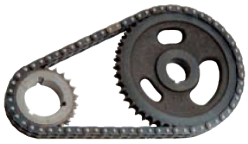
Optimizing Roller Chain Drives

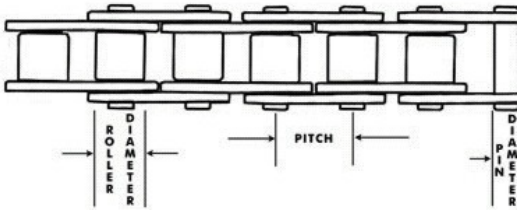
"Single Point Lesson"



Reference: **"Industrial Machinery Repair" by Ricky Smith CMRP / Keith Mobley**

Key Points to Know

- Roller chains are made up of roller links that are joined with pin links. The links are made up of two side bars, two rollers, and two bushings. The roller reduces the friction between the chain and the sprocket, thereby increasing the life of the unit.
- Sprockets are fabricated from a variety of materials; this would depend upon the application of the drive. Large, fabricated steel sprockets are manufactured with holes to reduce the weight of the sprocket on the equipment. Because roller chain drives sometimes have restricted spaces for their installation or mounting, the hubs are made in several different styles.
- Pitch diameter is the distance between one roller pin and another. As a chain wears the chain becomes longer through wear at the pinpoints.



Maintenance Guidelines – These are known facts and have been applied by myself as a maintenance technician and maintenance supervisor successfully.

1. Only use a "half link" on a roller chain for a short-term repair. A half link changes the pitch diameter and thus causes the chain to ride up on a sprocket and now the sprocket wear accelerates. I prefer to never use a half link.
2. When replacing a roller chain or sprocket one must replace all sprockets and chain unless premature failure is acceptable to management.
3. Lubrication is important for long life of a roller chain. The correct type of lubrication and lubricant frequency must be identified. This information is available by your power transmission parts distributor.
4. Too thick of lubrication will not allow the lubricant to enter the roller pins and thus cause premature failure of the chains and sprockets. Too thin of lubricant can cause the lubricant to enter and leave the rolling elements of the chain thus causing premature failure.

Installation of New Sprockets and Chains

When the proper procedures are followed for installing chains, they will yield years of trouble-free service. Use the following procedure to perform this task:

1. The shafts must be parallel, or the life of the chain will be shortened. The first step is to level the shafts. This is done by placing a level on each of the shafts, then shimming the low side until the shaft is level.
2. The next step is to make sure that the shafts are parallel. This is done by measuring at different points on the shaft and adjusting the shafts until they are an equal distance apart. Make sure that the shafts are pulled in as close as possible before performing this procedure. The jacking bolts can be used to move the shafts apart evenly after the chain is installed.
3. Install the chain on the sprockets and begin increasing the distance between the sprockets by turning the jacking bolts proper deflection has been achieved. See manufacturer's specifications for proper chain sag.