

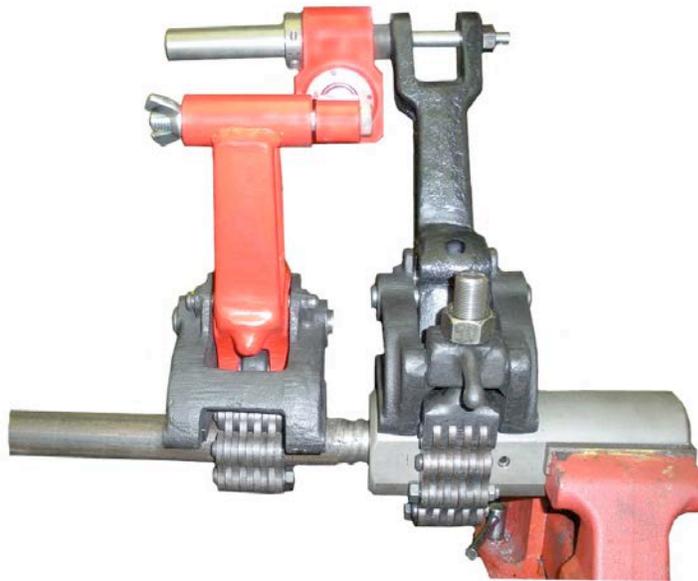


AutoTORQ HYDRAULIC CHAIN PIPE WRENCH

SERIES PW150 to PW325

3K & 6K Series

OPERATION MANUAL



PW150 100 – 408-3K	1" – 4-1/2"
PW200 202 – 508-3K & 6K	2-1/8" – 5-1/2"
PW200 312 – 804-3K & 6K	3-3/4" – 8-1/4"
PW250 412 – 1012-3K & 6K	4-3/4" – 10-3/4"
PW325 802 – 1400-3K & 6K	8-1/8" – 14"

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Introduction

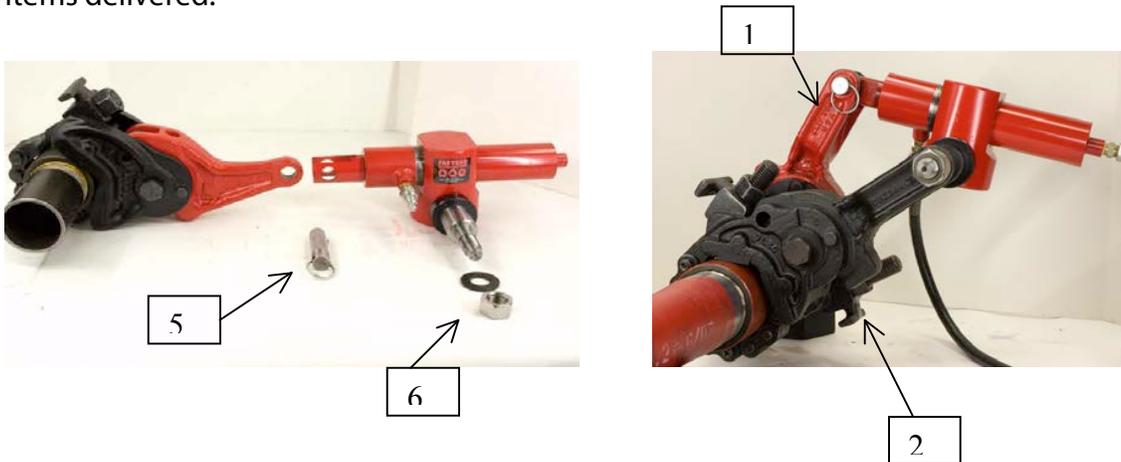
The operator should read this manual completely prior to operation to insure safety.

NOTE:

Before and after starting any tightening or loosening any piping, refer to page 12 – Periodic Inspection List and page 13 – Tong and Vise Chain Inspection.

