PELLERIN MILNOR CORPORATION

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TECH NOTE

August 9, 2005

SUBJECT: 64058 Dryer Drive Shaft Breakage

Recently, we have seen a number of 64058 dryer drive shafts break at the radius where a step-down in diameter occurs in the shaft, closest to the sprocket mounting point. The age of the machines that are failing shafts vary, but most are 1.5 to 2 years in service.

On viewing the first broken shafts, we undertook a project to reinforce the shaft by enlarging the radius in the step-down area and also to move the termination of the keyway out of the step-down area. No doubt this made a stronger shaft.

In subsequent laundry visits, we viewed drive chains that are running on the sprockets in a condition that puts excessive load on the shaft. The excessive load comes from significant chain wear and elongation which causes the chain to pop and jam the chain as the machine reverses. The resultant force on the shaft is extreme as the chain is wrapping under the sprocket and causing an impact load onto the shaft. In some cases, the noise could be heard from across the laundry.

We think that the primary cause of shaft failure is chain wear caused by a lack of lubrication. Many chains are found in the field brown with rust and demonstrating a complete lack of lubrication.

The type of lubricant is critical. Normal bearing grease may lubricate the outside of the chain, but the pins and rollers of the chain need to be lubricated internally. This can only be done with light weight lubricant, like that used on the CBW chains.

We have recently changed this specification (during the week of 8/08/05) to utilize MILNOR chain lubricant (which is also used on the MILNOR CBW as p/n 20H000A). This chain lubricant will provide excellent wear characteristics between the roller and the pin while not attracting lint to the chain as would occur if regular chain grease or 10 wt oil is used. It can be painted or dripped onto the dryer drive chain.

While there is no doubt that the new shaft which evolved with a larger radius and relocated keyway is a better design than the original, the exacerbating factor in the breaking of the shaft is worn chain. This can only be prevented by proper lubrication. The result will be longer gear reducer, bearing, chain and shaft life.

A NOTE ON CHAIN TENSION: The chain should exhibit some slack (1/8" to ¼") when at rest. This can be measured by placing a straight edge onto the top of the rollers on the two sprockets and measuring the gap to the center of the chain. No pressure should be applied to the chain to make this measurement. Chain that is too tight will wear quickly and fail sooner than properly "slack" chain.

In your service,

Gary Lazarre

Gary L. Lazarre
Manager
Customer Service