



October 17th, 2000

## Case Study#1

Maxr 200 used in a major shipyard application  
on a Ingersoll-Rand, 400 horse power, general air commpressor



\*Effects of MAXR 200 treatment in a Ingersal-Rand, 400 hp, general purpose air commpressor.

**Abstract:** Over the years experience and testing have proven that a great deal of energy is required to overcome internal friction in all types of equipment. There are numerous products that claim significant reduction in internal friction utilizing various additive constituents. MAXR 200, a non-chorinated metal conditioner, consists of synthetic lubricant properties containing zero negative environmental impact.

**Objective:** To reduce electrical energy operating costs and extend the equipment life of an Ingersal-Rand, 400 hp, general purpose air commpressor, by treating the unit with MAXR 200, an extreme pressure, anti-friction, metal conditioner.

**Test Procedure:** Add 10% by volume of MAXR 200 to the gear box and to the compressor head. Amount added to gearbox was 1.4 Gallons and .5 gallons to the compressor head holding tank. Baseline operating conditions of 337 hours of continuous 24/7 operational data was established prior to treatment.

<b>Results:</b>	<b>Before</b>	<b>After</b>	<b>Difference</b>
Average daily Temp. NOAH	74 deg F	76 deg F	<b>1.35% increase</b>
Compressor oil Pressure	31 psi	25 psi	<b>19% reduction</b>
Amperes High stage	220 A	199 A	<b>12% reduction</b>
Amperes Low stage	139 A	118 A	<b>16% reduction</b>
Kw demand	162 Kw	142 Kw	<b>12.75% reduction</b>
Calculated cost	\$58,098	\$50,962	<b>12.3% reduction</b>

**Summary of Test:** Signifigant savings were obtained from the use of MAXR 200 in the air compressor. The savings can be assessed in this manner: Extended lifespan of the unit due to reduced friction and a annual cost savings of \$7172.64, due to reduced power consumption of the compressor. A payback period for the MAXR 200 treatment of 5 months can be calculated, using a 24 month payback period.

Program developed by:  
FULLER INSTRUMENTS, INC.

VA POWER Schedule: GS-3  
Customer: Major Shipyard  
Account #: 01 234 567 890  
Effective On/After 02/01/2000

City: Norfolk	Used for: Air Compressor	BEFORE	AFTER
Load Size, kW .....		162.000	142.000
Is/Will Load be Demand Limited? .....		No	No
Nominal Monthly Bill: More than \$50.		BE-AF of 20.000	kW=12.34%
Summer (Jun-Sep) Hours of Operation			
Mon-Fri (Summer 10am-10pm On-Pk, 12 Max) .....	12.00	12.00 Hr/Da	
Mon-Fri (Summer Off-Pk, 12 Max) .....	12.00	12.00 Hr/Da	
Saturday (24max) .....	24.00	24.00 Hr/Da	
Sunday (24max) .....	24.00	24.00 Hr/Da	
On-Peak Hours per week .....	60.00	60.00 Hr/Da	
Off-Peak Hours per week .....	108.00	108.00 Hr/Da	
Total Hours of Operation per Week .....	168.00	168.00 Hr/Da	
On-Peak Percentage .....	35.71%	35.71%	
Off-Peak Percentage .....	64.29%	64.29%	
Winter (Oct-May) Hours of Operation			
Mon-Fri (Winter 10am-10pm On-Pk, 15 Max) .....	15.00	15.00 Hr/Da	
Mon-Fri (Winter Off-Pk, 9 Max) .....	9.00	9.00 Hr/Da	
Saturday (24max) .....	24.00	24.00 Hr/Da	
Sunday (24max) .....	24.00	24.00 Hr/Da	
On-Peak Hours per week .....	75.00	75.00 Hr/Da	
Off-Peak Hours per week .....	93.00	93.00 Hr/Da	
Total Hours of Operation per Week .....	168.00	168.00 Hr/Da	
On-Peak Percentage .....	44.60%	44.60%	
Off-Peak Percentage .....	55.40%	55.40%	
On-Peak Percentage (yearly Average) .....	41.70%	41.70%	
Off-Peak Percentage (yearly Average) .....	58.30%	58.30%	
( [Summer X 4] + [Winter X 8] ) Devided by 12			
On-Peak Demand .....	\$1,996.16	\$1,749.72	
Off-Peak Demand .....	\$107.73	\$94.43	
Distribution Demand .....	\$243.00	\$213.00	
On-Peak kWh .....	\$202.03	\$177.09	
Off-Peak kWh .....	\$190.40	\$166.89	
Fuel Charge .....	\$1,583.50	\$1,388.01	
Norfolk Tax .....	\$518.74	\$454.70	
VA POWER Cost per Month .....	\$4,322.82	\$3,789.14 <----	
TOTAL Cost per Month .....	\$4,841.56	\$4,243.84 <----	
Total Reduction of VA POWER Bill per Month .....		\$597.72 <----	
Montly Cost of Each kW Reduction .....		\$29.8862 <<<<<	
Average Cost per kWh for Reduction .....		\$0.040940 <<<<<	
Simple Payback Period in Months .....		4.68 <====	
Annual Cost of power savings .....	\$7172.64	<====	