



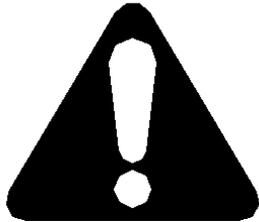
BRONZE BUSHING REPLACEMENT PROCEDURE

V.2 – 12/3/2014

DN345 & NL450C

Safety Instructions

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READ THE *SAFETY* SECTION OF YOUR OPERATOR'S MANUAL BEFORE PERFORMING THE FOLLOWING PROCEDURE. The safety instructions cannot replace the following: the fundamental knowledge that must be possessed by the operator, the knowledge of a qualified person, or the clear thinking necessary to install and operator this equipment.

ACCIDENTS HURT!!!

ACCIDENTS COST!!!

ACCIDENTS CAN BE AVOIDED!!!



WARNING

Stand clear of moving machinery. Entanglement of clothes, any part of your body or anything in your hands can cause serious injury or even death.

Removing Walking Beams

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1. Position spreader on a flat concrete surface capable of supporting weight of spreader and trailer frame.

2. Using appropriate sized jacks positioned at front and rear of trailer frame, raise unit until all four wheels are off floor.



Removing Walking Beams

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3. Remove lug nuts and spacers from wheels and remove all four wheels using forklift or wheel dolly. (floor jack may be required to raise single tire due to walking beam shifting)



Removing Walking Beams

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4. Lower trailer frame and place support stands under walking beam assembly.



Removing Walking Beams

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5. With the walking beam assembly and frame properly supported disassemble brake line hoses at brake cylinders and suspend from spreader.



Removing Walking Beams

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6. Remove hardware attaching trailer frame to walking beam assembly at all three hanger locations.



Removing Walking Beams

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7. Using trailer jacks raise trailer frame off walking beam assembly.

8. Using forklift or loader, raise walking beam assembly in order to remove support stands.



Removing Walking Beams

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9. Lower walking beam assembly and back away from trailer frame and spreader.



Removing Walking Beams

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10. Find a location away from spreader/trailer frame to place walking beam assembly for next steps.

11. Lower spreader/trailer frame onto suitable jack stands while working on walking beam.



Removing Bronze Bushings

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1. Support walking beam assembly using 4" x 4" posts that will support the walking beam as it slides off pivot shaft



Removing Bronze Bushings

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2. Support BOTH brake hub assemblies on BOTH SIDES to prevent the walking beam from rolling when removed from pivot shaft.



Removing Bronze Bushings

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3. Remove pivot retainers and hardware.



Removing Bronze Bushings

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4. Weld a support anchor large enough to hold and support a 30 ton jack to walking beam.

5. Mark position and orientation of hangers so they can be reinstalled in the same location.



Removing Bronze Bushings

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6. Slowly extend jack ram to pull walking beam off of pivot shaft or push shaft thru walking beam. Extensions may be required to get walking beam completely off of shaft.



Removing Bronze Bushings

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7. Remove side hanger weldment from walking beam as shaft clears it.

