



TURBINE TIPS

Turbine Tips provided by Pond and Lucier, LLC. ®

634 Plank Road, Suite 103 Clifton Park, NY 12065

Phone: 518.371.1971 Fax: 518.371.1756 E-mail: pal@pondlucier.com



October 2005

Subject: Jaw Clutch Maintenance

Applies to: MS3002, 5001, 5002, 6001, 70001 General Electric gas turbines

GE gas turbines originally used jaw clutches between the starting means (diesel engine, motor or starting turbine) and the accessory gear. Fig. 1 shows a typical jaw clutch popular with gas turbines manufactured in the 1960s. It has air cylinders on each side to pull the jaw together (moving to the **left** to engage the other jaw). The mechanism must move freely along greased splines to engage and disengage properly. Once the turbine rotor overruns the starting means during start-up, the jaws must separate and the spring sends the jaw back to the **right** to its disengaged position.

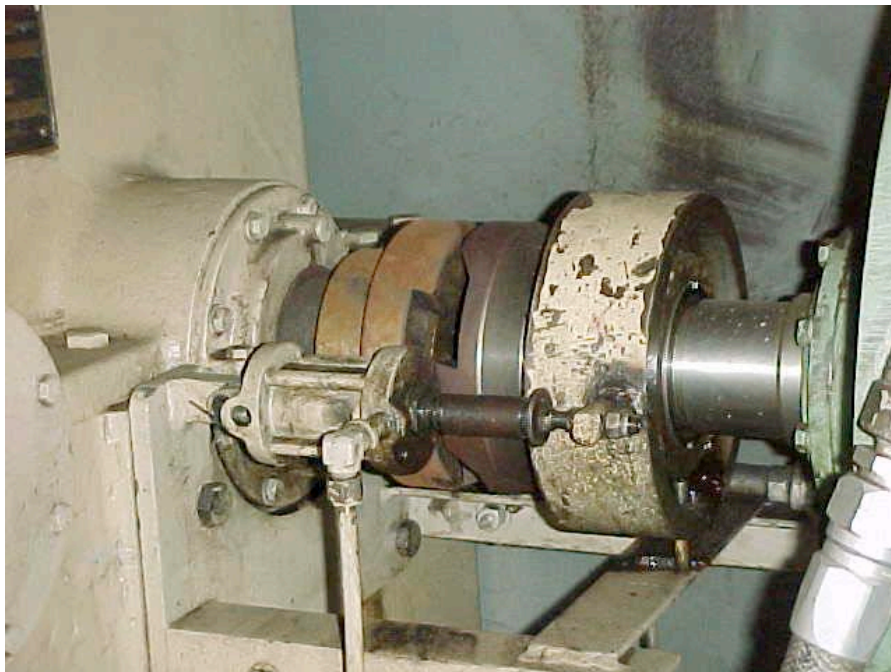


Fig. 1: Typical pneumatically-engaged jaw clutch for MS5001LA (shown disengaged)

Fig. 2 below shows a hydraulically engaged jaw clutch used on more modern GE gas turbines (MS5001N-P). High-pressure fluid is sent to the two hydraulic cylinders to engage the jaws. They pull the jaw on the **left** in this view to engage the mating jaw. There is a spring-operated release mechanism. **Note: The photo below shows the accessory gear cover removed for inspection; exposing seals, bearings and gears.**