The wrench is designed to operate with the assistance of an operator for positioning before and after each stroke. It is important for the operator to practice positioning the driver and reaction jaws for effective grip and manipulation of the wrench after each stroke so that the driver jaw slides back smoothly and re-grips the pipe for the next stroke. It is recommended that the operators practice the manipulation of the wrench on a workbench to speed up the learning process

Items delivered:



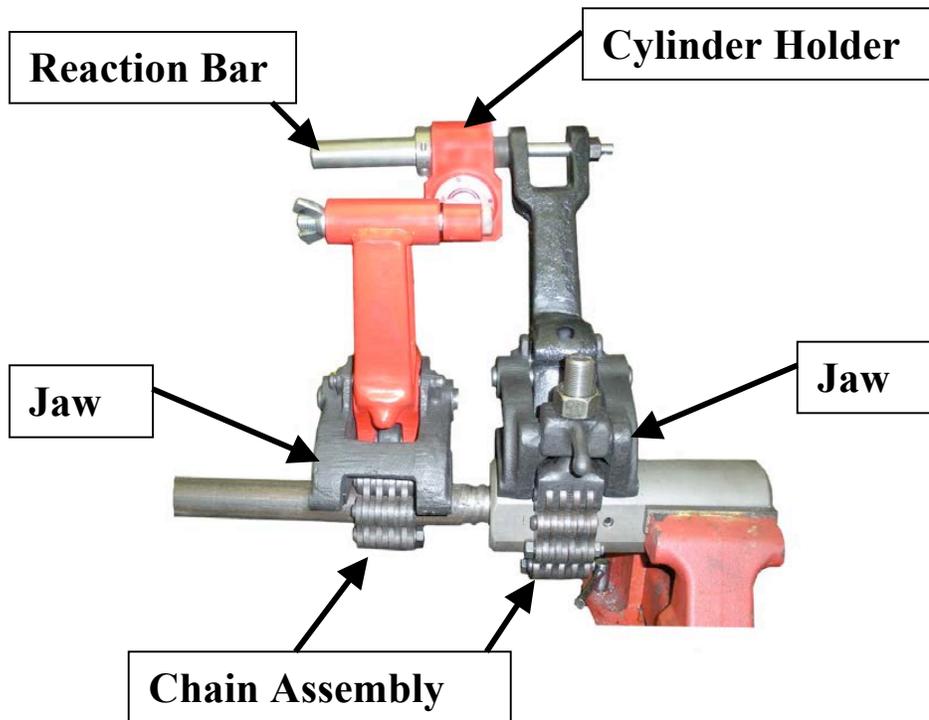
- 1) Red Driver jaw with chain (one)
- 2) Black Reaction Jaw with chain (one)
- 3) Chain section of two links (one)
- 4) Chain section one link (two)
- 5) Pin for connecting driver jaw (one)
- 6) Nut, Washer for connecting reaction jaw (one set)

