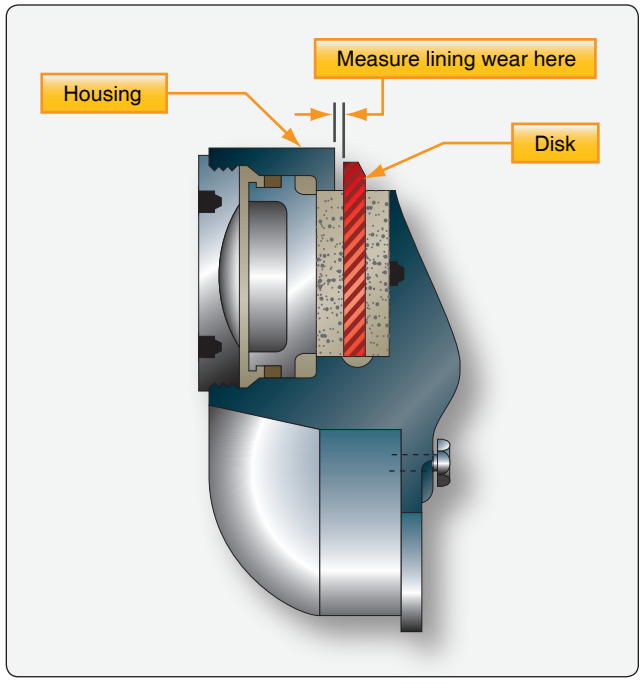

Figure 13-114. *The distance between the brake disc and the brake housing measured with the brakes applied is a means for determining brake lining wear on some brakes.*

Air in the Brake System

The presence of air in the brake system fluid causes the brake pedal to feel spongy. The air can be removed by bleeding to restore firm brake pedal feel. Brake systems must be bled according to manufacturers' instructions. The method used is matched to the type of brake system. Brakes are bled by one of two methods: top down, gravity bleeding or bottom up pressure bleeding. Brakes are bled when the pedals feel spongy or whenever the brake system has been opened.

Bleeding Master Cylinder Brake Systems

Brake systems with master cylinders may be bled by gravity or pressure bleeding methods. Follow the instructions in the aircraft maintenance manual. To pressure bleed a brake system from the bottom up, a pressure pot is used. *[Figure 13-117]* This is a portable tank that contains a supply

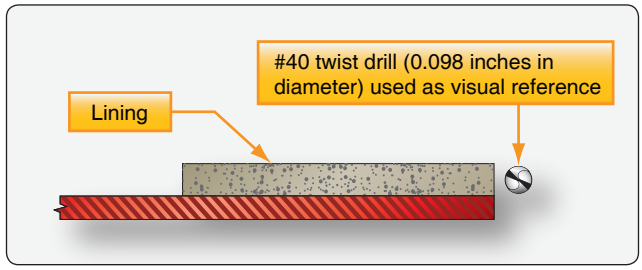

Figure 13-115. *A #40 twist drill laid next to the brake lining indicates when the lining needs to be changed on a Cleveland brake.*