8. Remove center hanger weldment from pivot shaft.

9. Repeat steps 4 thru 6 for opposite walking beam.



Removing Bronze Bushings

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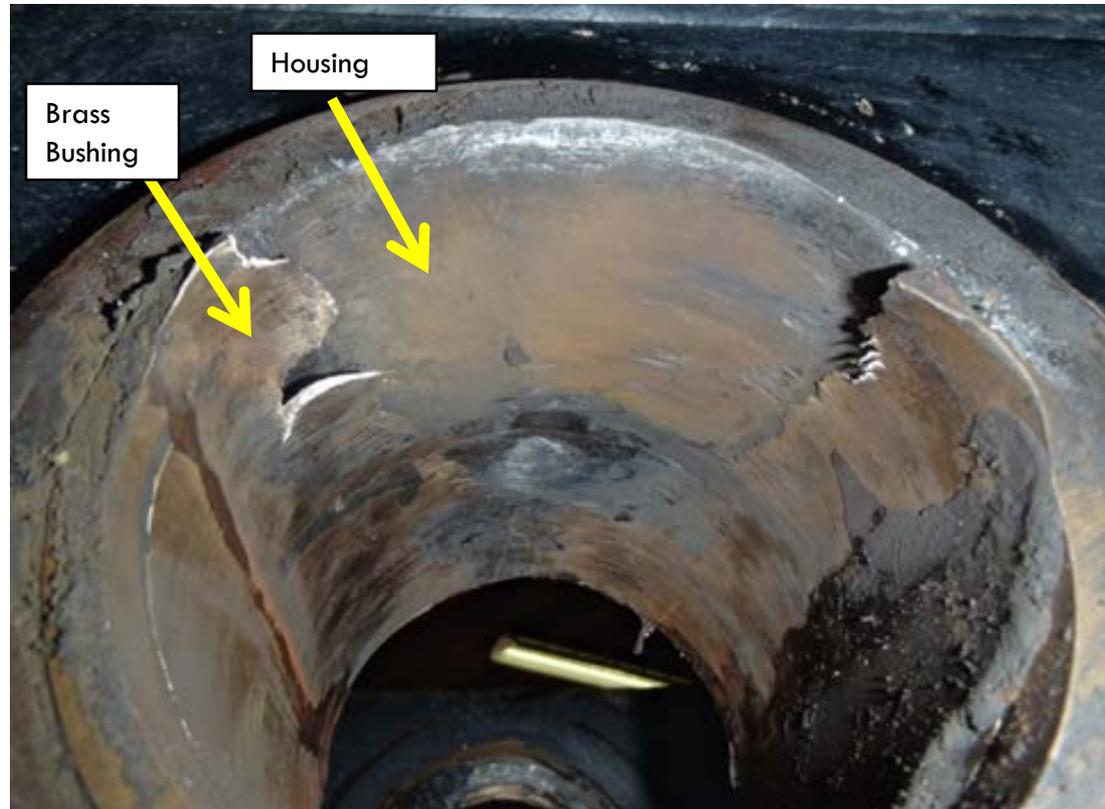
10. Position walking beam on a flat surface capable of supporting walking beam's weight and also allowing access to pivot shaft bushings.



Removing Bronze Bushings

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11. Inspect Housing to ensure that pivot shaft has not worn through bronze bushing. If bronze bushing is completely worn, close inspection of the Housing is necessary after bronze bushing is removed.



Removing Bronze Bushings

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12. Remove bronze bushing from Housing. (Heating the bushing and allowing it to cool will assist in removal)

13. If bronze bushing was still intact and there is no damage to Housing, proceed with line boring. An undamaged Housing's diameter will measure no more than 4.505 at the widest point. If the Housing is damaged, the bore must be refurbished by adding weld to worn areas.

NOTE: Line boring is necessary to ensure bores are aligned and walking beam will pivot smoothly on shaft.



Line Boring Sleeve

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1. Line Boring Housings is required to achieve a 4.510 – 4.505 diameter to accept new hardened bushing.



Line Boring Sleeve

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2. Note: Line Bore setup may vary depending on manufacturers instructions. (see Line Boring instructions manual)

3. After line boring, remove all sharp edges and clean up all shavings.

4. Coat surfaces of Housing with grease.



Install New Bushings

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1. Mark location where split teeth on bushing will enter Housing (this keeps shaft/bushing wear to a minimum.)

Outside walking beam bushing split will face down and towards rear.

Inside walking beam bushing split will face up and towards front (inside bushing shown).



Install New Bushings

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2. Squeeze bushing closed before inserting into Housing.



Install New Bushings

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3. Use 30 ton jack system to draw in the new bushing.

4. Install bushings per marks made on page 22.



Install New Bushings

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5. Leave clamp in place squeezing bushing together until bushing is at least 1" inserted.



Install New Bushings

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6. Remove clamping device and continue drawing in bushing.



Install New Bushings

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7. Draw in bushing until flush with housing.

Repeat procedure for all bushings



Re-Install Walking Beams

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1. Clean bushings and hangers to remove all foreign material. Apply lubricant to assist in installation of pivot shaft.
2. Position walking beam with axles pointed to outside on level surface.