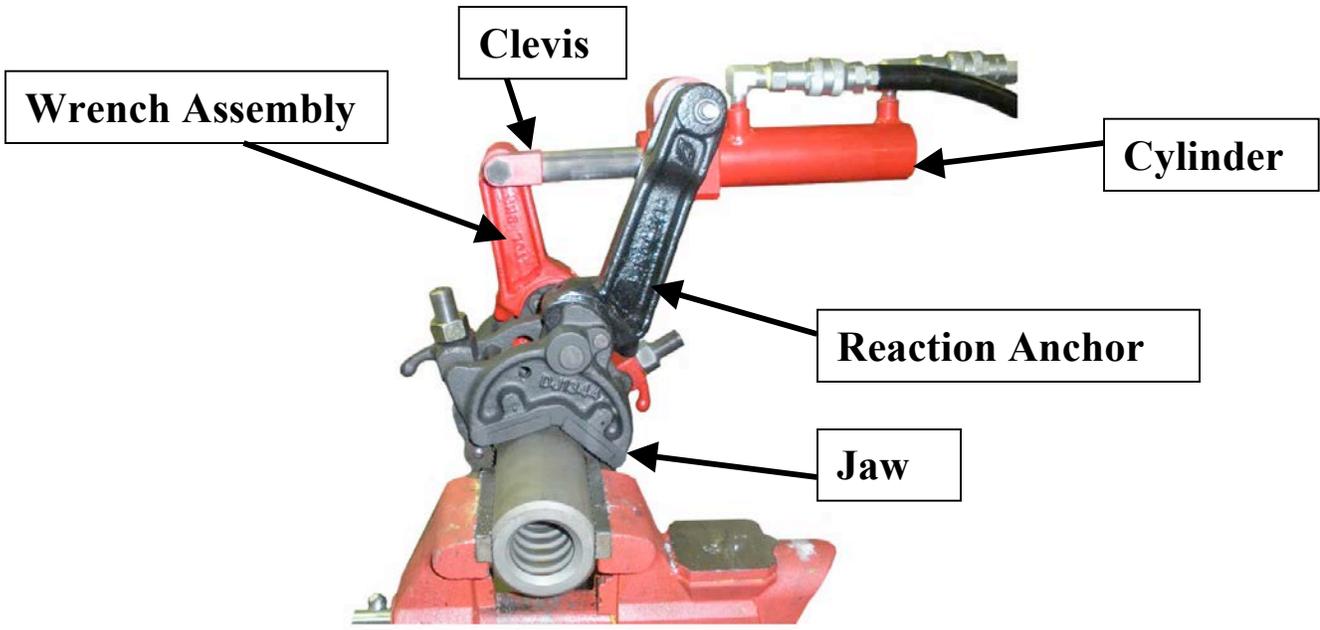
Without the installation of any of the chain sections the chain pipe wrench will tighten pipe size of up to 1" to 14". Each additional SINGLE LINK increases the capacity of the wrench by one size. The

operator should ensure that the threaded section of the chain screw NEVER contacts the pipe as this may result in breakage of the screw.

UNPACKING

Upon receiving your Chain Pipe Wrench verify that you received the following items:





Safety Precautions

1. Always wear safety goggles to protect eyes.
2. Select the right tool for the job.
3. Keep tools in good condition.
4. Use tools correctly.
5. Keep tools in a safe place.
6. Wear protective clothing, gloves and safety shoes as appropriate.
7. Use lengths of assembled chain. Do not build lengths from individual components.
8. Do not attempt to rework damaged chain by replacing only the components obviously faulty. The entire chain may be compromised and should be discarded.
9. Never electroplate assembled leaf chains or components. Plating will result in failure from hydrogen embrittlement.
10. Do not weld any chain or component. Welding spatter should never be allowed to come in contact with chain or components.
11. Leaf chains are manufactured exclusively from heat-treated steels and therefore must not be annealed. If heating a chain with a cutting torch is absolutely necessary for removal, the chain should not be reused.
12. Inspect chains frequently and regularly for link plate cracking, pin turning, pin protrusion and corrosion.
13. **DO NOT exceed the operating pressure (3,000 or 6,000 psi) of the Chain Pipe Wrench.**
14. Keep hands and fingers away from Chain Pipe Wrench pinch-points.

PERFORMANCE SPECIFICATIONS

Chain Pipe Wrench Loads

3,000 PSI SYSTEMS

PW150 100-408-3K 1" - 4-1/2"

Cylinder Area Sq.In.	Pressure (PSI)	Force/lbs	Pipe OD	Lever Arm	Torque Ft.Lbs.	Pipe OD	Lever Arm	Torque Ft.Lbs.
1.767	3000	5,301	1"	9"	3,975	4-1/2"	12"	5,301

PW200 202-508-3K 2-1/8" - 5-1/2"

