

DRYER / MIXER ASSESSMENT FORM

Company: _____	Location: _____
Frame / Drum Mfr.: _____	Frame / Drum Age: _____
Rated TPH: _____	Drum Diameter: _____
Drive Style: <i>Chain</i> <i>Trunnion</i> <i>Other:</i> _____	Tire Width: _____
Frame Height to Ground: _____	

TIRES (RIDING RINGS)

Smoothness:

How to check: With the drum turning, (empty and cold) perform inspection on up-hill (non-pinch) side. Place leather gloved hand carefully on tire surface so that hand and fingers are in full contact with tire curvature. Vary hand pressure and span across tire face to get a complete and accurate feel for lumps & divots. If defects, as pictured, can be felt or seen, resurfacing is required to correct. When divots are in a pattern around the tire, it is referred to as "washboard" wear or "timing marks".



Why worry? Lumps and divots cause unwanted vibration which will only worsen over time causing trunnion alignment change, shaft and bearing failure, tire mounting failure, frame damage, and a plethora of other problems.

TIRE 1 smooth? _____

TIRE 2 smooth? _____



Concave, Convex, Grooves:

How to check: With drum locked-out, place a reliable straight-edge (metal ruler or carpenter square) across tire face as pictured. Estimate the amount of daylight where the straight-edge does not touch the surface. Readings of greater than .030" (1/32") indicate that resurfacing is required. Concave wear is typical of most tires where daylight is seen on both sides of the middle. Convex wear is when daylight is present and most prevalent in the middle. Groove readings show step-offs that vary from closed to daylight.



Why worry? Lack of contact between tire and trunnions cause increased surface wear and decreased floatation. Concave wear changes the angle of reaction between the tire and trunnions causing erratic thrust conditions. (Failed thrust idlers and bearings).

TIRE 1 Condition: _____

Measurement: _____

TIRE 2 Condition: _____

Measurement: _____



Taper:

How to check: Place straight-edge across tire face, equalizing daylight on both sides. Use dial calipers or a tape measure to measure from the tire back to the straight edge on both sides and compare. Be sure the tire back surface looks and feels reliable to assess readings. Measure several places at each side of drum and average the readings. Alternate but less reliable methods are to measure from the shell or tire pad surface on each side and compare. A difference in tire thickness is referred to as "taper". Tires with taper wear require resurfacing.



Why worry? Tapered tires cause the trunnions to wear or adjust in a "dovetail" fashion which causes extreme thrust, wear, amperage problems and trunnion and idler bearing failures.

TIRE 1 Taper (avg.): _____

TIRE 2 Taper (avg.): _____



WHY RESURFACE TIRES?

Tire resurfacing can be done during normal operation and takes just a few days. It is relatively inexpensive and cost effective when compared to tire or drum replacement. Resurfacing will restore proper contact as well as create a smooth running surface.

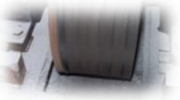


For further information contact EVANS & DANIELS INC. Rotary Equipment Specialists.

TRUNNIONS (ROLLERS)

Smoothness, Roundness, Run-out:

How to check: With the drum turning, hold a straight-edge on a fixed surface so that edge nearly touches the trunnion and observe for gap change. Do this in several spots across the trunnion face. Variation of the gap between edge and trunnion indicate an irregular trunnion surface. Resurfacing, machining or replacement is required.



Why worry? Varying axial loads from irregular shaped trunnions can break shafts and cause bearings to fail. Vibration from surface defects cause numerous problems.

Trunnion run-out: _____

Trunnion run-out: _____



Shoulders, Convex, Concave, Grooves:

How to check: With drum locked-out, place a straight-edge across trunnion face. Observe and estimate the amount of daylight that can be seen. More than .030" (1/32") means the trunnion needs resurfacing, machining or replacement. Typically, trunnions wear primarily in the middle and less on the ends, thus forming "shoulders".



Why worry? Shoulders inhibit drum floatation by creating a "track" where the tire cannot escape. Convex wear changes the angle of reaction between the tire and trunnions causing erratic thrust conditions. Concave trunnion wear and grooves is uncommon, but when present, can cause many of the aforementioned problems.

Trunnion 1 condition: _____

Measurement: _____

Trunnion 2 condition: _____

Measurement: _____

Trunnion 3 condition: _____

Measurement: _____

Trunnion 4 condition: _____

Measurement: _____

Taper:

How to check: With drum locked-out, place a straight-edge across trunnion face. With a metal ruler, measure from the face of the trunnion shaft to trunnion straight-edge on each side. Trunnion surface conditions such as shoulders or convex wear will give false taper results. A different reading from side to side means the trunnion is tapered. NOTE: Since some manufacturer designs inhibit use of this method, an alternate would be to jack up the drum and tape the circumference on each end of the trunnion.



Why worry? Tapered trunnions are often shimmed improperly to achieve face contact. This causes major thrust problems similar to those described under the taper tire section.

Trunnion 1 taper: _____

Trunnion 2 taper: _____

Trunnion 3 taper: _____

Trunnion 4 taper: _____

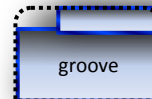
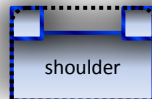
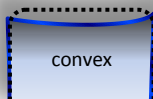
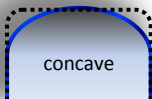


WHY RESURFACE TRUNNIONS?

Trunnion resurfacing is done in place, usually in tandem with tire resurfacing. It is relatively inexpensive and cost effective when compared to replacement or machining which requires removal, shipment, re-installation and re-alignment.



ILLUSTRATIONS



This information is intended solely as a simplified guide for the purpose of evaluation and is not intended to replace on-site inspection or repair. The use of any information herein is totally the responsibility of the user and Evans & Daniels Inc. accepts no liability. Exercise caution and follow all safety policies and procedures accordingly.

For further information contact EVANS & DANIELS INC. Rotary Equipment Specialists.

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