

**TECHNICAL INFORMATION n° 05/2006**

**Air gap measurement**

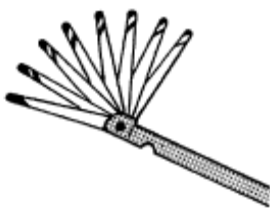
Internal reference FI003SAT

Cergy, 07/12/2006

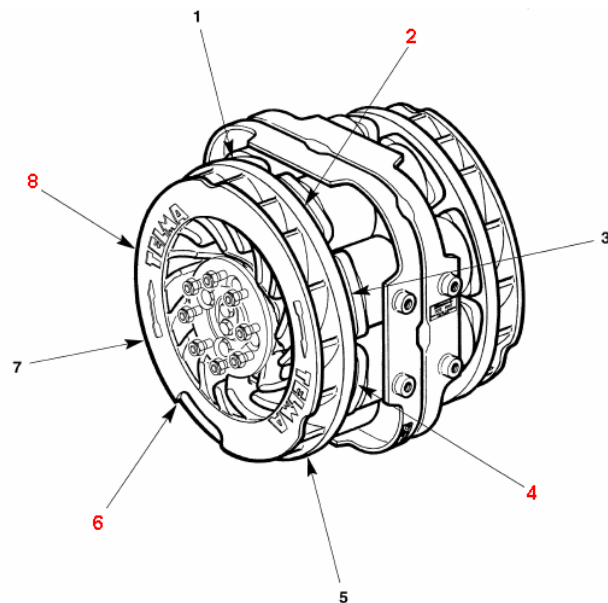
These instructions define the way to measure and control the Focal and Axial retarders air gaps.

The measurement will be done on static basis, it means with rotors at the same position during operations. The necessary tools are the gauges (see picture 1). The operations are as followed:

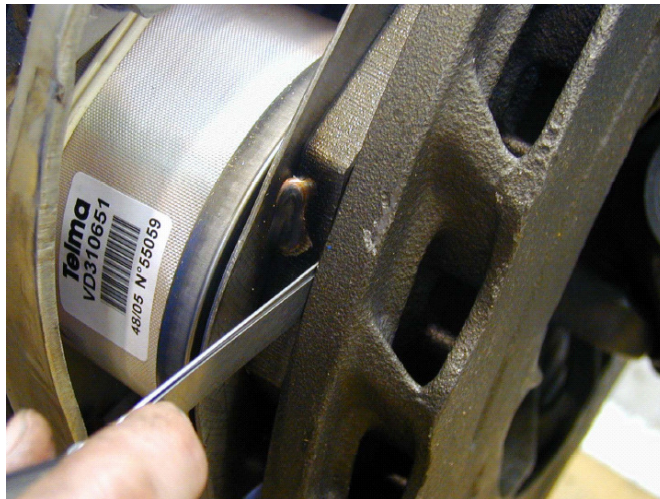
- Measure with the gauges the distance between the rotor (gearbox side) and the pole shoe in front of it.
- Make the measure at the centre of each of the 8 pole shoes (or 4 measures minimum, symmetrically, see picture 2 and 3).



*Picture 1*



*Picture 2*



*Picture 3*

- Calculate the mean of the 8 values taken (X value)
- Compare the value of the theoretical air gap E and the mean value X.
- If the mean value X is inferior to E, the difference correspond to the shims thickness to add:

$$E - X = e \text{ to add}$$

- If the mean value X is superior to E then the difference correspond to the shims thickness to take off:

$$X - E = e \text{ to take off}$$

- If the mean value X equals E then the air gap adjusting is correct
- Make the same operations for the axle side air gap measurement.

Measurement example on four points:

Focal FN72-20 retarder

Theoretical air gap E = 1.55 mm (with tolerances of +0 / -0.15 mm).

We can measure on four points (symmetrically):

- Point 2 : 1.39 mm
- Point 4 : 1.34 mm

- Point 6 : 1.45 mm
- Point 8 : 1.32 mm

The mean value will be:

$$X = (1.39 + 1.34 + 1.45 + 1.32) / 4 = \underline{1.375 \text{ mm}}$$

The X value of the air gap mean is inferior to the theoretical E value:

$$E - X = 1.55 - 1.375 = 0.125 \text{ mm}$$

So we have to add a 0.1 mm shim then remake the measurements and the calculation in order to verify that the X value is between 1.40 mm and 1.55 mm.

*For the Axial and Focal retarders air gap adjustment, please refer to the Technical Information 06/2006 et 07/2006*

Technical Department