Cylinder Area Sq.In.	Pressure (PSI)	Force/lbs	Pipe OD	Lever Arm	Torque Ft.Lbs.	Pipe OD	Lever Arm	Torque Ft.Lbs.
3.14	3000	9,420	2-1/8"	12-1/2"	9,812	5-1/2"	15"	11,775

PW200 312-804-3K 3-3/4" - 8-1/4"

Cylinder Area Sq.In.	Pressure (PSI)	Force/lbs	Pipe OD	Lever Arm	Torque Ft.Lbs.	Pipe OD	Lever Arm	Torque Ft.Lbs.
3.14	3000	9,420	3-3/4"	13"	10,205	8-1/4"	17"	13,345

PW250 412-1012-3K 4-3/4" - 10-3/4"

Cylinder Area Sq.In.	Pressure (PSI)	Force/lbs	Pipe OD	Lever Arm	Torque Ft.Lbs.	Pipe OD	Lever Arm	Torque Ft.Lbs.
4.90	3000	14,700	4-3/4"	14"	17,052	10-3/4"	18"	22,050

PW325 802-1400-3K 8-1/8" - 14"

Cylinder Area Sq.In.	Pressure (PSI)	Force/lbs	Pipe OD	Lever Arm	Torque Ft.Lbs.	Pipe OD	Lever Arm	Torque Ft.Lbs.
8.30	3000	24,900	8-1/8"	17"	35,109	14"	20"	41,334

6,000 PSI SYSTEMS

PW200 202-508-6K 2-1/8" – 5-1/2"

Cylinder Area Sq.In.	Pressure (PSI)	Force/lbs	Pipe OD	Lever Arm	Torque Ft.Lbs.	Pipe OD	Lever Arm	Torque Ft.Lbs.
3.14	6000	18,840	2-1/8"	12-1/2"	19,625	5-1/2"	14-1/5"	27,867

PW200 312-804-6K 3-3/4" – 8-1/4"

Cylinder Area Sq.In.	Pressure (PSI)	Force/lbs	Pipe OD	Lever Arm	Torque Ft.Lbs.	Pipe OD	Lever Arm	Torque Ft.Lbs.
3.14	6000	18,840	3-3/4"	13"	20,410	8-1/4"	17"	26,690

PW250 412-1012-6K 4-3/4" – 10-3/4"

Cylinder Area Sq.In.	Pressure (PSI)	Force/lbs	Pipe OD	Lever Arm	Torque Ft.Lbs.	Pipe OD	Lever Arm	Torque Ft.Lbs.
4.90	6000	29,400	4-3/4"	14"	34,104	10-3/4"	18"	44,100

PW325 802-1400-6K 8-1/8" – 14"

Cylinder Area Sq.In.	Pressure (PSI)	Force/lbs	Pipe OD	Lever Arm	Torque Ft.Lbs.	Pipe OD	Lever Arm	Torque Ft.Lbs.
8.30	6000	49,800	8-1/8"	17"	70,218	14"	20"	82,668

CAUTION:

OPERATING PSI

DO NOT exceed the PSI operating pressure of the Chain Pipe Wrench.

To Operate:

The jaws are color coded RED for the driver and BLACK for the reaction jaw. The driver is also identified by its position on the piston extension while the reaction jaw is attached to the side of the hydraulic cylinder (see pictures P3 and P4.)



**Reaction Jaw connection Point
P3**



**Reaction Jaw connection Point
P4**

To Tighten:

Position wrench as shown in P5 below.



P5



**Driver Jaw chain engagement
P5**

The picture shows the driver jaw on the right side with chain going over pipe and engaging jaw underneath Picture P6. The reaction jaw is on left side with the chain going under pipe and engaging jaw in front, see picture P7.



**Reaction Jaw chain engagement
P7**

The reaction jaw is on the coupling that the pipe will thread and tighten into. The driver jaw is on the pipe that is to be threaded and tightened.

Once in position apply hydraulic pressure to fully extend the cylinder. On the return stroke the operator shakes the wrench to allow jaws to reposition and re-grip pipe. Repeat until fully tightened.

