

NO MORE LINE BORING



EXPANDER[®] SYSTEM ONCE AND FOR ALL

Pivot wear is a common problem in all machinery and equipment. Once the material in the lug holes begins to wear, the process accelerates and the holes become oblong. This diminishes the efficiency and stability of the machine. Welding and line boring is expensive, time consuming and only temporary – wear will appear again.

WAITING COSTS MONEY

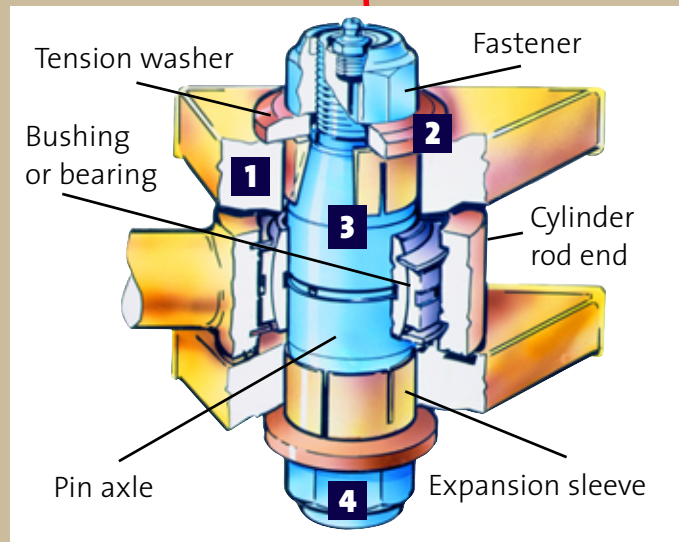
Many machine owners wait to address the problem until the pivot is on the verge of breakdown. Not addressing the problem risks failure of other parts of the machine. Bearings and bushings will shatter due to the stress impact. The pivot itself will eventually break down and fail. Meanwhile, you are operating equipment that is unsafe and a hazard on the roads.

SOLVE THE PROBLEM NOW AND SAVE MONEY

The Expander System is a simple, cost effective and permanent solution to this problem. With proper maintenance it will most likely outlast the life of your machine. The earlier the system is installed the better. When you install the Expander System at an early stage of the wear process, the installation is easier and you will never have to deal with the problem again. If you sell your equipment, the resale value will be higher because your machine is stable as new.

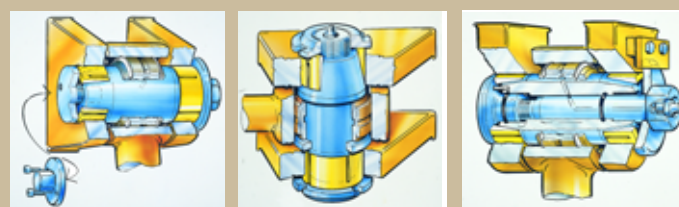
FACTS:

- The standard expansion sleeves expand up to 80-thousandths of an inch and our oversize up to 160-thousandths.
- Oversize sleeves are available to fit any pivot.



HOW IT WORKS

- 1** The Expander System is fitted directly into the worn pivot. Repairs to the lugs are unnecessary.
- 2** When the fasteners are tightened, the tension washers press the slotted sleeves down over the tapered ends of the pin axle. Double-sided locking increases stability and safety.
- 3** The sleeves expand parallel to the pin axle and locks the System in the pivot lugs. Wear is permanently eliminated, even in the most unevenly worn holes.
- 4** Easy to disassemble.



Examples of Expander System assemblies with different types of fasteners, depending on the space outside the pivot lugs.

CUT COSTS BY ACTING NOW

COST COMPARISON – LINE BORING VS. EXPANDER

Make and Model Position	Conventional Part Price*	Estimated Line Boring Cost*	Total Conventional Repair Cost	Expander System Repair Cost	YOU SAVE
CAT 966D					
Steering Cyl Front & Rear (4)	\$83 x 4 = \$332	\$2,000	\$2,332	\$242 x 4 = \$968	\$1,364
Lower Bucket (2)	\$152 x 2 = \$30	\$1,000	\$1,304	\$408 x 2 = \$816	\$4884
Upper Bucket (1)	\$205	\$500	\$705	\$604	\$101
Total	\$841	\$3,500	\$4,341	\$2,388	\$1,953
Komatsu PC200-3					
Boom Mounting (1)	\$759	\$1,200	\$1,959	\$1480	\$479
Boom Cyl Mount lower (2)	\$233 x 2 = \$466	\$1,000	\$1,466	\$377 x 2 = \$754	\$712
Total	\$1,225	\$2,200	\$3,425	\$2,234	\$1,191
Case 621D					
Upper Bucket (2)	\$204 x 2 = \$408	\$1,000	\$1,408	\$545 x 2 = \$1090	\$318
Lower Bucket (2)	\$105 x 2 = \$210	\$1,000	\$1,210	\$463 x 2 = \$926	\$284
Front Steering Cyl. (2)	\$73 x 2 = \$146	\$1,000	\$1,146	\$237 x 2 = \$474	\$672
Rear Steering Cyl. (2)	\$73 x 2 = \$146	\$1,000	\$1,124	\$225 x 2 = \$450	\$674
Upper Hitch (1)	\$138	\$500	\$638	\$353	\$285
Lower Hitch (1)	\$223	\$500	\$723	\$538	\$18
Total	\$1,249	\$5,000	\$6,249	\$3,831	\$2,418

