EZ-OUT

QMX Belt Drive (with Bifurcated Housing)

Installation, Operation & Maintenance Supplement

This publication contains supplemental installation, operation and maintenance procedures for QMX Mixed-Flow Blowers with the EZ-Out belt drive bifurcated housing option.

⚠ **Carefully read this publication and any supplemental documents prior to any installation or maintenance procedure.**

Loren Cook Company's *QMX* catalog provides additional information describing the equipment, fan performance, available accessories and specification data. For information and instructions on special equipment, contact Loren Cook Company.

For additional safety information, refer to AMCA publication 410-96, *Safety Practices for Users and Installers of Industrial and Commercial Fans*. This document and all Cook publications may be obtained from Cook by phoning (417) 869-6474, extension 166; by FAX at (417) 832-9431; or by e-mail at info@LorenCook.com. All Cook publications are available on LorenCook.com.

Bearing Replacement

The fan bearings are pillow block ball and/or roller bearings. This process can be accomplished without entering the contaminated airstream, however Loren Cook recommends consulting with your safety advisor prior to proceeding.

1. Loosen and remove the belts by adjusting the motor mounting plate.
2. Remove the vented bearing cover located in the bifurcated housing opening, 180° from the motor.
3. Locate the shaft seal, Figure 1. Remove the speed screws to loosen the seal.
4. Locate the shaft seal plates, Figure 1. Remove the bolts and remove the seal plate in sections.
5. Once the shaft seal plates are removed the (2) wheel retaining holes will be exposed. Remove the (2) wheel retaining bolts, Figure 1, that are located on top of the bearing support. Install them in the wheel retaining holes until they are flush with the housing panel slightly supporting the wheel as shown in Figure 2. **NOTICE! It is important that you do not over-tighten the retaining bolts as this may bind the bearings.**
6. Record the location of the fan sheave, Figure 1, from the end of the shaft, and remove the sheave.
7. Disconnect all extended lube lines from the bearings and move aside as required.
8. Record the distance from the drive side bearing, Figure 1, to the end of the shaft, and note the exact location on the bearing plate. Remove the drive side bearing by loosening the bearing collar and removing the bearing hold-down bolts, Figure 1. This bearing may have a bearing shim that will need to be removed and set aside for reinstallation.
9. Record the distance from the wheel side bearing, Figure 1, to the end of the shaft, and note the exact location on the bearing plate. Remove the wheel side bearing by loosening the bearing collar and removing the bearing hold-down bolts, Figure 1. **NOTICE! Minimize shaft movement to keep from damaging the wheel and/or inlet.**
10. Install new bearings by sliding them down the shaft starting with the wheel side bearing, noting the exact locations of each and lightly tighten each bearing hold-down bolt. Tapping the inner race of each bearing with a soft driver may be required. Also be sure to reinstall the drive side bearing shim if one was set aside from above (step 8). **NOTICE! Do not fully tighten the bearing hold-down bolts, Figure 1, to the base.**
11. Once each bearing is in place fully tighten the drive side bearing hold-down bolts and bearing collar to the bearing manufacturer specified torque.
12. Remove the wheel retaining bolts and return them to the top of the bearing support.
13. Rotate the shaft by hand to allow the bearings to align themselves.
14. Fully tighten the wheel side bearing hold-down bolts and bearing collar to the bearing manufacturer specified torque.
15. Rotate the shaft by hand again. Resistance should be the same as it was before the bearing hold-down bolts were fully tightened.
16. Reinstall the fan sheave, align with motor sheave.
17. Reinstall all extended lube lines as required.
18. Reinstall the belts, tighten the motor mounting plate and trim balance as necessary (0.785 in/sec max).
19. Reinstall the bearing cover.

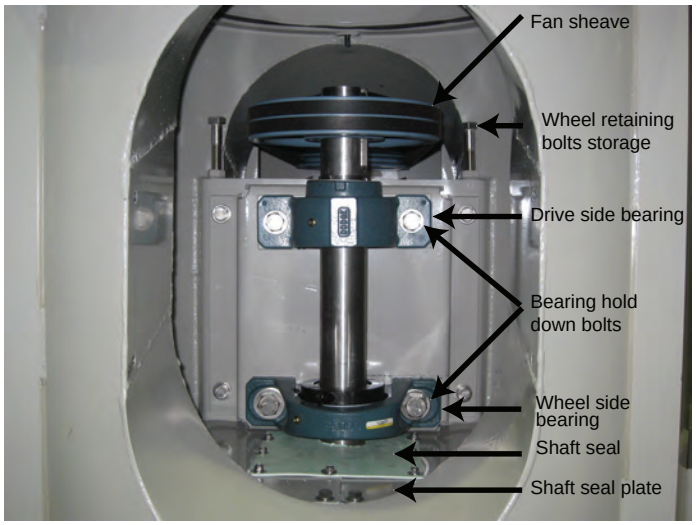

Figure 1: Close-up photo of the shaft / bearing compartment.

