AGMA WELCOMES FIVE NEW MEMBERS

The membership of AGMA continues to grow. Five new companies have joined AGMA in the past month. If you would like more information on these companies, please visit their websites.

ABluffton Motor Works, LLC
Bluffton, IN
www.blmworks.com

Broaching Machine Specialties
Novi, MI
www.broachingmachine.com

DSM Engineering Plastics
Southfield, MI
www.stanyl.com

MLS-Technologies
Webster, TX

Red Rover Limited
Hong Kong
www.red-rover-ltd.com

GEARBOX CSI: FORENSIC ANALYSIS OF GEAR & BEARING FAILURES — USEFUL TOOLS FOR OPTIMIZING GEARBOX DESIGN

Presented by: AGMA, AGMA Foundation, Raymond Drago, P.E. & Joseph W. Lenski, Jr., Drive Systems Technology, Inc. November 7-9, 2007 • Clearwater, Florida

Gearbox failures are not always related to predicted B-10 bearing life and gear service factor calculations. Forensic analyses of gear and bearing failures show that only a few of these failures are the result of true fatigue (B-10 or basic gear rating). Many failures, although fatigue in basic origin, are the result of other contributing factors, often of such magnitude that they overshadow the basic gear and bearing rating considerations. Therefore, careful evaluation of the results of forensic analysis must be given in the design of gearboxes to achieve the best gear and bearing performance possible. Forensic analysis has become an important gearbox designer's tool.

The objective of this seminar is to provide a better understanding of various types of gears and bearings and educate the designer with the limitation and capabilities of rolling element bearings and the gears that they support, so that the designer can properly apply the best gear - bearing combination to any gearbox, whether simple or complex. Bearings come in various types, sizes and configurations. Selecting the best bearing to optimize the overall gearbox design may not be possible unless we know how to take advantage of each configuration and apply the results of forensic analysis of past failures.

Understanding gearbox bearing failures is critical in eliminating them in future designs. Forensic analysis will determine the root cause and then the designer must determine what has to be done to eliminate this root cause in future designs. Some of the cures are very basic, while others require extensive efforts to incorporate the corrective measures into gearbox design. This approach is very important in optimizing the gearbox to achieve the best performance of both gear and bearings.

Actual data based upon the presenter's own gear design for the application and rolling element bearing experience will be presented. The presentation is illustrated with numerous photographs and many case study synopses are discussed to provide real world examples of both failures and preventative measures based on an understanding of the failures.

In addition to being colleagues for more than 40 years, the seminar leaders have had the great privilege of working directly together as an integrated "bearing/gear team." This experience ranges from aircraft and space vehicles (including a wide variety of helicopters, fixed wing aircraft and space vehicles including the Space Shuttle and Atlas Rocket) to automotive and consumer products (such as mixers, electric tooth brushes, etc.), through heavy industrial equipment (steel and aluminum mill drive systems, mining applications, printing presses, etc.).

Learn from this experience to minimize your problems and maximize your successes in future gearbox bearing designs. It is our belief that a good gearbox designer is only as good as his or her "bag of tricks!" Join us and fill your personal bag of tricks. ☐

Where:
Sheraton Sand Key Resort
1160 Gulf Blvd.
Clearwater, Florida 33767 USA
Phone: 727-595-1611

Rates
Room Rate: $160 single/double
Hotel Cut-Off Date: October 5, 2007

Cost:
AGMA members: $1,895 1st Registrant
$1,695 Additional Registrant
Nonmembers: $2,395 1st Registrant
$2,195 Additional Registrant
Included in the fees for this seminar: Fees include all educational materials, scheduled meal functions and an opening evening networking reception. A certificate will be awarded upon completion of the seminar.