

Discover how automatic lubrication leads to **Reduced costs & higher ROI**

Manual & automatic lubrication costs compared

Construction equipment such as excavators, wheel loaders, articulated dump trucks, and similar machines are capital-intensive products. They need to work as much as possible in order to pay back the investment, and lubrication is a crucial factor in this. As you know, you have the choice between manual and automatic lubrication. Let's compare the main costs associated with each.

Manual lubrication



Investment

ONE-OFF 

Depending on the type of grease gun you buy, the price rises to several hundred dollars. Whether you buy a manual, air-powered, or battery-powered grease gun, the initial investment is a lot lower than for automatic lubrication.

Maintenance

RECURRING



The frequency of manual greasing not only requires more time and labor but also means higher costs. Manual lubrication leads to more wear and therefore higher maintenance and labor costs for repairs.

Lubricant

RECURRING



With manual lubrication, it is difficult to estimate the correct dose of lubricant each grease point needs. A lot of lubricant is wasted, especially since lubrication is often used as a purging operation. That only increases the costs.

Downtime

RECURRING



For safety purposes, manual lubrication only occurs when the machine is out of action. This is disastrous to your productivity, because every hour a machine doesn't work costs an extra \$ 50.

Automatic lubrication



Investment

ONE-OFF



An automatic lubrication system costs much more than grease guns. However, the investment doesn't have to be prohibitive. The cost of an automatic lubrication system for a typical heavy-duty machine varies between \$ 3,000 and \$ 4,500.

Maintenance

RECURRING



With automatic lubrication, the labor costs are much lower: The system takes care of the lubrication. Operators only need to refill the reservoir. This also means there is much less wear to deal with and therefore lower maintenance costs.

Lubricant

RECURRING



An automatic lubrication system provides an accurate dose of lubricant, at regular intervals. No lubricant is wasted. Due to the constant lubrication, there's also no need for extra purging. You save considerably on lubrication costs.

Downtime

Perhaps the biggest difference from manual lubrication: Your equipment continues to work during lubrication. It doesn't have to come out of service. There is no downtime, at any time.

How to calculate the ROI of an automatic lubrication system

The return on investment (ROI) is a performance measure that expresses the efficiency and payback period of an investment. Machine downtime has an immediate impact on the ROI and the profit of construction and mining equipment. To calculate the ROI, compare the cost of the automatic lubrication system (ALS) and the cost involved in manual lubrication, including the cost of downtime.

Data used in this calculation

Machine: **Caterpillar 320 excavator**
Number of lubrication points: **20**
Yearly machine usage: **220 days**
Machine downtime cost: **\$ 56 per hour**
(based on the rental price of a 22-ton excavator)

Automatic lubrication system

Cost: **\$ 4,500**

Manual labor

Lubrication: **daily**
Labor cost: **\$ 25 / hour**
Lubrication cycle: **20 minutes**
(1 minute per lubrication point)



STEP 1

Calculate the annual cost of manual lubrication



Machine downtime cost (\$ per hour)	56
Labor cost (\$ per hour)	+ 25
Number of lubrication points	× 20
Time to lubricate one point (hour)	× 1 / 60
Frequency (1 / days between lubrication)	× 1 / 1
Yearly machine usage (days)	× 220

Annual cost of manual lubrication

= \$ 5,940

STEP 2

Compare the cost of the automatic lubrication system (ALS) and the annual cost of manual lubrication



Cost of ALS installed on machine (\$)	4,500
Annual cost of manual lubrication (\$)	5,940 ←

Return on investment

= 0.76

ROI = 9 months & 3 days

Repair costs shows: Prevention is always better than cure

To show that prevention is better than cure, we've calculated how much a typical repair job costs for two highlighted lubrication points. As you will see, costs are high in the case of normal wear. But if the frame is affected — usually due to insufficient lubrication — the costs nearly double. For our scenarios, we estimate the labor cost per hour at \$ 25. All prices are net, which means these are best-case scenarios.