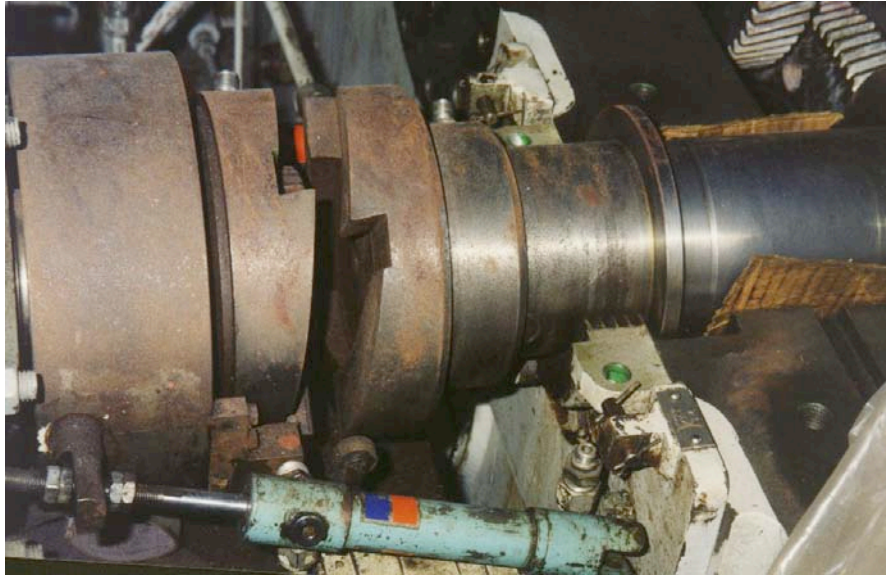


Fig. 2: Typical hydraulically engaged jaw clutch for MS5001N-P (shown disengaged)

The jaw-engaging mechanism, if pneumatic, should be cleaned and tested from time to time. Condensation and rust can build up in the chamber. This might prevent the clutch from engaging during start-up or releasing properly when the turbine “runs away” from the starting means at about 60% of rated turbine speed.

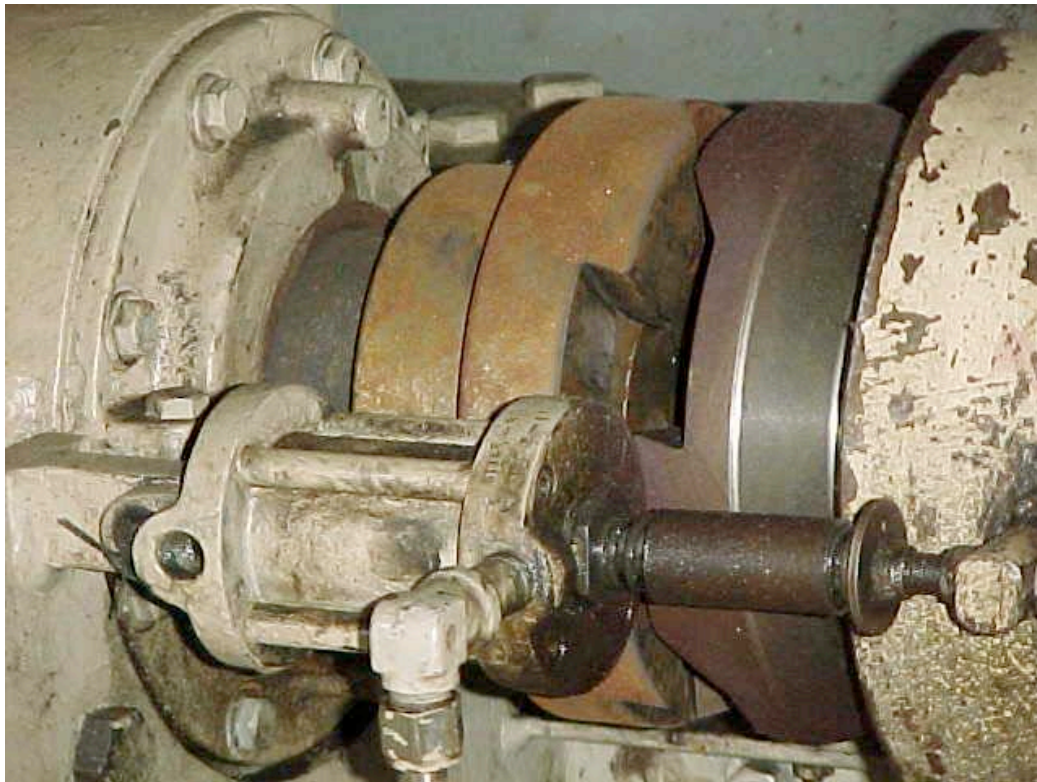


Fig. 3: Pneumatic engaging cylinder (in foreground, side view)



Fig. 4: Clutch Position Limit Switch 33CS (Red nameplate on device shown at bottom left)

For further information about lubricating jaw clutches, contact Dave Lucier (518-330-4801) or Charles Pond (913-220-5316) of ***Pond and Lucier, LLC***.