Re-Install Walking Beams

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3. Insert new hardened pivot shaft through Housing on walking beam and thru appropriate outside hanger. (Install hangers back in same position and orientation they were removed)

4. Slide center hanger onto pivot shaft.



Re-Install Walking Beams

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5. Using forklift, align second walking beam to pivot shaft. Support walking beam with blocks and use fork lift to push walking beam onto shaft.

6. Install remaining outside hanger and continue pushing walking beam onto shaft until retainer can be installed.

7. Install pivot retainers on both ends of pivot shaft and secure with .75-10 x 7" cap screw and lock nut. Torque to 260 Ft-Lbs.



Re-Install Walking Beams

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8. Grease all hangers and walking beam housings and rotate hangers to coat entire surface prior to installing on trailer frame.



Re-Install Walking Beams

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9. Position walking beam assembly under trailer frame using fork lift or loader that was used for removal.

10. Raise walking beam and position hangers under corresponding attachment point on frame.



Re-Install Walking Beams

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11. Install 3/4-10 x 3" cap screws with spacers through side hangers, into frame plate. Install 3/4-10 x 4" cap screws through frame plate, then spacers, and secure with 3/4-10 hex nuts. Torque all hardware to 325-350 Ft-Lbs.



Re-Install Walking Beams

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12. To install hydraulic brake hoses:

- a. Assemble angled end of hoses to ram cylinder fittings—84” hose to front cylinder and 96” hose to rear. Route hoses towards pivot shaft.
- b. Assemble twin tubing clamps with hoses through inside hole and loosely secure to weld nuts on top of walking beam with 5/16-18 x1-1/2” Cap Screws and Lock Washers.
- c. Route 96” hose towards the front and loop up so it’s next to 84” hose. Assemble twin tubing clamp with 96” hose to outside of trailer and 84” hose to inside, and loosely secure to frame’s weld nut with hardware.
- d. Repeat Hose installation on opposite side.



Re-Install Walking Beams

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13. Install all four wheels using fork lift or wheel dolly.



Re-Install Walking Beams

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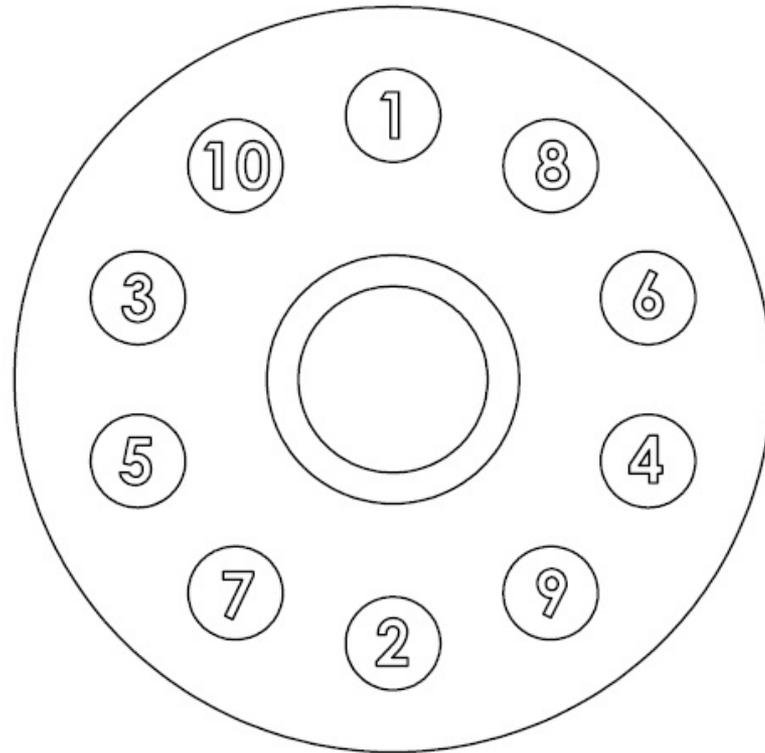
14. Install spacers and lug nuts.



Re-Install Walking Beams

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15. Follow sequence shown, this sequence information can also be found on a decal placed on each rim.



Re-Install Walking Beams

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16. Torque all lug nuts to 450-500 Ft-Lbs.



Re-Install Walking Beams

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17. Lower trailer frame until all four tires are on ground and remove jack stands.

18. Bleed and adjust brakes per the Operation & Parts Manual.