Note:

The tool will not work properly if it is lying down. The cylinder is elevated such that the driving jaw grips the pipe.

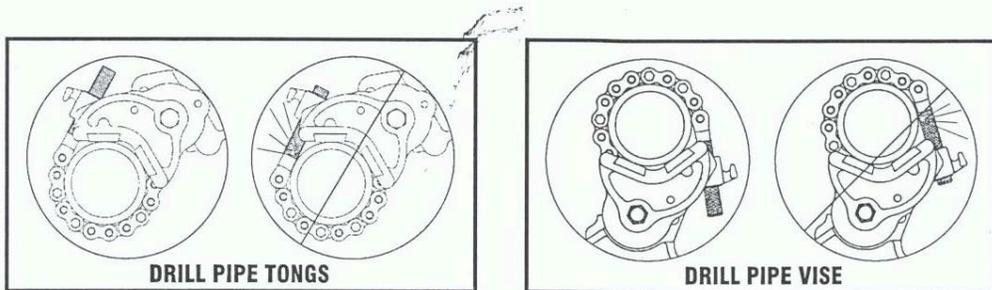
To Loosen:

Exchange the position of the driver and reaction jaw and operate as described in the tightening procedure.

TROUBLE SHOOTING

SYMPTOMS	CAUSE	SOLUTIONS
Chain Pipe Wrench Cylinder does not extend or retract	Hose fittings are not properly attached to cylinder.	Reinstall hoses to cylinder and test cylinders operation Ensure that all connectors are clean.
Chain Pipe Wrench is loosening instead of tightening piping.	Set-up is not correct	See pages 8 & 9 for correct set-up
Chain segments are not gripping the pipe	Jaw segments needs to be cleaned out	See page 13 & 14 for inspection of chain and jaws
Hoses are hard to put on cylinder	Hoses are still pressurized with hydraulic oil	Bleed pressure of hose very slow, might have to loosen one of the fittings. Observe extreme caution.

PROPER CHAIN SELECTION for DRILL PIPE TONGS & DRILL PIPE VISE

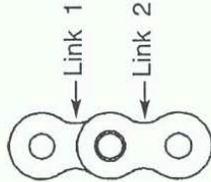


IMPORTANT!

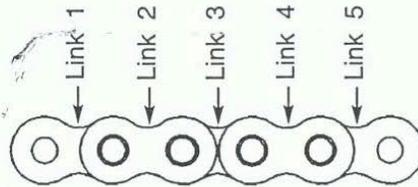
FOR PROPER CHAIN SELECTION: The threaded portion of the chain screw should **NEVER** contact the work piece. This places an additional load on the chain screw, which could result in breakage. Thread contact can be prevented by adding a 2 link section of chain.

