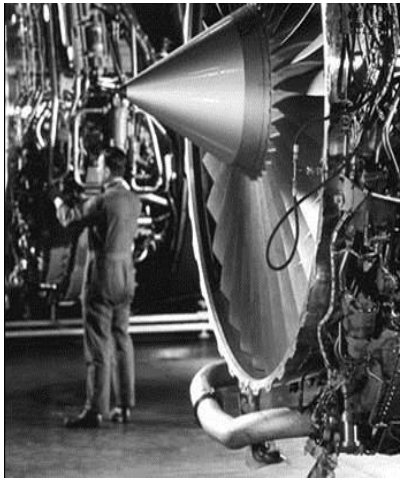
AEROSPACE (USA)
AIRCRAFT ENGINE
Castrol CareCut® ES 2
Machine Purchase Eliminated (~$1,000,000 savings)



THE SITUATION

A new milling operation presented several issues to a leading aircraft engine manufacturer. They were experiencing a slow production rate and increased tool breaks. As the need for this milling operation increased, the customer was more desperate to improve this process.

The milling operation is utilizing extremely thin mills, several inches long. They were unable to reach the speeds and feeds they needed due to tool deflection and tool wear/breaks. These issues were putting a constraint on the machining process for the new engine blades.

BEFORE

- Synthetic fluid – decreased feeds and speeds, higher tool breaks, and tool wear
- Competitor neat oil – tool breaks and wear were good, but increased mist and carry-out created health concerns
- Competitor vegetable oil - tool breaks and wear were good, but increased viscosity caused pump concerns and fluid broke down quickly from oxidation

AFTER

- Castrol Carecut ES 2 – increased speed and feed with no tool breaks or wear with low mist, near zero carry-out, and no odor
- **A 22% increase in through-put!**

THE SOLUTION

- The customer was able to increase through-put by 22% and decrease the impact on the environment.
- Our CMS on-site manager worked closely with the customer's engineer and Castrol's application engineers to provide support.
- Castrol worked to implement the machine trial and reviewed the progress monthly.
- The on-site manager identified the issue with the milling operation and worked with his support team for a solution.
- Castrol worked with the customer to track through-put, filtration, carry-out, mist, tool life, and part quality. Carecut ES 2 was chosen!

RECOMMENDATIONS

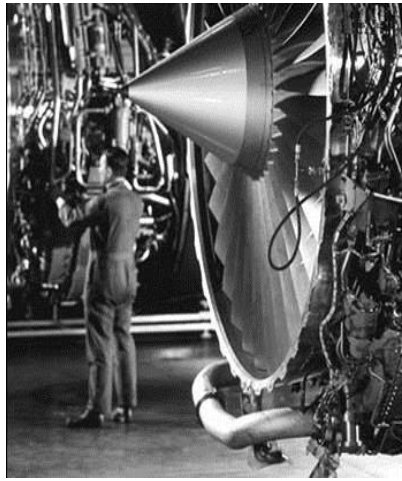
The customer had tried numerous solutions with the belief they could “tweak” the current synthetic coolant to achieve a positive outcome. Additionally, they looked at taking fluid from other operations and making it fit their needs. The customer ultimately found the best solution by working with the Castrol on-site CMS manager, finding several fluids to test, and closely monitoring each one compared to the baseline.

CONCLUSION

The customer has expressed complete satisfaction with the end result. Carecut ES 2 provided them with the performance they needed:

- Increased speeds and feeds = increased production
- Increased tool life = increased production & lower costs
- Deceased odors and mist = improved operator acceptance & decreased environmental impact.

The ultimate savings was derived from the elimination of the purchase of a 6th milling machine. The through-put allowed 5 machines to perform the work of 6 machines.



OTHER POTENTIAL APPLICATIONS

Carecut ES 2 is a full synthetic ester cutting oil with exceptionally high lubricity and long sump life. It is designed for the most difficult operations to achieve maximum tool life, lowest cycle times, and best part quality.