Plant Logo	Document Title:	Procedure for Baseline Ultrasound on a Bearing		
	Document No.:	UE-20201-1-0	Revision No.:	Original
	Document Owner:	Reliability Maintenance Manager	Origination Date:	1/21/2021
	ISO Standard Reference:	ISO 29821-2018	Review Date:	N/A

Purpose

To provide guidance and best practices for taking a baseline ultrasound reading on a bearing to ensure accuracy and repeatability for future trending.

Scope

All new and existing, accessible rotating equipment with bearings covered by the World Class Maintenance initiative. A baseline reading will be collected on all new bearings within 1-3 days after replacement/new install, and on all existing affected bearings when being added to a route for the first time. A baseline will be established for each bearing in order to trend decibel levels and sound waves for indications of a potential failure.

Responsibility

1. Predictive Maintenance Technician: Execute the stated procedure for collecting a baseline reading.
2. Predictive Maintenance Specialist: Determine what bearings are added to routes based off PdM Selection and Setup Process, analyze collected baseline data, and create reports.
3. Reliability Maintenance Supervisor: Accountable for ensuring the team executes to the stated procedure.
4. Reliability Maintenance Manager: Accountable for the document.
5. Maintenance Planner/Maintenance Team Lead: Notify PdM Team of new bearing installs within one day of bearing being installed, but preferably in advance if the work is planned.

Equipment

- Ultraprobe 15000
- Tone Generator
- Magnetic Mount Transducer
- Stethoscope Module
- Headphones
- Paint Pen
- Safety Glasses
- Safety Shoes
- Reflective Vest, as required by Facility
- Hair Net, as required by Facility
- Hard Hat, as required by Facility

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Safety

A. NEVER PLACE THE CONTACT PROBE INTO ROTATING OR ENERGIZED EQUIPMENT
B. Review and observe all safety procedures and posted safety signage in the area.
C. Wear proper PPE for the area you will be in.
D. Keep an eye out for things that may cause a slip, trip, or fall.
E. Do not walk and use the ultraprobe at the same time.
F. Wear wrist strap at all times.
G. Do not stick any part of your body or any part of the ultrasound equipment past/through equipment guarding.
H. Refer to and follow all Site Safety Rules.

Procedure

1. Before going out in the field, perform a sensitivity validation test using the tone generator on your ultrasound equipment following the Sensitivity Validation Test Procedure
2. Ensure bearings to be tested are running at normal operating conditions by consulting with operations.
3. Upload the appropriate bearing route to the Ultraprobe 15000
4. Ensure the frequency is set to 30kHz and that the appropriate data point is selected on the screen
5. Identify a test spot on the housing of the bearing that is both accessible and provides a clear indication of the bearing health.
6. Using either the Magnetic Mount Transducer or the Stethoscope Module, collect the baseline decibel value and record a baseline sound wave on the Ultraprobe following the Ultraprobe 15000 Instructions.
    a. Record at minimum a 15 second sound file. For slow speed bearings, record a longer sound file. Spectralyzer can be used later to analyze the sound file.
    b. While recording the sound wave, use the headphones to listen and take note of any bearings that have a rushing sound like an air leak and/or a rough, crackling, or groaning/roaring sound.
    c. Record asset conditions, such as temperature, shaft speed, type of bearing and motor frequency. Note the module used for collecting the data.
    d. Establish a Test Angle (preferably 90 degrees when possible)
    e. Set the sensitivity near the third large hash mark on the intensity meter for the best sound quality when taking a recording.
7. Using the paint pen, mark the test point on the bearing to ensure the same test point is used on the subsequent readings.
8. Use the camera on the Ultraprobe to take a picture of the equipment and test point.
9. Save all collected data to the appropriate data point on the Ultraprobe.
10. Follow steps 3-9 for any additional baseline data collection on other bearings.
11. Download the route results to Ultratrend DMS.

Reporting

- DMS will be used to store and trend decibel data, as well as create reports.
- UE Spectralyzer will be used to analyze sound files and compare sound file baselines with subsequent data.
- If a bearing is determined to be in a state of potential failure, a notification must be entered into SAP and Maintenance Planner and Maintenance Team Lead notified.
    - The monitoring frequency of the bearing should be increased, and data trended.
    - Once bearing is replaced, a new baseline should be collected.
- A 4-picture report from DMS will be created by the Predictive Maintenance Specialist to report out any bearing in a state of potential failure requiring replacement. Reports will be sent to the Maintenance Manager and Maintenance Team Lead for the respective site.
- All reports will be stored in the PdM Team Folder.

References

- Sensitivity Validation Test Procedure
- PdM Selection and Setup Process
- Ultraprobe 15000 Instructions

Revision History

Revision #	Date	Revised By	Approved By	Changes Made/Reason for Revision
Original	XX/XX/XXXX	Full Name	Full Name	Initial release