CHAIN IDENTIFICATION GUIDE

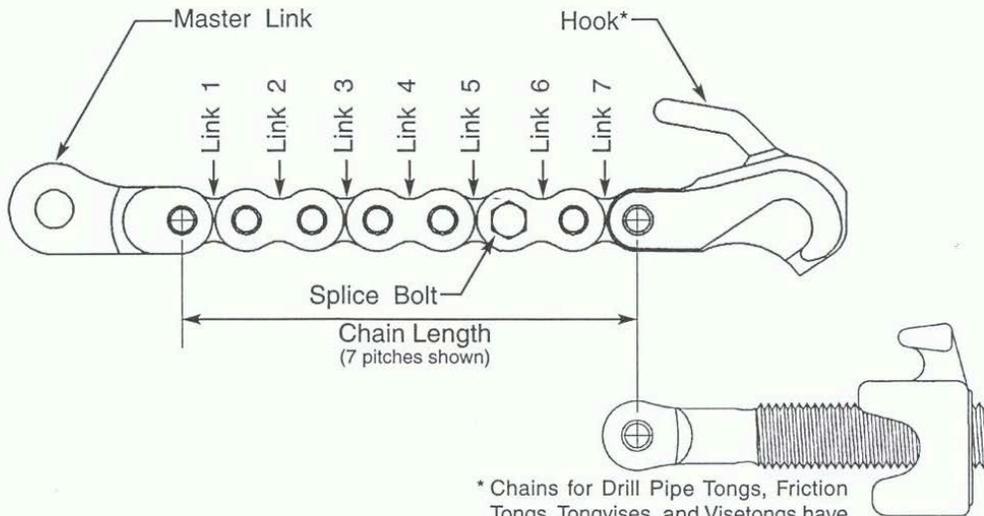
2 LINK SECTION



5 LINK SECTION



CHAIN ASSEMBLY



* Chains for Drill Pipe Tong, Friction Tong, Tongvises, and Visetongs have a chain screw and nut latching component instead of a chain hook.

THIS IS WHAT A CHAIN PART NUMBER TELLS YOU

161 - 45 - 07 L 4500

Chain Size

- 131
- 151
- 161
- 181
- 201

Chain Combination

(see page 7)

- 22
- 34
- 44
- 45
- 56

Hook Length

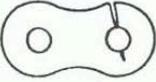
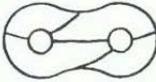
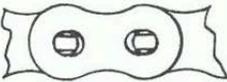
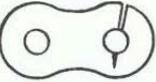
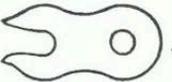
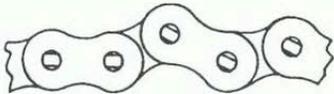
Tong Type

- B = Bukup Tong
- D = Drill Pipe Tong
- D7 = Drill Pipe Tong (DA6184 only)
- F = Friction Tong
- L = Bull Tong
- M = Machine Tong
- T = Tongvise / Visetong

Chain Length (pitches)

(see above)

PERIODIC INSPECTION LIST

APPEARANCE AND / OR SYMPTOM	PROBABLE CAUSE	CORRECTION
<p>Cracked Plates (Fatigue)</p> 	<p>Overloading</p> <p>Side Loading</p>	<p>Replace chain and correct cause of overload</p> <p>Replace chain and correct cause of side load</p>
<p>Arc-Like Cracked Plates (Stress Corrosion)</p> 	<p>Severe rusting or exposure to acidic or caustic medium, plus static stress at press fit between pin and plate.</p>	<p>Replace chain and protect from hostile environment</p>
<p>Enlarged Holes</p> 	<p>Overloading</p>	<p>Replace chain and correct cause of overload</p>
<p>Cracked Plates (Corrosion Fatigue) Perpendicular to Pitch Line, plus rust or other evidence of chemical corrosion</p> 	<p>Corrosive Environment</p>	<p>Replace chain and protect from hostile environment</p>
<p>Fractured Plates (Tension Mode)</p> 	<p>Overloading</p>	<p>Replace chain and correct cause of overload</p>
<p>Tight Joints</p> 	<p>Dirt or foreign substance packed in joints</p> <p>Corrosion and rust</p> <p>Bent pins</p>	<p>Clean and relube</p> <p>Replace chain and protect from hostile environment</p> <p>Replace chain</p>

TONG AND VISE CHAIN INSPECTION

The service life of leaf chains can be altered by a variety of adverse operating conditions. The following information discusses the most important of these conditions for consideration when operating or scheduling replacement of leaf chain systems.

OVERLOADING / SHOCK LOAD / SIDE LOADING

- Attempting to "inch" loads which are beyond the rated capacity of the tool.
- Striking the tool with a hammer or other object while force is being exerted in an attempt to loosen a frozen joint.
- Side pull on the chain. Side pull can be caused by pulling or pushing on the tong in a direction that is not along a perpendicular plane, unlevel mounting of the vise, inadequate support of the part being broken out, and improper seating of the part being broken out in the tong or vise. Improper seating will occur when the O.D. of the part is not consistent within the width of the tong or vise jaw.

