Day 3 - Rotating Machinery Reliability Excellence Powerpoints 83 slides

See details and download at
http://www.feedforward.com.au/Powerpoints/Reliability/machinery_reliability_Excellence.htm

LUBRICATION SELECTION

Physics of Lubrication
Properties Of Lubricants and Additives
Purpose Of Grease Additives
Use Grease or Oil?
Dry Lubricant
Lubricant Operating Environment for Oils and Greases
Wear Debris Analysis
Lubricant Life-extension with Lubrication Management

PROCESS CONTAINMENT SEALS

Methods, Types, Designs, Process Effects
Process Containment Seal Design Overview
Sliding Lip Seals
Seal Failure Modes
Long-life Seal Conditions
Seal Selection Issues

TRANSMITTED VIBRATION PREVENTION AND ISOLATION

Basics of spring/damper systems
Forced Frequency and Natural Frequency
Passive Machinery Vibration Isolation
Activity 1 – Vibration Isolation Calculation

STRENGTH OF MATERIALS FOR SHAFTS AND ROTORS

Metallurgy - Stress and Stress Raisers
Stress Concentration Effect
Metal Fatigue
Metal Fatigue Control
Bending and Deflection of Shafts
Horizontal and Vertical Shaft Design
Combined Axial, Radial and Torsional Loads
Controlling Axial, Radial, Torsional Loads
Shaft & Equipment Assembly Considerations
Shaft Manufacture, Diameter and Tolerance
Activity 2 – Life Considerations for a Shaft and Bearing Assembly

BEARING DESIGN AND SELECTION - RADIAL AND AXIAL

Roller Bearing Loads – Max and Min
Bearing Overload
Roller Bearings and Plain Bearings – Uses and Limitations of Each
Bearing Lubrication Selection and Use
Value of Better Bearing Sealing
Bearing Housings and Construction
Activity 3 – Select a Roller Bearing for the Shaft

PRECISION MAINTENANCE

Explaining Precision Maintenance
Precision is a Serious Opportunity
Precision Standards to Set, Use and Keep
What we Know about the Business Benefits of Precision Maintenance

Journey to 6 Sigma – Minimizing Variability
The Solution starts when Management set standards, then promote and enforce them
Typical Precision Maintenance Program Content
 . Accurate Fits and Tolerance at Operating Temperature
 . Impeccably Clean, Contaminant-Free Lubricant Life-long
 . Distortion-Free Equipment for its Entire Life
 . Forces and Loads into Rigid Mounts and Supports
 . Laser Accurate Alignment of Shafts at Operating Temperature
 . High Quality Balancing of Rotating Parts
 . Low Machine Vibration
 . Correct Torques and Tensions in all Components
 . Correct Tools in the Condition to do the Task Precisely
 . Only In-specification Parts
 . Failure Cause Removal to Increase Reliability
 . A documented system to standardize work and use standards in a successful way
Improve Lubricant Condition
Alignment Tolerance Recommendation
Define Allowable Vibration Severity
Replace Unbalance with Balance
Correct Shaft and Hole Fits
Soft Foot
Using Precision Maintenance
 . Creative Disassembly
 . Creative Disassembly – Pre-shutdown of Equipment
 . Creative Disassembly – At Shutdown
 . Creative Disassembly – At Strip-down
Tell-tale Bearing Failure Signs
Set Standards for Condition and Use of Tools and Equipment
Typical Standards for Precision Maintenance Program
Developing Precision Skills
3Ts of Failure Prevention
The Accuracy Controlled Enterprise

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rotating machinery,reliability excellence,powerpoints,powerpoint course,precision bearing, vibration standards,bearing failure,creative disassembly,radial shaft,bearing lubrication, radial torsional