The worn pin & bushings need to be replaced		The frame is affected and requires line boring, welding, and refitting	
REPAIR JOB 1 Two bushings at each end and one pin that runs across.			
Two new bushings:	\$ 600 (\$ 300 x 2)	Boring two holes:	\$ 1000 (\$ 500 x 2)
One new pin:	\$ 600	Materials:	\$ 50
Labor:	\$ 125 (\$ 25 x 5 hours)	Labor:	\$ 150 (\$ 25 x 6 hours)
Total repair cost: \$ 1,325	+	Total cost for line boring: \$ 1,200	
		Total repair cost: \$ 2,525	
REPAIR JOB 2 If a bucket pin/bushing needs to be renewed, the other three points must also be replaced because they have been affected by the movement of the one which became loose.			
Eight new bushings:	\$ 1600 (\$ 200 x 8)	Boring two holes:	\$ 1000 (\$ 500 x 2)
Four new pins:	\$ 1600 (400 x 4)	Materials:	\$ 50
Labor:	\$ 200 (\$ 25 x 8 hours)	Labor:	\$ 150 (\$ 25 x 6 hours)
Total repair cost: \$ 3,400	+	Total cost for line boring: \$ 1,200	
		Total repair cost: \$ 4,600	

Don't forget about the cost of machine downtime

If a pin and bushings need to be repaired, the machine becomes inoperable. You can count on an **extra cost of approximately \$ 50 per hour** for transportation of a medium-sized machine to the workshop and loss of production. You can make the calculations for just how expensive it would become should the repair workshop be miles away.

Automatic lubrication leads to reduced costs & has a high ROI



The efficiency of construction equipment is directly related to its running time. To increase the ROI of your machinery, you need to optimize its running time. The best way to do this is to **minimize the service and maintenance hours**. As a frequent and time-consuming task, lubrication is the most decisive factor. An automatic lubrication system, which automatically lubricates an installation while it is running, is the **best way to optimize the running time of off-road machines**.

An investment in an automatic lubrication system may seem expensive, but as seen in our example, a typical machine such as the Caterpillar 320 excavator has an ROI of as little as nine months. This means your investment has been **repaid after three-quarters of a year**. After this period, your investment will generate **nothing but profit**.

Discover our other journals on automatic lubrication

- 1 Extended equipment lifetime
- 2 Less downtime & higher productivity
- 3 Better & safer working conditions

Discover how automatic lubrication leads to Extended Equipment Lifetime

Why bearings fail

There are several reasons why bearings fail. The most common is inadequate lubrication. In fact, 34% of bearing failures are caused by lubrication issues. This is a significant problem because bearings are critical components of many machines. When they fail, it can lead to downtime and increased costs.

The importance of adequate lubrication

Inadequate lubrication leads to:

- Increased equipment wear
- Higher fuel consumption
- Increased maintenance costs
- Reduced equipment life

Discover how automatic lubrication leads to Less downtime & higher productivity

The shortcomings of manual lubrication

Manual lubrication is a time-consuming task that often leads to equipment downtime. It is also prone to human error, which can result in inadequate lubrication. This can lead to increased wear and tear on the equipment, resulting in higher maintenance costs and reduced productivity.

The issues with manual lubrication at a glance

- Time-consuming
- Prone to human error
- Increases equipment wear
- Higher fuel consumption
- Increased maintenance costs

Discover how automatic lubrication leads to Better & safer working conditions

Modern operations call for modern lubrication methods

Modern operations require more efficient and safer lubrication methods. Manual lubrication is often a dirty and labor-intensive task. Automatic lubrication systems provide a cleaner and safer alternative, reducing the risk of injury to operators and improving overall working conditions.

Time to increase safety

Automatic lubrication systems reduce the need for manual lubrication, which is a common cause of workplace accidents. By automating the process, you can improve the safety of your equipment and your operators.



**ALWAYS ON.
ALWAYS INNOVATING.**

Graco manufactures automatic lubrication systems specifically designed for yellow iron construction and mining equipment. Our systems provide certainty for today's modern equipment manufacturers, managers, and operators seeking continuous uptime and optimal productivity from the machines they rely on daily.

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