ENVIRONMENTAL CONDITIONS

Wrench and vise chains operate in widely varying environments, from wet outdoor conditions to mildly or highly corrosive industrial atmospheres. They can also be exposed to abrasives such as sand and grit.

The possible effects include:

Moisture - corrosion and rust reduce chain strength by causing pitting and cracking.

Temperature - very cold temperatures reduce chain strength by embrittlement.

Chemical Solutions or Vapors - Corrosive attack of the chain components grain structure and / or the mechanical connections between the chain components (crevice corrosion) may occur. Cracking often is microscopic. Propagation to complete failure can be eventual or sudden.

Abrasives - Accelerated wearing and scoring of the articulating chain members (pins and plates) may occur, with a corresponding reduction in chain strength. Due to inaccessibility of the bearing surfaces (pin surfaces and plate apertures), wear and scoring are not readily noticeable.

These conditions, when coupled with normal chain wear and inherent residual stress (normally in the chain as constructed), can result in environmentally assisted failure.

It is impossible to predict chain life under complex conditions, as the degree of

hostility and its effects are dependent on many variables such as temperature, time of exposure, concentration of corrosive atmosphere or medium, degree of abrasive wear, etc...Establishing the degree and frequency of unpredictable dynamic loads is also difficult.

NORMAL LIFE EXPECTANCY

A leaf chain's normal life expectancy can be expressed as a maximum percent elongation. This is generally between 2% to 3% of pitch. As the chain flexes back and forth, the bearing joints (pins and inside link plates) gradually wear from articulation.

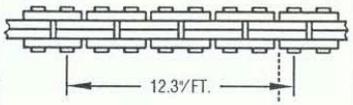
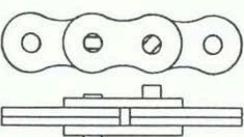
As with all steel bearing surfaces, the precision, hardened steel joints of leaf chain require a constant film of oil between mating parts to prevent wear and to resist corrosion.

LUBRICATION

One of the most important but often overlooked factors is adequate lubrication. In addition to reducing internal friction, maintaining a film of oil on all chain surfaces will inhibit rusting and corrosion. This is important as corrosion of highly stressed hardened steel chain components can cause a major reduction in the load capacity of leaf chain and result in link plate cracking.

PERIODIC INSPECTION LIST

1. PRIOR TO EACH USE, LEAF CHAIN AND TOOLS SHOULD BE INSPECTED FOR SERVICEABILITY AND LUBRICATION.

APPEARANCE AND / OR SYMPTOM	PROBABLE CAUSE	CORRECTION
<p>Excessive Length (Elongation)</p> 	<p>Normal Wear</p> <p>Permanent deformation (stretch) from overload</p>	<p>Replace chain</p> <p>Replace chain and correct cause of overload</p>
<p>Abnormal Protrusion of Pins</p> 	<p>Overloading</p> <p>Inadequate lubrication</p> <p>Side Loading</p>	<p>Replace chain and correct cause of overload</p> <p>Replace chain and improve lubrication</p> <p>Replace chain and correct cause of side load</p>

WARRANTY

FASTORQ warrants its products against defects in workmanship and materials for 1 year from date of delivery.

Warranty does not cover ordinary wear and tear, abuse, misuse, overloading, or altered products.

REPAIR AND SERVICE

FASTORQ shall provide complete and prompt service on all its products. It is recommended to return the unit to the factory in the event of a failure or a general maintenance requirement. FASTORQ'S trained and experienced technicians can properly inspect and repair the unit.

ASSISTANCE

FASTORQ provides technical support and assistance to all its customers. Help is available 7 days a week, 24 hours a day by calling 281.449.6466 or Toll Free 1.800.231.1075.

Please contact us whenever you have a question or need assistance. We may be reached by phone or e-mail.

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