Bearing and Shaft Replacement

The fan bearings are pillow block ball and/or roller bearings. This process can be accomplished without entering the contaminated airstream, however Loren Cook recommends consulting with your safety advisor prior to proceeding.

1. Loosen and remove the belts by adjusting the motor mounting plate.
2. Remove the vented bearing cover located in the bifurcated housing opening, 180° from the motor.
3. Locate the shaft seal, Figure 1. Remove the speed screws to loosen the seal.
4. Locate the shaft seal plates, Figure 1. Remove the bolts and remove the seal plate in sections.
5. Once the shaft seal plates are removed the (2) wheel retaining holes will be exposed. Remove the (2) wheel retaining bolts, Figure 1, that are located on top of the bearing support. Install them in the wheel retaining holes until they are flush with the housing panel slightly supporting the wheel as shown in Figure 2. **NOTICE! It is important that you do not over-tighten the retaining bolts as this may bind the bearings.**
6. Note the exact bearing locations to the bearing plate; disconnect all extended lube lines from the bearings and move aside as required.
7. Remove the self-aligning hub hold-down bolts, Figure 2, to loosen the hub from wheel.
8. Remove the wheel side bearing hold-down bolts, Figure 1, to loosen the bearing form the fan bearing support.
9. Remove the drive side bearing hold-down bolts, Figure 1, to loosen the bearing form the fan bearing support. The drive side bearing may have a bearing shim that will need to be removed and set aside for reinstallation.
10. Remove the entire shaft and bearing assembly from the fan housing.
11. Record the location of the fan sheave, Figure 1, from the end of the shaft, and remove the sheave.
12. Record the distance from the drive side bearing, Figure 1, to the end of the shaft. Remove the drive side bearing by loosening the bearing collar.
13. Record the distance from the wheel side bearing, Figure 1, to the end of the shaft. Remove the wheel side bearing by loosening the bearing collar.
14. Record the location of the wheel hub from the drives side end of the shaft and remove the hub from the shaft by removing the bushing hold-down bolts and reinstalling them in the bushing push-out holes. This process will pop the bushing off the hub allowing the shaft to be removed.
15. Slide the new shaft through the hub and bushing until it protrudes the same amount as measured.
16. Tighten the bushing hold-down bolts to the proper torque. Be sure to install the existing shaft seal before installing the new bearings, leave loose.
17. Install new bearings by sliding them down the shaft starting with the wheel side bearing, Figure 1, noting the exact locations of each. Tapping the inner race of each bearing with a soft driver may be required.
18. Rotate the shaft by hand to allow the bearings to align themselves.
19. Fully tighten each bearing collar to the bearing manufacturer specified torque and rotate shaft by hand.
20. Reinstall the fan sheave, Figure 1, to the proper location.
21. Install the shaft and bearing assembly by hand tightening the self-aligning hub hold-down bolts, Figure 2, to the wheel
22. Lightly tighten each bearing hold-down bolt, Figure 1, be sure to reinstall the drive side bearing shim if one was set aside from above (step 9). **NOTICE! Do not fully tighten the bearing hold-down bolts, Figure 1, to the base.**
23. Once the drive component assembly is in place fully tighten the self-aligning hub hold-down bolts, Figure 2, and drive side bearing hold-down bolts, Figure 1, to the required torque.
24. Remove the wheel retaining bolts and return them to the top of the bearing support as shown in Figure 1 and rotate the shaft by hand again.
25. Fully tighten the wheel side bearing hold-down bolts, Figure 1, to the proper torque and rotate the shaft by hand again. Resistance should be the same as it was before the bearing hold-down bolts were fully tightened.
26. Reinstall the shaft seal plates, Figure 1, and fasten the shaft seal, Figure 1.
27. Reinstall the extended lube lines as required and align the fan sheave, Figure 1, with the motor sheave if necessary.
28. Reinstall the belts, tighten the motor mounting plate and trim balance as necessary (0.785 in/sec max).
29. Reinstall the bearing cover.

