

Chain Instructions

When Disassembling or Assembling Chains:

WARNING – The components of a chain are hardened parts. Striking these parts may cause metal chips to break off from the chain or the tools used resulting in personal injury. During all stages of chain assembly, wear safety glasses to prevent metal parts or chips from entering your eyes.

PIN REMOVAL

1. If chain is riveted type construction, grind pin heads off so pin ends are flush with the link plate.
2. Drive pins out of linkage using a pin extractor. Some multiple strand chains or large pitch models will require a hammer and punch or a press to remove the pins.

INSTALLATION OF SPRING LOCKS

After the cover side has been installed, install spring locks. Avoid using bent or worn spring locks. After spring locks are installed, lightly tap pin ends to position these parts snug against the cover side for additional support.

To obtain maximum service life and efficiency from a chain drive, it is necessary that certain precautions in installation be taken. Chain drive installation is relatively simple and good results may be obtained when the following conditions are met:

1. The roller chain, sprockets, and other components are in good condition.
2. The sprockets are properly aligned.
3. Provision is made for adequate lubrication.
4. The chain is correctly tensioned.

CONDITION OF COMPONENTS

Shafting, bearing, and foundations should be supported rigidly to maintain the initial alignment. Roller chain should be free of grit and dirt. Wash chain in kerosene when required and then re-lubricate.

DRIVE ALIGNMENT

Misalignment results in uneven loading across the width of the chain and may cause roller link plate and sprocket tooth wear. Drive alignment involves 2 things: parallel shaft alignment & axial sprocket alignment.

1. Shafts should be parallel & level. This can be checked by the use of a feeler bar and a machinist's level. If there is axial movement of the shaft, lock the shaft in the normal running position before aligning the sprockets.
2. Sprocket axial alignment can be checked with a straight edge which will extend across the finished side of the two sprockets. It is good practice to align the sprockets as close to the shaft bearing as possible. For long center distance, use a taut cord or wire long enough to extend beyond each of the sprockets.

INSTALLING THE CHAIN

Recheck all preceding adjustments for alignment and make certain all set screws, bolts, and nuts are tight. Fit chain around both sprockets and bring the free ends together on one sprocket for connection. The sprocket teeth will locate the chain end links. Install the connecting link, and connecting link cover plate and the spring clip. On larger pitch or heavy multiple strand chains, it may be necessary to lock the sprockets for this operation. When press fit cover plates are used, be careful not to drive the plate on so far as to grip the roller links. Stiff joints can result if this is done. On drives with long spans, it may be necessary to support the chain with a plank or bar as the connection is made.

CHAIN TENSION

Check chain tension to be certain the slack span has 4-6% mid-span movement in horizontal drives and 2-3% in vertical drives. **SEE TABLE BELOW**

Recommended Possible Mid-Span Movement AC

Tangent Length Between Sprockets									
Drive Center Line	5"	10"	15"	20"	30"	40"	60"	80"	100"
Horizontal to 45 degree	25"	.5"	.75"	1"	1.5"	2"	3"	4"	5"
Vertical to 45 degree	0.01	0.25	0.38	0.5	0.75	1	1.5	2	2.5

LUBRICATION

In order to obtain the maximum service life of a roller chain, which consist of a series of connected rolling metallic bearings, you will have to properly lubricate the chain with a good grade of clean petroleum oil that does not contain any additives.

Oils that contain additives will leave a varnish or gum deposit which will prevents the oil from entering the joints of the chain. Do not use heavy oils or greases as they are generally too thick to enter the joints of the chain and will prevent proper lubrication.

With proper lubrication a layer of oil will be formed between the pins and bushings in the joints of the chain, similar to a layer of oil that is formed between journal bearings. The viscosity of the lubricant will greatly affect its ability to properly lubricated each joint, pin and bushing in the chain.

The use of a high viscosity oil will allow a more efficient flow of oil between the chains link plates and will also result in better lubrication of the fill pin-bushing area. The use of a high viscosity oil will also help minimize metal to metal contact. The lubricant will also help provide a more sufficient form of cooling and impact dampening at higher speeds. This will also prevent premature wearing of the chain.

Do not apply oil to the rollers only as this will not lubricate the pin bushing joints and can cause chain elongation due to wear. The elongation of the chain is usually a result from wear on the pin and bushing surfaces of the chain and not the rollers.

INSPECTIONS

All chain drives should receive regular maintenance. Each drive should be inspected after the initial 100 hours of operation. Most drives may be inspected at 500 hour intervals. Drives subjected to shock loads or severe operating conditions should be inspected at 200 hour intervals.

At each inspection the following items should be checked and corrected.

1. Check Lubrication-On slow speed drives where manual lubrication is used, be sure the lubrication schedule is being followed. If the chain is covered with dirt and debris, clean the chain with kerosene and re-lubricate.

WARNING!! NEVER USE GASOLINE OR OTHER FLAMMABLE SOLVENTS TO CLEAN A CHAIN. A FIRE MAY RESULT.

2. Check Chain Tension-Check chain tension and adjust as needed to maintain the proper sag in the slack span. If elongation exceeds the available adjustment, remove two pitches and reconnect the chain.
3. Check Chain Wear-Measure the chain wear elongation and if elongation exceeds functional limits or is greater than 3% replace the entire chain. Do not connect a new section of chain to a worn chain because it may run rough and damage the drive. Do not continue to run a chain worn beyond 3% elongation because the chain will not engage the sprockets properly and it may damage the sprockets.