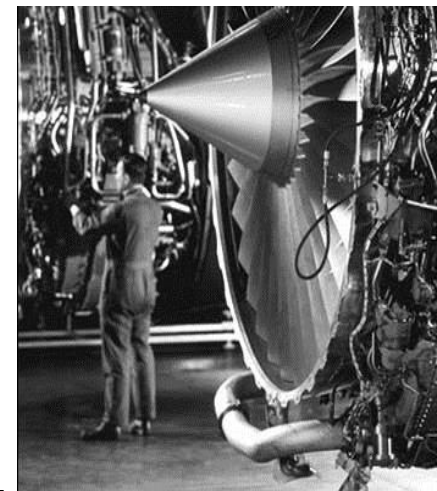


AEROSPACE (USA)

VACUUM PUMPS

Castrol Tribol® HM 943-100*

ANNUAL SAVINGS: \$441,270



THE SITUATION

A large aerospace engine customer had three plants, each with a heat treat department experiencing frequent loss of expensive vacuum pumps. Downtime and rebuild costs were a constant maintenance headache in this process critical to their turbine blade manufacturing.

Castrol was challenged to reduce the rebuilds, downtime, and overall maintenance cost associated with these breakdowns.

BEFORE CHANGE

- Oil – commodity mineral oil
- Rebuilds – 4 to 20 per year depending on location
- Oil changes – Every quarter to 6 months
- Filtration – none
- Sampling – none

AFTER CHANGE

- Oil – Tribol HM 943-100, highly refined, long life mineral oil
- Rebuilds – 0 or 1 per year
- Oil changes – Yearly or 2 years
- Filtration – 5 micron absolute
- Sampling – monthly

THE SOLUTION

- Castrol recognized that a better quality oil & improved filtration (closed loop kidney system) would eliminate this problem.
- The customer gave Castrol an opportunity to improve their filtration and switch to long life Tribol HM 943.
- Pump rebuilds were reduced dramatically, including 20 per year to 0 per year at one facility.
- Oil life was extended 3-4 times over the previous fluid at all facilities.
- Labor costs dropped considerably for pump repairs and oil changes, freeing up maintenance personnel for other needs.

The customer was receptive to using a proven filtration system, recognizing that the lack of filtration was the main reason for frequent oil changes and poor pump life.

The system installed used a filter rating appropriate for the type of pump used for this installation. Suction from the bottom of the reservoir with a return to the top insures no debris builds up that can be pulled off to the pump supply.

RECOMMENDATIONS

Based on their application experience with vacuum pumps, Castrol was able to deliver the correct solution which involved not only an improved oil, but also the process change (filtration) to make it most effective.

CONCLUSION

Castrol's product and service solution lead to a nearly complete elimination of vacuum pump failures at three facilities resulting in a total of \$441,270 savings in rebuilds, labor, and downtime!

Savings Analysis for 3 Plants

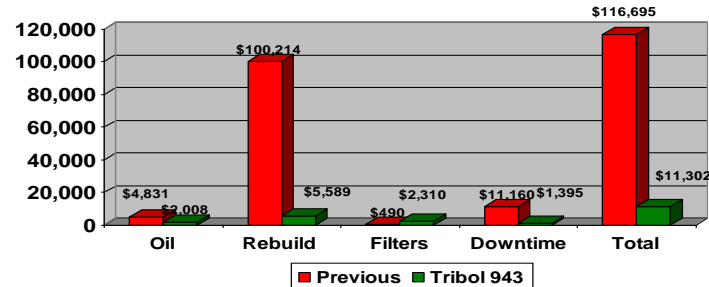
Plant #1

Total Yearly Savings: \$105,400

Rebuilds: 8/year reduced to 1/year

Oil Changes: From quarterly to yearly (4x life)

Actual 2002-2003 Vacuum Pump Savings



Plant #2

Total Yearly Savings: \$47,670

Rebuilds: 4-5/year reduced to 1/year

Detailed analysis →

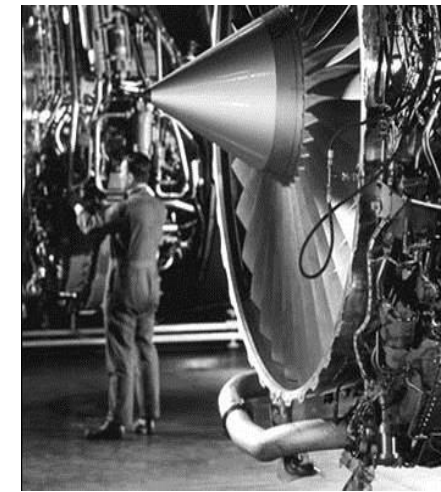
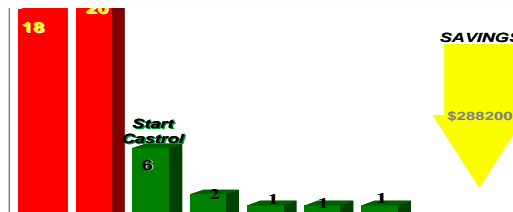
The cost of the 1998 to 2000 interval is as follows:	
• Component Cost: (13 machines) at an average cost of \$7992	\$103,900
• Labor: (3 men) X (8 hrs) X (\$32.35) X (13 machines)	\$ 10,093
• Lost Production: (8 hr) X (13 machines) X (\$500/hr)	\$ 52,000
Total 3 year Cost:	\$165,993
Annual Cost:	\$55,331
Cost of 2001 to 2002 YTD interval:	
• Component Cost: (1 machine) at an average cost of \$7700	\$7992
• Labor: (3 men) X (8 hrs) X (\$32.35) X (1 machine)	\$ 776
• Lost Production: (8 hr) X (1 machine) X (\$500/hr)	\$4000
Total 20 month Cost:	\$12,768
Annualized Cost (based on 20 months):	\$7661
2001 Savings: (\$55,331 - \$7661)	\$47,670

Plant #3

Total Yearly Savings: \$288,200

Rebuilds: 20/year reduced to 0/year

Oil Changes: From 6 months to 2 years (4x life)



OTHER POTENTIAL APPLICATIONS

Where customers have process critical or high value components that require superior lubricants to prevent failures and downtime, Castrol Tribol HM 943 series hydraulic oils are a high value solution.

Take advantage of the Castrol Advantage and discuss your needs with your Castrol Representative today.