Wheel and Inlet Replacement

This process will require entering the contaminated airstream. **NOTICE! Do not proceed without first consulting with your safety adviser.**

1. Remove the inlet cone by removing attaching bolts/nuts around perimeter of the inlet plate.
2. Remove the vented bearing cover located in the bifurcated housing opening, 180° from the motor.
3. Locate the shaft seal, Figure 1. Remove the speed screws to loosen the seal.
4. Locate the shaft seal plates, Figure 1. Remove the bolts and remove the seal plate in sections.
5. Support the old wheel inside the housing and remove the self-aligning hub hold-down bolts, Figure 2.
6. Remove the wheel hub from the shaft by removing the bushing hold-down bolts and reinstalling them in the bushing push-out holes. This process will pop the bushing off the hub allowing the shaft to be removed.
7. Install the new wheel with hub attached, less bushing by supporting the new wheel until held in place using the (2) wheel retaining bolts, Figure 1, that are located on top of the bearing support, install them in the wheel retaining holes and align the wheel in the proper location as shown in Figure 2.
8. Install the hub bushing, but do not fully tighten the

bushing hold-down bolts.

9. Install the new inlet cone. The wheel may need to be moved to allow proper alignment. Care should be taken to insure that inlet cone is centered inside the wheel before and after tightening attaching bolts/nuts.
10. Adjust the wheel using the (2) wheel retaining bolts, Figure 1, to achieve proper wheel/inlet overlap and tighten the bushing hold-down bolts to the proper torque. Refer to Wheel-to-inlet Clearance on page 3 in the QMX IOM manual and trim balance as necessary (0.785 in/sec max).
11. Reinstall the shaft seal plates, Figure 1, and shaft seal, Figure 1.
12. Reinstall the bearing cover.

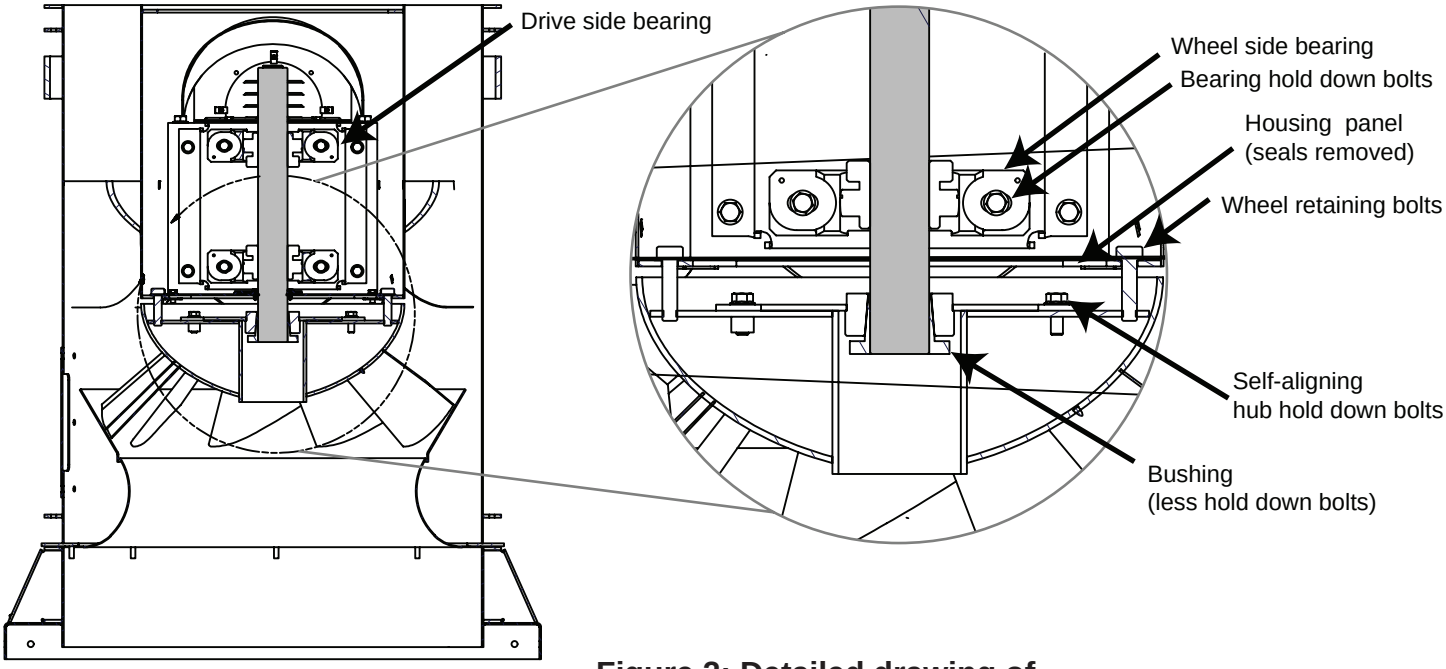

Figure 2: Detailed drawing of shaft / bearing compartment.

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