*Part prices and line boring costs may vary based on geographical location and quality of work

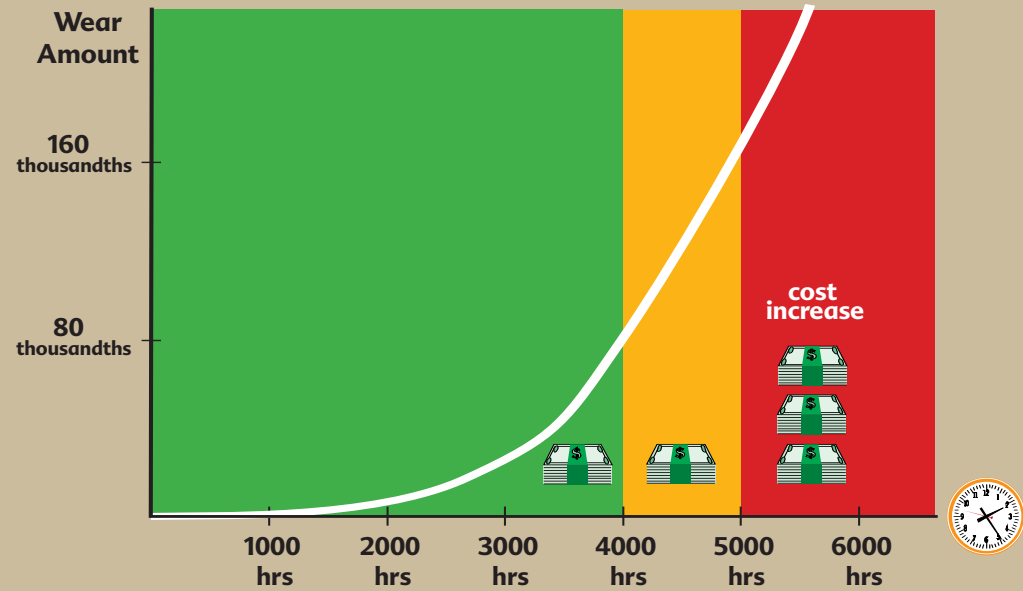


Expander has designed over 20,000 different system assemblies for over 1,500 machine makes and models.



AVAILABLE IN ALL SIZES FOR ALL MACHINE TYPES

WEAR PROGRESSION



GREEN

The pivots start to wear between 1000 to 4000 hours of operation. Even at an early stage of the wear process, it is obvious to the operator who is experiencing instability and having to correct for additional movement. At this point the maximum wear is usually below 80 thousandths of an inch (2 mm) which will be taken up by our standard expansion sleeve. Now is the time to install the Expander System and permanently eliminate the wear process without having to go through the costly and time consuming process of welding and line boring. The installation is simple and the expansion sleeves will quickly seat in the lug ears and give you peace of mind for the life of the machine.

YELLOW

The maximum wear in the wear pattern has now reached over 80 thousandths of an inch (2 mm) but is less than 160 thousandths (4 mm). We can still help you without having to weld and line bore the lug holes. However, the wear process is accelerating and the window before the maximum wear reaches 160 thousandths (4 mm) is small. Since the expansion sleeves will have to expand more to fit in the oblong hole, the pivot needs to be re-torqued once or twice after the installation. Still no major problem, but don't let the wear go beyond this point.

RED

The maximum wear has now reached the point when it is not advisable to install the Expander System without first welding and line boring the lug ears. Alternatively, the lug holes can be bored out to a larger diameter and special oversize expansion sleeves will be used. The cost of letting the machine go this far without dealing with the wear problem is often 2 to 3 times as much as if it is dealt with before the wear reaches 160 thousandths (4 mm). As you can see on the chart above, it is certainly not worth the few additional hours you can get out of the machine before having to deal with the problem.

The cost of replacing the four steering cylinder pins with the Expander System on a CAT 966 wheel loader is less than \$1000. Traditional welding and line boring of the steering cylinder pivot lugs will cost more than \$2000. Remember that this problem will not go away, so install the Expander System now and save your hard earned money.

 **Expander**® 
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EXAM 15.04.alg (Rev 08-04)