5-STEP
ACOUSTIC LUBRICATION PROCEDURE

SDT Ultrasound

1 Visit Lube Room

Select grease gun designated for asset.

Safety:
Follow OEM safety protocols for grease gun.

Inspect equipment for cleanliness, especially coupler. Inspect lube delivery tube for damage.

Select the **Right Lubricant** for each asset/lube point.

Check condition of old grease in the gun, if applicable. Consider using a new grease tube.

Calibrate the grease gun's output per stroke/shot and document accordingly.

Tip: Color coding grease containers and bearing fittings is highly recommended.

2 Pre-Lubrication Checks

Safety:
Follow facility/equipment safety requirements.

Equipment Check:
1. Personal Protective Equipment (PPE)
2. Ultrasound instrument
3. Headphones
4. Contact sensor
5. Lube adapter
6. Defect log
7. Grease gun with flex hose
8. Lint free rags
9. Flashlight

Visually inspect asset and document any defects.

Identify grease fittings e.g., Zerk, button head, etc.

Confirm bearings are greasable (not sealed).

Inspect and clean grease fittings and color-coded caps with lint free rag. Confirm color codes of fittings and grease gun.

3 Initial Lubrication Check

Connect ultrasound sensor to grease fitting using lube adapter, or directly to clean bearing housing with magnetic base.

Right Location: Measure the ultrasound signal from the same spot each time.

Tip: Do not measure from the bell housing.

If measuring from grease tube extension (not recommended), inspect it for damage or obstruction.

Record initial ultrasound measurement (RMS dBµV and Crest Factor).

Right Interval: Based on data, determine if the bearing requires grease replenishment.

4 Evaluate Bearing Condition

Simple method for determining bearing failure stages using ultrasound:

Quantitative: Based on historical trend.

Qualitative: Based on lube tech's perception

+8 dBµV

Quantitative: Increase of **8 dBµV** over trend line indicates a need for lubrication.

Qualitative: Tech may note elevated whirring sound typical of increased friction from metal to metal contact.

+16 dBµV

Quantitative: Increase of **16 dBµV** over trend line indicates warning stage.

Qualitative: Tech may note louder signal and small popping signal indicative of impacting.

+24 dBµV

Quantitative: Increase of **24 dBµV** over trend line indicates severe stage.

Qualitative: Tech may note significant increase in signal, and rough, growling sound with loud popping.

5 Grease The Bearing

Right Quantity: Deliver a small amount of grease, no greater than **5%** of the total bearing volume. Depending on grease gun calibration this could be equal to one shot.

Churning Phase:
Allow ultrasound readings to stabilize based on RPM:
>1200 RPM = 5 seconds
500 - 1200 RPM = 10 seconds
300 - 500 RPM = 20 seconds.
<300 RPM = 60 seconds

Right Indicators: Take a new ultrasound measurement (RMS dBµV and Crest Factor).

Decreased Signal = Add one shot of grease; wait to stabilize; repeat if signal decreases.

Increased Signal = Stop greasing!

Caution: Do not exceed calculated grease replenishment quantity.

Document the results:
- Number of strokes
- Initial and final dBµV
- Observations

Tip: Replace the cap on the grease fitting to avoid contamination. If no cap, leave a small amount of grease on the tip.

This infographic is the result of a collaborative development project between SDT Ultrasound Solutions and LUDECA Inc - www.ludeca.com

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